

**SIEMENS**



# Industrial Communication

SIMATIC NET

Short  
Catalog  
SIMATIC  
NET

Edition  
11/2013

Answers for industry.

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# SIMATIC NET

## Industrial Communication

### Short Catalog

### SIMATIC NET · 11/2013



Supersedes:  
Short Catalog SIMATIC NET · 12/2012

Refer to the Industry Mall for current updates  
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The products contained in this  
catalog can also be found in the  
Interactive Catalog CA 01.

Order No.:  
E86060-D4001-A510-D3-7600

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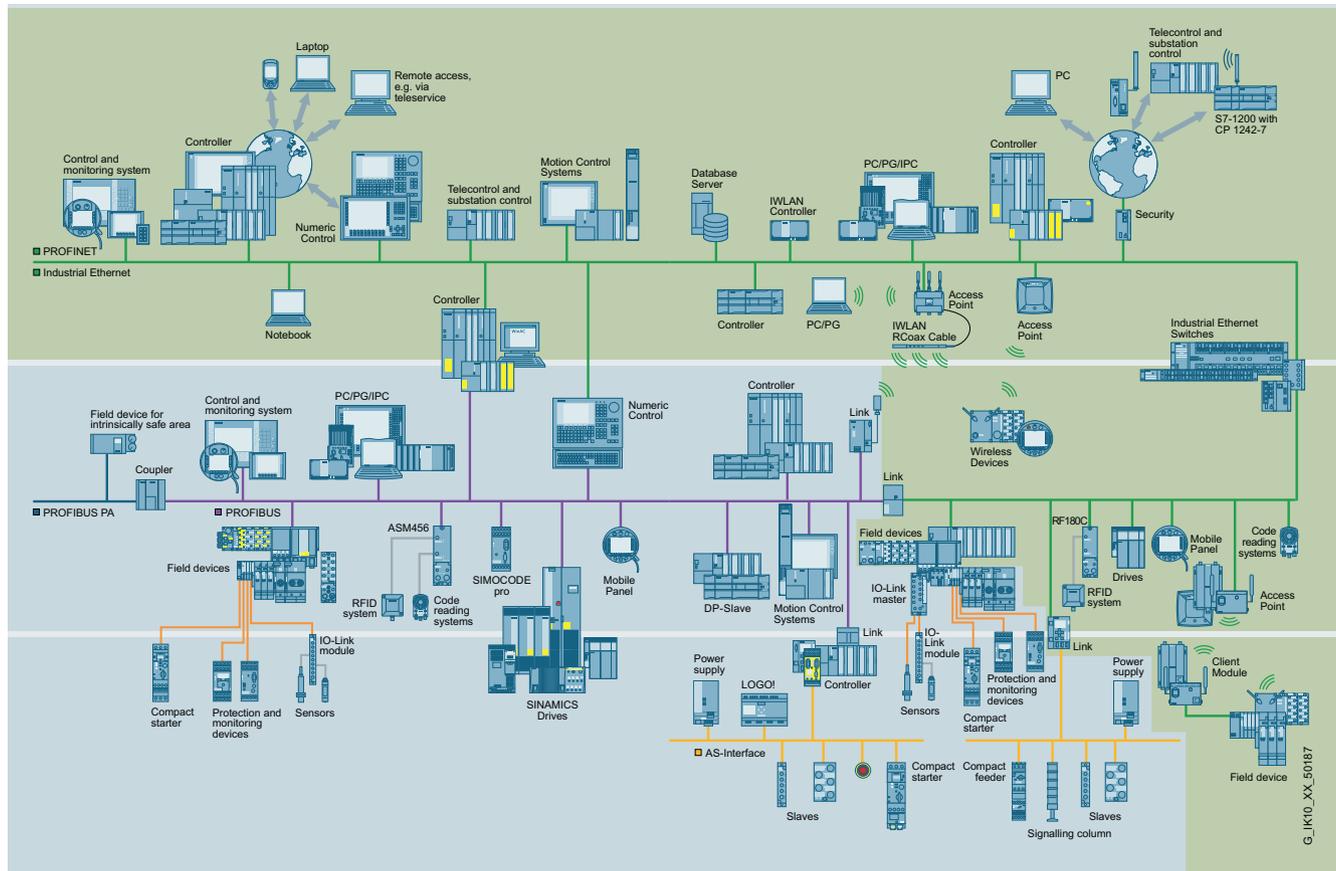
# PROFINET/Industrial Ethernet

## Industrial Ethernet

### Introduction

#### Overview

- Area and cell network according to the international standards IEEE 802.3 (Ethernet) and IEEE 802.11 a/b/g/h/n (wireless LAN) designed for the industrial environment right down to the field level
- Connection of automation components (controllers and field devices) to each other and to PCs and workstations as well as components for wireless communication
- PROFINET, the Industrial Ethernet standard for automation, is based on Standard Ethernet (IEEE 802.3) and supports the connection of devices from field level up to management level
- Comprehensive open network solutions can be implemented
- High transmission performance at up to 10 Gigabit/s
- Integration of conventional IT functionalities such as Web server and e-mail in the automation sector
- A security solution especially for industrial automation thanks to the industrial security concept with the security products of SIMATIC NET (SIMATIC NET CPs with Security Integrated, SCALANCE S and SCALANCE M)



Industrial Ethernet in the communications landscape

### Overview

#### Standard communication

This comprises standardized protocols for data communication.

#### ISO, TCP/IP, UDP transport protocols

ISO, TCP/IP and UDP are available as transport protocols.

#### PROFINET

Based on Industrial Ethernet, PROFINET enables direct communication of field devices (IO Devices) with controllers (IO Controllers) as well the solution of isochronous drive controls for motion control applications.

#### Media Redundancy Protocol (MRP)

Procedure specified in the IEC 61158 Type 10 standard for increasing the network availability in a ring topology.

#### Parallel Redundancy Protocol (PRP)

Procedure for smooth redundancy in accordance with the IEC 62439-3 standard to set up parallel, separate networks in which high availability is demanded. The PRP redundancy procedure is based on double transmission of frames over two separate networks (LAN A, LAN B).

#### Information technology (IT)

IT integrates SIMATIC into the information technology via Industrial Ethernet. These means of communication and communication paths are also available to SIMATIC. Depending on the product and stage of expansion, SIMATIC or the appropriate communication processors support technologies from the IT environment such as:

- **E-Mail;**  
Via the integral e-mail client, network components, communications processors and network transitions can send emails to provide information about plant states, e.g. plant standstill or imminent overload, or to automatically request a service call.
- **Freely definable HTML pages;**  
Communications processors can perform web diagnostics with the aid of static HTML pages and a user-specific display is supported with the aid of freely definable HTML pages.
- **FTP;**  
The file transfer protocol (FTP) permits simple, universal coupling, e.g. the PLC can be connected to different computers or embedded systems

#### IP routing (IP-R)

The system connections for the SIMATIC S7 to Industrial Ethernet, such as CP 343-1 Advanced or CP 443-1 Advanced, with two separate interfaces (integrated network separation) and SCALANCE S and SCALANCE XM-400/XR-500, support the forwarding of IP messages between Gigabit and PROFINET interfaces. The SCALANCE M mobile wireless routers support routing between the mobile Internet and the connected LAN.

#### OPC (Openness, Productivity & Collaboration)

OPC is a standardized, open, and vendor-independent interface that is widely used in automation. It permits the connection of OPC-capable applications using many different protocols such as S7-communication, PROFINET, and SNMP.

#### PG/OP communication

The SIMATIC automation systems can handle data communication with HMI devices (e.g. TP/OP) and programming devices (with STEP 7, STEP 5) via the integral communication functions. PG/OP communication is supported by MPI, PROFIBUS and Industrial Ethernet.

#### S7 communication

S7 communication is the integral communications function (SFB), which has been optimized within the SIMATIC S7. It enables PCs and workstations to be connected. The maximum volume of user data per task is 64 KB. S7 communication offers simple, powerful communication services and provides a network independent software interface for all networks.

#### Open communication

The open communication (SEND/RECEIVE) allows the SIMATIC S7 controller to communicate with other SIMATIC S7 and SIMATIC S5 controllers, PCs and third-party systems. In addition, for the simple connection of HMI stations, FETCH and WRITE are offered.

#### BACnet communication

BACnet (Building Automation and Control Networks) is an ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers Inc.) communication protocol for data networks used for building automation and control. It is equally suitable for the management and automation levels, and is approved as an ANSI, CEN and ISO standard.

#### MES/ERP communication (ERPConnect)

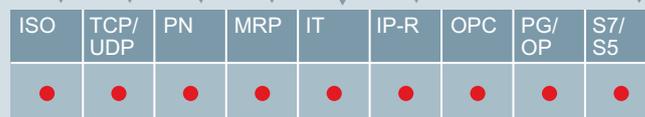
Communication with ERP or MES systems via database link, e.g. ORACLE, MySQL, MS-SQL, DB2 using a firmware expansion which must be ordered separately

#### System connections

For many data terminals, communications modules (CPs, CMs, TIMs) are available that already have the communications functions implemented as firmware and which therefore relieve the data terminal of communication tasks (e.g. flow control, blocking, etc.).

#### Time synchronization

With SIMATIC procedures, the Network Time Protocol (NTP/SNTP) or IEEE1588, various procedures for clock time synchronization are available.



# PROFINET/Industrial Ethernet

## Cabling technology

### Industrial Ethernet FastConnect

#### Overview



- With the FastConnect (FC) system for Industrial Ethernet, structured cabling from the office environment becomes industry-compatible for installation in the production hall.
- Time-saving, error-free installation on-site
- RJ45 cabling technology is used as the permanent standard
- The ideal solution for assembly of RJ45 and M12 connectors in the field area with 4-core (2 x 2) Industrial Ethernet FC cables
- The ideal solution for assembly of the IE FC RJ45 Modular Outlet with 8-core (4 x 2) Industrial Ethernet FC cables
- Mistakes are prevented thanks to color coding and the transparent contact cover
- Coordinated system of FC plug-in connectors and an extensive FC cable spectrum with appropriate UL approvals

#### Benefits

**get** Designed for Industry

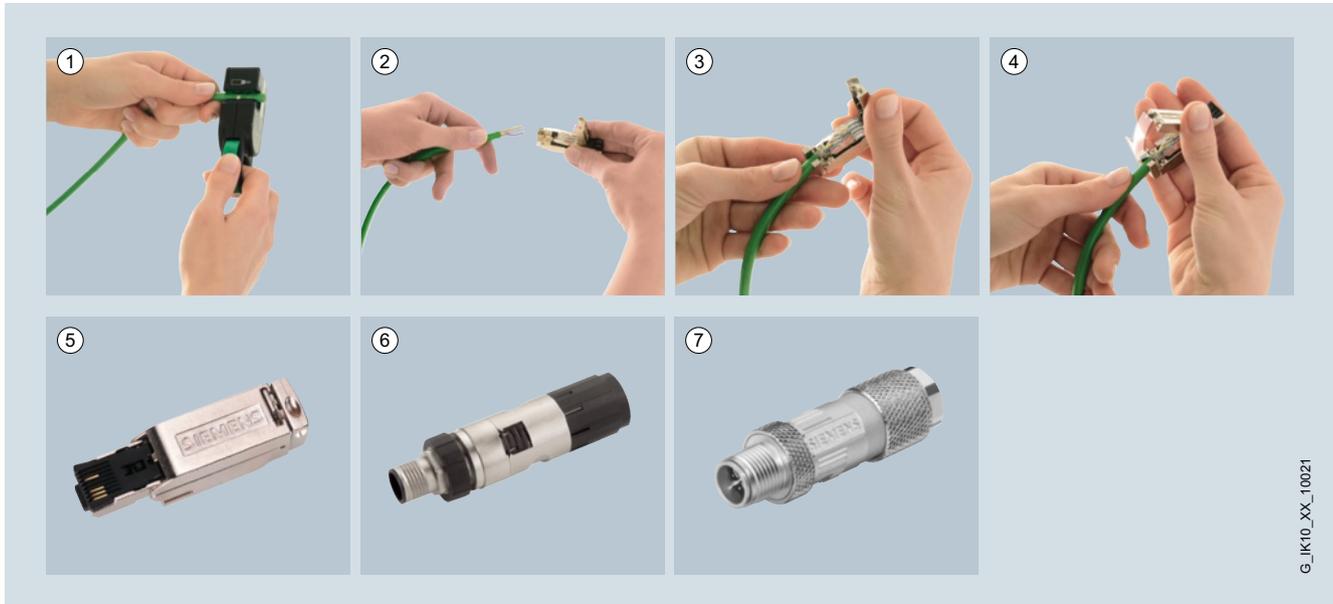
- Compliance with the Industrial Ethernet Standard PROFINET (PROFINET Cabling and Interconnection Technology Guideline<sup>1)</sup>)
- Faster connection of data terminals thanks to safe stripping of the outer sheath and braided shield in one step
- Reliable shield contact and strain relief thanks to bolt-on cover
- Excellent EMC shielding and deflection (metal housing)
- Mistakes are prevented thanks to color coding and the transparent contact cover

<sup>1)</sup> Available as a download under [www.profinet.com](http://www.profinet.com)

#### Application

Industrial Ethernet FastConnect is a quick-assembly system for easy assembly of 4-core and 8-core Industrial Ethernet FC cables.

After stripping, the IE FC cable can be directly mounted in the IE FC RJ45 Plug (4-core), the IE M12 Plug PRO 2x2 or 4x2, the IE FC Outlet RJ45 (4-core), or the IE RJ45 Modular Outlet (8-core).



Steps for assembly of Industrial Ethernet copper cables with Industrial Ethernet FastConnect

#### Design

The complete system:

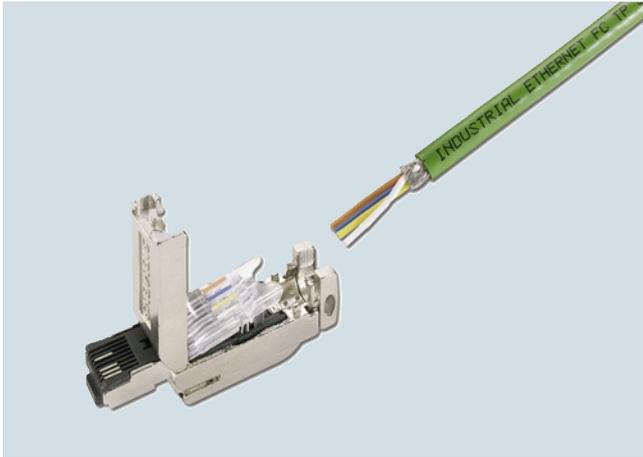
- Industrial Ethernet FC installation cables designed for fast assembly; 4-core (2x2) Cat5e;
  - IE FC TP standard cable GP
  - IE FC TP flexible cable GP
  - IE FC TP trailing cable GP
  - IE FC TP Trailing Cable
  - IE TP Torsion Cable
  - IE FC TP Marine Cable
  - IE FC TP FRNC cable GP
  - IE FC TP Food Cable
  - IE FC TP festoon cable GP
  - IE TP Ground Cable
  - IE TP Train Cable
- 8-core (4 x 2) Cat6 certified, with appropriate UL approval:
  - IE FC TP Standard Cable GP (AWG 22/AWG 24)
  - IE FC TP Flexible Cable (AWG 24)
  - IE TP Train Cable (AWG24)
- User-friendly stripping technique with FC Stripping Tool
- Noise-resistant FC RJ45 and FC M12 Plugs (10/100/1000 Mbit/s), an ideal solution for installation on 4 or 8-core IE FC cables at the field level thanks to the rugged metal enclosure
- The prepared cable is connected in the Industrial Ethernet FC Outlet RJ45 (10/100 Mbit/s; 4-core) or IE FC RJ45 Modular Outlet (10/100/1000 Mbit/s; 8-core) using insulation displacement

# PROFINET/Industrial Ethernet

## Cabling technology

### IE FC RJ45 Plug 2 x 2

#### Overview



- Implementation of direct device connections over distances of up to 100 m with Industrial Ethernet FC installation cable 2 x 2 without patching
- Easy connection (insulation displacement contacts) for 4-core Twisted Pair installation cables (100 Mbit/s) without the need for special tools
- Error-preventing connection technique thanks to visible connection area as well as colored blade terminals
- Industry-compatible design (rugged metal housing, no easily lost small parts)
- Excellent EMC shielding and deflection (metal housing)
- Integrated strain-relief for installation cables
- Compatible to the EN 50173 (RJ45) / ISO IEC 11801 standard
- Additional strain and bending relief of plug connector possible through latching of plug on device housing, e.g. with SCALANCE X, SCALANCE S, ET 200S.

#### Ordering data

##### IE FC RJ45 Plugs

RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables

##### IE FC RJ45 Plug 180

180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

#### Article No.

**6GK1901-1BB10-2AA0**  
**6GK1901-1BB10-2AB0**  
**6GK1901-1BB10-2AE0**

##### IE FC RJ45 Plug 90

90° cable outlet; e.g. for ET 200S

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB20-2AA0**  
**6GK1901-1BB20-2AB0**  
**6GK1901-1BB20-2AE0**

##### IE FC RJ45 Plug 145

145° cable outlet; e.g. for SIMOTION and SINAMICS

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB30-0AA0**  
**6GK1901-1BB30-0AB0**  
**6GK1901-1BB30-0AE0**

##### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables

**6GK1901-1GA00**

##### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug; PROFINET-compatible; with UL approval;

Sold by the meter

max. length 1,000 m;  
minimum order 20 m

Preferred length

- 1000 m

**6XV1840-2AH10**

**6XV1840-2AU10**

#### Article No.

##### IE FC TP Flexible Cable GP 2 x 2 (Type B)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m

**6XV1870-2B**

##### IE FC TP Trailing Cable GP 2 x 2 (Type C)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use in trailing cables; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m

**6XV1870-2D**

##### IE FC TP Trailing Cable 2 x 2 (Type C)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use in trailing cables; PROFINET-compatible; without UL approval; sold by the meter; max. length 1000 m, minimum order 20 m

**6XV1840-3AH10**

##### IE TP Torsion Cable GP 2 x 2 (Type C)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use with robots; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m

**6XV1870-2F**

Ordering data	Article No.	Article No.	
<b>IE FC TP Marine Cable 2 x 2 (Type B)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90; marine approval; max. length 1000 m, minimum order 20 m	<b>6XV1840-4AH10</b>		
<b>IE FC TP FRNC Cable GP 2 x 2 (Type B)</b> 4-core, shielded, halogen-free TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m	<b>6XV1871-2F</b>		
<b>IE FC TP Festoon Cable GP 2 x 2 (Type B)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug 180/90 for use in festoon applications; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m	<b>6XV1871-2S</b>		
		<b>IE FC TP Food Cable GP 2 x 2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for the food and beverages industry; PROFINET-compliant; sold by the meter; max. length 1000 m, minimum order 20 m	<b>6XV1871-2L</b>
		<b>IE TP Ground Cable 2x2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 (after removal of additional outer sheath) for laying in soil; PROFINET-compliant; sold by the meter; max. length 1000 m, minimum order 20 m	<b>6XV1871-2G</b>
		<b>IE TP Train Cable GP 2x2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug 180/90 for railway applications; PROFINET-compliant; sold by the meter; max. length 1000 m, minimum order 20 m	<b>6XV1871-2T</b>
		<b>IE FC Blade Cassettes (5 mm)</b> Replacement blade cassette for the Industrial Ethernet stripping tool; for use with IE FC RJ45 Plugs and Modular Outlet, 5 items	<b>6GK1901-1GB01</b>

# PROFINET/Industrial Ethernet

## Cabling technology

### IE FC RJ45 Plug 4 x 2

#### Overview



- Implementation of direct device connections of up to 90 m with Industrial Ethernet FC installation cable 4 x 2 without using patch technology
- Easy connection (insulation displacement contacts) for 8-core twisted pair installation cables (10/100/1000 Mbit/s) without the need for special tools
- Error-minimizing connection technique thanks to visible connection area as well as colored insulation displacement termination
- Industry-compatible design (rugged metal housing, no easily lost small parts)
- Excellent EMC shielding and deflection (metal housing)
- Integrated strain-relief for installation cables
- Compatible with the EN 50173 (RJ45) / ISO IEC 11801 standard
- Additional strain and bending relief of plug connector possible through latching of plug on device housing, e.g. with SCALANCE X, SCALANCE S.

#### Ordering data

#### Article No.

##### IE FC RJ45 Plug 4 x 2

RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB11-2AA0**  
**6GK1901-1BB11-2AB0**  
**6GK1901-1BB11-2AE0**

##### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables

**6GK1901-1GA00**

##### IE FC TP Standard Cable GP 4 x 2

8-core, shielded TP installation cable for universal applications; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m

- AWG 24, for connection to IE FC RJ45 Plug 4 x 2

**6XV1878-2A**

##### IE FC TP Flexible Cable GP 4 x 2

8-core, shielded TP installation cable for occasional movement; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20

- AWG 24, for connection to IE FC RJ45 Plug 4 x 2

**6XV1878-2B**

##### IE FC Blade Cassettes (5 mm)

Replacement blade cassette for the Industrial Ethernet stripping tool; for use with IE FC RJ45 Plugs and Modular Outlet, 5 units

**6GK1901-1GB01**

### Overview



- Data plug-in connectors suitable for on-site assembly for IE FC TP and POF/PCF cables for transmitting data up to 100 Mbit/s
- Power plug-in connector suitable for on-site assembly for transmitting 2 x 24 V between Industrial Ethernet stations
- Degree of protection IP65/67
- The plug-in connectors make contact using a push-pull mechanism.

#### IE FC RJ45 Plug PRO / IE RJ45 Plug PRO

- FastConnect Industrial Ethernet RJ45 plug-in connector suitable for on-site assembly for SCALANCE X-200IRT PRO switches, ET 200pro and SIMATIC RF systems
- Easy connection (insulation displacement contacts) for 4-core twisted pair installation cables (100 Mbit/s) with or without FastConnect quick-assembly system, without the need for special tools
- Industrial design (rugged plastic housing)
- Good EMC shielding and discharge

#### IE SC RJ Plug PRO

- Industrial Ethernet SC RJ plug-in connector suitable for on-site assembly of:
  - POF cables for SCALANCE X-200IRT PRO and SIMATIC ET200pro switches
  - PCF cables for SCALANCE X-200IRT PRO switches
- Industrial design (rugged plastic housing)

#### Power Plug PRO

- 5-pin power plug-in connector suitable for on-site assembly, for 2 x 24 V voltage supply of the SCALANCE X-200IRT PRO switches, SIMATIC ET 200pro and SIMATIC RF systems

### Ordering data

### Article No.

#### IE FC RJ45 Plug PRO

FastConnect RJ45 plug-in connector suitable for on-site assembly in degree of protection IP65/67; plastic enclosure, insulation displacement technology, for SCALANCE X-200IRT PRO and SIMATIC ET 200pro switches; 1 package = 1 unit

**6GK1901-1BB20-6AA0**

#### IE RJ45 Plug PRO

RJ45 plug-in connector suitable for on-site assembly in degree of protection IP65/67; plastic enclosure, insulation displacement technology, for SCALANCE X-200IRT PRO and SIMATIC ET 200pro switches; 1 package = 1 unit

**6GK1901-1BB10-6AA0**

#### IE SC RJ POF Plug PRO

SC RJ plug-in connector suitable for on-site assembly in degree of protection IP65/67 for POF fiber optic cables; plastic housing, for SCALANCE X-200IRT PRO and SIMATIC ET 200pro switches; 1 package = 1 unit

**6GK1900-0MB00-6AA0**

#### IE SC RJ PCF Plug PRO

SC RJ plug-in connector suitable for on-site assembly in degree of protection IP65/67 for PCF fiber optic cables; plastic housing, for SCALANCE X-200IRT PRO switches; 1 package = 1 unit

**6GK1900-0NB00-6AA0**

#### Power Plug PRO

5-pole power plug-in connector suitable for on-site assembly in degree of protection IP65/67 for 2 x 24 V voltage supply; plastic housing, for SCALANCE X-200IRT PRO and SIMATIC ET 200pro switches; 1 package = 1 unit

**6GK1907-0AB10-6AA0**

#### IE FC TP cables

#### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m

**6XV1840-2AH10**

#### IE FC TP Flexible Cable GP 2 x 2 (Type B)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; sold by the meter; max. length 1 000 m, minimum order 20 m

**6XV1870-2B**

#### IE FC TP Trailing Cable GP 2 x 2 (Type C)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use as trailing cable; PROFINET-compatible; with UL approval; sold by the meter; max. length 1 000 m, minimum order 20 m

**6XV1870-2D**

# PROFINET/Industrial Ethernet

## Cabling technology

### IE Push Pull Plug PRO

Ordering data	Article No.	Article No.
<i>IE FC TP cables</i> (continued)		<i>FO cables</i>
<b>IE FC TP Trailing Cable 2 x 2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use as trailing cable; PROFINET-compatible; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	<b>6XV1840-3AH10</b>	<b>POF Standard Cable GP 980/1000</b> POF standard cable for fixed routing indoors with PVC sheath; <u>sold by the meter</u> ; max. length 1000 m; minimum order 20 m
<b>IE TP Torsion Cable 2 x 2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use with robots; PROFINET-compatible; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	<b>6XV1870-2F</b>	<b>POF Trailing Cable 980/1000</b> POF trailing cable for use in cable carriers, with rugged PUR sheath; <u>sold by the meter</u> ; Delivery unit max. 1000 m; minimum order 20 m
<b>IE FC TP Marine Cable 2 x 2 (Type B)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90; marine approval; max. length 1000 m, minimum order 20 m	<b>6XV1840-4AH10</b>	<b>PCF Standard Cable GP 200/230</b> Standard cable, segmentable, <u>sold by the meter</u> ; max. length 2000 m; minimum order 20 m;
<b>IE FC TP Food Cable GP 2 x 2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for the food and beverages industry; PROFINET-compatible; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	<b>6XV1871-2L</b>	<b>PCF Trailing Cable 200/230</b> Trailing cable, segmentable, <u>sold by the meter</u> ; max. length 2000 m; minimum order 20 m;
<b>IE FC TP Festoon Cable GP 2 x 2 (Type B)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use in festoon applications; PROFINET-compatible; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	<b>6XV1871-2S</b>	<b>PCF Trailing Cable GP 200/230</b> Trailing cable, segmentable, <u>sold by the meter</u> ; max. length 2000 m; minimum order 20 m;
<b>IE FC TP FRNC Cable GP 2 x 2 (Type B)</b> 4-core, shielded, halogen-free TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	<b>6XV1871-2F</b>	<i>Power cables</i>
		<b>Energy Cable 5 x 1,5</b> Trailable power cable with 5 copper cores (1.5 mm <sup>2</sup> ) for connecting to 7/8" plug-in connectors; <u>sold by the meter</u> ; max. length 1000 m; minimum order 20 m
		<i>Pre-assembled cables</i>
		<b>SIMATIC RF600 connecting cable</b> Preassembled connecting cable (10 m) with RJ45 Plug PRO and RJ45 Plug
		<b>PROFINET Cabling and Interconnection Technology Guideline</b> <a href="http://www.profinet.com">http://www.profinet.com</a>

### More information

Note:

Supplementary components for the SIMATIC NET cable range can be ordered from your local contact person.

Technical advice on this subject is available from:

J. Hertlein  
I IA SC CI PRM4  
Phone.: +49 (911) 750-4465  
E-Mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

### Overview



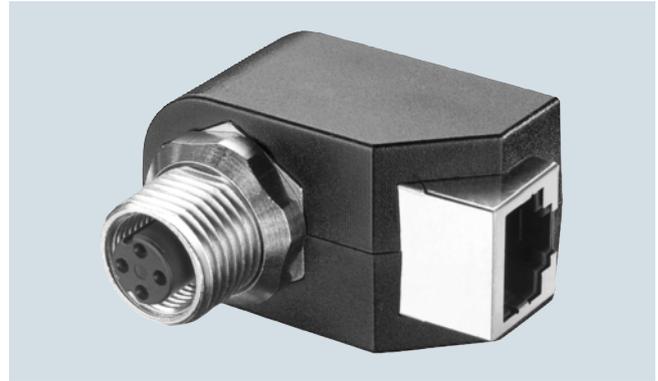
FastConnect (FC) plug-in connectors that can be assembled in the field for transmission of data (up to 1000 Mbit/s) between Industrial Ethernet nodes with IP65/IP67 degree of protection

#### **Industrial Ethernet FC M12 Plug PRO (D coded)**

- Industrial Ethernet M12 plug-in connector with FastConnect connection system for on-site assembly for SCALANCE X208PRO, IM 154-4 PN and SIMATIC RF systems
- Easy connection (insulation displacement contacts) for 4-core twisted pair FC installation cables (10/100 Mbit/s) without the need for special tools
- Fault-preventing connection method thanks to visible contacting area and color-coded insulation piercing connecting devices
- Industry-compatible design (rugged metal enclosure)
- Excellent EMC shielding and deflection (metal enclosure)
- Integrated strain-relief for installation cables

#### **Industrial Ethernet FC M12 Plug PRO 4x2 (X coded)**

- Industrial Ethernet M12 plug connectors, which can be assembled in the field, for on-site installation for SCALANCE W
- Easy connection (insulation displacement contacts) for 8-core twisted pair FC installation cables (10/100/1000 Mbit/s) without the need for special tools
- Fault-preventing connection method thanks to visible contacting area and color-coded insulation piercing connecting devices
- Industry-compatible design (rugged metal enclosure)
- Excellent EMC shielding and deflection (metal enclosure)
- Integrated strain-relief for installation cables



IE Panel Feedthrough



#### **Industrial Ethernet Panel Feedthrough**

- Control cabinet feedthrough for conversion from M12 connection method (D coded, IP65/IP67) to RJ45 connection method (IP20)

#### **Industrial Ethernet Panel Feedthrough PRO**

- Coupling of M12 plug-in connectors (D-coded, IP65/IP67); can be used as cabinet bushing or for connecting two M12 plug-in connectors outside the control cabinet

# PROFINET/Industrial Ethernet

## Cabling technology

### IE FC M12 Plug PRO

Ordering data	Article No.	Article No.
<p><b>IE FC M12 Plug PRO 2 x 2</b></p> <p>M12 plug-in connector (D-coded, IP65/IP67) that can be assembled in the field, metal enclosure, FastConnect connection method, for SCALANCE X208PRO and IM 154-4 PN</p> <ul style="list-style-type: none"> <li>• 1 unit</li> <li>• 8 unit</li> </ul>	<p><b>6GK1901-0DB20-6AA0</b> <b>6GK1901-0DB20-6AA8</b></p>	<p><b>IE TP Torsion Cable GP 2 x 2 (Type C)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use with robots; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order length 20 m</p> <p><b>6XV1870-2F</b></p>
<p><b>IE FC M12 Plug PRO 4 x 2</b></p> <p>M12 plug-in connector suitable for on-site assembly (X-coded, IP65/IP67), metal enclosure, insulation/displacement fast connection method, for SCALANCE W</p> <ul style="list-style-type: none"> <li>• 1 unit</li> <li>• 8 unit</li> </ul>	<p><b>6GK1901-0DB30-6AA0</b> <b>6GK1901-0DB30-6AA8</b></p>	<p><b>IE FC TP Marine Cable 2 x 2 (Type B)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90; marine approval; max. length 1000 m, minimum order 20 m</p> <p><b>6XV1840-4AH10</b></p>
<p><b>IE Panel Feedthrough</b></p> <p>Control cabinet feedthrough for conversion from M12 connection method (D coded, IP65/IP67) to RJ45 connection method (IP20)</p> <ul style="list-style-type: none"> <li>• 1 pack = 5 units</li> </ul>	<p><b>6GK1901-0DM20-2AA5</b></p>	<p><b>IE FC TP Trailing Cable GP 2 x 2 (Type C)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use as trailing cable; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m</p> <p><b>6XV1870-2D</b></p>
<p><b>IE Panel Feedthrough PRO</b></p> <p>Coupling of M12 plug-in connectors (D-coded, IP65/IP67); can be used as cabinet bushing or for connecting two M12 plug-in connectors outside the control cabinet</p> <ul style="list-style-type: none"> <li>• 1 pack = 5 units</li> </ul>	<p><b>6GK1901-0DM30-2AA5</b></p>	<p><b>IE FC TP Festoon Cable GP 2 x 2 (Type B)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use in festoon applications; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m</p> <p><b>6XV1871-2S</b></p>
<p><b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m</p> <p>Preferred length</p> <ul style="list-style-type: none"> <li>• 1000 m</li> </ul>	<p><b>6XV1840-2AH10</b></p>	<p><b>IE FC TP Food Cable GP 2 x 2 (Type C)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug 180/90 for the food and beverages industry; PROFINET-compatible; sold by the meter; max. length 1000 m, minimum order 20 m</p> <p><b>6XV1871-2L</b></p>
<p><b>IE FC TP Flexible Cable GP 2 x 2 (Type B)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m</p>	<p><b>6XV1870-2B</b></p>	<p><b>IE FC TP FRNC Cable GP 2x2 (Type B)</b></p> <p>4-core, shielded, halogen-free TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m</p> <p><b>6XV1 871-2F</b></p>
<p><b>IE FC TP Trailing Cable 2 x 2 (Type C)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use in trailing cables; PROFINET-compatible; without UL approval; sold by the meter; max. length 1000 m, minimum order 20 m</p>	<p><b>6XV1840-3AH10</b></p>	

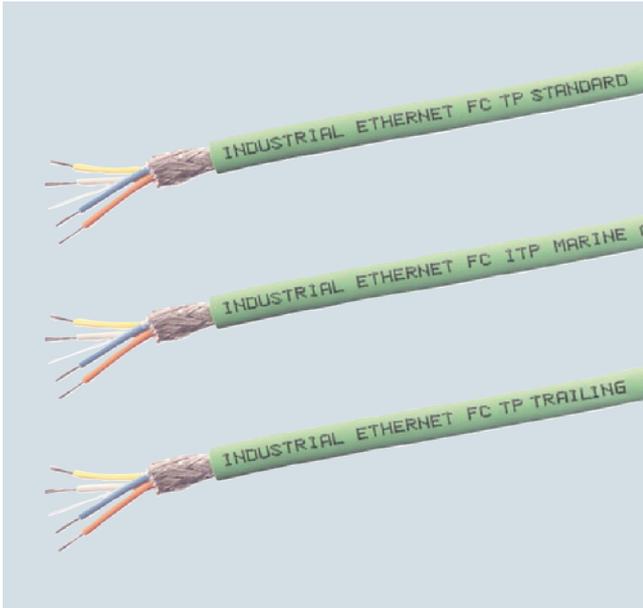
Ordering data	Article No.	More information
<b>IE TP Train Cable GP 2x2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug 180/90 with railways approval; PROFINET-compliant; sold by the meter; max. length 1000 m, minimum order 20 m	<b>6XV1871-2T</b>	<b>Note:</b> Supplementary components for the SIMATIC NET cable range can be ordered from your local contact person.  Technical advice on this subject is available from:  J. Hertlein I IA SC CI PRM4 Phone.: +49 (911) 750-4465 E-Mail: <a href="mailto:juergen.hertlein@siemens.com">juergen.hertlein@siemens.com</a>
<b>IE FC Standard Cable GP 4x2</b> 8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4x2 and IE M12 Plug PRO 4x2; PROFINET-compliant; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m	<b>6XV1878-2A</b>	
<b>IE FC Flexible Cable GP 4x2</b> 8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4x2 and IE M12 Plug PRO 4x2 for occasional movement ; PROFINET-compliant; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m	<b>6XV1878-2B</b>	
<b>IE Train Cable GP 4x2</b> 8-core, shielded TP installation cable for connection to IE FC M12 plug PRO 4x2 for use in railway applications; with railway; sold by the meter; max length 1000 m, minimum order 20 m	<b>6XV1878-2T</b>	
<b>IE FC Stripping Tool</b> Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables	<b>6GK1901-1GA00</b>	
<b>IE FC blade cassettes (5 mm)</b> Replacement blade cassette for the Industrial Ethernet stripping tool; for use with IE FC RJ45 Plugs and IE FC RJ45 Modular Outlet, 5 units	<b>6GK1901-1GB01</b>	
<b>PROFINET Cabling and Interconnection Technology Guideline</b>	<a href="http://www.profinet.com">http://www.profinet.com</a>	

# PROFINET/Industrial Ethernet

## Cabling technology

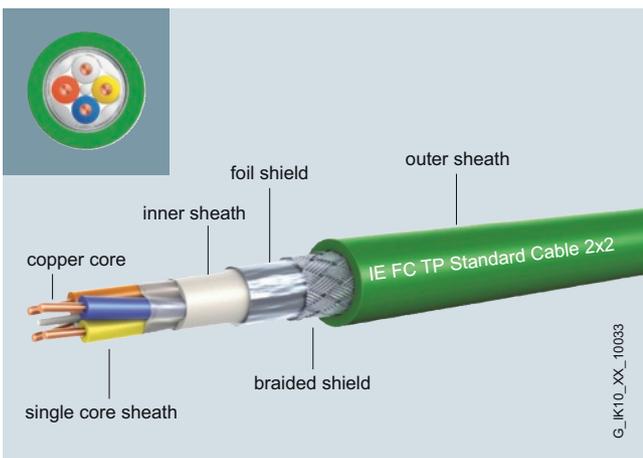
### IE FC TP Cable 2 x 2

#### Overview



- 4-core FastConnect installation cables for structured Fast Ethernet cabling with special design for fast installation
- Easy stripping with the FastConnect Stripping Tool; the outer sheath and the braided shield are stripped accurately in one step
- Connection to FastConnect products using insulation displacement
- Exceeds Category 5 (Cat5e) of the international cabling standards ISO/IEC 11801 and EN 50173
- PROFINET-compatible
- UL approval
- Different versions for different fields of application (e.g. trailing, food, marine, railways)
- High interference immunity thanks to double shielding
- Easy length measurement thanks to printed meter markings

#### Design



The FastConnect (FC) Industrial Ethernet cables IE FC Cable 2 x 2 are designed with radial symmetry and therefore allow the use of the FC Stripping Tool. The IE FC Outlet RJ45 and the IE FC Plugs can therefore be attached quickly and easily.

- The double shield makes it especially suitable for routing through industrial areas with strong electro-magnetic fields
- Easy connection to the insulation displacement contacts of the IE FC plug without the need for special tools
- System-wide grounding concept can be implemented through the outer shield of the bus cable as well as through the grounding concept of the IE FC Outlet RJ45 and the IE FC Plugs
- Printed meter marks

#### Cable types

- **IE FC TP Standard Cable GP 2 x 2:**  
Standard bus cable with rigid cores specially designed for fast installation; four rigid cores connected in a four branch star
- **IE FC TP Flexible Cable GP 2 x 2:**  
Flexible bus cable for the special application of occasional motion control; four stranded cores connected in a four branch star
- **IE FC TP FRNC Cable GP 2 x 2:**  
Flexible, halogen-free cable for use in buildings (FRNC= Flame Retardant Non Corrosive); four cores (stranded) in twisted quads for occasional movement
- **IE FC TP Trailing Cable GP / IE FC TP Trailing Cable 2 x 2:**  
Highly flexible bus cable for the special application of constant motion control in a cable carrier, e.g. for continuously moving machine parts; four stranded cores connected in a four branch star
- **IE FC Festoon Cable GP 2 x 2:**  
Flexible cable for special use in constant movement in a cable trail/festoon arrangement, e.g. on crane systems; four cores (stranded) in twisted quads
- **IE TP Torsion Cable 2 x 2:**  
Highly flexible bus cable for the special application of continuous motion control, e.g. for use with robots; stranded cores
- **IE FC TP Food Cable 2 x 2:**  
Flexible cable for special use in the food and beverages industry; four cores (stranded) in twisted quads
- **IE FC TP Marine Cable 2 x 2:**  
Bus cable for marine applications; four cores (stranded) connected in a four branch star, halogen-free, certified for marine applications
- **IE TP Ground Cable 2 x 2:**  
Bus cable for fixed routing in soil; four rigid cores connected in a four branch star, additional outer PE sheath (internal FC cable design)
- **IE TP Train Cable 2 x 2:**  
Bus cable for special applications in trains; four cores (tin-coated stranded wires) connected in a four branch star, certified for railway applications

Ordering data	Article No.	Article No.	
<p><b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug; PROFINET-compatible; with UL approval;</p> <p><u>Sold by the meter</u></p> <p>max. length 1,000 m; minimum order 20 m</p> <p><u>Preferred length</u></p> <ul style="list-style-type: none"> <li>• 1000 m</li> </ul>	<b>6XV1840-2AH10</b>	<p><b>IE TP Torsion Cable 2 x 2 (Type C)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use with robots; PROFINET-compatible; with UL approval; <u>sold by the meter</u>; max. length 1000 m, minimum order 20 m</p>	<b>6XV1870-2F</b>
<p><b>IE FC TP Flexible Cable GP 2 x 2 (Type B)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; <u>sold by the meter</u>; max. length 1000 m, minimum order 20 m</p>	<b>6XV1870-2B</b>	<p><b>IE FC TP Food Cable GP 2 x 2 (Type C)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for the food and beverages industry; PROFINET-compatible; <u>sold by the meter</u>; max. length 1000 m, minimum order 20 m</p>	<b>6XV1871-2L</b>
<p><b>IE FC TP FRNC Cable GP 2 x 2 (Type B)</b></p> <p>4-core, shielded, halogen-free TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; <u>sold by the meter</u>; max. length 1000 m, minimum order 20 m</p>	<b>6XV1871-2F</b>	<p><b>IE FC TP Marine Cable 2 x 2 (Type B)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90; marine approval; max. length 1000 m, minimum order 20 m</p>	<b>6XV1840-4AH10</b>
<p><b>IE FC TP Trailing Cable GP 2 x 2 (Type C)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use in trailing cables; PROFINET-compatible; with UL approval; <u>sold by the meter</u>; max. length 1000 m, minimum order 20 m</p>	<b>6XV1870-2D</b>	<p><b>IE TP Ground Cable 2 x 2 (Type C)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 (additional outer sheath must be removed) for laying in soil; <u>sold by the meter</u>; max. length 1000 m, minimum order 20 m</p>	<b>6XV1871-2G</b>
<p><b>IE FC TP Trailing Cable 2 x 2 (Type C)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use in trailing cables; PROFINET-compatible; with UL approval; <u>sold by the meter</u>; max. length 1000 m, minimum order 20 m</p>	<b>6XV1840-3AH10</b>	<p><b>IE TP Train Cable 2 x 2 (Type C)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC RJ45 Plug and IE FC M12 Plug PRO; <u>sold by the meter</u>; max. length 1000 m, minimum order 20 m</p>	<b>6XV1871-2T</b>
<p><b>IE FC TP Festoon Cable GP 2 x 2 (Type B)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use in festoon applications; PROFINET-compatible; with UL approval; <u>sold by the meter</u>; max. length 1000 m, minimum order 20 m</p>	<b>6XV1871-2S</b>	<p><b>IE Hybrid Cable 2x2 + 4x0,34</b></p> <p>Flexible cable, 4 x Cu Cat5, shielded (0.75 mm) and 4 x Cu (0.34 mm<sup>2</sup>) with IE FC modular outlet and power insert and IP67 hybrid plug connector; <u>sold by the meter</u>; up to 1000 m; minimum order 20 m</p>	<b>6XV1870-2J</b>

# PROFINET/Industrial Ethernet

## Cabling technology

### IE FC TP Cable 2 x 2

#### Ordering data

#### Article No.

##### Accessories

#### IE FC Stripping Tool

6GK1901-1GA00

Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables

#### IE FC Blade Cassettes (12 mm)

6GK1901-1GB00

Replacement blade cassette for the Industrial Ethernet stripping tool; for use with IE FC Outlet RJ45, ELS TP40, 5 units

#### IE FC Blade Cassettes (5 mm)

6GK1901-1GB01

Replacement blade cassette for the Industrial Ethernet stripping tool; for use with IE FC RJ45 Plugs and IE FC RJ45 Modular Outlet, 5 units

##### IE FC RJ45 Plugs

RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables

#### IE FC RJ45 Plug 180

180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

6GK1901-1BB10-2AA0

6GK1901-1BB10-2AB0

6GK1901-1BB10-2AE0

#### IE FC RJ45 Plug 90

90° cable outlet; e.g. for ET 200S

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

6GK1901-1BB20-2AA0

6GK1901-1BB20-2AB0

6GK1901-1BB20-2AE0

#### IE FC RJ45 Plug 145

145° cable outlet; e.g. for SIMOTION and SINAMICS

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

6GK1901-1BB30-0AA0

6GK1901-1BB30-0AB0

6GK1901-1BB30-0AE0

##### IE FC M12 Plugs

#### IE FC M12 Plug PRO 2x2

M12 plug-in connector (D-coded, IP65/IP67) that can be assembled in the field, metal enclosure, FastConnect connection method, for SCALANCE X208PRO and IM 154-4 PN

- 1 unit
- 8 units

6GK1901-0DB20-6AA0

6GK1901-0DB20-6AA8

#### SIMATIC NET Manual Collection

6GK1975-1AA00-3AA0

Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English

#### PROFINET Cabling and Interconnection Technology Guideline

<http://www.profinet.com>

#### More information

##### Installation instructions

The bus cables are supplied by the meter with meter marks printed on them.

##### FastConnect

With the help of Industrial Ethernet FastConnect Stripping Tool, it is possible to strip the outer sheath and shield of Industrial Ethernet FastConnect cables 2 x 2 to the right length in one step. The IE Outlet RJ45 and the PROFINET-compatible plug-in connectors IE FC RJ45 and IE FC M12 can be connected quickly and easily to the Industrial Ethernet FC cable 2 x 2.

##### Cable routing

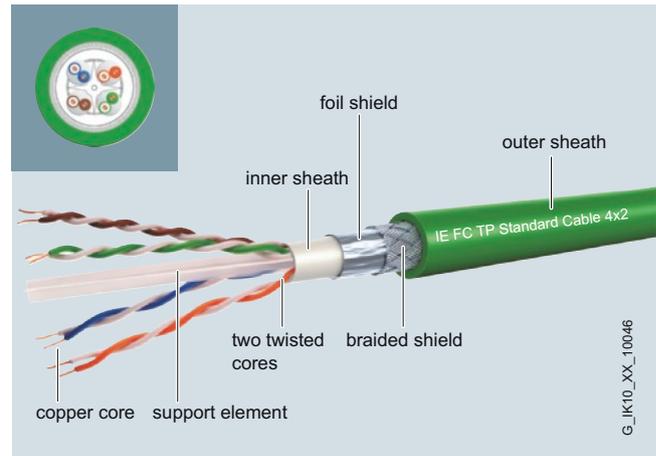
During storage, transport and cable laying, keep both ends sealed with a shrink-on cap; comply with the permissible bending radii and tensile load.

### Overview



- 8-core FastConnect installation cables for cabling system with Gigabit capability (AWG22 and AWG24 versions)
- Easy stripping with the FastConnect Stripping Tool; the outer sheath and the braided shield are stripped accurately in one step
- Connection to IE FC RJ45 Modular Outlet (AWG22) or IE FC RJ45 Plug 4 x 2 (AWG24) using insulation displacement
- Satisfies Category 6 (Cat6) of the international cabling standards ISO/IEC 11801 and EN 50173
- UL approval
- Easy length measurement thanks to printed meter markings

### Design



The FastConnect (FC) Industrial Ethernet cables IE FC Cable 4 x 2 (AWG22 and AWG24) are designed with radial symmetry and therefore allow the use of the IE FC Stripping Tool. The IE FC RJ45 Modular Outlet and the IE FC RJ45 Plug 4 x 2 can then be connected quickly and easily by means of insulation displacement contacts without the need for special tools.

#### Cable types

- **IE FC Standard Cable GP 4 x 2 (AWG22):**  
Standard bus cable with rigid cores specially designed for fast mounting on IE FC RJ45 Modular Outlet; with appropriate UL approval (General Purpose) for laying in cable bundles and on cable racks according to the specifications of the NEC (National Electrical Code) Article 800/725.
- **IE FC Standard Cable GP 4 x 2 (AWG24):**  
Standard bus cable with rigid cores specially designed for fast mounting on IE FC RJ45 Plug 4 x 2; with appropriate UL approval (General Purpose) for laying in cable bundles and on cable racks according to the specifications of the NEC (National Electrical Code) Article 800/725.
- **IE FC Flexible Cable GP 4 x 2 (AWG24/7):**  
Bus cable with flexible cores for occasional movement and specially designed for fast mounting on IE FC RJ45 Plug 4 x 2; with appropriate UL approval (General Purpose) for laying in cable bundles and on cable racks according to the specifications of the NEC (National Electrical Code) Article 800/725.
- **IE Train Cable GP 4 x 2 (AWG24/7):**  
Bus cable with flexible cores for laying in trains (railway applications) with appropriate approval; connection only possible via IE FC M12 Plug PRO 4x2 (x-coded)

# PROFINET/Industrial Ethernet

## Cabling technology

### IE FC TP Cable 4 x 2

Ordering data	Article No.	Article No.
<b>IE FC TP Standard Cable GP 4 x 2</b> 8-core, shielded TP installation cable for universal applications; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m <ul style="list-style-type: none"> <li>• AWG22, for connection to IE FC RJ45 Modular Outlet</li> <li>• AWG24, for connection to IE FC RJ45 Plug 4 x 2, IE FC M12 Plug PRO 4 x 2</li> </ul>	<b>6XV1870-2E</b>  <b>6XV1878-2A</b>	<b>IE FC RJ45 Modular Outlet</b> FastConnect RJ45 Outlet for Industrial Ethernet with interface for a replaceable insert; <ul style="list-style-type: none"> <li>• <b>Without replaceable insert</b></li> <li>• <b>With 2FE insert;</b> replaceable insert for 2 x 100 Mbit/s interfaces</li> <li>• <b>With 1GE insert;</b> replaceable insert for 1 x 1000 Mbit/s interfaces</li> <li>• <b>With power insert;</b> replaceable insert for 1 x 24 V DC and 1 x 100 Mbit/s interface</li> </ul>
<b>IE FC TP Flexible Cable GP 4 x 2</b> 8-core, shielded TP installation cable for occasional movement; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m <ul style="list-style-type: none"> <li>• AWG24, for connection to IE FC RJ45 Plug 4 x 2, IE FC M12 Plug PRO 4 x 2</li> </ul>	<b>6XV1878-2B</b>	<b>IE FC RJ45 Modular Outlet Insert 2FE</b> Replaceable insert for FC Modular Outlet Base; 2 x RJ45 for 2 x 100 Mbit/s interfaces; 1 pack = 4 items
<b>IE TP Train Cable GP 4 x 2</b> 8-core, shielded TP installation cable for use in trains; sold by the meter; max. length 1000 m, minimum order 20 m <ul style="list-style-type: none"> <li>• AWG24, for connection to E M12 RJ45 Plug PRO 4 x 2</li> </ul>	<b>6XV1878-2T</b>	<b>IE FC RJ45 Modular Outlet Insert 1GE</b> Replaceable insert for FC Modular Outlet Base; 1 x RJ45 for 1 x 1000 Mbit/s interface; 1 pack = 4 items
<b>IE FC Stripping Tool</b> Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables 4 x 2	<b>6GK1901-1GA00</b>	<b>IE FC RJ45 Plug 4 x 2</b> RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables 4 x 2; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>
<b>IE FC Blade Cassettes (5 mm)</b> Replacement blade cassette for the Industrial Ethernet stripping tool, for use with IE FC RJ45 Plugs and IE FC RJ45 Modular Outlet, 5 units	<b>6GK1901-1GB01</b>	<b>IE FC M12 Plug PRO 4 x 2</b> M12 plug-in connector suitable for on-site assembly (X-coded, IP65/IP67), metal enclosure, insulation/displacement fast connection method, for SCALANCE W <ul style="list-style-type: none"> <li>• 1 unit</li> <li>• 8 units</li> </ul>
		<b>SIMATIC NET Manual Collection</b> Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English

### More information

#### Installation instructions

The bus cables are supplied by the meter with meter marks printed on them.

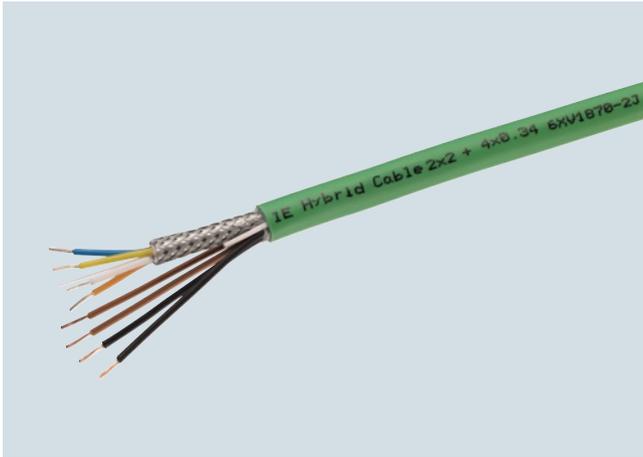
#### FastConnect

With the help of Industrial Ethernet FastConnect Stripping Tool, it is possible to strip the outer sheath and shield of Industrial Ethernet FastConnect cables 2 x 2 to the right length in one step. The IE Outlet RJ45 and the PROFINET-compatible plug-in connectors IE FC RJ45 and IE FC M12 can be connected quickly and easily to the Industrial Ethernet FC cable 2 x 2.

#### Cable routing

During storage, transport and cable laying, keep both ends sealed with a shrink-on cap; comply with the permissible bending radii and tensile load.

### Overview



- Industry-standard Industrial Ethernet hybrid cable for transmitting data (10/100 Mbit) and power (24 V/400 mA)
- The IE Hybrid cable 2x2 + 4x0.34 contains:
  - Industrial Ethernet cable 2 x 2 Cat5e, shielded as twisted quad (stranded, 4-core)
  - four power cores 0.34 mm<sup>2</sup> (stranded)

### Ordering data

### Article No.

#### IE Hybrid Cable 2x2 + 4x0,34

Flexible cable, 4 x Cu Cat 5E, shielded (AWG22) and 4 x Cu (0.34 mm<sup>2</sup>) with IE FC RJ45 modular outlet and power insert and IP67 hybrid plug connector; sold by the meter

6XV1870-2J

#### Additional components

#### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

6XV1870-3QE50  
6XV1870-3QH10  
6XV1870-3QH20  
6XV1870-3QH60  
6XV1870-3QN10

#### IE TP XP Cord RJ45/RJ45

Twisted TP cable 4 x 2 with 2 RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

6XV1870-3RE50  
6XV1870-3RH10  
6XV1870-3RH20  
6XV1870-3RH60  
6XV1870-3RN10

#### IE FC RJ45 Modular Outlet

FastConnect RJ45 Outlet for Industrial Ethernet with interface for a replaceable insert;

- **With 2FE insert;**  
replaceable insert for 2 x 100 Mbit/s interfaces
- **With 1GE insert;**  
replaceable insert for 1 x 1000 Mbit/s interfaces
- **With power insert;**  
replaceable insert for 1 x 24 V DC and 1 x 100 Mbit/s interface

6GK1901-1BE00-0AA1

6GK1901-1BE00-0AA2

6GK1901-1BE00-0AA3

#### IP 67 Hybrid-Steckverbinder

Connector for connecting SCALANCE W-700 to Industrial Ethernet and Power over Ethernet (PoE), with assembly instructions, 1 unit

09451251300.00

Order directly from:  
HARTING Deutschland  
GmbH & Co. KG  
PO Box 24-51  
D -32381 Minden  
Tel. +49 571-8896-0  
Fax. +49 571-8896-354  
E-Mail: de.sales@HARTING.com  
Internet:  
<http://www.HARTING.com>

# PROFINET/Industrial Ethernet

## Cabling technology

### Energy cables

#### Overview



- Different versions (5-core, 2-core) for different fields of application
- Pre-assembled M12 plug-in cables for energy transfer
- Rugged cable design for installation in industrial applications
- UL approvals
- Easy length measurement thanks to printed meter markings

#### Design

##### Cable types

The following cables with industrial capability are available for connection of the power supply and signaling contact:

- Power cable 2 x 0.75; power cable for connection of signaling contact and 24 V supply voltage to SCALANCE X and SCALANCE W components
- Power cable 5 x 1.5; power cable for connection of 24 V power supply of ET 200 using 7/8" plug connectors
- M12 Power Connecting Cable M12-180/M12-180; 4-core M12 power connecting cables (A-coded) with straight cable outlet for 24 V power supply of the ET 200 (pre-assembled)

Ordering data	Article No.	Article No.
<b>Power Cable 2 x 0,75</b> Power cable with trailing capability with 2 copper cores (0.75 mm <sup>2</sup> ) for connecting to M12 plug-in connector; <u>sold by the meter;</u> max. 1000 m, minimum order quantity 20 m	<b>6XV1812-8A</b>	<b>Additional components</b> <b>7/8" plug-in connector</b> Plug with axial cable outlet for field assembly for ET 200, 5-core, plastic enclosure, 1 pack = 5 items • Male pins • Socket insert
<b>Power Cable 5 x 1,5</b> Power cable with trailing capability with 5 copper cores (1.5 mm <sup>2</sup> ) for connecting to 7/8" plug-in connector; <u>sold by the meter;</u> max. 1000 m; minimum order quantity 20 m	<b>6XV1830-8AH10</b>	<b>7/8"-Power T-Tap PRO</b> Power T-piece for ET 200 with two 7/8" socket inserts and one 7/8" pin insert 1 pack = 5 items
<b>M12 Power Connecting Cable M12-180/M12-180</b> Flexible 4-core power connecting cable, assembled with A-coded 5-pin M12 connector and A-coded, 5-pin M12 socket to supply the ET 200 with 24 V DC; length: <ul style="list-style-type: none"> <li>• 0,3 m</li> <li>• 0,5 m</li> <li>• 1,0 m</li> <li>• 1,5 m</li> <li>• 2,0 m</li> <li>• 3,0 m</li> <li>• 5,0 m</li> <li>• 10 m</li> <li>• 15 m</li> </ul>	<b>6XV1801-5DE30</b> <b>6XV1801-5DE50</b> <b>6XV1801-5DH10</b> <b>6XV1801-5DH15</b> <b>6XV1801-5DH20</b> <b>6XV1801-5DH30</b> <b>6XV1801-5DH50</b> <b>6XV1801-5DN10</b> <b>6XV1801-5DN15</b>	<b>6GK1905-0FA00</b> <b>6GK1905-0FB00</b> <b>6GK1905-0FC00</b> <b>6GK1908-0DC10-6AA3</b> <b>6GK1907-0DC10-6AA3</b> <b>6GK1907-0DB10-6AA3</b> <b>6GK1975-1AA00-3AA0</b>
		<b>Signalling Contact M12 Cable Connector PRO</b> Socket for connection of SCALANCE X208PRO for signaling contact; 5-pole, B-coded, with assembly instructions; 3 items <b>Power M12 Cable Connector PRO</b> Socket for connection of SCALANCE W-700 for 24 V DC supply voltage; 4-pole, A-coded, with assembly instructions, 3 items <b>Power M12 Plug PRO</b> Plug for connection to PS791-1PRO power supply for 24 V DC supply voltage; 4-pole, A-coded, with assembly instructions, 3 items <b>SIMATIC NET Manual Collection</b> Electronic manuals for communication systems, communication protocols, and communication products; on DVD, German/English

### More information

#### Cable routing:

During storage, transport and cable laying, keep both ends sealed with a shrink-on cap.

Comply with the permissible bending radii and tensile load!

Note:

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

J. Hertlein  
 I IA SC CI PRM4  
 Phone.: +49 (911) 750-4465  
 E-Mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

# PROFINET/Industrial Ethernet

## Cabling technology

### IE TP Cord

#### Overview



- Patch cable, available as preassembled cables (max. length 10 m)
- With 2 x 2 cores for 10/100 Mbit/s and 4 x 2 cores for 10/100/1000 Mbit/s Ethernet
- Small cable diameter
- Category Cat5e (2 x 2) and Cat6 (4 x 2) of the international cabling standards ISO/IEC 11801 and EN 50173

#### Ordering data

#### Article No.

##### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1870-3QE50**  
**6XV1870-3QH10**  
**6XV1870-3QH20**  
**6XV1870-3QH60**  
**6XV1870-3QN10**

##### IE TP XP Cord RJ45/RJ45

Twisted TP cable 4 x 2 with 2 RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1870-3RE50**  
**6XV1870-3RH10**  
**6XV1870-3RH20**  
**6XV1870-3RH60**  
**6XV1870-3RN10**

##### IE TP Cord 9/RJ45

TP cable 2 x 2 with one 9-pole sub D connector and one RJ45 connector

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1850-2JE50**  
**6XV1850-2JH10**  
**6XV1850-2JH20**  
**6XV1850-2JH60**  
**6XV1850-2JN10**

##### IE TP XP Cord 9/RJ45

Twisted TP cable 2 x 2 with one 9-pole sub D connector and one RJ45 connector

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1850-2ME50**  
**6XV1850-2MH10**  
**6XV1850-2MH20**  
**6XV1850-2MH60**  
**6XV1850-2MN10**

##### IE TP Cord 9-45/RJ45

TP cable 2 x 2 with one RJ45 connector and one Sub D connector with 45° cable outlet (not for OSM/ESM)

- 1 m

**6XV1850-2NH10**

##### IE TP XP Cord 9-45/RJ45

Twisted TP cable 2 x 2 with one RJ45 connector and one Sub D connector with 45° cable outlet (not for OSM/ESM)

- 1 m

**6XV1850-2PH10**

##### IE TP XP Cord 9/9

Twisted TP cable 2 x 2 for direct connection of two Industrial Ethernet components with an ITP interface with two 9-pole Sub D connectors

- 1 m

**6XV1850-2RH10**

Ordering data	Article No.
<b>IE TP Cord RJ45/15</b> TP cable 2 x 2 with one 15-pole Sub D connector and one RJ45 connector <ul style="list-style-type: none"> <li>• 0,5 m</li> <li>• 1 m</li> <li>• 2 m</li> <li>• 6 m</li> <li>• 10 m</li> </ul>	<b>6XV1850-2LE50</b> <b>6XV1850-2LH10</b> <b>6XV1850-2LH20</b> <b>6XV1850-2LH60</b> <b>6XV1850-2LN10</b>
<b>IE TP XP Cord RJ45/15</b> Crossed TP cable 2 x 2 with one 15-pole sub D connector and one RJ45 connector <ul style="list-style-type: none"> <li>• 0,5 m</li> <li>• 1 m</li> <li>• 2 m</li> <li>• 6 m</li> <li>• 10 m</li> </ul>	<b>6XV1850-2SE50</b> <b>6XV1850-2SH10</b> <b>6XV1850-2SH20</b> <b>6XV1850-2SH60</b> <b>6XV1850-2SN10</b>
<b>IE TP Converter Cord 15/RJ45</b> TP connecting cable 2 x 2 for connecting data terminals with RJ45 interfaces to the ITP cabling system; with a 15-pole Sub D socket with slide locking and an RJ45 connector. <ul style="list-style-type: none"> <li>• 0,5 m</li> <li>• 2 m</li> </ul>	<b>6XV1850-2EE50</b> <b>6XV1850-2EH20</b>
<b>IE FC Outlet RJ45</b> For connection Industrial Ethernet FC cables and TP Cords; graded prices from 10 and 50 units	<b>6GK1901-1FC00-0AA0</b>
<b>IE FC RJ45 Modular Outlet</b> FastConnect RJ45 Outlet for Industrial Ethernet with interface for a replaceable insert; <ul style="list-style-type: none"> <li>• <b>With 2FE insert ;</b> replaceable insert for 2 x 100 Mbit/s interfaces</li> <li>• <b>With 1GE insert;</b> replaceable insert for 1 x 1000 Mbit/s interfaces</li> <li>• <b>With power insert;</b> replaceable insert for 1 x 24 V DC and 1 x 100 Mbit/s interface</li> </ul>	<b>6GK1901-1BE00-0AA1</b>  <b>6GK1901-1BE00-0AA2</b>  <b>6GK1901-1BE00-0AA3</b>
<b>SIMATIC NET Manual Collection</b> Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English	<b>6GK1975-1AA00-3AA0</b>

### More information

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Technical advice on this subject is available from:

J. Hertlein  
 I A SC CI PRM4  
 Phone.: +49 (911) 750-4465  
 E-Mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

# PROFINET/Industrial Ethernet

## Cabling technology

### Pre-assembled IE Connecting Cables

#### Overview



Connecting cables with M12 plug or RJ45 plugs for transferring data or power between Industrial Ethernet nodes.

#### **Industrial Ethernet Connecting Cable M12-180/M12-180 (D-coded)**

- Pre-assembled connecting cable (IE FC TP Trailing Cable GP) for connecting Industrial Ethernet nodes (such as SIMATIC ET 200, SCALANCE X208PRO and SIMATIC RF systems) with IP65/IP67 degree of protection
- For transmission rates of 10/100 Mbit/s

#### **Industrial Ethernet Connecting Cable M12-180 (D-coded)/ IE FC RJ45 Plug-145**

- Pre-assembled connecting cable (IE FC TP Trailing Cable GP) for connecting Industrial Ethernet nodes (such as SIMATIC ET 200, SCALANCE X208PRO and SIMOTION) with IP65/IP67 degree of protection
- For transmission rates of 10/100 Mbit/s

#### **Industrial Ethernet Connecting Cable IE FC RJ45 Plug-180/ IE FC RJ45 Plug-180**

- Pre-assembled connecting cable (IE FC TP trailing cable GP) for connecting Industrial Ethernet nodes (e.g. SIMATIC ET 200 and SCALANCE X208) with IP20 degree of protection

#### **Power Connecting Cable M12-180/M12-180 (A-coded)**

- Pre-assembled connecting cable (4-core power cable, 4 x 0.75 mm<sup>2</sup>) for connecting Industrial Ethernet nodes (such as SIMATIC ET 200, SCALANCE X208PRO) with IP65/IP67 degree of protection
- For power transfer (24 V DC, 4-pin)

#### Ordering data

#### Article No.

##### **IE Connecting Cable M12-180/M12-180**

Pre-assembled IE FC TP Trailing Cable GP 2 x 2 (PROFINET Type C) with two 4-pin M12 plugs (D-coded) up to 85 m, IP65/IP67 degree of protection  
Length:

- 0,3 m
- 0,5 m
- 1,0 m
- 1,5 m
- 2,0 m
- 3,0 m
- 5,0 m
- 10 m
- 15 m

**6XV1870-8AE30**  
**6XV1870-8AE50**  
**6XV1870-8AH10**  
**6XV1870-8AH15**  
**6XV1870-8AH20**  
**6XV1870-8AH30**  
**6XV1870-8AH50**  
**6XV1870-8AN10**  
**6XV1870-8AN15**

##### **IE Connecting Cable M12-180/IE FC RJ45 Plug-145**

Pre-assembled IE FC TP trailing cable GP 2 x 2 (PROFINET type C) with M12 plug (D-coded) and IE FC RJ45 plug, IP65/IP67 degree of protection  
Length:

- 2,0 m
- 3,0 m
- 5,0 m
- 10 m
- 15 m

**6XV1871-5TH20**  
**6XV1871-5TH30**  
**6XV1871-5TH50**  
**6XV1871-5TN10**  
**6XV1871-5TN15**

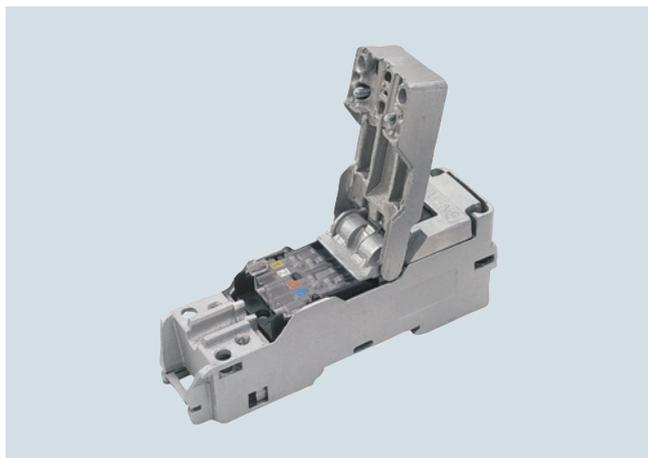
Ordering data	Article No.	More information
<p><b>IE Connecting Cable</b>  <b>IE FC RJ45 Plug-180/IE FC RJ45 Plug-180</b></p> <p>Preassembled IE FC TP trailing cable GP 2 x 2 (PROFINET type C) with two IE FC RJ45 plug-180, IP20 degree of protection;</p> <p>length:</p> <ul style="list-style-type: none"> <li>• 1,0 m</li> <li>• 2,0 m</li> <li>• 3,0 m</li> <li>• 5,0 m</li> <li>• 10 m</li> <li>• 15 m</li> <li>• 20 m</li> </ul>	<p><b>6XV1871-5BH10</b></p> <p><b>6XV1871-5BH20</b></p> <p><b>6XV1871-5BH30</b></p> <p><b>6XV1871-5BH50</b></p> <p><b>6XV1871-5BN10</b></p> <p><b>6XV1871-5BN15</b></p> <p><b>6XV1871-5BN20</b></p>	<p>Note:</p> <p>You can order components supplementary to the SIMATIC NET cabling range from your local contact.</p> <p>Technical advice on this subject is available from:</p> <p>J. Hertlein  I IA SC CI PRM4  Phone.: +49 (911) 750-4465  E-Mail: <a href="mailto:juergen.hertlein@siemens.com">juergen.hertlein@siemens.com</a></p>
<p><b>M12 Power Connecting Cable</b>  <b>M12-180/M12-180</b></p> <p>Flexible 4-core power connecting cable, assembled with A-coded 5-pin M12 connector and A-coded, 5-pin M12 socket to supply the ET 200 with 24 V DC;</p> <p>length:</p> <ul style="list-style-type: none"> <li>• 0,3 m</li> <li>• 0,5 m</li> <li>• 1,0 m</li> <li>• 1,5 m</li> <li>• 2,0 m</li> <li>• 3,0 m</li> <li>• 5,0 m</li> <li>• 10 m</li> <li>• 15 m</li> </ul> <p>Additional special lengths with 90° or 180° cable outlet</p>	<p><b>6XV1801-5DE30</b></p> <p><b>6XV1801-5DE50</b></p> <p><b>6XV1801-5DH10</b></p> <p><b>6XV1801-5DH15</b></p> <p><b>6XV1801-5DH20</b></p> <p><b>6XV1801-5DH30</b></p> <p><b>6XV1801-5DH50</b></p> <p><b>6XV1801-5DN10</b></p> <p><b>6XV1801-5DN15</b></p> <p>See  <a href="http://support.automation.siemens.com/WW/view/en/26999294">http://support.automation.siemens.com/WW/view/en/26999294</a></p>	
<p><b>PROFINET Cabling and Interconnection Technology Guideline</b></p>	<p><a href="http://www.profinet.com">http://www.profinet.com</a></p>	

# PROFINET/Industrial Ethernet

## Cabling technology

### IE FC Outlet RJ45

#### Overview



- Simple design of structured twisted-pair cabling
- Extremely short installation times thanks to insulation displacement method
- Rugged full-metal module certified according to Category 5
- Reliable shield contact and strain relief thanks to bolt-on cover
- Color marking prevents errors

#### Ordering data

#### Article No.

##### IE FC Outlet RJ45

For connection of Industrial Ethernet FC cables and TP Cords; graded prices from 10 and 50 units on

6GK1901-1FC00-0AA0

##### IE TP Cord RJ45/RJ45

TP cable 2 x 2 with two RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

6XV1850-2GE50  
6XV1850-2GH10  
6XV1850-2GH20  
6XV1850-2GH60  
6XV1850-2GN10

##### IE TP XP Cord RJ45/RJ45

TP cable 2 x 2 with two RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

6XV1850-2HE50  
6XV1850-2HH10  
6XV1850-2HH20  
6XV1850-2HH60  
6XV1850-2HN10

##### SIMATIC NET Manual Collection

Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English

6GK1975-1AA00-3AA0

##### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter

Max. length 1000 m;  
minimum order 20 m

Preferred length

- 1000 m

6XV1840-2AH10

6XV1840-2AU10

##### IE FC TP Flexible Cable GP 2 x 2 (Type B)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; sold by the meter; max. length 1 000 m, minimum order 20 m

6XV1870-2B

Ordering data	Article No.	Article No.	
<b>IE FC TP FRNC Cable GP 2 x 2 (Type B)</b> 4-core, shielded, halogen-free TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	6XV1871-2F	<b>IE TP Torsion Cable 2 x 2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use with robots; PROFINET-compatible; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	6XV1870-2F
<b>IE FC TP Trailing Cable GP 2 x 2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use as trailing cable; PROFINET-compatible; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	6XV1870-2D	<b>IE FC TP Food Cable GP 2 x 2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for the food and beverages industry; PROFINET-compatible; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	6XV1871-2L
<b>IE FC TP Trailing Cable 2 x 2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use as trailing cable; PROFINET-compatible; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	6XV1840-3AH10	<b>IE FC TP Marine Cable 2 x 2 (Type B)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90; marine approval; max. length 1000 m, minimum order 20 m	6XV1840-4AH10
<b>IE FC TP Festoon Cable GP 2 x 2 (Type B)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use in festoon applications; PROFINET-compatible; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	6XV1871-2S	<b>IE TP Ground Cable 2 x 2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 (additional outer sheath must be removed) for laying in soil; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	6XV1 871-2G
		<b>IE TP Train Cable 2 x 2 (Type C)</b> 4-core, shielded TP installation cable for connection to IE FC RJ45 Plug and IE FC M12 Plug PRO; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m	6XV1871-2T

# PROFINET/Industrial Ethernet

## Cabling technology

### IE FC RJ45 Modular Outlet

#### Overview



- Simple connection technology (insulation displacement contacts) for 8-core Industrial Ethernet FastConnect twisted pair installation cables (Cat6)
- Safe connection technology thanks to visible connection area
- Industry-standard design
  - Rugged metal housing
  - Dust caps
- Wall and DIN rail mounting inside or outside control cubicles thanks to IP40 protection
- Good electromagnetic shielding and conduction due to metal housing
- Integral strain relief for 8-core installation cables
- Replaceable inserts for
  - 2 x Fast Ethernet connection  
*IE FC RJ45 Modular Outlet Insert 2FE*
  - 1 x Gigabit Ethernet connection  
*IE FC RJ45 Modular Outlet Insert 1GE*
  - 1 x Fast Ethernet connection, 1 x 24 V DC connection  
*IE FC RJ45 Modular Outlet Power Insert*

#### Ordering data

#### Article No.

##### IE FC RJ45 Modular Outlet

FastConnect RJ45 Outlet for Industrial Ethernet with interface for a replaceable insert;

- **without replaceable insert**
- **with 2FE insert;**  
replaceable insert for 2 x 100 Mbit/s interfaces
- **with 1GE insert;**  
replaceable insert for 1 x 1000 Mbit/s interfaces
- **with power insert;**  
replaceable insert for 1 x 24 V DC and 1 x 100 Mbit/s interface

**6GK1901-1BE00-0AA0**

**6GK1901-1BE00-0AA1**

**6GK1901-1BE00-0AA2**

**6GK1901-1BE00-0AA3**

##### IE FC RJ45 Modular Outlet Insert 2FE

Replaceable insert for FC Modular Outlet Base;  
2 x RJ45 for 2 x 100 Mbit/s interfaces;  
1 pack = 4 items

**6GK1901-1BK00-0AA1**

##### IE FC RJ45 Modular Outlet Insert 1GE

Replaceable insert for FC Modular Outlet Base;  
1 x RJ45 for 1 x 1000 Mbit/s interface;  
1 pack = 4 items

**6GK1901-1BK00-0AA2**

##### IE FC TP Standard Cable 4 x 2

8-core FastConnect cable (Cat6) for permanent wiring;  
sold by the meter

**6XV1870-2E**

##### IE Hybrid Cable 2x2 + 4x0,34

Flexible cable, 4 x Cu Cat5, shielded (0.75 mm) and 4 x Cu (0.34 mm<sup>2</sup>) with IE FC modular outlet and power insert and IP67 hybrid plug connector;  
sold by the meter;  
up to 1000 m;  
minimum order 20 m

**6XV1870-2J**

##### Energy Cable

2-wire power cable; stranded wire, 2 x 0.75 mm<sup>2</sup>, can be trailed,  
sold by the meter;  
up to 1000 m,  
minimum order 20 m

**6XV1812-8A**

##### IE TP Cord

8-core patch cable for connection between FC Modular Outlet base modules and data terminal;  
available in different lengths

see IE TP Cord

##### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables

**6GK1901-1GA00**

#### Overview



#### Industrial Twisted Pair cable

- For constructing Industrial Twisted Pair (ITP) networks
- Double cable shield for industrial use
- Easy to lay
- Low-cost connection of data terminals
- Exceeds Category 5 of the international cabling standards ISO/IEC 11801 and EN 50173
- Available as standard type and as halogen-free variant (FRNC)

#### Industrial Twisted Pair connector

- Connector is assembled on site with screw terminals without the need for special tools
- Data transfer is noise resistant thanks to
  - Rugged metal connector
  - System-wide grounding concept
- Fast, error-free installation using factory-tested preassembled cables.

#### Ordering data

#### Article No.

##### ITP Standard Cable for Industrial Ethernet

Not pre-assembled, sold by the meter, 2 x 2-core, without plug

For connecting a data terminal, for self-assembly of plug, or for connecting the patch field to the outlet

**6XV1850-0AH10**

##### ITP Standard Cable 9/15

ITP installation cable for the direct connection of data terminals with an ITP interface to Industrial Ethernet network components with an ITP interface; with one 9-pin and one 15-pin Sub-D connector

2 m

**6XV1850-0BH20**

5 m

**6XV1850-0BH50**

8 m

**6XV1850-0BH80**

12 m

**6XV1850-0BN12**

15 m

**6XV1850-0BN15**

20 m

**6XV1850-0BN20**

30 m

**6XV1850-0BN30**

40 m

**6XV1850-0BN40**

50 m

**6XV1850-0BN50**

60 m

**6XV1850-0BN60**

70 m

**6XV1850-0BN70**

80 m

**6XV1850-0BN80**

90 m

**6XV1850-0BN88**

100 m

**6XV1850-0BT10**

##### ITP XP Standard Cable 9/9

Twisted ITP installation cable for direct connection of two Industrial Ethernet network components with an ITP interface; with two 9-pin Sub-D connectors

2 m

**6XV1850-0CH20**

5 m

**6XV1850-0CH50**

8 m

**6XV1850-0CH80**

12 m

**6XV1850-0CN12**

15 m

**6XV1850-0CN15**

20 m

**6XV1850-0CN20**

30 m

**6XV1850-0CN30**

40 m

**6XV1850-0CN40**

50 m

**6XV1850-0CN50**

60 m

**6XV1850-0CN60**

70 m

**6XV1850-0CN70**

80 m

**6XV1850-0CN80**

90 m

**6XV1850-0CN88**

100 m

**6XV1850-0CT10**

# PROFINET/Industrial Ethernet

## Cabling technology

### Industrial Twisted Pair – cables/connectors

#### Ordering data

#### Article No.

##### ITP XP Standard Cable 15/15

Twisted ITP installation cable for direct connection of two data terminals with an ITP interface; with two 15-pin Sub-D connectors

- 2 m
- 6 m
- 10 m

**6XV1850-0DH20**  
**6XV1850-0DH60**  
**6XV1850-0DN10**

##### ITP FRNC Cable for Industrial Ethernet

Not pre-assembled, halogen-free, sold by the meter, 2 x 2-core, without plug

For connecting a data terminal, for self-assembly of plug, or for connecting the patch field to the outlet

**6XV1851-0AH10**

##### ITP FRNC Cable 9/15

ITP installation cable for the direct connection of data terminals with an ITP interface to Industrial Ethernet network components with an ITP interface; with one 9-pin and one 15-pin Sub-D connector

2 m

**6XV1851-1AH20**

5 m

**6XV1851-1AH50**

8 m

**6XV1851-1AH80**

12 m

**6XV1851-1AN12**

15 m

**6XV1851-1AN15**

20 m

**6XV1851-1AN20**

30 m

**6XV1851-1AN30**

#### ITP plug

##### ITP Plug for Industrial Ethernet 9-pin

For connecting to OLM/ELM and OSM/ESM

**6GK1901-0CA00-0AA0**

##### ITP Plug for Industrial Ethernet 15-pin

For connecting to a data terminal with an ITP interface

**6GK1901-0CA01-0AA0**

##### SIMATIC NET Manual Collection

Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English

**6GK1975-1AA00-3AA0**

#### More information

##### Installation instructions

The installation cable is either supplied by the meter or with pre-assembled connectors. It can be used to connect a single data terminal or two active network components (OSM/ESM).

On the network component side, 9-pole metal Sub-D connectors are used, and on the device side, 15-pole connectors are used. The 15-pole connectors contain a special plug-in jumper which can be used by modules with integrated twisted pair transceiver to switch from AUI to twisted pair operation.

Preassembled cables are used to connect data terminals directly to an active network component or for cascading active network components.

The ITP cables can also be ordered by the meter for on site assembly. 9-pole and 15-pole ITP connectors for assembly without special tools are available for this purpose.

The maximum cable length of a laid ITP Standard Cable is 100 m if connected directly.

ITP cables are intended only for use inside buildings.

#### Notes:

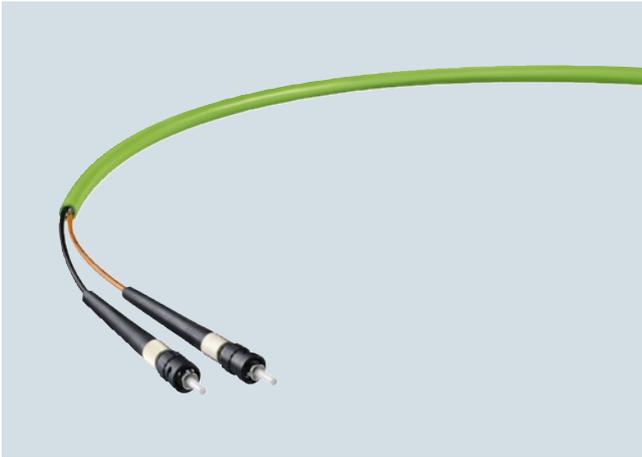
You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

J. Hertlein  
 I IA SC CI PRM4  
 Phone: +49 (911) 750-4465  
 E-Mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

Additional installation instructions can be found in the manual for TP and fiber-optic networks.

#### Overview



- Simple on-site assembly of glass FOC in the field
- Optical signal transmission
- No radiation emission from the cable
- Unaffected by external noise fields
- No grounding problems
- Electrical isolation
- Low weight
- Simple laying of cables

#### Design

Fiber-optic cables with glass core (62.5/200/230) are offered for the FastConnect fiber-optic cable system:

- FC glass fiber-optic cable; duplex cable for indoor and outdoor fiber-optic networks

The fiber structure corresponds to that of the PCF. This allows simple assembly on site.

Sheath material	Application
PVC	Standard use in indoor and outdoor areas of industrial applications
PUR	Highly mobile applications (tow chains) for high mechanical or chemical stress in harsh industrial environments
PE	Routing of cables in moist areas indoors and outdoors, and for direct burying in earth
FRNC	Standard applications with high fire protection requirements

#### Approvals

UL listing (safety standard) for network lines is especially necessary for the American and Canadian markets. The requirements for the appropriate approvals depend on where the cable is routed within the building. This applies to all cables which have to be routed from a machine to a remote control cabinet and are positioned on cable racks secured in the building. These cables are identified by the suffix "GP" (general purpose) in the product name and have the corresponding UL approvals.

# PROFINET/Industrial Ethernet

## Cabling technology

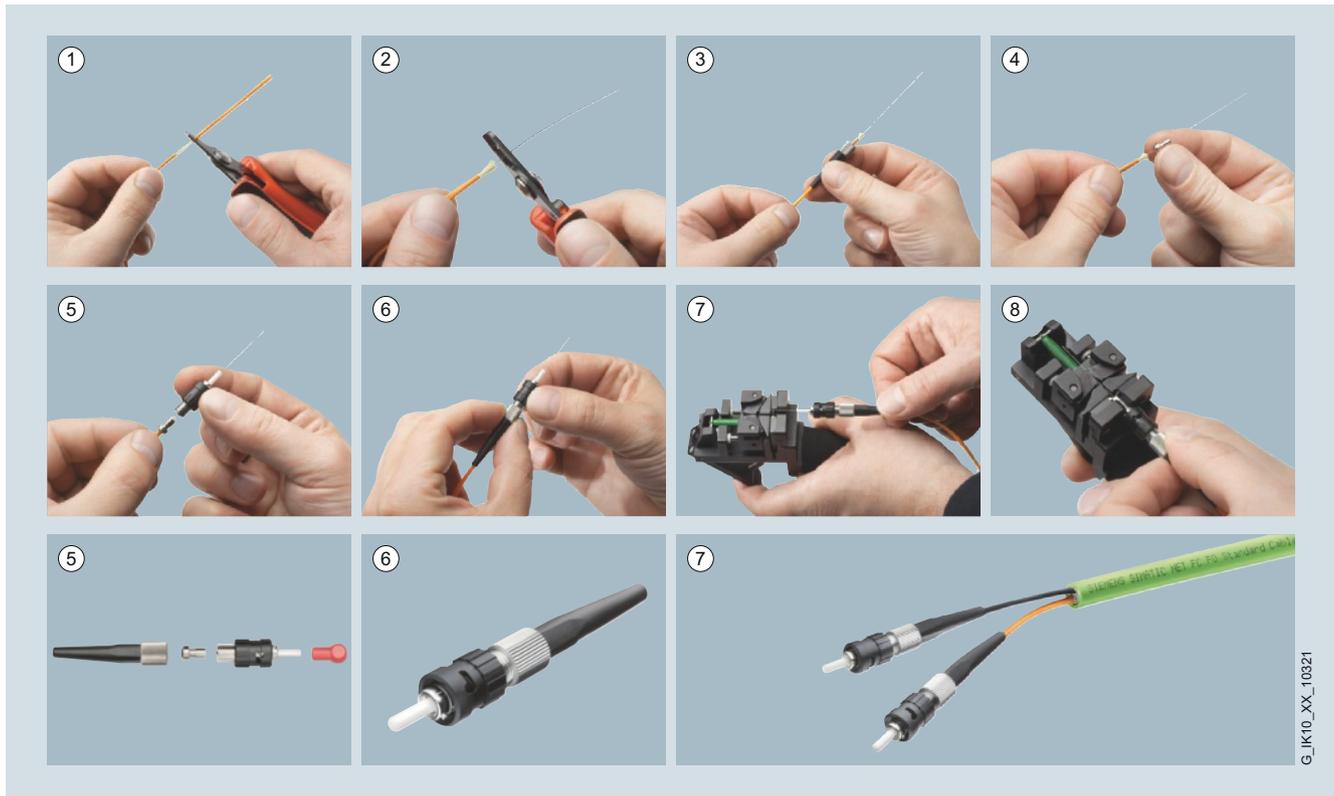
### Overview of FC-FOCs

#### Application

The fiber-optic cable (FOC) is used for the transmission of signals in very extensive plants and where there are significant potential differences within a plant. The light beam is guided by total reflection at the transition from core to cladding which has a lower refractive index than the core.

The FastConnect fiber-optic (FC FO) system enables fast on-site assembly of glass fiber-optic cables with the right lengths to suit the respective application.

#### Assembly with FastConnect for glass fiber-optic cables



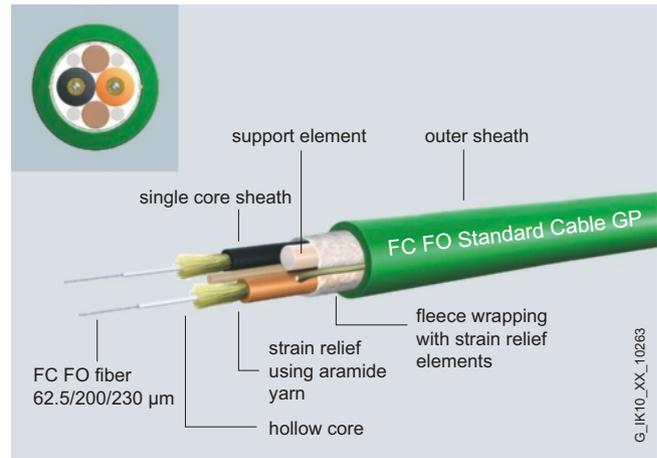
Steps for assembly of Industrial Ethernet fiber-optic cables with Industrial Ethernet FastConnect

#### Overview



- FastConnect standard fiber-optic cable for use in optical Industrial Ethernet and PROFIBUS networks
- For all users who want to install and assemble the glass fiber-optic cables themselves over longer distances on site for office or industrial applications.
- Simple FastConnect SC/BFOC connector assembly on site
- Rugged construction for industrial applications both indoors and outdoors
- High interference immunity, as they are not sensitive to electromagnetic interference
- Extensive range of approvals (UL approvals)

#### Design



**FC FO Standard Cable GP (General Purpose);** rugged round cable with green outer sheath, Kevlar strain relief elements, and 62.5/200/230 FC FO fibers for indoor/outdoor applications

**FC FO Trailing Cable;** rugged round cable with green outer sheath, Kevlar strain relief elements and 62.5/200/230 FC FO fibers for use in tow chains and moving applications

Maximum cable length between two devices:

- 3000 m for 100 Mbit/s Ethernet or for PROFIBUS
- 350 m for 1000 Mbit/s Ethernet (1000Base-SX)
- 550 m for 1000 Mbit/s Ethernet (1000Base-LX)

The maximum cable lengths can be assembled from partial lengths using FastConnect couplings (SC or BFOC; maximum two couplings, approx. 2.5 dB attenuation per coupling). It is also possible to combine existing installed, conventional 62.5/125 μm multimode glass fiber-optic cable sections with the FastConnect fiber-optic cables.

# PROFINET/Industrial Ethernet

## Cabling technology

### FC glass fiber-optic cables

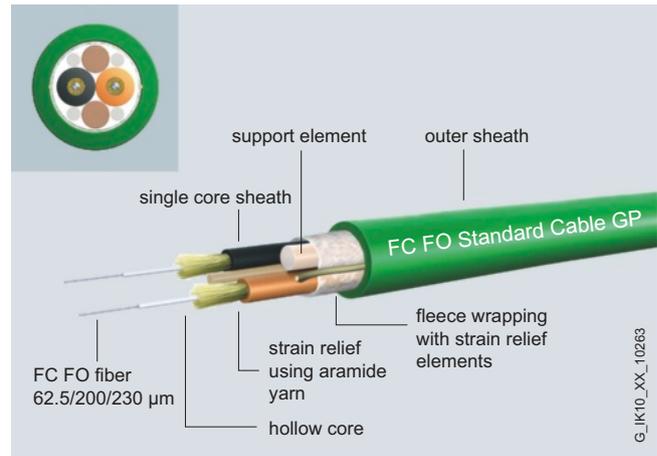
Ordering data	Article No.	More information
<p><b>FC FO standard cable GP</b> 62,5/200/230</p> <p>FC FO standard cable for fixed routing indoors with PVC sheath; sold by the meter max. length 1000 m; minimum order 20 m</p>	<p><b>6XV1847-2A</b></p>	<p>You can order components supplementary to the SIMATIC NET cabling range from your local contact.</p> <p>Technical advice on this subject is available from:</p> <p>J. Hertlein I IA SC CI PRM4 Phone.: +49 (911) 750-4465 E-Mail: <a href="mailto:juergen.hertlein@siemens.com">juergen.hertlein@siemens.com</a></p>
<p><b>FC FO trailing cable</b></p> <p>FC FO trailing cable for use in tow chains and moving applications; sold by the meter</p>	<p><b>6XV1847-2C</b></p>	
<p><b>FC FO termination kit</b></p> <p>Assembly case for local assembly of FC SC and FC BFOC connectors to FC FO standard cable, comprising a stripping tool, Kevlar cutters, fiber breaking tool and microscope</p>	<p><b>6GK1900-1GL00-0AA0</b></p>	
<p><b>FC SC plug</b></p> <p>Screw connector for on-site assembly on FC fiber-optic cable; (1 pack = 10 duplex plugs + cleaning cloths)</p>	<p><b>6GK1900-1LB00-0AC0</b></p>	
<p><b>FC BFOC plug</b></p> <p>Screw connector for on-site assembly on FC fiber-optic cable; (1 pack = 20 units + cleaning cloths)</p>	<p><b>6GK1900-1GB00-0AC0</b></p>	
<p><b>FC SC coupler</b></p> <p>FC SC duplex coupling; (1 pack = 5 units)</p>	<p><b>6GK1900-1LP00-0AB0</b></p>	
<p><b>FC BFOC coupler</b></p> <p>FC BFOC coupling; (1 pack = 10 units)</p>	<p><b>6GK1900-1GP00-0AB0</b></p>	
<p><b>SIMATIC NET Manual Collection</b></p> <p>Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English</p>	<p><b>6GK1975-1AA00-3AA0</b></p>	

#### Overview



- Compact, rugged assembly case for FastConnect glass fiber-optic cables
- Simple fitting of SC and BFOC connectors to FastConnect glass fiber-optic cables
- The quality of the assembly can be checked using the enclosed microscope

#### Design



Cable construction FC glass optical fiber

The kit is available in an assembly case for on-site installation of FC SC and FC BFOC connectors on FC glass fiber-optic cables.

It consists of a stripping tool, buffer stripping tool, Kevlar scissors, fiber breaking tool and microscope.

#### Ordering data

#### Article No.

##### FC FO termination kit

Assembly case for local assembly of FC SC and FC BFOC connectors to FC FO standard cable, comprising a stripping tool, Kevlar cutters, fiber breaking tool and microscope

**6GK1900-1GL00-0AA0**

#### More information

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

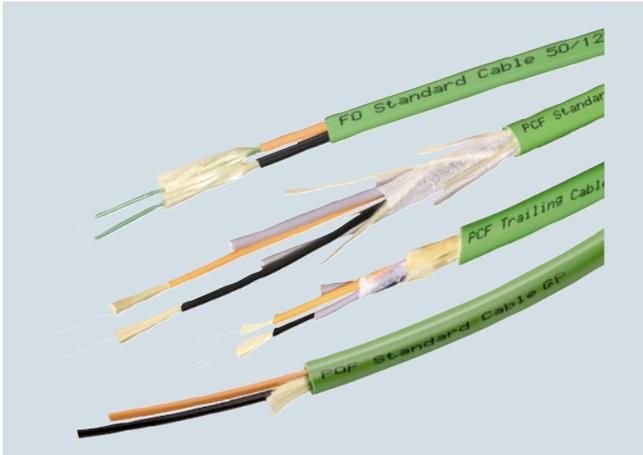
J. Hertlein  
 | IA SC CI PRM4  
 Phone.: +49 (911) 750-4465  
 E-Mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

# PROFINET/Industrial Ethernet

## Cabling technology

### Overview of FOCs

#### Overview



- Optical signal transmission
- No radiation along the cable
- Unaffected by external noise fields
- No grounding problems
- Electrical isolation
- Low weight
- Easy routing

#### Design

Fiber-optic cables with glass fibers, PCF fibers (Polymer Cladded Fiber) and POF fibers (Polymer Optical Fiber) are offered for Industrial Ethernet:

- Glass fiber-optic cable;
- duplex cable for fiber-optic networks indoors and outdoors
- POF fiber-optic cable;
- Duplex cable for POF networks in the indoor area
- PCF fiber-optic cable;
- duplex cable for PCF networks indoors and outdoors

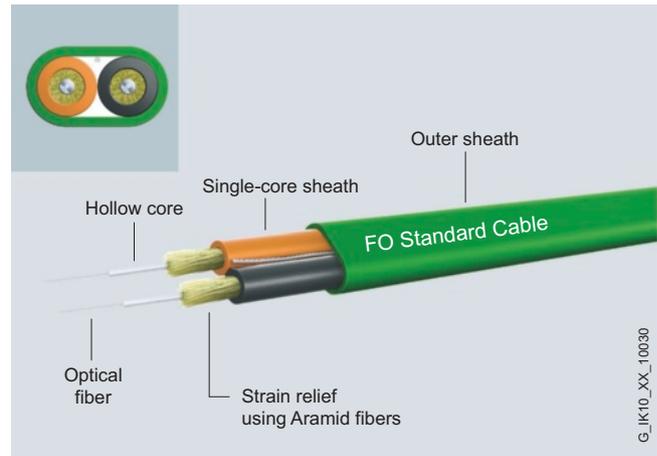
Sheath material	Application
PVC	Standard use in indoor and outdoor areas of industrial applications
PUR	Highly mobile applications (tow chains) for high mechanical or chemical stress in harsh industrial environments
PE	Routing of cables in moist areas indoors and outdoors, and for direct burying in earth
FRNC	Standard applications with high fire protection requirements

#### Overview



- Used for the optical Industrial Ethernet and PROFIBUS networks
- Rugged design for industrial applications indoors and outdoors
- Halogen-free design for installation inside buildings
- Trailing cable for the special application of forced motion control
- High immunity to noise thanks to insensitivity to electro-magnetic fields
- Available preassembled
- Extensive approvals (UL)

#### Design



Cable types	50/125 $\mu\text{m}$	62,5/125 $\mu\text{m}$	9/125 $\mu\text{m}$
FO standard cable GP (50/125/1400)	•	–	–
FO FRNC cable (50/125/1400)	•	–	–
FO trailing cable (50/125/1400)	•	–	–
FO trailing cable GP (50/125/1400)	•	–	–
FO ground cable (50/125/1400)	•	–	–
FO robust cable GP (50/125/900)	•	–	–
Fiber-optic standard cable (62,5/125/900)	–	•	–
INDOOR fiber-optic cable (62,5/125/900)	–	•	–
Flexible fiber-optic trailing cable (62,5/125/1400)	–	•	–
SIENOPYR marine duplex fiber-optic cable (62,5/125/900)	–	•	–
FO robust cable GP (4E9/125/900)	–	–	•

# PROFINET/Industrial Ethernet

## Cabling technology

### Glass fiber-optic cables

Ordering data	Article No.	Article No.
<p><b>FO standard cable GP</b> 50/125/1400<sup>2)</sup></p> <p>Multimode cable, sold by the meter; max. delivery unit 1000 m; minimum order 20 m;</p> <p>Preferred lengths<sup>1)</sup> pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> <li>• 0,5 m</li> <li>• 1 m</li> <li>• 2 m</li> <li>• 3 m</li> <li>• 5 m</li> <li>• 10 m</li> <li>• 15 m</li> <li>• 20 m</li> <li>• 30 m</li> <li>• 40 m</li> <li>• 50 m</li> <li>• 80 m</li> <li>• 100 m</li> <li>• 150 m</li> <li>• 200 m</li> <li>• 300 m</li> </ul> <p>Preferred lengths<sup>1)</sup> pre-assembled with 4 SC connectors</p> <ul style="list-style-type: none"> <li>• 0,5 m</li> <li>• 1 m</li> <li>• 2 m</li> <li>• 3 m</li> <li>• 5 m</li> <li>• 10 m</li> <li>• 15 m</li> <li>• 20 m</li> <li>• 30 m</li> <li>• 40 m</li> <li>• 50 m</li> <li>• 80 m</li> <li>• 100 m</li> <li>• 150 m</li> <li>• 200 m</li> <li>• 300 m</li> </ul>	<p><b>6XV1873-2A</b></p> <p><b>6XV1873-3AH05</b></p> <p><b>6XV1873-3AH10</b></p> <p><b>6XV1873-3AH20</b></p> <p><b>6XV1873-3AH30</b></p> <p><b>6XV1873-3AH50</b></p> <p><b>6XV1873-3AN10</b></p> <p><b>6XV1873-3AN15</b></p> <p><b>6XV1873-3AN20</b></p> <p><b>6XV1873-3AN30</b></p> <p><b>6XV1873-3AN40</b></p> <p><b>6XV1873-3AN50</b></p> <p><b>6XV1873-3AN80</b></p> <p><b>6XV1873-3AT10</b></p> <p><b>6XV1873-3AT15</b></p> <p><b>6XV1873-3AT20</b></p> <p><b>6XV1873-3AT30</b></p> <p><b>6XV1873-6AH05</b></p> <p><b>6XV1873-6AH10</b></p> <p><b>6XV1873-6AH20</b></p> <p><b>6XV1873-6AH30</b></p> <p><b>6XV1873-6AH50</b></p> <p><b>6XV1873-6AN10</b></p> <p><b>6XV1873-6AN15</b></p> <p><b>6XV1873-6AN20</b></p> <p><b>6XV1873-6AN30</b></p> <p><b>6XV1873-6AN40</b></p> <p><b>6XV1873-6AN50</b></p> <p><b>6XV1873-6AN80</b></p> <p><b>6XV1873-6AT10</b></p> <p><b>6XV1873-6AT15</b></p> <p><b>6XV1873-6AT20</b></p> <p><b>6XV1873-6AT30</b></p>	<p><b>FO trailing cable</b> 50/125/1400<sup>2)</sup></p> <p>Multimode cable, sold by the meter; max. delivery unit 1000 m; minimum order 20 m;</p> <p>Preferred lengths<sup>1)</sup> pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> <li>• 3 m</li> <li>• 5 m</li> <li>• 10 m</li> <li>• 20 m</li> <li>• 50 m</li> <li>• 100 m</li> </ul> <p>Preferred lengths<sup>1)</sup> pre-assembled with 4 SC connectors</p> <ul style="list-style-type: none"> <li>• 3 m</li> <li>• 5 m</li> <li>• 10 m</li> <li>• 20 m</li> <li>• 50 m</li> <li>• 100 m</li> </ul> <p><b>FO trailing cable GP</b> 50/125/1400<sup>2)</sup></p> <p>Multimode cable, sold by the meter; max. delivery unit 1000 m; minimum order 20 m;</p> <p>Preferred lengths<sup>1)</sup> pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> <li>• 3 m</li> <li>• 5 m</li> <li>• 10 m</li> <li>• 20 m</li> <li>• 50 m</li> <li>• 100 m</li> </ul> <p>Preferred lengths<sup>1)</sup> pre-assembled with 4 SC connectors</p> <ul style="list-style-type: none"> <li>• 3 m</li> <li>• 5 m</li> <li>• 10 m</li> <li>• 20 m</li> <li>• 50 m</li> <li>• 100 m</li> </ul>
<p><b>FO FRNC cable</b> 50/125/1400<sup>2)</sup></p> <p>Multimode cable, sold by the meter; max. delivery unit 1000 m; minimum order 20 m;</p>	<p><b>6XV1873-2B</b></p>	<p><b>6XV1873-2C</b></p> <p><b>6XV1873-3CH30</b></p> <p><b>6XV1873-3CH50</b></p> <p><b>6XV1873-3CN10</b></p> <p><b>6XV1873-3CN20</b></p> <p><b>6XV1873-3CN50</b></p> <p><b>6XV1873-3CT10</b></p> <p><b>6XV1873-6CH30</b></p> <p><b>6XV1873-6CH50</b></p> <p><b>6XV1873-6CN10</b></p> <p><b>6XV1873-6CN20</b></p> <p><b>6XV1873-6CN50</b></p> <p><b>6XV1873-6CT10</b></p> <p><b>6XV1873-2D</b></p> <p><b>6XV1873-3DH30</b></p> <p><b>6XV1873-3DH50</b></p> <p><b>6XV1873-3DN10</b></p> <p><b>6XV1873-3DN20</b></p> <p><b>6XV1873-3DN50</b></p> <p><b>6XV1873-3DT10</b></p> <p><b>6XV1873-6DH30</b></p> <p><b>6XV1873-6DH50</b></p> <p><b>6XV1873-6DN10</b></p> <p><b>6XV1873-6DN20</b></p> <p><b>6XV1873-6DN50</b></p> <p><b>6XV1873-6DT10</b></p> <p><b>6XV1873-2G</b></p> <p><b>6XV1873-3GT10</b></p> <p><b>6XV1873-3GT20</b></p> <p><b>6XV1873-3GT30</b></p> <p><b>6XV1873-6GT10</b></p> <p><b>6XV1873-6GT20</b></p> <p><b>6XV1873-6GT30</b></p> <p><b>6XV1873-2R</b></p>
		<p><b>FO ground cable</b> 50/125/1400<sup>2)</sup></p> <p>Multimode cable, sold by the meter; max. delivery unit 2000 m; minimum order 20 m;</p> <p>Preferred lengths<sup>1)</sup> pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> <li>• 100 m</li> <li>• 200 m</li> <li>• 300 m</li> </ul> <p>Preferred lengths<sup>1)</sup> pre-assembled with 4 SC connectors</p> <ul style="list-style-type: none"> <li>• 100 m</li> <li>• 200 m</li> <li>• 300 m</li> </ul> <p><b>FO robust cable GP</b> 50/125/900<sup>2)</sup></p> <p>Multimode cable, sold by the meter; max. delivery unit 2000 m; minimum order 20 m;</p>

<sup>1)</sup> Special fiber-optic cables, lengths and accessories available on request

<sup>2)</sup> Special tools and specially trained personnel are required for pre-assembling glass fiber-optic cables

Ordering data	Article No.	Article No.
<b>Standard FIBER OPTIC CABLE</b> (62.5/125/900), segmentable <sup>2)</sup>  Multimode cable, sold by the meter; max. delivery unit 2000 m minimum order 20 m  Preferred lengths <sup>1)</sup> pre-assembled with 4 BFOC plugs <ul style="list-style-type: none"> <li>• 1 m</li> <li>• 2 m</li> <li>• 3 m</li> <li>• 4 m</li> <li>• 5 m</li> <li>• 10 m</li> <li>• 15 m</li> <li>• 20 m</li> <li>• 30 m</li> <li>• 40 m</li> <li>• 50 m</li> <li>• 55 m</li> <li>• 60 m</li> <li>• 65 m</li> <li>• 70 m</li> <li>• 75 m</li> <li>• 80 m</li> <li>• 100 m</li> <li>• 120 m</li> <li>• 130 m</li> <li>• 150 m</li> <li>• 200 m</li> <li>• 250 m</li> <li>• 300 m</li> </ul>	<b>6XV1820-5AH10</b>   <b>6XV1820-5BH10</b> <b>6XV1820-5BH20</b> <b>6XV1820-5BH30</b> <b>6XV1820-5BH40</b> <b>6XV1820-5BH50</b> <b>6XV1820-5BN10</b> <b>6XV1820-5BN15</b> <b>6XV1820-5BN20</b> <b>6XV1820-5BN30</b> <b>6XV1820-5BN40</b> <b>6XV1820-5BN50</b> <b>6XV1820-5BN55</b> <b>6XV1820-5BN60</b> <b>6XV1820-5BN65</b> <b>6XV1820-5BN70</b> <b>6XV1820-5BN75</b> <b>6XV1820-5BN80</b> <b>6XV1820-5BT10</b> <b>6XV1820-5BT12</b> <b>6XV1820-5BT13</b> <b>6XV1820-5BT15</b> <b>6XV1820-5BT20</b> <b>6XV1820-5BT25</b> <b>6XV1820-5BT30</b>	<b>SIENOPYR marine duplex fiber-optic cable;</b> (62.5/125/900)  Fiber-optic cable for routing on ships and offshore platforms Multimode cable, sold by the meter; max. delivery unit 1000 m minimum order 20 m  <b>FO robust cable GP</b> 4E9/125/900 <sup>2)</sup>  Singlemode cable, sold by the meter; max. delivery unit 2000 m; minimum order 20 m;  <b>Accessories</b> <b>Multimode FO BFOC connector set</b>  for FO standard cable (50/125/1400), FO ground cable (50/125/1400), flexible FO trailing cable, INDOOR FO cable (62.5/125/900), 20 units  <b>Multimode FO SC Duplex connector set</b>  for FO standard cable (50/125/1400), FO ground cable (50/125/1400), flexible FO trailing cable, INDOOR FO cable (62.5/125/900), 10 units  <b>Multimode FO LC duplex plug</b>  LC duplex plug (10 units) for INDOOR FO cable (62.5/125/900), FO robust cable GP (50/125/900), FO standard cable (62.5/125/900)  <b>Singlemode FO LC duplex plug</b>  LC duplex plug (10 units) for FO robust cable GP (4E9/125/900)  <b>SIMATIC NET Manual Collection</b> <sup>3)</sup>  Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English
<b>INDOOR FIBER OPTIC CABLE</b> (62.5/125/900), segmentable <sup>2)</sup>  Multimode cable, sold by the meter; max. delivery unit 2000 m minimum order 20 m  Preferred lengths; pre-assembled with 4 BFOC connectors <ul style="list-style-type: none"> <li>• 0,5 m</li> <li>• 1 m</li> <li>• 2 m</li> <li>• 3 m</li> <li>• 5 m</li> <li>• 10 m</li> <li>• 15 m</li> <li>• 20 m</li> <li>• 25 m</li> <li>• 50 m</li> <li>• 75 m</li> <li>• 100 m</li> </ul>	<b>6XV1820-7AH10</b>   <b>6XV1820-7BH05</b> <b>6XV1820-7BH10</b> <b>6XV1820-7BH20</b> <b>6XV1820-7BH30</b> <b>6XV1820-7BH50</b> <b>6XV1820-7BN10</b> <b>6XV1820-7BN15</b> <b>6XV1820-7BN20</b> <b>6XV1820-7BN25</b> <b>6XV1820-7BN50</b> <b>6XV1820-7BN75</b> <b>6XV1820-7BT10</b>	<b>6XV1830-0NH10</b>   <b>6XV1843-2R</b>   <b>6GK1901-0DA20-0AA0</b>   <b>6GK1901-0LB10-2AA0</b>   <b>6GK1901-0RB10-2AB0</b>   <b>6GK1901-0SB10-2AB0</b>   <b>6GK1975-1AA00-3AA0</b>
<b>FLEXIBLE FIBER OPTIC CABLE trailing cable</b> (62.5/125/1400), segmentable <sup>2)</sup>  Multimode cable, sold by the meter; max. delivery unit 2000 m minimum order 20 m  Preferred lengths; pre-assembled with 4 BFOC connectors <ul style="list-style-type: none"> <li>• 1 m</li> <li>• 2 m</li> <li>• 3 m</li> <li>• 5 m</li> <li>• 10 m</li> <li>• 15 m</li> <li>• 20 m</li> <li>• 30 m</li> <li>• 50 m</li> </ul>	<b>6XV1820-6AH10</b>   <b>6XV1820-6BH10</b> <b>6XV1820-6BH20</b> <b>6XV1820-6BH30</b> <b>6XV1820-6BH50</b> <b>6XV1820-6BN10</b> <b>6XV1820-6BN15</b> <b>6XV1820-6BN20</b> <b>6XV1820-6BN30</b> <b>6XV1820-6BN50</b>	

- <sup>1)</sup> Special fiber-optic cables, lengths and accessories available on request  
<sup>2)</sup> Special tools and specially trained personnel are required for pre-assembling glass fiber-optic cables  
<sup>3)</sup> Further language variants and manuals can be found for the respective products at <http://www.siemens.com/automation/csi/net>

### More information

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

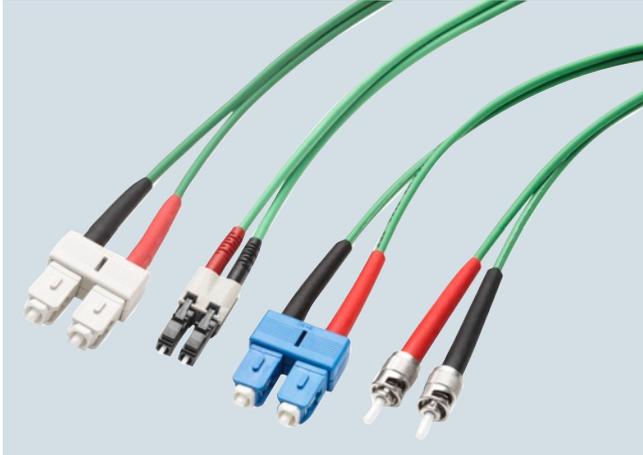
J. Hertlein  
 I A SC CI PRM4  
 Phone: +49 (911) 750-4465  
 E-Mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

# PROFINET/Industrial Ethernet

## Cabling technology

### IE FO Cords

#### Overview



- Patch cables, available as pre-assembled cables (max. length 1 m)
- 2-wire patch cables for directly connecting active network components in the control cabinet
- Small cable diameter for easy laying of cables
- Easy connection of active network components with different fiber-optic interfaces by means of patch cords with two types of connectors

#### Ordering data

#### Article No.

##### Multimode

##### MM FO Cord SC/SC

6XV1843-5EH10-0CC0

With two SC duplex connectors, 1 m

##### MM FO Cord SC/BFOC

6XV1843-5EH10-0CB0

With one SC duplex connector and two BFOC connectors, 1 m

##### MM FO Cord SC/LC

6XV1843-5EH10-0CA0

With one SC duplex connector and one LC duplex connector, 1 m

##### Singlemode

##### SM FO Cord SC/SC

6XV1843-5FH10-0CC0

With two SC duplex connectors, 1 m

##### SM FO Cord SC/BFOC

6XV1843-5FH10-0CB0

With one SC duplex connector and two BFOC connectors, 1 m

##### SM FO Cord SC/LC

6XV1843-5FH10-0CA0

With one SC duplex connector and one LC duplex connector, 1 m

#### Weitere Info

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

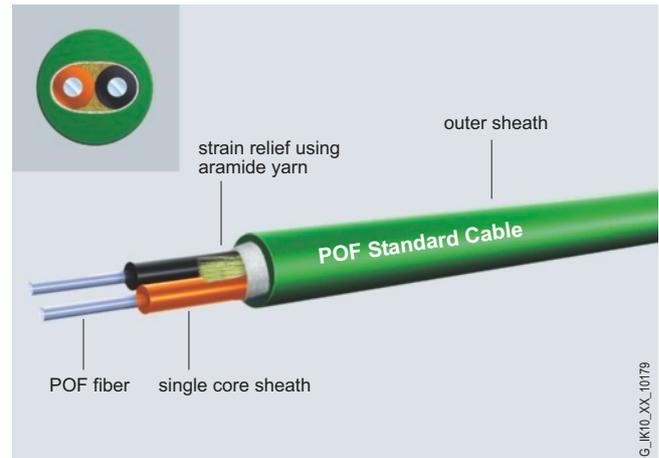
J. Hertlein  
 I IA SC CI PRM4  
 Phone: +49 (911) 750-4465  
 E-Mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

### Overview

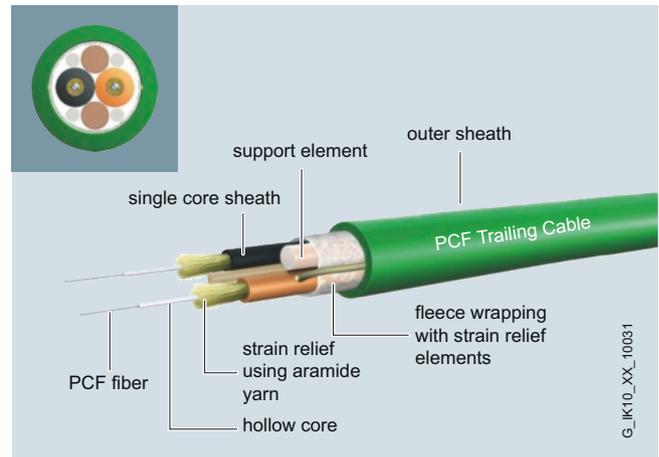


- Electrical isolation of PROFINET/Ethernet devices
- Protection of the transmission path against electromagnetic interference
- Up to 50 m cable length with plastic fiber optic cables and up to 100 m with PCF fiber optic cables
- Rugged fiber-optic standard cables, designed for industrial applications
- Extensive approvals (UL)

### Design



### POF fiber optic cables



### PCF fiber optic cables

# PROFINET/Industrial Ethernet

## Cabling technology

### POF and PCF fiber-optic cables

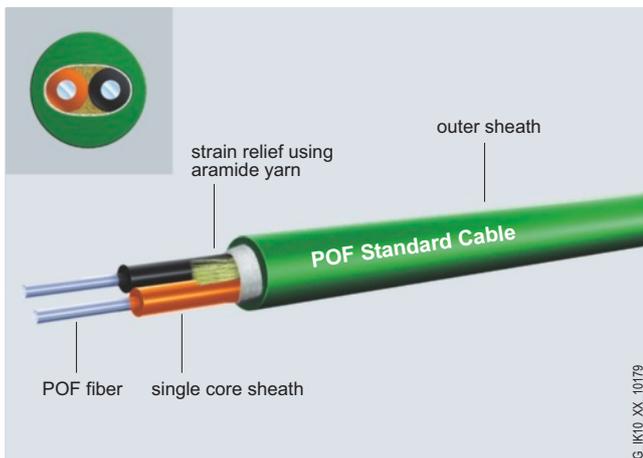
Ordering data	Article No.	More information
<b>POF Standard Cable GP 980/1000</b> POF standard cable for fixed routing indoors with PVC sheath; sold by the meter max. length 1000 m, minimum order 20 m	<b>6XV1874-2A</b>	You can order components supplementary to the SIMATIC NET cabling range from your local contact.  Technical advice on this subject is available from:  J. Hertlein I IA SC CI PRM4 Phone: +49 (911) 750-4465 E-Mail: <a href="mailto:juergen.hertlein@siemens.com">juergen.hertlein@siemens.com</a>
<b>POF Trailing Cable 980/1000</b> POF trailing cable for use in cable carriers, with rugged PUR sheath; sold by the meter max. length 1000 m, minimum order 20 m	<b>6XV1874-2B</b>	
<b>PCF Standard Cable GP 200/230</b> Standard cable, segmentable, sold by the meter; max. length 2000 m; minimum order 20 m;	<b>6XV1861-2A</b>	
<b>PCF Trailing Cable 200/230</b> Trailing cable, segmentable, sold by the meter; max. length 2000 m; minimum order 20 m;	<b>6XV1861-2C</b>	
<b>PCF Trailing Cable GP 200/230</b> Trailing cable, segmentable, sold by the meter; max. length 2000 m; minimum order 20 m;	<b>6XV1861-2D</b>	
<b>Termination Kit SC RJ POF Plug</b> Assembly case for local assembly of SC RJ connectors, comprising a stripping tool, Kevlar scissors, microscope, grinding paper and grinding base	<b>6GK1900-0ML00-0AA0</b>	
<b>IE SC RJ POF Plug</b> Screw connector for local assembly on POF FOC (1 pack = 20 items)	<b>6GK1900-0MB00-0AC0</b>	
<b>IE SC RJ POF Plug PRO</b> Screw connector for local assembly on POF FOC (1 pack = 1 unit)	<b>6GK1900-0MB00-6AA0</b>	
<b>IE SC RJ Refill Set POF</b> Refill set for Termination Kit SC RJ POF Plug consisting of grinding paper and grinding base (set of 5)	<b>6GK1900-0MN00-0AA0</b>	
<b>Termination Kit SC RJ PCF Plug</b> Assembly case for local assembly of SC RJ connectors, comprising a stripping tool, buffer stripping tool, Kevlar scissors, fiber breaking tool, microscope	<b>6GK1900-0NL00-0AA0</b>	
<b>Industrial Ethernet SC RJ PCF-Plug</b> Screw connector for local assembly on POF FOC (1 pack = 10 items)	<b>6GK1900-0NB00-0AC0</b>	
<b>IE SC RJ PCF-Plug PRO</b> Screw connector for local assembly on POF FOC (1 pack = 1 unit)	<b>6GK1900-0NB00-6AA0</b>	
<b>SIMATIC NET Manual Collection</b> Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English	<b>6GK1975-1AA00-3AA0</b>	

### Overview

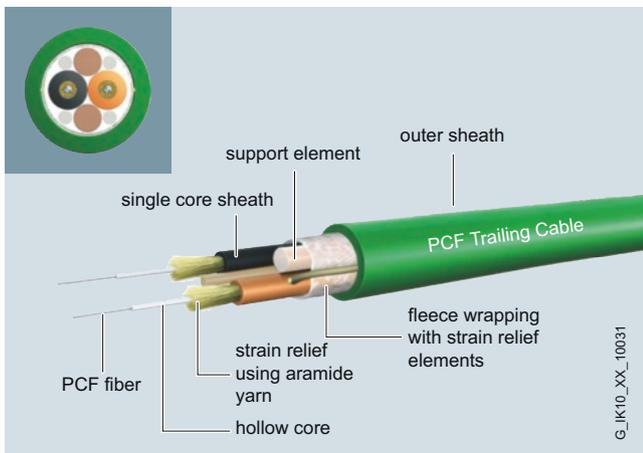


- Compact, rugged assembly case for POF and PCF fiber-optic cables
- Special versions for easy assembly of SC RJ plugs on POF and PCF fiber-optic cables
- The quality of the assembly can be checked using the enclosed microscope

### Design



Cable construction POF plastic optical fiber



Cable construction PCF plastic optical fiber

### Ordering data

### Article No.

#### Termination Kit SC RJ POF Plug

**6GK1900-0ML00-0AA0**

Assembly case for on-site installation of SC RJ POF connectors; consisting of stripping tool, Kevlar cutters, SC RJ grinding plate, grinding paper, grinding base and microscope

#### Termination Kit SC RJ PCF Plug

**6GK1900-0NL00-0AA0**

Assembly case for on-site assembly of SC RJ PCF connectors, comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool and microscope

#### Accessories

#### IE SC RJ POF Plug

**6GK1900-0MB00-0AC0**

20 plugs for on-site assembly

#### IE SC RJ POF Plug PRO

**6GK1900-0MB00-6AA0**

1 plug for on-site assembly

#### IE SC RJ PCF Plug

**6GK1900-0NB00-0AC0**

10 plugs for on-site assembly

#### IE SC RJ PCF-Plug PRO

**6GK1900-0NB00-6AA0**

1 plug for on-site assembly

#### IE SC RJ Refill Set POF

**6GK1900-0MN00-0AA0**

Refill set for Termination Kit SC RJ POF Plug consisting of grinding paper and grinding plate (set of 5)

### More information

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

J. Hertlein

I IA SC CI PRM4

Phone: +49 (911) 750-4465

E-Mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

# PROFINET/Industrial Ethernet

## SCALANCE X-100 unmanaged media converters

### SCALANCE X-100 unmanaged media converters

#### Overview



The unmanaged Industrial Ethernet media converters of the SCALANCE X-100 product line are ideally suited to the conversion of different transmission media in Industrial Ethernet networks at data transfer rates of 10/100 Mbit/s in line, star and ring topologies.

- Electrical or optical connection to stations or network in accordance with the port type of the devices
- Rugged metal enclosure for space-saving cubicle mounting on standard rails, S7-300 DIN rails, or for wall mounting
- Rugged, industry-standard station connections with PROFINET-compatible RJ45 connectors that offer additional strain relief and bending strain relief thanks to latching on the housing
- Redundant power supply
- Diagnostics on the device by means of LEDs (power, link status, data communication)
- Error signaling contact with easy adjustment using the SET button
- Connection of existing 10 Mbit/s fiber-optic networks
- Connection of existing 10Base5 networks (e.g. SINEC H1)

#### Ordering data

#### Article No.

##### SCALANCE X-100 unmanaged media converter

Industrial Ethernet media converters, LED diagnostics, fault signaling contact with SET key, redundant power supply, PROFINET-compatible retaining collar; incl. Operating Instructions, Industrial Ethernet network manual and configuration software on CD-ROM

<ul style="list-style-type: none"> <li>• <b>SCALANCE X101-1</b> 1 x 10/100 Mbit/s RJ45 port 1 x 100 Mbit/s multimode FOC BFOC</li> </ul>	<b>6GK5101-1BB00-2AA3</b>
<ul style="list-style-type: none"> <li>• <b>SCALANCE X101-1LD</b> 1 x 10/100 Mbit/s RJ45 port 1 x 100 Mbit/s singlemode FOC BFOC</li> </ul>	<b>6GK5101-1BC00-2AA3</b>
<ul style="list-style-type: none"> <li>• <b>SCALANCE X101-1POF</b> 1 x 10/100 Mbit/s RJ45 port 1 x 100 Mbit/s POF SC RJ</li> </ul>	<b>6GK5101-1BH00-2AA3</b>
<ul style="list-style-type: none"> <li>• <b>SCALANCE X101-1AUI</b> 1 x 10 Mbit/s RJ45 port 1 x 10 Mbit/s AUI segment port</li> </ul>	<b>6GK5101-1BX00-2AA3</b>
<ul style="list-style-type: none"> <li>• <b>SCALANCE X101-1FL</b> 1 x 10 Mbit/s RJ45 port 1 x 10 Mbit/s multimode FOC BFOC</li> </ul>	<b>6GK5101-1BY00-2AA3</b>

#### Ordering data (continued)

#### Article No.

##### Accessories

##### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m

**6XV1840-2AH10**

##### IE FC RJ45 Plug 180 2 x 2

RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB10-2AA0**  
**6GK1901-1BB10-2AB0**  
**6GK1901-1BB10-2AE0**

##### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

**6GK1901-1GA00**

##### SITOP compact 24 V/0,6 A

1-phase power supply with wide-range input 85 – 264 V AC/110 – 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design

**6EP1331-5BA00**

#### More information

##### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

Compact Switch Modules  
LOGO! CSM unmanaged

### Overview



The module is used to connect a LOGO! and up to three other nodes to an Industrial Ethernet network with 10/100 Mbit/s in an electrical linear, tree or star topology.

The essential features of the LOGO! CSM are:

- Unmanaged 4-port switch, of which one port is on the front for easy diagnostics access
- Two versions for the voltage ranges 12/24 V DC or 230 V AC/DC
- Problem-free connection using four RJ45 standard connectors
- Space-saving, optimized for connection to LOGO!
- Low-cost solution for implementing small, local Ethernet networks
- Stand-alone use for networking any Ethernet devices

### Ordering data

### Article No.

#### LOGO! CSM Compact Switch Modules

Unmanaged switch for connecting a LOGO! (...0BA7) and up to three further nodes on Industrial Ethernet with 10/100 Mbit/s; 4 x RJ45 ports; LED diagnostics, LOGO! module

- **LOGO! CSM 12/24**  
external 12 V DC or 24 V DC power supply,
- **LOGO! CSM 230**  
external 115 ... 240 V AC power supply

**6GK7177-1MA10-0AA0**

**6GK7177-1FA10-0AA0**

#### Accessories

##### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 connectors

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1870-3QE50**  
**6XV1870-3QH10**  
**6XV1870-3QH20**  
**6XV1870-3QH60**  
**6XV1870-3QN10**

##### IE FC Outlet RJ45

For connecting Industrial Ethernet FC cables and TP cords; graduated prices for 10 and 50 units or more

**6GK1901-1FC00-0AA0**

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### Compact Switch Modules CSM 1277 unmanaged

#### Overview



- Unmanaged switch for connecting a SIMATIC S7-1200 to an Industrial Ethernet network with a line, tree or star topology
- Multiplication of Ethernet interfaces on a SIMATIC S7-1200 for additional connection of up to three programming devices, operator controls, and further Ethernet nodes
- Simple, space-saving mounting on the SIMATIC S7-1200 mounting rail
- Low-cost solution for implementing small, local Ethernet networks
- Connection without any problems using RJ45 standard connectors
- Simple and fast status display via LEDs on the device
- Integral autocrossover function permits use of uncrossed connecting cables

#### Ordering data

#### Article No.

##### CSM 1277 compact switch module

Unmanaged switch for connecting a SIMATIC S7-1200 and up to three further nodes to Industrial Ethernet with 10/100 Mbit/s;  
4 x RJ45 ports; external 24 V DC power supply, diagnostics on LEDs, S7-1200 module including electronic manual on CD-ROM

**6GK7277-1AA10-0AA0**

##### Accessories

##### IE FC TP Trailing Cable 2 x 2 (Type C)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use as trailing cable; PROFINET-compatible; with UL approval; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m

**6XV1840-3AH10**

##### IE FC RJ45 Plug 180 x 2

RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB10-2AA0**

**6GK1901-1BB10-2AB0**

**6GK1901-1BB10-2AE0**

##### IE FC Outlet RJ45

For connecting Industrial Ethernet FC cables and TP cords; graduated prices for 10 and 50 units or more

**6GK1901-1FC000AA0**

##### IE TP Cord RJ45/RJ45

- TP cord preassembled with 2 RJ45 connectors; length: 0.5 m
- TP cable 4 x 2 with 2 RJ45 connectors; length: 0.5 m

**6XV1850-2GE50**

**6XV1870-3QE50**

#### More information

##### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

Compact Switch Modules  
CSM 377 unmanaged

### Overview



- Unmanaged switch for the connection of a SIMATIC S7-300 with integral PROFINET interface or with an Industrial Ethernet CP or ET 200M to an Industrial Ethernet in an electrical linear, tree or star structure
- As many as three additional nodes can be connected
- As an unmanaged switch, the CSM 377 is used for integrating small machines into existing automation networks or for the standalone operation of the machines
- Simple, space-saving attachment to S7-300 mounting rail due to design as single-width module in S7-300 format
- Low-cost solution for implementing small, local Ethernet networks
- Rugged, industry-standard node connections with PROFINET-compliant RJ45 connectors that latch onto the enclosure to offer additional strain and bending relief

### Ordering data

### Article No.

#### Compact Switch Module CSM 377

Unmanaged switch for connecting a SIMATIC S7-300, ET200 M and up to three further nodes to Industrial Ethernet with 10/100 Mbit/s; 4 x RJ45 ports; external 24 V DC power supply, diagnostics on LEDs, S7-300 module including electronic manual on CD-ROM

**6GK7377-1AA00-0AA0**

#### Accessories

#### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC outlet RJ45/ IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m

**6XV1840-2AH10**

#### IE FC RJ45 Plug 180 2 x 2

RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB10-2AA0**  
**6GK1901-1BB10-2AB0**  
**6GK1901-1BB10-2AE0**

#### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

**6GK1901-1GA00**

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X005 unmanaged

#### Overview



The unmanaged Industrial Ethernet Switch SCALANCE X005 is optimized for low-cost installation of small Industrial Ethernet networks with data transfer rates of 10/100 Mbit/s in a line and star topology.

- Five electrical nodes or network connections
- Rugged metal enclosure for space-saving cubicle mounting on standard rails, S7-300 DIN rails, or for wall mounting
- Rugged, industry-standard station connections with PROFINET-compatible RJ45 connectors that offer additional strain relief and bending strain relief thanks to latching on the housing
- Diagnostics on the device by means of LEDs (power, link status, data communication)

#### Ordering data

#### Article No.

##### SCALANCE X005

Industrial Ethernet Switch for 10/100 Mbit/s; with five 10/100 Mbit/s RJ45 ports for configuring small star and line structures

**6GK5005-0BA00-1AA3**

##### SCALANCE X005TS

Industrial Ethernet Switch for 10/100 Mbit/s; with five 10/100 Mbit/s RJ45 ports for configuring small star and line structures with extended temperature range and approvals for use in rail and road transport

**6GK5005-0BA00-1CA3**

#### Accessories

##### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug; PROFINET-compliant; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m

**6XV1840-2AH10**

##### IE FC RJ45 Plug 180 2 x 2

180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB10-2AA0**  
**6GK1901-1BB10-2AB0**  
**6GK1901-1BB10-2AE0**

##### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

**6GK1901-1GA00**

##### SITOP compact 24 V/ 0,6 A

1-phase power supply with wide-range input 85 - 264 V AC/110 - 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design

**6EP1331-5BA00**

#### More information

##### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

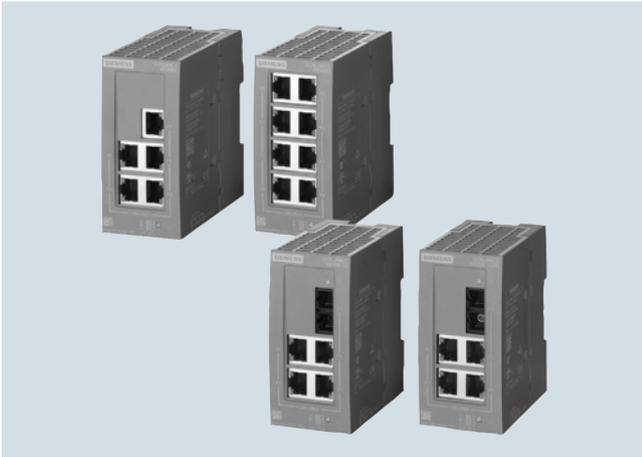
<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

**SCALANCE XB-000 unmanaged**

### Overview



The unmanaged Industrial Ethernet switches of the SCALANCE XB-000 line are optimized for installing Industrial Ethernet networks in a line and star topology.

- Electrical or optical station or network connection
- **SCALANCE XB-000**; for Fast Ethernet (10/100 Mbit/s)
- **SCALANCE XB-000G**; for Gigabit Ethernet (10/100/1000 Mbit/s, **G**igabit)
- **SCALANCE XB-000LD (Long Distance)**; for connecting especially remote nodes
- Enclosure for space-saving installation in control cabinets or boxes on a standard mounting rail

### Ordering data

#### Article No.

#### Article No.

#### SCALANCE XB-000 Industrial Ethernet switches

Unmanaged Industrial Ethernet switches for 10/100/1000 Mbit/s, degree of protection IP20, incl. operating instructions, Industrial Ethernet network manual on CD-ROM

- **SCALANCE XB005**  
5 x 10/100 Mbit/s RJ45 ports electrical
- **SCALANCE XB008**  
8 x 10/100 Mbit/s RJ45 ports electrical
- **SCALANCE XB004-1**  
4 x 10/100 Mbit/s RJ45 ports electrical  
1 x 100 Mbit/s SC port optical (multimode, glass), up to 5 km
- **SCALANCE XB004-1LD**  
4 x 10/100 Mbit/s RJ45 ports electrical  
1 x 100 Mbit/s SC port optical (singlemode, glass), up to 26 km
- **SCALANCE XB005G**  
5 x 10/100/1000 Mbit/s electrical RJ45 ports
- **SCALANCE XB008G**  
8 x 10/100/1000 Mbit/s electrical RJ45 ports
- **SCALANCE XB004-1G**  
4 x 10/100/1000 Mbit/s RJ45 electrical ports  
1 x 1000 Mbit/s optical SC port (multimode, glass), up to 0.75 km
- **SCALANCE XB004-1LDG**  
4 x 10/100/1000 Mbit/s electrical RJ45 ports  
1 x 1000 Mbit/s SC optical port (singlemode, glass), up to 10 km

**6GK5005-0BA00-1AB2**
**6GK5008-0BA00-1AB2**
**6GK5004-1BD00-1AB2**
**6GK5004-1BF00-1AB2**
**6GK5005-0GA00-1AB2**
**6GK5008-0GA00-1AB2**
**6GK5004-1GL00-1AB2**
**6GK5004-1GM00-1AB2**

#### Accessories

#### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 connectors

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1870-3QE50**  
**6XV1870-3QH10**  
**6XV1870-3QH20**  
**6XV1870-3QH60**  
**6XV1870-3QN10**

#### FO Standard Cable GP 50/125/1400<sup>1) 2)</sup>

Multimode cable, sold by the meter; max. length 1000 m; minimum order 20 m;

**6XV1873-2A**

#### SITOP compact 24 V/0,6 A

1-phase power supply with wide-range input 85 – 264 V AC/110 – 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design

**6EP1331-5BA00**

- <sup>1)</sup> Special fiber-optic cables, lengths and accessories available on request  
<sup>2)</sup> Special tools and trained personnel are required for pre-assembling glass fiber-optic cables

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X-100 unmanaged

#### Overview



The unmanaged Industrial Ethernet switches of the SCALANCE X-100 product line are optimized for installing Industrial Ethernet networks at transmission rates of 10/100 Mbit/s in a line and star topology.

- Depending on the port type of the devices, the connection to a station or network is electrical or optical with Power-over-Ethernet (PoE) functionality according to IEEE 802.3at Type 1 (corresponds to IEEE 802.3af)
- Rugged metal enclosure for space-saving cubicle mounting on standard rails, S7-300 DIN rail or for wall mounting
- Rugged, industry-standard station connections with PROFINET-compatible RJ45 connectors that offer additional strain relief and bending strain relief thanks to latching on the housing
- Redundant power supply
- Diagnostics on the device by means of LEDs (power, link status, data communication)
- Error signaling contact with easy adjustment using the SET button



# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X-200 managed

#### Overview



The managed Industrial Ethernet switches of the SCALANCE X-200 line are optimized for setting up Industrial Ethernet networks at data transfer rates of 10/100 Mbit/s in a line, star or ring topology.

- Integrated redundancy manager for constructing Fast Ethernet ring topologies with fast media redundancy
- Electrical or optical connection to stations or network in accordance with the port type of the devices
- Rugged metal housing in S7-300 format for mounting on standard rail, S7-300 standard mounting rail or for direct wall mounting in various positions
- Rugged, industry-standard node connections with PROFINET-compliant RJ45 connectors that are latched onto the housing to provide additional strain and bending relief
- Redundant power supply
- Diagnostics on the device by means of LEDs (power, link status, data communication)
- Error signaling contact with easy adjustment using the SET button
- PROFINET diagnostics, SNMP access, integrated web server and automatic e-mail transmission function for remote diagnostics and signaling via the network

Ordering data	Article No.	Article No.
<b>Industrial Ethernet Switches SCALANCE X-200</b>		<b>Accessories</b>
<p>Industrial Ethernet switches with integral SNMP access, online diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; with integrated redundancy manager (exception: SCALANCE X208PRO); incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM</p> <ul style="list-style-type: none"> <li>With electrical and optical ports for glass multimode FOC up to max. 5 km <ul style="list-style-type: none"> <li><b>SCALANCE X204-2</b> with four 10/100 Mbit/s RJ45 ports and two fiber-optic ports</li> <li><b>SCALANCE X204-2TS</b> with four 10/100 Mbit/s RJ45 ports and two fiber-optic ports with extended temperature range and EN 50155 approval for railway applications</li> <li><b>SCALANCE X206-1</b> with six 10/100 Mbit/s RJ45 ports and one fiber-optic port</li> <li><b>SCALANCE X212-2</b> with twelve 10/100 Mbit/s RJ45 ports and two fiber-optic ports</li> </ul> </li> <li>With electrical and optical ports for glass single mode FOC up to max. 26 km <ul style="list-style-type: none"> <li><b>SCALANCE X204-2LD</b> with four 10/100 Mbit/s RJ45 ports and two long-distance fiber-optic ports</li> <li><b>SCALANCE X206-1LD</b> with six 10/100 Mbit/s RJ45 ports and one long-distance fiber-optic port</li> <li><b>SCALANCE X212-2LD</b> with twelve 10/100 Mbit/s RJ45 ports and two long-distance fiber-optic ports</li> </ul> </li> <li>With electrical ports <ul style="list-style-type: none"> <li><b>SCALANCE X208</b> with eight 10/100 Mbit/s RJ45 ports</li> <li><b>SCALANCE X208PRO</b> with eight 10/100 Mbit/s M12 ports, incl. eleven M12 dust protection caps, IP65 degree of protection</li> <li><b>SCALANCE X216</b> with sixteen 10/100 Mbit/s RJ45 ports</li> <li><b>SCALANCE X224</b> with twenty-four 10/100 Mbit/s RJ45 ports</li> </ul> </li> </ul>	<p><b>6GK5204-2BB10-2AA3</b></p> <p><b>6GK5204-2BB10-2CA2</b></p> <p><b>6GK5206-1BB10-2AA3</b></p> <p><b>6GK5212-2BB00-2AA3</b></p> <p><b>6GK5204-2BC10-2AA3</b></p> <p><b>6GK5206-1BC10-2AA3</b></p> <p><b>6GK5212-2BC00-2AA3</b></p> <p><b>6GK5208-0BA10-2AA3</b></p> <p><b>6GK5208-0HA10-2AA6</b></p> <p><b>6GK5216-0BA00-2AA3</b></p> <p><b>6GK5224-0BA00-2AA3</b></p>	<p><b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b> <b>6XV1840-2AH10</b></p> <p>4-core, shielded TP installation cable for connection to IE FC°Outlet°RJ45/IE°FC°RJ45 Plug; PROFINET-compatible; with UL approval; <u>sold by the meter</u>; max. length 1000°m, minimum order quantity 20°m</p> <p><b>FO Standard Cable GP 50/125/1400</b> <sup>1) 2)</sup> <b>6XV1873-2A</b></p> <p>Multimode cable, <u>sold by the meter</u>; max. length 1000 m; minimum order 20 m;</p> <p><b>FO Robust Cable GP 4E9/125/90</b> <b>6XV1843-2R</b></p> <p>Singlemode cable, <u>sold by the meter</u>; max. length 1000 m; minimum order 20 m</p> <p><b>FC FO Standard Cable GP 62,5/200/230</b> <b>6XV1847-2A</b></p> <p>FC FO standard cable for fixed routing indoors with PVC sheath; <u>sold by the meter</u>; max. length 1000 m; minimum order 20 m</p> <p><b>IE FC RJ45 Plug 180 2 x 2</b></p> <p>RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>1 pack = 1 unit</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul> <p><b>6GK1901-1BB10-2AA0</b> <b>6GK1901-1BB10-2AB0</b> <b>6GK1901-1BB10-2AE0</b></p> <p><b>FC BFOC Plug</b> <b>6GK1900-1GB00-0AC0</b></p> <p>Screw connector for on-site assembly on FC fiber-optic cable; (1 pack = 20 units + cleaning cloths)</p> <p><b>IE FC M12 Plug PRO 2 x 2</b></p> <p>M12 plug connector for connection of Industrial Ethernet FC installation cables; 4-pole, D-coded, metal enclosure, IP65 degree of protection, pin insert; 180° cable outlet; for network components and Industrial Ethernet stations with IP65/IP67 degree of protection</p> <ul style="list-style-type: none"> <li>1 pack = 1 unit</li> <li>1 pack = 8 units</li> </ul> <p><b>6GK1901-0DB20-6AA0</b> <b>6GK1901-0DB20-6AA8</b></p>

<sup>1)</sup> Special fiber-optic cables, lengths and accessories available on request

<sup>2)</sup> Special tools and trained personnel are required for pre-assembling glass fiber-optic cables

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X-200 managed

Ordering data	Article No.	Article No.
<i>Accessories (continued)</i>		
<b>IE Connecting Cable M12-180/M12-180</b> Pre-assembled IE FC TP trailing cable GP 2 x 2 (PROFINET type C) with two 4-pole M12 plugs, 4-pole, D-coded, IP65/IP67 degree of protection; Length: <ul style="list-style-type: none"> <li>• 0,3 m</li> <li>• 0,5 m</li> <li>• 1,0 m</li> <li>• 1,5 m</li> <li>• 2,0 m</li> <li>• 3,0 m</li> <li>• 5,0 m</li> <li>• 10 m</li> <li>• 15 m</li> </ul>	<b>6XV1870-8AE30</b> <b>6XV1870-8AE50</b> <b>6XV1870-8AH10</b> <b>6XV1870-8AH15</b> <b>6XV1870-8AH20</b> <b>6XV1870-8AH30</b> <b>6XV1870-8AH50</b> <b>6XV1870-8AN10</b> <b>6XV1870-8AN15</b>	<b>SITOP compact 24 V/0,6 A</b> 1-phase power supply with wide-range input 85 – 264 V AC/110 – 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design
<b>IE M12 Panel Feedthrough</b> Control cabinet feedthrough for transition from 4-pole, D-coded M12 interface (IP65/IP67) to RJ45 socket (IP20) <ul style="list-style-type: none"> <li>• 1 pack = 5 units</li> </ul>	<b>6GK1901-0DM20-2AA5</b>	<b>Power Supply PS791-1PRO</b> AC/DC power supply, 10 W, IP65 (-20 to +60 °C) for SCALANCE X208PRO, input: AC 85 V – 265 V, output: 24 V DC, metal enclosure, scope of delivery: AC power 3+PE cable connector, DC power cord M12, installation materials, manuals German/English
<b>IE Power M12 Cable Connector PRO</b> Socket for connecting SCALANCE W-700/SCALANCE X208PRO for 24 V DC supply; 4-pole, A-coded, with installation instructions	<b>6GK1907-0DC10-6AA3</b>	<b>C-PLUG</b> Swap medium for simple replacement of devices in the event of a fault; for storing configuration or engineering and application data; can be used for SIMATIC NET products with C-PLUG slot
<b>Signalling Contact M12 Cable Connector PRO</b> Socket for connecting SCALANCE X208PRO for signaling contact; 5-pole, B-coded, with installation instructions	<b>6GK1908-0DC10-6AA3</b>	<b>IE Connecting Cable IE FC RJ45 Plug-180/IE FC RJ45 Plug-180</b> Preassembled IE FC TP trailing cable GP 2 x 2 (PROFINET type C) with two IE FC RJ45 plug-180, IP20 degree of protection; length: <ul style="list-style-type: none"> <li>• 1,0 m</li> <li>• 2,0 m</li> <li>• 3,0 m</li> <li>• 5,0 m</li> <li>• 10,0 m</li> <li>• 15,0 m</li> <li>• 20,0 m</li> </ul>
		<b>6EP1331-5BA00</b> <b>6GK5791-1PS00-0AA6</b> <b>6GK1900-0AB00</b> <b>6XV1871-5BH10</b> <b>6XV1871-5BH20</b> <b>6XV1871-5BH30</b> <b>6XV1871-5BH50</b> <b>6XV1871-5BN10</b> <b>6XV1871-5BN15</b> <b>6XV1871-5BN20</b>

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

#### Overview



The managed Industrial Ethernet switches of the SCALANCE XF-200 line are optimized for setting up Industrial Ethernet networks at data transfer rates of 10/100 Mbit/s in a line, star or ring topology.

- Integrated redundancy manager for constructing Fast Ethernet ring topologies with fast media redundancy
- Electrical or optical connection to stations or network in accordance with the port type of the devices
- Enclosure in ET 200S format (slim design) for use in small control boxes
- Rugged, industry-standard node connections with PROFINET-compliant RJ45 connectors that latch onto the enclosure to offer additional strain and bending relief
- PROFINET diagnostics, SNMP access, integrated web server and automatic e-mail transmission function for remote diagnostics and signaling via the network

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE XF-200 managed

Ordering data	Article No.	Article No.
<b>SCALANCE XF-200 Industrial Ethernet switches</b>		
<p>Industrial Ethernet switches with integrated SNMP access, online diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; with integrated redundancy manager; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM</p> <ul style="list-style-type: none"> <li> <b>SCALANCE XF204-2</b>            4 x 10/100 Mbit/s RJ45 ports, electrical;            2 x 100 Mbit/s BFOC ports, optical (multimode, glass), up to 5 km         </li> <li> <b>SCALANCE XF206-1</b>            6 x 10/100 Mbit/s RJ45 ports, electrical;            1 x 100 Mbit/s BFOC ports, optical (multimode, glass), up to 5 km         </li> <li> <b>SCALANCE XF204</b>            4 x 10/100 Mbit/s RJ45 ports, electrical         </li> <li> <b>SCALANCE XF208</b>            8 x 10/100 Mbit/s RJ45 ports, electrical         </li> </ul>	<p><b>6GK5204-2BC00-2AF2</b></p> <p><b>6GK5206-1BC00-2AF2</b></p> <p><b>6GK5204-0BA00-2AF2</b></p> <p><b>6GK5208-0BA00-2AF2</b></p>	<p><b>IE FC RJ45 Plug 180 2 x 2</b></p> <p>RJ45 plug-in connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>1 pack = 1 unit</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul> <p><b>6GK1901-1BB10-2AA0</b>  <b>6GK1901-1BB10-2AB0</b>  <b>6GK1901-1BB10-2AE0</b></p> <p><b>FC BFOC Plug</b></p> <p>Screw connector for on-site assembly on FC fiber-optic cable; (1 pack = 20 units + cleaning cloths)</p> <p><b>6GK1900-1GB00-0AC0</b></p> <p><b>IE FC Stripping Tool</b></p> <p>Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables</p> <p><b>6GK1901-1GA00</b></p> <p><b>FC FO Termination Kit</b></p> <p>Assembly case for local assembly of FC SC and FC BFOC connectors to FC FO standard cable, comprising a stripping tool, Kevlar cutters, fiber breaking tool and microscope</p> <p><b>6GK1900-1GL00-0AA0</b></p> <p><b>SITOP compact 24 V/0,6 A</b></p> <p>1-phase power supply with wide-range input        85 – 264 V AC/110 – 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design</p> <p><b>6EP1331-5BA00</b></p> <p><b>C-PLUG</b></p> <p>Swap medium for simple replacement of devices in the event of a fault; for storing configuration or engineering and application data; can be used for SIMATIC NET products with C-PLUG slot</p> <p><b>6GK1900-0AB00</b></p>
<b>Accessories</b>		
<p><b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC RJ45 outlet / IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m</p>	<b>6XV1840-2AH10</b>	
<p><b>FO Standard Cable GP 50/125/1400<sup>1) 2)</sup></b></p> <p>Multimode cable, sold by the meter; max. length 1000 m; minimum order 20 m;</p>	<b>6XV1873-2A</b>	
<p><b>FC FO Standard Cable GP 62,5/200/230</b></p> <p>FC FO standard cable for fixed routing indoors with PVC sheath; sold by the meter; max. length 1000 m; minimum order 20 m</p>	<b>6XV1847-2A</b>	
<p>1) Special fiber-optic cables, lengths and accessories available on request</p> <p>2) Special tools and trained personnel are required for pre-assembling glass fiber-optic cables</p>		

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

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- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

### Overview



The SCALANCE X-200RNA (**R**edundant **N**etwork **A**ccess) managed Industrial Ethernet network access points with PRP functionality (**P**arallel **R**edundancy **P**rotocol in accordance with IEC 62439-3) are used to connect up to two non-PRP-enabled terminal devices or network segments to parallel networks.

- Electrical or optical connection to stations or network in accordance with the port type of the devices
- Media redundancy thanks to duplicate transmission of frames in two parallel, separate networks
- High system availability since frames are sent simultaneously over two separate networks
- Reconfiguration times in a subnetwork do not affect the propagation time because the frames are transmitted via two separate networks (bumpless redundancy)
- Redundant 24 V DC voltage infeed or wide-range power supply unit, depending on device version
- SNMP access, integrated Web server and automatic e-mail transmission function for remote diagnostics and signaling via the network

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X204RNA PRP

Ordering data	Article No.	Article No.
<b>SCALANCE X-200RNA Industrial Ethernet network access points</b>		
<p>Industrial Ethernet network access points with integrated SNMP access, web diagnostics and PROFINET diagnostics, for connecting non-PRP-enabled terminal equipment to PRP networks; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM;</p> <p>with electrical and optical ports for glass multimode fiber-optic cable up to 5 km</p> <ul style="list-style-type: none"> <li>• <b>SCALANCE X204RNA</b> with four 100 Mbit/s RJ45 ports</li> <li>• <b>SCALANCE X204RNA EEC</b> with two 100 Mbit/s RJ45 ports and two RJ45/SFP combo ports</li> <li>• <b>SCALANCE X204RNA EEC</b> with two 100 Mbit/s RJ45 ports and two RJ45/SFP combo ports with PRP or HSR support</li> </ul>	<p><b>6GK5204-0BA00-2KB2</b></p> <p><b>6GK5204-0BS00-3LA3</b></p> <p><b>6GK5204-0BS00-3PA3</b></p>	
<p><b>SIMATIC NET communications processor CP 443-1 RNA</b></p> <p>S7 integration into bumpless, redundant network structures on the basis of the Parallel Redundancy Protocol (PRP)</p>	<b>6GK7443-1RX00-0XE0</b>	
<b>SOFTNET-IE RNA</b>		
<p>Software for connecting PCs to PRP-enabled networks with integrated SNMP, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A</p> <p><b>SOFTNET-IE RNA V12</b></p> <p>For 32/64-bit Windows 7 Professional/Ultimate; for Windows 2008 Server R2; for 32/64-bit Windows 8 Professional/Enterprise; for Windows Server 2012 German/English</p> <ul style="list-style-type: none"> <li>• Single License for one installation</li> </ul> <p><b>SOFTNET-IE RNA V8.1</b></p> <p>For 32-bit Windows XP; German/English</p> <ul style="list-style-type: none"> <li>• Single License for one installation</li> </ul> <p><b>Software Update Service</b></p> <p>For one year with automatic extension; requirement: current software version</p>	<p><b>6GK1711-1EW12-0AA0</b></p> <p><b>6GK1711-1EW08-1AA0</b></p> <p><b>6GK1711-1EW00-3AL0</b></p>	
<b>Accessories</b>		
<p><b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC°Outlet°RJ45/IE°FC°RJ45 Plug; PROFINET-compatible; with UL approval; <u>sold by the meter</u>; max. length 1000°m, minimum order quantity 20°m</p>		<b>6XV1840-2AH10</b>
<p><b>IE FC RJ45 Plug 180 2 x 2</b></p> <p>RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>		<p><b>6GK1901-1BB10-2AA0</b></p> <p><b>6GK1901-1BB10-2AB0</b></p> <p><b>6GK1901-1BB10-2AE0</b></p>
<p><b>SFP plug-in transceiver</b></p> <ul style="list-style-type: none"> <li>• SFP991-1 (multimode, glass, up to 3km)</li> <li>• SFP991-1LH+ (singlemode, glass, up to 70 km, LH+)</li> <li>• SFP991-1LD (singlemode, glass, up to 26 km)</li> </ul>		<p><b>6GK5991-1AD00-8AA0</b></p> <p><b>6GK5991-1AE00-8AA0</b></p> <p><b>6GK5991-1AF00-8AA0</b></p>
<b>LC Plug MM<sup>2)</sup></b>		<b>6GK1901-0RB10-2AB0</b>
<b>LC Plug SM<sup>2)</sup></b>		<b>6GK1901-0SB10-2AB0</b>
<b>FO Robust Cable GP 50/125/900<sup>1)</sup></b>		<b>6XV1873-2R</b>
<b>FO Robust Cable GP 4x9/125/900<sup>1)</sup></b>		<b>6XV1843-2R</b>
<p><b>SITOP compact 24 V/0,6 A</b></p> <p>1-phase power supply with wide-range input 85 – 264 V AC/110 – 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design</p>		<b>6EP1331-5BA00</b>
<b>C-PLUG</b>		<b>6GK1900-0AB00</b>
		Swap medium for simple replacement of devices in the event of a fault; for storing configuration or engineering and application data; can be used for SIMATIC NET products with C-PLUG slot

<sup>1)</sup> Special fiber-optic cables, lengths and accessories available on request

<sup>2)</sup> Special tools and trained personnel are required for pre-assembling glass fiber-optic cables

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version: <http://www.siemens.com/snst>
- Offline version: <http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

### Overview



The SCALANCE X-200RNA (**R**edundant **N**etwork **A**ccess) managed Industrial Ethernet network access points with HSR functionality (**H**igh-availability **S**eamless **R**edundancy Protocol in accordance with IEC 62439-3) are used to connect up to two non-HSR-enabled terminal devices or network segments to a ring-shaped HSR network structure. They can also be used for simple and redundant transition from HSR to PRP (Parallel Redundancy Protocol) network structures.

- Electrical or optical connection to stations or network in accordance with the port type of the devices
- Media redundancy thanks to duplicate transmission of frames in ring-shaped networks
- High system availability since frames are sent simultaneously via two routes in the ring
- No reconfiguration times of the ring-shaped network are required in the event of an error due to duplicate transmission of frames in the ring
- Simple and redundant connection of HSR and PRP network structures
- Redundant 24 V DC voltage infeed or wide-range power supply unit, depending on device version
- SNMP access, integrated Web server and automatic e-mail transmission function for remote diagnostics and signaling via the network

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X204RNA HSR

Ordering data	Article No.	Article No.
<b>SCALANCE X-200RNA HSR Industrial Ethernet network access points</b>		
<p>Industrial Ethernet network access points with integrated SNMP access, web diagnostics and PROFINET diagnostics, for connecting non-HSR-enabled terminal devices to ring-shaped HSR networks; incl. operating instructions, Industrial Ethernet network manual, and configuration software on CD-ROM;</p> <p>with electrical and optical ports for glass multimode fiber-optic cables up to 5 km</p> <ul style="list-style-type: none"> <li>• <b>SCALANCE X204RNA</b> with four 100 Mbit/s RJ45 ports</li> <li>• <b>SCALANCE X204RNA EEC</b> with two 100 Mbps RJ45 ports and two RJ45/SFP combo ports</li> <li>• <b>SCALANCE X204RNA EEC</b> with two 100 Mbps RJ45 ports and two RJ45/SFP combo ports with PRP or HSR support</li> </ul>	<p><b>6GK5204-0BA00-2MB2</b></p> <p><b>6GK5204-0BS00-2NA3</b></p> <p><b>6GK5 204-0BS00-3PA3</b></p>	<p><b>SFP-Stecktransceiver</b></p> <ul style="list-style-type: none"> <li>• SFP991-1 (multimode, glass, up to 3km)</li> <li>• SFP991-1LH+ (singlemode, glass, up to 70 km, LH+)</li> <li>• SFP991-1LD (singlemode, glass, up to 26 km)</li> </ul> <p><b>LC Plug MM<sup>2)</sup></b></p> <p><b>LC Plug SM<sup>2)</sup></b></p> <p><b>FO Robust Cable GP 50/125/900<sup>1)</sup></b></p> <p><b>FO Robust Cable GP 4x9/125/900<sup>1)</sup></b></p> <p><b>SITOP compact 24 V/0,6 A</b></p> <p>1-phase power supply with wide-range input 85 – 264 V AC/110 – 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design</p> <p><b>C-PLUG</b></p> <p>Swap medium for simple replacement of devices in the event of a fault; for storing configuration or engineering and application data; can be used for SIMATIC NET products with C-PLUG slot</p>
<p><b>Accessories</b></p> <p><b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC RJ45 outlet / IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m</p>	<p><b>6XV1840-2AH10</b></p>	<p><b>6GK5991-1AD00-8AA0</b></p> <p><b>6GK5991-1AE00-8AA0</b></p> <p><b>6GK5991-1AF00-8AA0</b></p> <p><b>6GK1901-0RB10-2AB0</b></p> <p><b>6GK1901-0SB10-2AB0</b></p> <p><b>6XV1873-2R</b></p> <p><b>6XV1843-2R</b></p> <p><b>6EP1331-5BA00</b></p> <p><b>6GK1900-0AB00</b></p>
<p><b>IE FC RJ45 Plug 180 2 x 2</b></p> <p>RJ45 plug-in connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	<p><b>6GK1901-1BB10-2AA0</b></p> <p><b>6GK1901-1BB10-2AB0</b></p> <p><b>6GK1901-1BB10-2AE0</b></p>	

<sup>1)</sup> Special fiber-optic cables, lengths and accessories available on request

<sup>2)</sup> Special tools and trained personnel are required for pre-assembling glass fiber-optic cables

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X-200IRT managed

#### Overview



SCALANCE X-200IRT switches are especially designed for constructing isochronous real-time (IRT) Industrial Ethernet networks in line, star and ring topologies at transmission rates of 10/100 Mbit/s (Redundancy Manager integrated); construction of redundant ring connections possible.

- Optimized performance due to combination of the switching mechanisms "Cut Through" and "Store and Forward"
- Fast media redundancy due to the integrated redundancy manager for Fast Ethernet
- Rugged, industry-standard station connections with PROFINET-compatible plug-in connectors that offer additional strain relief and bending strain relief thanks to latching on the enclosure
- PROFINET diagnostics, SNMP access, integrated web server and automatic e-mail transmission function for remote diagnostics and signaling via the network
- Different device versions with copper and fiber-optic interfaces (BFOC, SC RJ)
- Implementation of cabinet-free plant concepts with PROFINET-compliant push pull connection systems with device variants with IP65/67 protection

#### Ordering data

#### Article No.

##### Industrial Ethernet Switches SCALANCE X-200IRT

Managed Industrial Ethernet switches;  
Isochronous Real-Time, LED diagnostics, fault signaling contact with SET button, redundant power supply; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM

• <b>SCALANCE X204IRT;</b> 4 x 10/100 Mbit/s RJ45 ports	<b>6GK5204-0BA00-2BA3</b>
• <b>SCALANCE X204IRT PRO;</b> 4 x 10/100 Mbit/s RJ45 push-pull ports	<b>6GK5204-0JA00-2BA6</b>
• <b>SCALANCE X202-2IRT;</b> 2 x 10/100 Mbit/s RJ45 ports, 2 x 100 Mbit/s Multimode BFOC ports	<b>6GK5202-2BB00-2BA3</b>
• <b>SCALANCE X202-2P IRT;</b> 2 x 10/100 Mbit/s RJ45 ports, 2 x 100 Mbit/s POF/PCF SC RJ ports	<b>6GK5202-2BH00-2BA3</b>
• <b>SCALANCE X202-2P IRT PRO;</b> 2 x 10/100 Mbit/s RJ45 push-pull ports, 2 x 100 Mbit/s POF/PCF SC RJ push-pull ports	<b>6GK5202-2JR00-2BA6</b>
• <b>SCALANCE X201-3P IRT;</b> 1 x 10/100 Mbit/s RJ45 port, 3 x 100 Mbit/s POF/PCF SC RJ ports	<b>6GK5201-3BH00-2BA3</b>
• <b>SCALANCE X201-3P IRT PRO;</b> 1 x 10/100 Mbit/s RJ45 port, 3 x 100 Mbit/s POF/PCF SC RJ ports	<b>6GK5201-3JR00-2BA6</b>
• <b>SCALANCE X200-4P IRT;</b> 4 x 100 Mbit/s POF/PCF SC RJ	<b>6GK5200-4AH00-2BA3</b>

##### Accessories

##### Industrial Ethernet media converter SCALANCE X-100

Industrial Ethernet media converters, LED diagnostics, fault signaling contact with SET key, redundant power supply, PROFINET-compatible securing collars

• <b>SCALANCE X101-1POF;</b> 1 X 10/100 Mbit/s RJ45 port, 1 X 100 Mbit/s POF SC RJ port	<b>6GK5101-1BH00-2AA3</b>
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<b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b>	<b>6XV1840-2AH10</b>
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4-core, shielded TP installation cable for connection to IE FC RJ45 outlet / IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m

##### FO Standard Cable GP 50/125/1400<sup>1) 2)</sup>

Multimode cable, sold by the meter; max. length 1000 m; minimum order 20 m;

**6XV1873-2A**

- <sup>1)</sup> Special fiber-optic cables, lengths and accessories available on request  
<sup>2)</sup> Special tools and trained personnel are required for pre-assembling glass fiber-optic cables

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X-200IRT managed

Ordering data	Article No.	Article No.
<i>Accessories</i> (continued)		
<b>POF Standard Cable GP 980/1000</b> POF standard cable for fixed routing indoors with PVC sheath; sold by the meter; max. length 1000 m; minimum order 20 m	<b>6XV1874-2A</b>	<b>Termination Kit SC RJ POF Plug</b> 6GK1900-0ML00-0AA0 Assembly case for on-site installation of SC RJ POF connectors; consisting of stripping tool, Kevlar cutters, SC RJ grinding plate, grinding paper, grinding base and microscope
<b>PCF Standard Cable GP 200/230</b> Standard cable, segmentable, sold by the meter; max. length 2000 m; minimum order 20 m;	<b>6XV1861-2A</b>	<b>Termination Kit SC RJ PCF Plug</b> 6GK1900-0NL00-0AA0 Assembly case for local assembly of SC RJ PCF connectors, comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool and microscope
<b>IE FC RJ45 Plug 180 2 x 2</b> RJ45 plug-in connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPUs/CPUs with Industrial Ethernet interface • 1 pack = 1 unit • 1 pack = 10 units • 1 pack = 50 units	<b>6GK1901-1BB10-2AA0</b> <b>6GK1901-1BB10-2AB0</b> <b>6GK1901-1BB10-2AE0</b>	<b>Power Plug PRO</b> 6GK1907-0AB10-6AA0 1 plug (IP65/67) for on-site assembly (5-core)
<b>IE FC RJ45 Plug PRO</b> FastConnect RJ45 plug-in connector; plastic housing, insulation displacement technology, for SCALANCE X-200IRT PRO switches and SIMATIC ET 200pro; 1 connector (IP65/67) suitable for on-site assembly	<b>6GK1901-1BB20-6AA0</b>	<b>SIMATIC RF600 connecting cable</b> 6GT2891-1HN10 Preassembled connecting cable (10 m) with RJ45 Plug PRO and RJ45 Plug
<b>SC RJ POF Plug</b> 20 plugs for on-site assembly	<b>6GK1900-0MB00-0AC0</b>	<b>SITOP compact 24 V/0,6 A</b> 6EP1331-5BA00 1-phase power supply with wide-range input 85 – 264 V AC/110 – 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design
<b>SC RJ POF Plug PRO</b> 1 plug (IP65/67) for on-site assembly	<b>6GK1900-0MB00-6AA0</b>	<b>C-PLUG</b> 6GK1900-0AB00 Swap medium for simple replacement of devices in the event of a fault; for storing configuration or engineering and application data; can be used for SIMATIC NET products with C-PLUG slot
<b>SC RJ PCF Plug</b> 10 plugs for on-site assembly	<b>6GK1900-0NB00-0AC0</b>	
<b>SC RJ PCF Plug PRO</b> 1 plug (IP65/67) for on-site assembly	<b>6GK1900-0NB00-6AA0</b>	

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

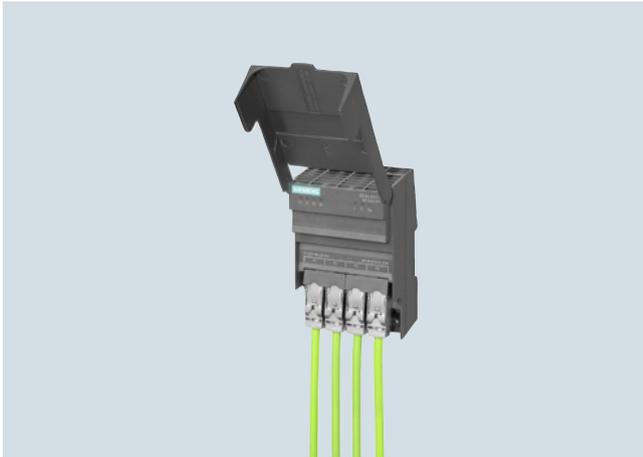
<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

**SCALANCE XF-200IRT managed**

### Overview



The SCALANCE XF204IRT Industrial Ethernet switch is suitable for the construction of deterministic and isochronous real-time Industrial Ethernet networks, at data transfer rates of 10/100 Mbit/s, in line, star, and ring topologies.

- Connection of up to four terminal units possible
- Enclosure in ET 200S format (slim design, 75 mm width) for space-saving use in small control boxes
- Integrated redundancy manager for constructing Fast Ethernet ring topologies with fast media redundancy
- PROFINET diagnostics, SNMP access, integrated web server and automatic e-mail transmission function for remote diagnostics and signaling via the network

### Ordering data

#### Industrial Ethernet Switches SCALANCE XF-200IRT

Managed Industrial Ethernet Switches for setting up line, star and ring topologies; Isochronous Real Time, LED diagnostics, fault signaling contact with SET button, redundant power supply; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM

- **SCALANCE XF204IRT**  
4 x 10/100 Mbit/s  
RJ45 electrical port;

#### Article No.

**6GK5204-0BA00-2BF2**

#### Article No.

#### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

**6GK1901-1GA00**

#### SITOP compact 24 V/0,6 A

1-phase power supply with wide-range input  
85 – 264 V AC/110 – 300 V DC,  
stabilized output voltage 24 V,  
rated output current value 0.6 A,  
slim design

**6EP1331-5BA00**

#### C-PLUG

Swap medium for simple replacement of devices in the event of a fault; for storing configuration or engineering and application data; can be used for SIMATIC NET products with C-PLUG slot

**6GK1900-0AB00**

#### Accessories

#### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC RJ45 outlet / IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m

**6XV1840-2AH10**

#### IE FC RJ45 Plug 180 2 x 2

RJ45 plug-in connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB10-2AA0**  
**6GK1901-1BB10-2AB0**  
**6GK1901-1BB10-2AE0**

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X-300 managed

#### Overview



The SCALANCE X-300 product line comprises compact Industrial Ethernet switches for constructing electrical and/or optical line, star and ring topologies operating at data transfer rates of 10/100/1000 Mbit/s.

- SCALANCE X-300 is available
  - with integrated electrical and optical Ethernet ports
  - as a partially modular version with four integrated electrical Ethernet ports and two modular slots for 2-port media modules
- High-speed media redundancy through integral redundancy manager both for Gigabit Ethernet (SCALANCE X-300, X-400) and Fast Ethernet (e.g. in combination with SCALANCE X-200 switches)
- Seamless integration of automation networks into existing corporate networks thanks to support for a host of IT standards: Establishment of virtual networks (VLANs)
- Redundant integration into higher-level networks thanks to support for standardized redundancy procedures (Rapid Spanning Tree Protocol)
- PROFINET diagnostics, SNMP access, integrated web server and automatic e-mail transmission function for remote diagnostics and signaling via the network

Ordering data	Article No.	Article No.	
<b>SCALANCE X-300 Industrial Ethernet switches</b>			
<p>Industrial Ethernet switches for setting up electrical and/or optical Industrial Ethernet networks; integrated redundancy manager, IT functions (RSTP, VLAN, etc.), network management via SNMP and web server; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM; C-PLUG included in the scope of delivery</p> <ul style="list-style-type: none"> <li> <b>SCALANCE X310;</b>            3 x 10/100/1000 Mbit/s            RJ45 ports, electrical            7 x 10/100 Mbit/s            RJ45 ports, electrical         </li> <li> <b>SCALANCE X308-2;</b>            2 x 1000 Mbit/s SC ports, optical (multimode, glass), up to 750 m            1 x 10/100/1000 Mbit/s            RJ45 port, electrical            7 x 10/100 Mbit/s            RJ45 ports, electrical;         </li> <li> <b>SCALANCE X308-2LD;</b>            2 x 1000 Mbit/s SC ports, optical (single-mode, glass), up to 10 km            1 x 10/100/1000 Mbit/s            RJ45 port, electrical,            7 x 10/100 Mbit/s            RJ45 ports, electrical;         </li> <li> <b>SCALANCE X308-2LH;</b>            2 x 1000 Mbit/s SC ports, optical (single-mode, glass), up to 40 km            1 x 10/100/1000 Mbit/s            RJ45 port, electrical,            7 x 10/100 Mbit/s            RJ45 ports, electrical         </li> <li> <b>SCALANCE X308-2LH+;</b>            2 x 1000 Mbit/s SC ports, optical (single-mode, glass), up to 70 km            1 x 10/100/1000 Mbit/s            RJ45 port, electrical,            7 x 10/100 Mbit/s            RJ45 ports, electrical         </li> <li> <b>SCALANCE X307-3;</b>            3 x 1000 Mbit/s SC ports, optical (multi-mode, glass), up to 750 m            7 x 10/100 Mbit/s            RJ45 ports, electrical         </li> <li> <b>SCALANCE X307-3LD;</b>            3 x 1000 Mbit/s SC ports, optical (single-mode, glass), up to 10 km            7 x 10/100 Mbit/s            RJ45 ports, electrical         </li> </ul>	<p><b>6GK5310-0FA00-2AA3</b></p> <p><b>6GK5308-2FL00-2AA3</b></p> <p><b>6GK5308-2FM00-2AA3</b></p> <p><b>6GK5308-2FN00-2AA3</b></p> <p><b>6GK5308-2FP00-2AA3</b></p> <p><b>6GK5307-3BL00-2AA3</b></p> <p><b>6GK5307-3BM00-2AA3</b></p>	<p><b>Fast Ethernet Switches</b></p> <ul style="list-style-type: none"> <li> <b>SCALANCE X310FE;</b>            10 x 10/100 Mbit/s            RJ45 ports, electrical         </li> <li> <b>SCALANCE X304-2FE;</b>            2 x 100 Mbps SC port, optical (multi-mode, glass), up to 5 km            4 x 10/100 Mbps            RJ45 ports, electrical         </li> <li> <b>SCALANCE X306-1LD FE;</b>            1 x 100 Mbps SC port, optical (single-mode, glass), up to 5 km            6 x 10/100 Mbps            RJ45 ports, electrical         </li> <li> <b>SCALANCE X320-1FE;</b>            1 x 100 Mbps SC port, optical (multi-mode, glass), up to 5 km            20 x 10/100 Mbps            RJ45 ports, electrical         </li> <li> <b>SCALANCE X320-3LD FE;</b>            1 x 100 Mbps SC port, optical (multi-mode, glass), up to 5 km            2 x 100 Mbps SC port, optical (single-mode, glass), up to 26 km            20 x 10/100 Mbps            RJ45 ports, electrical         </li> </ul> <p><b>Full Gigabit Ethernet Switches</b></p> <ul style="list-style-type: none"> <li> <b>SCALANCE X308-2M;</b>            4 x 10/100//1000 Mbps            RJ45 ports, electrical            2 x 10/100/1000 Mbps slots for 2-port media modules, electrical or optical         </li> <li> <b>SCALANCE X308-2M TS;</b>            4 x 10/100//1000 Mbps            RJ45 ports, electrical            2 x 10/100/1000 Mbps slots for 2-port media modules, electrical or optical, with extended temperature range and EN 50155 approval for railway applications         </li> </ul> <p><b>Mediamodules</b></p> <p>See "Media modules for modular SCALANCE X-300 managed"</p> <p><b>Accessories</b></p> <ul style="list-style-type: none"> <li> <b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b>            4-core, shielded TP installation cable for connection to IE FC RJ45 outlet / IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m         </li> <li> <b>IE FC TP Standard Cable GP 4 x 2</b>            8-core, shielded TP installation cable for connection to IE FC RJ45 Modular Outlet for universal application; with UL approval; sold by the meter; max quantity 1000 m, minimum order 20 m         </li> <li> <b>IE TP Cord RJ45/RJ45</b>            TP cable 4 x 2 with two RJ45 connectors           <ul style="list-style-type: none"> <li>0,5 m</li> <li>1 m</li> <li>2 m</li> <li>6 m</li> <li>10 m</li> </ul> </li> </ul>	<p><b>6GK5310-0BA00-2AA3</b></p> <p><b>6GK5304-2BD00-2AA3</b></p> <p><b>6GK5306-1BF00-2AA3</b></p> <p><b>6GK5320-1BD00-2AA3</b></p> <p><b>6GK5320-3BF00-2AA3</b></p> <p><b>6GK5308-2GG00-2AA2</b></p> <p><b>6GK5308-2GG00-2CA2</b></p> <p><b>6XV1840-2AH10</b></p> <p><b>6XV1870-2E</b></p> <p><b>6XV1870-3QE50</b></p> <p><b>6XV1870-3QH10</b></p> <p><b>6XV1870-3QH20</b></p> <p><b>6XV1870-3QH60</b></p> <p><b>6XV1870-3QN10</b></p>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X-300 managed

Ordering data	Article No.	Article No.
<i>Accessories</i> (continued)		
<b>FO Standard Cable GP 50/125/1400</b> <sup>2)</sup> Multimode cable, sold by the meter; max. length 1000 m; minimum order 20 m	<b>6XV1873-2A</b>	<b>IE FC RJ45 Plug 4 x 2</b> RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbps) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface • 1 pack = 1 unit • 1 pack = 10 units • 1 pack = 50 units
<b>FO Robust Cable GP 4E9/125/90</b> Singlemode cable, sold by the meter; max. length 1000 m; minimum order 20 m	<b>6XV1843-2R</b>	
<b>Glass fiber-optic cable, pre-assembled with 4 SC connectors</b> <sup>1)</sup> • 80 m • 100 m • 150 m • 200 m • 300 m	<b>6XV1873-6AN80</b> <b>6XV1873-6AT10</b> <b>6XV1873-6AT15</b> <b>6XV1873-6AT20</b> <b>6XV1873-6AT30</b>	<b>FC SC Plug</b> Screw connector for on-site assembly on FC fiber-optic cable; (1 pack = 10 Duplex Plugs + cleaning cloths)
<b>FC FO Standard Cable GP 62,5/200/230</b> FC FO standard cable for fixed routing indoors with PVC sheath; sold by the meter; max. length 1000 m; minimum order 20 m	<b>6XV1847-2A</b>	
<b>IE FC RJ45 Plug 180 2 x 2</b> RJ45 plug-in connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface • 1 pack = 1 unit • 1 pack = 10 units • 1 pack = 50 units	<b>6GK1901-1BB10-2AA0</b> <b>6GK1901-1BB10-2AB0</b> <b>6GK1901-1BB10-2AE0</b>	<b>6GK1901-1BB11-2AA0</b> <b>6GK1901-1BB11-2AB0</b> <b>6GK1901-1BB11-2AE0</b>
		<b>6GK1900-1LB00-0AC0</b>
		<b>6GK1901-1GA00</b>
		<b>6GK1900-1GL00-0AA0</b>
		<b>6EP1331-5BA00</b>
		<b>6GK1901-1BE00-0AA1</b>  <b>6GK1901-1BE00-0AA2</b>

<sup>1)</sup> Special fiber-optic cables, lengths and accessories available on request

<sup>2)</sup> Special tools and trained personnel are required for pre-assembling glass fiber-optic cables

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

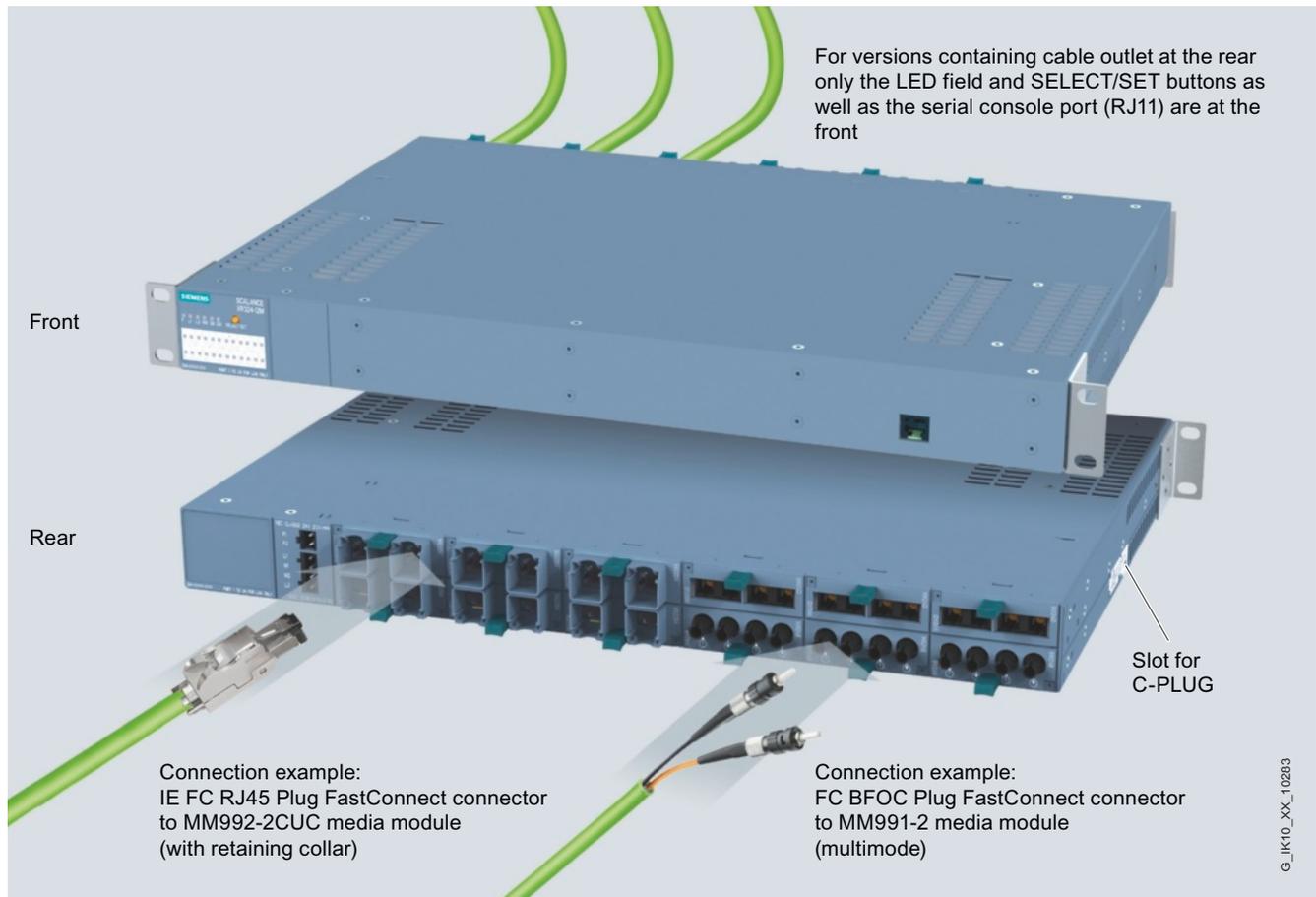
#### Overview



The SCALANCE XR-300 Industrial Ethernet switches are fully modular, high-performance, industry-standard switches for the construction of electrical and optical line, ring and star topologies with data transfer rates of 10/100/1000 Mbit/s, designed for installation in 19" control cabinets.

- As many as 24 electrical and/or optical interfaces (10/100/1000 Mbit/s); up to 12 electrical and/or optical 2-port media modules can be inserted at any position in the basic unit
- High-speed media redundancy through integral redundancy manager both for Gigabit Ethernet (with SCALANCE X-300, X-400) and Fast Ethernet (e.g. in combination with SCALANCE X-200 switches)
- Seamless integration of automation networks into existing corporate networks thanks to support for a host of IT standard functions (VLANs, IGMP-Snooping/Querier, STP/RSTP, Link Aggregation, Quality of Service)
- Redundant integration into higher-level networks thanks to support for standardized redundancy procedures (Spanning Tree Protocol/Rapid Reconfiguration Spanning Tree Protocol/MRP)
- Remote diagnostics by means of PROFINET diagnostics, Web browser, CLI, or SNMP

#### Design



SCALANCE XR-300 with cable outlet at rear

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE XR-300 managed

#### Ordering data

#### Article No.

##### SCALANCE XR324 Industrial Ethernet switches

Fully modular 19" Industrial Ethernet switches for setting up electrical and/or optical Industrial Ethernet networks; all ports can optionally be equipped with optical or electrical 2-port media modules); all ports support Gigabit Ethernet (blocking), integrated redundancy manager, RSTP, RMON, IGMP-Snooping/Querier, network management via SNMP, PROFINET, and web server  
12 x 10/100/1000 Mbit/s slots for 2-port media modules, electrical or optical

##### SCALANCE XR324-12M

24 V DC power supply

- Data cable outlet at front
- Data cable outlet at rear

**6GK5324-0GG00-1AR2**  
**6GK5324-0GG00-1HR2**

110 ... 230 V AC power supply

- Data cable outlet at front
- Data cable outlet at rear

**6GK5324-0GG00-3AR2**  
**6GK5324-0GG00-3HR2**

##### SCALANCE XR324-12M TS

for railway applications (approval in accordance with EN 50155);

24 V DC power supply

- Data cable outlet at front

**6GK5324-0GG00-1CR2**

##### Media modules for SCALANCE X-300

See "Media modules for modular SCALANCE X-300 managed"

##### SITOP compact, 2,5 A

**6EP1332-5BA00**

1-phase power supply with wide-range input 85 – 264 V AC, regulated output voltage 24 V, output current rated value 2.5 A

#### More information

##### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X-300PoE managed

#### Overview



The SCALANCE X-300PoE product line comprises compact Industrial Ethernet switches for constructing electrical and/or optical line, star and ring topologies operating at data transfer rates of 10/100/1000 Mbit/s.

- Partially modular version with four integrated electrical, PoE-enabled Ethernet ports and two slots for 2-port media modules
- High-speed media redundancy through integral redundancy manager both for Gigabit Ethernet (SCALANCE X-300, X-400) and Fast Ethernet (e.g. in combination with SCALANCE X-200 switches)
- Seamless integration of automation networks into existing corporate networks thanks to support for a host of IT standards: Establishment of virtual networks (VLANs)
- Redundant integration into higher-level networks thanks to support for standardized redundancy procedures (Rapid Spanning Tree Protocol)
- PROFINET diagnostics, SNMP access, integrated web server and automatic e-mail transmission function for remote diagnostics and signaling via the network

#### Ordering data

#### Article No.

##### SCALANCE X-300PoE Industrial Ethernet switches

PoE-compatible Industrial Ethernet Switches for setting up electrical and/or optical Industrial Ethernet networks; integrated redundancy manager, IT functions (RSTP, VLAN, ...), network management via SNMP and web server; incl. operating instructions, Industrial Ethernet manual and configuration software on CD-ROM; C-PLUG included in scope of supply

##### Full Gigabit Ethernet Switches

- **SCALANCE X308-2M PoE;**  
4 x 10/100/1000 Mbit/s  
RJ45 ports with PoE, electrical;  
2 x 10/100/1000 Mbit/s  
slots for 2-port media modules,  
electrical or optical

**6GK5308-2QG00-2AA2**

##### Mediamodules

See "Media modules for modular SCALANCE X-300 managed"

##### Accessories

##### IE FC TP Standard Cable GP 2 x 2 (Type A)

**6XV1840-2AH10**

4-core, shielded TP installation cable for connection to IE FC outlet RJ45/IE FC RJ45 plug; PROFINET-compatible; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m

##### IE FC TP Standard Cable GP 4 x 2

**6XV1870-2E**

8-core, shielded TP installation cable for connection to IE FC RJ45 modular outlet for universal use; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m

##### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with two RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1870-3QE50**

**6XV1870-3QH10**

**6XV1870-3QH20**

**6XV1870-3QH60**

**6XV1870-3QN10**

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X-300PoE managed

#### Ordering data

#### Article No.

##### Accessories (continued)

##### IE FC RJ45 Plug 180 2 x 2

RJ45 plug-in connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB10-2AA0**  
**6GK1901-1BB10-2AB0**  
**6GK1901-1BB10-2AE0**

##### IE FC RJ45 Plug 4 x 2

RJ45 plug-in connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB11-2AA0**  
**6GK1901-1BB11-2AB0**  
**6GK1901-1BB11-2AE0**

##### FC SC Plug

Screw connector for on-site assembly on FC fiber-optic cable; (1 pack = 10 Duplex Plugs + cleaning cloths)

**6GK1900-1LB00-0AC0**

##### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

**6GK1901-1GA00**

##### FC FO Termination Kit

Assembly case for local assembly of FC SC and FC BFOC connectors to FC FO standard cable, comprising a stripping tool, Kevlar cutters, fiber breaking tool and microscope

**6GK1900-1GL00-0AA0**

##### IE FC RJ45 Modular Outlet

FastConnect RJ45 outlet for Industrial Ethernet with interface for insertion of a replacement insert;

- **with insert 2FE ;**  
replacement insert  
for 2 x 100 Mbit/s interface
- **with insert 1GE ;**  
replacement insert  
for 1 x 1000 Mbit/s interface

**6GK1901-1BE00-0AA1**

**6GK1901-1BE00-0AA2**

##### SITOP compact PSU100C 24 V/1,3 A

1-phase power supply with wide-range input 85 ... 264 VAC/110 ... 300 VDC, stabilized output voltage 24 V, rated output current value 1.3 A, slim design

**6EP1331-5BA10**

#### More information

##### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE XR-300PoE managed

#### Overview



The SCALANCE XR-300PoE Industrial Ethernet switches are partly modular, high-performance, industry-standard switches for the construction of electrical and/or optical line, ring and star topologies at data transfer rates of 10/100/1000 Mbit/s, designed for installation in 19" control cabinets

- As many as 24 electrical and/or optical interfaces (10/100/1000 Mbit/s), of which 16 are integrated RJ45 ports, eight of which are PoE-compatible; up to four electrical and/or optical 2-port media modules can additionally be inserted in the media module slots of the basic unit
- High-speed media redundancy through integral redundancy manager both for Gigabit Ethernet (with SCALANCE X-300, X-400) and Fast Ethernet (e.g. in combination with SCALANCE X-200 switches)
- Seamless integration of automation networks into existing corporate networks thanks to support for a host of IT standard functions (VLANs, IGMP-Snooping/Querier, STP/RSTP, Link Aggregation, Quality of Service)
- Redundant integration into higher-level networks thanks to support for standardized redundancy procedures (Spanning Tree Protocol/Rapid Reconfiguration Spanning Tree Protocol/MRP)
- Remote diagnostics by means of PROFINET diagnostics, Web browser, CLI, or SNMP

#### Ordering data

#### Article No.

##### SCALANCE XR324-4M PoE Industrial Ethernet switches

Partly modular 19" Industrial Ethernet switches for setting up electrical and optical Industrial Ethernet networks; eight PoE-compatible ports can optionally be equipped with optical or electrical 2-port media modules; all ports support Gigabit Ethernet (blocking), integrated redundancy manager, RSTP, RMON, IGMP-Snooping/Querier, network management via SNMP, PROFINET, and web server  
16 x 10/100/1000 Mbit/s RJ45 ports, eight of which support PoE;  
4 x 10/100/1000 Mbit/s slots for 2-port media modules, electrical or optical

##### SCALANCE XR324-4M PoE

24 V DC power supply

- Data cable outlet at front
- Data cable outlet at rear

**6GK5324-4QG00-1AR2**  
**6GK5324-4QG00-1HR2**

100 ... 240 V AC power supply

- Data cable outlet at front
- Data cable outlet at rear

**6GK5324-4QG00-3AR2**  
**6GK5324-4QG00-3HR2**

##### SCALANCE XR324-4M PoE TS

for railway applications (approval in accordance with EN 50155);  
24 V DC power supply

- Data cable outlet at front

**6GK5324-4QG00-1CR2**

##### Media modules

See "Media modules for modular SCALANCE X-300 managed"

##### SITOP modular, 5 A

Single-phase and 2-phase power supply with wide-range input  
85 ... 264 V / 176 V ... 550 V AC,  
regulated output voltage 24 V,  
output current rated value 5 A

**6EP1333-3BA00**

#### More information

##### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE X-300EEC managed

#### Overview



The SCALANCE X-300EEC (**E**nhanced **E**nvironmental **C**onditions) product line comprises compact Industrial Ethernet switches with IT functions for constructing electrical and/or optical line, star and ring topologies at data transfer rates of 10/100/1000 Mbit/s.

- Suitable for use in extremely harsh industrial environments and in low-voltage and high-voltage switchgear thanks to:
  - Extended temperature range (-40 to +70 °C, briefly to +85 °C)
  - Special coating on PCBs (conformal coating)
  - Support for special protocols and standards (IEEE 1613 and IEC 61850-3)
  - Wide-range power supplies (60 to 250 V AC/DC)
- As many as nine integrated electrical and/or optical Ethernet interfaces (10/100/1000 Mbit/s) support the interconnection of a number of switches, the construction of optical/electrical rings, or the connection of several Industrial Ethernet nodes
- High-speed media redundancy through integral redundancy manager both for Gigabit Ethernet and Fast Ethernet
- Seamless integration of automation networks into existing corporate networks thanks to support for a host of IT standard functions (VLANs, IGMP-Snooping/Querier, STP/RSTP)
- PROFINET diagnostics, SNMP access, integrated web server and CLI for remote diagnostics and signaling via the network

#### Ordering data

#### Article No.

##### SCALANCE X-300EEC Industrial Ethernet switches

Compact Industrial Ethernet switches for setting up electrical and/or optical Industrial Ethernet networks; RSTP, RMON, IGMP Snooping/Querier, management functionality via SNMP, PROFINET and web server, 24 V power supply

**SCALANCE X302-7EEC;**  
2 x 10/100/1000 Mbit/s RJ45 ports, electrical;  
7 x 100 Mbit/s LC ports, optical (multimode, glass) up to 5 km

##### 24 V DC power supply

- 1 power supply
- 2 power supplies
- 1 power supply with conformal coating
- 2 power supplies with conformal coating

**6GK5302-7GD00-1EA3**  
**6GK5302-7GD00-2EA3**  
**6GK5302-7GD00-1GA3**  
**6GK5302-7GD00-2GA3**

##### 100-240 AC / 60-250 V DC power supply

- 1 power supply
- 2 power supplies
- 1 power supply with conformal coating
- 2 power supplies with conformal coating

**6GK5302-7GD00-3EA3**  
**6GK5302-7GD00-4EA3**  
**6GK5302-7GD00-3GA3**  
**6GK5302-7GD00-4GA3**

**SCALANCE X307-2EEC;**  
5 x 10/100 Mbit/s RJ45 ports, electrical;  
2 x 10/100/1000 Mbit/s RJ45 ports, electrical  
2 x 100 Mbit/s LC ports, optical (multimode, glass) up to 5 km

##### 24 V DC power supply

- 1 power supply
- 2 power supplies
- 1 power supply with conformal coating
- 2 power supplies with conformal coating

**6GK5307-2FD00-1EA3**  
**6GK5307-2FD00-2EA3**  
**6GK5307-2FD00-1GA3**  
**6GK5307-2FD00-2GA3**

##### 100-240 AC/60-250 V DC power supply

- 1 power supply
- 2 power supplies
- 1 power supply with conformal coating
- 2 power supplies with conformal coating

**6GK5307-2FD00-3EA3**  
**6GK5307-2FD00-4EA3**  
**6GK5307-2FD00-3GA3**  
**6GK5307-2FD00-4GA3**

Ordering data	Article No.	Article No.
<b>Accessories</b>		
<b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order length 20 m	<b>6XV1840-2AH10</b>	<b>IE FC RJ45 Plug 180</b> RJ45 plug-in connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface • 1 pack = 1 unit • 1 pack = 10 units • 1 pack = 50 units
<b>IE FC TP Standard Cable GP 4 x 2</b> 8-core, shielded TP installation cable for connection to IE FC RJ45 modular outlet for universal application; with UL approval; sold by the meter; max length 1000 m, minimum order 20 m • AWG 22, for connection to IE FC RJ45 Modular Outlet • AWG 24, for connection to IE FC RJ45 Plug 4 x 2	<b>6XV1870-2E</b>  <b>6XV1878-2A</b>	
<b>IE FC TP Flexible Cable GP 4 x 2</b> 8-core, shielded TP installation cable for occasional moving; with UL approval; sold by the meter; max. delivery unit 1000 m, minimum order 20 m • AWG 24, for connection to IE FC RJ45 Plug 4 x 2	<b>6XV1878-2B</b>	<b>IE FC RJ45 Plug 4 x 2</b> RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface • 1 pack = 1 unit • 1 pack = 10 units • 1 pack = 50 units
<b>IE TP Cord RJ45/RJ45</b> TP cable 4 x 2 with two RJ45 plugs • 0,5 m • 1 m • 2 m • 6 m • 10 m	<b>6XV1870-3QE50</b> <b>6XV1870-3QH10</b> <b>6XV1870-3QH20</b> <b>6XV1870-3QH60</b> <b>6XV1870-3QN10</b>	<b>IE FC Stripping Tool</b> Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables  <b>SIPLUS PS modular 5 A</b> Single-phase and 2-phase power supply with wide-range input 85 ... 264 V / 176 V ... 550 V AC, regulated output voltage 24 V, output current rated value 5 A, coating of the PCB and electronic components (conformal coating)
		<b>IE FC RJ45 Modular Outlet</b> FastConnect RJ45 outlet for Industrial Ethernet with interface for replaceable insert • with insert 2FE ; replaceable insert for 2 x 100 Mbit/s interfaces • with 1GE insert; replaceable insert for 1 x 1000 Mbit/s interfaces
		<b>6GK1901-1BB10-2AA0</b> <b>6GK1901-1BB10-2AB0</b> <b>6GK1901-1BB10-2AE0</b>  <b>6GK1901-1BB11-2AA0</b> <b>6GK1901-1BB11-2AB0</b> <b>6GK1901-1BB11-2AE0</b>  <b>6GK1901-1GA00</b>  <b>6AG1933-3BA00-2AA0</b>

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### SCALANCE XR-300EEC managed

#### Overview



The SCALANCE XR-300EEC (**E**nhanced **E**nvironmental **C**onditions) industrial Ethernet switches are partly modular, high-performance, industry-standard switches for the construction of electrical and/or optical line, ring and star topologies at data transfer rates of 10/100/1000 Mbit/s, designed for installation in 19" control cabinets.

- As many as 24 electrical and/or interfaces (10/100/1000 Mbit/s), of which 16 are integral RJ45 ports; up to four electrical and/or optical 2-port media modules can also be inserted in the media module slots of the basic device
- Suitable for use in extremely harsh industrial environments and in low-voltage and high-voltage switchgear thanks to:
  - Extended temperature range (-40 to +70 °C, briefly to +85 °C)
  - Support for special protocols and standards (IEEE 1613 and IEC 61850-3)
  - Wide-range power supplies (60 to 250 V AC/DC)
- High-speed media redundancy through integral redundancy manager both for Gigabit Ethernet and Fast Ethernet
- Seamless integration of automation networks into existing corporate networks thanks to support for a host of IT standards (VLANs, IGMP-Snooping/Querier, STP/RSTP, Link Aggregation, Quality of Service)
- Remote diagnostics by means of PROFINET diagnostics, Web browser, CLI, or SNMP

#### Ordering data

#### Article No.

##### Industrial Ethernet Switches SCALANCE XR324-4M EEC

Partially modular 19" Industrial Ethernet switches for establishing electrical and optical Industrial Ethernet networks; all ports can be optionally equipped with optical or electrical 2-port media modules; All ports support Gigabit Ethernet (blocking), integrated redundancy manager, RSTP, RMON, IGMP snooping querier, network management via SNMP, PROFINET and Web server  
 16 x 10/100/1000 Mbit/s RJ45 ports, electrical  
 4 x 10/100/1000 Mbit/s slots for 2-port media modules, electrical or optical

##### SCALANCE XR324-4M EEC

###### Power supply 1 x 24 V DC

- Front data cable outlet, rear power supply
- Rear data cable outlet, front power supply

**6GK5324-4GG00-1ER2**

**6GK5324-4GG00-1JR2**

###### Power supply T x 100-240 AC / 60-250 V DC

- Front data cable outlet, rear power supply
- Rear data cable outlet, front power supply

**6GK5324-4GG00-3ER2**

**6GK5324-4GG00-3JR2**

###### Power supply 2 x 24 V DC

- Front data cable outlet, rear power supply
- Rear data cable outlet, front power supply

**6GK5324-4GG00-2ER2**

**6GK5324-4GG00-2JR2**

###### Power supply 2 x 100-240 AC / 60-250 V DC

- Front data cable outlet, rear power supply
- Rear data cable outlet, front power supply

**6GK5324-4GG00-4ER2**

**6GK5324-4GG00-4JR2**

##### Mediamodules

See "Media modules for modular SCALANCE X-300 managed"

##### SIPLUS modular 5 A

1-phase and 2-phase power supply with wide-range input  
 85 ... 264 V / 176 V ... 550 V AC, regulated output voltage 24 V, output current rated value 5 A, coating of the PCB and electronic components (conformal coating)

**6EP1933-3BA00-2AA0**

#### More information

##### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

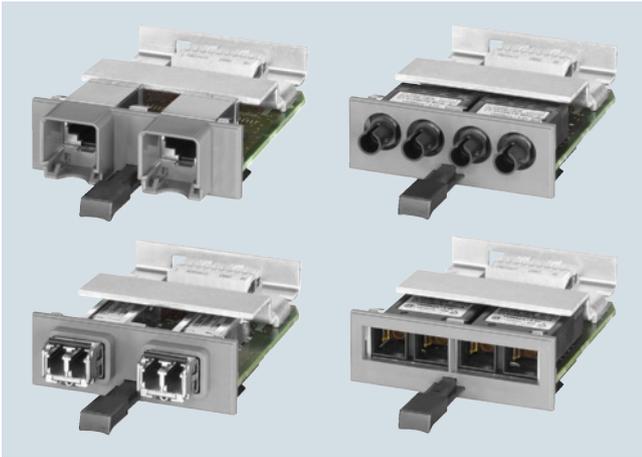
<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

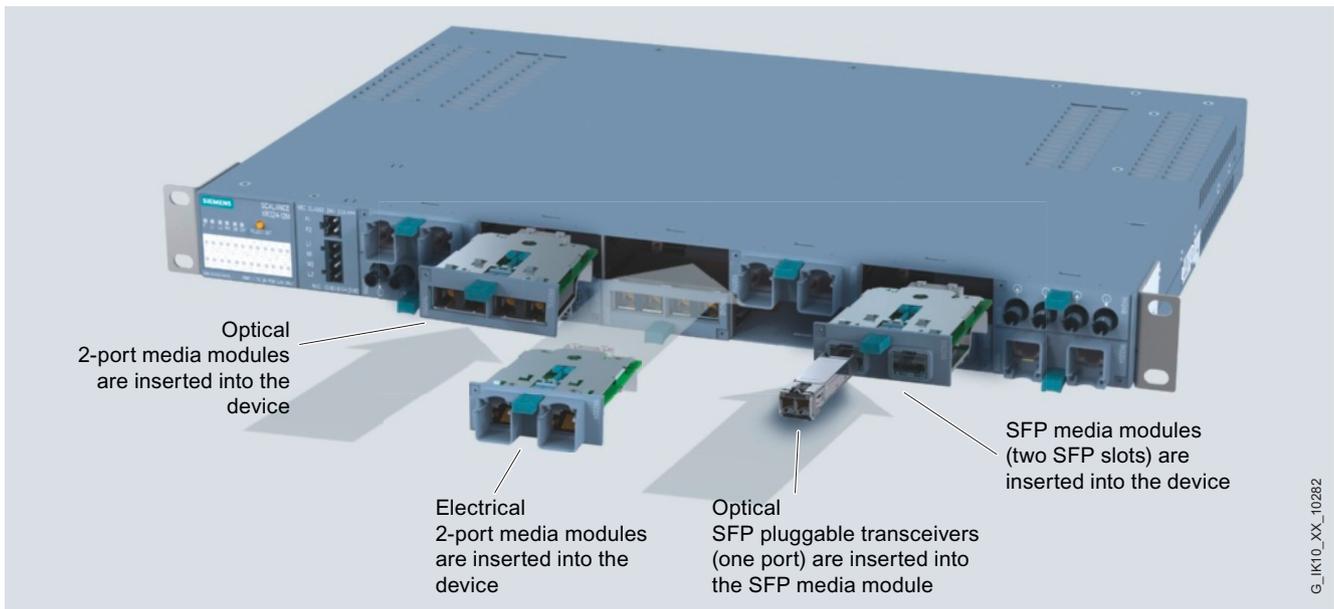
Media modules  
for modular SCALANCE X-300 managed

### Overview



- 2-port media modules for flexible, 2-port-granular equipping of partly and fully modular versions of the SCALANCE X-300 switches (e.g. SCALANCE X308-2M, SCALANCE XR324-12M) and of the SCALANCE S627-2M
- Electrical versions with RJ45 ports are available as well as optical versions with BFOC and SC ports for the use of multi-mode and singlemode fiber-optic cables
- A 2-port SFP media module permits the optional use of fiber-optic SFP plug-in transceivers (**S**mall **F**orm-**F**actor **P**luggable) with LC connection technology. Versions with coated PCBs (conformal coating) for railway applications are also available.

### Design



Insertion of 2-port media modules in media module slot

G\_1K10\_XX\_10282

# PROFINET/Industrial Ethernet

## Industrial Ethernet Switches

### Media modules for modular SCALANCE X-300 managed

Ordering data	Article No.	Article No.
<i>Electrical media modules</i>		
<b>with 2 x 10/100/1000 Mbit/s RJ45 ports, electrical</b> <ul style="list-style-type: none"> <li>MM992-2CUC with retaining sleeve</li> <li>MM992-2CUC with retaining sleeve and coated PCBs (conformal coating)</li> <li>MM992-2CU without retaining sleeve</li> </ul>	<b>6GK5992-2GA00-8AA0</b>  <b>6GK5992-2GA00-8FA0</b>  <b>6GK5992-2SA00-8AA0</b>	
<b>with 2 x 10/100/1000 Mbit/s M12 ports, electrical</b> <ul style="list-style-type: none"> <li>MM992-2 M12 interface (x-coded) and coated PCBs (conformal coating)</li> </ul>	<b>6GK5992-2HA00-0AA0</b>	
<b>with 2 x 1/10/100/1000 Mbit/s RJ45 ports, electrical</b> <ul style="list-style-type: none"> <li>MM992-2VD</li> </ul>	<b>6GK5992-2VA00-8AA0</b>	
<i>Fiber optic modules</i>		
<b>with 2 x 100 Mbit/s BFOC ports, optical</b> <ul style="list-style-type: none"> <li>MM991-2 multimode, glass, up to 5 km</li> <li>MM991-2LD singlemode, glass, up to 26 km</li> </ul>	<b>6GK5991-2AB00-8AA0</b>  <b>6GK5991-2AC00-8AA0</b>	
<b>with 2 x 1000 Mbit/s SC ports, optical</b> <ul style="list-style-type: none"> <li>MM991-2 multimode, glass, up to 5 km</li> <li>MM991-2LD singlemode, glass, up to 26 km</li> <li>MM991-2LH+ singlemode, glass, up to 70 km</li> </ul>	<b>6GK5991-2AD00-8AA0</b>  <b>6GK5991-2AF00-8AA0</b>  <b>6GK5991-2AE00-8AA0</b>	
<b>mit 2 x 1000 Mbit/s SC-Ports, optisch</b> <ul style="list-style-type: none"> <li>MM992-2 multimode, glass, up to 750 m</li> <li>MM992-2 multimode, glass, up to 750 m, coated PCBs (conformal coating)</li> <li>MM992-2LD singlemode, glass, up to 10 km</li> <li>MM992-2LH singlemode, glass, up to 40 km</li> <li>MM992-2LH+ singlemode, glass, up to 70 km</li> <li>MM992-2ELH singlemode, glass, up to 120 kmm</li> </ul>	<b>6GK5992-2AL00-8AA0</b>  <b>6GK5992-2AL00-8FA0</b>  <b>6GK5992-2AM00-8AA0</b>  <b>6GK5992-2AN00-8AA0</b>  <b>6GK5992-2AP00-8AA0</b>  <b>6GK5992-2AQ00-8AA0</b>	
<b>with 2 x 100/1000 Mbit/s for SFP pluggable transceiver, optical</b> <ul style="list-style-type: none"> <li>MM992-2SFP for SFP pluggable transceivers with 1 x 100 or 1 x 1000 Mbit/s multimode or singlemode, glass</li> </ul>	<b>6GK5992-2AS00-8AA0</b>	
<i>SFP pluggable transceiver, optical</i>		
<b>with 1 x 100 Mbit/s LC port, optical</b> <ul style="list-style-type: none"> <li>SFP991-1 multimode, glass, up to 5 km</li> <li>SFP991-1LD singlemode, glass, up to 26 km</li> <li>SFP991-1LH+ singlemode, glass, up to 70 km</li> <li>SFP991-1ELH200 singlemode, glass, up to 200 km</li> </ul>		<b>6GK5991-1AD00-8AA0</b>  <b>6GK5991-1AF00-8AA0</b>  <b>6GK5991-1AE00-8AA0</b>  <b>6GK5991-1AE30-8AA0</b>
<b>with 1 x 1000 Mbit/s LC port, optical</b> <ul style="list-style-type: none"> <li>SFP992-1 multimode, glass, up to 750 m</li> <li>SFP992-1LD singlemode, glass, up to 10 km</li> <li>SFP992-1LH singlemode, glass, up to 40 km</li> <li>SFP992-1LH+ singlemode, glass, up to 70 km</li> <li>SFP992-1ELH singlemode, glass, up to 120 km</li> </ul>		<b>6GK5992-1AL00-8AA0</b>  <b>6GK5992-1AM00-8AA0</b>  <b>6GK5992-1AN00-8AA0</b>  <b>6GK5992-1AP00-8AA0</b>  <b>6GK5992-1AQ00-8AA0</b>
<i>Accessories</i>		
<b>IE FC RJ45 Modular Outlet</b>  FastConnect RJ45 outlet for Industrial Ethernet with interface for replaceable insert <ul style="list-style-type: none"> <li>with insert 2FE ; replaceable insert for 2 x 100 Mbit/s interfaces</li> <li>with 1GE insert; replaceable insert for 1 x 1000 Mbit/s interfaces</li> </ul>		<b>6GK1901-1BE00-0AA1</b>  <b>6GK1901-1BE00-0AA2</b>
<b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b>  4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m		<b>6XV1840-2AH10</b>
<b>IE FC TP Standard Cable GP 4 x 2</b>  8-core, shielded TP installation cable for connection to IE FC RJ45 modular outlet for universal application; with UL approval; sold by the meter; max length 1 000 m, minimum order 20 m		<b>6XV1870-2E</b>

Ordering data	Article No.	More information
<i>Accessories</i> (continued)		
<b>IE TP Cord RJ45/RJ45</b> TP cable 4 x 2 with two RJ45 plugs <ul style="list-style-type: none"> <li>• 0,5 m</li> <li>• 1 m</li> <li>• 2 m</li> <li>• 6 m</li> <li>• 10 m</li> </ul>	<b>6XV1870-3QE50</b> <b>6XV1870-3QH10</b> <b>6XV1870-3QH20</b> <b>6XV1870-3QH60</b> <b>6XV1870-3QN10</b>	<b>Selection tools:</b>  To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:  SIMATIC NET Selection Tool: <ul style="list-style-type: none"> <li>• Online version: <a href="http://www.siemens.com/snst">http://www.siemens.com/snst</a></li> <li>• Offline version: <a href="http://www.siemens.com/snst-download">http://www.siemens.com/snst-download</a></li> </ul> TIA Selection Tool: <a href="http://www.siemens.com/tia-selection-tool">http://www.siemens.com/tia-selection-tool</a>  For accessories, see Page
<b>IE FC RJ45 Plug 180 2 x 2</b>  RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	<b>6GK1901-1BB10-2AA0</b> <b>6GK1901-1BB10-2AB0</b> <b>6GK1901-1BB10-2AE0</b>	
<b>IE FC RJ45 Plug 4 x 2</b>  RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	<b>6GK1901-1BB11-2AA0</b> <b>6GK1901-1BB11-2AB0</b> <b>6GK1901-1BB11-2AE0</b>	

# PROFINET/Industrial Ethernet

## Industrial Ethernet Layer 3 Switches / Routers

### SCALANCE X-400 managed

#### Overview



The SCALANCE X-400 product range comprises modular Industrial Ethernet switches expandable with various media modules and, in some cases, with extenders. It supports 10/100/1000 Mbit technology for various transmission media (twisted pair, fiber optic) and increased port requirements. The main applications are high-performance plant networks (control level). Thanks to its partly modular design, the X-400 product line is also designed for future requirements and can be adapted to the relevant task.

- Two to four integral Gigabit Ethernet twisted pair interfaces (10/100/1000 Mbit/s) for connecting several switches to each other; node connection via the Fast Ethernet twisted pair ports (10/100 Mbit/s) integrated into the basic unit
- SCALANCE X414-3E; another eight nodes can be connected to the basic unit via extender modules; the following extender modules are available:
  - -Extenders with eight Fast Ethernet twisted-pair ports
  - -Extenders with four media module slots for up to eight Fast Ethernet fiber optic ports
- High-speed media redundancy through integral redundancy manager even for large networks, for both Gigabit Ethernet and Fast Ethernet
- For the construction of optical Gigabit Ethernet rings, the integrated Gigabit Ethernet ports can be converted to fiber optic via a 2-port Gigabit Ethernet media module (MM).
- By means of pluggable 2-port Fast Ethernet media modules for multimode or alternatively single-mode fiber-optic cable, SCALANCE X-400 switches can also be integrated into 100 Mbit/s rings, e.g. with SCALANCE X204-2. In this way, even remote nodes can be connected optically.
- Remote diagnostics by means of PROFINET diagnostics, CLI, Web browser, or SNMP
- Seamless integration of automation networks into existing corporate networks thanks to support for a host of IT standards: Establishment of virtual networks (VLANs)
- Integration into higher-level enterprise networks thanks to support for standardized redundancy procedures (Rapid Spanning Tree Protocol)
- By learning the Multicast sources and targets (IGMP: Internet Group Management Protocol snooping), SCALANCE X-400 switches can also filter Multicast data traffic and therefore limit the load in the network.
- Creation of IP subnets and IP router communication by means of Layer 3 switching (IP routing) on SCALANCE X414-3E
  - Static routing
  - Dynamic routing OSPF (Open Shortest Path First) and RIPv2 (Routing Information Protocol)
  - Redundant routing VRRP (Virtual Router Redundancy Protocol)

# PROFINET/Industrial Ethernet

## Industrial Ethernet Layer 3 Switches / Routers

SCALANCE X-400 managed

Ordering data	Article No.	Article No.
<b>Industrial Ethernet Switches SCALANCE X-400</b>		
<p>Modular Industrial Ethernet switches with integrated RJ45 ports for setting up electrical and/or optical Industrial Ethernet networks; integrated redundancy manager, IT functions (RSTP, VLAN, ...), PROFINET IO device, network management via SNMP and web server; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM; C-PLUG included in the scope of delivery</p> <ul style="list-style-type: none"> <li>• <b>SCALANCE X408-2;</b> 4 x 10/100/1000 Mbit/s and 4 x 10/100 Mbit/s RJ45 ports; 2 x Gigabit/Fast Ethernet media module slots</li> <li>• <b>SCALANCE X414-3E;</b> 8 x 10/100/1000 Mbit/s, of which 8 x RJ45/SFP combo ports; 8 x 1000 Mbit/s can be maximally used in the basic device 24 x 1000 Mbit/s maximum overall configuration by using port extenders</li> </ul>	<p><b>6GK5408-2FD00-2AA2</b></p> <p><b>6GK5414-3FC00-2AA2</b></p>	<p><b>EM495/EM496 extender modules</b></p> <p>Extender modules for <u>SCALANCE X414-3E</u></p> <p><b>EM495-8;</b> with 8 x 10/100 Mbit/s TP ports</p> <p><b>EM496-4;</b> with 4 slots for 100 Mbit/s media modules MM</p> <p><b>6GK5495-8BA00-8AA2</b></p> <p><b>6GK5496-4MA00-8AA2</b></p>
<b>MM491/MM492 media modules</b>		
<p><u>Media modules with 2 ports;</u> 1 Gbit/s</p> <p><b>MM492-2;</b> 1000BaseSX, SC connection, multimode FOC up to 750 m</p> <p><b>MM492-2LD;</b> 1000BaseLX, SC connection, single-mode FOC up to 10 km</p> <p><b>MM492-2LH;</b> 1000BaseLX, SC connection, single-mode FOC up to 40 km</p> <p><b>MM492-2LH+;</b> 1000BaseLX, SC connection, single-mode FOC up to 70 km</p> <p><b>MM492-2ELH;</b> 1000BaseLX, SC connection, single-mode FOC up to 120 km</p>	<p><b>6GK5492-2AL00-8AA2</b></p> <p><b>6GK5492-2AM00-8AA2</b></p> <p><b>6GK5492-2AN00-8AA2</b></p> <p><b>6GK5492-2AP00-8AA2</b></p> <p><b>6GK5492-2AQ00-8AA2</b></p>	<p><b>Accessories</b></p> <p><b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC°Outlet°RJ45/IE°FC° RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m; minimum order quantity 20°m</p> <p><b>6XV1840-2AH10</b></p> <p><b>IE FC TP Standard Cable GP 4 x 2</b></p> <p>8-core, shielded TP installation cable for connection to IE FC RJ45 modular outlet for universal application; with UL approval; sold by the meter; max length 1000 m; minimum order 20 m</p> <p><b>6XV1870-2E</b></p> <p><b>IE TP Cord RJ45/RJ45</b></p> <p>TP cable 4 x 2 with two RJ45 connectors</p> <ul style="list-style-type: none"> <li>• 0,5 m</li> <li>• 1 m</li> <li>• 2 m</li> <li>• 6 m</li> <li>• 10 m</li> </ul> <p><b>6XV1870-3QE50</b> <b>6XV1870-3QH10</b> <b>6XV1870-3QH20</b> <b>6XV1870-3QH60</b> <b>6XV1870-3QN10</b></p> <p><b>FO Standard Cable GP 50/125/1400</b><sup>1) 2)</sup></p> <p>Multimode cable, sold by the meter; max. length 1000 m; minimum order 20 m;</p> <p><b>6XV1873-2A</b></p> <p><b>FO Robust Cable GP 4E9/125/90</b></p> <p>Single-mode cable, sold by the meter; max. length 1000 m; minimum order 20 m</p> <p><b>6XV1843-2R</b></p> <p><b>FC FO Standard Cable GP 62,5/200/230</b></p> <p>FC FO standard cable for fixed routing indoors with PVC sheath; sold by the meter; max. length 1000 m; minimum order 20 m</p> <p><b>6XV1847-2A</b></p> <p><b>IE FC RJ45 Plug 180 2 x 2</b></p> <p>RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation/displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul> <p><b>6GK1901-1BB10-2AA0</b> <b>6GK1901-1BB10-2AB0</b> <b>6GK1901-1BB10-2AE0</b></p>
<p><u>Media modules with 2 ports;</u> 100 Mbit/s</p> <p><b>MM491-2;</b> 100BaseLX, BFOC interface, multimode FOC up to 5 km</p> <p><b>MM491-2LD;</b> 100BaseFX, BFOC interface, singlemode FOC up to 26 km</p> <p><b>MM491-2LH+;</b> 100BaseFX, SC connection, single-mode FOC up to 70 km</p>	<p><b>6GK5491-2AB00-8AA2</b></p> <p><b>6GK5491-2AC00-8AA2</b></p> <p><b>6GK5491-2AE00-8AA2</b></p>	<p><b>1)</b> Special fiber-optic cables, lengths and accessories available on request</p> <p><b>2)</b> Special tools and trained personnel are required for pre-assembling glass fiber-optic cables</p>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Layer 3 Switches / Routers

### SCALANCE X-400 managed

#### Ordering data

#### Article No.

##### Accessories (continued)

##### IE FC RJ45 Plug 4 x 2

RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB11-2AA0**  
**6GK1901-1BB11-2AB0**  
**6GK1901-1BB11-2AE0**

##### FC BFOC Plug

Screw connector for on-site assembly on FC fiber-optic cable; (1 pack = 20 units + cleaning cloths)

**6GK1900-1GB00-0AC0**

##### FC SC Plug

Screw connector for on-site assembly on FC fiber-optic cable; (1 pack = 10 Duplex Plugs + cleaning cloths)

**6GK1900-1LB00-0AC0**

##### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

**6GK1901-1GA00**

##### FC FO Termination Kit

Assembly case for local assembly of FC SC and FC BFOC connectors to FC FO standard cable, comprising a stripping tool, Kevlar cutters, fiber breaking tool and microscope

**6GK1900-1GL00-0AA0**

##### IE FC RJ45 Modular Outlet

FastConnect RJ45 outlet for Industrial Ethernet with interface for a replaceable insert;

- **With insert 2FE;**  
replaceable insert for 2 x 100 Mbit/s interfaces
- **With insert 1GE;**  
replaceable insert for 1 x 1000 Mbit/s interfaces

**6GK1901-1BE00-0AA1**

**6GK1901-1BE00-0AA2**

##### SITOP compact, 2,5 A

1-phase power supply with wide-range input 85 – 264 V AC, regulated output voltage 24 V, output current rated value 2.5 A

**6EP1332-5BA00**

##### Spare parts

##### CV490 cover set

consisting of covers for:  
 1 x Gbit submodule slot,  
 1 x 100 Mbit/s submodule slot,  
 3 x 10/100 Mbit/s TP slot

**6GK5490-0AA00-0AA2**

##### Labeling sheet

10 sheets DIN A4, color: petrol,  
 10 strips/sheet, pre-perforated for printing with laser printer  
 10 sheets per pack

**6GK5498-0AA00-0AA0**

##### 4-pole and 5-pole terminal set

Straight, with locking lug

**6GK5498-1AA00-0AA0**

#### More information

##### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Layer 3 Switches / Routers

SCALANCE XM-400 managed

### Overview



The new SCALANCE XM-400 product range comprises modular Industrial Ethernet switches, expandable by various port extenders and plug-in transceivers for a maximum configuration with up to 24 ports. It supports 10/100/1000 Mbit technology for various transmission media (twisted pair, fiber optic) and increased port requirements. The main applications are high-performance plant networks (control level). Thanks to the flexible, modular design, the XM-400 product line is also designed for future requirements and can be adapted to the relevant task.

The new XM-400 range replaces the previous X-400 range (X414-3E and X408-2).

- Basic devices with eight to 16 integrated Gigabit Ethernet twisted pair interfaces (10/100/1000 Mbit/s):
  - Basic device with a total of 16 ports, 4 of which are combo ports
  - Basic device with a total of 8 ports, 8 of which are combo ports
  - Basic device with a total of 8 ports, 4 of which are combo ports
- Combo ports for the flexible use of interfaces: A combo port consists of an electric port and an SFP slot. Only one of the two ports can ever be active. If an SFP plug-in transceiver is inserted, the electric port is deactivated.
- Port extender for flexible expansion to up to 24 ports can be connected to the basic device.
- The following extender modules are available:
  - Extender with eight additional RJ45 ports
  - Extender with eight additional slots for SFP plug-in transceivers
  - Extender with eight RJ45 ports with Power-over-Ethernet
- Fast mobile diagnosis with smartphone/tablet: Fast access to the web-based management of the SCALANCE XM-400 via mobile websites. The function can be started using existing WLAN and NFC (Near Field Communication)
- High-speed media redundancy through integral redundancy manager even for large networks, for both Gigabit Ethernet and Fast Ethernet
- Remote diagnostics by means of PROFINET diagnostics, CLI, Web browser, or SNMP
- Integration into the TIA Portal including up/downloading of the configuration
- Seamless integration of automation networks into existing corporate networks thanks to support for a host of IT standards: Establishment of virtual networks (VLANs)
- Integration into higher-level enterprise networks thanks to support for standardized redundancy procedures (Rapid Spanning Tree Protocol, Link Aggregation)
- Through learning the multicast sources and targets (IGMP Internet Group Management Protocol snooping), SCALANCE XM-400 switches can also filter multicast data traffic and therefore limit the load in the network.
- Optional activation of the Layer 3 functions for IPv4 (IPv6 available soon) in connection with the KEY-PLUG XM-400. For a detailed description, see "Accessories for Layer 3 switches/routers"
- Creation of IP subnets and IP router communication by means of Layer 3 switching (IP routing)
  - Static routing
  - Dynamic routing OSPF (Open Shortest Path First) and RIPv2 (Routing Information Protocol)
  - Redundant routing VRRP (Virtual Router Redundancy Protocol)

# PROFINET/Industrial Ethernet

## Industrial Ethernet Layer 3 Switches / Routers

### SCALANCE XM-400 managed

Ordering data	Article No.	Article No.
<b>SCALANCE XM-400 Industrial Ethernet switches</b> With eight to 16 integrated Gigabit Ethernet twisted pair interfaces (10/100/1000 Mbit/s); integrated redundancy manager, IT functions (RSTP, VLAN, etc.), PROFINET IO Device, network management via SNMP and web server; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM; C-PLUG included in the scope of delivery		
<ul style="list-style-type: none"> <li>• <b>SCALANCE XM416-4C;</b> 16 x 10/100/1000 Mbit/s, of which 4 x RJ45/SFP combo ports; 16 x 1000 Mbit/s can be maximally used in the basic device 24 x 1000 Mbit/s maximum overall configuration by using port extenders</li> </ul>	<b>6GK5416-4GS00-2AM2</b>	
<ul style="list-style-type: none"> <li>• <b>SCALANCE XM408-8C;</b> 8 x 10/100/1000 Mbit/s, of which 8 x RJ45/SFP combo ports; 8 x 1000 Mbit/s can be maximally used in the basic device 24 x 1000 Mbit/s maximum overall configuration by using port extenders</li> </ul>	<b>6GK5408-8GS00-2AM2</b>	
<ul style="list-style-type: none"> <li>• <b>SCALANCE XM408-4C<sup>1)</sup>;</b> 8 x 10/100/1000 Mbit/s, of which 4 x RJ45/ST pluggable/SC-pluggable combo ports; 8 x 1000 Mbit/s can be maximally used in the basic device 24 x 1000 Mbit/s maximum overall configuration by using port extenders</li> </ul>	<b>6GK5408-4GP00-2AM2</b>	
<b>Port extender</b> Port extender for SCALANCE XM-400 basic devices		
<ul style="list-style-type: none"> <li>• <b>PE408;</b> with 8 x 10/100/1000 Mbit/s TP ports</li> </ul>	<b>6GK5408-0GA00-8AP2</b>	
<ul style="list-style-type: none"> <li>• <b>PE400-8SFP;</b> with 8 slots for 100/1000 Mbit/s SFP plug-in transceivers</li> </ul>	<b>6GK5400-8AS00-8AP2</b>	
<ul style="list-style-type: none"> <li>• <b>PE408PoE<sup>1)</sup>;</b> with 8 x 10/100/1000 Mbit/s TP ports Power over Ethernet according to 802.3at Type 1/2</li> </ul>	<b>6GK5408-0PA00-8AP2</b>	
		<sup>1)</sup> Available soon
<b>Plug-in transceiver</b> <b>ST and SC plug-in transceivers</b> for XM-400 basic device XM408-4C		
STP991-1 100 Mbit/s, ST/BFOC connection, multimode FOC up to 3 km		<b>6GK5991-1AB00-8AA0</b>
STP991-1LD 100 Mbit/s, ST/BFOC connection, singlemode FOC up to 26 km		<b>6GK5991-1AC00-8AA0</b>
SCP992-1; 1000 Mbit/s, SC connection, multimode FOC up to 750 m		<b>6GK5992-1AJ00-8AA0</b>
SCP992-1LD; 1000 Mbit/s, SC connection, singlemode FOC up to 10 km		<b>6GK5992-1AK00-8AA0</b>
SFP plug-in transceivers for XM-400		See "Plug-in transceivers for SCALANCE XM-400"
<b>Accessories</b> <b>KEY-PLUG XM-400</b> Swap medium for expansion of the device functions with IP routing (Layer 3), for integration of configuration data and for easy replacement of SCALANCE XM-400 in the event of a fault		<b>6GK5904-0PA00</b>
<b>Power supplies</b> SIMATIC PM 1507 24 V stabilized power supply for SIMATIC S7-1500		
<ul style="list-style-type: none"> <li>• Power supply S7-1500 PM1507 SIMATIC PM 1507 24 V/3 A stabilized power supply for SIMATIC S7-1500 Input: 120/230 V AC Output: 24 V DC/3 A</li> </ul>	<b>6EP1332-4BA00</b>	
<ul style="list-style-type: none"> <li>• Power supply S7-1500 PM1507 SIMATIC PM 1507 24 V/8 A stabilized power supply for SIMATIC S7-1500 Input: 120/230 V AC Output: 24 V DC/8 A</li> </ul>	<b>6EP1333-4BA00</b>	

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Layer 3 Switches / Routers

SCALANCE XR-500 managed

### Overview



The Layer 3-enabled SCALANCE XR-500 Industrial Ethernet switches are fully modular, high-performance, industry-standard switches for the construction of electrical and optical line, ring and star topologies with data transfer rates of up to 10 Gbit/s, designed for installation in 19" control cabinets.

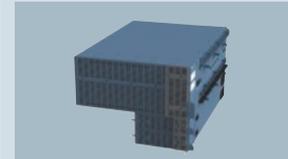
- Four optical interfaces (10 Gbit/s) and up to 48 electrical and/or optical interfaces (10/100/1000 Mbit/s), of which up to 12 electrical PoE interfaces; up to twelve electrical and/or optical 4-port media modules can be plugged into the basic unit at any point.
- Fast media redundancy due to the integrated redundancy manager:  
Redundant connection of rings by means of high-speed media redundancy is also possible with SCALANCE XR-500.
- Seamless integration of automation networks into existing corporate networks thanks to support for a host of IT standard functions (VLANs, IGMP-Snooping/Querier, STP/RSTP/MSTP, Link Aggregation, Quality of Service, 802.1X and optional static routing, RIP, OSPF, VRRP for IPv4 and IPv6)
- PROFINET diagnostics, Web browser, CLI and SNMP
- Redundant integration into higher-level networks through support for standardized redundancy procedures (Multiple Spanning Tree Protocol, Spanning Tree Protocol, Rapid Reconfiguration Spanning Tree Protocol, Media Redundancy Protocol) and standardized IP routing protocols or procedures (Routing Information Protocol, Open Shortest Path First, Virtual Router Redundancy Protocol)
- KEY-PLUG as the swap medium with which Layer 3 Routing functions can be enabled.
  - For the automatic backup of configuration data. If a fault occurs, it allows fast and simple device replacement of SCALANCE X-500 components without a field PG (contains the function of the C-PLUG)
  - Can be used in all Layer 2 variants of the SCALANCE XR552 and XR528
  - For a detailed description, see "SCALANCE Accessories for Layer 3 Switches / Routers"

### Design



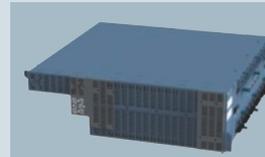
XR552-12M

with basic power supply,  
bottom mounting



XR552-12M

with redundant power supply,  
bottom mounting



XR552-12M

with basic power supply,  
rear mounting



XR552-12M

with redundant power supply,  
rear mounting

G\_IK10\_XX\_10324

Options for mounting a single/redundant power supply unit to SCALANCE XR552-12M

# PROFINET/Industrial Ethernet

## Industrial Ethernet Layer 3 Switches / Routers

### SCALANCE XR-500 managed

#### Ordering data

#### Article No.

##### *SCALANCE XR-500 industrial Ethernet switches*

Fully modular Layer 3-enabled Industrial Ethernet switches for establishing electrical and/or optical Industrial Ethernet networks; with data transfer rates up to 10 Gbps, designed for installation in 19" control cabinets

##### **SCALANCE XR552-12M**

4 x integral 1/10 Gbps SFP+ slots for SFP or SFP+ plug-in transceivers  
12 x 10/100/1000 Mbps slots for 4-port media modules, electrical or optical

##### Layer 2

Upgrade to Layer 3 possible

- Ports at front
- Ports at rear

**6GK5552-0AA00-2AR2**

**6GK5552-0AA00-2HR2**

##### Layer 3

- Ports at front
- Ports at rear

**6GK5552-0AR00-2AR2**

**6GK5552-0AR00-2HR2**

##### **SCALANCE XR528-6M**

4 x integral 1/10 Gbps SFP+ slots for SFP or SFP+ plug-in transceivers  
6 x 10/100/1000 Mbps slots for 4-port media modules, electrical or optical

##### Layer 2

Upgrade to Layer 3 possible

- Ports at front
- Ports at rear

**6GK5528-0AA00-2AR2**

**6GK5528-0AA00-2HR2**

##### Layer 3

- Ports at front
- Ports at rear

**6GK5528-0AR00-2AR2**

**6GK5528-0AR00-2HR2**

##### *Accessories*

##### **FAN597-1**

Replacement fan slide-in unit for SCALANCE XR552-12M

**6GK5597-1AA00-8AA0**

##### **FAN597-2**

Replacement fan slide-in unit for SCALANCE XR528-6M

**6GK5597-2AA00-8AA0**

##### **KEY-PLUG X-500**

Swap medium for expansion of the device functions with IP routing (Layer 3), for integration of configuration data and for easy replacement of SCALANCE X-500 in the event of a fault

**6GK5905-0PA00**

##### *Media modules*

See "Media modules for modular SCALANCE X-500 managed"

##### *Power supply*

See "Power supply for modular SCALANCE X-500 managed"

#### More information

##### **Selection tools:**

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

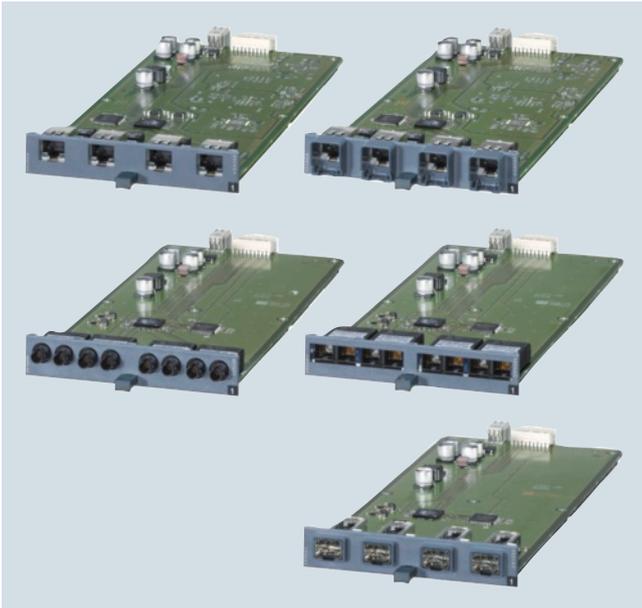
<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Layer 3 Switches / Routers

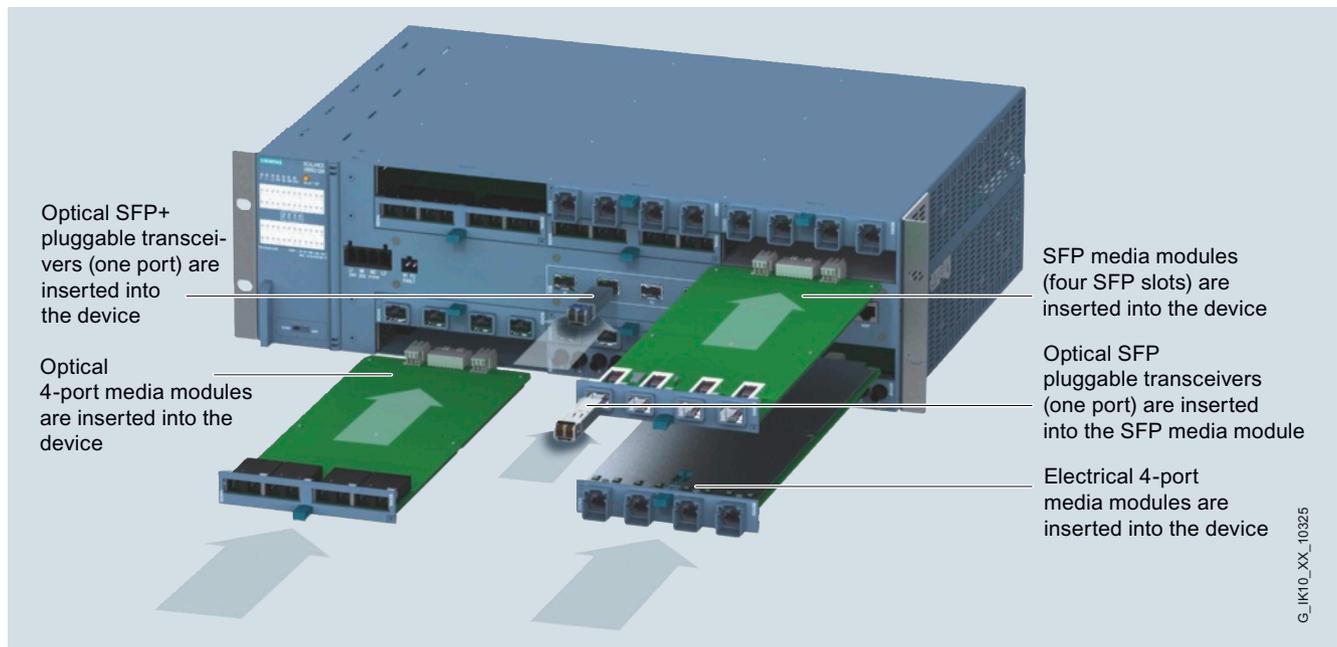
Media modules  
for modular SCALANCE XR-500 managed

### Overview



- 4-port media modules for flexible, 4-port-granular equipping of SCALANCE X-500 Industrial Ethernet switches
- Electrical versions with RJ45 ports are available as well as optical versions with BFOC and SC ports for the use of multi-mode and singlemode fiber-optic cables
- A 4-port SFP media module permits the optional use of fiber-optic SFP plug-in transceivers (**S**mall **F**orm-**F**actor **P**luggable) with LC connection technology
- SFP+ and SFP plug-in transceivers for flexible equipping of the four integral SFP+ slots in SCALANCE X-500

### Design



4-port media modules plugged into media module slot and SFP/SFP+ plug-in transceivers in SFP+ slots

G\_1K10\_XX\_10325

# PROFINET/Industrial Ethernet

## Industrial Ethernet Layer 3 Switches / Routers

### Media modules for modular SCALANCE XR-500 managed

Ordering data	Article No.	Article No.
<i>Electrical media modules</i>		<i>Accessories</i>
<b>with 4 x 10/100/1000 Mbit/s RJ45 ports, electrical</b> <ul style="list-style-type: none"> <li>MM992-4CuC</li> <li>MM992-4CU</li> </ul>	<b>6GK5992-4GA00-8AA0</b> <b>6GK5992-4SA00-8AA0</b>	<b>IE FC RJ45 Modular Outlet</b> FastConnect RJ45 Outlet for Industrial Ethernet with interface for replaceable insert <ul style="list-style-type: none"> <li>with 2FE insert; replaceable insert for 2 x 100 Mbit/s interfaces</li> <li>with 1GE insert; replaceable insert for 1 x 1000 Mbit/s interfaces</li> </ul>
with power over Ethernet <ul style="list-style-type: none"> <li>MM992-4PoEC</li> <li>MM992-4PoE</li> </ul>	<b>6GK5992-4RA00-8AA0</b> <b>6GK5992-4QA00-8AA0</b>	<b>6GK1901-1BE00-0AA1</b>  <b>6GK1901-1BE00-0AA2</b>
<i>Optical media modules</i>		<b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b>
<b>with 4 x 100 Mbit/s BFOC ports, optical</b> <ul style="list-style-type: none"> <li>MM991-4 multi-mode, glass, up to 5 km</li> <li>MM991-4LD single-mode, glass, up to max. 26 km</li> </ul>	<b>6GK5991-4AB00-8AA0</b>  <b>6GK5991-4AC00-8AA0</b>	<b>6XV1840-2AH10</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compliant; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m
<b>with 4 x 1000 Mbit/s SC ports, optical</b> <ul style="list-style-type: none"> <li>MM992-4 multi-mode, glass, up to max. 750 m</li> <li>MM992-4LD single-mode, glass, up to max. 10 km</li> </ul>	<b>6GK5992-4AL00-8AA0</b>  <b>6GK5992-4AM00-8AA0</b>	<b>IE FC TP Standard Cable GP 4 x 2</b> <b>6XV1870-2E</b> 8-core, shielded TP installation cable for connection to IE FC RJ45 Modular Outlet for universal application; with UL approval; sold by the meter; max quantity 1000 m, minimum order 20 m
<b>with 4 x 100/1000 Mbit/s for SFP pluggable transceiver, optical</b> <ul style="list-style-type: none"> <li>MM992-4SFP for SFP plug-in transceivers with 1 x 100 or 1 x 1000 Mbit/s multi-mode or single-mode, glass</li> </ul>	<b>6GK5992-4AS00-8AA0</b>	<b>IE TP Cord RJ45/RJ45</b> TP cable 4 x 2 with two RJ45 connectors <ul style="list-style-type: none"> <li>0,5 m</li> <li>1 m</li> <li>2 m</li> <li>6 m</li> <li>10 m</li> </ul>
<i>SFP pluggable transceiver, optical</i>		<b>6XV1870-3QE50</b> <b>6XV1870-3QH10</b> <b>6XV1870-3QH20</b> <b>6XV1870-3QH60</b> <b>6XV1870-3QN10</b>
<b>with 1 x 100 Mbit/s LC port, optical</b> <ul style="list-style-type: none"> <li>SFP991-1 multi-mode, glass, up to max. 5 km</li> <li>SFP991-1LD single-mode, glass, up to max. 26 km</li> <li>SFP991-1LH+ single-mode, glass, up to max. 70 km</li> <li>SFP991-1ELH200 single-mode, glass, up to max. 200 km</li> </ul>	<b>6GK5991-1AD00-8AA0</b>  <b>6GK5991-1AF00-8AA0</b>  <b>6GK5991-1AE00-8AA0</b>  <b>6GK5991-1AE30-8AA0</b>	<b>IE FC RJ45 Plug 180</b> RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation/displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface <ul style="list-style-type: none"> <li>1 pack = 1 unit</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul>
<b>with 1 x 1000 Mbit/s LC port, optical</b> <ul style="list-style-type: none"> <li>SFP992-1 multi-mode, glass, up to max. 750 m</li> <li>SFP992-1LD single-mode, glass, up to max. 10 km</li> <li>SFP992-1LH single-mode, glass, up to max. 40 km</li> <li>SFP992-1LH+ single-mode, glass, up to max. 70 km</li> <li>SFP992-1ELH single-mode, glass, up to max. 120 km</li> </ul>	<b>6GK5992-1AL00-8AA0</b>  <b>6GK5992-1AM00-8AA0</b>  <b>6GK5992-1AN00-8AA0</b>  <b>6GK5992-1AP00-8AA0</b>  <b>6GK5992-1AQ00-8AA0</b>	<b>6GK1901-1BB10-2AA0</b> <b>6GK1901-1BB10-2AB0</b> <b>6GK1901-1BB10-2AE0</b>
<b>with 1 x 10 Gbit/s LC port, optical</b> <ul style="list-style-type: none"> <li>SFP993-1 multi-mode, glass, up to max. 300 m</li> <li>SFP993-1LD single-mode, glass, up to max. 10 km</li> <li>SFP993-1LH single-mode, glass, up to max. 40 km</li> </ul>	<b>6GK5993-1AT00-8AA0</b>  <b>6GK5993-1AU00-8AA0</b>  <b>6GK5993-1AV00-8AA0</b>	<b>IE FC RJ45 Plug 4 x 2</b> RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface <ul style="list-style-type: none"> <li>1 pack = 1 unit</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul>
<b>IE connecting cable SFP+/SFP+, electrical, 10 Gbit/s</b>  Twinax copper cables, length <ul style="list-style-type: none"> <li>1 m</li> <li>2 m</li> <li>7 m</li> </ul>	<b>6GK5980-3CB00-0AA1</b> <b>6GK5980-3CB00-0AA2</b> <b>6GK5980-3CB00-0AA7</b>	<b>6GK1901-1BB11-2AA0</b> <b>6GK1901-1BB11-2AB0</b> <b>6GK1901-1BB11-2AE0</b>

# PROFINET/Industrial Ethernet Industrial Ethernet Layer 3 Switches / Routers

Media modules  
for modular SCALANCE XR-500 managed

## More information

### **Selection tools:**

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

# PROFINET/Industrial Ethernet

## Industrial Ethernet Layer 3 Switches / Routers

### Power supplies for modular SCALANCE X-500 managed

#### Overview



- The 24 V PS598 power supply is designed for installation in 19" control cabinets or for direct mounting on SCALANCE XR-500 Industrial Ethernet switches; it has degree of protection IP20.
- 300 W output power at an input voltage range of 85 V to 264 V AC and an operating temperature of 0 °C to +60 °C

#### Ordering data

#### Article No.

##### Power supplies for SCALANCE X-500

24 V power supplies are designed for installation in 19" control cabinets or for direct mounting on SCALANCE X-500 Industrial Ethernet switches; degree of protection IP20

##### PS598-1

300 W output power, input voltage range of 85 V to 264 V AC, operating temperature of 0 °C to +60 °C

**6GK5598-1AA00-3AA0**

##### Accessories

##### Appliance cable

- Grounded Continental European plug, region: D/F/NL/ESP/B/A/S/FIN
- Grounded British plug; region: UK
- Grounded Swiss plug; region: CH
- Grounded North American and Japanese plug; region: USA
- Grounded Italian plug; region: Italy
- Grounded Chinese plug; region: China

**6ES7900-0AA00-0XA0**

**6ES7900-0BA00-0XA0**

**6ES7900-0CA00-0XA0**

**6ES7900-0DA00-0XA0**

**6ES7900-0EA00-0XA0**

**6ES7900-0FA00-0XA0**

# PROFINET/Industrial Ethernet

## Accessories for Layer 3 switches / routers

KEY-PLUG X-500, XM-400

### Overview



- Swap medium with which Layer 3 Routing functions can be enabled
- For the automatic backup of configuration data. If a fault occurs, it allows fast and simple device replacement without a field PG (contains the function of the C-PLUG)
- Can be used in all Layer 2 variants of the SCALANCE XR552 and XR528 and in all variants of the SCALANCE XM-400 basic devices

### Ordering data

### Article No.

#### KEY-PLUG X-500 Layer 3 Routing

6GK5905-0PA00

KEY-PLUG XR-500, swap medium for enabling Layer 3 Routing Features for SCALANCE XR-500 and for easily replacing a device in the event of a failure as well as for recording configuration data.

#### KEY-PLUG XM-400 Layer 3 Routing

6GK5904-0PA00

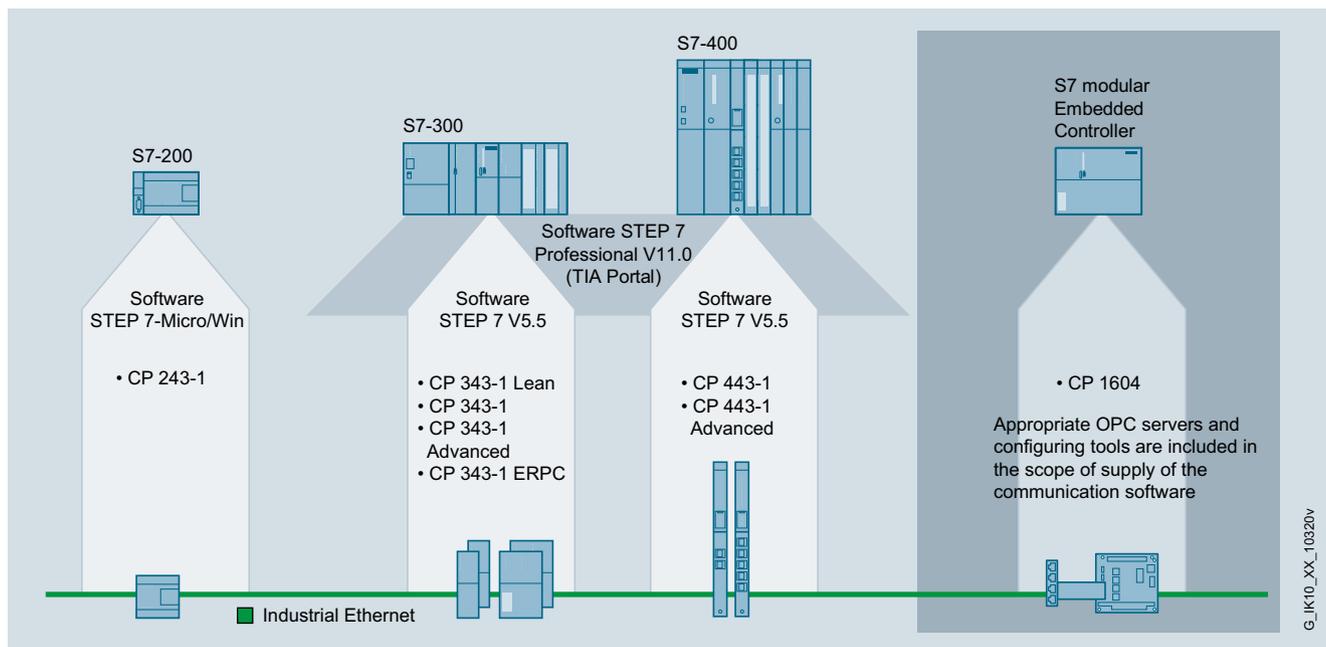
KEY-PLUG XM-400, swap medium for enabling Layer 3 Routing Features for SCALANCE XM-400 and for easily replacing a device in the event of a failure as well as for recording configuration data.

# PROFINET/Industrial Ethernet

## System connection for SIMATIC S7

### Introduction

### Overview



System connections for SIMATIC

Communication modules for SIMATIC allow further uses through additional functions using CPs such as security, integration in the customer's IT infrastructure, and network separation. In addition, they allow flexible expansion with additional communication interfaces for PROFIBUS or PROFINET depending on needs.

#### CPs with standard functions

- CP 243-1 for SIMATIC S7-200, CP 343-1 Lean and CP 343-1 for SIMATIC S7-300, CP 443-1 for SIMATIC S7-400, CM 1542-5 for SIMATIC S7-1500.
- Designed for use in harsh industrial environments
- Shipbuilding certification for use on ships and offshore units
- Additional integrated 2-port switch for CP 343-1 Lean, CP 343-1, CP 443-1, and CM 1542-5, e.g. for setting up Industrial Ethernet segments in linear and ring structures
- Increased availability through support for Media Redundancy Protocol (MRP)
- Can be used via RJ45 interface for the industrial-standard SIMATIC NET FastConnect cabling system
- High-speed data transfer even with large volumes of data (10/100 Mbit/s)

#### CPs with function expansions

- CP 343-1 Advanced for SIMATIC S7-300
  - With security functionality (firewall and VPN)
  - With IT functionality
  - Can be used as a PROFINET IO Controller and IO Device with real-time characteristics
  - PROFINET CBA
  - With Gigabit connection, incl. routing functionality (10/100/1000 Mbit/s)
  - Network separation with IP-routing functionality
  - Additional integrated 2-port switch for setting up small local networks
  - Access protection via IP access list

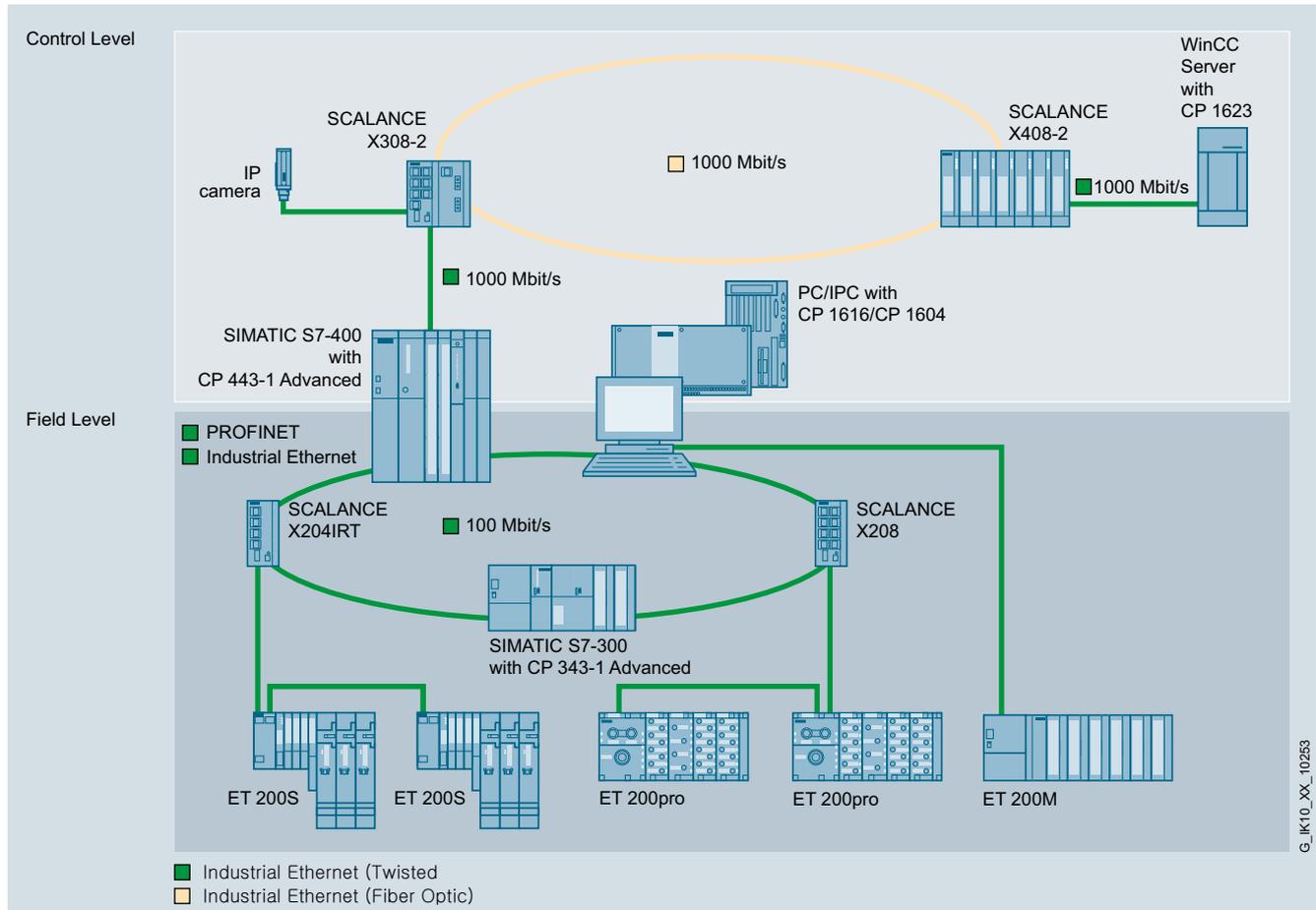
- CP 443-1 Advanced for SIMATIC S7-400
  - With security functionality (firewall and VPN)
  - With IT functionality
  - Can be used as a PROFINET IO Controller with real-time characteristics
  - With Gigabit connection, incl. routing functionality (10/100/1000 Mbit/s)
  - Network separation with IP-routing functionality
  - Additional integrated 4-port switch for setting up small local networks
  - Access protection via IP access list
  - Operation in the SIMATIC H system for redundant S7-communication
  - Operation in fail-safe applications (PROFIsafe) together with SIMATIC S7-400 CPU 416F
- CP 1243-1<sup>1)</sup> for SIMATIC S7-1200
  - With security functionality (firewall and VPN)
  - With IT functionality
  - For remote diagnostics and remote maintenance
  - With TeleControl Basic functionality - rapid and flexible data communication via remote networks with caching of data values including automatic time stamping
- CP 1543-1 for SIMATIC S7-1500
  - With security functionality (firewall and VPN)
  - With IT functionality
  - For integrating the S7-1500 into IPv6 based networks.
  - For the following communications services, an IP address according to IPv6 can be used:
    - FETCH/WRITE access (CP is server)
    - FTP server mode and FTP client mode with addressing via program block
    - E-mail transfer with addressing via program block
- CP 343-1 ERPC optimized for linking to MES or ERP systems by means of additional partner software

<sup>1)</sup> Available soon

### Overview (continued)

#### Setup of Industrial Ethernet segments with SIMATIC modules with integrated switch

To set up Industrial Ethernet segments in a line or ring topology, all PROFINET communication modules offer integrated 100 Mbit/s switches with at least 2 RJ45 ports. The integration of the switch in the terminal devices allows the setup of very flexible networks and saves cabling costs.



# PROFINET/Industrial Ethernet

## Communication for SIMATIC S7-200

CP 243-1

### Overview



ISO	TCP	PN	MRP	IT	IP-R	PG/OP	S7
	●			●		●	●

Communications processor for connecting a SIMATIC S7-200 to Industrial Ethernet networks

The CP supports:

- PG/OP communication
- S7 communication
- IT communication

In addition, the CP 243-1 offers e-mail functions and user-created web pages and thus optimally supports maintenance and quality assurance. The Internet functions such as FTP allow connection to the most diverse PC-based systems.

### Ordering data

### Article No.

#### CP 243-1

#### communications processor

for connection of SIMATIC S7-200 to Industrial Ethernet; for S7 communication, PG communication, e-mail and WWW server; with electronic manual on CD-ROM German, English, French, Italian, Spanish

**6GK7243-1EX01-0XE0**

#### Accessories

#### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with two RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m

**6XV1870-3QE50**  
**6XV1870-3QH10**  
**6XV1870-3QH20**  
**6XV1870-3QH60**

### More information

#### Selection tools:

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

You will find more information on the topic of Industrial Security on the Internet at:

<http://www.siemens.com/industrialsecurity>

Note:

For software ordering data, see Page 105

### Overview



ISO	TCP/ UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●			●		●	●

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The SIMATIC CP 1543-1 communications processor securely connects the new SIMATIC S7-1500 controller to Industrial Ethernet networks. By combining a variety of security features such as an SPI (Stateful Packet Inspection) firewall, VPN and data encryption protocols such as FTPS and SNMPv3, the communications processor protects individual S7-1500 stations or even entire automation cells against unauthorized access.

The CP can also be used for linking the S7-1500 station into an IPv6-based network. All functions are configured with STEP 7 Professional V12 of the TIA Portal V12.

The CP 1543-1 supports the following communications services:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE, FETCH/WRITE)
- IT communication
  - FTP functions (File Transfer Protocol FTP/FTPS) for file management and access to data blocks in the CPU (client and server function)
  - Sending e-mails via SMTP or ESMTP with "SMTP-Auth" for authentication on an e-mail server (also with IPv6)
- Security functions
  - Stateful Packet Inspection (layers 3 and 4) firewall
  - Secure communication via VPN (IPsec)
  - Secure access to the Web server of the CPU via the HTTPS protocol
  - Secure file transfer using FTPS
  - Secure transfer of the time of day (NTP)
  - SNMPv3 for tap-proof transfer of network analysis information
- Integration of the S7-1500 into IPv6-based networks; An IPv6-compliant IP address can be used for the following communication services:
  - FETCH/WRITE access (CP as server)
  - FTP server mode
  - FTP client mode with addressing by program block
  - E-mail transfer with addressing by program block

# PROFINET/Industrial Ethernet

## Communication for SIMATIC S7-1500

CP 1543-1

Ordering data	Article No.	Article No.
<b>Communication processor CP 1543-1</b> for connection of SIMATIC S7-1500 to Industrial Ethernet via TCP/IP, ISO and UDP and Security functions; 1 x RJ45 interface with 10/100/1000 Mbit/s; electronic manual on DVD	<b>6GK7543-1AX00-0XE0</b>	
<b>Accessories</b> <b>IE FC RJ45 Plug 180 2 x 2</b> RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	<b>6GK1901-1BB10-2AA0</b> <b>6GK1901-1BB10-2AB0</b> <b>6GK1901-1BB10-2AE0</b>	
<b>IE FC RJ45 Plug 4 x 2</b> RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	<b>6GK1901-1BB11-2AA0</b> <b>6GK1901-1BB11-2AB0</b> <b>6GK1901-1BB11-2AE0</b>	
		<b>Accessories (continued)</b> <b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order quantity 20 m
		<b>6XV1840-2AH10</b>
		<b>IE FC TP Standard Cable GP 4 x 2</b> 8-core, shielded TP installation cable for connection to IE FC RJ45 modular outlet for universal application; with UL approval; <u>sold by the meter</u> ; max length 1 000 m, minimum order 20 m <ul style="list-style-type: none"> <li>• AWG22, for connection to IE FC RJ45 Modular Outlet</li> <li>• AWG24, for connection to IE FC RJ45 Plug 4 x 2, IE FC M12 Plug PRO 4 x 2</li> </ul>
		<b>6XV1870-2E</b>  <b>6XV1878-2A</b>
		<b>Industrial Ethernet Switch SCALANCE X204-2</b> Industrial Ethernet switches with integral SNMP access, online diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; four 10/100 Mbit/s RJ-45 ports and two fiber-optic cable ports
		<b>6GK5204-2BB10-2AA3</b>
		<b>Industrial Ethernet Switch SCALANCE X308-2</b> 2 x 1000 Mbit/s multimode fiber-optic cable ports (SC sockets), 1 x 10/100/1000 Mbit/s RJ-45 port, 7 x 10/100 Mbit/s RJ-45 ports; for glass fiber-optic cable (multimode) up to max. 750 m
		<b>6GK5308-2FL00-2AA3</b>

### More information

You will find more information on SIMATIC S7-1500 at <http://www.siemens.com/simatic-s7-1500>

To assist in selecting the right Industrial Ethernet switches as well as configuration of modular variants, the SIMATIC NET Selection Tool and the TIA Selection Tool are available at:

SIMATIC NET Selection Tool:

- Online version: <http://www.siemens.com/snst>
- Offline version: <http://www.siemens.com/snst-download>

You will find more information on the topic of Industrial Security on the Internet at:

<http://www.siemens.de/industrialsecurity>

Note:

For software ordering data, see Page 105

### Overview



ISO	TCP/UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
	●	●	●			●	●

Communications processor for connecting a SIMATIC S7-300 to Industrial Ethernet networks, also as PROFINET IO Device.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- PROFINET communication

### Ordering data

### Article No.

#### CP 343-1 Lean communications processor

6GK7343-1CX10-0XE0

For connecting SIMATIC S7-300 to Industrial Ethernet through TCP/IP and UDP, Multicast, S7 communication, open communication (SEND/RECEIVE), FETCH/WRITE, PROFINET IO Device, MRP, integrated 2-port switch ERTEC, comprehensive diagnostics facilities, module replacement without PG, SNMP, initial commissioning over LAN; with electronic manual on CD-ROM

#### Accessories

#### IE FC RJ45 Plug 145

RJ-45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 145° cable outlet;

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

6GK1901-1BB30-0AA0  
6GK1901-1BB30-0AB0  
6GK1901-1BB30-0AE0

#### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables

6GK1901-1GA00  
6GK1901-1GA00

#### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m

6XV1840-2AH10

#### CSM 377 Compact Switch Module

Unmanaged switch for connecting a SIMATIC S7-1200 and up to three further nodes to Industrial Ethernet with 10/100 Mbit/s; 4 x RJ45 ports; external 24 V DC power supply, diagnostics on LEDs, S7-1200 module including electronic manual on CD-ROM

6GK7377-1AA00-0AA0

Note:

For software ordering data, see Page 105

# PROFINET/Industrial Ethernet

## Communication for SIMATIC S7-300

CP 343-1

### Overview



ISO	TCP/UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●	●	●			●	●

Communications processor for connecting a SIMATIC S7-300/SINUMERIK 840D powerline to Industrial Ethernet networks, also as PROFINET IO Controller or IO Device.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- PROFINET communication

### Ordering data

#### CP 343-1 communications processor

For connection of SIMATIC S7-300 to Industrial Ethernet over ISO and TCP/IP; PROFINET IO Controller or PROFINET IO Device, MRP, integrated 2-port switch ERTEC; S7 communication, open communication (SEND/RECEIVE), FETCH/WRITE, with and without RFC 1006, multicast, DHCP, CPU clock synchronization via SIMATIC procedure and NTP, diagnostics, SNMP, access protection through IP access list, initialization over LAN 10/100 Mbit/s; with electronic manual on DVD

#### Article No.

**6GK7343-1EX30-0XE0**

#### Article No.

#### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m

**6XV1840-2AH10**

#### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables

**6GK1901-1GA00**

#### CSM 377 Compact Switch Module

Unmanaged switch for connecting a SIMATIC S7-1200 and up to three further nodes to Industrial Ethernet with 10/100 Mbit/s; 4 x RJ45 ports; external 24 V DC power supply, diagnostics on LEDs, S7-1200 module including electronic manual on CD-ROM

**6GK7377-1AA00-0AA0**

#### Industrial Ethernet Switch SCALANCE X204-2

Industrial Ethernet switches with integral SNMP access, online diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; four 10/100 Mbit/s RJ-45 ports and two fiber-optic cable ports

**6GK5204-2BB10-2AA3**

#### Accessories

#### IE FC RJ45 Plug 180 2 x 2

RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB10-2AA0**  
**6GK1901-1BB10-2AB0**  
**6GK1901-1BB10-2AE0**

#### IE FC RJ45 Plug 145

RJ-45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 145° cable outlet;

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB30-0AA0**  
**6GK1901-1BB30-0AB0**  
**6GK1901-1BB30-0AE0**

Note:

For software ordering data, see Page 105

### Overview



Communications processor for connecting the SIMATIC S7-300/SINUMERIK 840D powerline to Industrial Ethernet networks, also as PROFINET IO controller and IO device.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- PROFINET communication
- IT communication
- Security functionality, firewall and VPN

In addition, the CP 343-1 Advanced provides e-mail functions and allows users to create their own Web pages - ideal support for maintenance and quality assurance. The Internet functions such as FTP even allow connection to the most diverse PC-based systems. This CP is therefore the bridge between the field level and the management level for the S7-300. The CP 343-1 Advanced connects seamlessly to the security structures of the office and IT world.

ISO	TCP/UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●	●	●	●	●	●	●

# PROFINET/Industrial Ethernet

## Communication for SIMATIC S7-300

### CP 343-1 Advanced

Ordering data	Article No.	Article No.	
<p><b>CP 343-1 Advanced communications processor</b></p> <p>For connecting the SIMATIC S7-300 CPU to Industrial Ethernet; 1 x 10/100/1000 Mbit/s; 2 x 10/100 Mbit/s (IE switch); RJ 45 ports; TCP; UDP; ISO; PROFINET IO-Controller and Device, S7 communication (client + server); open communication (SEND/RECEIVE); S7 routing; IP configuration via DHCP/block; extended web diagnostics; time synchronization; IP Access Control List; IP routing; FTP; email; PROFINET CBA; C-Plug</p> <ul style="list-style-type: none"> <li>• With Security (Firewall + VPN) and PROFlenergy (Controller + Device)</li> </ul>	<b>6GK7343-1GX31-0XE0</b>	<p><b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compliant; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m</p> <p><b>IE FC TP Standard Cable GP 4 x 2</b></p> <p>8-core, shielded TP installation cable for connection to IE FC RJ45 modular outlet for universal application; with UL approval; sold by the meter; max length 1 000 m, minimum order 20 m</p> <ul style="list-style-type: none"> <li>• AWG22, for connection to IE FC RJ45 Modular Outlet</li> <li>• AWG24, for connection to IE FC RJ45 Plug 4 x 2, IE FC M12 Plug PRO 4 x 2</li> </ul>	<p><b>6XV1840-2AH10</b></p> <p><b>6XV1870-2E</b></p> <p><b>6XV1878-2A</b></p>
<p><b>Accessories</b></p> <p><b>IE FC RJ45 Plug 180 2 x 2</b></p> <p>RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	<p><b>6GK1901-1BB10-2AA0</b></p> <p><b>6GK1901-1BB10-2AB0</b></p> <p><b>6GK1901-1BB10-2AE0</b></p>		
<p><b>IE FC RJ45 Plug 145</b></p> <p>RJ-45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 145° cable outlet;</p> <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	<p><b>6GK1901-1BB30-0AA0</b></p> <p><b>6GK1901-1BB30-0AB0</b></p> <p><b>6GK1901-1BB30-0AE0</b></p>		
<p><b>IE FC RJ45 Plug 4 x 2</b></p> <p>RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	<p><b>6GK1901-1BB11-2AA0</b></p> <p><b>6GK1901-1BB11-2AB0</b></p> <p><b>6GK1901-1BB11-2AE0</b></p>		
		<p><b>IE FC Stripping Tool</b></p> <p>Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables</p>	<b>6GK1901-1GA00</b>
		<p><b>CSM 377 Compact Switch Module</b></p> <p>Unmanaged switch for connecting a SIMATIC S7-1200 and up to three further nodes to Industrial Ethernet with 10/100 Mbit/s; 4 x RJ45 ports; external 24 V DC power supply, diagnostics on LEDs, S7-1200 module including electronic manual on CD-ROM</p>	<b>6GK7377-1AA00-0AA0</b>
		<p><b>Industrial Ethernet Switch SCALANCE X308-2</b></p> <p>2 x 1000 Mbit/s multimode fiber-optic cable ports (SC sockets), 1 x 10/100/1000 Mbit/s RJ-45 port, 7 x 10/100 Mbit/s RJ-45 ports; for glass fiber-optic cable (multimode) up to max. 750 m</p>	<b>6GK5308-2FL00-2AA3</b>

Note:

For software ordering data, see Page 105

### More information

You will find more information on the topic of Industrial Security on the Internet at:

<http://www.siemens.com/industrialsecurity>

### Overview



The CP 343-1 ERPC (Enterprise Connect) communications processor for connecting a SIMATIC S7-300 to Industrial Ethernet networks.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- ERPC communication

Connection of the SIMATIC S7-300 to various database systems for vertical integration is supported by means of a firmware expansion from ILS-Technology to be ordered separately.

ERPC	TCP/UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●					●	●

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# PROFINET/Industrial Ethernet

## Communication for SIMATIC S7-300

### CP 343-1 ERPC

Ordering data	Article No.	Article No.
<p><b>Kommunikationsprozessor CP 343-1 ERPC (Enterprise Connect)</b></p> <p>For the connection of SIMATIC S7-300 to Industrial Ethernet and for the support of the database connection of the SIMATIC S7-300 to various databases; TCP/UDP, S7 communication, open communication (SEND/RECEIVE), with and without RFC 1006, multicast, web server, setting of CPU's clock using SIMATIC procedures and NTP, access protection via IP access list, SNMP, DHCP, initialization over LAN 10/100/1000 Mbit/s; with electronic manual on DVD, C-PLUG included in scope of delivery</p>	<b>6GK7343-1FX00-0XE0</b>	<p><b>IE FC TP Standard Cable GP 4 x 2</b></p> <p>8-core, shielded TP installation cable for connection to IE FC RJ45 modular outlet for universal application; with UL approval; sold by the meter; max length 1 000 m, minimum order 20 m</p> <ul style="list-style-type: none"> <li>• AWG22, for connection to IE FC RJ45 Modular Outlet</li> <li>• AWG24, for connection to IE FC RJ45 Plug 4 x 2, IE FC M12 Plug PRO 4 x 2</li> </ul>
<p><b>deviceWISE Embedded Edition for SIMATIC S7</b></p> <p>Firmware expansion for database connection of the SIMATIC S7-300 complete with CP 343-1 ERPC to various ERP or MES systems</p>	See Partner solutions/deviceWISE Embedded Edition for SIMATIC S7	<b>6XV1870-2E</b>
<p><b>Accessories</b></p> <p><b>IE FC RJ45 Plug 4 x 2</b></p> <p>RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	<p><b>6GK1901-1BB11-2AA0</b></p> <p><b>6GK1901-1BB11-2AB0</b></p> <p><b>6GK1901-1BB11-2AE0</b></p>	<b>6XV1878-2A</b>
		<p><b>IE FC Stripping Tool</b></p> <p>Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables</p>
		<p><b>Industrial Ethernet Switch SCALANCE X308-2</b></p> <p>2 x 1000 Mbit/s multimode fiber-optic cable ports (SC sockets), 1 x 10/100/1000 Mbit/s RJ-45 port, 7 x 10/100 Mbit/s RJ-45 ports; for glass fiber-optic cable (multimode) up to max. 750 m</p>
		<b>6GK5308-2FL00-2AA3</b>
<p>Note:</p> <p>For software ordering data, see Page 105</p>		

### More information

You can obtain further information on the software "deviceWISE embedded Edition for SIMATIC S7" from

ILS Technology LLC;  
5300 Broken Sound Blvd.  
Suite 150  
Boca Raton, FL, USA, 33487

Phone: +1-561-982-9898 x124

Fax.: +1-561-982-8638

E-Mail: [devicewise@ilstechnology.com](mailto:devicewise@ilstechnology.com)

Internet: <http://www.ilstechnology.com/erpc>

### Overview



ISO	TCP/UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●	●	●	●		●	●

Communications processor for connecting a SIMATIC S7-400 to Industrial Ethernet networks, also as PROFINET IO controller or in SIMATIC H systems.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- PROFINET communication
- IT communication

The communications processor can also be used for redundant S7 communication in SIMATIC H systems and for fail-safe applications (PROFIsafe) in connection with an S7-400 F-CPU.

### Ordering data

#### CP 443-1 communications processor

For connecting SIMATIC S7-400 to Industrial Ethernet through TCP/IP, ISO and UDP; PROFINET IO Controller, MRP; integrated real-time switch ERTEC with two ports; 2 x RJ-45 interface; S7 communication, open communication (SEND/RECEIVE) with FETCH/WRITE, with and without RFC 1006, DHCP, SNMP V2, diagnostics, multicast, access protection over IP access list, initialization over LAN 10/100 Mbit/s with electronic manual on DVD

#### Accessories

#### IE FC RJ45 Plug 180 2 x 2

RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

#### IE FC RJ45 Plug 4 x 2

RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

#### Article No.

6GK7443-1EX30-0XE0

6GK1901-1BB10-2AA0

6GK1901-1BB10-2AB0

6GK1901-1BB10-2AE0

6GK1901-1BB11-2AA0

6GK1901-1BB11-2AB0

6GK1901-1BB11-2AE0

#### Article No.

#### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m

#### IE FC TP Standard Cable GP 4 x 2

8-core, shielded TP installation cable for connection to IE FC RJ45 modular outlet for universal application; with UL approval; sold by the meter; max length 1000 m, minimum order 20 m

- AWG22, for connection to IE FC RJ45 Modular Outlet

- AWG24, for connection to IE FC RJ45 Plug 4 x 2, IE FC M12 Plug PRO 4 x 2

#### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables

#### Industrial Ethernet Switch SCALANCE X204-2

Industrial Ethernet switches with integral SNMP access, online diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; four 10/100 Mbit/s RJ-45 ports and two fiber-optic cable ports

#### Industrial Ethernet Switch SCALANCE X308-2

2 x 1000 Mbit/s multimode fiber-optic cable ports (SC sockets), 1 x 10/100/1000 Mbit/s RJ-45 port, 7 x 10/100 Mbit/s RJ-45 ports; for glass fiber-optic cable (multimode) up to max. 750 m

6XV1840-2AH10

6XV1870-2E

6XV1878-2A

6GK1901-1GA00

6GK5204-2BB10-2AA3

6GK5308-2FL00-2AA3

Note:

For software ordering data, see Page 105

# PROFINET/Industrial Ethernet

## Communication for SIMATIC S7-400

### CP 443-1 Advanced

#### Overview



ISO	TCP/UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●	●	●	●	●	●	●

Communications processor for connecting a SIMATIC S7-400 to Industrial Ethernet networks, also as PROFINET IO controller or in SIMATIC H systems.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- PROFINET communication
- IT communication
- Security functionality, firewall and VPN

The communications processor can also be used for redundant S7 communication in SIMATIC H systems and for fail-safe applications (PROFIsafe) in connection with an S7-400 F-CPU. In addition, the CP 443-1 Advanced provides e-mail functions and user-created Web pages, offering ideal support for maintenance and quality assurance. The Internet functions such as FTP even allow connection to the most diverse PC-based systems. This CP is therefore the bridge between the field level and the management level for the S7-400. The CP 443-1 Advanced connects seamlessly to the security structures of the office and IT worlds.

Ordering data	Article No.	Article No.	
<p><b>CP 443-1 Advanced communications processor</b></p> <p>for connecting the SIMATIC S7-400 CPU to Industrial Ethernet:            1 x 10/100/1000 Mbit/s;            4 x 10/100 Mbit/s (IE SWITCH);            RJ45 ports; ISO; TCP; UDP;            PROFINET IO controller,            S7 communication;            open communication (SEND/RECEIVE); S7 routing;            IP configuration via DHCP/block;            IP Access Control List;            time synchronization; expanded web diagnostics; Fast Startup;            PROFinergy support; IP routing;            FTP; web server; e-mail;            PROFINET CBA</p> <ul style="list-style-type: none"> <li>With security functionality (firewall and VPN)</li> </ul>	<b>6GK7443-1GX30-0XE0</b>	<p><b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b></p> <p>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m</p> <p><b>IE FC TP Standard Cable GP 4 x 2</b></p> <p>8-core, shielded TP installation cable for connection to IE FC RJ45 modular outlet for universal application; with UL approval; sold by the meter; max length 1 000 m, minimum order 20 m</p> <ul style="list-style-type: none"> <li>AWG22, for connection to IE FC RJ45 Modular Outlet</li> <li>AWG24, for connection to IE FC RJ45 Plug 4 x 2, IE FC M12 Plug PRO 4 x 2</li> </ul>	<p><b>6XV1840-2AH10</b></p> <p><b>6XV1870-2E</b></p> <p><b>6XV1878-2A</b></p>
<p><b>Accessories</b></p> <p><b>IE FC RJ45 Plug 180 2 x 2</b></p> <p>RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>1 pack = 1 unit</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul>	<p><b>6GK1901-1BB10-2AA0</b></p> <p><b>6GK1901-1BB10-2AB0</b></p> <p><b>6GK1901-1BB10-2AE0</b></p>	<p><b>IE FC Stripping Tool</b></p> <p>Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables</p>	<b>6GK1901-1GA00</b>
<p><b>IE FC RJ45 Plug 4 x 2</b></p> <p>RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>1 pack = 1 unit</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul>	<p><b>6GK1901-1BB11-2AA0</b></p> <p><b>6GK1901-1BB11-2AB0</b></p> <p><b>6GK1901-1BB11-2AE0</b></p>	<p><b>Industrial Ethernet Switch SCALANCE X204-2</b></p> <p>Industrial Ethernet switches with integral SNMP access, online diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; four 10/100 Mbit/s RJ-45 ports and two fiber-optic cable ports</p>	<b>6GK5204-2BB10-2AA3</b>
		<p><b>Industrial Ethernet Switch SCALANCE X308-2</b></p> <p>2 x 1000 Mbit/s multimode fiber-optic cable ports (SC sockets), 1 x 10/100/1000 Mbit/s RJ-45 port, 7 x 10/100 Mbit/s RJ-45 ports; for glass fiber-optic cable (multimode) up to max. 750 m</p>	<b>6GK5308-2FL00-2AA3</b>

**Note:**

For software ordering data, see Page 105

**More information**

You will find more information on the topic of Industrial Security on the Internet at:

<http://www.siemens.com/industrialsecurity>

# PROFINET/Industrial Ethernet

## Communication for SIMATIC S7-400

### CP 443-1 RNA

#### Overview



ISO	TCP/ UDP	PN	PRP	IT	IP-R	PG/OP	S7/S5
●	●		●			●	●

Communication processor for connecting a SIMATIC S7-400/S7-400H to Industrial Ethernet networks.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)

The communication processor can be used in SIMATIC H systems and for fail-safe applications (PROFIsafe) in connection with an S7-400 F-CPU. The CP 443-1 RNA<sup>1)</sup> (Redundant Network Access) offers the option of using the PRP procedure (**P**arallel **R**edundancy **P**rotocol in accordance with IEC 62439-3) to connect an S7-400 or S7-400H to parallel, separate networks where high availability is required.

The PRP redundancy procedure is based on double transmission of message frames over two separate networks (LAN A, LAN B). In the event of a fault in one of the two networks, transmission of the message frame from the second network is ensured without delay. A reconfiguration time (switchover of the communication paths) for the network, such as is required with other redundancy procedures, is thus not necessary.

<sup>1)</sup> At Siemens Industry, RNA stands for hardware and software to implement redundancy solutions. RNA contains the PRP V1 protocol in accordance with the IEC 62439-3 standard (Parallel Redundancy Protocol) as well as the HSR protocol in accordance with IEC 62439-3 (High-availability Seamless Redundancy Protocol).

#### Ordering data

#### Article No.

##### CP 443-1 RNA communications processor

6GK7443-1RX00-0XE0

for connecting the SIMATIC S7-400/S7-400H CPU to Industrial Ethernet

Note:

For software ordering data, see Page 105

#### More information

You will find more information on the topic of Redundant Network Access on the Internet at:

<http://www.siemens.com/rna>

Ordering data	Article No.	Article No.
<b>Software</b>		
<b>SOFTNET S7 for Industrial Ethernet</b>		
<p>Software for S7 and open communication, including OPC server, PG/OP communication and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on a USB stick, Class A</p> <p><i>For CP 243-1, CP 1543-1, CM 1542-1, CP 343-1 Lean, CP 343-1, CP 343-1 Advanced, CP 343-1 ERPC, CP 443-1, CP 443-1 Advanced</i></p> <p><b>SOFTNET-IE S7 V12</b></p> <p>For 32/64-bit Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 for 32/64-bit: Windows 8 Pro for Windows Server 2012 German/English</p> <p>up to 64 connections</p> <ul style="list-style-type: none"> <li>• Single License for one installation</li> </ul> <p><b>SOFTNET-IE S7 Lean Edition V12</b></p> <p>Up to eight connections</p> <p>Single License for one installation</p>		
	<b>6GK1704-1CW12-0AA0</b>	
	<b>6GK1704-1LW12-0AA0</b>	
<b>STEP 7 Version 5.5</b>		
<p><b>Target system:</b> SIMATIC S7-300/-400, SIMATIC C7, SIMATIC WinAC</p> <p><b>Requirements:</b> Windows XP Prof., Windows 7 Professional/Ultimate</p> <p><b>Type of delivery:</b> German, English, French, Spanish, Italian; including license key on USB stick, with electronic documentation</p> <p><i>For CP 343-1 Lean, CP 343-1, CP 343-1 Advanced, CP 343-1 ERPC, CP 443-1, CP 443-1 Advanced, CP 443-1 RNA</i></p> <ul style="list-style-type: none"> <li>• Floating License on DVD</li> <li>• Rental License for 50 hours</li> <li>• Software Update Service on DVD (requires current software version)</li> <li>• Upgrade Floating License 3.x/4.x/5.x to V5.5; on DVD</li> <li>• Trial License STEP 7 V5.5; on DVD, 14 day trial</li> </ul>		
	<b>6ES7810-4CC10-0YA5</b>	
	<b>6ES7810-4CC10-0YA6</b>	
	<b>6ES7810-4BC01-0YX2</b>	
	<b>6ES7810-4CC10-0YE5</b>	
	<b>6ES7810-4CC10-0YA7</b>	
	<b>6ES7810-4CC10-0YC5</b>	
	<b>6ES7810-4CC10-0YD5</b>	
	<b>6ES7810-4CC10-0YF5</b>	
	<b>6ES7810-4CC10-0YH5</b>	
	<b>6ES7810-4CC10-0YJ5</b>	
	<b>6ES7810-4CC10-0YK5</b>	
	<b>6ES7810-4CC10-0YL5</b>	
	<b>6ES7810-4CC10-0YM5</b>	
	<b>6ES7810-4CC10-0YN5</b>	
	<b>6ES7810-4CC10-0YO5</b>	
	<b>6ES7810-4CC10-0YP5</b>	
	<b>6ES7810-4CC10-0YQ5</b>	
	<b>6ES7810-4CC10-0YR5</b>	
	<b>6ES7810-4CC10-0YS5</b>	
	<b>6ES7810-4CC10-0YT5</b>	
	<b>6ES7810-4CC10-0YU5</b>	
	<b>6ES7810-4CC10-0YV5</b>	
	<b>6ES7810-4CC10-0YW5</b>	
	<b>6ES7810-4CC10-0YX5</b>	
	<b>6ES7810-4CC10-0YY5</b>	
	<b>6ES7810-4CC10-0YZ5</b>	
	<b>6ES7810-4CC10-0Z05</b>	
	<b>6ES7810-4CC10-0Z15</b>	
	<b>6ES7810-4CC10-0Z25</b>	
	<b>6ES7810-4CC10-0Z35</b>	
	<b>6ES7810-4CC10-0Z45</b>	
	<b>6ES7810-4CC10-0Z55</b>	
	<b>6ES7810-4CC10-0Z65</b>	
	<b>6ES7810-4CC10-0Z75</b>	
	<b>6ES7810-4CC10-0Z85</b>	
	<b>6ES7810-4CC10-0Z95</b>	
	<b>6ES7810-4CC10-0Z00</b>	
	<b>6ES7810-4CC10-0Z10</b>	
	<b>6ES7810-4CC10-0Z20</b>	
	<b>6ES7810-4CC10-0Z30</b>	
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# PROFINET/Industrial Ethernet

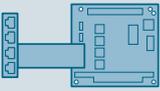
## Communication for SIMATIC S7

### Software

Ordering data	Article No.	Article No.
<p><b>STEP 7 Professional Engineering Software V12; software download incl. license key 2</b></p> <p>E-mail address required for the delivery</p> <ul style="list-style-type: none"> <li>STEP 7 Professional V12, Floating License</li> <li>STEP 7 Professional V12, Trial License;</li> <li>Upgrade STEP 7 Professional V11 to STEP 7 Professional V12, Floating License</li> <li>Upgrade STEP 7 Professional 2006/2010 to STEP 7 Professional V12, Floating License</li> <li>PowerPack &amp; Upgrade from STEP 7 V5.4/V5.5 to STEP 7 Professional V12, Floating License</li> <li>PowerPack STEP 7 Basic V12 to STEP 7 Professional V12, Floating License</li> </ul>	<p><b>6ES7822-1AE02-0YA5</b></p> <p><b>6ES7822-1AE02-0YA7</b></p> <p><b>6ES7822-1AE02-0YE5</b></p> <p><b>6ES7822-1AE02-0XE5</b></p> <p><b>6ES7822-1AE02-0XC5</b></p> <p><b>6ES7822-1AE02-0YC5</b></p>	<p><b>SIMATIC iMap V3.0</b> For CP 343-1 Advanced, CP 443-1 Advanced</p> <p>for configuration of PROFINET CBA</p> <p><b>Requirement:</b> Windows 2000 Prof. with Service Pack 4 or later or Windows XP Prof. with Service Pack 1 or later or Windows 2003 Server with Service Pack 1; on PG or PC with Pentium processor, min. 1 GHz; STEP 7 V5.3 Service Pack 3 or later, PN OPCServer V6.3 or later</p> <p><b>Form of delivery:</b> German, English, with electronic documentation</p> <ul style="list-style-type: none"> <li>Single License</li> <li>Software Update Service</li> <li>Upgrade to V3.0, Single License</li> </ul>
<p><b>STEP 7-Micro/WIN V4 programming software</b></p> <p>Target system: All CPUs of the SIMATIC S7-200</p> <p>Requirement: Windows 2000/XP on PG or PC, available in: German, English, French, Spanish, Italian, Chinese; with online documentation</p> <ul style="list-style-type: none"> <li>Single License</li> <li>Upgrade Single License1)</li> </ul> <p>For CP 243-1</p>	<p><b>6ES7810-2CC03-0YX0</b></p> <p><b>6ES7810-2CC03-0YX3</b></p>	<p><b>6ES7820-0CC04-0YA5</b></p> <p><b>6ES7820-0CC01-0YX2</b></p> <p><b>6ES7820-0CC04-0YE5</b></p>

#### Overview



Software	Hardware
<ul style="list-style-type: none"> <li>▶ You will find software products on the SIMATIC NET/Windows CD.</li> <li>▶ Development Kits are available for use in various operating system environments (e.g. for CP 1616 or CP 1604).</li> <li>▶ As a rule, the necessary configuration tools are included in the software packages.</li> <li>▶ Manuals in PDF format and extensive supplementary information on SIMATIC NET products and communication can be found in the SIMATIC NET Manual Collection which is enclosed with the software products.</li> </ul> <div style="text-align: center; margin-top: 20px;">  <p>SIMATIC NET Manual Collection</p> </div>	<p>CPs with an internal microprocessor</p> <div style="border: 1px solid gray; padding: 5px; margin-bottom: 5px;"> <p>CP 1613 A2 (PCI)</p>  </div> <div style="border: 1px solid gray; padding: 5px; margin-bottom: 5px;"> <p>CP 1623/ CP 1628 (PCIe)</p>  </div> <div style="border: 1px solid gray; padding: 5px; margin-bottom: 5px;"> <p>CP 1616 (PCI)</p>  </div> <div style="border: 1px solid gray; padding: 5px; margin-bottom: 5px;"> <p>CP 1604 (PC/104-Plus)</p>  </div> <p>CP without an internal microprocessor</p> <div style="border: 1px solid gray; padding: 5px;"> <p>CP 1612 A2 (PCI 32 Bit)</p>  </div> <p style="font-size: small; text-align: right;">G...JK10...XX...50183</p>

Function overview of the communication modules with integral switch for SIMATIC PG/PC/IPC

#### CPs with an internal microprocessor

- Protocol software executes on the CP
- Free PC resources for applications
- Suitable for comprehensive applications
- Recommended for applications with HMI systems which have high performance requirements, e.g. WinCC
- Recommended for large systems (eight stations or more, e.g. SIMATIC)
- Constant communication throughput
- Can be used for redundant communication
- Use for PROFINET IO real-time applications (RT, IRT with CP 1616/CP 1604)
- Time synchronization

#### CPs without an internal microprocessor

- Protocol software executes on the PG/PC
- PC resources are divided between communications and applications
- Suitable for less comprehensive applications
- Recommended for smaller applications (up to eight stations, e.g. SIMATIC)
- Communications performance depends on PC resources and PC loading

#### CPs with integral switch

- Connection of additional field devices to the Industrial Ethernet by means of additional switch ports
- Switch operation possible via external power supply even with PC turned off

#### Configuration for version V12 or higher

STEP 7 V12 or higher is used for PC configuration. The STEP7 software is included in the scope of delivery of the SIMATIC NET products. A STEP7 license is not required for PC configuration.

#### Configuration for versions up to V8.2:

The PC can be configured either in STEP 7 or in NCM PC Version V5.1+SP2 and higher. Both tools offer the same look and feel and create the same database. This enables integrated configuring for the communication functions open communication and S7 communication. Data only has to be entered once and data consistency is assured.

- A configuration wizard integrated into NCM PC also supports user-driven configuration of the PC station.
- With NCM PC and STEP 7 from Version V5.1+SP2 upwards, a PC similar to a SIMATIC S7 station can be configured and loaded over a network. This applies both to the local station on which NCM PC or STEP 7 is installed and to the remote station that is addressed over the network.

Note:

NCM PC does not contain a conversion function for LDBs that were created using COML S7. Reconfiguration is necessary.

# PROFINET/Industrial Ethernet

## System connection for PG/PC/IPC

### Communication for PC-based systems

#### Performance data

#### Overview

The following communications processors are available for connecting to the programming device or PC:

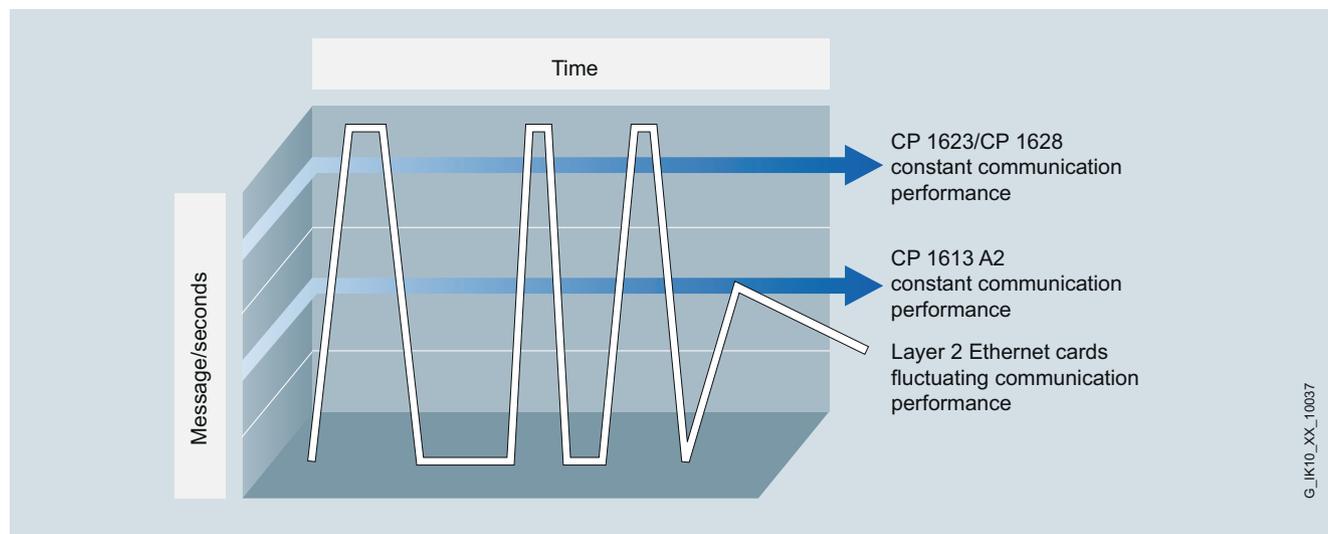
- CPs with an internal microprocessor:
  - CP 1616 (PCI)
  - CP 1604 (PCI-104)
  - CP 1613 A2 (PCI)
  - CP 1623 (PCIe)
  - CP 1628 (PCIe)

#### Data throughput of Industrial Ethernet

Comparisons between Layer-2 Ethernet cards and CP 1613 A2/CP 1623/CP 1628 show the respective communications throughput.

This throughput varies between 0 and the maximum throughput for Layer-2 Ethernet cards with the corresponding software packages.

When the CP 1613 A2/CP 1623/CP 1628 is used with software packages, the communications performance remains constantly at a high level and ensures fast response times without any variations.



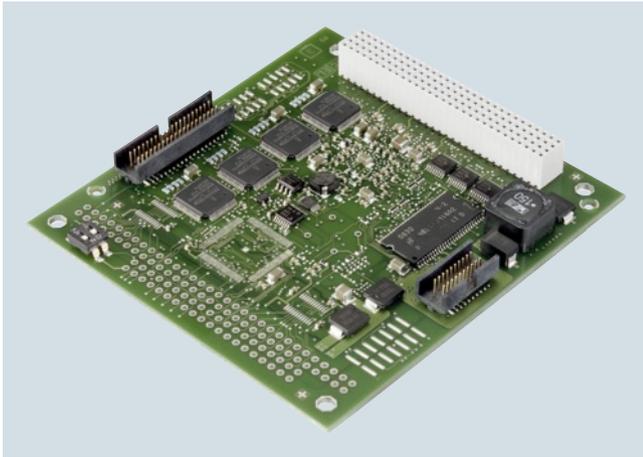
Communication performance comparisons

#### More information

You can find more information on the Internet at:

<http://www.siemens.com/simatic-net/ik-info>

### Overview



ISO	TCP/UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
	●	●	●				

- PCI-104 module for connecting PCI-104 systems to PROFINET IO
- Full/half duplex with autonegotiation
- With Ethernet real-time ASIC ERTEC 400
- Integral 4-port real-time switch
- Communication services:
  - PROFINET IO controller and/or PROFINET IO device
  - Support of IRT in motion control applications
  - Support of PROFlenergy functionality
- High performance through direct memory access
- Integration in network management systems through the support of SNMP
- Comprehensive diagnostics possibilities for installation, start-up and operation of the module
- Powerful configuration tools are included in delivery of module

### Ordering data

#### CP 1604 communications processor

PCI-104 card (32-bit) with ASIC ERTEC 400 for connecting PCI-104 systems to PROFINET IO with 4-port real-time switch (RJ45); incl. IO-Base software for PROFINET IO-Controller and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32-bit Windows XP Professional and Windows 7; other operating systems using DK-16xx PN IO Development Kit German/English

#### Article No.

6GK1160-4AA01

#### CP 1604 Microbox Package

Package for implementing the CP 1604 in the SIMATIC Microbox PC; comprising the CP 1604, connection board, power supply and expansion racks for Microbox PC; for use with Development Kit DK-16xx PN IO; NCM PC

6GK1160-4AU01

#### Accessories

#### Connection board for CP 1604

Connection board for CP 1604 with four RJ45 sockets incl. connecting cable

6GK1160-4AC00

Note:

For software ordering data, see Page 128

#### Article No.

#### Power supply for CP 1604

Redundant power supply for CP 1604 for operating the integral 4-port switch of the CP 1604 with the PC-104 system switched off; includes connecting cable

6GK1160-4AP00

#### Development Kit DK-16xx PN IO

Software Development Kit for CP 1616/CP 1604; driver and IO-Base software for CP 1616/CP 1604 as PN IO controller and PN IO device in source code for transfer to other PC-based operating systems; incl. executable sample code for SUSE Linux 10, Windows XP Professional and Windows 7

see  
<http://www.siemens.com/simatic-net/dk16xx>

#### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

6XV1870-3QE50  
6XV1870-3QH10  
6XV1870-3QH20  
6XV1870-3QH60  
6XV1870-3QN10

#### SCALANCE X204IRT

Managed Industrial Ethernet switches; Isochronous Real-Time, LED diagnostics, fault signaling contact with SET button, redundant power supply; 4 x 10/100 Mbit/s RJ45 ports

6GK5204-0BA00-2BA3

### More information

The DK-16xx PN IO development kit can be found on the Internet at: <http://www.siemens.com/simatic-net/dk16xx>

# PROFINET/Industrial Ethernet

## Communication for PC-based systems

CP 1616

### Overview



- PCI module for connecting PCs and SIMATIC PGs/PCs to PROFINET IO (Universal Keyed 3.3 V and 5 V; 33 MHz/66 MHz; 32-bit, runs in 64-bit PCI-X systems)
- Full/half duplex with autonegotiation
- With Ethernet real-time ASIC ERTEC 400
- Integral 4-port real-time switch
- Communication services:
  - PROFINET IO controller and/or PROFINET IO device
  - Support of IRT in motion control applications
- High performance through direct memory access
- Integration in network management systems through the support of SNMP
- Comprehensive diagnostics possibilities for installation, start-up and operation of the module
- Powerful configuration tools are part of the scope of delivery of the module

ISO	TCP/UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
	●	●	●				

### Ordering data

#### CP 1616 communications processor

PCI Card (32 bit; 3.3/5 V universal keyed) with ASIC ERTEC 400 for connecting PCs to PROFINET IO with 4-port real-time switch (RJ45); incl. IO Base software for PROFINET IO Controller and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32-bit Windows XP Professional and Windows 7; other operating systems via Development Kit DK-16xx PN IO; German/English

### Article No.

6GK1161-6AA02

### Article No.

#### Accessories

#### Development Kit DK-16xx PN IO

Software Development Kit for CP 1616/CP 1604; driver and IO-Base software for CP 1616/CP 1604 as PN IO controller and PN IO device in source code for transfer to other PC-based operating systems; incl. executable sample code for SUSE Linux 10, Windows XP Professional and Windows 7

see  
<http://www.siemens.com/simatic-net/dk16xx>

#### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1 870-3QE50**  
**6XV1 870-3QH10**  
**6XV1 870-3QH20**  
**6XV1 870-3QH60**  
**6XV1 870-3QN10**

#### SCALANCE X204IRT

Managed Industrial Ethernet switches; Isochronous Real-Time, LED diagnostics, fault signaling contact with SET button, redundant power supply; 4 x 10/100 Mbit/s RJ45 ports

**6GK5 204-0BA00-2BA3**

Note:

For software ordering data, see Page 128

### More information

The DK-16xx PN IO development kit can be found on the Internet at: <http://www.siemens.com/simatic-net/dk16xx>

### Overview



ISO	TCP/ UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●	●	●		●	●	●	●

- PCI card (32 bit; 33 MHz/66 MHz; 3.3 V/5 V Universal Key) for the connection of PG/PC to Industrial Ethernet
- 1 x 10/100/1000 Mbit/s RJ45 port, electrical
- Automatic data transmission rate detection (10/100/1000 Mbit/s), with autosensing and autocrossover function
- Communication services via
  - PROFINET
  - ISO or TCP/IP transport protocol
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- Designed for use in industrial environments
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software.

### Ordering data

### Article No.

#### CP 1612 A2

#### communications processor

PCI card (32 bit, 33 MHz/66 MHz; 3.3 V/5 V universal keyed) for connection to Industrial Ethernet (10/100/1000 Mbit/s) with RJ45 interface, incl. driver for 32-bit Windows XP Professional SP2/3, 2003 R2 Server SP2, Vista Business/Ultimate SP1, Windows 2008 Server; German/English

**6GK1161-2AA01**

#### Accessories

#### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1 870-3QE50**

**6XV1 870-3QH10**

**6XV1 870-3QH20**

**6XV1 870-3QH60**

**6XV1 870-3QN10**

Note:

For software ordering data, see Page 128

# PROFINET/Industrial Ethernet

## Communication for PC-based systems

CP 1613 A2

### Overview



ISO	TCP/ UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●	●			●	●	●	●

- PCI card (32 bit; 33 MHz/66 MHz; 3.3 V/5 V universal key) with microprocessor for connection of PG/PC to Industrial Ethernet with 10/100 Mbit/s Autosensing/Autonegotiation
- Communication services using
  - Open IE communication via TCP/IP and UDP)
  - ISO transport protocol
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- 15-pole ITP connection
- RJ45 connection
- Time synchronization
- ISO and TCP/IP transport protocol onboard
- SNMP-supported diagnostics
- The appropriate OPC server and configuration tools are included in the respective scope of supply of the communication software

### Ordering data

### Article No.

#### CP 1613 A2

#### communications processor

PCI card (32-bit, 33 MHz/66 MHz; 3.3 V/5 V universal keyed) for connection to Industrial Ethernet (10/100 Mbit/s) with ITP and RJ45 connection over HARDNET-IE S7/S7-1613 and S7-REDCONNECT, for operating system support see SIMATIC NET Software

**6GK1161-3AA01**

#### Accessories

#### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1 870-3QE50**

**6XV1 870-3QH10**

**6XV1 870-3QH20**

**6XV1 870-3QH60**

**6XV1 870-3QN10**

<sup>1)</sup> also S5-compatible communication

Note:

For software ordering data, see Page 128

### Overview



ISO	TCP/ UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●	●			●	●	●	●

- PCI Express Card (PCIe x1) with an internal microprocessor for connection of PG/PC to Industrial Ethernet
- 10/100/1000 Mbit/s (Autosensing/Autocrossover/Autonegotiation)
- Integrated 2-port switch (2 x RJ45 connection)
- Communications services via
  - Open IE communication (TCP/IP and UDP)
  - ISO transport protocol
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- Time synchronization
- ISO and TCP/IP transport protocol on board
- Integration into network management systems through the support of SNMP (V1)
- The appropriate OPC server and configuration tools are included in the scope of supply of the respective communication software.

### Ordering data

### Article No.

#### CP 1623

#### communications processor

PCI Express x1 card for connection to Industrial Ethernet (10/100/1000 Mbit/s), with 2-port switch (RJ45) via HARDNET-IE S7/S7-1613 and S7-REDCONNECT. For operating system support, see SIMATIC NET Software

**6GK1162-3AA00**

#### Accessories

#### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1 870-3QE50**

**6XV1 870-3QH10**

**6XV1 870-3QH20**

**6XV1 870-3QH60**

**6XV1 870-3QN10**

Note:

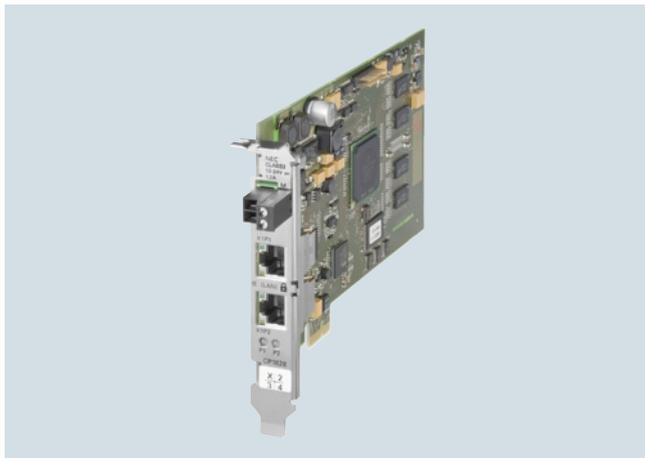
For software ordering data, see Page 128

# PROFINET/Industrial Ethernet

## Communication for PC-based systems

CP 1628

### Overview



ISO	TCP/ UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●	●			●	●	●	●

- PCI Express card (PCIe x1) with its own microprocessor and integrated 2-port switch (2 x RJ45 connection, 10/100/1000 Mbit/s) for the connection of a PG/PC to Industrial Ethernet
- Integrated security mechanisms (e.g. Firewall, VPN)
- ISO and TCP/IP transport protocol on board
- Communications services via
  - Open IE communication (TCP/IP and UDP)
  - ISO transport protocol
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- Integration into network management systems through the support of SNMP (V1/V3)

### Ordering data

### Article No.

#### CP 1628 communications processor<sup>1)</sup>

PCI Express x1 card for connection to Industrial Ethernet (10/100/1 000 Mbit/s), with 2-port switch (RJ45) and integrated security (firewall, VPN) via HARDNET-IE S7 and S7-REDCONNECT. For operating system support, see SIMATIC NET Software

**6GK1162-8AA00**

#### Accessories

#### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 plugs

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

**6XV1 870-3QE50**

**6XV1 870-3QH10**

**6XV1 870-3QH20**

**6XV1 870-3QH60**

**6XV1 870-3QN10**

<sup>1)</sup> Shipment without individual export license is restricted to certain countries. Export to other countries requires an individual export license that must be applied for from BIS (Bureau of Industry and Security).

Note: Check the current country list:

<http://support.automation.siemens.com/WW/view/de/66627157>

Note:

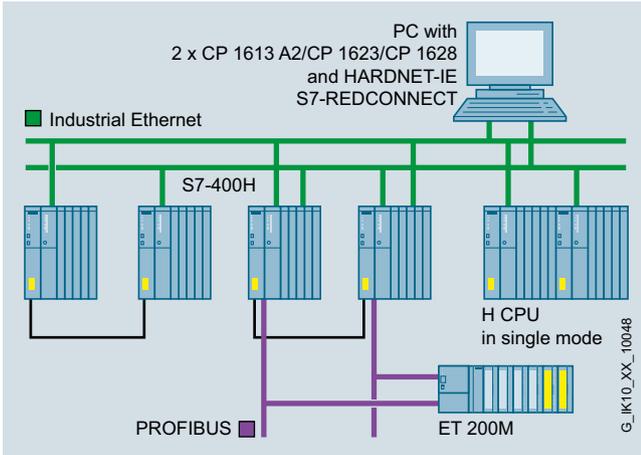
For software, see Page 2/128

### More information

You will find more information on the topic of Industrial Security on the Internet at:

<http://www.siemens.com/industrialsecurity>

### Overview



System configuration for S7-REDCONNECT

ISO	TCP/UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●				●	●	●	

© 2013, 08/14

- For connecting PCs over redundant Industrial Ethernet to the SIMATIC S7-400H
- Protected from communication failures arising from a fault in the double bus or in redundant rings
- For redundant Layer 2 or Layer 3 Industrial Ethernet
- Can also be implemented in non-redundant networks
- No additional programming overhead for the PC and in H systems
- The appropriate OPC server and configuration tools are included in the scope of supply of the respective communication software
- Enhanced redundancy over 4-way communication (STEP 7 V5.1 + SP4 and higher)

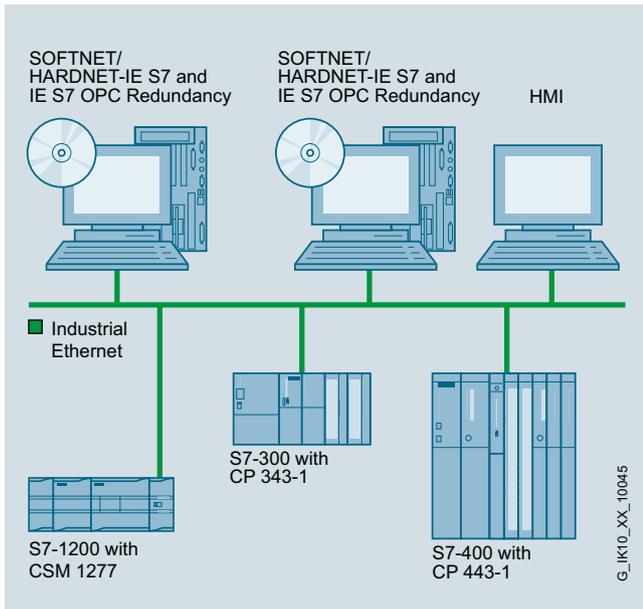
# PROFINET/Industrial Ethernet

## Communication for PC-based systems

### HARDNET-IE S7-REDCONNECT

Ordering data	Article No.	Article No.
<p><b>HARDNET-IE S7-REDCONNECT</b></p> <p>Software for fail-safe S7 communication via redundant networks, incl. S7 OPC server, HARDNET-IE S7, runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A;</p> <p><i>For CP 1613 A2, CP 1623, CP 1628</i></p> <p><b>HARDNET-IE S7-REDCONNECT V12</b></p> <p>for 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 for 32/64 Bit Windows 8 Pro; for Windows Server 2012 German/English</p> <ul style="list-style-type: none"> <li>• Single License for one installation</li> </ul>		
<p><b>Software Update Service</b></p> <p>For one year with automatic extension; requirement: current software version</p>	<b>6GK1716-0HB00-3AL0</b>	
<p><b>Upgrade</b></p> <ul style="list-style-type: none"> <li>• As of Edition 2006 to S7-REDCONNECT Edition 2008 or HARDNET-IE S7-REDCONNECT V12</li> <li>• From V6.0, V6.1, V6.2 or V6.3 to S7-REDCONNECT Edition 2008 or HARDNET-IE S7-REDCONNECT V12</li> </ul>	<b>6GK1716-0HB00-3AE0</b>	
	<b>6GK1716-0HB00-3AE1</b>	
		<p><b>HARDNET-IE S7-REDCONNECT Power Pack</b></p> <p>For expansion from HARDNET-IE S7 to HARDNET-IE S7-REDCONNECT / from S7-1613 to S7 REDCONNECT, Single License for one installation, runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A;</p> <p><i>For CP 1613 A2, CP 1623, CP 1628</i></p> <p><b>HARDNET-IE S7-REDCONNECT Power Pack V12</b></p> <p>for 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2; for 32/64-bit Windows 8 Pro; for Windows Server 2012 German/English;</p>
		<b>6GK1716-0HB12-0AC0</b>
		<p><b>CP 1613 A2 communications processor</b></p> <p>PCI card (32-bit, 33 MHz/66 MHz; 3.3 V/5 V universal keyed) for connection to Industrial Ethernet (10/100 Mbit/s) with ITP and RJ45 connection over HARDNET-IE S7 and S7-REDCONNECT, for operating system support see SIMATIC NET Software</p>
		<b>6GK1161-3AA01</b>
		<p><b>CP 1623 communications processor</b></p> <p>PCI Express x1 card for connection to Industrial Ethernet (10/100/1000 Mbit/s), with 2-port switch (RJ45) via HARDNET-IE S7 and S7-REDCONNECT. For operating system support, see SIMATIC NET Software</p>
		<b>6GK1162-3AA00</b>
		<p><b>CP 1628 communications processor</b></p> <p>PCI Express x1 card for connection to Industrial Ethernet (10/100/1 000 Mbit/s), with 2-port switch (RJ45) and integrated security (firewall, VPN) via HARDNET-IE S7 and S7-REDCONNECT. For operating system support, see SIMATIC NET Software</p>
		<b>6GK1162-8AA00</b>

### Overview



- Software for coupling programming devices/workstations to automation systems
- Communication services:
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- Can be used with
  - Layer 2 Ethernet card (PCI/PCIe), e.g. CP 1612 A2
  - Integrated Industrial Ethernet interface
  - Modem/ISDN (Remote Access Service RAS)
- Complete protocol stack as a software package
- Increased availability thanks to additional option packages such as OPC Server Redundancy

System configuration SOFTNET for Industrial Ethernet

ISO	TCP/UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●	●			●	●	●	

# PROFINET/Industrial Ethernet

## Communication for PC-based systems

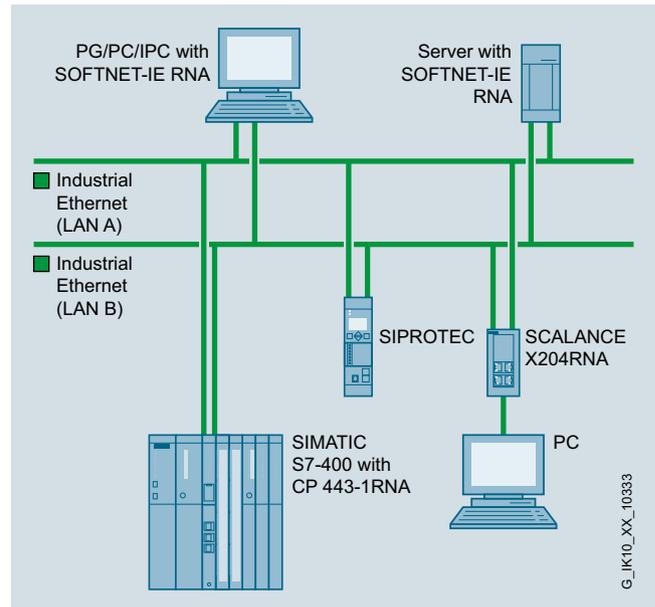
### SOFTNET for Industrial Ethernet

Ordering data	Article No.	Article No.
<b>SOFTNET-S7 for Industrial Ethernet</b>		<b>SOFTNET-PG for Industrial Ethernet</b>
Software for S7 and open communication, incl. OPC server, PG/OP communication, and NCM PC / STEP 7 Professional V12, runtime software, software and electronic manual on CD-ROM, license key on a USB stick, Class A		Software for PG/OP communication, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A
<b>SOFTNET-IE S7 V12</b>		<b>SOFTNET-IE PG V12</b>
For 32/64-bit Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2; for 32/64-bit Windows 8 Pro; for Windows Server 2012 German/English		for 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2; for 32/64-bit Windows 8 Pro; for Windows Server 2012: German/English
up to 64 connections		• Single License for one installation
• Single License für eine Installation	<b>6GK1704-1CW12-0AA0</b>	<b>6GK1704-1PW12-0AA0</b>
<b>Software Update Service</b>	<b>6GK1704-1CW00-3AL0</b>	<b>Software Update</b>
For 1 year with automatic extension; requirement: current software version		For 1 year with automatic extension; requirement: current software version
<b>Upgrade</b>		<b>Upgrade</b>
• From Edition 2006 to Edition 2008 or V12	<b>6GK1704-1CW00-3AE0</b>	• From Edition 2006 to Edition 2008 or V12
• From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V12	<b>6GK1704-1CW00-3AE1</b>	• From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V12
<b>SOFTNET-IE S7 REDCONNECT VM V12</b>		<b>IE S7 OPC Redundancy</b>
Software for fail-safe S7 communication via redundant networks, incl. S7 OPC server, HARDNET-IE S7, runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A for 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2; for 32/64-bit Windows 8 Pro; for Windows Server 2012 German/English;		Software for redundant OPC servers in the environment of Industrial Ethernet software, S7 products, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A
• Single License for one installation	<b>6GK1704-0HB12-0AA0</b>	<b>IE S7 OPC Redundancy V12</b>
<b>SOFTNET-IE S7 Lean Edition V12</b>		for 64-bit: Windows 2008 Server R2; German/English
Up to eight connections		• Single License for one installation
• Single License for one installation	<b>6GK1704-1LW12-0AA0</b>	<b>6GK1706-1CW12-0AA0</b>
<b>Software Update Service</b>	<b>6GK1704-1LW00-3AL0</b>	
For 1 year with automatic extension; requirement: current software version		
<b>Upgrade</b>		
• From Edition 2006 to Edition 2008 or V12	<b>6GK1704-1LW00-3AE0</b>	
From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V12	<b>6GK1704-1LW00-3AE1</b>	

### Overview



- SOFTNET-IE RNA (Redundant Network Access) is the software for connecting a PC to networks with PRP (Parallel Redundancy Protocol) in accordance with IEC62439-3 capability
- High level of plant availability thanks to duplicate transmission of frames in two parallel, separate networks
- Reconfiguration times in a subnetwork do not affect the propagation time because the frames are transmitted via two separate networks (bumpless redundancy)
- Integration in network management systems through support for SNMP
- Configuring tools are included in the scope of delivery of the communication software in each case



### Ordering data

### Article No.

### Article No.

#### SOFTNET-IE RNA

Software for connecting PCs to PRP-enabled networks with integrated SNMP, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A

For CP1612 A2

#### SOFTNET-IE RNA V12

For 32/64-bit Windows 7 Professional/Ultimate; for 64-bit Windows 2008 Server R2; for 32/64-bit Windows 8 Pro; for Windows Server 2012 German/English

- Single License for one installation

#### Software Update Service

For 1 year with automatic extension; requirement: current software version

Upgrade

- From V8.1 to V12

**6GK1711-1EW12-0AA0**

**6GK1711-1EW00-3AL0**

**6GK1711-1EW00-3AE0**

#### SCALANCE X-200RNA Industrial Ethernet network access points

Industrial Ethernet network access points with integrated SNMP access, web diagnostics and PROFINET diagnostics, for connecting non-PRP-enabled terminal equipment to PRP networks; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM; with electrical and optical ports for glass multimode fiber-optic cable up to 5 km

- SCALANCE X204RNA with four 100 Mbit/s RJ45 ports
- SCALANCE X204RNA EEC with two 100 Mbit/s RJ45 ports and two RJ45/SFP combo ports

**6GK5204-0BA00-2KB2**

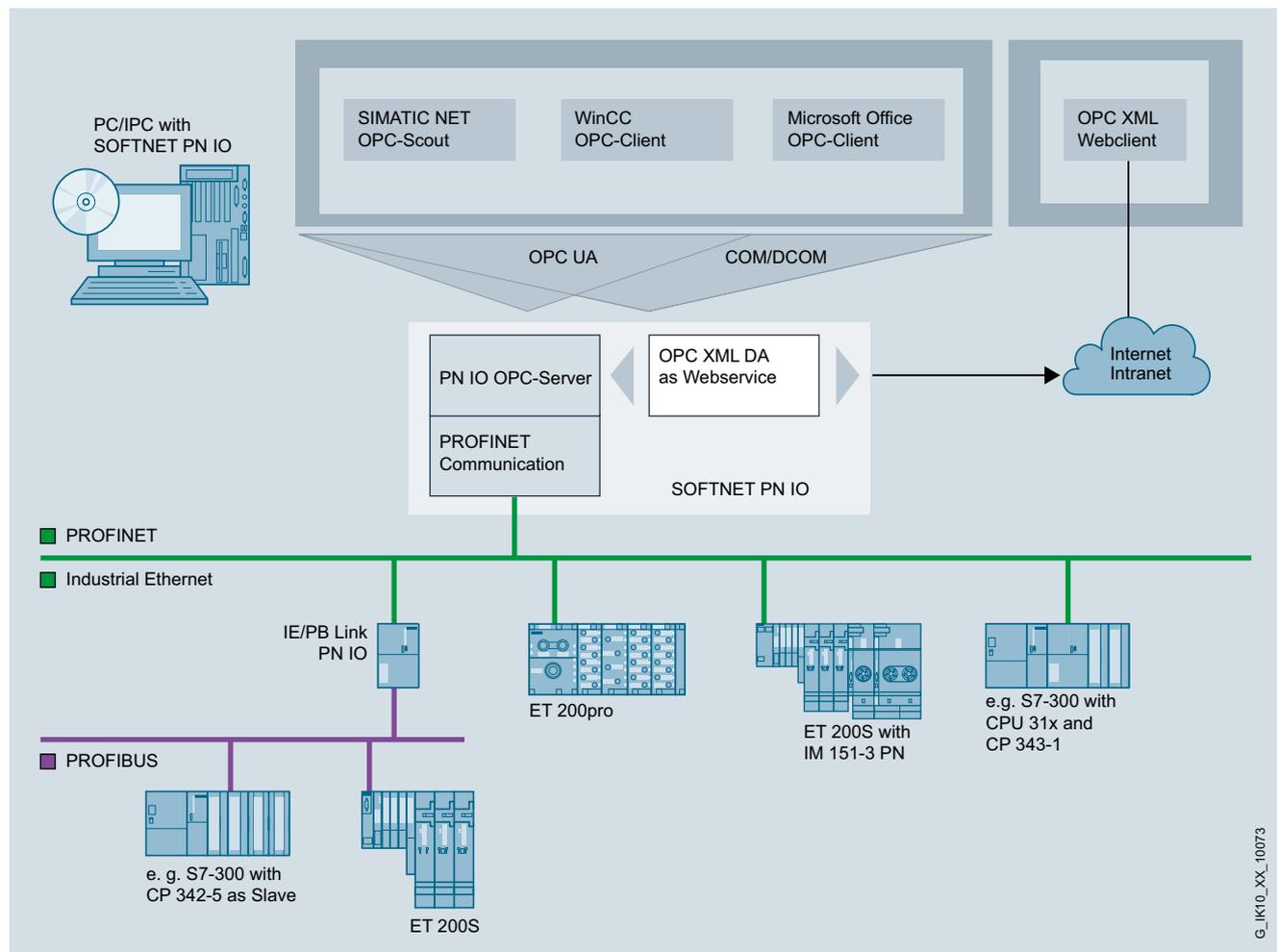
**6GK5204-0BS00-3LA3**

# PROFINET/Industrial Ethernet

## Communication for PC-based systems

### SOFTNET PN IO

#### Overview



PC with SOFTNET PN IO as PROFINET IO Controller

ISO	TCP/UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
	●	●		●			

S\_1K10\_XX\_0102

- Software with PROFINET IO Controller function for coupling PG/PC and IPC with PROFINET IO Devices
- Possible applications:
  - PC-based control systems
  - HMI systems
  - Test applications
- Communication services:
  - PROFINET IO controller
- Can be used with
  - Layer 2 Ethernet card (PCI/PCle), e.g. CP 1612 A2
  - Integral Industrial Ethernet interfaces of SIMATIC programming devices/PCs
- Cost-effective solution for the low-end performance range
- OPC server for I/O connection over PROFINET included in scope of delivery

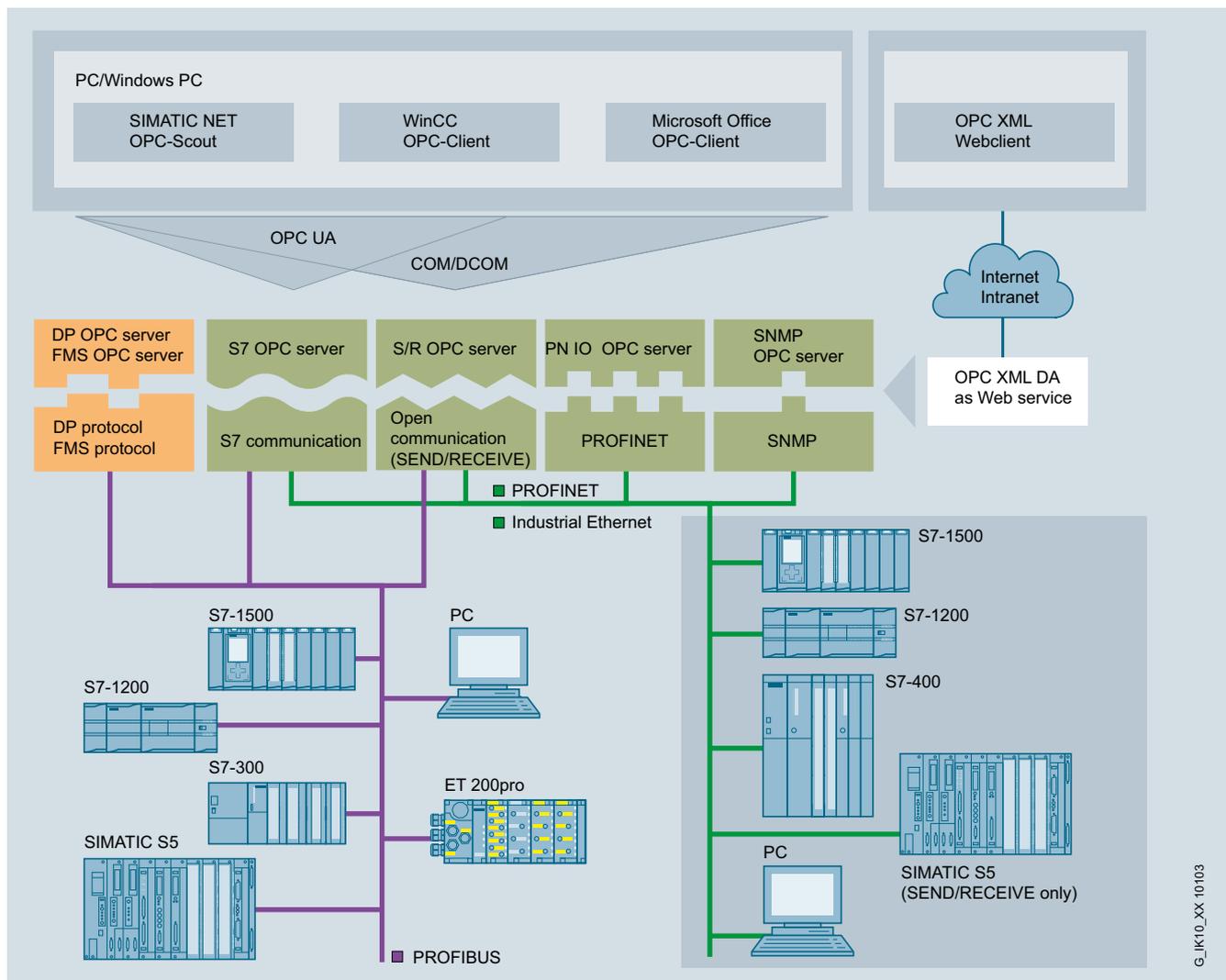
Ordering data	Article No.		Article No.
<p><b>SOFTNET PN IO</b></p> <p>Software for PROFINET IO Controller with OPC server and NCM PC / STEP7 Professional V12, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A</p> <p><b>SOFTNET-IE PN IO V12</b></p> <p>For 32/64-bit Windows 7 Professional/Ultimate; for Windows 2008 Server R2; for 32/64 Bit Windows 8 Pro; for Windows Server 2012 German/English</p> <p>Single License for one installation</p>	<p><b>6GK1 704-1HW12-0AA0</b></p>	<p><b>Software Update Service</b></p> <p>For 1 year with automatic extension; requirement: current software version</p>	<p><b>6GK1704-1HW00-3AL0</b></p>
		<p><b>Upgrade</b></p> <ul style="list-style-type: none"> <li>• From Edition 2006 to SOFTNET PN IO Edition 2008 or V12</li> <li>• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET PN IO Edition 2008 or V12</li> </ul>	<p><b>6GK1704-1HW00-3AE0</b></p> <p><b>6GK1704-1HW00-3AE1</b></p>

# PROFINET/Industrial Ethernet

## Communication for PC-based systems

### OPC server for Industrial Ethernet

#### Overview



System integration with OPC server

G\_IK10\_XX 10103

# PROFINET/Industrial Ethernet

## Communication for PC-based systems

### OPC server for Industrial Ethernet

#### Overview

OPC (**O**penness, **P**roductivity & **C**ollaboration) is a standardized, open, and vendor-independent interface that is widely used in automation.

A fundamental distinction is made between the classic OPC and its consistent further development OPC UA (**U**nified **A**rchitecture). Smooth migration to the new OPC UA standard is easily possible; this offers further value added, such as security. The SIMATIC NET OPC servers offer the two interfaces OPC UA and classic OPC for SIMATIC S7 and PROFINET.

- The corresponding OPC servers are included in the scope of supply of the respective communication software
- Standardized, open, multi-vendor interface
- It permits interfacing of OPC-capable Windows applications to S7 communication, open communication (SEND/RECEIVE), PROFINET, and SNMP
- Increased availability thanks to additional option packages such as OPC server redundancy
- OPC Scout with browser functionality as an OPC client and OCX Data Control/.NET Data Control for simple OPC client creation

#### Ordering data

#### Article No.

##### *SNMP OPC server*

Status monitoring of SNMP-capable devices in any OPC client systems; e.g. SIMATIC WinCC/PCS 7

See SNMP OPC-Server

##### *S7 OPC Redundancy*

Software for redundant OPC servers in the environment of Industrial Ethernet software, S7 products, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A

##### **S7 OPC Redundancy V12**

for 64-bit: Windows 2008 Server R2; German/English

- Single License for one installation

**6GK1706-1CW12-0AA0**

##### **Software Update Service**

For 1 year with automatic extension; requirement: current software version

**6GK1706-1CW00-3AL0**

# PROFINET/Industrial Ethernet

## Communication for PC-based systems

### S7 OPC Redundancy for Industrial Ethernet

#### Overview

OPC (**O**penness, **P**roductivity & **C**ollaboration) is a standardized, open, and vendor-independent interface that is widely used in automation. OPC UA (**U**nified **A**rchitecture) is the result of consistent further development of this standard, offering additional functions such as security or redundancy.

S7 OPC Redundancy is a software product compliant with the OPC UA standard that enables the redundant configuration of OPC UA servers to SIMATIC S7. The availability of automation data to operator control and monitoring systems is guaranteed thanks to the redundant use of OPC UA servers. This requires neither additional cabling for synchronizing the redundant OPC UA servers, nor additional programming overhead in the PC. The OPC UA servers are synchronized via high-performance Industrial Ethernet network access points at 10/100 and 1000 Mbps. S7 OPC Redundancy represents an integrated customer solution for all SIMATIC NET S7 SOFTNET and HARDNET software products in the automation world.

#### Ordering data

#### Article No.

##### S7 OPC Redundancy

Software for redundant OPC servers in the environment of Industrial Ethernet software, S7 products, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A

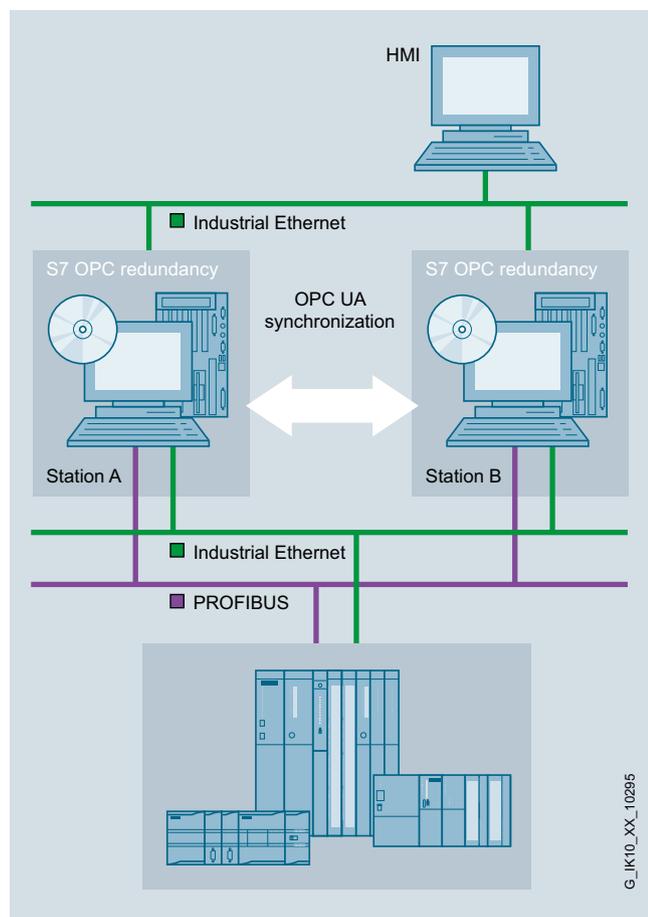
##### S7 OPC Redundancy V12 for Industrial Ethernet

for 64-bit: Windows 2008 Server R2; German/English

- Single License for one installation

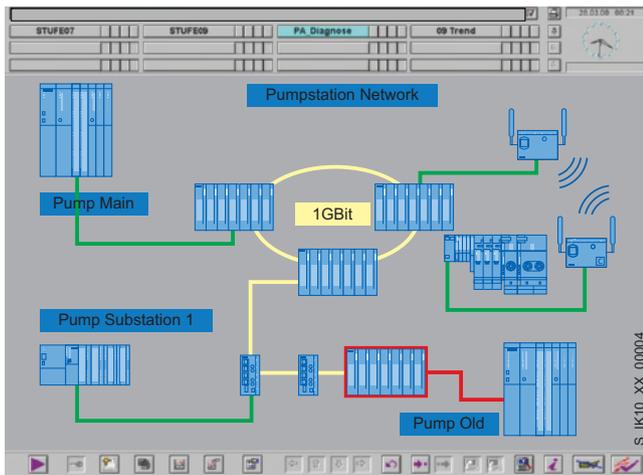
**6GK1706-1CW12-0AA0**

#### Design



Redundant use of OPC servers

### Overview



- Status monitoring of SNMP-capable devices in any OPC client systems; e.g. SIMATIC WinCC/PCS 7
- Easy access to SNMP-capable devices over the OPC interface
- Devices without SNMP agents can be monitored using the ping mechanism
- Configuration with STEP 7 (up to STEP 7 V5.5) or NCM PC
- Ready-to-use SNMP diagnostics profiles for Siemens devices, e.g. SCALANCE X/W
- Generation of any SNMP diagnostics profiles by means of the integral MIB compiler
- Easy setup of the monitored devices with the help of an 'Autodiscovery function'

### Ordering data

### Article No.

#### SNMP OPC server

Including MIB compiler; single license for one installation of runtime software; software and electronic manual on CD-ROM; license key on USB stick, Class A;

#### SNMP OPC Server Basic

Administration of up to 20 IP addresses

- **Basic V12**  
for 32/64-bit:  
Windows 7 Professional/Ultimate;  
for 64-bit:  
Windows 2008 Server R2;  
for 32/64-bit:  
Windows 8 Pro;  
for Windows Server 2012  
Single License for one installation

6GK1706-1NW12-0AA0

#### Software Update Service SNMP OPC Server Basic

For 1 year with automatic extension; requirement: current software version

6GK1706-1NW00-3AL0

#### Upgrade SNMP OPC Server Basic

- From Edition 2006 to Edition 2008 or V12

6GK1706-1NW00-3AE0

- From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V12

6GK1706-1NW00-3AE1

#### SNMP OPC Server Extended

Administration of up to 200 IP addresses

- **Extended V12**  
for 32/64-bit:  
Windows 7 Professional/Ultimate;  
for 64-bit:  
Windows 2008 Server R2;  
for 32/64-bit Windows Pro;  
for Windows Server 2012  
Single License for one installation

6GK1706-1NX12-0AA0

#### Software Update Service SNMP OPC Server Extended

For 1 year with automatic extension; requirement: current software version

6GK1706-1NX00-3AL0

#### Upgrade SNMP OPC Server Extended

- From Edition 2006 to Edition 2008 or V12

6GK1706-1NX00-3AE0

- From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V12

6GK1706-1NX00-3AE1

#### SNMP OPC Server Power Pack

For upgrade from SNM OPC Server Basic to SNM OPC Server Extended

#### Power Pack V12

6GK1706-1NW12-0AC0

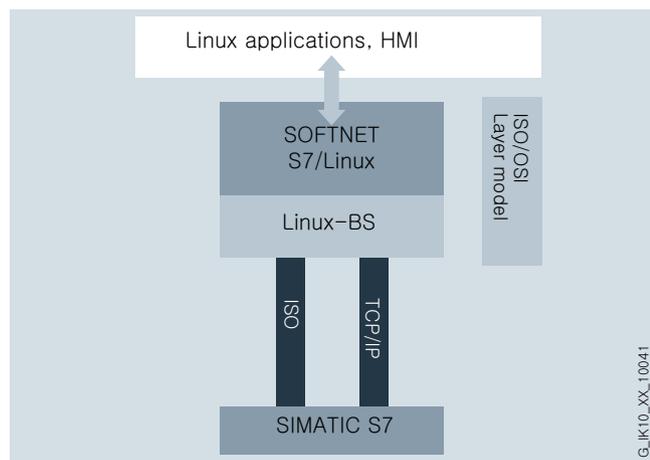
# PROFINET/Industrial Ethernet

## Communication for PC-based systems

### SOFTNET-S7/Linux

#### Overview

- Software for connecting SIMATIC S7
- Provision of S7 communication via SAPI-S7 interface
- Support of ISO and TCP/IP (RFC 1006) protocol
- Available on Linux operating systems
- Simultaneous operation of several cards



SOFTNET-S7/Linux system configuration

#### Ordering data

#### Article No.

##### SOFTNET-S7/Linux for Industrial Ethernet

Software for S7 communication for SIMATIC S7 including Level 4 interface over ISO or TCP/IP, single license for 1 installation, runtime software, software and electronic manual on CD-ROM, license key by fax, Class A, German/English

Version 4.x

**2XV9450-1CG00**

##### SOFTNET-S7/Linux Lean

max. 8 connections

The original distributions of SUSE and RedHat Linux are supported. Please contact your Siemens contacts for information about the latest versions and their variants (32-bit and 64-bit).

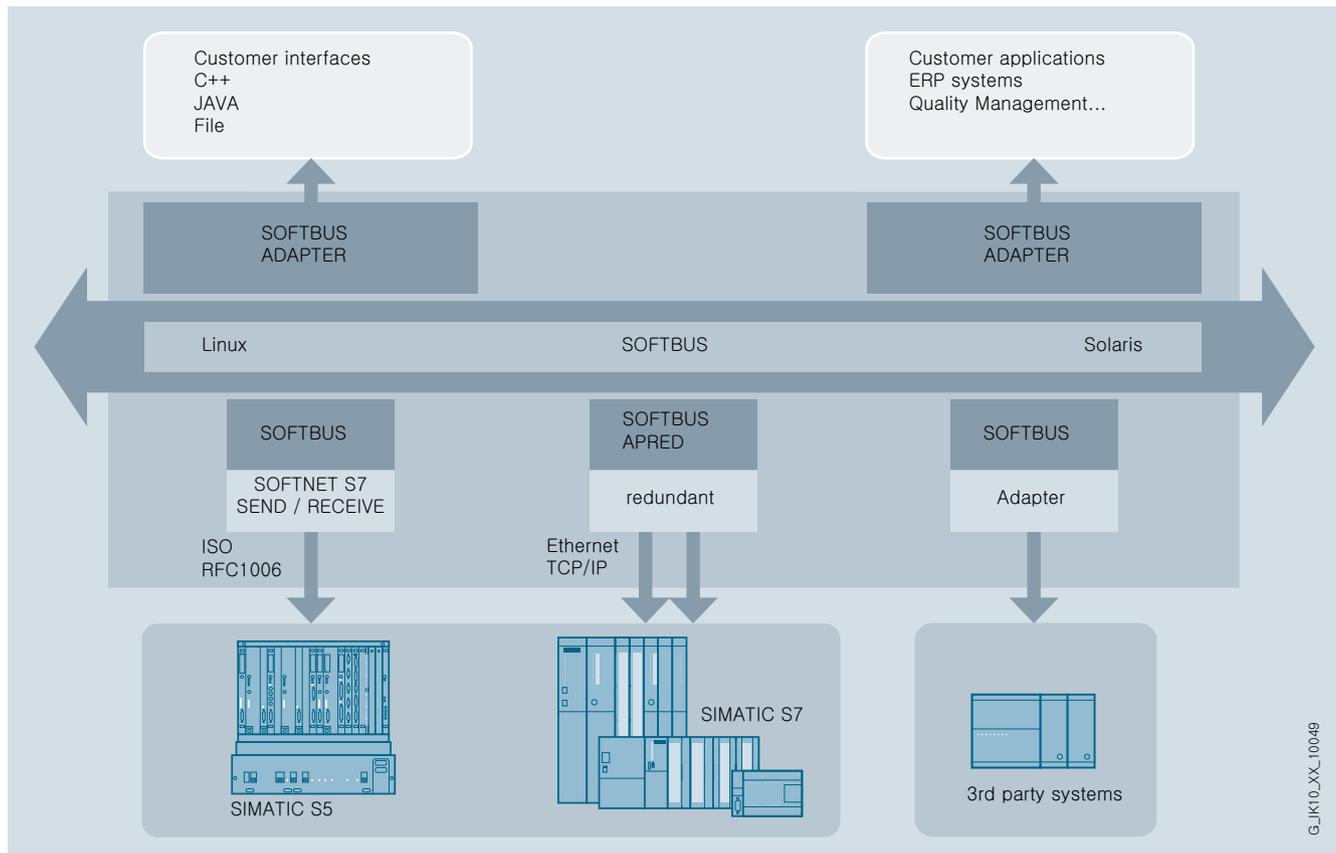
**2XV9450-2CG00**

#### More information

Support for Linux distributors:  
Contact for sales, service and training can be found at:  
[www.siemens.com/simatic-net/ik-info](http://www.siemens.com/simatic-net/ik-info)

### Overview

- Integrated communication
- Cross-computer communication
- Uniform interface
  - Link to ERP and DB systems
  - To SIMATIC S7



System configuration for SOFTBUS-SOFTNET

### Ordering data

### Article No.

#### SOFTBUS

Version 2.3

#### SOFTBUS Linux

- SOFTBUS/Linux redundant (TCP) (32 Bit)
- SOFTBUS/Linux redundant (ISO) (32 Bit)
- SOFTBUS/Linux (TCP) (32 Bit)
- SOFTBUS/Linux (ISO) (32 Bit)

Please contact your Siemens contacts for information about the latest versions and their variants (32-bit and 64-bit).

**2XV9450-1CG02****2XV9450-1CG04****2XV9450-1CG08****2XV9450-1CG10**

### More information

Support for Linux distributors can be found at:  
[www.siemens.com/simatic-net/ik-info](http://www.siemens.com/simatic-net/ik-info)

# PROFINET/Industrial Ethernet

## Communication for PC-based systems

### Software

Ordering data	Article No.	Article No.
<b>Software</b>		<b>SOFTNET S7 for Industrial Ethernet</b>
<b>SOFTNET Security Client V4</b> Software for designing secure IP-based VPN connections from a programming device/PC to network segments which are secured by SCALANCE S in bridge mode; Single license for 1 installation, runtime software (German/English), configuring tool (German/English) and electronic manual on CD-ROM (German/English/French/Italian/Spanish) for 32-bit Windows, XP Professional + SP1, SP2, SP3; for 32/64-bit Windows 7 Ultimate/Business For CP 1612 A2 <b>Upgrade</b> <ul style="list-style-type: none"> <li>From V3.0 or SOFTNET Security Client V4</li> <li>From Edition 2008+HF1 or SOFTNET Security Client V4</li> </ul>	<b>6GK1704-1VW04-0AA0</b>  <b>6GK1704-1VW00-0AE0</b> <b>6GK1704-1VW00-0AE1</b>	Software for S7 and open communication, including OPC server, PG/OP communication and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on a USB stick, Class A For CP 1612 A2 <b>SOFTNET-IE S7 V12</b> for 32/64-bit: Windows Server 2012, Windows 8 Pro, Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2; German/English up to 64 connections • Single License for one installation <b>Software Update Service</b> For one year with automatic extension; requirement: current software version <b>Upgrade</b> <ul style="list-style-type: none"> <li>From Edition 2006 to Edition 2008 or V12</li> <li>From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V12</li> </ul> <b>SOFTNET-IE S7 Lean Edition V12</b> up to eight connections • Single License for one installation <b>Software Update Service</b> For one year with automatic extension; requirement: current software version <b>Upgrade</b> <ul style="list-style-type: none"> <li>From Edition 2006 to Edition 2008 or V12</li> <li>From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V12</li> </ul>
<b>SOFTNET PN IO</b>		
Software for PROFINET IO Controller with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A, For CP 1612 A2 <b>SOFTNET-IE PN IO V12</b> for 32/64-bit: Windows Server 2012, Windows 8 Pro, Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English • Single License for one installation <b>Software Update Service</b> For one year with automatic extension; requirement: current software version <b>Upgrade</b> <ul style="list-style-type: none"> <li>From Edition 2006 to SOFTNET PN IO Edition 2008 or V12</li> <li>From V6.0, V6.1, V6.2 or V6.3 to SOFTNET PN IO Edition 2008 or V12</li> </ul>	<b>6GK1704-1HW12-0AA0</b> <b>6GK1704-1HW00-3AL0</b>  <b>6GK1704-1HW00-3AE0</b> <b>6GK1704-1HW00-3AE1</b>	

**Note**

The Windows XP software version is still available for older CPs; see the Industry Mall: <http://www.siemens.com/industrymall>.

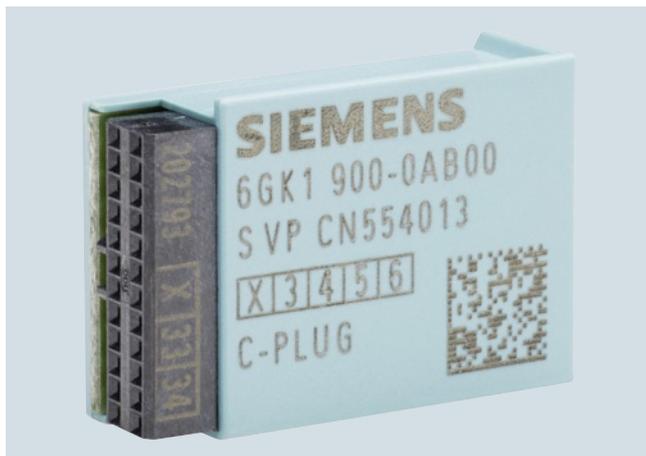


# PROFINET/Industrial Ethernet

## Accessories

### C-PLUG

#### Overview



- Swap media that supports the fast and easy replacement of SIMATIC NET components without a programming device in the event of a fault
- For implementation in all SIMATIC NET products with C-PLUG slot
- For automatic backing up of configuration or engineering data from the SIMATIC NET components
- The C-PLUG can also be used to store application data such as documents or Web pages
- In some SIMATIC S7 CP modules, such as the CP 443-1 Advanced, the C-PLUG is a standard component of the scope of supply and is required to guarantee the complete functional scope of the respective component.

#### Ordering data

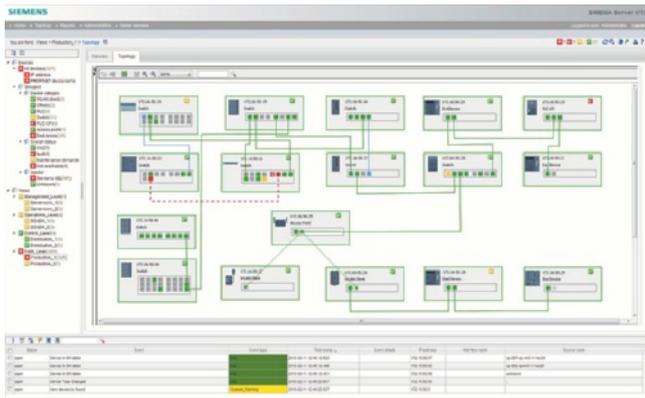
#### Article No.

##### C-PLUG

Swap medium for simple replacement of devices in the event of a fault; for storing configuration or engineering and application data; can be used for SIMATIC NET products with PLUG slot

**6GK1900-0AB00**

### Overview



SINEMA Server is a web-based network monitoring software that significantly reduces the response time to communications problems in industrial networks, and thus avoids downtimes and saves costs.

- Simple operator input even for plant operators or service personnel, to enable autonomous detection and correction of communications problems
- Graphical representation of industrial networks (automatic topology detection and layout)
- Standardized network documentation (reports for inventory, availability and utilization)
- Simple operation via web browser or via an HMI/SCADA application, without special IT knowledge
- Network data such as network topology and device information automatically saved to a database
- Low installation and maintenance costs, especially thanks to the use of pre-installed industrial PCs (Microbox PC)
- High degree of flexibility for graphical representation thanks to automatic and customizable topology views
- Monitoring can be adapted to devices and users

### Ordering data

#### Article No.

#### SINEMA Server V12

Network monitoring software for industrial Ethernet and PROFINET networks, runtime software, software and electronic manual on DVD (not with download), license key on USB flash memory (not with download); software for installation on PC hardware with Win7 Professional and Windows Server 2008 R2+SP1, Windows XP/SP3 (32 Bit), Windows 7 Professional/Ultimate/Enterprise SP1 (32/64Bit), Windows Server 2008 R2 + SP1 (64 Bit) ; English/German/French/Chinese. Other languages possible on request.

#### For 50 devices that can be identified via IP address

- On DVD
- Download (only possible in the United Kingdom, Spain, Belgium, Netherlands, Germany, Switzerland, Austria, Italy, Greece, Sweden, Finland)

6GK1781-1BA12-0AA0  
6GK1781-1BA12-0AK0

#### For 100 devices that can be identified via IP address

- On DVD
- Download

#### For 250 devices that can be identified via IP address

- On DVD
- Download

#### For 500 devices that can be identified via IP address

- On DVD
- Download

#### Upgrade SINEMA Server V11 to V12

- On DVD
- Download

#### Article No.

6GK1781-1DA12-0AA0  
6GK1781-1DA12-0AK0

6GK1781-1JA12-0AA0  
6GK1781-1JA12-0AK0

6GK1781-1TA12-0AA0  
6GK1781-1TA12-0AK0

6GK1781-2AA12-0AA0  
6GK1781-2AA12-0AK0

# PROFINET/Industrial Ethernet

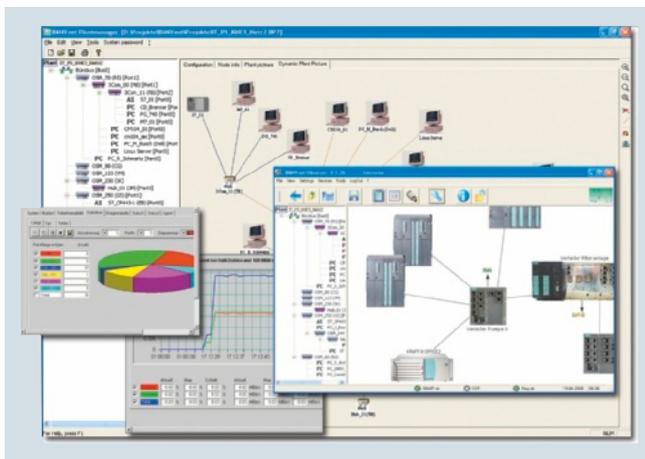
## Software and tools

### BANYnet bus analysis and diagnostics

#### Overview

BANYnet is a tool based on Microsoft Windows for documentation, monitoring, diagnostics, recording and analysis of Ethernet and PROFIBUS networks.

- Management of all IP and MAC addresses in the network
- Generation of a network overview map
- Automatic scanning of network
- Monitoring of network nodes for "Failure", "Newly added", "Not registered"
- Reading out of data, message frame types and error statistics from the network components
- Display of bus load
- Recording of message frame traffic
- Recording of PROFIBUS communication
- Recording of PROFIBUS communication
- Comprehensive trigger, filter and sorting functions



BANYnet plant configuration

#### Ordering data

#### Article No.

##### **BANYnet bus analysis and diagnostics**

Program package for PC/PG for Microsoft Windows NT/2000/XP SP2 and electronic documentation on CD, dual language (German, English), software protected by USB dongle

- **BANYnet Ethernet** for Industrial Ethernet networks

**9AE4100-1DB00**

- **BANYnet PROFIBUS** for PROFIBUS networks; (CP 5512 is required)

**9AE4100-1DE00**

- **BANYnet Ethernet and PROFIBUS** for Ethernet and PROFIBUS networks; (CP 5512 is required)

**9AE4100-1DF00**

##### **CP 5512 communications processor**

PC card (CardBus, 32 bit) for connection of a programming device or notebook to PROFIBUS or MPI, under 32 bit in connection with PROFIBUS SOFTNET software or STEP 7; German/English

**6GK1551-2AA00**

##### **CP 1616 communications processor**

PCI Card (32 bit; 3.3/5 V universal keyed) with ASIC ERTEC 400 for connecting PCs to PROFINET IO with 4-port real-time switch (RJ45); incl. IO Base software for PROFINET IO Controller and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32-bit Windows XP Professional and Windows 7; other operating systems via Development Kit DK-16xx PN IO; German/English

**6GK1161-6AA02**

#### More information

Support can be found at:

[www.siemens.com/simatic-net/ik-info](http://www.siemens.com/simatic-net/ik-info)

### Overview



- Network analysis BANY PN IO
- Comprising hardware and software components
- USB memory expansion possible
- Frame recording with 10 ns resolution
- Automatic PROFINET analysis
- Online value tracking
- Packet generator with feedback analysis
- Control interface using script or TCP commands

### Ordering data

### Article No.

#### BANY PNIO Standard

9AE4121-1AA00

BANYsys module and BANYscope software.

Function modules included:

- Frame recording
- PROFINET analysis

#### BANY PNIO Premium

9AE4121-1AB00

BANYsys module and BANYscope software.

Function modules included:

- Frame recording
- PROFINET analysis
- Online value tracking
- Packet generator

#### Plug-in power supply

9AE4130-1AA00

24 V / 2.5 A (with IEC socket for non-heating devices)

#### TAP C1P-100

9AE4130-2AA00

Test Access Point for Fast Ethernet incl. power supply unit, crossover cable, TP cable and soft bag

#### TAP C1P-100

9AE4130-2AA10

Test Access Point for Fast Ethernet with 24 V connector

#### TAP C1P-1G

9AE4130-2AB00

Test Access Point for gigabit Ethernet incl. power supply unit, crossover cable, TP cable and soft bag

# PROFINET/Industrial Ethernet

## Network transitions

### IE/PB Link PN IO

#### Overview



PN	DP-M	DP-S	ASi-M		
●	●				

Compact network transition between Industrial Ethernet and PROFIBUS

- Connection to Industrial Ethernet with 10/100 Mbit/s full/half duplex connection with autosensing for automatic switchover
- Connection to PROFIBUS with 9.6 kbit/s to 12 Mbit/s incl. 45.45 kbit/s for PROFIBUS PA
- PROFINET IO proxy; connection of PROFIBUS DP slaves to PROFINET IO controller according to PROFINET standard:
  - From the viewpoint of the IO controller, all DP slaves are handled like I/O devices with Ethernet interface, i.e. the IE/PB Link PN IO is their proxy.
- Cross-network programming device/operator panel communication by S7 routing, i.e. all S7 stations can be remotely programmed by the programming device on the Industrial Ethernet or PROFIBUS.
- Cross-network access to data of S7 stations for visualization by means of S7 OPC server and S7 routing;
  - Via the IE/PB Link PN IO access can be made from the PC on the Industrial Ethernet (e.g. for HMI applications with OPC Client interface) by means of S7 OPC server, to all data of the S7 stations on the PROFIBUS.
- Module replacement without the need for a programming device, using the C-PLUG swap media for backing up the configuration data

#### Ordering data

##### IE/PB Link PN IO

Network transition between Industrial Ethernet and PROFIBUS with PROFINET IO functionality, TCP/IP, S7 routing and data record routing, 10/100 Mbit/s Fast Ethernet, 9.6 to 12 Mbit/s PROFIBUS; including electronic manual on CD-ROM  
German, English, French, Spanish, Italian

#### Article No.

**6GK1411-5AB00**

##### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compliant; with UL approval; sold by the meter; max. length 1 000 m, minimum order 20 m

**6XV1840-2AH10**

##### IE FC RJ45 Plug 180

RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB10-2AA0**  
**6GK1901-1BB10-2AB0**  
**6GK1901-1BB10-2AE0**

##### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

**6GK1901-1GA00**

#### Article No.

##### CSM 377 Compact Switch Module

Unmanaged switch for connection of a SIMATIC S7-300-CPU, ET 200M and up to three further nodes to Industrial Ethernet operating at 10/100 Mbit/s; 4 x RJ45 ports; external 24 V DC power supply, LED diagnostics, S7-300 module including electronic manual on CD-ROM

**6GK7377-1AA00-0AA0**

##### C-PLUG

Swap medium for simple replacement of devices in the event of a fault; for storing configuration or engineering and application data; can be used for SIMATIC NET products with C-PLUG slot

**6GK1900-0AB00**

##### PROFIBUS FC Standard Cable GP

Standard type with special design for fast mounting, 2-core, shielded

**6XV1830-0EH10**

##### PROFIBUS FastConnect bus connector RS 485 Plug 180

With insulation displacement terminals, with 180° cable outlet, for industrial PC, SIMATIC HMI OP, QLM; max. transmission rate 12 Mbit/s

**6GK1500-0FC10**

##### PROFIBUS FastConnect Stripping Tool

Preadjusted stripping tool for fast stripping of PROFIBUS FastConnect bus cables

**6GK1905-6AA00**

##### S7-300 mounting rail

**6ES7390-1AB60-0AA0**

##### S7-300 PS 307 load power supply

DC 24 V

**6ES7307-1BA01-0AA0**

Ordering data	Article No.		Article No.
<p><b>STEP 7 Version 5.5</b></p> <p><b>Target system:</b> SIMATIC S7-300/-400, SIMATIC C7, SIMATIC WinAC</p> <p><b>Requirements:</b> Windows XP Prof., Windows 7 Professional/Ultimate</p> <p><b>Type of delivery:</b> German, English, French, Spanish, Italian; including license key on USB stick, with electronic documentation</p> <p><i>For CP 343-1 Lean, CP 343-1, CP 343-1 Advanced, CP 343-1 ERPC, CP 443-1, CP 443-1 Advanced, CP 443-1 RNA</i></p> <ul style="list-style-type: none"> <li>• Floating License on DVD</li> <li>• Rental License for 50 hours</li> <li>• Software Update Service on DVD (requires current software version)</li> <li>• Upgrade Floating License 3.x/4.x/5.x to V5.5; on DVD</li> <li>• Trial License STEP 7 V5.5; on DVD, 14 day trial</li> </ul>	<p><b>6ES7810-4CC10-0YA5</b></p> <p><b>6ES7810-4CC10-0YA6</b></p> <p><b>6ES7810-4BC01-0YX2</b></p> <p><b>6ES7810-4CC10-0YE5</b></p> <p><b>6ES7810-4CC10-0YA7</b></p>	<p><b>STEP 7 Professional Engineering Software V12; software download incl. license key 2</b></p> <p>E-mail address required for the delivery</p> <ul style="list-style-type: none"> <li>• STEP 7 Professional V12, Floating License</li> <li>• STEP 7 Professional V12, Trial License;</li> <li>• Upgrade STEP 7 Professional V11 to STEP 7 Professional V12, Floating License</li> <li>• Upgrade STEP 7 Professional 2006/2010 to STEP 7 Professional V12, Floating License</li> <li>• PowerPack &amp; Upgrade from STEP 7 V5.4/V5.5 to STEP 7 Professional V12, Floating License</li> <li>• PowerPack STEP 7 Basic V12 to STEP 7 Professional V12, Floating License</li> </ul>	<p><b>6ES7822-1AE02-0YA5</b></p> <p><b>6ES7822-1AE02-0YA7</b></p> <p><b>6ES7822-1AE02-0YE5</b></p> <p><b>6ES7822-1AE02-0XE5</b></p> <p><b>6ES7822-1AE02-0XC5</b></p> <p><b>6ES7822-1AE02-0YC5</b></p>
<p><b>STEP 7 Professional V12 Engineering Software</b></p> <p><b>Target system:</b> SIMATIC S7-1200, S7-1500, S7-300, S7-400, WinAC</p> <p><b>Requirement:</b> Windows XP Home SP3 (STEP 7 Basic only), Windows XP Professional SP3 (32 bit), Windows 7 Home Premium SP1 (STEP 7 Basic only), Windows 7 Professional SP1 (32/64 bit), Windows 7 Enterprise SP1 (32/64 bit), Windows 7 Ultimate SP1 (32/64 bit), Microsoft Server 2003 R2 Std. SP2 (32 bit), Microsoft Server 2008 Std. SP2 (32/64 bit)</p> <p><b>Form of delivery:</b> German, English, Chinese, Italian, French, Spanish</p> <p><i>For CP 1543-1, CP 343-1 Lean, CP 343-1, CP 343-1 Advanced, CP 343-1 ERPC, CP 443-1, CP 443-1 Advanced</i></p> <ul style="list-style-type: none"> <li>• STEP 7 Professional V12, Floating License</li> <li>• STEP 7 Professional V12, Trial License</li> <li>• Upgrade STEP 7 Professional V11 to STEP 7 Professional V12, Floating License</li> <li>• Upgrade STEP 7 Professional 2006/2010 to STEP 7 Professional V12, Floating License</li> <li>• PowerPack &amp; Upgrade from STEP 7 V5.4/V5.5 to STEP 7 Professional V12, Floating License</li> <li>• PowerPack STEP 7 Basic V12 to STEP 7 Professional V12, Floating License</li> </ul>	<p><b>6ES7822-1AA02-0YA5</b></p> <p><b>6ES7822-1AA02-0YA7</b></p> <p><b>6ES7822-1AA02-0YE5</b></p> <p><b>6ES7822-1AA02-0XE5</b></p> <p><b>6ES7822-1AA02-0XC5</b></p> <p><b>6ES7822-1AA02-0YC5</b></p>		

### More information

<http://www.siemens.com/profinet>

# PROFINET/Industrial Ethernet

## Network transitions

### IE/WSN-PA LINK

#### Overview



- The IE/WSN-PA LINK is a network transition for the connection of WirelessHART field devices (HART V7.1) to Industrial Ethernet, as an alternative or supplement to the wired connection.
- Connection of up to 100 WirelessHART devices
- Approved for operation in hazardous areas in Zone 2
- Open TCP/IP communication and Modbus TCP via the Ethernet interface
- Can be used with HART-OPC servers of the HART Communication Foundation

Note:

A general introduction to WirelessHART and information on the WirelessHART adapter and the WirelessHART field devices can be found in Catalog FI 01 or on the Internet at <http://www.siemens.com/wirelesshart>

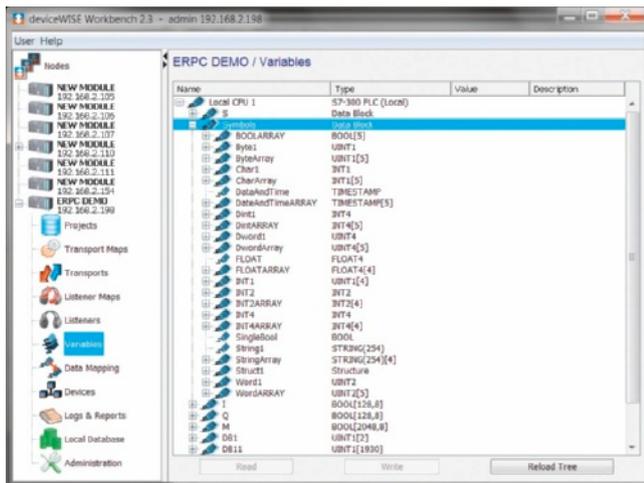


# PROFINET/Industrial Ethernet

## Partner solutions

### deviceWISE Embedded Edition for SIMATIC S7

#### Overview



- deviceWISE Embedded for S7 is a software package that can be loaded into the CP 343-1 ERPC communications processor as a firmware extension
- It facilitates intelligent and direct communication from the S7-300 to IT applications at the management level (e.g. databases)
- No programming is required in SIMATIC

#### More information

The software is available at:

ILS Technology LLC;  
5300 Broken Sound Blvd.  
Suite 150  
Boca Raton, FL, U.S.A., 33487

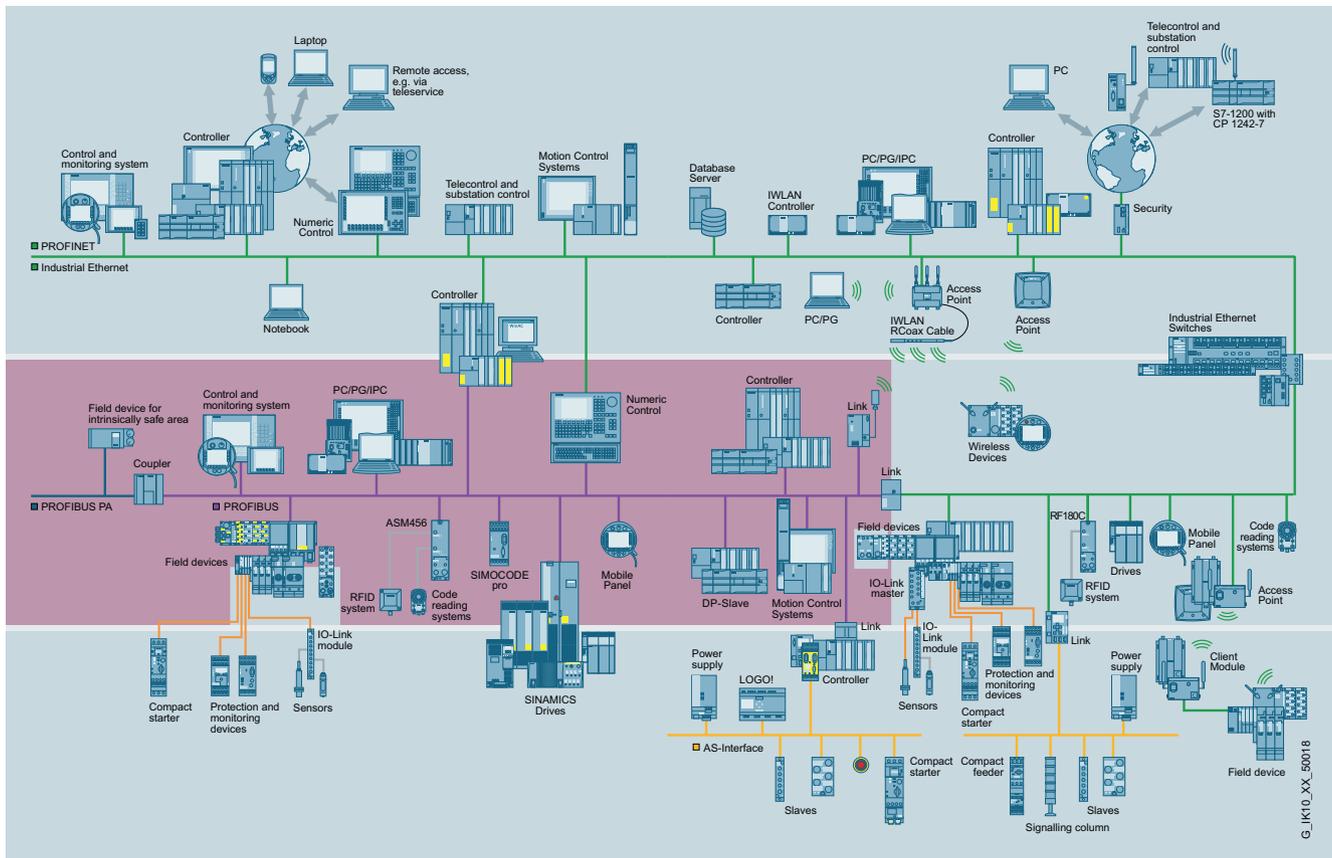
Phone: +1-561-982-9898 x124  
Fax.: +1-561-982-8638

E-Mail: [devicewise@ilstechnology.com](mailto:devicewise@ilstechnology.com)

You can find further information in the Internet at:  
<http://www.ilstechnology.com/erpc>

## Overview

- Bus system
  - for process and field communication with field devices from different manufacturers
  - and for data communication acc. to IEC 61158/61784
- PROFIBUS – the fieldbus standard in production and process engineering comprises:
  - Specification of the standards for the physical characteristics of the bus and the access procedure
  - Specification of the user protocol and the user interface
- Offers openness for interfacing to standardized non-Siemens components
- Process or field communication
  - PROFIBUS DP for fast, cyclic data exchange with field devices
  - PROFIBUS PA for applications in process automation and in the intrinsically safe area
- Data communication
  - PROFIBUS FMS for data communication between programmable controllers of different manufacturers



PROFIBUS in the communication landscape

# PROFIBUS

## Introduction

### Process or field communication

#### Overview

##### Communication functions

Process or field communication (PROFIBUS DP, PROFIBUS PA) is used to link field devices to a programmable controller, HMI system or control system.

Interfacing is performed over integrated interfaces on the CPU or through interface modules (IMs) and communications modules (CPs, CMs).

With modern high-performance automation systems, it is often more effective to link more than one PROFIBUS DP line to one system, not just to increase the number of I/O devices that can be connected, but also to enable individual production areas to be handled independently of one another (segmentation).

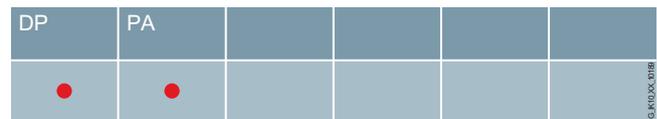
PROFIBUS standardized to IEC 61158/61784 is a high-performance, open, rugged fieldbus system with short response times and the following protocols:

##### PROFIBUS DP

(Distributed I/O) is used to connect distributed I/O stations, such as SIMATIC ET 200 with extremely fast response times in accordance with the IEC 61158/EN 50170 standard.

##### PROFIBUS PA

(Process Automation) extends PROFIBUS DP with failsafe transmission technology in accordance with the international standard IEC 61158-2.



PROFIBUS DP slaves

### DP device types

PROFIBUS DP distinguishes between two different master classes and different DP functions:

#### DP Master Class 1

The DP master Class 1 is the central component on PROFIBUS DP. The central controller or PC exchanges information with distributed stations (DP slaves) in a fixed, repeated message cycle.

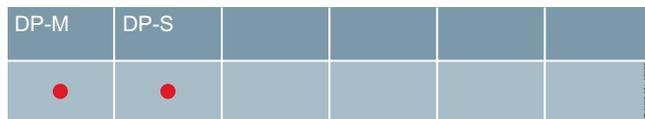
#### DP Master Class 2

Devices of this type are used (programming, configuration or control devices) during start-up, for configuring the DP system or for controlling the plant during normal operation (diagnostics). A DP master Class 2 can be used, for example, to read the input, output, diagnostics and configuration data of the slaves.

#### DP slave

A DP slave is an I/O device that reads in input data and forwards output data to the I/O. The volume of input and output data depends on the device and can be up to 244 bytes.

The functional scope can differ between DP masters of Class 1 and 2 or DP slaves. This determines the performance and availability of a communications processor.



#### DP-V0

The DP master functions (DP-V0) comprise configuration, parameterization, read input data and write outputs in cycles, read diagnostics data.

#### DP-V1

The additional DP function expansions (DP-V 1) make it possible to perform non-isochronous read and write functions as well as acknowledgement of alarms at the same time as processing cyclic data communication. These extended DP functions comprise acyclic access to the parameters and measured values of a slave (e.g. field devices of process automation and intelligent HMI devices). This type of slave must be supplied with extensive parameter data during start-up and during normal operation. Data transferred in acyclic mode (e.g. parameterization data) are only rarely changed, in comparison to the cyclic measured values, and are transferred at lower priority in parallel with the cyclic high-speed useful data transfer. Alarm acknowledgement by the master ensures reliable transfer of the alarms from DP slaves.

#### DP-V2

The DP master functions (DP-V2) comprise functions for isochronous mode and direct data communication between DP slaves.

#### Isochronous mode

Isochronous mode is implemented by means of a signal with a constant bus cycle for the bus system. This isochronous, constant cycle is sent by the master to all bus stations in the form of a global control message. The master and slave can then synchronize their applications with this signal. The jitter of this signal from cycle to cycle must be less than 1 µs for typical drive applications.

#### Direct data communication between DP slaves

The publisher/subscriber model is used to implement the direct data communication between slaves. Slaves declared as publishers make their input data (corresponds to response message to their own master) available to other slaves, the subscribers, for reading. Direct slave-to-slave communication is performed cyclically.

# PROFIBUS

## Introduction

### Data communication

#### Overview

##### Communication functions

Data communication (e.g. PROFIBUS FMS) serves to exchange data between programmable controllers or between a programmable controller and intelligent partners (PC, computers, etc.).

The following communication functions are available for this purpose:

##### FMS communication

This is a standardized protocol for data communication via PROFIBUS.

- PROFIBUS FMS (Fieldbus Message Specification)

This is ideally suited to communication from different automation systems (e.g. PLCs, PCs) from different manufacturers at the cell level with only a few stations (max. 16). Communication with field devices using the FMS interface is also possible.

With the FMS services READ, WRITE and INFORMATION REPORT, read or write access to variables of the communication partner is possible from the user program by means of a variable index or variable name, or the user program can transfer its own variable values to a communications partner. Partial access to variables is supported. The communication is processed over acyclic connections (master-to-master, master-to-slave), over acyclic connections with a slave initiative or with cyclic connections (master-to-slave). The INFORMATION REPORT is can also be used to send a message to all stations on the network using a broadcast service. The FMS service IDENTIFY (request for identification characteristics of the partner) and STATUS (request partner status) can also be activated.

##### OPC-Server

The basic principle of OPC (Openness, Productivity & Collaboration) is that OPC client applications communicate with the OPC server over a standardized, open and manufacturer-independent interface.

The appropriate OPC servers are included in the scope of supply of the respective communication software.

##### PG/OP communication

Comprises integral communication functions that are used by the SIMATIC programmable controllers to perform data communication with HMI devices (e.g. TD/OP) and SIMATIC PG (STEP 7). PG/OP communication is supported by MPI, PROFIBUS and Industrial Ethernet networks.

##### S7 routing

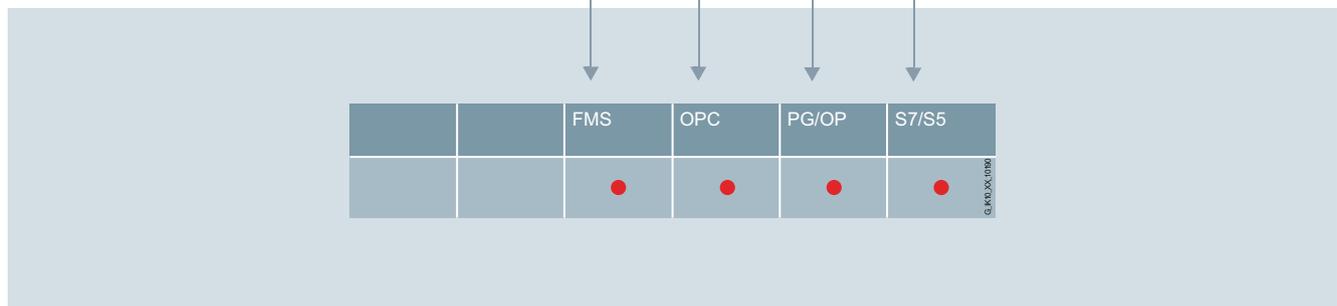
With the aid of S7 routing it is possible to use the programming device communication across networks.

##### S7 communication

S7 communication is the integral communications function, which has been optimized within the SIMATIC. It enables PCs and workstations to be connected. The maximum volume of useful data per task is 64 KB. S7 communication offers simple, powerful communication services and provides a network-independent software interface for MPI, PROFIBUS and Industrial Ethernet networks.

##### Open communication

The open communication (SEND/RECEIVE) allows the SIMATIC S7 controllers to communicate with other SIMATIC S7 and SIMATIC S5 controllers, PCs, and third-party systems.



### Overview



- Quick and easy assembly of PROFIBUS copper cables
- Assembly mistakes such as short-circuits between the shield and core are excluded

### Design

The system comprises 3 compatible components:

- FastConnect bus cables for rapid installation
- FastConnect stripping tool
- FastConnect bus connector for PROFIBUS

The PROFIBUS FastConnect bus cables can also be connected to conventional bus connectors..

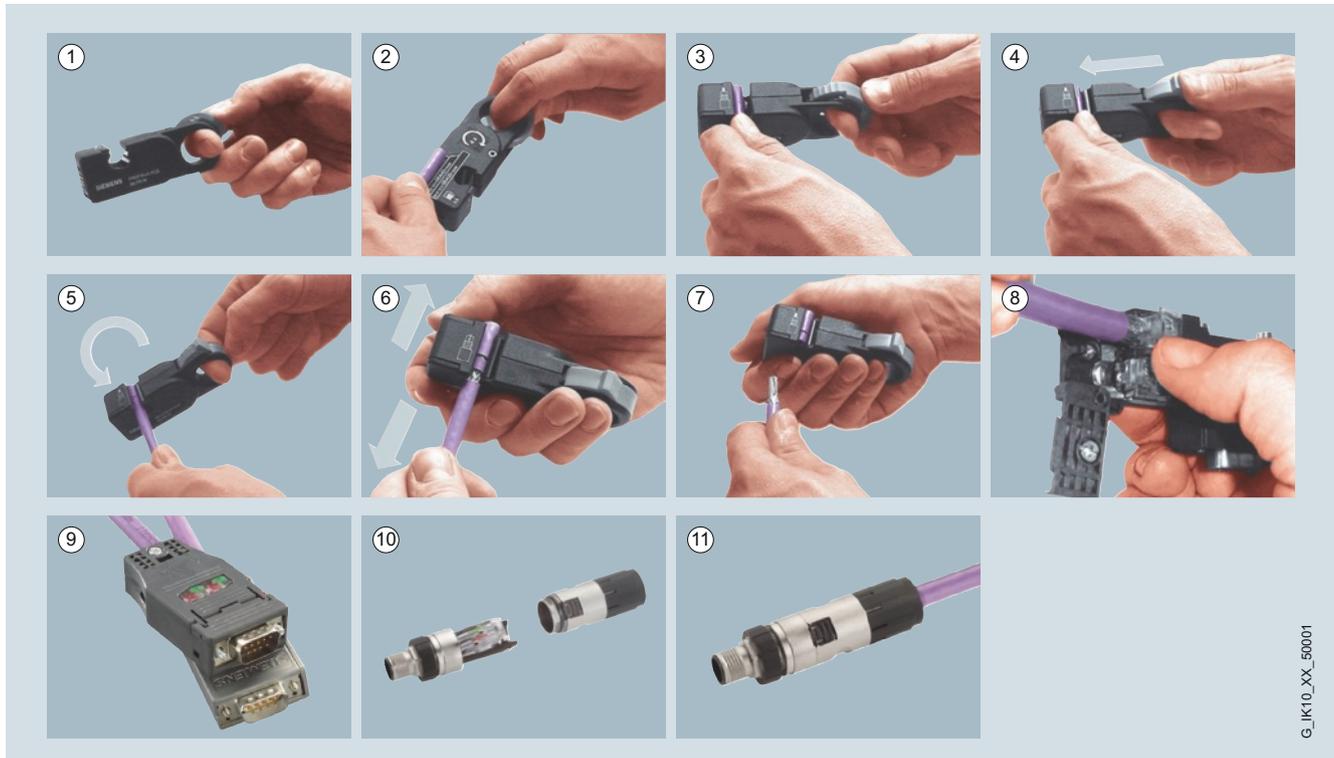
# PROFIBUS

## Electrical networks (RS485)

### PROFIBUS FastConnect

#### Application

PROFIBUS FastConnect is a system for fast and easy assembly of PROFIBUS copper cables.



G\_JK10\_XX\_50001

Steps in assembling PROFIBUS copper cables with PROFIBUS FastConnect

### Overview



- Different variants for different application areas (e.g. underground cables, trailing cables, hazardous area Zone 1 and Zone 2)
- High interference immunity thanks to double shielding
- Flame-retardant bus cable (halogen-free)
- Easy length measurement thanks to printed meter markings
- UL approvals

### Ordering data

### Article No.

#### PROFIBUS FC Standard Cable GP

Standard type with special design for fast mounting, 2-core, shielded,

Sold by the meter;  
max. length 1000 m,  
minimum order 20 m

Not pre-assembled

- 20 m
- 50 m
- 100 m
- 200 m
- 500 m
- 1000 m

In spool box

- 50 m
- 100 m

**6XV1830-0EH10**

**6XV1830-0EN20**  
**6XV1830-0EN50**  
**6XV1830-0ET10**  
**6XV1830-0ET20**  
**6XV1830-0ET50**  
**6XV1830-0EU10**

**6XV1830-1EN50**  
**6XV1830-1ET10**

#### PROFIBUS FC Standard Cable IS GP

Standard type with special design for quick assembly, 2-core, shielded, for intrinsically safe distributed I/O systems

Sold by the meter;  
max. length 1000 m,  
minimum order 20 m

**6XV1831-2A**

#### PROFIBUS FC Robust Cable

2-core, shielded

Sold by the meter;  
max. length 1000 m,  
minimum order 20 m

**6XV1830-0JH10**

#### PROFIBUS FC Food Cable

2-core, shielded

Sold by the meter;  
max. length 1000 m,  
minimum order 20 m

**6XV1830-0GH10**

#### PROFIBUS FC Ground Cable

2-core, shielded

Sold by the meter;  
max. length 1000 m,  
minimum order 20 m

**6XV1830-3FH10**

#### PROFIBUS FC Flexible Cable

2-core, shielded

Sold by the meter;  
max. length 1000 m,  
minimum order 20 m

**6XV1831-2K**

#### PROFIBUS FC Trailing Cable

2-core, shielded

Sold by the meter;  
max. length 1000 m,  
minimum order 20 m

- Sheath color: Petrol
- Sheath color: Violet

**6XV1830-3EH10**  
**6XV1831-2L**

#### PROFIBUS Festoon Cable GP

2-core, shielded

Sold by the meter;  
max. length 1000 m,  
minimum order 20 m

**6XV1830-3GH10**

#### PROFIBUS FC FRNC Cable GP

2-core, shielded, nonflammable, with copolymer outer sheath FRNC

Sold by the meter;  
max. length 1000 m,  
minimum order 20 m

**6XV1830-0LH10**

# PROFIBUS

## Electrical networks (RS485)

### PROFIBUS bus cables

Ordering data	Article No.
<b>PROFIBUS Torsion Cable</b> 2-core, shielded  Sold by the meter; max. length 1000 m, minimum order 20 m	<b>6XV1830-0PH10</b>
<b>PROFIBUS Hybrid Standard Cable GP</b> PROFIBUS hybrid cable suitable as trailing cable and resistant to welding spatter, with 2 power conductors (1.5 mm <sup>2</sup> ) for supply of data and power to ET 200pro	<b>6XV1860-2R</b>
<b>PROFIBUS Hybrid Robust Cable</b> Rugged PROFIBUS hybrid cable suitable as trailing cable and resistant to welding spatter, with 2 power conductors (1.5 mm <sup>2</sup> ) for supply of data and power to ET 200pro	<b>6XV1860-2S</b>
<i>Special bus cables</i>	
<b>SIENOPYR PROFIBUS shipboard cable</b> Copper cable for ships and offshore units  Sold by the meter; max. length 1000 m, minimum order 20 m	<b>6XV1830-0MH10</b>
<i>Additional components</i>	
<b>PROFIBUS FastConnect Stripping Tool</b> Preadjusted stripping tool for fast stripping of PROFIBUS FastConnect bus cables	<b>6GK1905-6AA00</b>
<b>PROFIBUS FastConnect Blade Cassettes</b> Spare blade cassettes for PROFIBUS FastConnect stripping tool, 5 units	<b>6GK1905-6AB00</b>
<b>PROFIBUS FastConnect bus connector RS485 with 90° cable outlet</b> With insulation displacement terminals, max. transfer rate 12 Mbit/s <ul style="list-style-type: none"> <li>• Without PG interface</li> <li>• With PG interface</li> </ul>	<b>6ES7972-0BA52-0XA0</b> <b>6ES7972-0BB52-0XA0</b>
<b>PROFIBUS FastConnect bus connector RS485 Plug 180</b> With 180° cable outlet, insulation displacement	<b>6GK1500-0FC10</b>
<i>Accessories</i>	
<b>Lightning protection modules for reliable transmission between buildings with overvoltage protection <sup>1)</sup></b>  Basic protection <ul style="list-style-type: none"> <li>• Basic section</li> <li>• Protection module Type B</li> <li>• Protective housing</li> <li>• Terminal element</li> </ul> Low-voltage protection <ul style="list-style-type: none"> <li>• Basic section</li> <li>• Protection module</li> <li>• Terminal element</li> </ul>	<b>919506</b> <b>919510</b> <b>906055</b> <b>919508</b>  <b>919506</b> <b>919570</b> <b>919508</b>
<b>SIMATIC NET Manual Collection</b> Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English	<b>6GK1975-1AA00-3AA0</b>

<sup>1)</sup> Order from:  
 DEHN & Söhne  
 Hans-Dehn-Str. 1  
 92318 Neumarkt/Opf., Germany

### More information

#### Installation instructions

The bus cables are supplied by the meter. If a bus segment must be assembled using two sections (e.g. > 1000 m segment length), bushings can be used for this purpose (low-impedance connection between cores with clamps, connect shields over a wide area).

#### FastConnect

The FastConnect stripping tool can be used to strip the outer sheath and shield of the new FastConnect bus cables to the right length in one step.

In this way, the bus connectors (except 6ES7 972-0BA30-0XA0) can be connected easily and quickly to the bus cable.

#### Cable routing:

During storage, transport and cable laying, keep both ends sealed with a shrink-on cap.

Comply with the permissible bending radii and tensile load!

An underground cable must be used if cables are laid outside buildings e.g. directly in the ground, in sand or in concrete building blocks or when routed through protective pipes made of steel or plastic above or below ground.

Comply with overvoltage protection guidelines for underground laying.

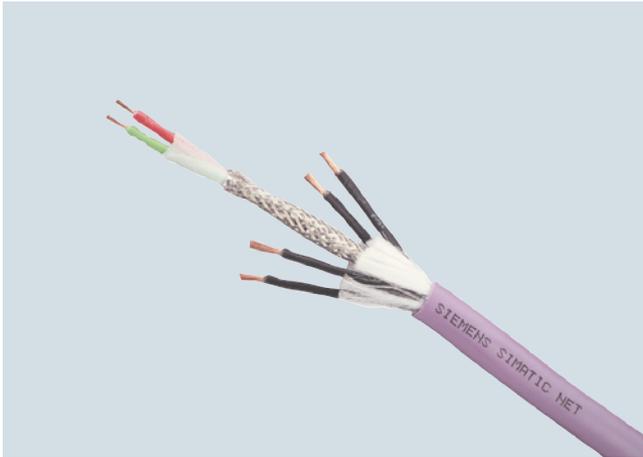
#### Note:

You can order components supplementary to the SIMATIC NET cabling range from your local contact..

Technical advice on this subject is available from:

J. Hertlein  
 I IA SC CI PRM 4  
 Phone: +49 (911) 750 44 65  
 E-mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

#### Overview



In the ECOFAST system, all devices with bus capability are connected to PROFIBUS DP using the bus cables.

The bus cable is implemented as a hybrid cable and contains:

- PROFIBUS DP in copper RS 485;
- Four additional copper cores for carrying 24 V DC:
  - 24 V DC, not switched (for electronics and inputs)
  - 24 V DC, switched (for outputs, disconnectable e.g. for EMERGENCY OFF)

The ECOFAST hybrid cables are sold by the meter or in fixed lengths preassembled with ECOFAST connector (Han Brid) and socket.

#### Ordering data

#### Article No.

##### PROFIBUS ECOFAST Hybrid Cable - Cu

Trailing cable (PUR sheath), with two shielded Cu wires for PROFIBUS DP plus four Cu wires of 1.5 mm<sup>2</sup>

Sold by the meter;  
max. length 1000 m,  
minimum order 20 m

**6XV1830-7AH10**

##### Not pre-assembled

- 20 m
- 50 m
- 100 m

**6XV1830-7AN20**

**6XV1830-7AN50**

**6XV1830-7AT10**

##### Pre-assembled

with ECOFAST male and female connectors, fixed length

- 0,5 m
- 1,0 m
- 1,5 m
- 3 m
- 5 m
- 10 m
- 15 m
- 20 m
- 25 m
- 30 m
- 35 m
- 40 m
- 45 m
- 50 m

**6XV1830-7BH05**

**6XV1830-7BH10**

**6XV1830-7BH15**

**6XV1830-7BH30**

**6XV1830-7BH50**

**6XV1830-7BN10**

**6XV1830-7BN15**

**6XV1830-7BN20**

**6XV1830-7BN25**

**6XV1830-7BN30**

**6XV1830-7BN35**

**6XV1830-7BN40**

**6XV1830-7BN45**

**6XV1830-7BN50**

##### Pre-assembled

with two ECOFAST connectors,  
variable length

##### PROFIBUS ECOFAST Hybrid Cable GP

Trailing cable with 4 x Cu and 2 x Cu, shielded, with UL approval

Sold by the meter;  
max. length 1000 m,  
minimum order 20 m

**6XV1860-2P**

##### Not pre-assembled

- 20 m
- 50 m
- 100 m

**6XV1860-4PN20**

**6XV1860-4PN50**

**6XV1860-4PT10**

##### Pre-assembled

with ECOFAST male and female connectors

- 0,5 m
- 1 m
- 1,5 m
- 3 m
- 5 m
- 10 m
- 15 m
- 20 m
- 25 m
- 30 m
- 35 m
- 40 m
- 45 m
- 50 m

**6XV1860-3PH05**

**6XV1860-3PH10**

**6XV1860-3PH15**

**6XV1860-3PH30**

**6XV1860-3PH50**

**6XV1860-3PN10**

**6XV1860-3PN15**

**6XV1860-3PN20**

**6XV1860-3PN25**

**6XV1860-3PN30**

**6XV1860-3PN35**

**6XV1860-3PN40**

**6XV1860-3PN45**

**6XV1860-3PN50**

# PROFIBUS

## Electrical networks (RS485)

### ECOFAST bus cables

#### Ordering data

#### Article No.

##### Additional components

##### PROFIBUS Cu bus connector

with 2 x Cu shielded and 4 x Cu 1.5 mm<sup>2</sup>; type of contact: POF, Han D for 24 V; tool: crimping tool, polishing set; 5 units; with assembly instructions

- with pin insert
- with socket insert

**6GK1905-0CA00**  
**6GK1905-0CB00**

##### PROFIBUS ECOFAST Hybrid Plug angled;

with 2 x Cu shielded and 4 x Cu 1.5 mm<sup>2</sup>; 5 units; with installation instructions

- Male pins
- Female pins;

**6GK1905-0CC00**  
**6GK1905-0CD00**

##### ECOFAST Terminating Plug

Bus termination plug-in connector for PROFIBUS DP; with 2 x Cu and 4 x Cu 1.5 mm<sup>2</sup>; male pins, integrated termination resistors

- Pack of 1
- Pack of 5

**6GK1905-0DA10**  
**6GK1905-0DA00**

##### Data T piece

For 2 x 24 V auxiliary voltage (switched and non-switched) and PROFIBUS DP

- for Cu RS 485
- for fiber-optic cable

**3RK1911-2AG00**  
**3RK1911-2AH00**

##### Addressing plug

For setting the PROFIBUS DP addresses

**6ES7194-1KB00-0XA0**

#### More information

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

J. Hertlein  
I IA SC CI PRM 4  
Phone: +49 (911) 750 44 65  
E-mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

### Overview



- Different versions (5-core, 2-core) for different fields of application
- Pre-assembled M12 plug-in cables for energy transfer
- Rugged cable design for installation in industrial applications
- UL approvals
- Easy length measurement thanks to printed meter markings

### Ordering data

#### Power cable 2 x 0.75

Power cable with trailing capability with 2 copper cores (0.75 mm<sup>2</sup>) for connecting to M12 plug-in connector;  
sold by the meter;  
 max. 1000 m,  
 minimum order quantity 20 m

Article No.

**6XV1812-8A**

#### Power cable 5 x 1.5

Power cable with trailing capability with 5 copper cores (1.5 mm<sup>2</sup>) for connecting to 7/8" plug-in connector;  
sold by the meter;  
 max. 1000 m;  
 minimum order quantity 20 m

Article No.

**6XV1830-8AH10**

#### M12 Power Connecting Cable M12-180/M12-180

Flexible 4-core power connecting cable, assembled with A-coded 5-pin M12 connector and A-coded, 5-pin M12 socket to supply the ET 200 with 24 V DC;  
 length:

- 0,3 m
- 0,5 m
- 1,0 m
- 1,5 m
- 2,0 m
- 3,0 m
- 5,0 m
- 10 m
- 15 m

Article No.

**6XV1801-5DE30**  
**6XV1801-5DE50**  
**6XV1801-5DH10**  
**6XV1801-5DH15**  
**6XV1801-5DH20**  
**6XV1801-5DH30**  
**6XV1801-5DH50**  
**6XV1801-5DN10**  
**6XV1801-5DN15**

Article No.

#### Additional components

##### 7/8" plug-in connector

Plug with axial cable outlet for field assembly for ET 200, 5-core, plastic enclosure,  
 1 pack = 5 items

- Male pins
- Socket insert

Article No.

**6GK1905-0FA00**  
**6GK1905-0FB00**

##### 7/8"-Power T-Tap PRO

Power T-piece for ET 200 with two 7/8" socket inserts and one 7/8" pin insert  
 1 pack = 5 items

Article No.

**6GK1905-0FC00**

##### Signalling Contact M12 Cable Connector PRO

Socket for connection of SCALANCE X208PRO for signaling contact; 5-pole, B-coded, with assembly instructions; 3 items

Article No.

**6GK1908-0DC10-6AA3**

##### Power M12 Cable Connector PRO

Socket for connection of SCALANCE W-700 for 24 V DC supply voltage; 4-pole, A-coded, with assembly instructions, 3 items

Article No.

**6GK1907-0DC10-6AA3**

##### Power M12 Plug PRO

Plug for connection to PS791-1PRO power supply for 24 V DC supply voltage; 4-pole, A-coded, with assembly instructions, 3 items

Article No.

**6GK1907-0DB10-6AA3**

##### SIMATIC NET Manual Collection

Electronic manuals for communication systems, communication protocols, and communication products; on DVD, German/English

Article No.

**6GK1975-1AA00-3AA0**

### More information

#### Cable routing:

During storage, transport and cable laying, keep both ends sealed with a shrink-on cap.

Comply with the permissible bending radii and tensile load!

Note:

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

J. Hertlein  
 I IA SC CI PRM 4  
 Phone: +49 (911) 750 44 65  
 E-mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

# PROFIBUS

## Electrical networks (RS485)

### RS485 bus connector

#### Overview



- Used for connecting PROFIBUS nodes to the PROFIBUS bus cable
- Easy installation
- FastConnect plugs ensure extremely short assembly times due to their insulation-displacement technology
- Integrated terminating resistors (not in the case of 6ES7972-0BA30-0XA0)
- Connectors with Sub-D socket permit PG connection without the additional installation of network nodes

#### Ordering data

##### RS485 bus connector with axial cable outlet (180°)

For industrial PC, SIMATIC HMI OP, OLM; max. transmission rate 12 Mbit/s

#### Article No.

6GK1500-0EA02

##### SIPLUS DP PB RS485 connector with axial cable outlet (180°)

for medial stress;  
Based-on 6GK1 500-0EA02

6AG1500-0EA02-2AA0

##### RS485 bus connector with cable outlet (90°)

With screw-terminals, max. transmission rate 12 Mbit/s

- Without PG interface
- With PG interface

6ES7972-0BA12-0XA0  
6ES7972-0BB12-0XA0

##### SIPLUS DP PB RS485 connector with 90° cable outlet

for extended temperature range -25 ... + 60 °C

- without PG interface  
Based on 6ES7972-0BA12-0XA0
- with PG interface  
Based on 6ES7972-0BB12-0XA0

6AG1972-0BA12-2XA0  
6AG1972-0BB12-2XA0

##### RS485 bus connector with angled cable outlet (35°)

With screw-terminals, max. transmission rate 12 Mbit/s

- Without PG interface
- With PG interface

6ES7972-0BA42-0XA0  
6ES7972-0BB42-0XA0

##### SIPLUS DP PB RS485 connector with inclined cable outlet (35°)

for extended temperature range -25 ... + 60 °C

- without PG interface  
Based on 6ES7942-0BA42-0XA0
- with PG interface  
Based on 6ES7942-0BB42-0XA0

6AG1972-0BA42-7XA0  
6AG1972-0BB42-7XA0

##### RS485 bus connector with cable outlet (30°)

With screw-terminals, low-cost variant, max. transmission rate 1.5 Mbit/s

6ES7972-0BA30-0XA0

#### Article No.

##### PROFIBUS bus connector RS485 with FastConnect technology

##### PROFIBUS FastConnect bus connector RS485 with 90° cable outlet

with insulation displacement, max. transmission rate 12 Mbps

Without PG interface

- 1 unit
- 100 units

6ES7972-0BA52-0XA0  
6ES7972-0BA52-0XBO

With PG interface

- 1 unit
- 100 units

6ES7972-0BB52-0XA0  
6ES7972-0BB52-0XBO

without PG interface, grounding via control cabinet cover

- 1 unit

6ES7972-0BA70-0XA0

with PG interface, grounding via control cabinet cover

- 1 unit

6ES7972-0BB70-0XA0

##### PROFIBUS FastConnect RS485 bus connector with angled cable outlet (35°)

with insulation displacement, max. transmission rate 12 Mbps

- Without PG interface
- With PG interface

6ES7972-0BA60-0XA0  
6ES7972-0BB60-0XA0

##### PROFIBUS FastConnect bus connector RS485 Plug 180

with insulation displacement terminals, with 180° cable outlet, for industrial PC, SIMATIC HMI OP, OLM; max. transmission rate 12 Mbit/s

6GK1500-0FC10

##### SIMATIC S5/S7 plug-in cable for PROFIBUS

Preassembled with two 9-pin sub-D connectors; max. transmission rate 12 Mbit/s; 3 m

6ES7901-4BD00-0XA0

##### SIMATIC NET Manual Collection

Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English

6GK1975-1AA00-3AA0

### Overview



- Prefabricated cable for fast and cost-effective connection of PROFIBUS nodes to OLM and OBT
- Flexible PROFIBUS connecting cable

### Ordering data

#### 830-1T PROFIBUS connecting cable

for terminal connection, preassembled, with two Sub-D plugs, 9-pin terminated at both ends

- 1,5 m long
- 3 m long

### Article No.

**6XV1830-1CH15**  
**6XV1830-1CH30**

# PROFIBUS

## Electrical networks (RS485)

### 830-2 connecting cable

#### Overview



- Prefabricated cable for connection of PROFIBUS nodes (e.g. HMI) to PLCs
- Flexible PROFIBUS connection cable for up to 12 Mbit/s

#### Ordering data

##### 830-2 PROFIBUS connecting cable

Preassembled, with two 9-pin connectors

- 3 m long
- 5 m long
- 10 m long

#### Article No.

**6XV1830-2AH30**  
**6XV1830-2AH50**  
**6XV1830-2AN10**

# PROFIBUS

## Electrical networks (RS485)

### PROFIBUS M12 and 7/8" connecting cable/connector

#### Overview



Flexible connecting cables and FastConnect (FC) plug-in connectors that can be assembled in the field for transmission of data (up to 12 Mbit/s) or for power supply between PROFIBUS nodes with IP65 degree of protection

#### PROFIBUS M12 plug-in cable

- Preassembled plug-in cable (PROFIBUS FC Trailing Cable) for connecting PROFIBUS nodes (e.g. SIMATIC ET 200) to IP65 degree of protection
- For transmission rates up to 12 Mbit/s

#### 7/8" connecting cable

- Preassembled plug-in cable for supplying power to PROFIBUS nodes (e.g. SIMATIC ET 200) to IP65 degree of protection

#### PROFIBUS FC M12 Plug PRO (B-coded) and 7/8" plug-in connector

- For establishing direct connections between devices on PROFIBUS installation and power cables with M12 or 7/8" connections
- Excellent EMC shielding and deflection (metal housing)
- Easy assembly due to integrated FastConnect technology (FC M12 Plug)
- Viewable contact area prevents errors

#### Ordering data

##### PROFIBUS M12 plug-in cable

Pre-assembled with two 5-pole M12 male/female connectors up to 100 m max.; length:

- 0,3 m
- 0,5 m
- 1,0 m
- 1,5 m
- 2,0 m
- 3,0 m
- 5,0 m
- 10 m
- 15 m

Further special lengths with 90° or 180° cable outlet

#### Article No.

6XV1830-3DE30  
6XV1830-3DE50  
6XV1830-3DH10  
6XV1830-3DH15  
6XV1830-3DH20  
6XV1830-3DH30  
6XV1830-3DH50  
6XV1830-3DN10  
6XV1830-3DN15

See <http://support.automation.siemens.com/WWW/view/en/26999294>

##### 7/8" plug-in cable

For power supply; pre-assembled with two 5-pole 7/8" male/female connectors up to 50 m max.; length:

- 0,3 m
- 0,5 m
- 1,0 m
- 1,5 m
- 2,0 m
- 3,0 m
- 5,0 m
- 10 m
- 15 m

Additional special lengths with 90° or 180° cable outlet

6XV1822-5BE30  
6XV1822-5BE50  
6XV1822-5BH10  
6XV1822-5BH15  
6XV1822-5BH20  
6XV1822-5BH30  
6XV1822-5BH50  
6XV1822-5BN10  
6XV1822-5BN15

See <http://support.automation.siemens.com/WWW/view/en/26999294>

#### Article No.

##### Plug-in connector for assembly in the field

##### PROFIBUS M12 connectors

5-pole, B-coded, metal casing, 1 pack = 5 items

- Male pins
- Socket insert

6GK1905-0EA00  
6GK1905-0EB00

##### PROFIBUS FC M12 Plug PRO

M12 plug-in connector (B-coded) that can be assembled in the field, 5-pin, metal enclosure, FastConnect technology, pin insert; 1 pack = 5 items

6GK1905-0EA10

##### PROFIBUS FC M12 Cable Connector PRO

M12 plug-in connector (B-coded) that can be assembled in the field, 5-pin, metal enclosure, FastConnect technology, socket insert; 1 pack = 5 items

6GK1905-0EB10

##### 7/8" plug-in connector

5-pole, plastic casing, 1 pack = 5 items

- Male pins
- Socket insert

6GK1905-0FA00  
6GK1905-0FB00

##### Power cables

##### Energy Cable (5 x 1,5 mm<sup>2</sup>)

Power cable with trailing capability with 5 copper cores (1,5 mm<sup>2</sup>) for connecting to 7/8" plug-in connector; sold by the meter; max. 1000 m; minimum order quantity 20 m

6XV1830-8AH10

##### 7/8"-Power T-Tap PRO

Power T-piece for ET 200 with two 7/8" socket inserts and one 7/8" pin insert 1 pack = 5 items

6GK1905-0FC00

# PROFIBUS

## Electrical networks (RS485)

### Bus terminals

#### Overview



- For connecting PROFIBUS nodes with an RS485 interface to a segment
- Versions with transmission rates from 9.6 kbit/s to 12 Mbit/s
- Clear and easy mounting (can be snapped onto DIN rail)
- Clear location of faulty bus termination when bus terminal 12M is used
- PG connection with special bus terminal and PG connecting cable possible without additional installation of network nodes for bus terminal RS485.

#### Ordering data

#### Article No.

##### Busterminal RS485 for PROFIBUS

Transmission rate 9.6 Kbit/s to 1500 Kbit/s with plug-in cable 3.0 m long

6GK1500-0AB00

##### Busterminal RS485 for PROFIBUS

With installed programmer port and plug-in cable 1.5 m long

6GK1500-0DA00

##### PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long

6GK1500-0AA10

##### SIMATIC NET Manual Collection

Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English

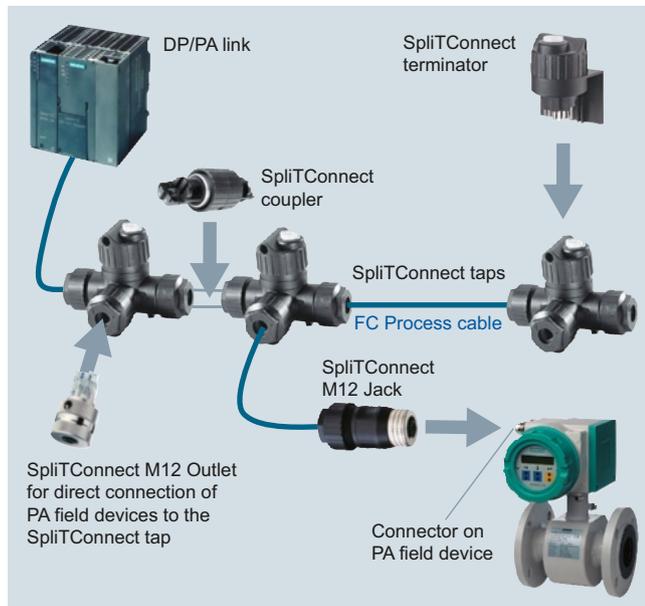
6GK1975-1AA00-3AA0

### Overview



- Used for constructing fieldbus segments as per IEC 61158-2 (e.g. PROFIBUS PA) with field device interface points
- Easy assembly of the bus cable thanks to the FastConnect system (FastConnect stripping tool, FC process cable compliant with IEC 61158-2)
- The terminal devices can be connected using the FC Process Cable in accordance with IEC 61158-2 or the SplitConnect M12 Outlet/M12 Jack
- Combination of terminating resistors can be integrated (SplitConnect terminator)

### Design



### Ordering data

### Article No.

#### SplitConnect Tap

6GK1905-0AA00

For assembling PROFIBUS PA segments and connecting PA field devices, insulation displacement method, IP67

Type of delivery:  
1 package = 10 items

#### SplitConnect M12 outlet

6GK1905-0AB10

Element for direct connection of PROFIBUS PA field devices to the SplitConnect tap through M12 connection

Type of delivery:  
1 package = 5 items

#### SplitConnect coupler

6GK1905-0AC00

Coupling element for connecting SplitConnect taps in series to configure star points

Type of delivery:  
1 package = 10 items

#### SplitConnect terminator (Ex version)

6GK1905-0AD00

For terminating PROFIBUS PA segments, can be used in hazardous areas

Type of delivery:  
1 package = 5 items

#### SplitConnect terminator (non-Ex version)

6GK1905-0AE00

For terminating PROFIBUS PA segments, cannot be used in hazardous area

Type of delivery:  
1 package = 5 items

#### SplitConnect M12 jack

6GK1905-0AF00

Connector element for direct connection of PROFIBUS PA field devices to the PROFIBUS PA segment through M12 connection

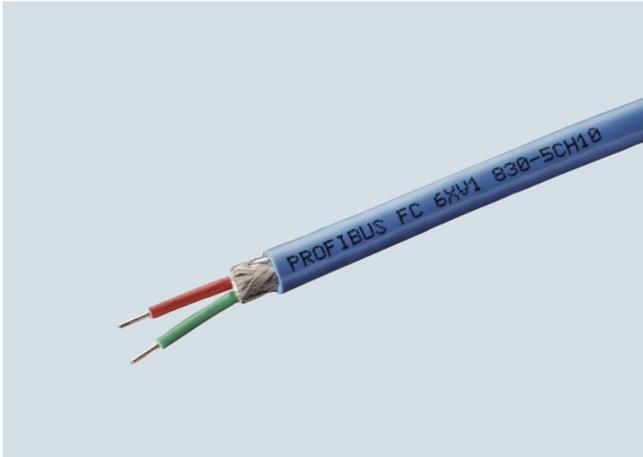
Type of delivery:  
1 package = 5 items

# PROFIBUS

## Electrical networks (PROFIBUS PA)

### Bus cables

#### Overview



- Bus cable for fieldbus systems according to IEC 61158-2, e.g. PROFIBUS PA
- High interference immunity thanks to double shielding
- Different variants for different applications (hazardous areas, non-hazardous areas)
- Easy length measurement thanks to printed meter markings

#### Ordering data

#### Article No.

##### PROFIBUS FC Process Cable

- 2-core, shielded
- Blue for Ex applications
  - Black for non-Ex applications

**6XV1830-5EH10**  
**6XV1830-5FH10**

Sold by the meter:  
Max. quantity 1,000 m;  
minimum order 20 m

##### PROFIBUS FastConnect Stripping Tool

Stripping tool for fast stripping of the PROFIBUS FastConnect bus cable

**6GK1905-6AA00**

##### PROFIBUS FastConnect Blade Cassettes

Spare blade cassettes for PROFIBUS FastConnect stripping tool, 5 units

**6GK1905-6AB00**

##### SIMATIC NET Manual Collection

Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English

**6GK1975-1AA00-3AA0**

#### More information

##### Installation instruction

###### FastConnect

The FastConnect stripping tool can be used to strip the outer sheath and shield of the FC Process Cable to the required lengths for PROFIBUS PA.

Thus the use of the FastConnect stripping tool and SplitConnect tap permits the easy connection of field devices to, for example, the PROFIBUS PA bus system.

###### Cable routing

During storage, transport and cable laying, keep both ends sealed with a shrink-on cap.

Comply with the permissible bending radii and tensile load!

Note:

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

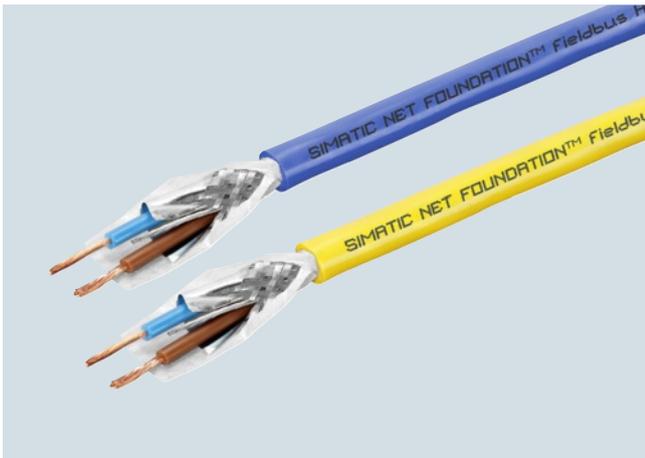
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E-mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

# PROFIBUS

## Electrical networks (FOUNDATION Fieldbus)

Bus cables

### Overview



- Bus cable for fieldbus systems according to IEC 61158-2, e.g. FOUNDATION Fieldbus
- High noise immunity due to double shielding
- Different variants for different applications (hazardous, non-hazardous)

### Ordering data

### Article No.

#### FOUNDATION Fieldbus Cable

- 2-core, shielded
- Blue for Ex applications
  - Orange for non-hazardous applications

Sold by the meter:  
Max. quantity 1000 m,  
minimum order 20 m

**6XV1830-5GH10**  
**6XV1830-5HH10**

### More information

#### Cable routing

During storage, transport and cable laying, keep both ends sealed with a shrink-on cap.

Comply with the permissible bending radii and tensile load!

Note:

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

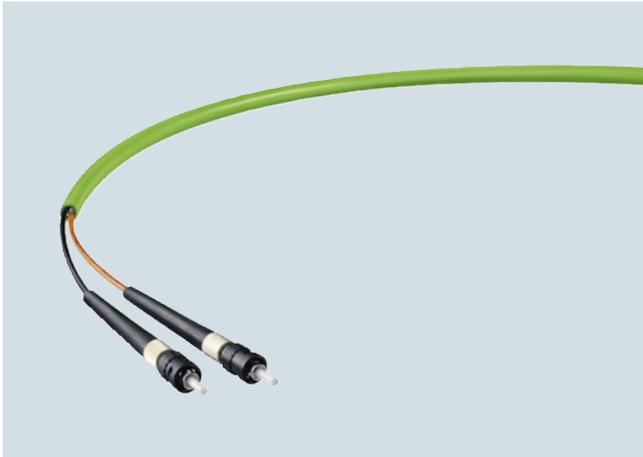
J. Hertlein  
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Phone: +49 (911) 750-4465  
E-mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

# PROFIBUS

## Optical networks with OLM

### Overview of FC-FOCs

#### Overview



- Simple on-site assembly of glass FOC in the field
- Optical signal transmission
- No radiation emission from the cable
- Unaffected by external noise fields
- No grounding problems
- Electrical isolation
- Low weight
- Simple laying of cables

#### Design

Fiber-optic cables with glass core (62.5/200/230) are offered for the FastConnect fiber-optic cable system:

- FC glass fiber-optic cable; duplex cable for indoor and outdoor fiber-optic networks

The fiber structure corresponds to that of the PCF. This allows simple assembly on site.

Sheath material	Application
PVC	Standard use in indoor and outdoor areas of industrial applications
PUR	Highly mobile applications (tow chains) for high mechanical or chemical stress in harsh industrial environments
PE	Routing of cables in moist areas indoors and outdoors, and for direct burying in earth
FRNC	Standard applications with high fire protection requirements

#### Approvals

UL listing (safety standard) for network lines is especially necessary for the American and Canadian markets. The requirements for the appropriate approvals depend on where the cable is routed within the building. This applies to all cables which have to be routed from a machine to a remote control cabinet and are positioned on cable racks secured in the building. These cables are identified by the suffix "GP" (general purpose) in the product name and have the corresponding UL approvals.



# PROFIBUS

## Optical networks with OLM

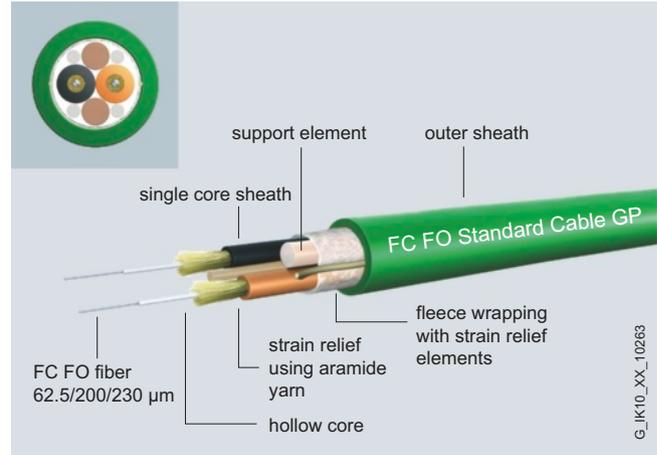
### FC glass fiber-optic cables

#### Overview



- FastConnect standard fiber-optic cable for use in optical Industrial Ethernet and PROFIBUS networks
- For all users who want to install and assemble the glass fiber-optic cables themselves over longer distances on site for office or industrial applications.
- Simple FastConnect SC/BFOC connector assembly on site
- Rugged construction for industrial applications both indoors and outdoors
- High interference immunity, as they are not sensitive to electromagnetic interference
- Extensive range of approvals (UL approvals)

#### Design



#### **FC FO Standard Cable GP (General Purpose)**

rugged round cable with green outer sheath, Kevlar strain relief elements, and 62.5/200/230 FC FO fibers for indoor/outdoor applications

#### **FC FO Trailing Cable**

rugged round cable with green outer sheath, Kevlar strain relief elements and 62.5/200/230 FC FO fibers for use in tow chains and moving applications

Maximum cable length between two devices:

- 3000 m for 100 Mbit/s Ethernet or for PROFIBUS
- 350 m for 1000 Mbit/s Ethernet (1000Base-SX)
- 550 m for 1000 Mbit/s Ethernet (1000Base-LX)

The maximum cable lengths can be assembled from partial lengths using FastConnect couplings (SC or BFOC; maximum two couplings, approx. 2.5 dB attenuation per coupling). It is also possible to combine existing installed, conventional 62.5/125 μm multimode glass fiber-optic cable sections with the FastConnect fiber-optic cables.

G\_1K10\_XX\_10263

Ordering data	Article No.
<b>FC FO standard cable GP</b> 62,5/200/230 FC FO standard cable for fixed routing indoors with PVC sheath; sold by the meter max. length 1000 m; minimum order 20 m	<b>6XV1847-2A</b>
<b>FC FO trailing cable</b> FC FO trailing cable for use in tow chains and moving applications; sold by the meter	<b>6XV1847-2C</b>
<b>FC FO termination kit</b> Assembly case for local assembly of FC SC and FC BFOC connectors to FC FO standard cable, comprising a stripping tool, Kevlar cutters, fiber breaking tool and microscope	<b>6GK1900-1GL00-0AA0</b>
<b>FC SC plug</b> Screw connector for on-site assembly on FC fiber-optic cable; (1 pack = 10 duplex plugs + cleaning cloths)	<b>6GK1900-1LB00-0AC0</b>
<b>FC BFOC plug</b> Screw connector for on-site assembly on FC fiber-optic cable; (1 pack = 20 units + cleaning cloths)	<b>6GK1900-1GB00-0AC0</b>
<b>FC SC coupler</b> FC SC duplex coupling; (1 pack = 5 units)	<b>6GK1900-1LP00-0AB0</b>
<b>FC BFOC coupler</b> FC BFOC coupling; (1 pack = 10 units)	<b>6GK1900-1GP00-0AB0</b>
<b>SIMATIC NET Manual Collection</b> Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English	<b>6GK1975-1AA00-3AA0</b>

### More information

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

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 I IA SC CI PRM 4  
 Phone: +49 (911) 750-4465  
 E-mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

# PROFIBUS

## Optical networks with OLM

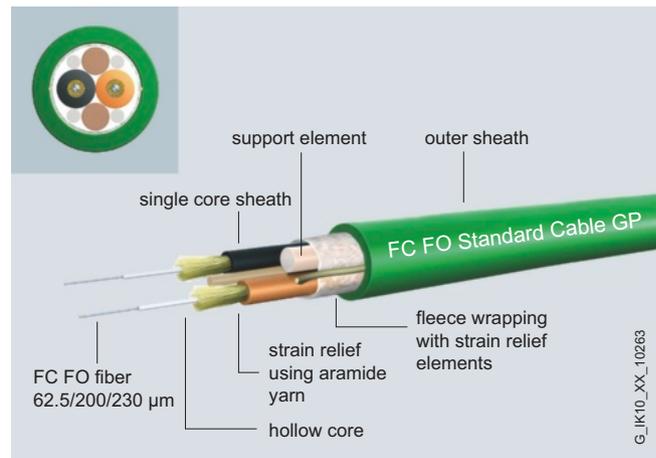
### FC FO termination kit

#### Overview



- Compact, rugged assembly case for FastConnect glass fiber-optic cables
- Simple fitting of SC and BFOC connectors to FastConnect glass fiber-optic cables
- The quality of the assembly can be checked using the enclosed microscope

#### Design



Cable construction FC glass optical fiber

The kit is available in an assembly case for on-site installation of FC SC and FC BFOC connectors on FC glass fiber-optic cables. It consists of a stripping tool, buffer stripping tool, Kevlar scissors, fiber breaking tool and microscope.

#### Ordering data

#### Article No.

##### FC FO termination kit

Assembly case for local assembly of FC SC and FC BFOC connectors to FC FO standard cable, comprising a stripping tool, Kevlar cutters, fiber breaking tool and microscope

**6GK1900-1GL00-0AA0**

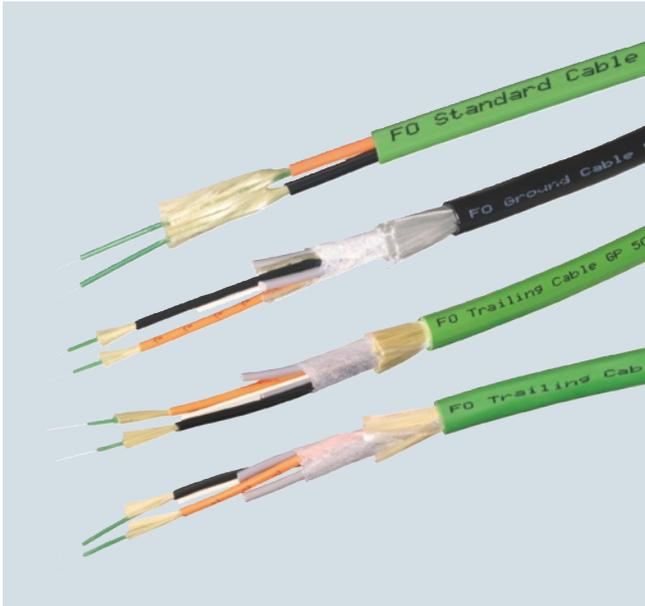
#### More information

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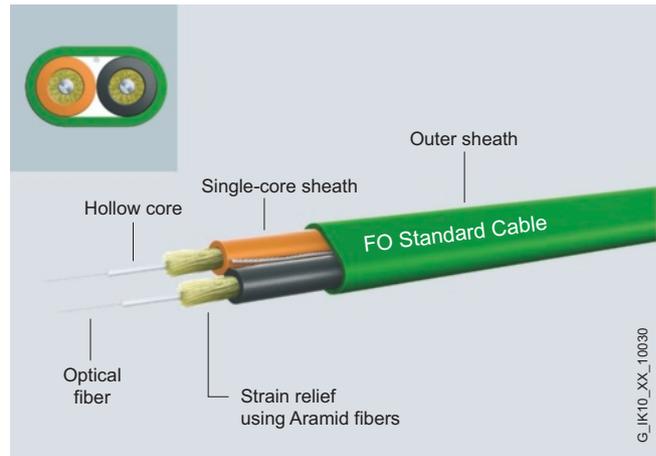
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### Overview



- Used for the optical Industrial Ethernet and PROFIBUS networks
- Rugged design for industrial applications indoors and outdoors
- Halogen-free design for installation inside buildings
- Trailing cable for the special application of forced motion control
- High immunity to noise thanks to insensitivity to electro-magnetic fields
- Available preassembled
- Extensive approvals (UL)

### Design



In order to span very long distances, the use of singlemode cables with a 9 μm fiber is recommended.

Cable types	50/125 μm	62,5/125 μm	9/125 μm
FO standard cable GP (50/125/1400)	●	—	—
FO FRNC cable (50/125/1400)	●	—	—
FO trailing cable (50/125/1400)	●	—	—
FO trailing cable GP (50/125/1400)	●	—	—
FO ground cable (50/125/1400)	●	—	—
FO robust cable GP (50/125/900)	●	—	—
Fiber-optic standard cable (62.5/125/900)	—	●	—
INDOOR fiber-optic cable (62.5/125/900)	—	●	—
Flexible fiber-optic trailing cable (62.5/125/1400)	—	●	—
SIENOPYR marine duplex fiber-optic cable (62.5/125/900)	—	●	—
FO robust cable GP (4E9/125/900)	—	—	●

# PROFIBUS

## Optical networks with OLM

### Glass fiber-optic cable

Ordering data	Article No.	Article No.	
<b>FO standard cable GP 50/125/1400 <sup>2)</sup></b> Multimode cable, sold by the meter; max. length 1000 m; minimum order 20 m; Preferred lengths <sup>1)</sup> pre-assembled with 4 BFOC connectors	<b>6XV1873-2A</b>  <b>6XV1873-3AH05</b> <b>6XV1873-3AH10</b> <b>6XV1873-3AH20</b> <b>6XV1873-3AH30</b> <b>6XV1873-3AH50</b> <b>6XV1873-3AN10</b> <b>6XV1873-3AN15</b> <b>6XV1873-3AN20</b> <b>6XV1873-3AN30</b> <b>6XV1873-3AN40</b> <b>6XV1873-3AN50</b> <b>6XV1873-3AN80</b> <b>6XV1873-3AT10</b> <b>6XV1873-3AT15</b> <b>6XV1873-3AT20</b> <b>6XV1873-3AT30</b>	<b>FO Robust Cable GP 50/125/900 <sup>2)</sup></b> Multimode cable, sold by the meter; max. length 2000 m; minimum order 20 m; <b>Standard FIBER OPTIC CABLE</b> (62,5/125/900), segmentable <sup>2)</sup> Multimode cable, sold by the meter; max. length 2000 m; minimum order 20 m; Preferred lengths <sup>1)</sup> pre-assembled with 4 BFOC connectors	<b>6XV1873-2R</b>  <b>6XV1820-5AH10</b>  <b>6XV1820-5BH10</b> <b>6XV1820-5BH20</b> <b>6XV1820-5BH30</b> <b>6XV1820-5BH40</b> <b>6XV1820-5BH50</b> <b>6XV1820-5BN10</b> <b>6XV1820-5BN15</b> <b>6XV1820-5BN20</b> <b>6XV1820-5BN30</b> <b>6XV1820-5BN40</b> <b>6XV1820-5BN50</b> <b>6XV1820-5BN55</b> <b>6XV1820-5BN60</b> <b>6XV1820-5BN65</b> <b>6XV1820-5BN70</b> <b>6XV1820-5BN75</b> <b>6XV1820-5BN80</b> <b>6XV1820-5BT10</b> <b>6XV1820-5BT12</b> <b>6XV1820-5BT13</b> <b>6XV1820-5BT15</b> <b>6XV1820-5BT20</b> <b>6XV1820-5BT25</b> <b>6XV1820-5BT30</b>
<b>FO FRNC cable 50/125/1400 <sup>2)</sup></b> Multimode cable, sold by the meter; max. length 1000 m; minimum order 20 m;	<b>6XV1873-2B</b>		
<b>FO trailing cable 50/125/1400 <sup>2)</sup></b> Multimode cable, sold by the meter; max. length 1000 m; minimum order 20 m; Preferred lengths <sup>1)</sup> pre-assembled with 4 BFOC connectors	<b>6XV1873-2C</b>  <b>6XV1873-3CH30</b> <b>6XV1873-3CH50</b> <b>6XV1873-3CN10</b> <b>6XV1873-3CN20</b> <b>6XV1873-3CN50</b> <b>6XV1873-3CT10</b>		
<b>FO trailing cable GP 50/125/1400 <sup>2)</sup></b> Multimode cable, sold by the meter; max. length 1000 m; minimum order 20 m; Preferred lengths <sup>1)</sup> pre-assembled with 4 BFOC connectors	<b>6XV1873-2D</b>  <b>6XV1873-3DH30</b> <b>6XV1873-3DH50</b> <b>6XV1873-3DN10</b> <b>6XV1873-3DN20</b> <b>6XV1873-3DN50</b> <b>6XV1873-3DT10</b>		
<b>FO ground cable 50/125/1400 <sup>2)</sup></b> Multimode cable, sold by the meter; max. length 2000 m; minimum order 20 m; Preferred lengths <sup>1)</sup> pre-assembled with 4 BFOC connectors	<b>6XV1873-2G</b>  <b>6XV1873-3GT10</b> <b>6XV1873-3GT20</b> <b>6XV1873-3GT30</b>		
		<b>INDOOR FIBER OPTIC CABLE</b> (62,5/125/900), segmentable <sup>2)</sup> Multimode cable, sold by the meter; max. length 2000 m; minimum order 20 m; Preferred lengths <sup>1)</sup> pre-assembled with 4 BFOC connectors	<b>6XV1820-7AH10</b>  <b>6XV1820-7BH05</b> <b>6XV1820-7BH10</b> <b>6XV1820-7BH20</b> <b>6XV1820-7BH30</b> <b>6XV1820-7BH50</b> <b>6XV1820-7BN10</b> <b>6XV1820-7BN15</b> <b>6XV1820-7BN20</b> <b>6XV1820-7BN25</b> <b>6XV1820-7BN50</b> <b>6XV1820-7BN75</b> <b>6XV1820-7BT10</b>

<sup>1)</sup> Special fiber-optic cables, lengths and accessories available on request

<sup>2)</sup> Special tools and specially trained personnel are required for pre-assembling glass fiber-optic cables

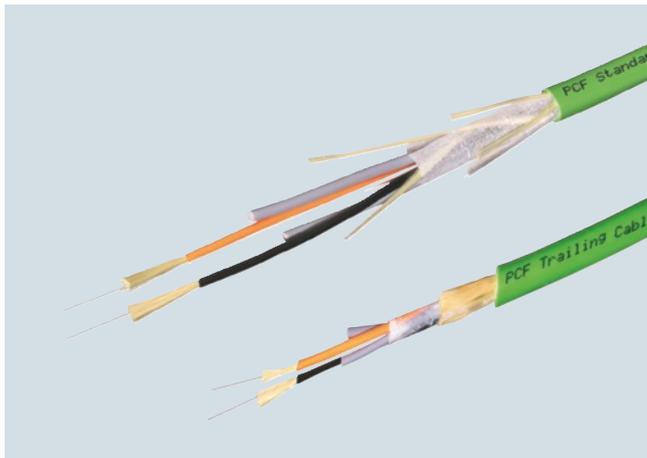


# PROFIBUS

## Optical networks with OLM

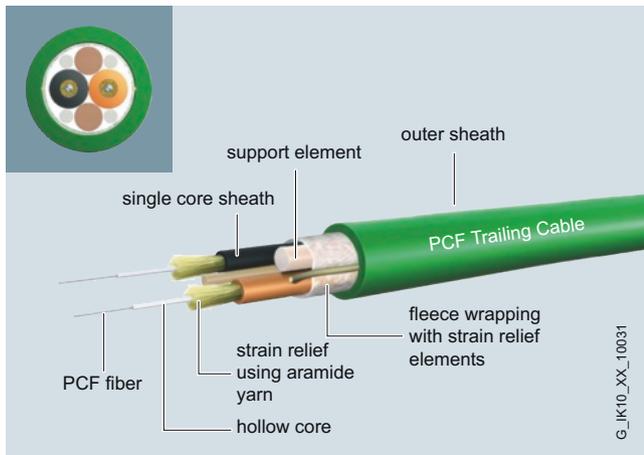
### Plastic and PCF fiber-optic cable

#### Overview



- Electrical isolation of PROFIBUS devices and PROFIBUS segments
- Protection of the transmission path against electromagnetic interference
- Up to 80 m cable length with plastic fiber-optic cables and up to 400 m with PCF fiber-optic cables
- Rugged fiber-optic standard cables, designed for industrial applications
- Extensive approvals (UL)

#### Design



#### Ordering data

#### Article No.

##### PROFIBUS Plastic Fiber Optic, standard cable

Rugged round cable with 2 plastic fiber-optic cores, PVC outer sheath and PA inner sheath, for indoor use

- Without connector
- Sold by the meter
  - 50 m ring
  - 100 m ring

**6XV1821-0AH10**  
**6XV1821-0AN50**  
**6XV1821-0AT10**

Preferred lengths  
pre-assembled with 2 x 2 BFOC plugs, lash length 20 cm each, for connecting OLM/P..

- 1 m
- 2 m
- 5 m
- 10 m
- 15 m
- 20 m
- 25 m
- 30 m
- 50 m
- 65 m
- 80 m

**6XV1821-0BH10**  
**6XV1821-0BH20**  
**6XV1821-0BH50**  
**6XV1821-0BN10**  
**6XV1821-0BN15**  
**6XV1821-0BN20**  
**6XV1821-0BN25**  
**6XV1821-0BN30**  
**6XV1821-0BN50**  
**6XV1821-0BN65**  
**6XV1821-0BN80**

##### PROFIBUS Plastic Fiber Optic, stripping tool set

Tools for removing the outer sheath or core sheath of PROFIBUS Plastic Fiber Optic cables

**6GK1905-6PA10**

##### PROFIBUS Plastic Fiber Optic, BFOC connector set

20 BFOC plugs for assembly of PROFIBUS Plastic Fiber Optic cables for OLM/P..

**6GK1905-1PA00**

##### PROFIBUS Plastic Fiber Optic, BFOC crimping tool

For assembly of BFOC plug on PROFIBUS Plastic Fiber Optic cables

**6GK1905-6PB00**

##### PROFIBUS Plastic Fiber Optic, BFOC polishing set

Polishing set for grinding and polishing the BFOC plug face for PROFIBUS Plastic Fiber Optic cables with OLM/P..

**6GK1905-6PS00**

Ordering data	Article No.	Article No.	
<p><b>PROFIBUS PCF Fiber Optic standard cable</b></p> <p>PCF fiber-optic cable with 2 cores, PVC outer sheath, for bridging large distances up to 400 m,</p> <p><u>Preferred lengths</u> pre-assembled with 2 x 2 BFOC plugs, lash length 20 cm each, with insertion tool mounted on one end for connecting OLM/P..</p> <ul style="list-style-type: none"> <li>• 75 m</li> <li>• 100 m</li> <li>• 150 m</li> <li>• 200 m</li> <li>• 250 m</li> <li>• 300 m</li> <li>• 400 m</li> </ul>	<p><b>6XV1821-1BN75</b></p> <p><b>6XV1821-1BT10</b></p> <p><b>6XV1821-1BT15</b></p> <p><b>6XV1821-1BT20</b></p> <p><b>6XV1821-1BT25</b></p> <p><b>6XV1821-1BT30</b></p> <p><b>6XV1821-1BT40</b></p>	<p><b>PROFIBUS PCF Trailing Cable 200/230</b></p> <p>Trailing cable, segmentable, sold by the meter; max. length 2000 m; minimum order 20 m;</p> <p><u>Preferred lengths</u> pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> <li>• 75 m</li> <li>• 100 m</li> <li>• 150 m</li> <li>• 200 m</li> <li>• 250 m</li> <li>• 300 m</li> <li>• 400 m</li> </ul>	<p><b>6XV1861-2C</b></p> <p><b>6XV1861-3CN75</b></p> <p><b>6XV1861-3CT10</b></p> <p><b>6XV1861-3CT15</b></p> <p><b>6XV1861-3CT20</b></p> <p><b>6XV1861-3CT25</b></p> <p><b>6XV1861-3CT30</b></p> <p><b>6XV1861-3CT40</b></p>
<p><b>PROFIBUS PCF Standard Cable GP 200/230</b></p> <p>Standard cable, segmentable, sold by the meter; max. length 2000 m; minimum order 20 m;</p> <p><u>Preferred lengths</u> pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> <li>• 75 m</li> <li>• 100 m</li> <li>• 150 m</li> <li>• 200 m</li> <li>• 250 m</li> <li>• 300 m</li> <li>• 400 m</li> </ul>	<p><b>6XV1861-2A</b></p> <p><b>6XV1861-3AN75</b></p> <p><b>6XV1861-3AT10</b></p> <p><b>6XV1861-3AT15</b></p> <p><b>6XV1861-3AT20</b></p> <p><b>6XV1861-3AT25</b></p> <p><b>6XV1861-3AT30</b></p> <p><b>6XV1861-3AT40</b></p>	<p><b>PROFIBUS PCF Trailing Cable GP 200/230</b></p> <p>Trailing cable, segmentable, sold by the meter; max. length 2000 m; minimum order 20 m;</p> <p><u>Preferred lengths</u> pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> <li>• 75 m</li> <li>• 100 m</li> <li>• 150 m</li> <li>• 200 m</li> <li>• 250 m</li> <li>• 300 m</li> <li>• 400 m</li> </ul>	<p><b>6XV1861-2D</b></p> <p><b>6XV1861-3DN75</b></p> <p><b>6XV1861-3DT10</b></p> <p><b>6XV1861-3DT15</b></p> <p><b>6XV1861-3DT20</b></p> <p><b>6XV1861-3DT25</b></p> <p><b>6XV1861-3DT30</b></p> <p><b>6XV1861-3DT40</b></p>
		<p><b>SIMATIC NET Manual Collection</b></p> <p>Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English</p>	<p><b>6GK1975-1AA00-3AA0</b></p>

### More information

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

J. Hertlein  
 I IA SC CI PRM 4  
 Phone: +49 (911) 750-4465  
 E-mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

# PROFIBUS

## Optical networks with OLM

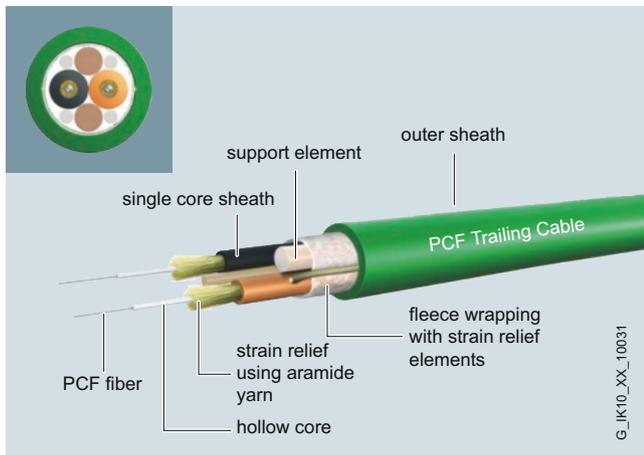
### PCF-FOC termination kit

#### Overview



- Compact, rugged assembly case for PCF fiber-optic cables
- Special versions for easy assembly of HP Simplex and BFOC plugs on PCF fiber-optic cables
- The quality of the assembly can be checked using the enclosed microscope

#### Design



#### Ordering data

#### Article No.

##### Termination Kit for Simplex connectors

6GK1900-0KL00-0AA0

Assembly case for local assembly of PCF Simplex connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, crimping tool and microscope

##### Termination Kit for BFOC connectors

6GK1900-0HL00-0AA0

Assembly case for local assembly of BFOC connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, and microscope

##### Connector

##### Simplex connector

6GK1900-0KB00-0AC0

with cleaning materials; 50 crimp connectors for assembly on PCF fiber-optic cables on site

##### BFOC connector

6GK1900-0HB00-0AC0

with cleaning materials; 20 screw connectors for assembly on PCF fiber-optic cables on site

#### More information

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

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 I IA SC CI PRM 4  
 Phone: +49 (911) 750-4465  
 E-mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

#### Overview



- Construction of optical PROFIBUS networks (line, star, ring) with glass, PCF and plastic fiber optic cables
- High availability can be achieved using a redundant power supply and redundant cable routing
- Function monitoring by means of signaling contact
- All PROFIBUS data transmission rates from 9.6 Kbit/s to 12 Mbit/s inclusive 45.45 Kbit/s for PROFIBUS PA
- Monitoring of the fiber optic cable routes on LEDs for channel monitoring or using a voltmeter across measurement terminals

#### Ordering data

	Article No.		Article No.
<b>PROFIBUS OLM/P11</b> Optical link module with 1 x RS 485 and 1 x plastic fiber-optic interface (2 BFOC sockets), with signaling contact and measuring output incl. 2 BFOC plugs for plastic fiber-optic cables	<b>6GK1503-2CA00</b>	<b>PROFIBUS OLM/G11-1300</b> Optical link module with 1 x RS 485 and 1 x glass fiber-optic interface (2 BFOC sockets), 1300 nm wavelength for large distances up to 15 km, with signaling contact and measuring output	<b>6GK1503-2CC00</b>
<b>PROFIBUS OLM/P12</b> Optical link module with 1 x RS 485 and 2 x plastic fiber-optic interface (4 BFOC sockets), with signaling contact and measuring output incl. 4 BFOC plugs for plastic fiber-optic cables	<b>6GK1503-3CA00</b>	<b>PROFIBUS OLM/G12-1300</b> Optical link module with 1 x RS 485 and 2 x glass fiber-optic interface (4 BFOC sockets), 1300 nm wavelength for large distances up to 15 km, with signaling contact and measuring output	<b>6GK1503-3CC00</b>
<b>PROFIBUS OLM/P22</b> Optical link module with 2 x RS 485 and 2 x plastic fiber-optic interface (4 BFOC sockets), with signaling contact and measuring output incl. 4 BFOC plugs for plastic fiber-optic cables	<b>6GK1503-4CA00</b>	<b>PROFIBUS OLM/G12-EEC</b> Optical link module with 1 x RS 485 and 2 x glass fiber-optic interface (4 BFOC sockets), for standard distances up to 3000 m, for extended temperature range – 25 °C to +60 °C, with signaling contact and measuring output	<b>6GK1503-3CD00</b>
<b>PROFIBUS OLM/G11</b> Optical link module with 1 x RS 485 and 1 x glass fiber-optic interface (2 BFOC sockets), for standard distances, with signaling contact and measuring output	<b>6GK1503-2CB00</b>	<b>PROFIBUS OLM mounting plate</b> For wall mounting of PROFIBUS OLM V4	<b>6GK1503-8AA00</b>
<b>PROFIBUS OLM/G12</b> Optical link module with 1 x RS 485 and 2 x glass fiber-optic interface (4 BFOC sockets), for standard distances up to 3000 m, with signaling contact and measuring output	<b>6GK1503-3CB00</b>	<b>SITOP compact 24 V/0,6 A</b> 1-phase power supply with wide-range input 85 – 264 V AC/110 – 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design	<b>6EP1331-5BA00</b>
<b>PROFIBUS OLM/G22</b> Optical link module with 2 x RS 485 and 2 x glass fiber-optic interface (4 BFOC sockets), for standard distances up to 3000 m, with signaling contact and measuring output	<b>6GK1503-4CB00</b>		

# PROFIBUS

## Optical networks with OBT and integrated interface

### Plastic and PCF fiber-optic cable

#### Overview



- Electrical isolation of DP devices
- Protection of the transmission path against electromagnetic interference
- Up to 50 m cable length with plastic fiber-optic cables and up to 300 m with PCF fiber-optic cables
- Rugged fiber-optic standard cables, designed for industrial applications
- Hybrid cable for the shared transmission of data and power supply
- Extensive approvals (UL)

#### Ordering data

#### Article No.

##### PROFIBUS Plastic Fiber Optic standard cable

Rugged round cable with 2 plastic fiber-optic cores, PVC outer sheath and PA inner sheath, for indoor use; without connector

- Sold by the meter
- 50 m ring
- 100 m ring

**6XV1821-0AH10**  
**6XV1821-0AN50**  
**6XV1821-0AT10**

##### PROFIBUS Plastic Fiber Optic duplex core

Plastic fiber-optic cable with 2 cores, PVC outer sheath, for use in environments with low mechanical stress; without connector

- 50 m ring

**6XV1821-2AN50**

##### PROFIBUS Plastic Fiber Optic simplex plug/polishing set

100 simplex connectors and 5 polishing sets for assembling PROFIBUS plastic fiber optic cables for the optical PROFIBUS DP

**6GK1901-0FB00-0AA0**

##### PROFIBUS Plastic Fiber Optic stripping tool set

Tools for removing the outer sheath or core sheath of Plastic Fiber Optic cables

**6GK1905-6PA10**

##### PROFIBUS PCF Fiber Optic standard cable

PCF fiber-optic cable with 2 cores, PVC outer sheath, for covering larger distances up to 300 m, for connecting devices to the optical PROFIBUS DP

Preferred lengths  
 Precut/preassembled with 2 x 2 Simplex connectors, arm length 30 cm each, with aid for pulling in at one end

- 50 m
- 75 m
- 100 m
- 150 m
- 200 m
- 250 m
- 300 m

**6XV1821-1CN50**  
**6XV1821-1CN75**  
**6XV1821-1CT10**  
**6XV1821-1CT15**  
**6XV1821-1CT20**  
**6XV1821-1CT25**  
**6XV1821-1CT30**



# PROFIBUS

## Optical networks with OBT and integrated interface

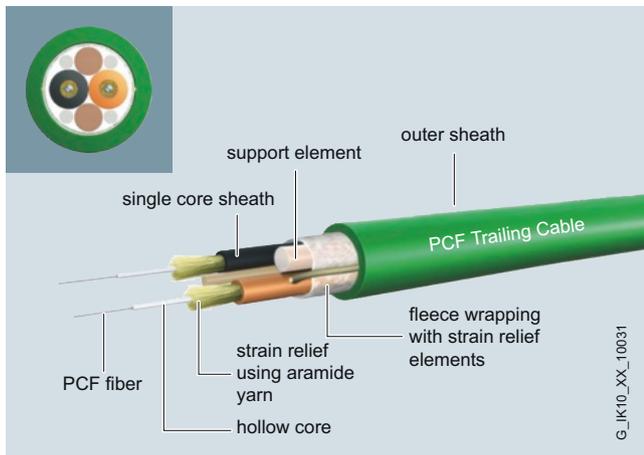
### PCF- FOC termination kit

#### Overview



- Compact, rugged assembly case for PCF fiber-optic cables
- Special versions for easy assembly of HP Simplex and BFOC plugs on PCF fiber-optic cables
- The quality of the assembly can be checked using the enclosed microscope

#### Design



#### Ordering data

#### Article No.

##### Termination Kit for Simplex connectors

6GK1900-0KL00-0AA0

Assembly case for local assembly of PCF Simplex connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, crimping tool and microscope

##### Termination Kit for BFOC connectors

6GK1900-0HL00-0AA0

Assembly case for local assembly of BFOC connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, and microscope

##### Connector

##### Simplex connector

6GK1900-0KB00-0AC0

with cleaning materials; 50 crimp connectors for assembly on PCF fiber-optic cables on site

##### BFOC connector

6GK1900-0HB00-0AC0

with cleaning materials; 20 screw connectors for assembly on PCF fiber-optic cables on site

#### More information

You can order components supplementary to the SIMATIC NET cabling range from your local contact.

Technical advice on this subject is available from:

J. Hertlein  
 I IA SC CI PRM 4  
 Phone: +49 (911) 750-4465  
 E-mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

## Optical networks with OBT and integrated interface

## Optical bus terminal OBT

## Overview



- For connecting a PROFIBUS station without an integrated fiber-optic cable interface or an RS 485 segment to an optical line
- Quick and easy installation of the plastic fiber-optic cable without the need for special tools

## Ordering data

## Article No.

**PROFIBUS OBT****6GK1500-3AA10**

Optical bus terminal for connecting a PROFIBUS node or an RS485 segment without an integrated optical interface to the optical PROFIBUS; without a Simplex connector

**PROFIBUS plug-in cable 830-1T**

For connecting a data terminal, completely pre-assembled with two sub-D connectors, 9-pin

- 1,5 m
- 3 m

**6XV1830-1CH15**  
**6XV1830-1CH30**

**SITOP compact 24 V/0,6 A**

stabilized output voltage 24 V, rated output current value 0.6 A, slim design

**6EP1331-5BA00**

# PROFIBUS

## Communication for SIMATIC S7-1200

CM 1242-5

### Overview



DP-M	DP-S	FMS	PG/OP	S7
	●			

The CM 1242-5 communication module is used to connect a SIMATIC S7-1200 to PROFIBUS as a DP slave and has the following characteristics:

- PROFIBUS DPV1 slave in accordance with IEC 61158
- Module replacement without PG supported
- Power is supplied via the backplane bus so that no extra cabling is required
- Support of all standard baud rates from 9.6 Kbit/s to 12 Mbit/s
- Compact industry-standard enclosure in S7-1200 design for mounting on a standard mounting rail
- Fast commissioning thanks to easy configuration using STEP 7 without additional programming overhead

The CM 1242-5 is intended for use in factory automation. Low-cost PROFIBUS-based automation solutions can be created on the basis of the S7-1200 for optimal production.

### Ordering data

### Article No.

#### CM 1242-5 communication module

Communication module for electrical connection of SIMATIC S7-1200 to PROFIBUS as a DPV1 slave

6GK7242-5DX30-0XE0

#### Accessories

#### PROFIBUS FastConnect connection plug RS485

With 90° cable outlet; insulation displacement technology, max. transmission rate 12 Mbit/s

- Without PG interface
- With PG interface

6ES7972-0BA52-0XA0  
6ES7972-0BB52-0XA0

#### PROFIBUS FC Standard Cable

2-core bus cable, shielded, special design for fast mounting, delivery unit: max. 1000 m, minimum order 20 m, sold by the meter

6XV1830-0EH10

#### PROFIBUS FastConnect Stripping Tool

Stripping tool for fast stripping of the PROFIBUS FastConnect bus cable

6GK1905-6AA00

#### PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS nodes at up to 12 Mbit/s with connecting cable

6GK1500-0AA10

Note:

For software ordering data, see Page 181

### Overview



DP-M	DP-S	FMS	PG/OP	S7
●			●	●

The CM 1243-5 communication module is used to connect a SIMATIC S7-1200 to PROFIBUS as a DP master and has the following characteristics:

- PROFIBUS DPV1 master in accordance with IEC 61158
- Support of up to 16 PROFIBUS DP slaves
- Communication with other S7 controllers based on S7 communication
- Allows the connection of programming devices and operator panels with a PROFIBUS interface to the S7-1200
- Module replacement without PG supported
- Support of all standard baud rates from 9.6 Kbit/s to 12 Mbit/s
- Compact industry-standard enclosure in S7-1200 design for mounting on a standard mounting rail
- Fast commissioning thanks to easy configuration using STEP 7 without additional programming overhead

The CM 1243-5 is intended for use in factory automation. Low-cost PROFIBUS-based automation solutions can be created on the basis of the S7-1200 for optimal production.

### Ordering data

### Article No.

#### CM 1243-5 communication module

Communication module for electrical connection of SIMATIC S7-1200 to PROFIBUS as a DPV1 master

**6GK7243-5DX30-0XE0**

#### Accessories

#### PROFIBUS FastConnect connection plug RS485

With 90° cable outlet; insulation displacement technology, max. transmission rate 12 Mbit/s

- Without PG interface
- With PG interface

**6ES7972-0BA52-0XA0**  
**6ES7972-0BB52-0XA0**

#### PROFIBUS FC Standard Cable

2-core bus cable, shielded, special design for fast mounting, delivery unit: max. 1000 m, minimum order 20 m, sold by the meter

**6XV1830-0EH10**

#### PROFIBUS FastConnect Stripping Tool

Stripping tool for fast stripping of the PROFIBUS FastConnect bus cable

**6GK1905-6AA00**

#### PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS nodes at up to 12 Mbit/s with connecting cable

**6GK1500-0AA10**

Note:

For software ordering data, see Page 181

# PROFIBUS

## Communication for SIMATIC S7-1500

CM 1542-5

### Overview



DP-M	DP-S	FMS	PG/OP	S7/S5	
●	●		●	●	

The CM 1542-5 communication module expands the SIMATIC S7-1500 controller with an additional PROFIBUS connection for communication with lower-level PROFIBUS devices in bandwidths from 9.6 kbps to 12 Mbps. The module also allows the implementation of separate PROFIBUS lines; in other words, the control of multiple field devices via several PROFIBUS segments. The CM 1542-5 handles all communication tasks, thus reducing the CPU load.

Apart from classic PROFIBUS communication; the CM 1542-5 is also suitable for S7 communication. This makes it possible to establish communication between the S7-1500 controller and other devices, for example those from the SIMATIC S7-300/400 range.

- PROFIBUS DP master or DP slave with electrical interface for connecting the SIMATIC S7-1500 to PROFIBUS at up to 12 Mbit/s (including 45.45 Kbit/s)
- Communication services:
  - PROFIBUS DP
  - PG/OP communication
  - S7 communication
- Time synchronization
- Simple programming and configuration over PROFIBUS
- Cross-network PG communication using S7 routing
- Module replacement without a PG
- Data record routing (PROFIBUS DP)
- Adding or modifying distributed I/O during operation

### Ordering data

### Article No.

#### CM 1542-5 communication module

Communication module for electrical connection of SIMATIC S7-1500 to PROFIBUS as a DP master or DP slave

**6GK7542-5DX00-0XE0**

#### Accessories

#### PROFIBUS FastConnect connection plug RS485

With 90° cable outlet; insulation displacement technology, max. transmission rate 12 Mbit/s

- Without PG interface
- With PG interface

**6ES7972-0BA52-0XA0**  
**6ES7972-0BB52-0XA0**

#### PROFIBUS FC Standard Cable

2-core bus cable, shielded, special design for fast mounting, delivery unit: max. 1000 m, minimum order 20 m, sold by the meter

**6XV1830-0EH10**

#### PROFIBUS FastConnect Stripping Tool

Stripping tool for fast stripping of the PROFIBUS FastConnect bus cable

**6GK1905-6AA00**

#### PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS nodes at up to 12 Mbit/s with connecting cable

**6GK1500-0AA10**

Note:

For software ordering data, see Page 181

### More information

You can find more information on SIMATIC S7-1500 at [www.siemens.com/simatic-S7-1500](http://www.siemens.com/simatic-S7-1500)

# PROFIBUS

## Communication for SIMATIC S7-1500

CP 1542-5

### Overview



DP-M	DP-S	FMS	PG/OP	S7/S5	
●	●		●		

The CP 1542-5 communications processor expands the SIMATIC S7-1500 controller with an additional PROFIBUS connection for communication with lower-level PROFIBUS devices in bandwidths from 9.6 kbps to 12 Mbit/s. The processor also allows the implementation of separate PROFIBUS lines; in other words, the control of multiple field devices via several PROFIBUS segments. The CP 1542-5 handles all communication tasks, thus reducing the CPU load.

- PROFIBUS DP master or DP slave with electrical interface for connecting the SIMATIC S7-1500 to PROFIBUS at up to 12 Mbit/s (including 45.45 Kbit/s)
- Communication services:
- PROFIBUS DP
- PG/OP communication
- Time synchronization
- Simple programming and configuration over PROFIBUS
- Cross-network PG communication using S7 routing
- Module replacement without a PG

### Ordering data

### Article No.

#### CP 1542-5 communications processor

Communication module for electrical connection of SIMATIC S7-1500 to PROFIBUS as DP master or DP slave; PG/OP communication, time synchronization, diagnostics

**6GK7542-5FX00-0XE0**

#### Accessories

#### PROFIBUS FastConnect connection plug RS485

With 90° cable outlet; insulation displacement technology, max. transmission rate 12 Mbit/s

- Without PG interface
- With PG interface

**6ES7972-0BA52-0XA0**  
**6ES7972-0BB52-0XA0**

#### PROFIBUS FC Standard Cable

2-core bus cable, shielded, special design for fast mounting, delivery unit: max. 1000 m, minimum order 20 m, sold by the meter

**6XV1830-0EH10**

#### PROFIBUS FastConnect Stripping Tool

Stripping tool for fast stripping of the PROFIBUS FastConnect bus cable

**6GK1905-6AA00**

#### PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS nodes at up to 12 Mbit/s with connecting cable

**6GK1500-0AA10**

Note:

For software ordering data, see Page 181

### More information

You can find more information on SIMATIC S7-1500 at [www.siemens.com/simatic-S7-1500](http://www.siemens.com/simatic-S7-1500)

# PROFIBUS

## Communication for SIMATIC S7-300

CP 342-5

### Overview



DP-M	DP-S	FMS	PG/OP	S7/S5	
●	●		●	●	

- PROFIBUS DP master or slave with electrical interface for connecting the SIMATIC S7-300 to PROFIBUS at up to 12 Mbit/s (including 45.45 Kbit/s)
- Communication services:
  - PROFIBUS DP
  - PG/OP communication (OP multiplexing)
  - S7 communication (client, server)
  - Open communication (SEND/RECEIVE)
- Easy configuration and programming over PROFIBUS
- Cross-network programming device communication through S7 routing
- Modules can be replaced without the need for a PG

### Ordering data

### Article No.

#### CP 342-5 communications processor

Communications processor for electrical connection of SIMATIC S7-300 to PROFIBUS at up to 12 Mbit/s, with electronic manual on CD-ROM

**6GK7342-5DA03-0XE0**

#### Accessories

#### PROFIBUS FastConnect connection plug RS485

With 90° cable outlet; insulation displacement technology, max. transmission rate 12 Mbit/s

- Without PG interface
- With PG interface

**6ES7972-0BA52-0XA0**  
**6ES7972-0BB52-0XA0**

#### PROFIBUS bus connector IP20

With connection to PPI, MPI, PROFIBUS

- Without PG interface
- With PG interface

**6ES7972-0BA12-0XA0**  
**6ES7972-0BB12-0XA0**

#### PROFIBUS FC Standard Cable

2-core bus cable, shielded, special design for fast mounting, delivery unit: max. 1000 m, minimum order 20 m, sold by the meter

**6XV1830-0EH10**

#### PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS nodes at up to 12 Mbit/s with connecting cable

**6GK1500-0AA10**

#### SIMATIC S7-300 DM 370

Dummy module; used for module replacement

**6ES7370-0AA01-0AA0**

Note:

For software ordering data, see Page 181

# PROFIBUS

## Communication for SIMATIC S7-300

CP 342-5 FO

### Overview



DP-M	DP-S	FMS	PG/OP	S7/S5	
●	●		●	●	

- PROFIBUS DP master or slave with optical interface for connecting the SIMATIC S7-300 to PROFIBUS at up to 12 Mbit/s (including 45.45 Kbit/s)
- Direct connection to the optical PROFIBUS network over the integrated fiber-optic interface for plastic and PCF fiber-optic cables
- Communication services:
  - PROFIBUS DP
  - PG/OP communication (OP multiplexing)
  - S7 communication (client, server)
  - Open communication (SEND/RECEIVE)
- Easy configuration and programming over PROFIBUS
- Cross-network programming device communication through S7 routing
- Modules can be replaced without the need for a PG

### Ordering data

### Article No.

#### CP 342-5 FO communications processor

Communication processor for optical connection of SIMATIC S7-300 to PROFIBUS to 12 Mbit/s with electronic manual on CD-ROM

6GK7342-5DF00-0XE0

#### Accessories

#### PROFIBUS Plastic Fiber Optic, Simplex Connector/Polishing Set

100 simplex connectors and 5 polishing sets for assembling PROFIBUS plastic fiber optic cables for the optical PROFIBUS DP

6GK1901-0FB00-0AA0

#### PROFIBUS Plastic Fiber Optic, stripping tool set

Tools for removing the outer sheath or core sheath of Plastic Fiber Optic cables

6GK1905-6PA10

#### Plug-in adapter

For assembling the plastic Simplex connector in combination with CP 342-5 FO, IM 467 FO, IM 153-2 FO and IM 151 FO

6ES7195-1BE00-0XA0

50 units

Note:

For software ordering data, see Page 181

# PROFIBUS

## Communication for SIMATIC S7-400

### CP 443-5 Extended

#### Overview



DP-M	DP-S	FMS	PG/OP	S7/S5	
●			●	●	

- PROFIBUS DP master with electrical interface for connecting the SIMATIC S7-400 to PROFIBUS at up to 12 Mbit/s (including 45.45 Kbit/s)
- For setting up additional PROFIBUS DP lines
- Communication services:
  - PROFIBUS DP
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- Time synchronization
- Easy programming and configuration over PROFIBUS
- Cross-network programming device communication through S7 routing
- Can be easily integrated into the SIMATIC S7-400 system
- Module replacement without PG
- SIMATIC H system operation for redundant S7 communication or DP master communication
- Data record routing (PROFIBUS DP)
- Adding or modifying distributed I/O during operation

#### Ordering data

#### Article No.

##### Communications processor CP 443-5 Extended

for connection of the SIMATIC S7-400 to PROFIBUS

Extended version for PROFIBUS DP: with electronic manual on CD-ROM

**6GK7443-5DX05-0XE0**

##### Accessories

##### PROFIBUS FastConnect connection plug RS485

With 90° cable outlet; insulation displacement technology, max. transmission rate 12 Mbit/s

- Without PG interface
- With PG interface

**6ES7972-0BA52-0XA0**  
**6ES7972-0BB52-0XA0**

##### PROFIBUS bus connector IP20

With connection to PPI, MPI, PROFIBUS

- Without PG interface
- With PG interface

**6ES7972-0BA12-0XA0**  
**6ES7972-0BB12-0XA0**

##### PROFIBUS FC Standard Cable

2-core bus cable, shielded, special design for fast mounting, delivery unit: max. 1000 m, minimum order 20 m, sold by the meter

**6XV1830-0EH10**

##### PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS nodes at up to 12 Mbit/s with connecting cable

**6GK1500-0AA10**

Note:

For software ordering data, see Page 181

Ordering data	Article No.	Article No.
<p><b>Software</b></p> <p><b>Engineering Software STEP 7 Professional / Basic V12</b></p> <p>Target system: SIMATIC S7-1200, S7-1500, S7-300, S7-400, WinAC</p> <p>Requirement: Windows XP Home SP3 (STEP 7 Basic only), Windows XP Professional SP3 (32 bit), Windows 7 Home Premium SP1 (STEP 7 Basic only), Windows 7 Professional SP1 (32/64 bit), Windows 7 Enterprise SP1 (32/64 bit), Windows 7 Ultimate SP1 (32/64 bit), Microsoft Server 2003 R2 Std. SP2 (32 bit), Microsoft Server 2008 Std. SP2 (32/64 bit)</p> <p>Form of delivery: German, English, Chinese, Italian, French, Spanish</p> <p><b>For CM 1242-5, CM 1243-5, CM 1542-5, CP 342-5, CP 342-5 FO, CP 443-5 Extended</b></p> <ul style="list-style-type: none"> <li>• STEP 7 Professional V12, Floating License</li> <li>• STEP 7 Professional V12, Trial License</li> <li>• Upgrade STEP 7 Professional V11 to STEP 7 Professional V12, Floating License</li> <li>• Upgrade STEP 7 Professional 2006/2010 to STEP 7 Professional V12, Floating License</li> <li>• PowerPack &amp; upgrade from STEP 7 V5.4/V5.5 to STEP 7 Professional V12, Floating License</li> <li>• Powerpack STEP 7 Basic V12 to STEP 7 Professional V12, Floating License</li> </ul>	<p><b>6ES7822-1AA02-0YA5</b></p> <p><b>6ES7822-1AA02-0YA7</b></p> <p><b>6ES7822-1AA02-0YE5</b></p> <p><b>6ES7822-1AA02-0XE5</b></p> <p><b>6ES7822-1AA02-0XC5</b></p> <p><b>6ES7822-1AA02-0YC5</b></p>	<p><b>STEP 7 Professional Engineering Software V12; software download incl. license key<sup>1)</sup></b></p> <p>E-mail address required for the delivery</p> <ul style="list-style-type: none"> <li>• STEP 7 Professional V12, Floating License</li> <li>• STEP 7 Professional V12, Trial License;</li> <li>• Upgrade STEP 7 Professional V11 to STEP 7 Professional V12, Floating License</li> <li>• Upgrade STEP 7 Professional 2006/2010 to STEP 7 Professional V12, Floating License</li> <li>• PowerPack &amp; upgrade from STEP 7 V5.4/V5.5 to STEP 7 Professional V12, Floating License</li> <li>• Powerpack STEP 7 Basic V12 to STEP 7 Professional V12, Floating License</li> </ul> <p><b>6ES7822-1AE02-0YA5</b></p> <p><b>6ES7822-1AE02-0YA7</b></p> <p><b>6ES7822-1AE02-0YE5</b></p> <p><b>6ES7822-1AE02-0XE5</b></p> <p><b>6ES7822-1AE02-0XC5</b></p> <p><b>6ES7822-1AE02-0YC5</b></p> <hr/> <p><b>STEP 7 Version 5.5</b></p> <p>Target system: SIMATIC S7-300/400, SIMATIC C7, SIMATIC WinAC</p> <p>Requirements: Windows XP Prof., Windows 7 Professional/Ultimate</p> <p>Type of delivery: German, English, French, Spanish, Italian; including license key on USB stick, with electronic documentation</p> <p>For CP 342-5, CP 342-5 FO, CP 443-5 Extended</p> <ul style="list-style-type: none"> <li>• Floating License on DVD</li> <li>• Rental License for 50 hours</li> <li>• Software Update Service on DVD (requires current software version)</li> <li>• Floating license upgrade 3.x/4.x/5.x to V5.4; on DVD</li> <li>• Trial license STEP 7 V5.4; on DVD, operational for 14 days</li> </ul> <p><b>6ES7810-4CC10-0YA5</b></p> <p><b>6ES7810-4CC10-0YA6</b></p> <p><b>6ES7810-4BC01-0YX2</b></p> <p><b>6ES7810-4CC10-0YE5</b></p> <p><b>6ES7810-4CC10-0YA7</b></p>

<sup>1)</sup> For up-to-date information and download availability, see: <http://www.siemens.com/tia-online-software-delivery>

# PROFIBUS

## Communication for PC-based systems

### CP 5603

#### Overview



DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●	●	●	●	●

- PCI-104 interface card with own microprocessor for connecting embedded systems with PCI-104 interface to PROFIBUS at up to 12 Mbit/s
- Function compatible with CP 5613 A2
- Communication services:
  - PROFIBUS DP master Class 1 and 2 or DP slave according to IEC 61158/61784
  - PG/OP communication with STEP 5 and STEP 7
  - S7 communication with HARDNET-PB S7 software package
  - Open communication (SEND/RECEIVE) based on the FDL interface
  - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Extensive diagnostics options for installation, commissioning and operation of the module
- Event and filter mechanism for reducing the load on the host CPU
- Multiprotocol operation and parallel operation of up to three CPs
- The appropriate OPC server and configuration tools are included in the scope of delivery of the respective communication software
- Development kit with driver sources for integration into "non-Windows" environments

Note:

FMS-5613 supports up to two CP 5603/CP 5613 A2/5614 A2/CP 5623/CP 5624 processors

#### Ordering data

#### Article No.

<b>CP 5603 communications processor</b> PCI-104 card for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master or DP slave, incl. PG and FDL protocols; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English	<b>6GK1560-3AA00</b>
<b>CP 5603 Microbox Package</b> For use of CP 5603 in Microbox 420/427B/427C; consisting of CP 5603 module and Microbox expansion frame	<b>6GK1560-3AU00</b>
<b>CP 5603 expansion rack</b> For use in Microbox 420/427B/427C with mounting material	<b>6GK1560-3AA00-0AU0</b>
<b>CP 5603 mEC Package</b> For use of CP 5603 in SIMATIC S7-MEC; consisting of CP 5603 and withdrawable unit for CP 5603 for installation in the EM PCI-104 expansion module of the SIMATIC S7-MEC	<b>6GK1560-3AE00</b>
<b>CP 5603 insert plate</b> Metal plate with RS485 cutout for inserting for the S7 modular embedded controller	<b>6GK1560-3AA00-0AE0</b>
<b>Accessories</b>	
<b>PROFIBUS FastConnect bus connector RS485 Plug 180</b> With 180° cable outlet, insulation displacement	<b>6GK1500-0FC10</b>
<b>PROFIBUS FC Standard Cable GP</b> Standard type with special design for quick assembly, 2-core, shielded, sold in meters; max. length 1000 m, minimum order 20 m	<b>6XV1830-0EH10</b>
<b>PROFIBUS FastConnect Stripping Tool</b> Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables	<b>6GK1905-6AA00</b>
<b>PROFIBUS bus terminal 12M</b> Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long	<b>6GK1500-0AA10</b>

Note:

For software ordering data, see Page 194

#### More information

You can find the HARDNET-PB DP Development Kit on the Internet at:

<http://www.siemens.com/simatic-net/dk5613>

# PROFIBUS

## Communication for PC-based systems

CP 5613 A3

### Overview



DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●		●	●	●

- PCI card (universal keyed 5 V/3.3 V) with own microprocessor for connection of PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s
- Communication services:
  - PROFIBUS DP master according to IEC 61158/61784 on a PCI card
  - PG/OP communication with STEP 7
  - S7 communication with HARDNET-PB S7 software package
  - Open communication (SEND/RECEIVE) based on the FDL interface
- Comprehensive diagnostics possibilities for installation, commissioning and operation of the module
- High performance over direct dual-port RAM access
- Event and filter mechanisms to reduce the loading on the host CPU
- Multiprotocol operation and parallel operation of up to four CPs
- Implementation in Motion Control applications is possible because a constant bus cycle time is supported
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communications software.

### Ordering data

### Article No.

#### CP 5613 A3 communications processor

6GK1561-3AA02

PCI card (32-bit; 3.3 V/5 V) for connection to PROFIBUS incl. DP-Base software; DP-RAM interface for DP master, incl. PG and FDL protocols; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software V12; German/English

#### Accessories

#### PROFIBUS FastConnect bus connector RS485 Plug 180

6GK1500-0FC10

With 180° cable outlet, insulation displacement

#### PROFIBUS FC Standard Cable GP

6XV1830-0EH10

Standard type with special design for quick assembly, 2-core, shielded, sold in meters; max. length 1000 m, minimum order 20 m

#### PROFIBUS FastConnect Stripping Tool

6GK1905-6AA00

Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables

#### PROFIBUS bus terminal 12M

6GK1500-0AA10

Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long

Note:

For software ordering data, see Page 194

### More information

You can find the HARDNET-PB DP Development Kit on the Internet.

<http://www.siemens.com/simatic-net/dk5613>

The CP 5613 A3 module can also be used under the LINUX and UNIX operating systems. Information on the available LINUX distributors and UNIX operating systems can be found at

<http://www.siemens.com/simatic-net/ik-info>

# PROFIBUS

## Communication for PC-based systems

CP 5614 A3

### Overview



DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●		●	●	●

- PCI card (universal keyed 5 V/3.3 V) with own microprocessor for connection of PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s
- Communication services:
  - PROFIBUS DP master and slave interface according to IEC 61158/61784 on one PCI card
  - PG/OP communication with STEP 5 and STEP 7
  - S7 communication with HARDNET-PB S7 software package
  - Open communication (SEND/RECEIVE) based on the FDL interface
- Comprehensive diagnostics possibilities for installation, commissioning and operation of the module
- High performance over direct dual-port RAM access
- Event and filter mechanisms to reduce the loading on the host CPU
- Multiprotocol operation and parallel operation of up to four CPs
- Implementation of Motion Control applications is possible because a constant bus cycle time is supported
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communications software.

### Ordering data

### Article No.

#### CP 5614 A3 communications processor

6GK1561-4AA02

PCI card (32-bit; 3.3 V/5 V) master and slave connection to PROFIBUS incl. DP-Base software; DP-RAM interface for DP master, incl. PG and FDL protocols; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software V12; German/English

#### Accessories

#### PROFIBUS FastConnect bus connector RS485 Plug 180

6GK1500-0FC10

With 180° cable outlet, insulation displacement

#### PROFIBUS FC Standard Cable GP

6XV1830-0EH10

Standard type with special design for quick assembly, 2-core, shielded, sold in meters; max. length 1000 m, minimum order 20 m

#### PROFIBUS FastConnect Stripping Tool

6GK1905-6AA00

Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables

#### PROFIBUS bus terminal 12M

6GK1500-0AA10

Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long

Note:

For software ordering data, see Page 194

### More information

You can find the HARDNET-PB DP Development Kit on the Internet.

<http://www.siemens.com/simatic-net/dk5613>

The CP 5613 A3 module can also be used under the LINUX and UNIX operating systems. Information on the available LINUX distributors and UNIX operating systems can be found at

<http://www.siemens.com/simatic-net/ik-info>

### Overview



DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●	●	●	●	●

- PCI Express card (PCIe x1) with own microprocessor for connecting PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s
- Communication services:
  - PROFIBUS DP master Class 1 and 2 or DP slave according to IEC 61158/61784 on a PCI card
  - PG/OP communication with STEP 5 and STEP 7
  - S7 communication with HARDNET-PB S7 software package
  - Open communication (SEND/RECEIVE) based on the FDL interface
  - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Extensive diagnostics options for installation, commissioning and operation of the module
- Event and filter mechanism for reducing the load on the host CPU
- Multiprotocol operation and parallel operation of up to four CPs
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software

### Ordering data

### Article No.

#### CP 5623 communications processor

PCI Express x1 card (32 bit) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master or DP slave, incl. PG and FDL protocols; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English

6GK1562-3AA00

#### Accessories

#### PROFIBUS FastConnect bus connector RS485 Plug 180

With 180° cable outlet, insulation displacement

6GK1500-0FC10

#### PROFIBUS FC Standard Cable GP

Standard type with special design for quick assembly, 2-core, shielded, sold in meters; max. length 1000 m, minimum order 20 m

6XV1830-0EH10

#### PROFIBUS FastConnect Stripping Tool

Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables

6GK1905-6AA00

#### PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long

6GK1500-0AA10

Note:

For software ordering data, see Page 194

### More information

You can find the HARDNET-PB DP Development Kit on the Internet.

<http://www.siemens.com/simatic-net/dk5613>

The CP 5613 A3 module can also be used under the LINUX and UNIX operating systems. Information on the available LINUX distributors and UNIX operating systems can be found at

<http://www.siemens.com/simatic-net/ik-info>

# PROFIBUS

## Communication for PC-based systems

CP 5624

### Overview



DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●	●	●	●	●

- PCI Express card (PCIe x1) with own microprocessor for connecting PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s
- Two 9-pin sub-D sockets for parallel operation as DP master and DP slave
- Communication services:
  - PROFIBUS DP master and slave interface according to IEC 61158/61784 on one PCI card
  - PG/OP communication with STEP 5 and STEP 7
  - S7 communication with HARDNET-PB S7 software package
  - Open communication (SEND/RECEIVE) based on the FDL interface
  - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Extensive diagnostics options for installation, commissioning and operation of the module
- Event and filter mechanism for reducing the load on the host CPU
- Multiprotocol operation and parallel operation of up to four CPs
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software

### Ordering data

### Article No.

#### CP 5624 A2 communications processor

6GK1562-4AA00

PCI Express x1 card (32 bit) for master and slave connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master, incl. PG and FDL protocols; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English

#### Accessories

#### PROFIBUS FastConnect bus connector RS485 Plug 180

6GK1500-0FC10

With 180° cable outlet, insulation displacement

#### PROFIBUS FC Standard Cable GP

6XV1830-0EH10

Standard type with special design for quick assembly, 2-core, shielded, sold in meters; max. length 1000 m, minimum order 20 m

#### PROFIBUS FastConnect Stripping Tool

6GK1905-6AA00

Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables

#### PROFIBUS bus terminal 12M

6GK1500-0AA10

Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long

Note:

For software ordering data, see Page 194

### More information

You can find the HARDNET-PB DP Development Kit on the Internet at:

<http://www.siemens.com/simatic-net/dk5613>

# PROFIBUS

## Communication for PC-based systems

CP 5612

### Overview



DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●		●	●	●

- PCI card (universal-keyed 5 V/3.3 V) for connecting PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s and to the MPI interface of SIMATIC S7
- Communication services:
  - PROFIBUS DP Master Class 1 incl. acyclic DP expansions with SOFTNET-PB DP software package
  - PROFIBUS DP Master Class 2 incl. acyclic DP expansions with SOFTNET-PB DP software package
  - PROFIBUS DP slave with SOFTNET-PB DP Slave software package
  - PG/OP communication with STEP 7
  - S7 communication with SOFTNET-PB S7 software package
  - Open communication (SEND/RECEIVE on basis of the FDL interface) with SOFTNET-PB DP or SOFTNET-PB S7 software package
- Can be used with:
  - STEP 7, STEP 7-Micro/Win, SIMATIC PDM (for PG/OP communication)
  - SOFTNET-PB S7 (for S7 communication)
  - SOFTNET-PB DP, SOFTNET-PB DP slave (for DP)
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communications software.

### Ordering data

### Article No.

#### CP 5612 communications processor

- PCI card (32-bit) for connection of a programming device or PC to PROFIBUS
- PCI card (32-bit) CP 5612 and MPI cable, 5 m

6GK1561-2AA00

6GK1561-2AM00

#### Accessories

#### PROFIBUS FastConnect bus connector RS485 Plug 180

With 180° cable outlet, insulation displacement

6GK1500-0FC10

#### PROFIBUS FC Standard Cable GP

Standard type with special design for quick assembly, 2-core, shielded, sold in meters; max. length 1000 m, minimum order 20 m

6XV1830-0EH10

#### PROFIBUS FastConnect Stripping Tool

Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables

6GK1905-6AA00

#### PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long

6GK1500-0AA10

Note:

For software ordering data, see Page 194

# PROFIBUS

## Communication for PC-based systems

CP 5622

### Overview



DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●		●	●	●

- PCI Express card (PCIe x1) for connection of PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s and to the MPI of the SIMATIC S7
- Communication services:
  - PROFIBUS DP Master Class 1 incl. acyclic DP expansions with SOFTNET-PB DP software package
  - PROFIBUS DP Master Class 2 incl. acyclic DP expansions with SOFTNET-PB DP software package
  - PROFIBUS DP slave with SOFTNET-PB DP Slave software package
  - PG/OP communication with STEP 7
  - S7 communication with SOFTNET-PB S7 software package
  - Open communication (SEND/RECEIVE on basis of the FDL interface) with SOFTNET-PB DP or SOFTNET-PB S7 software package
- Can be used with:
  - STEP 7, STEP 7-Micro/Win, SIMATIC PDM (for PG/OP communication)
  - SOFTNET-PB S7 (for S7 communication)
  - SOFTNET-PB DP, SOFTNET-PB DP slave (for DP)
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communications software.

### Ordering data

### Article No.

#### CP 5622 communications processor

- PCI Express x1 card (32-bit) for connection of a PG or PC to PROFIBUS
- PCI Express x1 card (32-bit) CP 5622 and MPI cable, 5 m

6GK1562-2AA00

6GK1562-2AM00

#### Accessories

#### PROFIBUS FastConnect bus connector RS485 Plug 180

With 180° cable outlet, insulation displacement

6GK1500-0FC10

#### PROFIBUS FC Standard Cable GP

Standard type with special design for quick assembly, 2-core, shielded, sold in meters; max. length 1000 m, minimum order 20 m

6XV1830-0EH10

#### PROFIBUS FastConnect Stripping Tool

Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables

6GK1905-6AA00

#### PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long

6GK1500-0AA10

Note:

For software ordering data, see Page 194

# PROFIBUS

## Communication for PC-based systems

CP 5711

### Overview



DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●		●	●	●

- USB adapter for the connection of PCs and SIMATIC PG/PC to PROFIBUS DP or MPI via USB 2.0
- Operation in extended temperature range of -20 °C to +60 °C
- Active PROFIBUS termination to supply the PROFIBUS network as end station of a segment
- Robust USB connection due to mechanical locking of the USB connector to the CP 5711 enclosure
- Communication services:
  - PROFIBUS DP master Class 1 and 2 according to IEC 61158/61784 with SOFTNET-PB DP software package
  - PROFIBUS DP slave with SOFTNET-PB DP Slave software package
  - PG/OP communication with STEP 5 or STEP 7 software package
  - S7 communication with SOFTNET-PB S7 software package
  - Open communication (SEND/RECEIVE on basis of the FDL interface) with SOFTNET-PB DP or SOFTNET-PB S7 software package
- PROFIBUS connection with up to 12 Mbit/s
- Can be used with:
  - STEP 7, STEP 7 Micro/WIN, WinCC/WinCC flexible, NCM PC, SIMATIC PDM (for PG/OP communication)
  - SOFTNET-PB S7 (for S7 communication)
  - SOFTNET-PB DP, SOFTNET-PB DP slave (for DP)
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software

### Ordering data

### Article No.

#### CP 5711 communications processor

for connection of a programming device or notebook to PROFIBUS or MPI, under 32 bit in connection with PROFIBUS SOFTNET software or STEP 7;  
German/English

- USB V2.0 adapter
- USB V2.0 adapter CP 5711 and MPI cable, 5 m

**6GK1571-1AA00**  
**6GK1571-1AM00**

#### Accessories

#### PROFIBUS FastConnect bus connector RS485 Plug 180

With 180° cable outlet, insulation displacement

**6GK1500-0FC10**

#### PROFIBUS FC Standard Cable GP

Standard type with special design for quick assembly, 2-core, shielded, sold in meters;  
max. length 1000 m, minimum order 20 m

**6XV1830-0EH10**

#### PROFIBUS FastConnect Stripping Tool

Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables

**6GK1905-6AA00**

#### PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long

**6GK1500-0AA10**

#### Mounting rail support

Compartment for CP 5711 enclosure; fastened mechanically to 35 mm DIN rail

**6GK1571-1AA00-0AH0**

Note:

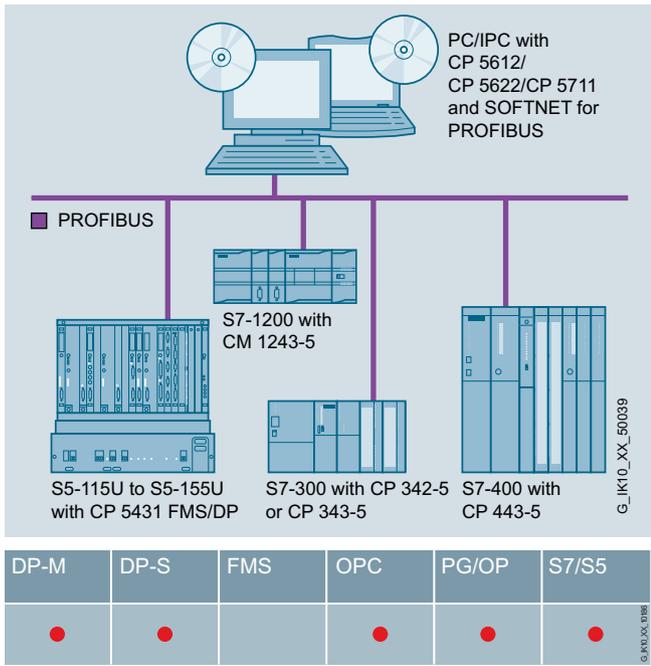
For software ordering data, see Page 194

# PROFIBUS

## Communication for PC-based systems

### SOFTNET for PROFIBUS

#### Overview



- Software for connecting PCs/programming devices and notebooks to programmable controllers
- Communication services:
  - PROFIBUS DP master Class 1 and 2 with acyclic expansions
  - PROFIBUS DP slave
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE) based on the FDL interface
- The corresponding OPC servers are included in the scope of supply of the respective communication software

# PROFIBUS

## Communication for PC-based systems

SOFTNET for PROFIBUS

Ordering data	Article No.	Article No.
<p><b>SOFTNET-PB S7</b></p> <p>Software for S7 communication, including FDL protocol with OPC server and configuration tool, runtime software, software and electronic manual on DVD-ROM, license key on USB flash drive, Class A; for CP 5612 (ab Win 7), CP 5622 (ab Win 7), CP 5711</p> <p><b>SOFTNET-PB S7 V12</b></p> <p>for 32/64-bit: Windows 7 Professional/Ultimate; for 32/64-bit: Windows 8 Pro for 64-bit: Windows 2008 Server R2 for 64-bit: Windows 2012 Server German/English</p> <ul style="list-style-type: none"> <li>• Single License for one installation</li> </ul>		<p><b>Software Update Service</b></p> <p>For 1 year with automatic extension; requirement: current software version</p> <p><b>Upgrade</b></p> <ul style="list-style-type: none"> <li>• From Edition 2006 to SOFTNET-DP Edition 2008 or V12</li> <li>• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Edition 2008 or V12</li> </ul>
	<b>6GK1704-5CW12-0AA0</b>	<b>6GK1704-5DW00-3AL0</b>
<p><b>Software Update Service</b></p> <p>For 1 year with automatic extension; requirement: current software version</p> <p><b>Upgrade</b></p> <ul style="list-style-type: none"> <li>• From Edition 2006 to SOFTNET-S7 Edition 2008 or V12</li> <li>• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-S7 Edition 2008 or V12</li> </ul>	<b>6GK1704-5CW00-3AE0</b>	<b>6GK1704-5DW00-3AE0</b>
	<b>6GK1704-5CW00-3AE1</b>	<b>6GK1704-5DW00-3AE1</b>
<p><b>SOFTNET-PB DP</b></p> <p>Software for DP protocol (Master Class 1 and 2), including FDL protocol with OPC server and configuration tool; runtime software, software and electronic manual on DVD-ROM, license key on USB flash drive; for CP 5612 (ab Win 7), CP 5622 (ab Win 7), CP 5711;</p> <p><b>SOFTNET-PB DP V12</b></p> <p>or 32/64-bit: Windows 7 Professional/Ultimate; for 32/64-bit: Windows 8 Pro for 64-bit: Windows 2008 Server R2 for 64-bit: Windows 2012 Server German/English</p> <ul style="list-style-type: none"> <li>• Single License for one installation</li> </ul>		<p><b>SOFTNET-PB DP-Slave</b></p> <p>Software for DP slave, with OPC server and configuration tool, Single License for one installation, runtime software, software and electronic manual on DVD-ROM, license key on USB flash drive, Class A; for CP 5612 (ab Win 7), CP 5622 (ab Win 7), CP 5711</p> <p><b>SOFTNET-PB DP Slave V12</b></p> <p>for 32/64-bit: Windows 7 Professional/Ultimate; for 32/64-bit: Windows 8 Pro for 64-bit: Windows 2008 Server R2 for 64-bit: Windows 2012 Server German/English</p> <ul style="list-style-type: none"> <li>• Single License for one installation</li> </ul>
	<b>6GK1704-5DW12-0AA0</b>	<b>6GK1704-5SW12-0AA0</b>
		<p><b>Software Update Service</b></p> <p>For 1 year with automatic extension; requirement: current software version</p> <p><b>Upgrade</b></p> <ul style="list-style-type: none"> <li>• From Edition 2006 to SOFTNET-DP Slave Edition 2008 or V12</li> <li>• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Slave Edition 2008 or V12</li> </ul>
		<b>6GK1704-5SW00-3AE0</b>
		<b>6GK1704-5SW00-3AE1</b>

Note:

The Windows XP software version is still available for older CPs; see the Industry Mall: [www.siemens.com/industrymall](http://www.siemens.com/industrymall).

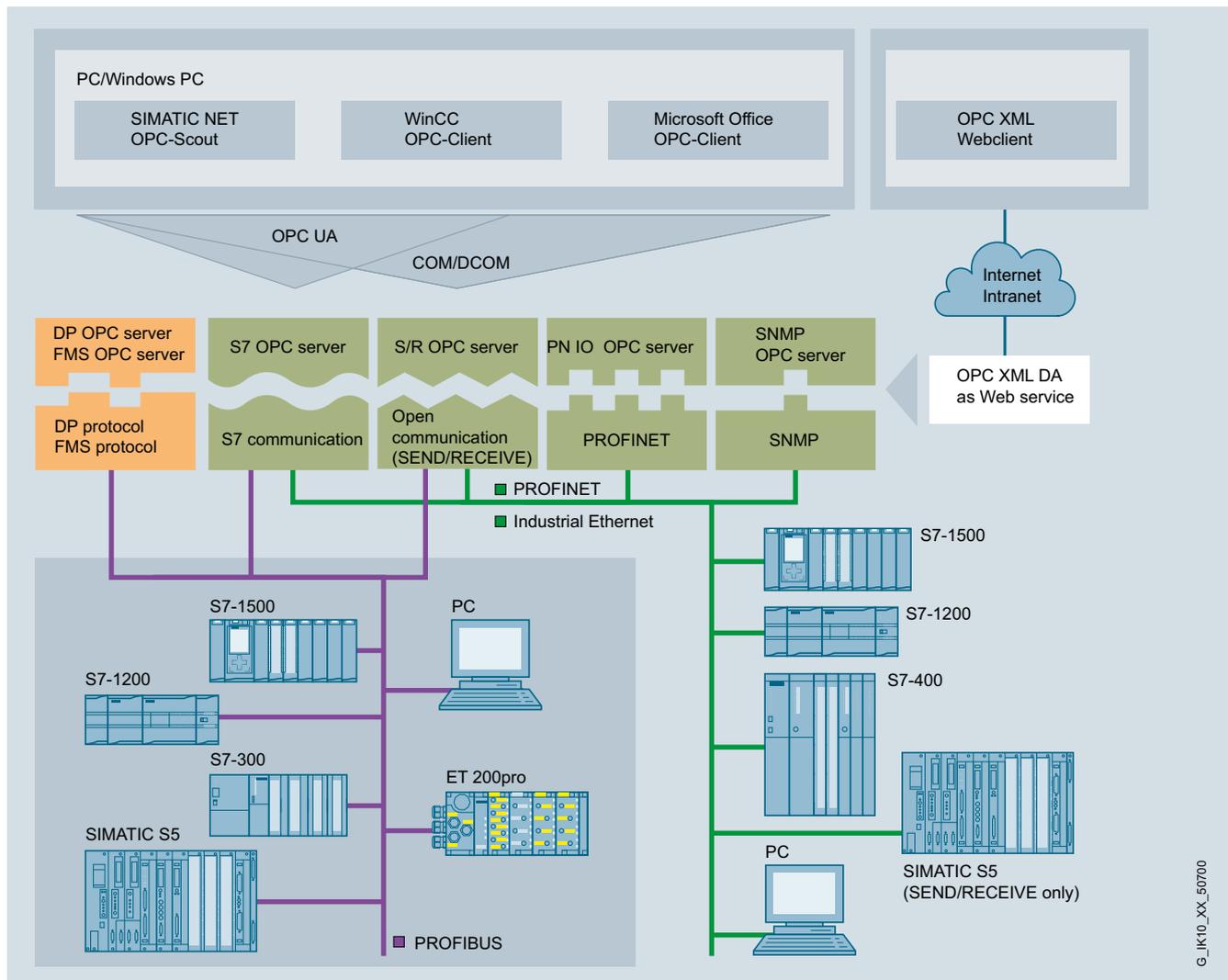
# PROFIBUS

## Communication for PC-based systems

### OPC server for PROFIBUS

#### Overview

- Standardized, open multi-vendor interface
- Interfacing of OPC-capable Windows applications to DP, FMS, S7 communication and open communication (SEND/RECEIVE) based on the FDL interface
- OPC Scout with browser functionality as an OPC client and OCX-Data-Control/.NET Data Control for simple OPC client creation
- The relevant OPC servers are supplied with each communication software package



System integration with OPC server

G\_IK10\_XX\_50700

# PROFIBUS Communication for PC-based systems

## S7 OPC Redundancy for PROFIBUS

### Overview

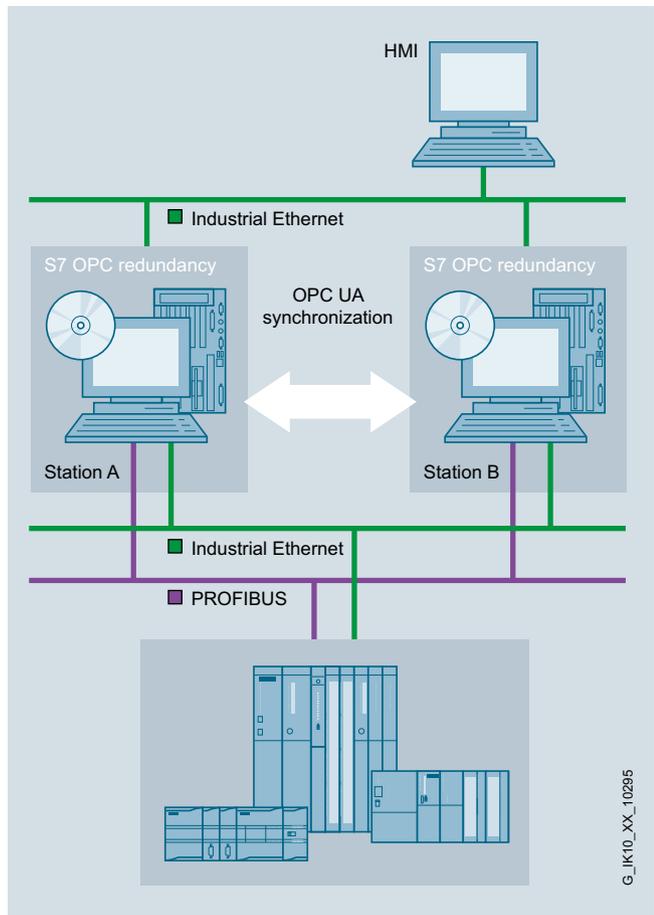
OPC (**O**penness, **P**roductivity & **C**ollaboration) is a standardized, open, and vendor-independent interface that is widely used in automation. OPC UA (**U**nified **A**rchitecture) is the result of consistent further development of this standard, offering additional functions such as security or redundancy.

S7 OPC Redundancy is a software product compliant with the OPC UA standard that enables the redundant configuration of OPC UA servers to SIMATIC S7. The availability of automation data to operator control and monitoring systems is guaranteed thanks to the redundant use of OPC UA servers. This requires neither additional cabling for synchronizing the redundant OPC UA servers, nor additional programming overhead in the PC. The OPC UA servers are synchronized via high-performance Industrial Ethernet network access points at 10/100 and 1000 Mbps. S7 OPC Redundancy represents an integrated customer solution for all SIMATIC NET S7 SOFTNET and HARDNET software products in the automation world.

### Ordering data

Ordering data	Article No.
<b>S7 OPC Redundancy</b> Software for redundant OPC servers, Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A	
<b>S7 OPC Redundancy V12 for PROFIBUS</b> for 64-bit Windows 2008 server R2; English/German • Single License for one installation	<b>6GK1706-5CW12-0AA0</b>
<b>Software Update Service</b> For 1 year with automatic extension; requirement: current software version	<b>6GK1706-5CW00-3AL0</b>

### Design



Redundant use of OPC servers

# PROFIBUS

## Communication for PC-based systems

### Software

Ordering data	Article No.	Article No.
<b>HARDNET-PB DP Development Kit</b> Software HARDNET-PB DP Development Kit for integration in other operating system environments  For CP 5603, CP 5613 A2, CP 5614 A2, CP 5613 A3, CP 5614 A3, CP 5623, CP 5624	see <a href="http://www.siemens.com/simatic-net/dk5613">http://www.siemens.com/simatic-net/dk5613</a>	
<b>Software Upgrade</b>  For CP 5603, CP 5613 A2, CP 5614 A2, , CP 5613 A3, CP 5614 A3, CP 5623, CP 5624 to Edition 2008 or V12	<b>6GK1561-3AA01-3AE0</b>	
<b>HARDNET-PB DP</b>  Software for DP, incl. PG and FDL protocol, OPC server and configuration tool; runtime software, software and electronic manual on DVD-ROM, license key on USB flash drive, Class A  For CP 5603, CP 5613 A2, CP 5614 A2, , CP 5613 A3, CP 5614 A3, CP 5623, CP 5624		
<b>HARDNET-PB DP V12</b>  for 32/64-bit: Windows 7 Professional/Ultimate; for 32/64-bit: Windows 8 Pro for 64-bit: Windows 2008 Server R2 for 64-bit: Windows 2012 Server German/English • Single License for one installation	<b>6GK1713-5DB12-0AA0</b>	
<b>Software Update Service</b>  For 1 year with automatic extension; requirement: current software version	<b>6GK1713-5DB00-3AL0</b>	
<b>Upgrade</b> • From Edition 2006 or 2007 to DP-5613 Edition 2008 or HARDNET-PB DP V12 • From V6.0, V6.1, V6.2 or V6.3 to DP-5613 Edition 2008 or HARDNET-PB DP V12	<b>6GK1713-5DB00-3AE0</b>  <b>6GK1713-5DB00-3AE1</b>	
		<b>HARDNET-PB S7</b>  Software for S7 communication incl. PG and FDL protocol, OPC server and configuration tool; runtime software, software and electronic manual on DVD-ROM, license key on USB flash drive, Class A;  For CP 5603, CP 5613 A2, CP 5614 A2, , CP 5613 A3, CP 5614 A3, CP 5623, CP 5624
		<b>HARDNET-PB S7 V12</b>  for 32/64-bit: Windows 7 Professional/Ultimate; for 32/64-bit: Windows 8 Pro for 64-bit: Windows 2008 Server R2 for 64-bit: Windows 2012 Server German/English • Single License for one installation
		<b>Software Update Service</b>  For 1 year with automatic extension; requirement: current software version
		<b>Upgrade</b> • From Edition 2006 or 2007 to S7-5613 Edition 2008 or HARDNET-PB S7 V12 • From V6.0, V6.1, V6.2 or V6.3 to S7-5613 Edition 2008 or HARDNET-PB S7 V12
		<b>SOFTNET-PB S7</b>  Software for S7 communication, including FDL protocol with OPC server and configuration tool, runtime software, software and electronic manual on DVD-ROM, license key on USB flash drive, Class A;  For CP 5612 (ab Win 7), CP 5622 (ab Win 7), CP 5711
		<b>SOFTNET-PB S7 V12</b>  for 32/64-bit: Windows 7 Professional/Ultimate; for 32/64-bit: Windows 8 Pro for 64-bit: Windows 2008 Server R2 for 64-bit: Windows 2012 Server German/English • Single License for one installation
		<b>Software Update Service</b>  For 1 year with automatic extension; requirement: current software version
		<b>Upgrade</b> • From Edition 2006 to SOFTNET-S7 Edition 2008 or V12 • From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-S7 Edition 2008 or V12

Ordering data	Article No.	Ordering data	Article No.
<b>SOFTNET-PB DP</b> Software for DP protocol (Master Class 1 and 2), including FDL protocol with OPC server and configuration tool; runtime software, software and electronic manual on DVD-ROM, license key on USB flash drive; For CP 5612 (ab Win 7), CP 5622 (ab Win 7), CP 5711		<b>SOFTNET-PB DP-Slave</b> Software for DP slave, with OPC server and configuration tool, Single License for one installation, runtime software, software and electronic manual on DVD-ROM, license key on USB flash drive, Class A; For CP 5612 (ab Win 7), CP 5622 (ab Win 7), CP 5711	
<b>SOFTNET-PB DP V12</b> for 32/64-bit: Windows 7 Professional/Ultimate; for 32/64-bit: Windows 8 Pro for 64-bit: Windows 2008 Server R2 for 64-bit: Windows 2012 Server German/English • Single License for one installation	<b>6GK1704-5DW12-0AA0</b>	<b>SOFTNET-PB DP-Slave V12</b> for 32/64-bit: Windows 7 Professional/Ultimate; for 32/64-bit: Windows 8 Pro for 64-bit: Windows 2008 Server R2 for 64-bit: Windows 2012 Server German/English • Single License for one installation	<b>6GK1704-5SW12-0AA0</b>
<b>Software Update Service</b> For 1 year with automatic extension; requirement: current software version	<b>6GK1704-5DW00-3AL0</b>	<b>Software Update Service</b> For 1 year with automatic extension; requirement: current software version	<b>6GK1704-5SW00-3AL0</b>
<b>Upgrade</b> • From Edition 2006 to SOFTNET-DP Edition 2008 or V12 • From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Edition 2008 or V12	<b>6GK1704-5DW00-3AE0</b>  <b>6GK1704-5DW00-3AE1</b>	<b>Upgrade</b> • From Edition 2006 to SOFTNET-DP Slave Edition 2008 or V12 • From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Slave Edition 2008 or V12	<b>6GK1704-5SW00-3AE0</b>  <b>6GK1704-5SW00-3AE1</b>

**Note:**

The Windows XP software version is still available for older CPs; see the Industry Mall: [www.siemens.com/industrymall](http://www.siemens.com/industrymall).

# PROFIBUS

## Communication for PC-based systems

### PC adapter USB A2

#### Overview



DP-M	DP-S	FMS	PG/OP	S7/S5	
			●		

USB adapter for the connection of PCs/Notebooks and SIMATIC PG/PC to the SIMATIC S7 automation system via USB interface.

- For connection to USB 1.1, 2.0 and 3.0 interfaces
- Power supply from the USB interface
- PROFIBUS connection with up to 12 Mbit/s
- Support for routing
- Automatic transmission rate and profile search
- Can be used as of Windows XP SP2
- As of Windows 7, can also be used with 64-bit system
- Scope of delivery:
  - PC adapter USB A2
  - CD with drivers for the PC adapter USB A2
  - USB cable
  - MPI cable 0.3 m

#### Ordering data

##### PC adapter USB A2

for connecting a PG/PC or Notebook to PROFIBUS or MPI; USB cable included in scope of delivery

#### Article No.

**6GK1571-0BA00-0AA0**

## Overview

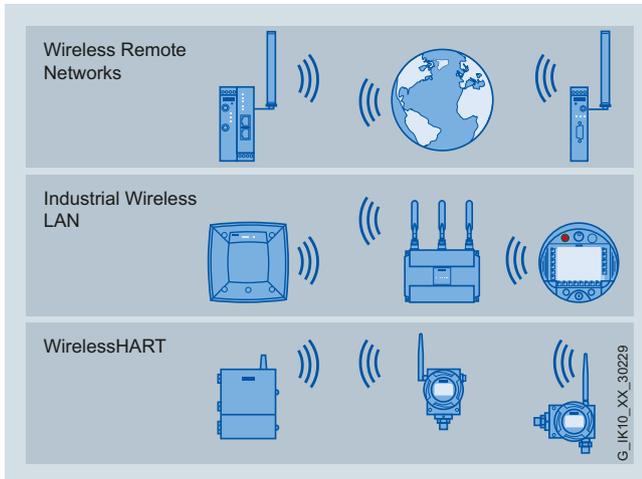
Wireless communications offer multiple new opportunities to the industry for the development of highly flexible and efficient automation solutions. Whether Industrial Wireless Telecontrol, IWLAN, or WirelessHART, the Siemens product line for Industrial Wireless Communications is reliable, robust and secure. The components are used under the toughest indoors and outdoors conditions. Their multiple applications in crane systems, automatic guided vehicle systems, or in remote operation / remote maintenance systems are a testimonial to their exceptional reliability.

RUGGEDCOM WiN products are especially designed for use in critical locations and under harsh environmental conditions.

For additional information about RUGGEDCOM WiN, go to <http://www.siemens.com/ruggedcom>.

Further information on Industrial Wireless Telecontrol can be found under the product entries for GSM, GPRS and UMTS modems and routers in the section on Industrial Remote Communication.

Further information on WirelessHART can be found under the product entries for WirelessHART as well as in Catalog FI 01 and at <http://www.siemens.com/wirelesshart>.



Wireless data transmission via Industrial Wireless TeleControl, Industrial Wireless LAN, and WirelessHART

# Industrial Wireless Communication

## Industrial Wireless LAN (IWLAN)

### Overview of network components

#### Overview

	Client Modules		Access Points			
	SCALANCE					
	W720	W730	W740	W760	W770	W780
For outdoor use						
For indoor use						
For use in control cabinet						
Industrial Wireless LAN Controller	SCALANCE WLC711					

\* also configurable as a client module

G\_IK10\_XX\_30311

SCALANCE W access points and client modules

### Overview



The access points of the SCALANCE W700 product lines are ideally suited for setting up Industrial Wireless LANs (IWLAN) for 2.4 GHz or 5 GHz. They can be used in all applications that require a high degree of operational reliability, even in extremely harsh surroundings.

- High data rates (up to 450 Mbit/s in connection with Channel Bonding) as per IEEE802.11n
- Reliable wireless link by using of MIMO technology (Multiple Input, Multiple Output). For this, SCALANCE W access points use up to three streams for simultaneous sending and receiving.
- SCALANCE W700 Access Points are suitable for any application: for outdoors with high requirements regarding climactic conditions, for installing without a control cabinet indoors, for installing in the control cabinet, and for an extended range of environmental conditions.
- Reliable thanks to a rugged, impact-resistant enclosure, protected from water and dust (up to IP65), resistant to shock, vibration and electromagnetic fields, resistant to condensation thanks to the use of coated PCBs
- Demanding applications with real-time and redundancy requirements, such as PROFINET with PROFI-safe
- Conformant to standards through supporting IEEE802.11; expanded software functions especially for use with increased reliability, e.g. cyclic real-time data traffic and very high-speed roaming (iPCF, iPCF MC)
- Configuration support by means of wizards and online help; easy management via Web server and SNMP
- Configuration and diagnostics using Web based Management, Command Line Interface, and SNMP. Devices and networks can be configured using STEP 7 (TIA Portal). For cyclic monitoring, diagnostics and documentation (reporting) in network mode, the SINEMA Server software is recommended.
- Enabling of further functions using the KEY-PLUG swap medium (iPCF, iPCF MC, iREF)
- Fast replacement of devices if a fault occurs thanks to use of optional KEY-PLUG/C-PLUG (Configuration Plug) swap medium

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

### SCALANCE W788 RJ45 for use in control cabinet

#### Overview



- Suitable for applications where the access point is to be mounted in the control cabinet

#### Design

##### Product versions

##### SCALANCE W788-1 RJ45

- One wireless card permanently installed in the device; functional scope can be expanded by using a KEY-PLUG W780 iFeatures

##### SCALANCE W788-2 RJ45

- Two wireless cards permanently installed in the device; functional scope can be expanded by using a KEY-PLUG W780 iFeatures

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

### SCALANCE W788 RJ45 for use in control cabinet

Ordering data	Article No.	Article No.
<b>SCALANCE W788 RJ45 access points</b>		
IWLAN access points with built-in wireless interfaces; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 450 Mbps; WPA2/AES; Power over Ethernet (PoE), IP30 degree of protection (-20 °C to +60 °C); scope of supply: Mounting hardware, 4-pin screw terminal for 24 V DC; 4-pin screw terminal for digital input and output; manual on CD-ROM; German/English		
<b>SCALANCE W788-1 RJ45</b>		
IWLAN access point with <u>one</u> integrated wireless interface		
<ul style="list-style-type: none"> <li>National approvals for operation outside the USA</li> <li>National approvals for operation within the USA<sup>1)</sup></li> </ul>	<b>6GK5788-1FC00-0AA0</b>	
	<b>6GK5788-1FC00-0AB0</b>	
<b>SCALANCE W788-2 RJ45</b>		
IWLAN dual access point with <u>two</u> integrated wireless interfaces		
<ul style="list-style-type: none"> <li>National approvals for operation outside the USA</li> <li>National approvals for operation within the USA<sup>1)</sup></li> </ul>	<b>6GK5788-2FC00-0AA0</b>	
	<b>6GK5788-2FC00-0AB0</b>	
		<b>Accessories</b>
		<b>KEY-PLUG W780 iFeatures</b>
		Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs and for storage of configuration data; Can be used in SCALANCE W access points with PLUG compartment
		<b>6GK5907-8PA00</b>
		<b>C-PLUG</b>
		Swap medium for simple replacement of devices in the event of a fault; for storing configuration data; can be used in SIMATIC NET products with PLUG compartment
		<b>6GK1900-0AB00</b>
		<b>DIN rail mounting adapter</b>
		DIN rail mounting adapter for SCALANCE W788 M12 and SCALANCE W788 RJ45; screw fixing for mounting on a 35 mm DIN rail to EN 50 022; scope of supply: 3 units per pack
		<b>6GK5798-8ML00-0AB3</b>
		<b>IE FC RJ45 Plug 4 x 2</b>
		RJ45 plug-in connector for Industrial Ethernet (10/100/1000 Mbps) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface
		<ul style="list-style-type: none"> <li>1 pack = 1 unit</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul>
		<b>6GK1901-1BB11-2AA0</b>
		<b>6GK1901-1BB11-2AB0</b>
		<b>6GK1901-1BB11-2AE0</b>
		<b>IE FC Standard Cable GP 4x2</b>
		8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4x2 and IE M12 Plug PRO 4x2; PROFINET-compliant; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order 20 m
		<b>6XV1878-2A</b>
		<b>IE FC Stripping Tool</b>
		Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables
		<b>6GK1901-1GA00</b>
		<b>Antennas and miscellaneous IWLAN accessories</b>
		See Industrial Wireless LAN/ accessories

<sup>1)</sup> See Industrial Wireless LAN/accessories  
<http://www.siemens.com/wireless-approvals>

#### More information

##### Selection tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

##### Wireless approvals:

Current approvals can be found on the Internet at:  
<http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

SCALANCE W788 M12 for indoor use

### Overview



- Particularly suitable for industrial applications without control cabinets

### Design

#### Product versions

##### SCALANCE W788-1 M12

- One wireless card permanently installed in the device; functional scope can be expanded by using a KEY-PLUG W780 iFeatures

##### SCALANCE W788-2 M12

- Two wireless cards permanently installed in the device; functional scope can be expanded by using a KEY-PLUG W780 iFeatures

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

**SCALANCE W788 M12 for indoor use**

Ordering data	Article No.	Article No.
<b>SCALANCE W788 M12 access points</b>		
IWLAN access points with built-in wireless interfaces; wireless networks IEEE 802.11a/b/g/n at 2.4/5 GHz up to 450 Mbit/s; WPA2/AES; Power over Ethernet (PoE), IP65 degree of protection (-20 °C to +60 °C); scope of delivery: Mounting hardware; manual on CD-ROM, German/English		
<b>SCALANCE W788-1 M12</b>		
IWLAN access point with <u>one</u> integrated wireless interface		
<ul style="list-style-type: none"> <li>National approvals for operation outside the USA</li> </ul>	<b>6GK5788-1GD00-0AA0</b>	
<ul style="list-style-type: none"> <li>National Zulassungen zum Betrieb in den USA<sup>1)</sup></li> </ul>	<b>6GK5788-1GD00-0AB0</b>	
<b>SCALANCE W788-2 M12</b>		
IWLAN dual access point with <u>two</u> integrated wireless interfaces		
<ul style="list-style-type: none"> <li>National approvals for operation outside the USA</li> </ul>	<b>6GK5788-2GD00-0AA0</b>	
<ul style="list-style-type: none"> <li>National approvals for operation within the USA<sup>1)</sup></li> </ul>	<b>6GK5788-2GD00-0AB0</b>	
<b>Accessories</b>		
<b>KEY-PLUG W780 iFeatures</b>	<b>6GK5907-8PA00</b>	
Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs and for storage of configuration data; Can be used in SCALANCE W access points with PLUG compartment		
<b>C-PLUG</b>	<b>6GK1900-0AB00</b>	
Swap medium for simple replacement of devices in the event of a fault; for storing configuration data; can be used in SIMATIC NET products with PLUG compartment		
		<b>DIN rail mounting adapter</b>
		DIN rail mounting adapter for SCALANCE W788 M12 and SCALANCE W788 RJ45; screw fixing for mounting on a 35 mm DIN rail to EN 50 022; scope of supply: 3 units per pack
		<b>6GK5798-8ML00-0AB3</b>
		<b>IE FC M12 Plug PRO 4 x 2</b>
		M12 plug-in connector suitable for on-site assembly (X-coded, IP65/IP67), metal enclosure, insulation displacement fast connection method, for SCALANCE W
		<ul style="list-style-type: none"> <li>1 unit</li> <li>8 units</li> </ul>
		<b>6GK1901-0DB30-6AA0</b>
		<b>6GK1901-0DB30-6AA8</b>
		<b>IE FC Standard Cable GP 4 x 2</b>
		8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4 x 2 and IE M12 Plug PRO 4 x 2; PROFINET-compatible; with UL approval; <u>sold by the meter</u> ; max. length 1000 m, minimum order quantity 20 m
		<b>6XV1878-2A</b>
		<b>IE FC Stripping Tool</b>
		Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables
		<b>6GK1901-1GA00</b>
		<b>Power M12 Cable Connector PRO</b>
		Terminal socket for connection of SCALANCE W700 for 24 V DC supply voltage; 4-pole, A-coded, with assembly instructions, 3 units
		<b>6GK1907-0DC10-6AA3</b>
		<b>Power Cable 2 x 0,75</b>
		Connecting cable for Power M12 Cable Connector PRO, sold by the meter
		<b>6XV1812-8A</b>
		<b>Antennas and miscellaneous IWLAN accessories</b>
		See Industrial Wireless LAN/ accessories

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

### More information

#### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version: <http://www.siemens.com/snst>
- Offline version: <http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

#### Wireless approvals:

Current approvals can be found on the Internet at: <http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

**SCALANCE W788 M12 EEC**  
for enhanced environmental conditions

### Overview



- Suitable for use in the industry and automation area, but especially in the railroad environment

### Design

#### **Product version**

#### **SCALANCE W788-2 M12 EEC**

- Two wireless cards permanently installed in the device; functional scope can be expanded by using a KEY-PLUG W780 iFeatures

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

**SCALANCE W788 M12 EEC**  
for enhanced environmental conditions

Ordering data	Article No.	Article No.
<b>SCALANCE W788 M12 EEC access points</b>		
IWLAN access points with built-in wireless interfaces; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 450 Mbit/s; railway approval in accordance with EN 50155; conformal coating; WPA2/AES; Power over Ethernet (PoE), IP65 degree of protection; scope of supply: Mounting hardware; manual on CD-ROM, German/English		
<b>SCALANCE W788-2 M12 EEC</b>		
WLAN dual access point with two integrated wireless interfaces		
<ul style="list-style-type: none"> <li>National approvals for operation outside the USA</li> <li>National approvals for operation within the USA<sup>1)</sup></li> </ul>	<b>6GK5788-2GD00-0TA0</b>	
	<b>6GK5788-2GD00-0TB0</b>	
<b>Accessories</b>		
<b>KEY-PLUG W780 iFeatures</b>	<b>6GK5907-8PA00</b>	
Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs and for storage of configuration data; Can be used in SCALANCE W access points with PLUG compartment		
<b>C-PLUG</b>	<b>6GK1900-0AB00</b>	
Swap medium for simple replacement of devices in the event of a fault; for storing configuration data; can be used in SIMATIC NET products with PLUG compartment		
<b>DIN rail mounting adapter</b>	<b>6GK5798-8ML00-0AB3</b>	
DIN rail mounting adapter for SCALANCE W788 M12 and SCALANCE W788 RJ45; screw fixing for mounting on a 35 mm DIN rail to EN 50 022; scope of supply: 3 units per pack		
		<b>IE FC M12 Plug PRO 4 x 2</b>
		M12 plug-in connector suitable for on-site assembly (X-coded, IP65/IP67), metal enclosure, insulation displacement fast connection method, for SCALANCE W
		<ul style="list-style-type: none"> <li>1 unit</li> <li>8 units</li> </ul>
		<b>IE FC Standard Cable GP 4 x 2</b>
		8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4 x 2 and IE M12 Plug PRO 4 x 2; PROFINET-compatible; with UL approval; sold by the meter; max. length 1 000 m, minimum order quantity 20 m
		<b>IE FC Stripping Tool</b>
		Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables
		<b>Power M12 Cable Connector PRO</b>
		Terminal socket for connection of SCALANCE W700 for 24 V DC supply voltage; 4-pole, A-coded, with assembly instructions, 3 units
		<b>Power Cable 2 x 0,75</b>
		Connecting cable for Power M12 Cable Connector PRO, sold by the meter
		<b>Antennas and miscellaneous IWLAN accessories</b>
		See Industrial Wireless LAN/ accessories

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

### More information

#### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version: <http://www.siemens.com/snst>
- Offline version: <http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

#### Wireless approvals:

Current approvals can be found on the Internet at: <http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

### SCALANCE W786 RJ45 for outdoor use

#### Overview



- Particularly well-suited to applications with high climatic requirements when installed outdoors and in areas accessible to the public

#### Design

##### **Product versions**

##### **SCALANCE W786-1 RJ45**

- One wireless card permanently installed in the device; functional scope can be expanded by using a KEY-PLUG W780 iFeatures

##### **SCALANCE W786-2 RJ45**

- Two wireless cards permanently installed in the device; functional scope can be expanded by using a KEY-PLUG W780 iFeatures

##### **SCALANCE W786-2IA RJ45**

- Two wireless cards permanently installed in the device; functional scope can be expanded by using a KEY-PLUG W780 iFeatures

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

**SCALANCE W786 RJ45 for outdoor use**

Ordering data	Article No.	Article No.
<b>SCALANCE W786 access points</b> IWLAN access points with built-in wireless interfaces; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 450 Mbps; WPA2/AES; Power over Ethernet (PoE), IP65 degree of protection (-40 to +60 °C); scope of delivery: Mounting hardware, 2-pin screw terminal for 24 V DC; manual on CD-ROM; German/English		
<b>SCALANCE W786-1 RJ45</b> IWLAN access points with one integrated wireless interface and RJ45 connector <ul style="list-style-type: none"> <li>• Connections for three external antennas               <ul style="list-style-type: none"> <li>- National approvals for operation outside the USA</li> <li>- National approvals for operation within the USA<sup>1)</sup></li> </ul> </li> </ul>	<b>6GK5786-1FC00-0AA0</b>  <b>6GK5786-1FC00-0AB0</b>	<b>C-PLUG</b> Swap medium for simple replacement of devices in the event of a fault; for storing configuration data; can be used in SIMATIC NET products with PLUG compartment  <b>Power supply PS791-2DC</b> 24 V DC power supply for installation in SCALANCE W786 products; operating instructions in German/English  <b>Power supply PS791-2AC</b> 110 V AC to 230 V AC power supply for installation in the SCALANCE W786 products; operating instructions in German/English
<b>SCALANCE W786-2 RJ45</b> IWLAN access points with two integrated wireless interfaces and RJ45 connection <ul style="list-style-type: none"> <li>• Six connections for external antennas               <ul style="list-style-type: none"> <li>- National approvals for operation outside the USA</li> <li>- National approvals for operation within the USA<sup>1)</sup></li> </ul> </li> </ul>	<b>6GK5786-2FC00-0AA0</b>  <b>6GK5786-2FC00-0AB0</b>	<b>MS1 mounting set</b> Mounting set for fixing SCALANCE W786 products to an S7-300 mounting rail or a 35 mm standard DIN rail  <b>IE FC RJ45 Plug 4 x 2</b> RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a sturdy metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>
<b>SCALANCE W786-2IA RJ45</b> IWLAN access points with two integrated wireless interfaces and RJ45 connection <ul style="list-style-type: none"> <li>• Six internal antennas               <ul style="list-style-type: none"> <li>- National approvals for operation outside the USA</li> <li>- National approvals for operation within the USA<sup>1)</sup></li> </ul> </li> </ul>	<b>6GK5786-2HC00-0AA0</b>  <b>6GK5786-2HC00-0AB0</b>	<b>IE FC Standard Cable GP 4 x 2</b> 8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4 x 2 and IE M12 Plug PRO 4 x 2; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m
<b>Accessories</b> <b>KEY-PLUG W780 iFeatures</b> Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs and for storage of configuration data; Can be used in SCALANCE W access points with PLUG compartment	<b>6GK5907-8PA00</b>	<b>6GK1901-1BB11-2AA0</b> <b>6GK1901-1BB11-2AB0</b> <b>6GK1901-1BB11-2AE0</b>  <b>IE FC Stripping Tool</b> Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables  <b>Antennas and miscellaneous IWLAN accessories</b>
		<b>6XV1878-2A</b>  <b>6GK1901-1GA00</b>  See Industrial Wireless LAN/ accessories

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

### More information

#### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version: <http://www.siemens.com/snst>
- Offline version: <http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

#### Wireless approvals:

Current approvals can be found on the Internet at: <http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

### SCALANCE W786 SFP for outdoor use

#### Overview



- Particularly well-suited to applications with demanding climatic requirements when installed outdoors and in areas accessible to the public

#### Design

##### Product versions

##### *SCALANCE W786-2 SFP*

- Two wireless cards permanently installed in the device; functional scope can be expanded by using a KEY-PLUG W780 iFeatures



# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

**SCALANCE W786 SFP for outdoor use**

Ordering data	Article No.
<b>SCALANCE W786 access points</b>	
IWLAN access points with built-in wireless interfaces; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 450 Mbit/s; WPA2/AES; Power over Ethernet (PoE), IP65 degree of protection (-40 °C to +60 °C); scope of delivery: Mounting hardware, 2-pin screw terminal for 24 V DC; manual on CD-ROM; German/English	
<b>SCALANCE W786-2 SFP</b>	
IWLAN access points with two integrated wireless interfaces and RJ45 connection	
<ul style="list-style-type: none"> <li>Six external antennas               <ul style="list-style-type: none"> <li>National approvals for operation outside the USA</li> <li>National approvals for operation within the USA<sup>1)</sup></li> </ul> </li> </ul>	<b>6GK5786-2FE00-0AA0</b>  <b>6GK5786-2FE00-0AB0</b>
<b>Accessories</b>	
<b>KEY-PLUG W780 iFeatures</b>	
Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs and for storage of configuration data; Can be used in SCALANCE W access points with PLUG compartment	<b>6GK5907-8PA00</b>
<b>C-PLUG</b>	
Swap medium for simple replacement of devices in the event of a fault; for storing configuration data; can be used in SIMATIC NET products with PLUG compartment	<b>6GK1900-0AB00</b>
<b>Power Supply PS791-2DC</b>	
24 V DC power supply for installation in SCALANCE W786 products; operating instructions in German/English	<b>6GK5791-2DC00-0AA0</b>
<b>Power Supply PS791-2AC</b>	
110 V AC to 230 V AC power supply for installation in the SCALANCE W786 products; operating instructions in German/English	<b>6GK5791-2AC00-0AA0</b>
<b>MS1 mounting set</b>	
Mounting set for fixing SCALANCE W786 products onto an S7-300 mounting rail or a 35 mm standard DIN rail	<b>6GK5798-8MG00-0AA0</b>
<b>Antennas and miscellaneous IWLAN accessories</b>	See Industrial Wireless LAN/ accessories
<b>SFP plug-in transceiver</b>	
<b>SFP992-1</b>	
Gigabit, multimode, 750 m	<b>6GK5992-1AL00-8AA0</b>
<b>SFP992-1LD</b>	
Gigabit, singlemode, 10 km	<b>6GK5992-1AM00-8AA0</b>
<b>SFP992-1LH</b>	
Gigabit, singlemode, 40 km	<b>6GK5992-1AN00-8AA0</b>
<b>SFP992-1LH+</b>	
Gigabit, singlemode, 70 km	<b>6GK5992-1AP00-8AA0</b>
<b>Fiber-optic cables</b>	Fiber-optic cables see Glass fiber-optic cables

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

### More information

#### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version: <http://www.siemens.com/snst>
- Offline version: <http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

#### Wireless approvals:

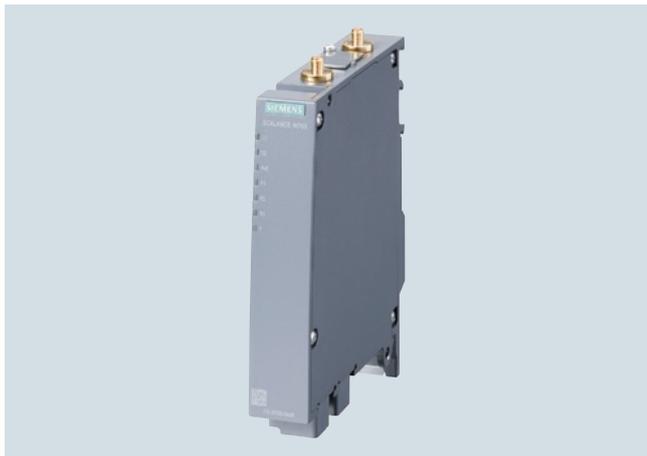
Current approvals can be found on the Internet at: <http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

### SCALANCE W774 RJ45 for use in control cabinet

#### Overview



- Access points in SIMATIC design suitable for applications where the device is to be mounted in the control cabinet

#### Design

##### **Product versions**

##### **SCALANCE W774-1 RJ45**

- A radio card is permanently installed; functional scope can be expanded by using a KEY-PLUG W780 iFeatures

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

### SCALANCE W774 RJ45 for use in control cabinet

Ordering data	Article No.
<b>SCALANCE W774 access points</b>	
IWLAN access points with built-in wireless interface for establishing wireless connections with iFeatures; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 300 Mbit/s; WPA2/AES; integrated 2-port switch; Power over Ethernet (PoE), IP30 degree of protection (-20 °C to +60 °C); scope of delivery: Mounting hardware, 4-pin screw terminal for 24V DC; manual on CD-ROM; German/English	
<b>SCALANCE W774-1 RJ45</b>	
IWLAN Access Point with <u>one</u> built-in wireless interface	
<ul style="list-style-type: none"> <li>National approvals for operation outside the USA</li> </ul>	<b>6GK5774-1FX00-0AA0</b>
<ul style="list-style-type: none"> <li>National approvals for operation within the USA<sup>1)</sup></li> </ul>	<b>6GK5774-1FX00-0AB0</b>
<b>Accessories</b>	
<b>KEY-PLUG W780 iFeatures</b>	
Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs and for storage of configuration data; can be used in SCALANCE W access points with PLUG compartment	<b>6GK5907-8PA00</b>
<b>C-PLUG</b>	
Swap medium for simple replacement of devices if a fault occurs; for storing configuration data; can be used in SIMATIC NET products with PLUG compartment	<b>6GK1900-0AB00</b>
<b>IE FC RJ45 Plug 180 2 x 2</b>	
RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation-displacement contacts for connecting Industrial Ethernet FC installation cables; with a 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
<ul style="list-style-type: none"> <li>1 pack = 1 unit</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul>	<b>6GK1901-1BB10-2AA0</b> <b>6GK1901-1BB10-2AB0</b> <b>6GK1901-1BB10-2AE0</b>
<b>IE FC Standard Cable GP 2 x 2</b>	
4-core, shielded TP installation cable for connection to IE FC outlet RJ45 plug / IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m	<b>6XV1840-2AH10</b>
<b>IE FC Stripping Tool</b>	
Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables	<b>6GK1901-1GA00</b>
<b>Antennas and miscellaneous IWLAN accessories</b>	See Industrial Wireless LAN/ accessories

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

### More information

#### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

#### Wireless approvals:

Current approvals can be found on the Internet at:  
<http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – Access Points IEEE 802.11n

### SCALANCE W761 RJ45 for the control cabinet

#### Overview



- Low-cost access points suitable for applications where the device is to be mounted in the control cabinet

#### Design

##### Product versions

##### SCALANCE W761-1 RJ45

- A radio card is permanently installed;

#### Ordering data

#### Article No.

##### SCALANCE W761 access points

IWLAN access points with built-in wireless interface;  
 wireless networks IEEE 802.11a/b/g/h/n at 2,4/5 GHz up to 150 Mbit/s; WPA2/AES; IP20 degree of protection (0 °C to +55 °C);  
 scope of delivery: Mounting hardware, 3-pin screw terminal for DC 24V DC; manual on CD-ROM; German/English

##### SCALANCE W761-1 RJ45

IWLAN Access Point with one built-in wireless interface

- National approvals for operation outside the USA
- National approvals for operation within the USA<sup>1)</sup>

**6GK5761-1FC00-0AA0**

**6GK5761-1FC00-0AB0**

##### Accessories

##### IE FC RJ45 Plug 180 2 x 2

RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation-displacement contacts for connecting Industrial Ethernet FC installation cables; with a 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB10-2AA0**

**6GK1901-1BB10-2AB0**

**6GK1901-1BB10-2AE0**

##### IE FC Standard Cable GP 2 x 2

4-core, shielded TP installation cable for connection to IE FC outlet RJ45 plug / IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m

**6XV1840-2AH10**

##### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

**6GK1901-1GA00**

##### Antennas and miscellaneous IWLAN accessories

See Industrial Wireless LAN/ accessories

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

#### More information

##### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version: <http://www.siemens.com/snst>
- Offline version: <http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

##### Wireless approvals:

Current approvals can be found on the Internet at: <http://www.siemens.com/wireless-approvals>

### Overview



The network infrastructures in the industrial and office areas are coming ever-closer together. This applies also in the area of wireless communication, causing a constant increase in the number of access points and WLAN clients to be managed. If such networks are established with a large number of stand-alone access points, with each one having to be configured separately, this results in huge costs for initial configuration and operation.

Central wireless LAN controllers enable low-cost, user-friendly and secure operation of large WLAN infrastructures here. Management of the WLAN clients connected to such WLANs is significantly simplified thanks to their division into user groups with different security policies.

The SCALANCE WLC711 IWLAN Controller is a device for centralized management (configuration, diagnostics, firmware updates, access control, security settings, coordination) of a wireless LAN in the industrial environment.

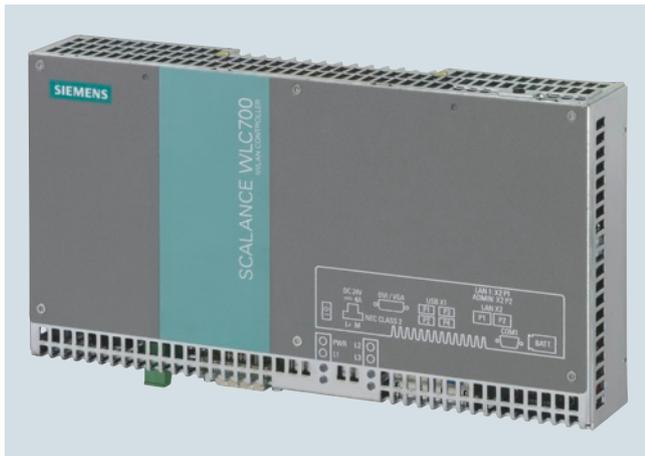
- Fast establishment of a new WLAN or expansion of an existing WLAN with the help of the SCALANCE W786C and SCALANCE W788C controller-based access points
- Parallel operation of different services (e.g. communication between programmable controllers, Internet access, Voice-over-IP telephony and video transmission) on the same controller-based WLAN infrastructure
- Seamless transition between production WLAN and corporate WLAN
- Simplified commissioning as well as increased reliability and security thanks to the central management functions of the IWLAN controller in comparison to a WLAN comprising stand-alone access points that have to be configured individually

# Industrial Wireless Communication

## IWLAN – Controller and Controller Access Points IEEE 802.11n

### SCALANCE WLC711 industrial wireless LAN controller

#### Overview



- Support for up to 48 access points in standard operation
- Support for up to 96 access points in redundant mode with two IWLAN controllers
- Supplied with license for 16 access points; expandable with license for 48 access points in standard mode
- Simultaneous support for up to 512 WLAN clients
- Support for up to 8 VNS segments
- Automatic detection of new access points
- Support for the SCALANCE W780C controller-based access points (IEEE 802.11a/b/g/n)

#### Design

##### Product versions

##### SCALANCE WLC711 IWLAN controller

- IWLAN controller licensed for the connection of up to 16 SCALANCE W780C controller-based access points

##### License key WLC-700

- Capacity upgrade for SCALANCE WLC711 for supporting up to 16 SCALANCE W780C controller-based access points for a total of up to 48 controller-based access points.

#### Ordering data

#### Article No.

##### SCALANCE WLC711 IWLAN controller

IWLAN controller licensed for the connection of up to 16 SCALANCE W78x0C controller-based access points

- National approvals for operation outside North America, Canada, and Japan (RoW)
- National approvals for operation in North America, including Canada (NAM)<sup>1)</sup>
- National approvals for operation in Japan (JP)<sup>1)</sup>

6GK5711-0XC00-1AA0

6GK5711-0XC00-1AB0

6GK5711-0XC00-1AD0

##### License key WLC700

Capacity upgrade for SCALANCE WLC711 for support of up to 48 SCALANCE W78x0C controller-based access points

6GK5907-1SB00

##### Accessories

##### IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 connectors

- 0,5 m
- 1 m
- 2 m
- 6 m
- 10 m

6XV1870-3QE50

6XV1870-3QH10

6XV1870-3QH20

6XV1870-3QH60

6XV1870-3QN10

##### LOGO!Power 24 V/ 4 A

Stabilized power supply; Input: 100 ... 240 V AC; output: 24 V DC/4 A

6EP1332-1SH52

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

#### More information

##### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version: <http://www.siemens.com/snst>
- Offline version: <http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

##### Wireless approvals:

Current approvals can be found on the Internet at: <http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – Controller and Controller Access Points IEEE 802.11n

SCALANCE W788C RJ45 controller access points  
for use in control cabinet

### Overview



- SCALANCE W788C-2 RJ45 controller-based access points can only be operated on the SCALANCE WLC711 IWLAN Controller
- Suitable for applications where the access point is to be mounted in the control cabinet

### Design

#### Product versions

##### *SCALANCE W788C-2 RJ45 (controller-based)*

- Two wireless cards permanently installed in the device

# Industrial Wireless Communication

## IWLAN – Controller and Controller Access Points IEEE 802.11n

### SCALANCE W788C RJ45 controller access points for use in control cabinet

#### Ordering data

#### Article No.

##### *SCALANCE W788C RJ45 Controller access points*

IWLAN access points for operating with the SCALANCE WLC IWLAN Controller; with two built-in wireless interfaces; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 450 Mbit/s; WPA2/AES; Power over Ethernet (PoE), IP30 degree of protection (-20 °C to +60 °C); scope of delivery: Mounting hardware; manual on CD-ROM, German/English

- SCALANCE W788C-2 RJ45 with R-SMA female connections for six external antennas

**6GK5788-2FC00-1AA0**

##### *Accessories*

##### **DIN rail mounting adapter**

DIN rail mounting adapter for SCALANCE W788 M12 and SCALANCE W788 RJ45; screw fixing for mounting on a 35 mm DIN rail to EN 50 022; scope of supply: 3 units per pack

**6GK5798-8ML00-0AB3**

##### **IE FC RJ45 Plug 4 x 2**

RJ45 plug connector for Industrial Ethernet (10/100/1 000 Mbit/s) with a sturdy metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB11-2AA0**  
**6GK1901-1BB11-2AB0**  
**6GK1901-1BB11-2AE0**

##### **IE FC Standard Cable GP 4 x 2**

**6XV1878-2A**

8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4 x 2 and IE M12 Plug PRO 4 x 2; PROFINET-compatible; with UL approval; sold by the meter; max. length 1 000 m, minimum order quantity 20 m

##### **IE FC Stripping Tool**

**6GK1901-1GA00**

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

##### *Antennas and miscellaneous IWLAN accessories*

See Industrial Wireless LAN/ accessories

#### More information

##### **Selection Tools:**

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

##### **Wireless approvals:**

Current approvals can be found on the Internet at:  
<http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – Controller and Controller Access Points IEEE 802.11n

SCALANCE W788C M12 controller access points  
for indoor use

### Overview



- SCALANCE W788C-2 M12 controller-based access points can only be operated on the SCALANCE WLC IWLAN Controller
- particularly suitable for industrial applications without control cabinets

### Design

#### Product versions

##### *SCALANCE W788C-2 M12 (controller-based)*

- Two wireless cards permanently installed in the device

# Industrial Wireless Communication

## IWLAN – Controller and Controller Access Points IEEE 802.11n

### SCALANCE W788C M12 controller access points for indoor use

Ordering data	Article No.	More information
<p><b>SCALANCE W788C M12</b> <i>Controller access points</i></p> <p>IWLAN access points for operating with the SCALANCE WLC IWLAN Controller; with two built-in wireless interfaces; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 450 Mbit/s; WPA2/AES; Power over Ethernet (PoE), IP65 degree of protection (-20 °C to +60 °C); scope of delivery: Mounting hardware; manual on CD-ROM, German/English</p> <ul style="list-style-type: none"> <li>SCALANCE W788C-2 M12 with N-Connect female connections for six external antennas</li> </ul>	<p><b>6GK5788-2GD00-1AA0</b></p>	<p><b>Selection Tools:</b></p> <p>The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:</p> <p>SIMATIC NET Selection Tool:</p> <ul style="list-style-type: none"> <li>Online version: <a href="http://www.siemens.com/snst">http://www.siemens.com/snst</a></li> <li>Offline version: <a href="http://www.siemens.com/snst-download">http://www.siemens.com/snst-download</a></li> </ul> <p>TIA Selection Tool: <a href="http://www.siemens.com/tia-selection-tool">http://www.siemens.com/tia-selection-tool</a></p> <p><b>Wireless approvals:</b></p> <p>Current approvals can be found on the Internet at: <a href="http://www.siemens.com/wireless-approvals">http://www.siemens.com/wireless-approvals</a></p>
<p><b>Accessories</b></p> <p><b>IE FC M12 Plug PRO 4 x 2</b></p> <p>M12 plug-in connector suitable for on-site assembly (X-coded, IP65/IP67), metal enclosure, insulation/displacement fast connection method, for SCALANCE W</p> <ul style="list-style-type: none"> <li>1 unit</li> <li>8 units</li> </ul>	<p><b>6GK1901-0DB30-6AA0</b> <b>6GK1901-0DB30-6AA8</b></p>	
<p><b>DIN rail mounting adapter</b></p> <p>DIN rail mounting adapter for SCALANCE W788 M12 and SCALANCE W788 RJ45; screw fixing for mounting on a 35 mm DIN rail to EN 50 022; scope of supply: 3 units per pack</p>	<p><b>6GK5798-8ML00-0AB3</b></p>	
<p><b>IE FC Standard Cable GP 4 x 2</b></p> <p>8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4 x 2 and IE M12 Plug PRO 4 x 2; PROFINET-compatible; with UL approval; sold by the meter; max. length 1 000 m, minimum order quantity 20 m</p>	<p><b>6XV1878-2A</b></p>	
<p><b>IE FC Flexible Cable GP 4 x 2</b></p> <p>8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4 x 2 and IE M12 Plug PRO 4 x 2 for occasional movement; PROFINET-compliant; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m</p>	<p><b>6XV1878-2B</b></p>	
<p><b>IE FC Stripping Tool</b></p> <p>Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables</p>	<p><b>6GK1901-1GA00</b></p>	
<p><b>Power M12 Cable Connector PRO</b></p> <p>Terminal socket for connection of SCALANCE W700 for 24 V DC supply voltage; 4-pole, A-coded, with assembly instructions, 3 units</p>	<p><b>6GK1907-0DC10-6AA3</b></p>	
<p><b>Power Cable 2 x 0,75</b></p> <p>Connecting cable for Power M12 Cable Connector PRO, sold by the meter</p>	<p><b>6XV1812-8A</b></p>	
<p><b>Antennas and miscellaneous IWLAN accessories</b></p>	<p>See Industrial Wireless LAN/ accessories</p>	

# Industrial Wireless Communication

## IWLAN – Controller and Controller Access Points IEEE 802.11n

**SCALANCE W788C M12 EEC**  
for enhanced environmental conditions

### Overview



- SCALANCE W788C-2 M12 EEC controller-based access points can only be operated on the SCALANCE WLC711 IWLAN Controller
- Suitable for use in the industry and automation area, but especially in the railroad environment

### Design

#### Product versions

##### *SCALANCE W788C-2 M12 EEC (controller-based)*

- Two wireless cards permanently installed in the device; six connections for external antennas

# Industrial Wireless Communication

## IWLAN – Controller and Controller Access Points IEEE 802.11n

### SCALANCE W788C M12 EEC for enhanced environmental conditions

Ordering data	Article No.	More information
<p><b>SCALANCE W788C M12 EEC</b> <i>Controller access points</i></p> <p>IWLAN access points for operating with the SCALANCE WLC IWLAN Controller; with two built-in wireless interfaces; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 450 Mbit/s; railway approval in accordance with EN 50155; conformal coating; WPA2/AES; Power over Ethernet (PoE); IP65 degree of protection; scope of delivery: Mounting hardware; manual on CD-ROM, German/English</p> <ul style="list-style-type: none"> <li>• <b>SCALANCE W788C-2 M12 EEC</b> with N-Connect female connections for six external antennas</li> </ul>	<p><b>6GK5788-2GD00-1TA0</b></p>	<p><b>Selection Tools:</b></p> <p>The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:</p> <p>SIMATIC NET Selection Tool:</p> <ul style="list-style-type: none"> <li>• Online version: <a href="http://www.siemens.com/snst">http://www.siemens.com/snst</a></li> <li>• Offline version: <a href="http://www.siemens.com/snst-download">http://www.siemens.com/snst-download</a></li> </ul> <p>TIA Selection Tool: <a href="http://www.siemens.com/tia-selection-tool">http://www.siemens.com/tia-selection-tool</a></p> <p><b>Wireless approvals:</b></p> <p>Current approvals can be found on the Internet at: <a href="http://www.siemens.com/wireless-approvals">http://www.siemens.com/wireless-approvals</a></p>
<p><i>Accessories</i></p>		
<p><b>IE FC M12 Plug PRO 4 x 2</b></p> <p>M12 plug-in connector suitable for on-site assembly (X-coded, IP65/IP67), metal enclosure, insulation/displacement fast connection method, for SCALANCE W</p> <ul style="list-style-type: none"> <li>• 1 unit</li> <li>• 2 units</li> </ul>	<p><b>6GK1901-0DB30-6AA0</b> <b>6GK1901-0DB30-6AA8</b></p>	
<p><b>DIN rail mounting adapter</b></p> <p>DIN rail mounting adapter for SCALANCE W788 M12 and SCALANCE W788 RJ45; screw fixing for mounting on a 35 mm DIN rail to EN 50 022; scope of supply: 3 units per pack</p>	<p><b>6GK5798-8ML00-0AB3</b></p>	
<p><b>IE FC Standard Cable GP 4 x 2</b></p> <p>8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4 x 2 and IE M12 Plug PRO 4 x 2; PROFINET-compatible; with UL approval; sold by the meter; max. length 1 000 m, minimum order quantity 20 m</p>	<p><b>6XV1878-2A</b></p>	
<p><b>IE FC Flexible Cable GP 4 x 2</b></p> <p>8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4 x 2 and IE M12 Plug PRO 4 x 2 for occasional movement; PROFINET-compliant; with UL approval; sold by the meter; max. length 1 000 m, minimum order 20 m</p>	<p><b>6XV1878-2B</b></p>	
<p><b>IE FC Stripping Tool</b></p> <p>Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables</p>	<p><b>6GK1901-1GA00</b></p>	
<p><b>Power M12 Cable Connector PRO</b></p> <p>Terminal socket for connection of SCALANCE W700 for 24 V DC supply voltage; 4-pole, A-coded, with assembly instructions, 3 units</p>	<p><b>6GK1907-0DC10-6AA3</b></p>	
<p><b>Power Cable 2 x 0,75</b></p> <p>Connecting cable for Power M12 Cable Connector PRO, sold by the meter</p>	<p><b>6XV1812-8A</b></p>	
<p><i>Antennas and miscellaneous IWLAN accessories</i></p>	<p>See Industrial Wireless LAN/ accessories</p>	

# Industrial Wireless Communication

## IWLAN – Controller and Controller Access Points IEEE 802.11n

SCALANCE W786C RJ45 controller access points  
for outdoor use

### Overview



- SCALANCE W786C-2 controller-based access points can only be operated on the SCALANCE WLC IWLAN Controller
- Particularly well-suited to applications with demanding climatic requirements when installed outdoors and in areas accessible to the public

### Design

#### Product versions

##### *SCALANCE W786C-2 RJ45 (controller-based)*

- Two wireless cards permanently installed in the device; six connections for external antennas

##### *SCALANCE W786C-2IA RJ45 (controller-based)*

- Two wireless cards permanently installed in the device; six internal antennas

# Industrial Wireless Communication

## IWLAN – Controller and Controller Access Points IEEE 802.11n

### SCALANCE W786C RJ45 controller access points for outdoor use

#### Ordering data

#### Article No.

##### SCALANCE W786C

##### Controller access points

IWLAN access points for operating with the SCALANCE WLC IWLAN Controller; with two built-in wireless interfaces; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 450 Mbit/s; WPA2/AES; Power over Ethernet (PoE), IP65 degree of protection (-40 °C to +60 °C); scope of delivery: Mounting hardware, 2-pin screw terminal for 24 V DC; manual on CD-ROM; German/English

- |   |                           |
|---|---------------------------|
| • <b>SCALANCE W786C-2IA RJ45</b><br>with six internal antennas                            | <b>6GK5786-2HC00-1AA0</b> |
| • <b>SCALANCE W786C-2 RJ45</b><br>with R-SMA female connections for six external antennas | <b>6GK5786-2FC00-1AA0</b> |

##### Accessories

##### Power Supply PS791-2DC

12 to 24 V DC power supply for installation in SCALANCE W786C-2 products; operating instructions in German/English

**6GK5791-2DC00-0AA0**

##### Power Supply PS791-2AC

110 to 230 V DC power supply for installation in SCALANCE W786C-2 products; operating instructions in German/English

**6GK5791-2AC00-0AA0**

##### MS1 mounting set

Mounting set for fixing the SCALANCE W786C-2 products onto an S7-300 mounting rail or a 35 mm standard mounting rail

**6GK5798-8MG00-0AA0**

##### IE FC RJ45 Plug 4 x 2

RJ45 plug connector for Industrial Ethernet (10/100/1000 Mbit/s) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface

- |                     |                           |
|---------------------|---------------------------|
| • 1 pack = 1 unit   | <b>6GK1901-1BB11-2AA0</b> |
| • 1 pack = 10 units | <b>6GK1901-1BB11-2AB0</b> |
| • 1 pack = 50 units | <b>6GK1901-1BB11-2AE0</b> |

##### IE FC Standard Cable GP 4 x 2

8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4 x 2 and IE M12 Plug PRO 4 x 2; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m

**6XV1878-2A**

##### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

**6GK1901-1GA00**

##### Antennas and miscellaneous IWLAN accessories

See Industrial Wireless LAN/ accessories

#### More information

##### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

##### Wireless approvals:

Current approvals can be found on the Internet at:  
<http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – Controller and Controller Access Points IEEE 802.11n

SCALANCE W786C SFP controller access points  
for outdoor use

### Overview



- SCALANCE W786C-2 SFP controller-based access points can only be operated on the SCALANCE WLC711 IWLAN Controller
- Particularly well-suited to applications with demanding climatic requirements when installed outdoors and in areas accessible to the public

### Design

#### Product versions

##### *SCALANCE W786C-2 SFP (controller-based)*

- Two wireless cards permanently installed in the device; six connections for external antennas

# Industrial Wireless Communication

## IWLAN – Controller and Controller Access Points IEEE 802.11n

### SCALANCE W786C SFP controller access points for outdoor use

#### Ordering data

#### Article No.

##### *SCALANCE W786C-2 SFP Controller access points*

IWLAN access points for operating with the SCALANCE WLC IWLAN Controller; with two built-in wireless interfaces and one integral 2-port switch (SFP slots); wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 450 Mbit/s; WPA2/AES; IP65 degree of protection (-40 °C to +60 °C); scope of delivery: Mounting hardware, 2-pin screw terminal for 24 V DC; manual on CD-ROM; German/English

- **SCALANCE W786C-2 SFP** with six internal antennas

**6GK5786-2FE00-1AA0**

##### *Accessories*

##### **Power supply PS791-2DC**

12 to 24 V DC power supply for installation in SCALANCE W786C-2 products; operating instructions in German/English

**6GK5791-2DC00-0AA0**

##### **Power supply PS791-2AC**

110 to 230 V DC power supply for installation in SCALANCE W786C-2 products; operating instructions in German/English

**6GK5791-2AC00-0AA0**

##### **MS1 mounting set**

Mounting set for fixing the SCALANCE W786C-2 products onto an S7-300 mounting rail or a 35 mm standard mounting rail

**6GK5798-8MG00-0AA0**

##### *Antennas and miscellaneous IWLAN accessories*

See Industrial Wireless LAN/ accessories

##### *SFP plug-in transceiver*

##### **SFP992-1**

Gigabit, multimode, 750 m

**6GK5992-1AL00-8AA0**

##### **SFP992-1LD**

Gigabit, singlemode, 10 km

**6GK5992-1AM00-8AA0**

##### **SFP992-1LH**

Gigabit, singlemode, 40 km

**6GK5992-1AN00-8AA0**

##### **SFP992-1LH+**

Gigabit, singlemode, 70 km

**6GK5992-1AP00-8AA0**

##### *Fiber-optic cables*

See glass fiber-optic cables

#### More information

##### **Selection Tools:**

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

##### **Wireless approvals:**

Current approvals can be found on the Internet at:  
<http://www.siemens.com/wireless-approvals>

### Overview



The client modules from the SCALANCE W700 product lines are optimal for integrating Industrial Ethernet stations into Industrial Wireless LANs (IWLANs) for 2.4 GHz and 5 GHz.

- High data rates (up to 450 Mbit/s in connection with Channel Bonding) as per IEEE802.11n
- Reliable wireless link by using of MIMO technology (Multiple Input, Multiple Output). For this, SCALANCE W Client Modules use up to three streams for simultaneous sending and receiving.
- SCALANCE W700 Client Modules are suitable for any application: for installation indoors without a control cabinet and for installation in a control cabinet
- Reliable thanks to a rugged enclosure, protected from water and dust (up to IP65), resistant to shock, vibration and electromagnetic fields
- Demanding applications with real-time and redundancy requirements, such as PROFINET with PROFIsafe
- Conformant to standards through supporting IEEE802.11; expanded software functions especially for use with increased reliability, e.g. Dual Client, cyclic real-time data traffic, and very high-speed roaming (iPCF, iPCF MC)
- Configuration support by means of wizards and online help; easy management via Web server and SNMP
- Configuration and diagnostics using Web based Management, Command Line Interface, and SNMP. Devices and networks can be configured using STEP 7 (TIA Portal). For cyclic monitoring, diagnostics and documentation (reporting) in network mode, the SINEMA Server software is recommended.
- Enabling of further functions using the KEY-PLUG swap medium (iPCF, iPCF MC, Dual Client)
- Fast replacement of devices if a fault occurs thanks to use of optional KEY-PLUG/C-PLUG (Configuration Plug) swap medium

# Industrial Wireless Communication

## IWLAN – IEEE 802.11n client modules

### SCALANCE W748 RJ45 for use in control cabinet

#### Overview



- Suitable for applications where the client module is to be mounted in the control cabinet

#### Design

##### Product versions

##### SCALANCE W748-1 RJ45

- One wireless card permanently installed in the device; functional scope can be expanded by using a KEY-PLUG W780 iFeatures

# Industrial Wireless Communication

## IWLAN – IEEE 802.11n client modules

### SCALANCE W748 RJ45 for use in control cabinet

Ordering data	Article No.	Article No.
<b>SCALANCE W748 client modules</b> IWLAN Ethernet client modules with built-in wireless interface; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 450 Mbps; WPA2/AES; Power over Ethernet (PoE), IP30 degree of protection (-20 °C to +60 °C); scope of supply: Mounting hardware, 4-pin screw terminal for 24 V DC; 4-pin screw terminal for digital input and output; manual on CD-ROM; German/English <b>SCALANCE W748-1 RJ45</b> For managing the wireless connection of up to eight linked devices with Industrial Ethernet connection; degree of protection IP30 <ul style="list-style-type: none"> <li>National approvals for operation outside the USA</li> <li>National approvals for operation within the USA<sup>1)</sup></li> </ul>		
	<b>6GK5748-1FC00-0AA0</b>	
	<b>6GK5748-1FC00-0AB0</b>	
		<b>Accessories</b> <b>KEY-PLUG W740 iFeatures</b> Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs and for storage of configuration data; Can be used in SCALANCE W client modules with PLUG compartment <b>6GK5907-4PA00</b>
		<b>C-PLUG</b> Swap medium for simple replacement of devices if a fault occurs; for storing configuration data; can be used in SIMATIC NET products with PLUG compartment <b>6GK1900-0AB00</b>
		<b>DIN rail mounting adapter</b> DIN rail mounting adapter for SCALANCE W788 M12 and SCALANCE W788 RJ45; screw fixing for mounting on a 35 mm DIN rail to EN 50 022; scope of supply: 3 units per pack <b>6GK5798-8ML00-0AB3</b>
		<b>IE FC RJ45 Plug 4 x 2</b> RJ45 plug-in connector for Industrial Ethernet (10/100/1000 Mbps) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface <ul style="list-style-type: none"> <li>1 pack = 1 unit</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul> <b>6GK1901-1BB11-2AA0</b> <b>6GK1901-1BB11-2AB0</b> <b>6GK1901-1BB11-2AE0</b>
		<b>IE FC Standard Cable GP 4 x 2</b> 8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4 x 2 and IE M12 Plug PRO 4 x 2; PROFINET-compliant; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m <b>6XV1878-2A</b>
		<b>IE FC Stripping Tool</b> Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables <b>6GK1901-1GA00</b>
		<b>Antennas and miscellaneous IWLAN accessories</b> See Industrial Wireless LAN/ accessories

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

#### More information

##### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version: <http://www.siemens.com/snst>
- Offline version: <http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

##### Wireless approvals:

Current approvals can be found on the Internet at: <http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – IEEE 802.11n client modules

SCALANCE W748 M12 for indoor use

### Overview



- Particularly suitable for industrial applications without control cabinets

### Design

#### Product versions

##### SCALANCE W748-1 M12

- One wireless card permanently installed in the device; functional scope can be expanded by using a KEY-PLUG W780 iFeatures

# Industrial Wireless Communication

## IWLAN – IEEE 802.11n client modules

**SCALANCE W748 M12 for indoor use**

Ordering data	Article No.	Article No.
<b>SCALANCE W748 client modules</b>		
<p>IWLAN Ethernet client modules with built-in wireless interface; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 450 Mbps; WPA2/AES; Power over Ethernet (PoE), IP65 degree of protection (-20 °C to +60 °C); scope of supply: Mounting hardware; manual on CD-ROM, German/English</p> <p><b>SCALANCE W748-1 M12</b></p> <p>For managing the wireless connection of up to eight linked devices with Industrial Ethernet connection</p> <ul style="list-style-type: none"> <li>National approvals for operation outside the USA</li> <li>National approvals for operation within the USA<sup>1)</sup></li> </ul>		<p><b>DIN rail mounting adapter</b></p> <p>DIN rail mounting adapter for SCALANCE W788 M12 and SCALANCE W788 RJ45; screw fixing for mounting on a 35 mm DIN rail to EN 50 022; scope of supply: 3 units per pack</p> <p><b>IE FC M12 Plug PRO 4 x 2</b></p> <p>M12 plug-in connector suitable for on-site assembly (X-coded, IP65/IP67), metal enclosure, insulation displacement fast connection method, for SCALANCE W</p> <ul style="list-style-type: none"> <li>1 unit</li> <li>8 units</li> </ul> <p><b>IE FC Standard Cable GP 4 x 2</b></p> <p>8-core, shielded TP installation cable for connection to IE FC RJ45 Plug 4 x 2 and IE M12 Plug PRO 4 x 2; PROFINET-compliant; with UL approval; sold by the meter; max. length 1 000 m, minimum order quantity 20 m</p> <p><b>IE FC Stripping Tool</b></p> <p>Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables</p> <p><b>Power M12 Cable Connector PRO</b></p> <p>Terminal socket for connection of SCALANCE W700 for 24 V DC supply voltage; 4-pole, A-coded, with assembly instructions, 3 units</p> <p><b>Power Cable 2 x 0,75</b></p> <p>Connecting cable for Power M12 Cable Connector PRO, sold by the meter</p> <p><b>Antennas and miscellaneous IWLAN accessories</b></p>
	<b>6GK5748-1GD00-0AA0</b>	<b>6GK5798-8ML00-0AB3</b>
	<b>6GK5748-1GD00-0AB0</b>	<b>6GK1901-0DB30-6AA0</b> <b>6GK1901-0DB30-6AA8</b>
		<b>6XV1878-2A</b>
<b>Accessories</b>		
<p><b>KEY-PLUG W740 iFeatures</b></p> <p>Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs and for storage of configuration data; Can be used in SCALANCE W client modules with PLUG compartment</p>	<b>6GK5907-4PA00</b>	
<p><b>C-PLUG</b></p> <p>Swap medium for simple replacement of devices in the event of a fault; for storing configuration data; can be used in SIMATIC NET products with PLUG compartment</p>	<b>6GK1900-0AB00</b>	

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

### More information

#### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version: <http://www.siemens.com/snst>
- Offline version: <http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

#### Wireless approvals:

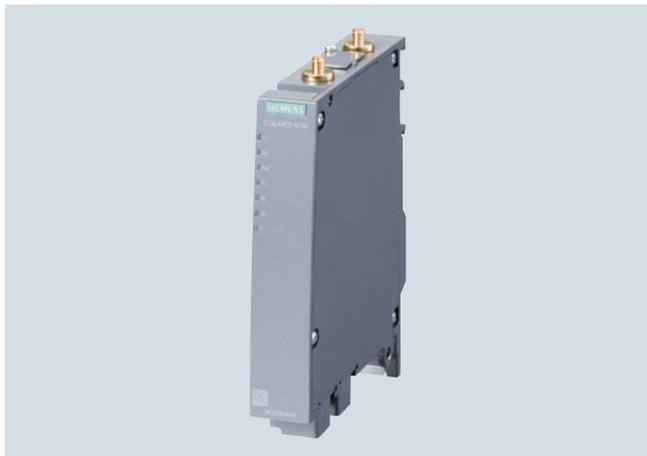
Current approvals can be found on the Internet at: <http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – IEEE 802.11n client modules

### SCALANCE W734 RJ45 for use in control cabinet

#### Overview



- Client modules in SIMATIC design suitable for applications where the device is to be mounted in the control cabinet

#### Design

##### **Product versions**

##### **SCALANCE W734-1 RJ45**

- A radio card is permanently installed; functional scope can be expanded by using a KEY-PLUG W740 iFeatures

# Industrial Wireless Communication

## IWLAN – IEEE 802.11n client modules

### SCALANCE W734 RJ45 for use in control cabinet

Ordering data	Article No.
<b>SCALANCE W734 Client Modules</b>	
IWLAN Ethernet client modules with built-in wireless interface; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 300 Mbit/s; WPA2/AES; integrated 2-port switch; Power over Ethernet (PoE), IP30 degree of protection (-20 °C to +60 °C); scope of delivery: Mounting hardware, 4-pin screw terminal for 24V DC; manual on CD-ROM; German/English	
<b>SCALANCE W734-1 RJ45</b>	
For managing the wireless connection of up to eight linked devices with Industrial Ethernet connection;	
<ul style="list-style-type: none"> <li>National approvals for operation outside the USA</li> <li>National approvals for operation within the USA<sup>1)</sup></li> </ul>	<b>6GK5734-1FX00-0AA0</b>  <b>6GK5734-1FX00-0AB0</b>
<b>Accessories</b>	
<b>KEY-PLUG W740 iFeatures</b>	<b>6GK5907-4PA00</b>
Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs and for storage of configuration data; can be used in SCALANCE W client modules with PLUG compartment	
<b>C-PLUG</b>	<b>6GK1900-0AB00</b>
Swap medium for simple replacement of devices if a fault occurs; for storing configuration data; can be used in SIMATIC NET products with PLUG compartment	
<b>IE FC RJ45 Plug 180 2 x 2</b>	
RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation-displacement contacts for connecting Industrial Ethernet FC installation cables; with a 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
<ul style="list-style-type: none"> <li>1 pack = 1 unit</li> <li>1 pack = 10 units</li> <li>1 pack = 50 units</li> </ul>	<b>6GK1901-1BB10-2AA0</b> <b>6GK1901-1BB10-2AB0</b> <b>6GK1901-1BB10-2AE0</b>
<b>IE FC Standard Cable GP 2 x 2</b>	<b>6XV1840-2AH10</b>
4-core, shielded TP installation cable for connection to IE FC outlet RJ45 plug / IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m	
<b>IE FC Stripping Tool</b>	<b>6GK1901-1GA00</b>
Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables	
<b>Antennas and miscellaneous IWLAN accessories</b>	See Industrial Wireless LAN/ accessories

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

### More information

#### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version: <http://www.siemens.com/snst>
- Offline version: <http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

#### Wireless approvals:

Current approvals can be found on the Internet at: <http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – IEEE 802.11n client modules

### SCALANCE W722 RJ45 for use in control cabinet

#### Overview



- Low-cost Client Module, suitable for applications where the device is to be mounted in the control cabinet
- Equipped with iFeatures

#### Design

##### Product versions

##### *SCALANCE W722-1 RJ45* <sup>1)</sup>

- A wireless card permanently installed in the device; suitable for establishing wireless connections with iFeatures

<sup>1)</sup> Available soon

# Industrial Wireless Communication

## IWLAN – IEEE 802.11n client modules

### SCALANCE W722 RJ45 for use in control cabinet

Ordering data	Article No.	More information
<p><b>SCALANCE W722 Client Modules</b></p> <p>IWLAN Ethernet Client Modules with iFeatures support and built-in wireless interface; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 150 Mbit/s; WPA2/AES; IP20 degree of protection (0 °C to +55 °C); scope of delivery: Mounting hardware, 3-pin screw terminal for 24V DC; manual on CD-ROM; German/English</p>		<p><b>Selection Tools:</b></p> <p>The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:</p> <p>SIMATIC NET Selection Tool:</p> <ul style="list-style-type: none"> <li>• Online version: <a href="http://www.siemens.com/snst">http://www.siemens.com/snst</a></li> <li>• Offline version: <a href="http://www.siemens.com/snst-download">http://www.siemens.com/snst-download</a></li> </ul> <p>TIA Selection Tool: <a href="http://www.siemens.com/tia-selection-tool">http://www.siemens.com/tia-selection-tool</a></p> <p><b>Wireless approvals:</b></p> <p>Current approvals can be found on the Internet at: <a href="http://www.siemens.com/wireless-approvals">http://www.siemens.com/wireless-approvals</a></p>
<p><b>SCALANCE W722-1 RJ45</b></p> <p>For administration of the wireless connection with iFeatures from a connected device with Industrial Ethernet connection</p> <ul style="list-style-type: none"> <li>• National approvals for operation outside the USA</li> <li>• National approvals for operation within the USA<sup>1)</sup></li> </ul>	<p><b>6GK5722-1FC00-0AA0</b></p> <p><b>6GK5722-1FC00-0AB0</b></p>	
<p><b>Accessories</b></p> <p><b>IE FC RJ45 Plug 180 2 x 2</b></p> <p>RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation-displacement contacts for connecting Industrial Ethernet FC installation cables; with a 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	<p><b>6GK1901-1BB10-2AA0</b></p> <p><b>6GK1901-1BB10-2AB0</b></p> <p><b>6GK1901-1BB10-2AE0</b></p>	
<p><b>IE FC Standard Cable GP 2 x 2</b></p> <p>4-core, shielded TP installation cable for connection to IE FC outlet RJ45 plug / IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m</p>	<p><b>6XV1840-2AH10</b></p>	
<p><b>IE FC Stripping Tool</b></p> <p>Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables</p>	<p><b>6GK1901-1GA00</b></p>	
<p><b>Antennas and miscellaneous IWLAN accessories</b></p>	<p>See Industrial Wireless LAN/ accessories</p>	

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN – IEEE 802.11n client modules

### SCALANCE W721 RJ45 for use in control cabinet

#### Overview



- Low-cost Client Module, suitable for applications where the device is to be mounted in the control cabinet

#### Design

##### **Product versions**

##### **SCALANCE W721-1 RJ45**

- A wireless card permanently installed in the device;

# Industrial Wireless Communication

## IWLAN – IEEE 802.11n client modules

### SCALANCE W721 RJ45 for use in control cabinet

Ordering data	Article No.	More information
<p><b>SCALANCE W721 Client Modules</b></p> <p>IWLAN Ethernet Client Modules with built-in wireless interface; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 150 Mbit/s; WPA2/AES; IP20 degree of protection (0 °C to +55 °C); scope of delivery: Mounting hardware, 3-pin screw terminal for 24V DC; manual on CD-ROM; German/English</p>		<p><b>Selection Tools:</b></p> <p>The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:</p> <p>SIMATIC NET Selection Tool:</p> <ul style="list-style-type: none"> <li>• Online version: <a href="http://www.siemens.com/snst">http://www.siemens.com/snst</a></li> <li>• Offline version: <a href="http://www.siemens.com/snst-download">http://www.siemens.com/snst-download</a></li> </ul> <p>TIA Selection Tool:</p> <p><a href="http://www.siemens.com/tia-selection-tool">http://www.siemens.com/tia-selection-tool</a></p>
<p><b>SCALANCE W721-1 RJ45</b></p> <p>For administration of the wireless connection from a connected device with Industrial Ethernet connection</p> <ul style="list-style-type: none"> <li>• National approvals for operation outside the USA</li> <li>• National approvals for operation within the USA<sup>1)</sup></li> </ul>	<p><b>6GK5721-1FC00-0AA0</b></p> <p><b>6GK5721-1FC00-0AB0</b></p>	<p><b>Wireless approvals:</b></p> <p>Current approvals can be found on the Internet at: <a href="http://www.siemens.com/wireless-approvals">http://www.siemens.com/wireless-approvals</a></p>
<p><b>Accessories</b></p> <p><b>IE FC RJ45 Plug 180 2 x 2</b></p> <p>RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation-displacement contacts for connecting Industrial Ethernet FC installation cables; with a 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface</p> <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul> <p><b>IE FC Standard Cable GP 2 x 2</b></p> <p>4-core, shielded TP installation cable for connection to IE FC outlet RJ45 plug / IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m</p> <p><b>IE FC Stripping Tool</b></p> <p>Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables</p>	<p><b>6GK1901-1BB10-2AA0</b></p> <p><b>6GK1901-1BB10-2AB0</b></p> <p><b>6GK1901-1BB10-2AE0</b></p> <p><b>6XV1840-2AH10</b></p> <p><b>6GK1901-1GA00</b></p>	
<p><b>Antennas and miscellaneous IWLAN accessories</b></p>	<p>See Industrial Wireless LAN/ accessories</p>	

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN accessories

### IWLAN antennas

#### Overview



Remote antennas increase the reliability of wireless links by optimizing the receiving and emission of signals.

- Use in Industrial Wireless LAN (IWLAN) and WLAN in accordance with IEEE 802.11 at 2.4 GHz and 5 GHz with transmission rates of up to 450 Mbit/s
- Coordinated range of antennas for the most diverse applications both indoors and outdoors
- Antennas with two (dual-slant) or three (MIMO) connections for increased data throughput and increased reliability of the wireless connection thanks to selective use of multiple path propagation
- Suitable for use in hazardous areas (Zone 2); no special approvals necessary

### IWLAN antennas

#### Design

Type of antenna	Frequency range (GHz)	Antennas	SCALANCE W780/W740	SCALANCE W770/W730	SCALANCE W760/W720
directional	2.4	 ANT792-8DN	●		
	5	 ANT793-8DP	●		
		 ANT793-8DJ	●		
		 ANT793-8DK	●		
RCoax	2.4	 RCoax radiating cables 2.4 GHz	●	●	●
		 ANT792-4DN	●	●	●
	5	 RCoax radiating cables 5 GHz	●	●	●
		 ANT793-4MN	●	●	●

G\_IK10\_XX\_30317

Directional and RCoax antennas

Type of antenna	Frequency range (GHz)	Antennas	SCALANCE W780/W740	SCALANCE W770/W730	SCALANCE W760/W720
omnidirectional	2.4	 ANT792-6MN	●	●	●
	2.4 and 5	 ANT795-4MA	●	●	●
		 ANT795-4MC	●		
		 ANT795-4MD	●		
		 ANT795-6MN	●	●	●
		 ANT795-6MT	●		
	5	 ANT793-6MN	●	●	●
Sector	2.4 and 5	 ANT795-6DC	●	●	
		 ANT793-6DG	●	●	
	5	 ANT793-6DT	●		

G\_IK10\_XX\_30318

Omnidirectional and sector antennas

# Industrial Wireless Communication

## IWLAN accessories

### IWLAN antennas

Ordering data	Article No.	Article No.
<b>Antennas with omnidirectional characteristics;</b>		
National approvals, compact instructions on paper, German/English		
<u>For mounting directly onto SCALANCE W</u>		
Antenna gain incl. connector 3/5 dBi, 2.4/5 GHz;		
<ul style="list-style-type: none"> <li>• <b>ANT795-4MC antenna;</b> IP65 (-20 to +65 °C), straight connection, N-Connect male, scope of delivery: 1 antenna</li> <li>• <b>ANT795-4MD antenna;</b> IP65 (-20 to +65 °C), connection with fixed 90° angle, N-Connect male, scope of delivery: 1 antenna</li> <li>• <b>ANT795-4MA antenna;</b> IP30 (-20 to +65 °C); radial rotation possible with additional joint; R-SMA male Scope of delivery: 1 antenna</li> </ul>	6GK5795-4MC00-0AA3  6GK5795-4MD00-0AA3  6GK5 795-4MA00-0AA3	
<u>Wall or mast mounting</u>		
<ul style="list-style-type: none"> <li>• <b>ANT792-6MN antenna;</b> Antenna gain incl. N-Connect connector 6 dBi, 2.4 GHz; IP65 (-40 to +80°C), with terminating resistor 1 x TI795-1R; incl. mounting hardware</li> <li>• <b>ANT793-6MN antenna;</b> Antenna gain incl. N-Connect connector 5 dBi, 5 GHz; IP65 (-45 to +70 °C), with terminating resistor 1 x TI795-1R; incl. mounting hardware</li> </ul>	6GK5792-6MN00-0AA6  6GK5793-6MN00-0AA6	
<u>For mounting on a roof</u>		
<ul style="list-style-type: none"> <li>• <b>ANT795-6MN antenna;</b> Antenna gain incl. N-Connect connector 6/8 dBi, 2.4/5 GHz; IP65 (-40 to +80 °C), with terminating resistor 1 x TI795-1R</li> <li>• <b>ANT795-6MT antenna;</b> MIMO antenna with 3 QMA sockets, antenna gain 6 dBi, 2.4/5 GHz; (-40 to +85 °C), incl. fixing bracket</li> <li>• <b>Antenna mounting tool (ANT795-6MN);</b> Mounting aid for installing ANT795-6MN below a roof</li> </ul>	6GK5795-6MN10-0AA6  6GK5795-6MT00-0AA0  6GK5795-6MN01-0AA6	
<b>Directional antennas;</b>		
incl. mounting hardware for wall or mast mounting		
<u>Sector antennas</u>		
<ul style="list-style-type: none"> <li>• <b>ANT795-6DC antenna;</b> Antenna gain incl. N-Connect connector 9/9 dBi, 2.4/5 GHz, -40 to +80 °C</li> <li>• <b>ANT793-6DG antenna;</b> Dual-slant; antenna gain incl. two N-Connect connectors 9 dBi, 5 GHz, -40 to +80 °C</li> <li>• <b>ANT793-6DT antenna;</b> MIMO antenna with 3 QMA sockets; antenna gain 9 dBi, 5 GHz, -40 to +85 °C</li> </ul>	6GK5795-6DC00-0AA0  6GK5793-6DG00-0AA0  6GK5793-6DT00-0AA0	
<u>Strongly directional antennas</u>		
<ul style="list-style-type: none"> <li>• <b>ANT793-8DP antenna;</b> Antenna gain 13.5 dBi incl. N-Connect connector, 4.9 GHz, -40 to +85 °C, preferably for use in Japan</li> <li>• <b>ANT792-8DN antenna;</b> Antenna gain incl. N-Connect connector 14 dBi, 2.4 GHz; -40 to +80 °C; with terminating resistor 1 x TI795-1R</li> <li>• <b>ANT793-8DJ antenna;</b> Vertically-horizontally polarized antenna; antenna gain incl. two N-Connect connectors 18 dBi, 5 GHz; -45 to +70 °C</li> <li>• <b>ANT793-8DK antenna;</b> Vertically-horizontally polarized antenna; antenna gain incl. two N-Connect connectors 23 dBi, 5 GHz; -45 to +70 °C</li> </ul>	6GK5793-8DP00-0AA0  6GK5792-8DN00-0AA6  6GK5793-8DJ00-0AA0  6GK5793-8DK00-0AA0	
<b>Antennas for RCoax systems</b>		
<ul style="list-style-type: none"> <li>• <b>ANT792-4DN antenna;</b> Circularly polarized RCoax helix antenna for RCoax systems; N-Connect female connection; antenna gain at 2.4 GHz 4 dBi</li> <li>• <b>ANT793-4MN antenna;</b> Vertically polarized RCoax 5/8 antenna for RCoax systems; N-Connect female connection; antenna gain at 5.2 GHz/5.7 GHz 6/5 dBi</li> </ul>	6GK5792-4DN00-0AA6  6GK5793-4MN00-0AA6	

### More information

#### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

#### Cabling range:

You can order components supplementary to the SIMATIC NET cabling range from your local contact. Technical advice on this subject is available from:

J. Hertlein  
 I A SC CI PRM 4  
 Phone +49 (911) 750-4465  
 E-Mail: [juergen.hertlein@siemens.com](mailto:juergen.hertlein@siemens.com)

### Overview

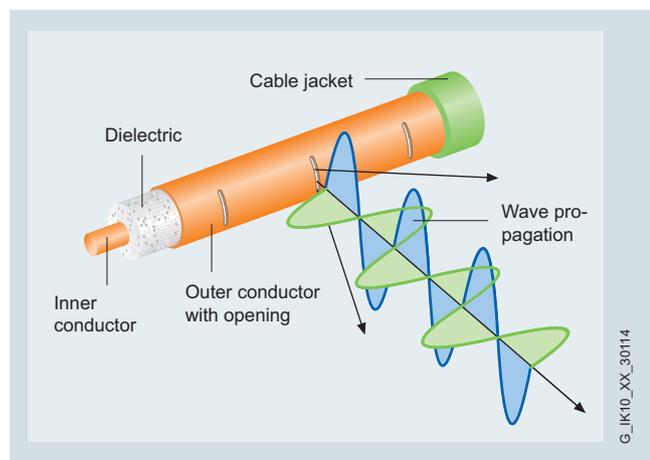


The RCoax cables are radiating cables that function as special antennas for the SCALANCE W Access Points in environments with complex radio coverage. Its design means that a defined, cone-shaped radio field is generated along the RCoax cable. The radiating cables are therefore perfectly suitable for use in all types of applications with track-bound vehicles.

- Rugged coaxial cable which can be easily installed
- Two cables for use in the frequency bands 2.4 GHz and 5 GHz
- Connection as external antenna to SCALANCE W700 Access Points
- Connection of mobile nodes via SCALANCE W700 Client Modules and IWLAN/PB Link PN IO using an antenna aligned to the RCoax
- Suitable for use in hazardous areas (Zone 2); no special approvals necessary

### Design

The RCoax cables were specially designed for the frequency band around 2.4 GHz or 5 GHz respectively.



### Ordering data

### Article No.

#### IWLAN RCoax cables

Radiating cable for complex radio environments as special antenna for SCALANCE W Access Points; for extended temperature range (-40 °C to + 85 °C); sold by the meter minimum order quantity 20 m

- 2.4 GHz
- 5 GHz

**6XV1875-2A**  
**6XV1875-2D**

#### Accessories

#### IWLAN RCoax N-Connect stripping tool

Stripping tool for fast stripping of RCoax cable on site

**6GK1901-1PH00**

#### RCoax N-Connect female N-connector

Plug connector for assembly on site; connection unit of RCoax cable for connection of further components, N-female connection.

**6GK5798-0CN00-0AA0**

#### RCoax N-Connect male/male Coupler

RF coupling for connecting an RCoax antenna to an RCoax cable; two N-Connect male connectors

**6GK5798-0CP00-1AA0**

#### IWLAN RCoax cable clip 1/2"

Cable holder for RCoax cable

- 10 items
- 100 items

**6GK5798-8MB00-0AC1**  
**6GK5798-8MB00-0AM1**

#### IWLAN RCoax threaded washer M6

Threaded washer M6 for RCoax cable clip 1/2", for assembly with M6 threaded bolts

- 10 items
- 100 items

**6GK5798-8MC00-0AC1**  
**6GK5798-8MC00-0AM1**

#### IWLAN RCoax spacer 85 mm

Spacer 85 mm for RCoax cable clip 1/2"

- 10 items
- 100 items

**6GK5798-8MD00-0AC1**  
**6GK5798-8MD00-0AM1**

### More information

#### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version:  
<http://www.siemens.com/snst>
- Offline version:  
<http://www.siemens.com/snst-download>

TIA Selection Tool:

<http://www.siemens.com/tia-selection-tool>

#### Wireless approvals:

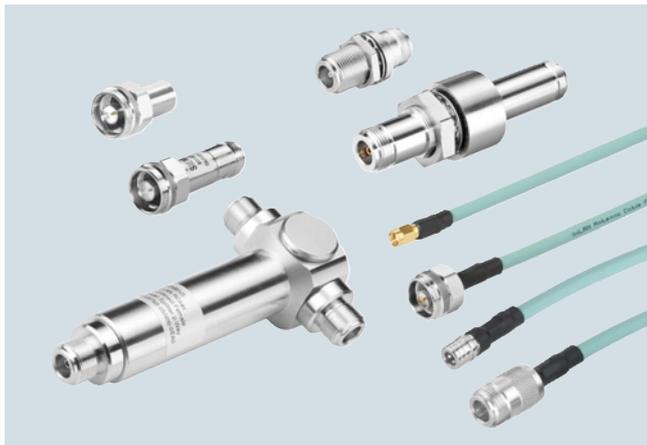
Current approvals can be found on the Internet at:  
<http://www.siemens.com/wireless-approvals>

# Industrial Wireless Communication

## IWLAN accessories

### IWLAN cabling technology

#### Overview



A comprehensive, coordinated range of coaxial accessories is offered for flexible combination and installation of the individual iwlan components indoors and outdoors.

This range encompasses connecting cables as well as diverse connectors, lightning protection elements, a power splitter and an attenuator.

#### Ordering data

#### Article No.

#### Article No.

##### IWLAN RCoax/antenna N-Connect/R-SMA male/male Flexible connection cable

Flexible connecting cable for connecting an RCoax cable or antenna to a SCALANCE W-700 access point with R-SMA connections; pre-assembled with two connections, N-Connect male and R-SMA male

- 0,3 m
- 1 m
- 2 m
- 5 m
- 10 m

**6XV1875-5CE30**  
**6XV1875-5CH10**  
**6XV1875-5CH20**  
**6XV1875-5CH50**  
**6XV1875-5CN10**

##### IWLAN RCoax/antenna N-Connect male/male Flexible connection cable

Flexible connecting cable for connecting an RCoax cable or antenna to a SCALANCE W-700 access point with N-Connect connections; pre-assembled with two N-Connect male connections

- 1 m
- 2 m
- 5 m
- 10 m

**6XV1875-5AH10**  
**6XV1875-5AH20**  
**6XV1875-5AH50**  
**6XV1875-5AN10**

##### IWLAN RCoax/antenna QMA/ N-Connect male/female Flexible connection cable

Adapter cable for connecting a MIMO antenna with QMA connections to the flexible connecting cables; assembled with two connections QMA male and N-Connect female; scope of delivery: 3 units

- 1 m

**6XV1875-5JH10**

##### IWLAN RCoax/antenna R-SMA/SMA male/male Flexible connection cable

Flexible cable for connecting an active device to components with RSMA and SMA connections, e.g. cabinet bushing; pre-assembled with two R-SMA male to SMA male connectors

- 0,3 m
- 2 m

**6XV1875-5DE30**  
**6XV1875-5DH20**

Ordering data	Article No.	Article No.	
<b>IWLAN RCoax/antenna N-Connect male Termination Impedance TI795-1N</b> Terminating resistor for RCoax cable and open wireless interfaces on SCALANCE W-700 devices with N-Connect connections, impedance 50 ohms, N-male connection; IP65 (-40 to +70 °C)	6GK5795-1TN00-1AA0	<b>IWLAN RCoax/antenna N-Connect female power splitter</b> 2-way cable splitter, Y-element for splitting the RCoax cable or for using two antennas on one wireless interface	6GK5798-0SN00-0EA0
<b>IWLAN RCoax/Antenna RSMA Male Termination impedance TI795-1R</b> Terminating resistor for open wireless interfaces on SCALANCE W-700 devices with RSMA connections, impedance 50 ohms, RSMA male connection; IP65 (-40 to +70 °C); 3 units	6GK5795-1TR10-0AA6	<b>IWLAN RCoax/antenna N-Connect male/male coupler</b> HF coupling for connecting two RCoax cables; two N-Connect male connectors	6GK5798-0CP00-1AA0
<b>Lightning protector LP798-1N</b> Lightning protector with N/N female/female connection, IP67 (-40 to +85 °C), frequency range: 0 to 6 GHz	6GK5798-2LP00-2AA6	<b>IWLAN RCoax/antenna N-Connect male/female Attenuator</b> Attenuator with N-Connect male/N-Connect female connectors • 10 dB	6GK5798-0AP00-4CA0
<b>Lightning protector LP798-2N</b> Lightning protector with N/N female/female connection, IP68 (-40 to +85 °C), quarter wave technology, frequency range: 2 to 6 GHz	6GK5798-2LP10-2AA6	<b>IWLAN RCoax/antenna N-Connect/SMA female/female Panel bushing</b> Cabinet bushing with fastening flange for wall thicknesses up to 5.5 mm, SMA female and N-Connect female connections	6GK5798-0PT00-2AA0
		<b>IWLAN RCoax/Antenna N-Connect/N-Connect Female/Female Panel bushing</b> Cabinet bushing for wall thicknesses up to 4.5 mm, two N-Connect female connections	6GK5798-2PP00-2AA6

### More Information

#### Selection Tools:

The SIMATIC NET Selection Tool and the TIA Selection Tool are available to assist in selecting the right Industrial Ethernet components:

SIMATIC NET Selection Tool:

- Online version:  
[Http://www.siemens.com/snst](http://www.siemens.com/snst)
- Offline version:  
[Http://www.siemens.com/snst-download](http://www.siemens.com/snst-download)

TIA Selection Tool:

[Http://www.siemens.com/tia-selection-tool](http://www.siemens.com/tia-selection-tool)

#### Cabling range:

You can order components supplementary to the SIMATIC NET cabling range from your local contact. Technical advice on this subject is available from:

J. Hertlein  
 I IA SC CI PRM 4  
 Phone +49 (911) 750-4465  
 E-mail: [Juergen.hertlein@siemens.com](mailto:Juergen.hertlein@siemens.com)

# Industrial Wireless Communication

## IWLAN accessories

### KEY-PLUG W700

#### Overview



- Swap medium with which iFeatures are enabled
- If a fault occurs, it allows fast and simple device replacement of SCALANCE W components without a PG
- Can be used in all SCALANCE W700 IEEE 802.11n products with a PLUG compartment
- For the automatic backup of configuration data

#### Ordering data

#### Article No.

##### KEY-PLUG W780 iFeatures

Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs, and for storing configuration data. Can be used in SCALANCE W access points with a PLUG compartment

**6GK5907-8PA00**

##### KEY-PLUG W740 iFeatures

Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs, and for storing configuration data. Can be used in SCALANCE W client modules with a PLUG compartment

**6GK5907-4PA00**

#### Overview



#### **PS791-2DC power supply adapter**

- DC/DC power supply unit for input voltages from 12 to 24 V DC and an output voltage of 18 V DC for all SCALANCE W786 devices

#### **PS791-2AC power supply adapter**

- AC/DC power supply unit for input voltages from 100 to 240 V AC and an output voltage of 18 V DC for all SCALANCE W786 devices

#### Design



- Integral power supply adapter for SCALANCE W786
- Fan-free design
- Operating temperatures from -40 °C to +60 °C
- Resistant to condensation

#### Ordering data

#### Article No.

#### **Power supply PS791-2DC**

24 V DC power supply for installation in SCALANCE W-786 products; operating instructions in German/English

**6GK5791-2DC00-0AA0**

#### **Power supply PS791-2AC**

110 V AC to 230 V AC power supply for installation in the SCALANCE W-786 products; operating instructions in German/English

**6GK5791-2AC00-0AA0**

# Industrial Wireless Communication

## IWLAN network transition

### IWLAN/PB Link PN IO

#### Overview



PN	DP-M	DP-S	ASi-M		
●	●				

- Compact network transition between Industrial Wireless LAN (IWLAN) and PROFIBUS
- Wireless connection to IWLAN (e.g. SCALANCE W Access Points) according to IEEE 802.11a/b/g/h with up to 54 Mbit/s at 2.4 GHz and 5 GHz
- PROFINET IO proxy; connection of PROFIBUS DP slaves to PROFINET IO controller according to PROFINET standard:
  - From the viewpoint of the IO controller, all DP slaves are handled like I/O devices with Ethernet interface, i.e. the IWLAN/PB Link PN IO is their proxy.
  - From the viewpoint of the DP slaves, the IWLAN/PB Link PN IO is the DP master
- High, deterministic data throughput and very fast roaming through support of iPCF; the iPCF mechanism represents an extension of the IEEE 802.11 standard and must be available both on the station and on the access point, e.g. SCALANCE W788-1RR
- Full support of the security options defined in the IEEE 802.11i standard for authentication via WPA2 with TLS, TTLS, PEAP
- High degree of protection against unauthorized access thanks to 128-bit encoding (AES)
- Direct substitution of solutions with Power Rail Booster for PROFIBUS with non-contact data transmission technology; Advantages: no wear of sliding contacts
- Cross-network PG/OP communication by means of S7 routing, i.e. all S7 stations can be remotely programmed using the programming device on the Industrial Ethernet or PROFIBUS.
- Cross-network access to data of S7 stations for visualization by means of S7 OPC server and S7 routing; via the IE/PB Link PN IO access can be made from the PC on the Industrial Ethernet (e.g. for HMI applications with OPC client interface) to all data of the S7 stations on the PROFIBUS by means of the S7 OPC server.
- Module replacement without the need for a programming device, using the C-PLUG swap media for backing up the configuration data
- Configuring in STEP 7

#### Ordering data

#### Article No.

##### IWLAN/PB Link PN IO

Network transition between Industrial Wireless LAN and PROFIBUS with PROFINET IO functionality, TCP/IP, S7 routing, IEEE 802.11a/b/g/h at 2.4/5 GHz up to 54 Mbit/s, 9.6 Kbit/s to 12 Mbit/s PROFIBUS; including electronic manual on CD-ROM; German, English, French, Spanish, Italian

- National approvals for operation outside the USA
- National approvals for operation within the USA<sup>1)</sup>

**6GK1417-5AB00**

**6GK1417-5AB01**

##### C-PLUG

Swap medium for simple replacement of devices in the event of a fault; for storing configuration or engineering and application data; can be used for SIMATIC NET products with C-PLUG slot

**6GK1900-0AB00**

##### PROFIBUS FC Standard Cable GP

Standard type with special design for fast mounting, 2-core, shielded

**6XV1830-0EH10**

##### PROFIBUS FastConnect bus connector RS485 Plug 180

with insulation displacement terminals, with 180° cable outlet, for industrial PC, SIMATIC HMI OP, OLM; max. transmission rate 12 Mbit/s

**6GK1500-0FC10**

##### PROFIBUS FastConnect Stripping Tool

Preadjusted stripping tool for fast stripping of PROFIBUS FastConnect bus cables

**6GK1905-6AA00**

##### S7-300 PS 307 load power supply

24 V DC

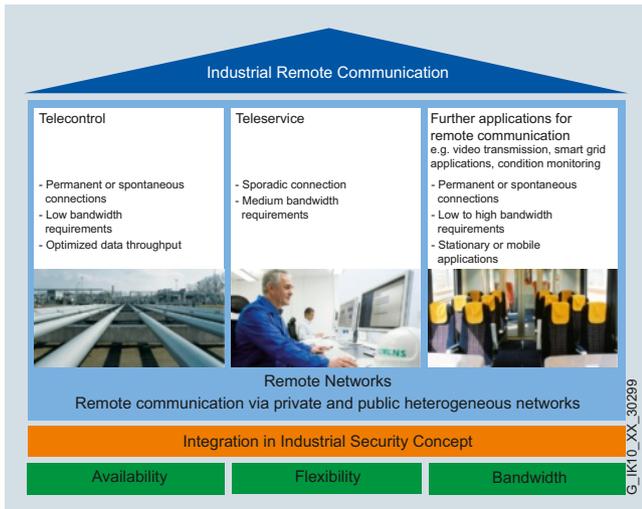
**6ES7307-1BA01-0AA0**

##### Antennas and miscellaneous IWLAN accessories

See Industrial Wireless LAN/ accessories

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

## Overview



Industrial Remote Communication offers efficient remote access to machines and plants with SIMATIC. Global remote access to far-flung plants, remote machines and mobile applications is gaining in significance – both in industry and in industry-related areas. With a comprehensive range of solutions for industrial remote access, Siemens offers the ideal basis for efficient and reliable monitoring and control of widely distributed plants and processes of any size, thereby addressing the growing importance of the networking of industrial, process engineering and production engineering plant sections.

In addition to efficient remote access (Remote Access), Industrial Remote Communication also offers with the network components the option of transparent data links to remote networks via public or private wide area networks (WAN).

In this way, for example, a video transmission in real time via mobile radio from the passenger compartment of trains serves to increase passenger safety (video surveillance). In addition, applications such as data interfacing for ticket machines, infotainment services and Internet on board, or proactive monitoring of vehicle engineering (telemetry) are also possible.

### Secure and flexible access worldwide

Industrial plants are often distributed over large areas – sometimes even across national borders. Siemens offers proven solutions for industrial remote access, such as flexible telecontrol systems and efficient remote maintenance. Whether in public infrastructure or in the manufacturing or process industries: With the components for Industrial Remote Access, Siemens offers comprehensive solutions for telecontrol and teleservice.

This includes, for example, the monitoring of all interfaces between the control center and the distributed machines and systems or the remote maintenance accesses via the Internet, including firewalls. Data transmission is encrypted by means of a VPN and is thus protected from data espionage and manipulation. Communication stations are securely authenticated. Using the components for remote networks, remote access can be set up securely and reliably.

### Telecontrol

Telecontrol involves the connection of distant process stations to one or more central control systems. Various different public or private networks can be used for communication for the purposes of monitoring and control. Event-driven or cyclic exchange of process data is performed with special telecontrol protocols and enables the operating personnel to manage the overall process effectively.

The telecontrol systems are based on SIMATIC. They supplement the SIMATIC system with corresponding hardware and software, and thus permit individual components to be networked over a wide area network (WAN). The data for this is transmitted via conventional WANs, e.g. dedicated cables, telephone network, wireless, but also via IP-based networks such as mobile networks or the Internet.

### Teleservice

Teleservice is data exchange with physically remote technical plants (machines, plants, computers, etc.) for the purpose of error detection, diagnostics, maintenance, repair, or optimization.

Remote diagnostics and remote maintenance of production plants are indispensable in modern automation technology. They are more efficient and more cost-effective than an on-site service employee. This allows faults to be detected and cleared much faster, downtimes of machines are reduced and their availability is increased.

### Siemens Remote Services

The service concept of "Siemens Remote Services" provides a powerful, secure platform for remote access to machines and plants. The inclusion of "shared experts" ensures effective support, not only from Siemens but also from the company's own specialists.

### Remote Networks

Any type of remote communication is based on the public and private networks used for this purpose (e.g. mobile radio or fixed network), referred to as "remote networks".

Under the name SCALANCE M, Siemens offers a comprehensive range of high-performance transmission components, routers and modems that are tailored to the specific properties of the respective remote networks or their transmission media and therefore combine the maximum possible security with reliability.

Regardless of whether spontaneous or permanent transmission, whether high or moderate bandwidth, whether mobile or stationary – with the SCALANCE M products for IP-based connectivity, users have a comprehensive spectrum of components at their disposal for remote access – flexible, optimized for industrial use and integrated into the TIA environment and into the Industrial Security concept.

SCALANCE M devices can be used universally in the fields of telecontrol, teleservice (remote diagnosis and maintenance), and any other application for industrial remote communication.

# Industrial Remote Communication

## Telecontrol

### Introduction

#### Overview

Industrial plants in the process industry or in public infrastructure areas are often spread across wide areas, sometimes even across national borders. The range of telecontrol products offers complete solutions with the following features:

- Connection of distributed process stations to one or more control centers
- Use of different public or private communication networks for monitoring and controlling the telecontrol substations
- Event-driven or cyclic exchange of the process data including time stamp via special telecontrol protocols
- Effective control of the overall process by the operating personnel
- Online access to the substations for diagnostics, remote programming and maintenance

#### **TeleControl Basic**

TeleControl Basic is a simple remote control and remote maintenance system optimized for the use of public communication networks such as mobile radio and internet for connection to the substations.

It comprises the TeleControl Server Basic control center software and substations of the type SIMATIC S7-1200 or S7-200. In addition to communication between the control center and the substations, the system also enables internode communication between the substations.

Small-scale applications with few outstations can be implemented, as well as large-scale plants comprising up to 5000 outstations.

#### **TeleControl Professional**

TeleControl Professional includes telecontrol systems for extensive, expanded applications of the process industry. From SIMATIC PCS 7, SIMATIC WinCC or non-Siemens control systems using OPC, outstations based on SIMATIC S7-1200, S7-300 and S7-400 can be monitored and controlled. The outstations and substations can communicate with each other as well as with one or more control centers. TeleControl Professional has a modular design throughout and can be used with extreme flexibility.

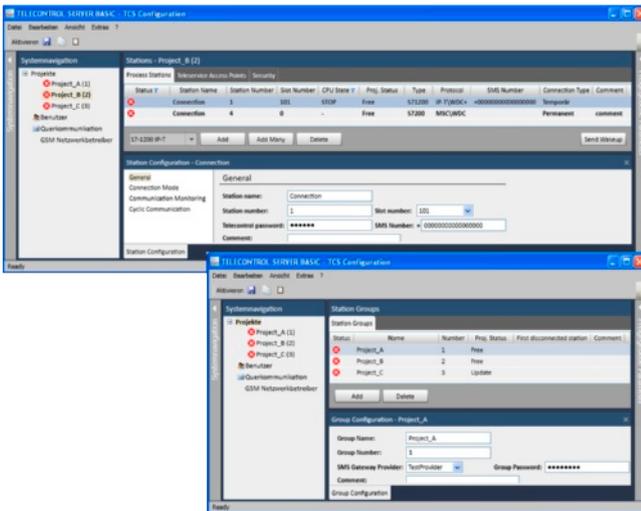
Both telecontrol systems can be connected to a non-Siemens control center system (OPC client) via OPC.

# Industrial Remote Communication

## TeleControl Basic for the control center

Telecontrol Server Basic

### Overview



- Software package for the PC, comprising:
  - OPC (UA) server and connection manager for telecontrol and teleservice tasks (diagnostics with STEP 7 for the S7-1200)
  - OPC (UA) configuring software for the S7-1200 and S7-200
  - PLC block library for the S7-200
- Operation in mobile radio network / via Ethernet
  - SIMATIC S7-1200 with CP 1242-7 via dynamic IP addresses with a standard mobile phone flat-rate contract in the 2G cellular network (GPRS mode)
  - SIMATIC S7-200 with SINAUT MD720 modem via dynamic IP addresses with a standard mobile phone flat-rate contract in the 2G cellular network (GPRS mode)
  - SIMATIC S7-1200 with CP 1243-1 via connection to Ethernet and by means of external DSL routers, e.g. SCALANCE M812-1<sup>1)</sup>
- Connection of up to 5000 telecontrol stations to the control center via the OPC (UA) interface
- Operation and diagnostics of S7-1200 and S7-200 stations on an OPC (UA) server with different STEP 7 projects and separate users with user administration
- Integral teleservice gateway for diagnostics of S7-1200 stations with STEP 7 via the Internet, also with dynamic IP addresses. This works on every PC with STEP 7 and standard internet access without parameterizing firewalls or routers.
- Communication between S7-1200 or S7-200 stations by means of routing function (in the case of GPRS also when using dynamic IP addresses)
- Encrypted transmission for protection against data manipulation and tapping
- Import of SINAUT MICRO SC projects

<sup>1)</sup> Available soon

# Industrial Remote Communication

## TeleControl Basic for the control center

### Telecontrol Server Basic

#### Ordering data

#### Article No.

#### Article No.

##### Telecontrol Server Basic V2.0

Software for 8 to 5000 stations; Single License for one installation; OPC server for GPRS communication with SIMATIC S7-1200 and SIMATIC S7-200; connection management to 8 remote GPRS stations; routing for connections between S7 GPRS stations; German and English operator interface; for Windows 7 Professional, Windows 7 Enterprise, Windows 7 Ultimate and Windows Server 2008 (32-bit); documentation on CD-ROM, German and English

- **Telecontrol Server Basic 8 V2**  
Connection management for 8 SIMATIC S7-1200 or S7-200 stations
- **Telecontrol Server Basic 32 V2**  
Connection management for 32 SIMATIC S7-1200 or S7-200 stations
- **Telecontrol Server Basic 64 V2**  
Connection management for 64 SIMATIC S7-1200 or S7-200 stations
- **Telecontrol Server Basic 256 V2**  
Connection management for 256 SIMATIC S7-1200 or S7-200 stations
- **Telecontrol Server Basic 1000 V2**  
Connection management for 1000 SIMATIC S7-1200 or S7-200 stations
- **Telecontrol Server Basic 5000 V2**  
Connection management for 5000 SIMATIC S7-1200 or S7-200 stations

6NH9910-0AA20-0AA0

6NH9910-0AA20-0AF0

6NH9910-0AA20-0AB0

6NH9910-0AA20-0AC0

6NH9910-0AA20-0AD0

6NH9910-0AA20-0AE0

##### Accessories

##### CP 1242-7 communications processor

Communications processor for connecting SIMATIC S7-1200 to Telecontrol Server Basic via a 2G mobile wireless network (GSM/GPRS)

6GK7242-7KX30-0XE0

##### CP 1243-1 communications processor

Communications processor for connection of SIMATIC S7-1200 to Telecontrol Server Basic or for secure connection to a network via firewall and VPN mechanisms

6GK7243-1BX30-0XE0

##### GSM/GPRS-Modem MD720

GPRS modem for IP-based data transmission over 2G mobile radio network, quad band, AT command interface, automatic establishment of GPRS connection, switchable to CSD mode, RS232, including gender changer for RS232/PPI adapter;

6NH9720-3AA01-0XX0

##### ANT794-4MR antenna

Omnidirectional antenna for GSM (2G) and UMTS (3G) networks; weather-resistant for indoor and outdoor use; 5 m cable with fixed connection to antenna; SMA connector; including mounting bracket, screws, wall plugs

6NH9860-1AA00

##### ANT794-3M antenna

Flat panel antenna for GSM (2G) networks, for triband with 900/1800/1900 MHz; weather-resistant for indoor/outdoor use, 1.2 m cable with fixed connection to antenna; SMA connector, incl. assembly adhesive tape

6NH9870-1AA00

#### Note:

Industrial Ethernet routers and mobile radio routers can be found in the section on Remote Networks

### Overview



The CP 1242-7 communications processor is used to connect a SIMATIC S7-1200 to the globally widespread GSM/GPRS mobile radio network and has the following characteristics:

- Worldwide wireless exchange of data between S7-1200 controllers and/or between S7-1200 controllers and control centers with an Internet connection
- Communication based on the GPRS (**G**eneral **P**acket **R**adio **S**ervice) mobile wireless service with data transmission speeds of up to 86 Kbit/s in the downlink and 43 Kbit/s in the uplink
- GPRS mode with fixed IP addresses and dynamic IP addresses with standard mobile phone contract
- Time synchronization on the basis of NTP (**N**etwork **T**ime **P**rotocol)
- On-demand connection buildup via voice call or text message
- Sending and receiving of text messages
- Clearly laid out LED signaling for fast and easy diagnostics
- Compact industrial enclosure in S7-1200 design for mounting on a standard mounting rail
- Fast commissioning thanks to easy configuration using STEP 7

In conjunction with the "Telecontrol Server Basic" software, the CP 1242-7 forms a telecontrol system with further properties:

- Connection of up to 5000 telecontrol stations to the control center via an OPC interface
- Data buffering in the substations in the event of connection failures
- Central status monitoring of the substations
- No special provider services required for fixed IP addresses
- Teleservice access with STEP 7 to the substations via the Internet

# Industrial Remote Communication

## TeleControl Basic for the stations

### CP 1242-7 GPRS module

Ordering data	Article No.	Article No.
<b>Communications processor CP 1242-7<sup>1)</sup></b> Communications processor for connecting SIMATIC S7-1200 to GSM/GPRS mobile wireless network	<b>6GK7242-7KX30-0XE0</b>	<b>STEP 7 Basic Engineering Software V12</b> Target system: SIMATIC S7-1200, S7-1500, S7-300, S7-400, WinAC Requirement: Windows XP Home SP3 (STEP 7 Basic only), Windows XP Professional SP3 (32 bit), Windows 7 Home Premium SP1 (STEP 7 Basic only), Windows 7 Professional SP1 (32/64 bit), Windows 7 Enterprise SP1 (32/64 bit), Windows 7 Ultimate SP1 (32/64 bit), Microsoft Server 2003 R2 Std. SP2 (32 bit), Microsoft Server 2008 Std. SP2 (32/64 bit) Form of delivery: German, English, Chinese, Italian, French, Spanish For CP 1243-1 <sup>2)</sup> <ul style="list-style-type: none"> <li>STEP 7 Basic V12, Floating License</li> <li>STEP 7 Basic V12, Trial License</li> <li>Upgrade STEP 7 Basic V11 to STEP 7 Basic V12, Floating License</li> <li>STEP 7 Basic V12, Software Update Service, 1 year; current software version required</li> <li>STEP 7 Basic V12, Software Update Service Compact, 1 year; current software version required</li> </ul>
<b>Accessories</b> <b>Telecontrol Server Basic V2.0</b> Software for <ul style="list-style-type: none"> <li>License for up to 8 stations</li> <li>License for up to 32 stations</li> <li>License for up to 64 stations</li> <li>License for up to 256 stations</li> <li>License for up to 1000 stations</li> <li>License for up to 5000 stations</li> </ul>	<b>6NH9910-0AA20-0AA0</b> <b>6NH9910-0AA20-0AF0</b> <b>6NH9910-0AA20-0AB0</b> <b>6NH9910-0AA20-0AC0</b> <b>6NH9910-0AA20-0AD0</b> <b>6NH9910-0AA20-0AE0</b>	
<b>ANT794-4MR antenna</b> Omnidirectional antenna for GSM (2G) and UMTS (3G) networks; weather-resistant for indoor and outdoor use; 5 m cable with fixed connection to antenna; SMA connector; including mounting bracket, screws, wall plugs	<b>6NH9860-1AA00</b>	
<b>ANT794-3M antenna</b> Flat panel antenna for GSM (2G) networks, for triband with 900/1800/1900 MHz; weather-resistant for indoor/outdoor use, 1.2 m cable with fixed connection to antenna; SMA connector, incl. assembly adhesive tape	<b>6NH9870-1AA00</b>	

<sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>

<sup>2)</sup> Available soon

### More information

#### Selection tools:

To assist in selecting the right Industrial Wireless Communication, the SIMATIC NET Selection Tool is available at:

SIMATIC NET Selection Tool:

- Online version  
<http://www.siemens.com/snst>
- Offline version  
<http://www.siemens.com/snst-download>

#### Radio approvals:

Current approvals can be found on the Internet at:  
<http://www.siemens.com/wireless-approvals>

### Overview



The CP 1243-1<sup>1)</sup> communications processor is used for connecting a SIMATIC S7-1200 to the TeleControl Server Basic control center software via Ethernet, and for safe communication via IP-based networks.

The CP has the following features:

- Ethernet-based connection to TeleControl Server basic, e.g. via Internet
- Data transfer of measured values, control variables, or alarms optimized for telecontrol systems
- Automatic sending of alert emails
- Data buffering of up to 64,000 values ensures a secure database even with temporary connection failures
- Secure communication via VPN connections based on IPSec
- Access protection by means of Stateful Inspection Firewall
- Integration of S7-1200 stations into an IPv6-based network
- Clearly laid out LED signaling for fast and easy diagnostics
- Compact industrial enclosure in S7-1200 design for mounting on a standard mounting rail
- Fast commissioning thanks to easy configuration using STEP 7

### Ordering data

### Article No.

#### CP 1243-1 communications processor<sup>1)</sup>

Communications processor for connection of SIMATIC S7-1200 to TeleControl Server Basic or for secure connection via IP-based networks

**6GK7243-1BX30-0XE0**

<sup>1)</sup> Available soon

# Industrial Remote Communication

## TeleControl Basic for the stations

### GSM/GPRS MD720-3 modem

#### Overview



- The MODEM MD720 is the successor of the SINAUT modem MD720-3. All functions of the replaced SINAUT modem MD720-3 are also supported by the MODEM MD720.
- GSM/GPRS mobile radio modem MD720 with RS 232 interface for IP-based communication in industrial applications
- DIN rail mounting
- 24 VDC power supply
- Supports the GSM services CSD <sup>1)</sup>, SMS and GPRS
- Use with Telecontrol Basic:  
Data transfer over tunneled GPRS connection with SIMATIC S7
- Use with SINAUT ST7:  
Data transmission via CSD, GPRS, transmission of text messages
- AT command interface: For remote maintenance via CSD with TS Adapter II or for transmitting text messages

<sup>1)</sup> CSD – **C**ircuit **S**witched **D**ata (data transmission via GSM dialup connection)

Ordering data	Article No.	Ordering data	Article No.
<b>GSM/GPRS modem MD720</b> <sup>1)</sup> GPRS modem for IP-based data transmission over GSM networks, quad band, AT command interface, automatic establishment of GPRS connection, switchable to CSD mode, RS232; including gender changer for RS232/PPI adapter; manual on CD-ROM in German, English, Chinese, Russian	<b>6NH9720-3AA01-0XX0</b>	<b>ANT794-4MR antenna</b> Omnidirectional antenna for GSM (2G) and UMTS (3G) networks; weather-resistant for indoor and outdoor use; 5 m cable with fixed connection to antenna; SMA connector; including mounting bracket, screws, wall plugs	<b>6NH9860-1AA00</b>
<b>Accessories</b> <b>Telecontrol Server Basic</b> Software for 8 to 5000 stations; Single License for one installation; OPC server for GPRS communication with SIMATIC S7-1200 and SIMATIC S7-200; connection management to 8 remote GPRS stations; routing for connections between S7 GPRS stations; German and English operator interface; for Windows 7 Professional, Windows 7 Enterprise, Windows 7 Ultimate and Windows Server 2008 (32-bit); documentation on CD-ROM, German and English		<b>ANT794-3M antenna</b> Flat panel antenna for GSM (2G) networks, for triband with 900/1800/1900 MHz; weather-resistant for indoor/outdoor use, 1.2 m cable with fixed connection to antenna; SMA connector, incl. assembly adhesive tape	<b>6NH9870-1AA00</b>
<ul style="list-style-type: none"> <li>• <b>Telecontrol Server Basic 8 V2</b> Connection management for eight SIMATIC S7-1200 or S7-200 stations</li> <li>• <b>Telecontrol Server Basic 32 V2</b> Connection management for 32 SIMATIC S7-1200 or S7-200 stations</li> <li>• <b>Telecontrol Server Basic 64 V2</b> Connection management for 64 SIMATIC S7-1200 or S7-200 stations</li> <li>• <b>Telecontrol Server Basic 256 V2</b> Connection management for 256 SIMATIC S7-1200 or S7-200 stations</li> <li>• <b>Telecontrol Server Basic 1000 V2</b> Connection management for 1000 SIMATIC S7-1200 or S7-200 stations</li> <li>• <b>Telecontrol Server Basic 5000 V2</b> Connection management for 5000 SIMATIC S7-1200 or S7-200 stations</li> </ul>	<b>6NH9910-0AA20-0AA0</b>  <b>6NH9910-0AA20-0AF0</b>  <b>6NH9910-0AA20-0AB0</b>  <b>6NH9910-0AA20-0AC0</b>  <b>6NH9910-0AA20-0AD0</b>  <b>6NH9910-0AA20-0AE0</b>	<b>SIMATIC S7-200 PPI-cable</b> For connecting the S7-200 to the GSM/GPRS modem MD720-3	<b>6NH9701-0AD</b>
		<b>Connecting cable</b> For connecting a TIM3V-IE/TIM4 (RS232) with the GSM modem MD720-3 (access to GSM network). Also suitable for third-party modems or radio equipment with RS232 standard; cable length 2.5 m.	<b>6NH7701-5AN</b>
		<b>SITOP compact 24 V/0,6 A</b> 1-phase power supply with wide-range input 85 ... 264 V AC/110 ... 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design	<b>6EP1331-5BA00</b>

<sup>1)</sup> Please note national approvals under <http://www.siemens.de/wireless-approvals>

### More information

#### Radio approvals:

Current approvals can be found on the Internet at: <http://www.siemens.com/wireless-approvals>

# Industrial Remote Communication

## TeleControl Professional for the control center

### SINAUT ST7 engineering software

#### Benefits

The SINAUT engineering software with the following components is required for configuring, diagnosing and operating a telecontrol system with the ST7 or DNP3 protocol:

- SINAUT ST7 configuration and diagnostics software
- SINAUT TD7 Library

The software package is a work package which can be used for any number of SINAUT projects without a licensing process.

Apart from ST1 and ST7 connections, the SINAUT ST7 engineering software Version V5.1 or higher also supports the DNP3-compliant TIM modules TIM 3V-IE DNP3 and TIM 4R-IE DNP3. Version V5.3 is released for STEP 7 V5.5 incl. SP2.

#### Ordering data

#### Article No.

##### **SINAUT Engineering Software V5.3**

- On CD-ROM, comprising
- SINAUT Engineering Software V5.3 for the programming device
  - SINAUT TD7 block library
  - Electronic manual in German and English

**6NH7997-0CA53-0AA0**

##### **SINAUT Engineering Software V5.3: Upgrade from V5.0, V5.1 or V5.2**

For adding functional expansions; the functional expansions are for transferring larger data quantities of 1 KB and SMS functionality in GPRS mode

**6NH7997-0CA53-0GA0**

##### **SINAUT ST7 Engineering Software V5.0 Edition 09/2009 (Upgrade)**

for STEP 7 V5.4 SP4, for owners of older versions of SINAUT ST7 engineering software

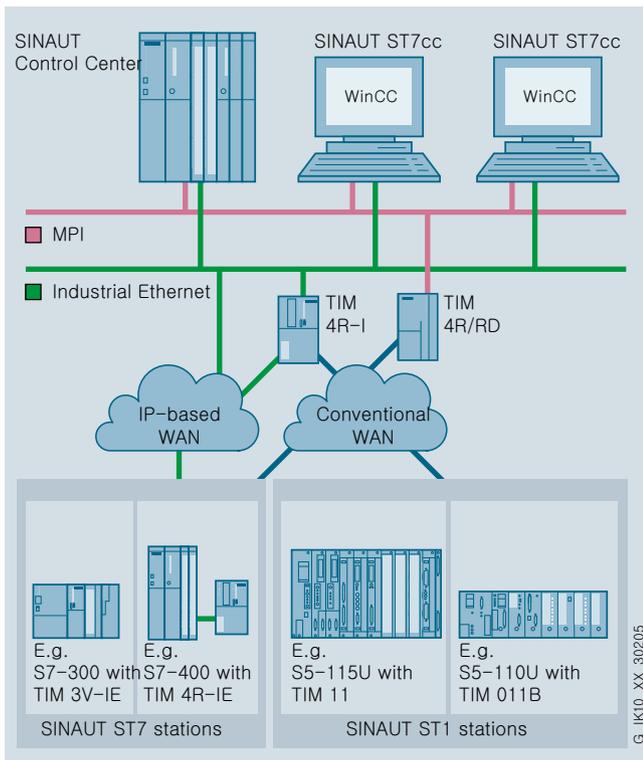
**6NH7997-0CA50-0GA0**

# Industrial Remote Communication

## TeleControl Professional for the control center

SINAUT ST7cc, Add-on for WinCC

### Overview



SINAUTST7cc system overview

Based on SIMATIC WinCC, SINAUT ST7cc is the ideal control center system for both SINAUT ST7 and SINAUT ST1. It has been developed specifically for event-driven and time-stamped data transmission on the SINAUT telecontrol system.

A fault-tolerant ST7cc control center can be set up in conjunction with the WinCC redundancy package.

SINAUT ST7cc additionally assumes the function of a telecontrol center. There is therefore no need for a separate SIMATIC S7-CPU for this function.

# Industrial Remote Communication

## TeleControl Professional for the control center

### SINAUT ST7cc, Add-on for WinCC

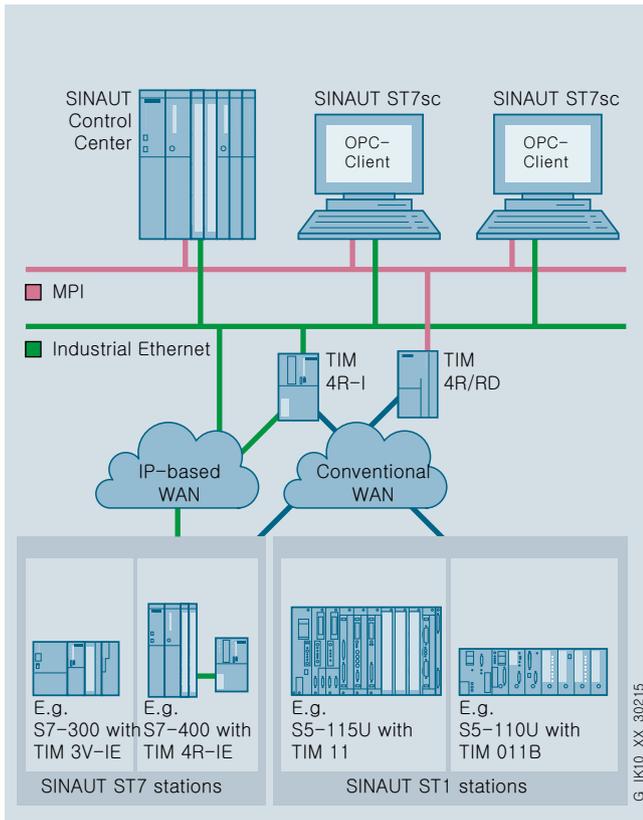
Ordering data	Article No.	Article No.
<b>SINAUT ST7cc</b>		
Software for connecting SINAUT stations to WinCC; Single license for 1 installation of the runtime software; configuration software and electronic manual on CD-ROM, 2 languages (German, English); operating systems: Windows XP SP3, Windows Server 2003 SP2, Windows 7 SP1 (32-bit/64-bit), Windows Server 2008 SP2 (32-bit), Windows Server 2008 R2 SP1 (64-bit); license key on USB flash drive; German/English		
<b>Standard licenses S (Small), M (Medium), L (Large)</b>		
<b>ST7cc V3.1 S</b> Small license for max. 6 SINAUT stations	<b>6NH7997-7CA31-0AA1</b>	
<b>ST7cc V3.1 M</b> Medium license for max. 12 SINAUT stations	<b>6NH7997-7CA31-0AA2</b>	
<b>ST7cc V3.1 L</b> Large license for more than 12 SINAUT stations	<b>6NH7997-7CA31-0AA3</b>	
<b>ST7cc V3.1 RED</b> Redundancy license for ST7cc (contains 2 licenses), two single ST7cc S, M or L licenses are also required	<b>6NH7997-8CA31-0AA0</b>	
<b>PowerPacks for upgrading the license to M or L</b>		
<b>ST7cc V3.1 SM PowerPack</b> License upgrade from ST7cc S to ST7cc M (from 6 to 12 stations)	<b>6NH7997-7AA31-0AD2</b>	
<b>ST7cc V3.1 SL PowerPack</b> License upgrade from ST7cc S to ST7cc L (from 6 to more than 12 stations)	<b>6NH7997-7AA31-0AD3</b>	
<b>ST7cc V3.1 ML PowerPack</b> License upgrade from ST7cc M to ST7cc L (from 12 to more than 12 stations)	<b>6NH7997-7AA31-0AE3</b>	
<b>Upgrade packages</b>		
<b>ST7cc V3.1 Upgrade from V3.0 to V3.1</b> Upgrade of all licenses V3.0		<b>6NH7997-7CA31-0GA1</b>
<b>ST7cc V3.1 RED upgrade from V3.0 to V3.1</b> Upgrade of the redundancy license V3.0		<b>6NH7997-8CA31-0GA0</b>
<b>ST7cc V3.1 S upgrade from V2.4 ... V2.7 to V3.1</b> for S license holders		<b>6NH7997-7CA31-2GA1</b>
<b>ST7cc V3.1 M upgrade from V2.4 ... V2.7 to V3.1</b> for M or SM license holders		<b>6NH7997-7CA31-2GA2</b>
<b>ST7cc V3.1 L upgrade from V2.4 ... V2.7 to V3.1</b> for L, SL or ML license holders		<b>6NH7997-7CA31-2GA3</b>
<b>ST7cc V3.1 RED upgrade from V2.4 ... V2.7 to V3.1</b> Upgrade of the redundancy licenses V2.4 ... V2.7		<b>6NH7997-8CA31-2GA0</b>
<b>Accessories</b>		
<b>TIM 3V-IE communications module</b>  With an RS 232 interface for SINAUT communication via a conventional WAN or an IP-based network (WAN or LAN)		<b>6NH7800-3BA00</b>
<b>TIM 3V-IE Advanced communications module</b>  With an RS 232 interface and an RJ45 interface for SINAUT communication via a conventional WAN and an IP-based network (WAN or LAN)		<b>6NH7800-3CA00</b>
<b>TIM 4R-IE communications module</b>  With two combined RS 232/RS 485 interfaces for SINAUT communication via conventional WANs and two RJ45 interfaces for SINAUT communication via IP-based networks (WAN or LAN)		<b>6NH7800-4BA00</b>

# Industrial Remote Communication

## TeleControl Professional for the control center

SINAUT ST7sc SCADA Connect Software

### Overview



SINAUT ST7sc SCADA Connect

- The SCADA Connect Software SINAUT ST7sc permits the connection of telecontrol substations with ST7 and ST1 protocol to control center systems that can operate as OPC clients, e.g. iFIX from Intellution, InTouch from Wonderware, Micro SCADA from ABB.
- SINAUT ST7sc is also suitable for data exchange with other applications via OPC, e.g. with the Office application Excel.
- The OPC data can be exchanged either synchronously or asynchronously (change-controlled)
- The "Item Buffering" function prevents the loss of data on failure of the OPC client or if SINAUT terminals supply data at a faster rate than can be transferred via the OPC interface.
- System availability can be increased by connecting two ST7sc systems working in parallel to a redundant client system.
- SINAUT ST7sc additionally assumes the function of a telecontrol center. There is therefore no need for a separate SIMATIC S7-CPU for this function.

# Industrial Remote Communication

## TeleControl Professional for the control center

### SINAUT ST7sc SCADA Connect Software

Ordering data	Article No.	Article No.
<b>SINAUT ST7sc</b>		
Software for connecting SINAUT stations to HMI, SCADA and Office applications via OPC; single license for 1 installation of the runtime software; configuration software and electronic manual on CD-ROM; operating systems: Windows XP SP3, Windows Server 2003 SP2, Windows 7 SP1 (32-bit/64-bit), Windows Server 2008 SP2 (32-bit), Windows Server 2008 R2 SP1 (64-bit); license key on USB flash drive; German/English;		
<b>Standard licenses S (Small), M (Medium), L (Large)</b>		
<b>SINAUT ST7sc V2.1 S</b> Small license for max. 6 SINAUT stations	6NH7997-5CA21-0AA1	
<b>SINAUT ST7sc V2.1 M</b> Medium license for max. 12 SINAUT stations	6NH7997-5CA21-0AA2	
<b>SINAUT ST7sc V2.1 L</b> Large license for more than 12 SINAUT stations	6NH7997-5CA21-0AA3	
<b>PowerPacks for upgrading the license to M or L</b>		
<b>SINAUT ST7sc V2.1 SM PowerPack;</b> License upgrade from ST7sc S to ST7sc M (from 6 to 12 stations)	6NH7997-5AA21-0AD2	
<b>SINAUT ST7sc V2.1 SL PowerPack;</b> License upgrade from ST7sc S to ST7sc L (from 6 to more than 12 stations)	6NH7997-5AA21-0AD3	
<b>SINAUT ST7sc V2.1 ML PowerPack;</b> License upgrade from ST7sc M to ST7sc L (from 12 to more than 12 stations)	6NH7997-5AA21-0AE3	
<b>Upgrade packages</b>		
<b>ST7sc V2.1 U upgrade from V2.0 to V2.1</b> Upgrade of all licenses V2.0		6NH7997-5CA21-0GA1
<b>ST7sc V2.1 S upgrade from V1.0 ... V1.2 to V2.1</b> for S license holders		6NH7997-5CA21-2GA1
<b>ST7sc V2.1 M upgrade from V1.0 ... V1.2 to V2.1</b> for M or SM license holders		6NH7997-5CA21-2GA2
<b>ST7sc V2.1 L upgrade from V1.0 ... V1.2 to V2.1</b> for L, SL or ML license holders		6NH7997-5CA21-2GA3
<b>Accessories</b>		
<b>TIM 3V-IE communications module</b> With an RS 232 interface for SINAUT communication via a conventional WAN or an IP-based network (WAN or LAN)		6NH7800-3BA00
<b>TIM 3V-IE Advanced communications module</b> With an RS 232 interface and an RJ45 interface for SINAUT communication via a conventional WAN and an IP-based network (WAN or LAN)		6NH7800-3CA00
<b>TIM 4R-IE communications module</b> With two combined RS 232/RS 485 interfaces for SINAUT communication via conventional WANs and two RJ45 interfaces for SINAUT communication via IP-based networks (WAN or LAN)		6NH7800-4BA00

### Overview

#### Design principle of a telecontrol system and plants with SIMATIC

Telecontrol involves the connection of distant process stations to one or more central control systems. A telecontrol system can be subdivided into the following components

- Control center
- Substations
- Communication network

Various different public or private networks can be used for communication for the purposes of monitoring and control. The event-driven or cyclic exchange of the process data takes place via special telecontrol protocols such as SINAUT ST7, DNP3.

#### Substations

With SIMATIC, Siemens offers a wide range of components for the different application areas for establishing telecontrol substations – Remote Terminal Units (RTUs).

The hardware basis is a PLC, in each case supplemented for the telecontrol function with special hardware and software components, e.g. TIM communication modules. All the local functions supported by the respective PLC for the connection of I/O via bus systems, connection of HMI or sensors, etc., are also available without restriction in the RTU configuration.

The individual solutions differ in the

- performance class (number of required IO signals and controller performance)
- support for the telecontrol protocols

The following table provides an overview of the different types of substations on offer with the essential features.

		Telecontrol protocols						Private networks			Public networks			
		TeleControl Basic	SINAUT ST7	DNP3	IEC 60870-5-104	IEC 60870-5-101	SINAUT ST1	Wireless	Dedicated line	WLAN	GPRS	EGPRS	UMTS	DSL
	ET 200S	-	-	-	•	•	-	•	•	•	•	•	•	•
	S7-1200	•	-	•	•	-	-	• <sup>2)</sup>	-	• <sup>2)</sup>	•	• <sup>1)</sup>	• <sup>1)</sup>	• <sup>1)</sup>
	S7-200	•	-	-	-	-	-	-	-	-	•	-	-	-
	S7-300	•	•	•	•	•	•	•	•	•	•	•	•	•
	S7-400	-	•	•	•	•	•	•	•	•	•	•	•	•
	S7-400FH	-	-	•	•	-	-	•	•	•	•	•	•	•
	WinAC RTX	-	-	-	•	-	-	•	•	•	•	•	•	•

• suitable    - not suitable    1) via external IP-Router    2) via Industrial Ethernet

Classification of the different TeleControl substations (RTU types)

#### TIM communications modules

The hardware component for the telecontrol wireless station of a telecontrol substation is the TIM (Telecontrol Interface Module) communication module. It is used by the S7 CPU or control center PC for data exchange via the relevant telecontrol network, optionally with the SINAUT ST7, SINAUT ST1 or DNP3 protocol.

Different protocols cannot be combined in one communication network. However, communication networks with different protocols can always be combined in one project if they are connected to the central control center via separate interfaces.

# Industrial Remote Communication

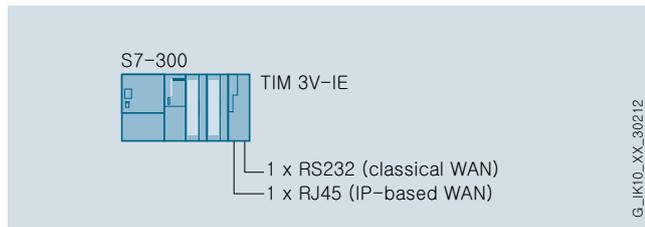
## TeleControl Professional – stations for the ST7 protocol

### Introduction

### Design

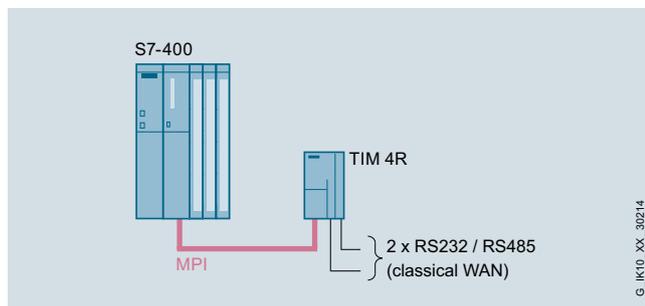
#### Configuration examples

The figure below shows a simple S7-300 station equipped with a TIM 3V-IE. The S7-300 can be connected via the RS232 interface of the TIM to a conventional WAN (e.g. dedicated line or dialup network), and via the RJ45 interface to an IP-based network, e.g. GPRS. If the S7-300 were equipped with a TIM 3V-IE Advanced, the two interfaces could be used simultaneously for SINAUT communication.

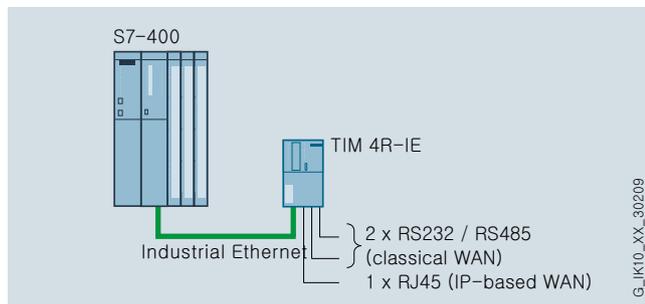


S7-300 with TIM 3V-IE

In the case of an S7-400, both a TIM 4R and a TIM 4R-IE can be used for data communication. In both cases the TIM is used as an independent device, i.e. without S7-300 CPU. The TIM 4R is connected to the S7-400 via MPI, while the TIM 4R-IE is connected via one of the two Ethernet interfaces of this module. The figures below illustrate the two alternatives.



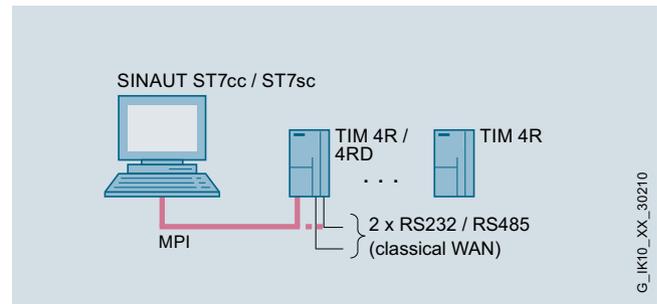
S7-400 with TIM 4R connected via MPI



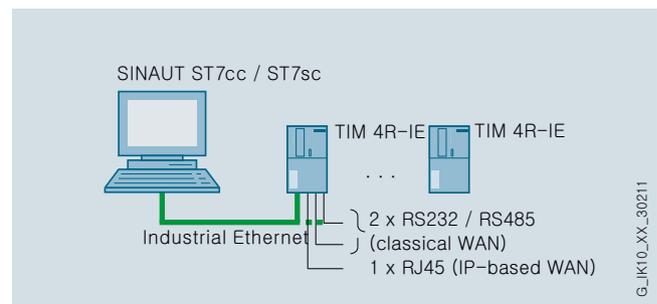
S7-400 with TIM 4R-IE connected via Industrial Ethernet

In the case of the TIM 4R, two conventional WANs can be connected by means of the two combined RS232/RS485 interfaces. The TIM 4R-IE has an additional connection for an IP-based network.

As on an S7-400, the control center PC (e.g. SINAUT ST7cc or ST7sc) is interfaced with the SINAUT telecontrol network via one or more TIM 4 modules. The two figures below show the alternatives with TIM 4R or TIM 4R-IE.



SINAUT ST7cc/ST7sc with one or more TIM 4R's on the MPI bus



SINAUT ST7cc/ST7sc with one or more TIM 4R-IE's on the Industrial Ethernet

The synchronization of the TIM 4R-IE module clocks connected via Ethernet is performed by the control center PC (ST7cc or ST7sc). These TIMs then supply their SINAUT stations in turn.

If stations are connected by means of an IP-based network, the connection to the control center PC (ST7cc or ST7sc) may also be made directly, i.e. without any TIM 4R-IE on the PC. The SINAUT stations in this directly connected IP-based network are synchronized via the control center PC.

In the case of more complex IP-based networks, and above all when using a redundant control center, the use of a control center TIM 4R-IE is recommended, since this permits improved monitoring of network behavior and optimization of the connection resources of the PC.

# Industrial Remote Communication

## TeleControl Professional – stations for the ST7 protocol

### TIM 3V-IE for WAN and Ethernet

#### Overview



- SINAUT communications module TIM for SIMATIC S7-300 for use in a wide area network (WAN)
- IP communication via secure VPN (virtual private network) using the Internet
- Wireless communication via GPRS router, GPRS modem, or radio devices
- Wired communication via Ethernet, DSL, dialup modems or dedicated line modem
- Complete migration of existing wireless, dedicated line and dial-up technology to IP-based network
- Message frame memory for complete recording of data
- Simple configuration and operation without specialist IT knowledge

#### Ordering data

#### Article No.

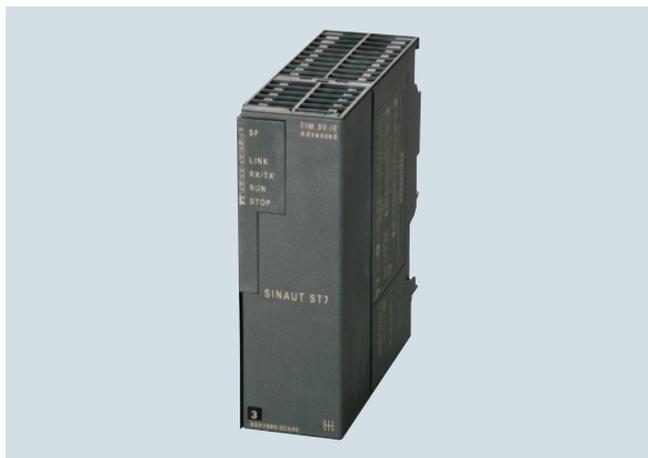
<b>TIM 3V-IE communications module</b> With an RS232 interface for SINAUT communication via a conventional WAN or an IP-based network (WAN or LAN)	6NH7800-3BA00
<b>SINAUT Engineering Software V5.3</b> On CD-ROM, comprising <ul style="list-style-type: none"> <li>• SINAUT Engineering Software V5.2 for the programming device</li> <li>• SINAUT TD7 block library</li> <li>• Electronic manual in German and English</li> </ul>	6NH7997-0CA53-0AA0
<b>Accessories</b>	
<b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m	6XV1840-2AH10
<b>IE FC RJ45 Plug 180</b> RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	6GK1901-1BB10-2AA0 6GK1901-1BB10-2AB0 6GK1901-1BB10-2AE0
<b>IE FC Stripping Tool</b> Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables	6GK1901-1GA00
<b>Connecting cable</b> For connecting a TIM (RS 232) with a SINAUT ST7 MD2, MD3 or MD4 (RS 232) modem; cable length 1.5 m	6NH7701-4AL
<b>Connecting cable</b> For connecting a TIM (RS 232) with the GSM modem MD720-3; also suitable for third-party modems or radio equipment with standard RS 232 interface; cable length 2.5 m	6NH7701-5AN
<b>Connecting cable</b> with one end open for connecting a TIM (RS 232) to a third-party modem or radio unit (RS 232); cable length 2.5 m	6NH7701-4BN
<b>Connecting cable</b> For connecting two TIM modules via their RS 232 interface without modems ("null modem"); cable length 6 m	6NH7701-0AR

# Industrial Remote Communication

## TeleControl Professional – stations for the ST7 protocol

### TIM 3V-IE Advanced

#### Overview



- SINAUT communications module TIM for SIMATIC S7-300 for use in wide area network (WAN) as station, node station, and control center
- IP communication via secure VPN (virtual private network) using the Internet
- Wireless communication via GPRS router, GPRS modem or radio devices
- Wired communication via Ethernet, DSL, dialup modems or dedicated line modem
- Complete migration of existing wireless, dedicated line and dial-up technology to IP-based network
- Message frame memory for complete recording of data and support of redundant communication paths
- Simple configuration and operation without specialist IT knowledge

#### Ordering data

#### Article No.

##### TIM 3V-IE Advanced communications module

6NH7800-3CA00

With an RS 232 interface and an RJ45 interface for SINAUT communication via a conventional WAN and an IP-based network (WAN or LAN)

##### SINAUT Engineering Software V5.3

6NH7997-0CA53-0AA0

On CD-ROM, comprising

- SINAUT ST7 Engineering Software V5.3 for the PG
- SINAUT TD7 block library
- Electronic manual in German and English

#### Accessories

##### IE FC TP Standard Cable GP 2 x 2 (Type A)

6XV1840-2AH10

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m

##### IE FC RJ45 Plug 180

RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

6GK1901-1BB10-2AA0  
6GK1901-1BB10-2AB0  
6GK1901-1BB10-2AE0

##### IE FC Stripping Tool

6GK1901-1GA00

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

##### Connecting cable

6NH7701-4AL

For connecting a TIM (RS 232) with a SINAUT ST7 MD2, MD3 or MD4 (RS 232) modem; cable length 1.5 m

##### Connecting cable

6NH7701-5AN

For connecting a TIM (RS 232) with the GSM modem MD720-3; also suitable for third-party modems or radio equipment with standard RS 232 interface; cable length 2.5 m

##### Connecting cable

6NH7701-4BN

with one end open for connecting a TIM (RS 232) to a third-party modem or radio unit (RS 232); cable length 2.5 m

##### Connecting cable

6NH7701-0AR

For connecting two TIM modules via their RS 232 interface without modems ("null modem"); cable length 6 m

# Industrial Remote Communication

## TeleControl Professional – stations for the ST7 protocol

**TIM 4R-IE for WAN and Ethernet**
**Overview**


- SINAUT communications module TIM with four interfaces for SIMATIC S7-300 or as self-contained unit for the S7-400 for use in the wide area network (WAN)
- For universal use in a SINAUT station, node station and control center
- Internet communication via integrated MSC-VPN tunnel with direct connection to DSL router or operation via IPsec VPN with additional SIMATIC NET components
- Wireless communication via GPRS router, GPRS modem, or radio devices
- Wired communication via Ethernet, DSL, dialup modems or dedicated line modem
- Complete migration of existing wireless, dedicated line and dial-up technology to IP-based network
- Message frame memory for complete recording of data and support of redundant communication paths
- Simple configuration and operation without specialist IT knowledge

**Ordering data**
**TIM 4R-IE communications module**

With two combined RS 232/RS 485 interfaces for SINAUT communication via conventional WANs and two RJ45 interfaces for SINAUT communication via IP-based networks (WAN or LAN)

**Article No.**
**6NH7800-4BA00**
**SINAUT Engineering Software V5.3**

On CD-ROM, comprising

- SINAUT ST7 Engineering Software V5.3 for the PG
- SINAUT TD7 block library
- Electronic manual in German and English

**Article No.**
**6NH7997-0CA53-0AA0**
**Accessories**
**Backup battery**

3.6 V/2.3 Ah for TIM 4R-IE

**Article No.**
**6ES7971-0BA00**
**IE FC TP Standard Cable GP 2 x 2 (Type A)**

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m

**Article No.**
**6XV1840-2AH10**
**IE FC RJ45 Plug 180**

RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPUs/CPUUs with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**Article No.**  
**6GK1901-1BB10-2AA0**  
**6GK1901-1BB10-2AB0**  
**6GK1901-1BB10-2AE0**
**IE FC Stripping Tool**

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

**Article No.**
**6GK1901-1GA00**
**Connecting cable**

For connecting a TIM (RS 232) with a SINAUT ST7 MD2, MD3 or MD4 (RS 232) modem; cable length 1.5 m

**Article No.**
**6NH7701-4AL**
**Connecting cable**

For connecting a TIM (RS485) with a SINAUT ST7 MD2, MD3 or MD4 (RS485) modem; cable length 1.5 m

**Article No.**
**6NH7701-4DL**
**Connecting cable**

For connecting a TIM (RS 232) with the GSM modem MD720-3; also suitable for third-party modems or radio equipment with standard RS 232 interface; cable length 2.5 m

**Article No.**
**6NH7701-5AN**
**Connecting cable**

with one end open for connecting a TIM (RS 232) to a third-party modem or radio unit (RS 232); cable length 2.5 m

**Article No.**
**6NH7701-4BN**
**Connecting cable**

For connecting two TIM modules via their RS 232 interface without modems (\*null modem\*); cable length 6 m

**Article No.**
**6NH7701-0AR**
**SITOP compact 24 V/0,6 A**

1-phase power supply with wide-range input 85 ... 264 V AC/110 ... 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design

**Article No.**
**6EP1331-5BA00**

# Industrial Remote Communication

## TeleControl Professional – stations for the DNP3 protocol

### CP 1243-1 DNP3

#### Overview



The CP 1243-1 DNP3 communications processor is used to connect a SIMATIC S7-1200 to a control center system via the DNP3 protocol and has the following characteristics:

- Support for the established DNP3 telecontrol protocol for standardized linking of the SIMATIC S7-1200 to WinCC, PCS 7, or other commercially available control center systems
- Data transfer of measured values, control variables, or alarms optimized for telecontrol systems
- Automatic sending of alert emails
- Clearly laid out LED signaling for fast and easy diagnostics
- Compact industrial enclosure in S7-1200 design for mounting on a standard mounting rail
- Fast commissioning thanks to easy configuration using STEP 7
- Data buffering of up to 64,000 values ensures a secure database even with temporary connection failures

#### Ordering data

#### Article No.

##### CP 1243-1 DNP3 communications processor

Communications processor for connecting SIMATIC S7-1200 to a control center via the DNP3 protocol

**6GK7243-1JX30-0XE0**

#### More information

##### Technical requirements/compatibility

An S7-1200 CPU with firmware version 3 is required for operating the CP 1243-1 DNP3.

The CP 1243-1 DNP3 is configured using STEP 7 V12 SP1 and higher.

To connect to PCS 7/WinCC control center systems, the relevant telecontrol packages to support the DNP3 protocol are required.

# Industrial Remote Communication

## TeleControl Professional – stations for the DNP3 protocol

TIM 3V-IE DNP3

### Overview



In an S7 station, the communications module TIM 3V-IE DNP3 (Telecontrol Interface Module) processes the data traffic for the S7-CPU to the assigned master system SIMATIC PCS7 TeleControl V7.1 SP2 using the open protocol DNP3 (Distributed Network Protocol).

- with the S7-300 housing, can be fully integrated into the S7-300 system
- RS232 interface for the connection of an external modem for data transmission via a conventional WAN or the connection of a Modbus RTU slave to an S7-300 system
- RJ45 port for data transmission via IP-based networks

### Ordering data

### Article No.

<b>TIM 3V-IE DNP3 communications module</b> With an RS232 interface for SINAUT communication via a conventional WAN and an IP-based network (WAN or LAN)	6NH7803-3BA00-0AA0
<b>SINAUT Engineering Software V5.3</b> On CD-ROM, comprising <ul style="list-style-type: none"> <li>• SINAUT ST7 Engineering Software V5.3 for the PG</li> <li>• SINAUT TD7 block library</li> <li>• Electronic manual in German and English</li> </ul>	6NH7997-0CA53-0AA0
<i>Accessories</i>	
<b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b> 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m	6XV1840-2AH10
<b>IE FC RJ45 Plug 180</b> RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 Packung = 50 Stück</li> </ul>	6GK1901-1BB10-2AA0 6GK1901-1BB10-2AB0 6GK1901-1BB10-2AE0
<b>IE FC Stripping Tool</b> Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables	6GK1901-1GA00
<b>Connecting cable</b> For connecting a TIM (RS 232) with a SINAUT ST7 MD2, MD3 or MD4 (RS 232) modem; cable length 1.5 m	6NH7701-4AL
<b>Connecting cable</b> For connecting a TIM (RS 232) with the GSM modem MD720-3; also suitable for third-party modems or radio equipment with standard RS 232 interface; cable length 2.5 m	6NH7701-5AN
<b>Connecting cable</b> with one end open for connecting a TIM (RS 232) to a third-party modem or radio unit (RS 232); cable length 2.5 m	6NH7701-4BN
<b>Connecting cable</b> For connecting two TIM modules via their RS 232 interface without modems ("null modem"); cable length 6 m	6NH7701-0AR

# Industrial Remote Communication

## TeleControl Professional – stations for the DNP3 protocol

### TIM 4R-IE DNP3

#### Overview



In an S7 station, the communications module TIM 4R-IE DNP3 (Telecontrol Interface Module) processes the data traffic for the S7-CPU to the assigned master system SIMATIC PCS7 TeleControl V7.1 SP2 using the open protocol DNP3 (Distributed Network Protocol).

- with the double-width S7-300 housing, can be fully integrated into the S7-300 system
- Can be connected as a stand-alone to a SIMATIC S7-400 and SIMATIC S7-400 H System Two RS232/RS485 interfaces for the connection of an external modem for data transmission via a conventional WAN or of a Modbus RTU slave to an S7-300 system
- Two RJ45 interfaces for data transmission via IP-based networks
- By the use of physically separate connection paths, the module permits media redundancy without loss of data during the switchover

#### Ordering data

##### TIM 4R-IE DNP3 communications module

With two combined RS 232/RS 485 interfaces for SINAUT communication via conventional WANs and two RJ45 interfaces for SINAUT communication via IP-based networks (WAN or LAN)

#### Article No.

**6NH7803-4BA00-0AA0**

##### SINAUT Engineering Software V5.3

- On CD-ROM, comprising
- SINAUT ST7 Engineering Software V5.3 for the PG
  - SINAUT TD7 block library
  - Electronic manual in German and English

**6NH7997-0CA53-0AA0**

#### Accessories

##### Backup battery

3,6 V/2,3 Ah für TIM 4R-IE DNP3

**6ES7971-0BA00**

##### IE FC TP Standard Cable GP 2 x 2 (Type A)

4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m

**6XV1840-2AH10**

##### IE FC RJ45 Plug 180

RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB10-2AA0**  
**6GK1901-1BB10-2AB0**  
**6GK1901-1BB10-2AE0**

#### Article No.

##### IE FC Stripping Tool

Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables

**6GK1901-1GA00**

##### Connecting cable

For connecting a TIM (RS 232) with a SINAUT ST7 MD2, MD3 or MD4 (RS 232) modem; cable length 1.5 m

**6NH7701-4AL**

##### Connecting cable

For connecting a TIM (RS485) with a SINAUT ST7 MD2, MD3 or MD4 (RS485) modem; cable length 1.5 m

**6NH7701-4DL**

##### Connecting cable

For connecting a TIM (RS 232) with the GSM modem MD720-3; also suitable for third-party modems or radio equipment with standard RS 232 interface; cable length 2.5 m

**6NH7701-5AN**

##### Connecting cable

with one end open for connecting a TIM (RS 232) to a third-party modem or radio unit (RS 232); cable length 2.5 m

**6NH7701-4BN**

##### Connecting cable

For connecting two TIM modules via their RS 232 interface without modems (\*null modem\*); cable length 6 m

**6NH7701-0AR**

##### SITOP compact 24 V/0,6 A

1-phase power supply with wide-range input 85 to 264 V AC/110 to 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design

**6EP1331-5BA00**

# Industrial Remote Communication

## TeleControl Professional – stations for the IEC protocol

CP 1243-1 IEC

### Overview



The CP 1243-1 IEC communications processor is used to connect a SIMATIC S7-1200 to a control center system via the IEC 60870 protocol and has the following characteristics:

- Support for the established communication standard in accordance with IEC 60870-5-104 for standardized linking of the SIMATIC S7-1200 to WinCC, PCS 7, or other commercially available control center systems
- Data transfer of measured values, control variables, or alarms optimized for telecontrol systems Automatic sending of alert emails
- Clearly laid out LED signaling for fast and easy diagnostics
- Compact industrial enclosure in S7-1200 design for mounting on a standard mounting rail
- Fast commissioning thanks to easy configuration using STEP 7
- Data buffering of up to 64,000 values ensures a secure database even with temporary connection failures

### Ordering data

### Article No.

#### CP 1243-1 IEC <sup>1)</sup> communications processor

Communications processor for connecting SIMATIC S7-1200 to a control center via the IEC 60870-5-104 protocol

**6GK7243-1PX30-0XE0**

### More information

#### **Technical requirements/compatibility**

An S7-1200 CPU with firmware version 3 is required for operating the CP 1243-1 IEC.

The CP 1243-1 IEC is configured using TIA Portal STEP 7 V13.

To connect to PCS 7/WinCC control center systems, the relevant telecontrol packages to support the IEC standard are required.

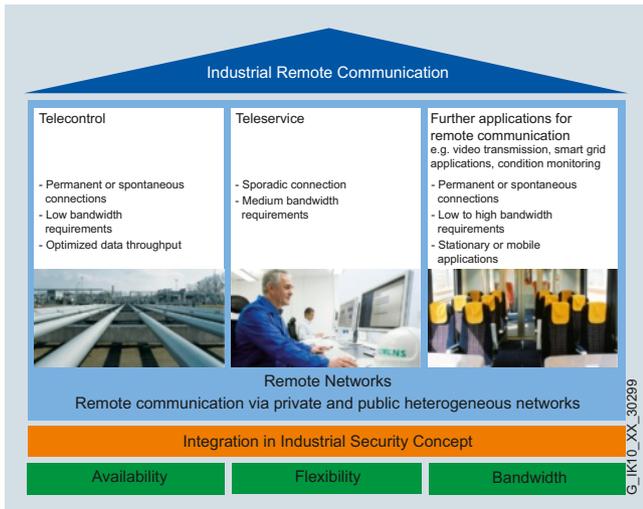
<sup>1)</sup> Available soon

# Industrial Remote Communication

## Remote Networks

### Introduction

### Overview



### Networked in many ways via remote networks

Remote networks are public or private communication infrastructures for covering wide areas or long distances, for example mobile radio or fixed telephone networks. The extensive Siemens remote networks portfolio offers connection to both conventional and IP-based infrastructures.

Remote communication via private and public networks continually results in new opportunities in the public and industrial communication environment due to increasing bandwidths, higher availability and decreasing costs.

The new product spectrum of SCALANCE M provides the right network component for every application. SCALANCE M can be used universally in the fields of telecontrol, teleservice and any other application for industrial remote communication. The connection to remote networks is made via public communications infrastructures such as DSL and mobile radio. The components are optimized for industrial use and integrated into the TIA environment. Thanks to the integrated encryption and access protection mechanisms, the devices make a crucial contribution to security in data communication. Groundbreaking security concepts (firewall, VPN) for the use of public and, in some cases, open infrastructures, such as the internet, protect the communication systems against unauthorized access from outside. In order to achieve a high level of process availability, the transmission networks can be redundantly structured.

Even for private leased lines or dialup networks, Siemens offers the right solution!

In order to achieve extensive networks, the connection via remote networks can be supplemented with further network components from the SIMATIC NET product portfolio – for example, with the fiber optic cable versions of the SCALANCE X industrial Ethernet switches or the SCALANCE W industrial wireless LAN components.

Security is the most important thing when constructing remote networks. Together with Security Integrated components, such as SCALANCE S, the remote access to IP-based networks can be protected with firewalls and VPN tunnels and saved from any risks.

# Industrial Remote Communication

## Remote Networks – IP-based modems and routers

SCALANCE M874

### Overview



The SCALANCE M874-3 is a mobile wireless router for cost-effectively and securely connecting Ethernet-based subnets and programmable controllers via the 3rd generation mobile wireless network (UMTS) and it supports HSPA+ (High Speed Packet Access). Thus, it allows high transfer rates of up to 14.4 Mbit/s in the downlink and up to 5.76 Mbit/s in the uplink (depending on the infrastructure of the mobile wireless provider).

The SCALANCE M874-2 is a mobile wireless router for cost-effectively and securely connecting Ethernet-based subnets and programmable controllers via the 2nd generation mobile wireless network (GSM) and it supports GPRS (General Packet Radio Service) and EDGE (Enhanced Data Rates for GSM Evolution).

The security of access and communication is ensured by the security functions of the integrated firewall and by VPN tunnels (end-to-end connection encryption through IPsec tunneling).

### Ordering data

#### SCALANCE M874 mobile radio router

Mobile radio router for wireless IP communication from Industrial Ethernet-based subnets and programmable controllers via UMTS or GSM mobile radio networks; with integrated firewall and VPN with IPsec;  
2 x RJ45 ports,  
1 x antenna connection

- SCALANCE M874-3 <sup>1)</sup>
- SCALANCE M874-2 <sup>1)</sup>

#### Article No.

6GK5874-3AA00-2AA2  
6GK5874-2AA00-2AA2

#### Article No.

#### SCALANCE S Industrial Security Modules <sup>2)</sup>

For protection of programmable controllers and automation networks, and for safeguarding of industrial communication; Security Modules protect network segments against unauthorized access by means of Stateful Inspection Firewall; connection of more than 10/100/1000 Mbit/s ports; configuring tool and electronic manual on CD-ROM; German, English, French, Italian, Spanish

- SCALANCE S602
- SCALANCE S612  
up to 128 VPN tunnels simultaneously;  
additional RJ45 DMZ port
- SCALANCE S623 <sup>2)</sup>  
up to 128 VPN tunnels simultaneously;  
additional RJ45 DMZ port;  
two additional slots for one 2-port media module each
- SCALANCE S627-2M  
up to 128 VPN tunnels simultaneously

#### CP 1243-1 <sup>3)</sup>

for connection of SIMATIC S7-1200 to Industrial Ethernet via TCP/IP, ISO and UDP and Stateful Inspection Firewall and VPN security functions; 1 x RJ45 interface with 10/100/1000 Mbit/s

#### CP 1543-1

for connection of SIMATIC S7-1500 to Industrial Ethernet via TCP/IP, ISO and UDP and Security functions; 1 x RJ45 interface with 10/100/1000 Mbit/s; electronic manual on DVD

#### Accessories

#### IE FC RJ45 Plug 180

RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 Packung = 50 Stück

#### ANT794-4MR antenna

Omnidirectional antenna for GSM (2G) and UMTS (3G) networks; weather-resistant for indoor and outdoor use; 5 m cable with fixed connection to antenna; SMA connector; including mounting bracket, screws, wall plugs

#### C-PLUG

Swap medium for simple replacement of devices in the event of a fault; for storing configuration or application data; can be used for SIMATIC NET products with C-PLUG slot

6GK1901-1BB10-2AA0  
6GK1901-1BB10-2AB0  
6GK1901-1BB10-2AE0

6NH9860-1AA00

6GK1900-0AB00

6GK5602-0BA10-2AA3  
6GK5612-0BA10-2AA3

6GK5623-0BA10-2AA3

6GK5627-2BA10-2AA3

6GK7243-1BX30-0XE0

6GK7543-1AX00-0XE0

# Industrial Remote Communication

## Remote Networks – IP-based modems and routers

### SCALANCE M874

Ordering data	Article No.	Article No.	
<p><b>CP 343-1 Advanced</b></p> <p>For connecting the SIMATIC S7-300 CPU to Industrial Ethernet: 1 x 10/100/1 000 Mbit/s; 2 x 10/100 Mbit/s (IE switch); RJ 45 ports; TCP; UDP; ISO; PROFINET IO-Controller and Device, S7 communication (client + server); open communication (SEND/RECEIVE); S7 routing; IP configuration via DHCP/block; extended web diagnostics; time synchronization; IP Access Control List; IP routing; FTP; email; PROFINET CBA; C-Plug</p> <ul style="list-style-type: none"> <li>with security (Firewall + VPN) and PROFlenergy (Controller + Device)</li> </ul>	<b>6GK7343-1GX31-0XE0</b>	<p><b>6GK1162-8AA00</b></p>	
<p><b>CP 443-1 Advanced</b></p> <p>for connecting the SIMATIC S7-400 CPU to Industrial Ethernet: 1 x 10/100/1000 Mbit/s; 4 x 10/100 Mbit/s (IE SWITCH); RJ45 ports; ISO; TCP; UDP; PROFINET IO controller, S7 communication; open communication (SEND/RECEIVE); S7 routing; IP configuration via DHCP/block; IP Access Control List; time synchronization; expanded web diagnostics; Fast Startup; PROFlenergy support; IP routing; FTP; web server; e-mail; PROFINET CBA</p> <ul style="list-style-type: none"> <li>without security function</li> <li>with security function (firewall and VPN)</li> </ul>	<p><b>6GK7443-1GX20-0XE0</b></p> <p><b>6GK7443-1GX30-0XE0</b></p>		
		<p><b>CP 1628</b><sup>1)</sup></p> <p>PCI Express x1 card for connection to Industrial Ethernet (10/100/1 000 Mbit/s), with 2-port switch (RJ45) and integrated security (firewall, VPN) via HARDNET-IE S7 and S7-REDCONNECT. For operating system support, see SIMATIC NET Software</p>	
		<p><b>IE TP Cord RJ45/RJ45</b></p> <p>TP cable 4 x 2 with 2 RJ45 connectors</p> <ul style="list-style-type: none"> <li>0,5 m</li> <li>1 m</li> <li>2 m</li> <li>6 m</li> <li>10 m</li> </ul>	<p><b>6XV1870-3QE50</b></p> <p><b>6XV1870-3QH10</b></p> <p><b>6XV1870-3QH20</b></p> <p><b>6XV1870-3QH60</b></p> <p><b>6XV1870-3QN10</b></p>

- <sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>
- <sup>2)</sup> Shipment without individual export license is restricted to certain countries. Export to other countries requires an individual export license that must be applied for from BIS (Bureau of Industry and Security).  
Note:  
Check the current country list  
<http://support.automation.siemens.com/WWW/view/de/66627157>
- <sup>3)</sup> Available soon

### More information

You will find more information on the topic of Industrial Security on the Internet at:

[www.siemens.com/industrialsecurity](http://www.siemens.com/industrialsecurity)

# Industrial Remote Communication

## Remote Networks – IP-based modems and routers

### SCALANCE M875 UMTS router

#### Overview



- Router for wireless IP communication between Industrial Ethernet-based programmable controllers via mobile radio networks of the 3rd generation (UMTS) and the 2nd generation (GSM)
- High data transfer rate thanks to HSDPA
- Integrated security functions with firewall
- Use as VPN end point (IPsec)

#### Ordering data

##### SCALANCE M875 UMTS Router

UMTS router for wireless IP communication from Industrial Ethernet-based programmable controllers via UMTS/GSM mobile radio networks; EGPRS Multislot Class 12; with integrated firewall and VPN with IPsec; 2 x RJ45 ports, 2 x antenna connections

- **SCALANCE M875** <sup>1)</sup>
- **SCALANCE M875** <sup>1) 3)</sup> for Japan
- **SCALANCE M875** <sup>1) 3)</sup> for South Korea

#### Article No.

**6GK5875-0AA10-1AA2**  
**6GK5875-0AA10-1CA2**  
**6GK5875-0AA10-1EA2**

##### Accessories

##### IE FC RJ45 Plug 180

RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

**6GK1901-1BB10-2AA0**  
**6GK1901-1BB10-2AB0**  
**6GK1901-1BB10-2AE0**

##### ANT794-4MR antenna

Omnidirectional antenna for GSM (2G) and UMTS (3G) networks; weather-resistant for indoor and outdoor use; 5 m cable with fixed connection to antenna; SMA connector; including mounting bracket, screws, wall plugs

**6NH9860-1AA00**

#### Article No.

##### SCALANCE S Industrial Security Modules <sup>2)</sup>

For protection of programmable controllers and automation networks, and for safeguarding of industrial communication; Security Modules protect network segments against unauthorized access by means of Stateful Inspection Firewall; connection of more than 10/100/1000 Mbit/s ports; configuring tool and electronic manual on CD-ROM; German, English, French, Italian, Spanish

- **SCALANCE S602**  
up to 128 VPN tunnels simultaneously; additional RJ45 DMZ port
- **SCALANCE S612**  
up to 128 VPN tunnels simultaneously; additional RJ45 DMZ port; two additional slots for one 2-port media module each
- **SCALANCE S623** <sup>2)</sup>  
up to 128 VPN tunnels simultaneously; additional RJ45 DMZ port; two additional slots for one 2-port media module each
- **SCALANCE S627-2M**  
up to 128 VPN tunnels simultaneously

**6GK5602-0BA10-2AA3**  
**6GK5612-0BA10-2AA3**

**6GK5623-0BA10-2AA3**

**6GK5627-2BA10-2AA3**

##### CP 1243-1 <sup>3)</sup>

for connection of SIMATIC S7-1200 to Industrial Ethernet via TCP/IP, ISO and UDP and Stateful Inspection Firewall and VPN security functions; 1 x RJ45 interface with 10/100/1000 Mbit/s

**6GK7243-1BX30-0XE0**

##### CP 1543-1

for connection of SIMATIC S7-1500 to Industrial Ethernet via TCP/IP, ISO and UDP and Security functions; 1 x RJ45 interface with 10/100/1000 Mbit/s; electronic manual on DVD

**6GK7543-1AX00-0XE0**

# Industrial Remote Communication

## Remote Networks – IP-based modems and routers

### SCALANCE M875 UMTS router

Ordering data	Article No.	Article No.
<p><b>CP 343-1 Advanced</b></p> <p>For connecting the SIMATIC S7-300 CPU to Industrial Ethernet: 1 x 10/100/1 000 Mbit/s; 2 x 10/100 Mbit/s (IE switch); RJ 45 ports; TCP; UDP; ISO; PROFINET IO-Controller and Device, S7 communication (client + server); open communication (SEND/RECEIVE); S7 routing; IP configuration via DHCP/block; extended web diagnostics; time synchronization; IP Access Control List; IP routing; FTP; email; PROFINET CBA; C-Plug</p> <ul style="list-style-type: none"> <li>with security (Firewall + VPN) and PROFlenergy (Controller + Device)</li> </ul>	<b>6GK7343-1GX31-0XE0</b>	<p><b>CP 1628</b> <sup>1)</sup></p> <p>PCI Express x1 card for connection to Industrial Ethernet (10/100/1 000 Mbit/s), with 2-port switch (RJ45) and integrated security (firewall, VPN) via HARDNET-IE S7 and S7-REDCONNECT. For operating system support, see SIMATIC NET Software</p>
<p><b>CP 443-1 Advanced</b></p> <p>for connecting the SIMATIC S7-400 CPU to Industrial Ethernet: 1 x 10/100/1000 Mbit/s; 4 x 10/100 Mbit/s (IE SWITCH); RJ45 ports; ISO; TCP; UDP; PROFINET IO controller, S7 communication; open communication (SEND/RECEIVE); S7 routing; IP configuration via DHCP/block; IP Access Control List; time synchronization; expanded web diagnostics; Fast Startup; PROFlenergy support; IP routing; FTP; web server; e-mail; PROFINET CBA</p> <ul style="list-style-type: none"> <li>without security function</li> <li>with security function (firewall and VPN)</li> </ul>	<p><b>6GK7443-1GX20-0XE0</b></p> <p><b>6GK7443-1GX30-0XE0</b></p>	<p><b>IE TP Cord RJ45/RJ45</b></p> <p>TP cable 4 x 2 with 2 RJ45 connectors</p> <ul style="list-style-type: none"> <li>0,5 m</li> <li>1 m</li> <li>2 m</li> <li>6 m</li> <li>10 m</li> </ul> <p><b>6XV1870-3QE50</b></p> <p><b>6XV1870-3QH10</b></p> <p><b>6XV1870-3QH20</b></p> <p><b>6XV1870-3QH60</b></p> <p><b>6XV1870-3QN10</b></p>

- <sup>1)</sup> Please note national approvals under <http://www.siemens.com/wireless-approvals>
- <sup>2)</sup> Shipment without individual export license is restricted to certain countries. Export to other countries requires an individual export license that must be applied for from BIS (Bureau of Industry and Security).  
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Check the current country list:  
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- <sup>3)</sup> Available soon

### More information

You will find more information on the topic of Industrial Security on the Internet at:

[www.siemens.com/industrialsecurity](http://www.siemens.com/industrialsecurity)

To assist in selecting the right products for Industrial Wireless Communication, the SIMATIC NET Selection Tool is available at: <http://www.siemens.com/snst>

### Modems for the conventional telephone network

#### Overview



SINAUT MD3 modem

Modems are used for wired transmission of signals and data between individual stations and the control center of a telecontrol system.

Siemens offers appropriate modems for both dedicated lines and dial-up networks.

Like the TIM modules, these are accommodated in an S7-300 enclosure:

- **MD2;**  
dedicated-line modem for multi-point connection, can be tapped, can also be used as a repeater, max. 19,200 bps
- **MD3;**  
modem for the analog telephone network, max. 33,600 bps; can also be used as a dedicated-line modem for a point-to-point connection, max. 33,600 bps in voice band

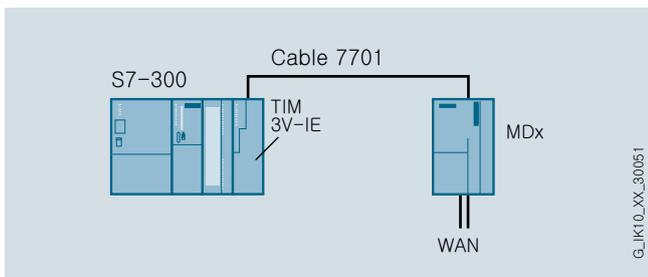
These modems can be connected to the serial modem interface of a TIM module.

The modems are supplied together with the WAN connecting cable required in each case. Connecting cables for connecting the modems to a TIM must be ordered separately.

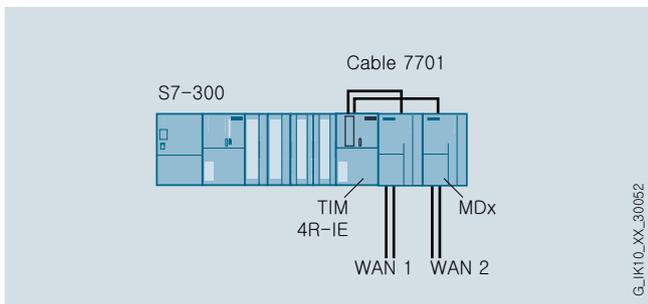
#### Design

##### Configuration examples

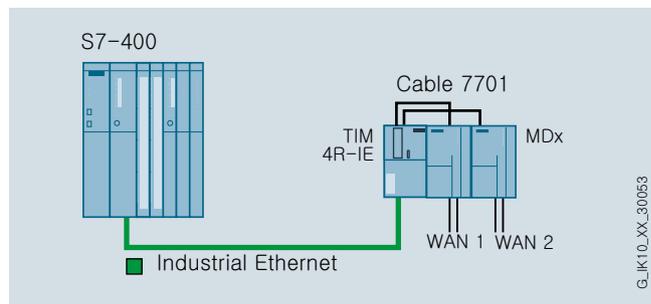
An MDx modem is connected to a TIM by means of a standard connecting cable of type 7701. The modem is mounted on a separate S7-300 mounting rail or on a 35 mm standard mounting rail (an appropriate adapter is available).



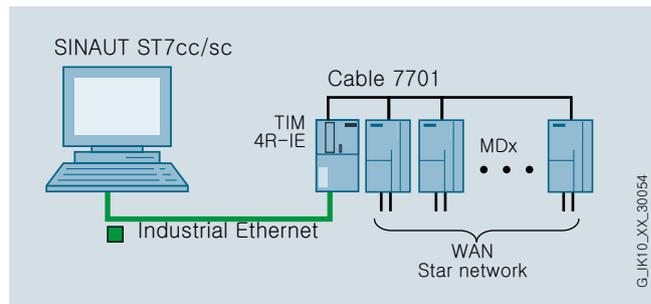
In the following configuration, the modem is accommodated to the far right in the rack. The TIM is connected to the adjacent module by means of a bus connector. There is no bus connector between TIM and modem. This means that no S7 modules may be used immediately to the right of the modem.



In an S7-400 with TIM 4R-IE the TIM and modem are mounted together on a separate S7-300 mounting rail. The TIM is connected to the CPU by means of one of its Ethernet interfaces. The TIM and MDx modem are connected by means of a standard connecting cable of type 7701.



The following configuration shows the connection of a point-to-point dedicated line network to a TIM 4R-IE, which is used as a control center TIM, for example on the control center PC (e.g. SINAUT ST7cc or ST7sc). Each cable belonging to the point-to-point network is terminated with a modem in the control center. All these modems are connected by means of their RS485 interface to the RS232/RS485 interface of the TIM 4R-IE.



# Industrial Remote Communication

## Remote Networks – modems for the conventional telephone network

### MD2 dedicated line modem

#### Overview



- Frequency-modulated (FSK) dedicated line modem;
- Half-duplex data transfer over 2-wire dedicated line, duplex data transfer over 4-wire dedicated line
- Thanks to the modem's relaying ability, lines with several connected stations can also be implemented. The MD2 can also be used as repeater on 2-wire and 4-wire dedicated lines.
- Private or leased telephone lines can be used as dedicated lines. The MD2 is also suitable for connection to a radio device with modem input.

#### Ordering data

#### Article No.

##### MD2 dedicated line modem

6NH7810-0AA20

For multi-point connection, supports tandem stations, can also be used as a repeater, max. 19,200 bit/s; incl. WAN connecting cable (RJ12/RJ12) for connecting the modem with an LTOP overvoltage protection module

##### Connecting cable

For connecting a TIM with one of the SINAUT ST7 MD2, MD3 modems

Cable length 1.5 m

- RS 232
- RS 485 (not for TIM 3V-IE)

6NH7701-4AL  
6NH7701-4DL

##### Accessories

##### Connecting cable

For connecting two MD2 modems (RS 232) in order to create a repeater; cable length 0.3 m

6NH7701-1CB

##### Line transformer with overvoltage protection

- LTOP1 for 2-wire terminal

6NH9821-0BC11

- LTOP2 for 4-wire terminal, 2 x 2-wire terminal or 2-wire tandem station

6NH9821-0BC12

##### Adapters

For mounting the MD2 modem on a 35 mm standard mounting rail

6NH7760-0AA

##### SITOP compact 24 V/0,6 A

1-phase power supply with wide-range input 85 ... 264 V AC/110 ... 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design

6EP1331-5BA00

# Industrial Remote Communication

## Remote Networks – modems for the conventional telephone network

### MD3 telephone modem

#### Overview



- Dial-up modem for data transfer using the analog telephone network
- It can also be used as a dedicated line modem. Duplex data transfer is thus possible in the voice band over 2-wire dedicated lines.
- Private or leased telephone lines can be used as dedicated lines.

#### Ordering data

#### Article No.

##### MD3 telephone modem

6NH7810-0AA30

For the analog telephone network, max. 33600 bit/s;  
can also be used as a dedicated-line modem for a point-to-point connection, max. 33600 bit/s in voice band;  
incl. WAN connecting cable (RJ12 -RJ12/TAE6) with snap-on TAE6N connector for connecting the modem to a telephone outlet (TAE6N or RJ12) or an LTOP overvoltage protection module (for dedicated-line operation)

##### Accessories

##### Connecting cable

For connecting a TIM with one of the SINAUT ST7 MD2, MD3 modems  
Cable length 1.5 m

- RS 232
- RS 485 (not for TIM 3V-IE)

6NH7701-4AL  
6NH7701-4DL

##### Line transformer with overvoltage protection

- LTOP1 for 2-wire terminal

6NH9821-0BC11

##### Adapters

For mounting the MD2 modem on a 35 mm standard mounting rail

6NH7760-0AA

##### SITOP compact 24 V/0,6 A

1-phase power supply with wide-range input  
85 ... 264 V AC/110 ... 300 V DC,  
stabilized output voltage 24 V,  
rated output current value 0.6 A,  
slim design

6EP1331-5BA00

# Industrial Remote Communication

## Accessories for Remote Networks

### LTOP overvoltage protection

#### Overview



- Line transformer with overvoltage protection
- For electrical isolation of a dedicated line modem from the trunk line
- For protection against overvoltages that can be injected into a trunk line

#### Ordering data

#### Article No.

##### LTOP 1 overvoltage protection

Single line transformer, with one OPM overvoltage protection module for use at the start or end of a 2-wire line

**6NH9821-0BC11**

##### LTOP 2 overvoltage protection

2-way line transformer with two overvoltage protection modules (OPM) for use at the beginning or at the end of a 4-wire cable or at a 2-wire grading point.

**6NH9821-0BC12**

#### Accessories

##### OPM

Overvoltage protection module for LTOP1 and LTOP2, plug-in (pack of 4)

**6NH9821-0BB00**

# Industrial Remote Communication

## Accessories for Remote Networks

### ANT794-4MR GSM/GPRS antenna

#### Overview



- Omnidirectional antenna for use in GSM/GPRS/UMTS networks
- Remote antenna for indoors/outdoors
- Suitable for quad band
- Complete with cable and mounting bracket for direct connection to SINAUT GPRS modems

#### Ordering data

#### Article No.

##### GSM/GPRS antenna

##### ANT794-4MR antenna

Omnidirectional antenna for GSM (2G) and UMTS (3G) networks; weather-resistant for indoor and outdoor use; 5 m cable with fixed connection to antenna; SMA connector; including mounting bracket, screws, wall plugs

**6NH9860-1AA00**

#### More information

##### Selection tools:

To assist in selecting the right Industrial Wireless Communication, the SIMATIC NET Selection Tool is available at:

SIMATIC NET Selection Tool:

- Online version  
<http://www.siemens.com/snst>
- Offline version  
<http://www.siemens.com/snst-download>

##### Wireless approvals:

Current approvals can be found on the Internet at:  
<http://www.siemens.de/wireless-approvals>

# Industrial Remote Communication

## Accessories for Remote Networks

### ANT794-3M GSM/GPRS antenna

#### Overview



- Flat panel antenna for mobile telephony for GSM 900/1800/1900
- Suitable for exterior and interior installation
- Electrically independent installation
- Ready for connection with cable for GSM/GPRS modems with SMA connection

#### Ordering data

#### Article No.

##### *GSM/GPRS antenna*

##### **ANT794-3M antenna**

Flat panel antenna for GSM (2G) networks, for triband with 900/1800/1900 MHz; weather-resistant for indoor/outdoor use, 1.2 m cable with fixed connection to antenna; SMA connector, incl. assembly adhesive tape

**6NH9870-1AA00**

#### More information

##### **Selection tools:**

To assist in selecting the right Industrial Wireless Communication, the SIMATIC NET Selection Tool is available at:

SIMATIC NET Selection Tool:

- Online version  
<http://www.siemens.com/snst>
- Offline version  
<http://www.siemens.com/snst-download>

##### **Wireless approvals:**

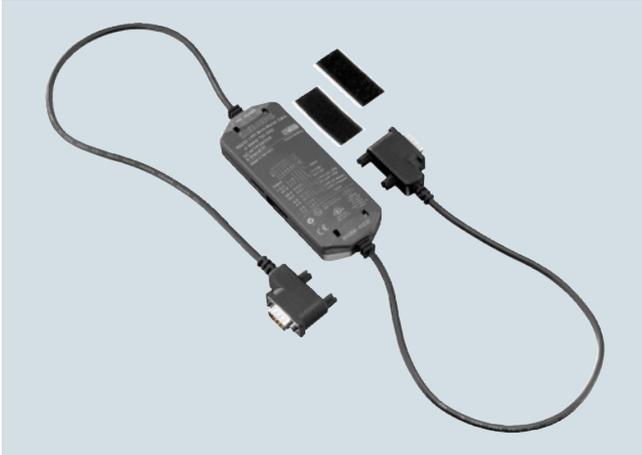
Current approvals can be found on the Internet at:  
<http://www.siemens.de/wireless-approvals>

# Industrial Remote Communication

## Accessories for Remote Networks

### PPI modem cable

#### Overview



- Intelligent RS232/PPI multimaster cable for connecting modems with RS 232 interface to SIMATIC S7-200 (RS485)

#### Ordering data

#### Article No.

##### PPI modem cable

For connecting modems with  
RS232 interface to SIMATIC S7-200

**6NH9701-0AD**

# Industrial Remote Communication

## Accessories for Remote Networks

### Connecting cables

#### Overview



There is a series of standard connecting cables for connecting the SINAUT components to one another or to the respective WAN. Some of these cables are already supplied as a permanent item along with the hardware components and are listed in the ordering data of these components as spare parts.

#### Ordering data

#### Article No.

##### Connecting cable

For connecting a TIM with a SINAUT ST7 MD2, MD3 or MD4 modem;  
cable length 1.5 m

- RS232  
Also suitable for interfacing the modems listed with a SIMATIC point-to-point CP such as the CP340, CP341 or CP441 with RS232 interface
- RS485

**6NH7701-4AL**

##### Connecting cable

For connecting two MD2 modems (RS 232) in order to create a repeater;  
cable length 0.3 m

**6NH7701-4DL**

**6NH7701-1CB**

##### Connecting cable

For connecting a TIM (RS232) with the GSM modem MD720-3; also suitable for third-party modems or radio equipment with standard RS232 interface;  
cable length 2.5 m

**6NH7701-5AN**

##### Connecting cable open at one end

For connecting a TIM (RS232) with a third-party modem or radio unit (RS232);  
cable length 2.5 m

**6NH7701-4BN**

##### Test cable

Connecting cable for connecting two TIMs via their RS232 interface without modems (\*null modem\*);  
cable length 6 m

**6NH7701-0AR**

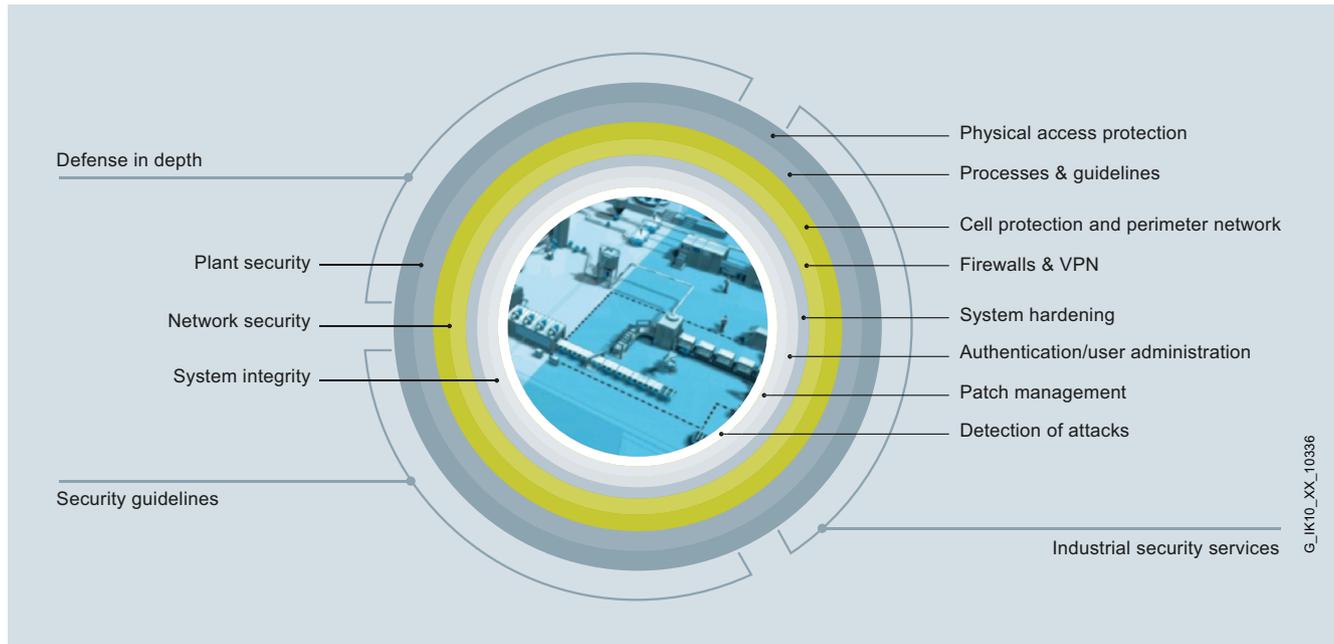
## Overview

### Industrial security

#### *That is why industrial security is so important*

As the use of Ethernet connections all the way down to the field level increases, the associated security issues are becoming a more urgent topic for industry. After all, open communication and increased networking of production systems involve not

only huge opportunities, but also high risks. To provide an industrial plant with comprehensive security protection against attacks, the appropriate measures must be taken. Siemens supports you in selectively implementing these measures – within the scope of our integrated range for industrial security.



#### **Siemens Industrial Security – continuous protection for your plant**

An optimum industrial security solution can only be implemented if new approaches are taken because they must be continuously adapted to new threats. There is no such thing as absolute security. To ensure a comprehensive and permanent solution, we provide in-depth advice, partner-like cooperation, and constant further development of our security measures and products.

#### **All-round, but also in-depth protection**

With Defense in Depth, Siemens provides a multi-level concept that protects your plant both all round and in depth. The concept is based on the components, plant security, network security, and system integrity, as recommended by ISA 99 / IEC 62443 – the leading standard for security in industrial automation. While conventional plant security defends the plant against physical attacks, network protection and protection of system integrity protect against cyber attacks and unauthorized access by operators or external persons.

#### **Success factor: network security**

Network security means protecting automation networks from unauthorized access. This includes the monitoring of all interfaces such as the interfaces between office and plant networks or the remote maintenance access to the Internet, which can be accomplished by means of firewalls and, if applicable, by establishing a DMZ (demilitarized zone = secure, protected zone). The DMZ is used to provide data for other networks, without granting direct access to the automation network. The secure segmenting of the plant network into individually protected automation cells minimizes risks and increases security. Cell division and device assignment are based on communication and protection requirements. Data transmission is encrypted by means of a VPN and is thus protected from data espionage and manipulation. The communication stations are securely authenticated. The cell protection concept can be implemented and communication can be secured using "Security Integrated" components such as SCALANCE S Security Modules, SCALANCE M wireless routers, or Security CPs for SIMATIC.

#### **Initial risk assessment and information on the Internet**

You want to know now how good the security of your industrial plant is? We can provide you with detailed information about the special security issues in your industry. Use the opportunity to contact our consulting team about any open issues. Our experts will gladly prepare a security concept that is adapted to the needs of your production plant or process infrastructure. You can download the additional "Operational Guidelines" with many recommendations for protecting your production plant from our Internet site.

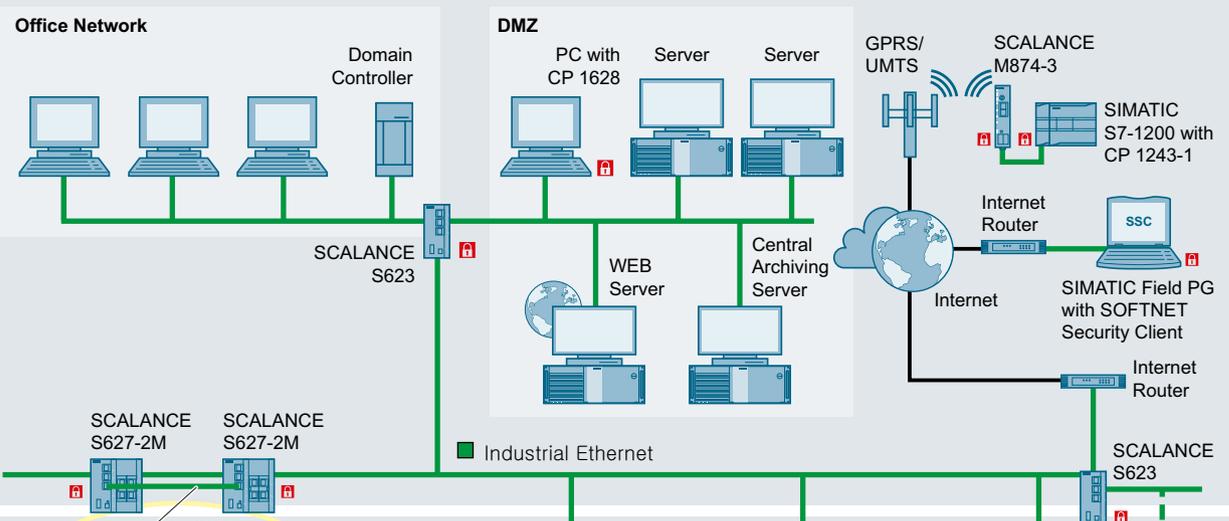
## Introduction

### Overview (continued)

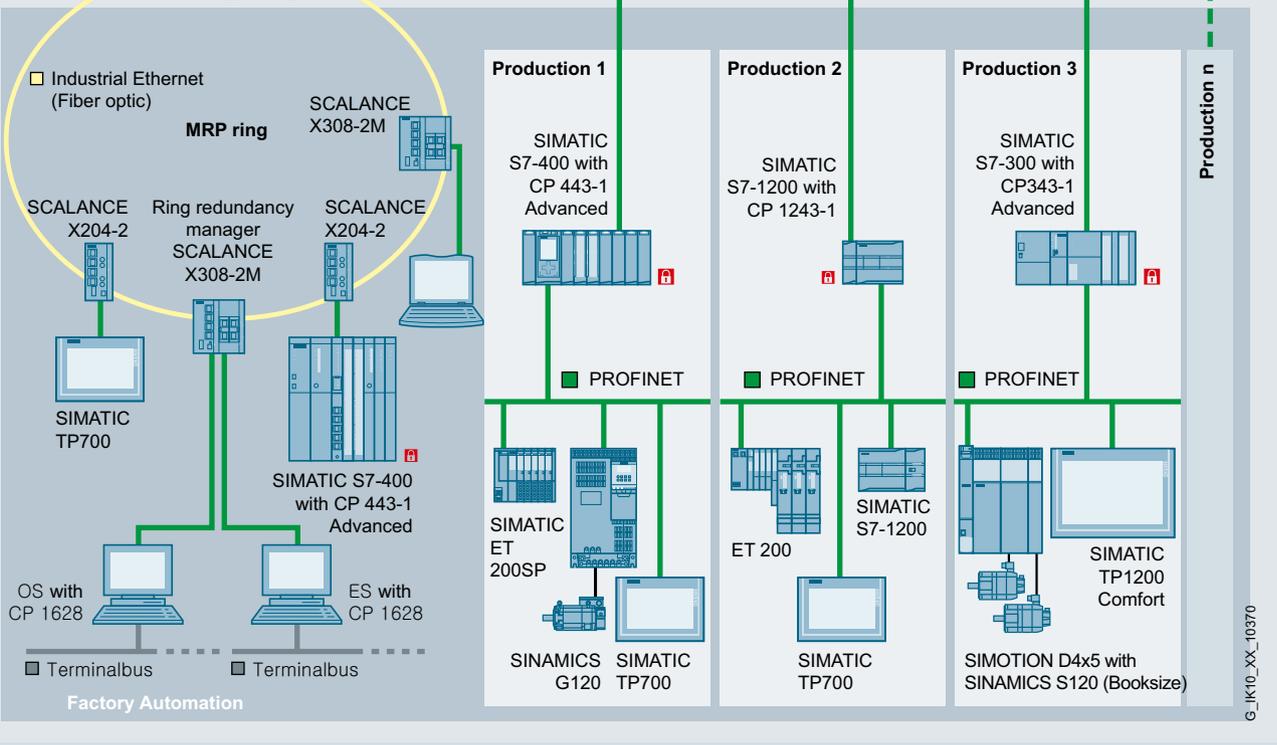
Plant Security



Network Security



System Integrity



G\_IKT0\_XX\_10370

Secure communication, network access protection and network segmentation with Security Integrated products

### Overview (continued)

#### Security Integrated

##### Cell protection concept

Industrial communication is a key factor for corporate success – as long as the network is protected. As your partner, Siemens provides its customers with Security Integrated components, which not only have communication functions but also include special security functions such as firewall and VPN functionality, in order to implement the cell protection concept. With the cell protection concept, a plant network is subdivided into protected automation cells within which all devices are able to communicate with each other securely. The individual cells are connected to the plant network protected by a VPN and firewall. Cell protection reduces the susceptibility to failure of the entire production plant and thus increases its availability. Security Integrated products such as SCALANCE S, SCALANCE M and SIMATIC S7/PC communications processors can be used for implementation.

The following Security Integrated products are available:

#### SIMATIC S7-1200 / S7-1500:

- Protection of the controller by access protection (authentication) via the **S7-1200/S7-1500 CPU**:
  - Know-how protection
  - Manipulation protection
  - Copy protection
- Expandable access protection (firewall and VPN) for S7-1200/S7-1500 with Security **CP 1243-1<sup>1)</sup>/CP 1543-1** by means of
  - Integrated firewall (monitoring of the data flow)
  - Protection against data manipulation and espionage by means of a VPN

#### SIMATIC S7-300 und S7-400

- Protection of controllers by **CP 343-1 Advanced and CP 443-1 Advanced** communications processors, which contain both firewall and VPN (virtual private network) functionality.

#### SCALANCE S security modules

Use the Stateful Inspection Firewall to protect network segments against unauthorized access.

- **SCALANCE S623** with additional DMZ (demilitarized zone) port that opens a separate and, if required, restricted network access point for service purposes, e.g. for remote maintenance over the Internet.
- **SCALANCE S627** with two additional slots for 2-port media modules for direct integration in ring or line topologies
  - Direct connection to FO networks using FO media modules
  - Protection of redundant rings (MRP, HRP)
  - Secure, redundant connection of lower-level networks with standby coupling

#### SCALANCE M wireless router

- **SCALANCE M875/SCALANCE M874** for secure access to plant units via the mobile network; are routers for wireless IP communication between Industrial Ethernet-based programmable controllers via mobile radio networks of the 3rd generation (UMTS) and the 2nd generation (GSM)
  - High data transfer rate thanks to HSDPA
  - Integrated security functions with firewall
  - Use as VPN end point (IPsec)

#### Industrial PCs

- Via the **CP 1628** communications processor, the industrial PCs are protected by firewall and VPN – for secure communication without special operating system settings. This means that computers equipped with the module can be connected to protected cells.

#### Software

- The **SOFTNET Security Client** software enables access via the Internet or a company intranet to automation cells or PCs protected by SCALANCE S or a component with Security Integrated.

	SCALANCE S family	SCALANCE M875/ SCALANCE M874-2/ SCALANCE M874-3	CP 343-1 Adv/ CP 443-1 Adv	S7-1200 CPU <sup>1)</sup> S7-1500 CPU	CP1243-1 <sup>1)</sup> / CP1543-1	CP 1628	SOFTNET Security Client
Configurable copy protection				•			
Access protection (authentication)				•			
Extended access protection (Firewall)	•	•	•		•	•	
Virtual Private Network with IPSec	•	•	•		•	•	•
Manipulation protection (communication, configuration)	•	•	•	•	•	•	•

• applies

1) from CPU firmware V4.0 from STEP 7 Professional V13

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Secure communication, network access protection and network segmentation with Security Integrated products

<sup>1)</sup> Availability soon

## Introduction

## Ordering data

## Article No.

## Article No.

*Security Integrated devices***SCALANCE S  
Industrial Security Modules** <sup>1)</sup>

For protecting programmable controllers and automation networks and for securing industrial communication; Security Modules protect network segments against unauthorized access by means of Stateful Inspection Firewall; connection of more than 10/100/1000 Mbit/s ports; configuring tool and electronic manual on CD ROM; English, German, French, Italian, Spanish;

**SCALANCE S602**

6GK5602-0BA10-2AA3

**SCALANCE S612**

up to 128 VPN tunnels simultaneously

6GK5612-0BA10-2AA3

**SCALANCE S623**

up to 128 VPN tunnels simultaneously;  
additional RJ45 DMZ port

6GK5623-0BA10-2AA3

**SCALANCE S627-2M**

up to 128 VPN tunnels simultaneously;  
additional RJ45 DMZ port;  
two additional slots for one 2-port media module each

6GK5627-2BA10-2AA3

**SOFTNET Security Client V4 HF1**

6GK1704-1VW04-0AA0

Software for designing secure IP-based VPN connections from a programming device/PC to network segments which are secured by SCALANCE S, Scalance M, CP 343-1 Advanced, CP 443-1 Advanced, or CP 1628; Single License for 1 installation, runtime software (German/English), configuration tool (German/English), and electronic manual on CD-ROM (German/English/French/Spanish/Italian) for Windows 7 Professional, Ultimate, Windows XP Professional (32-bit) + SP3

*Communications processors for SIMATIC S7***CP 1243-1 communication processor** <sup>3)</sup>

for connection of SIMATIC S7-1200 to Industrial Ethernet via TCP/IP, ISO and UDP and security functions Stateful Inspection Firewall and VPN; 1 x RJ45 interface with 10/100/1000 Mbit/s

6GK7243-1BX30-0XE0

**CP 1543-1 communication processor;**

for connection of SIMATIC S7-1500 to Industrial Ethernet via TCP/IP, ISO and UDP and security functions Stateful Inspection Firewall and VPN; 1 x RJ45 interface with 10/100/1000 Mbit/s;

6GK7543-1AX00-0XE0

**CP 343-1 Advanced communications processor;**

for connecting the SIMATIC S7-300 CPU to Industrial Ethernet; 1 x 10/100/1000 Mbit/s; 2 x 10/100 Mbit/s (IE switch); RJ 45 ports; TCP; UDP; ISO; PROFINET IO controller and device, S7 communication (client + server); open communication (SEND/RECEIVE); S7 routing; IP configuration via DHCP/block; extended web diagnostics; time synchronization; IP Access Control List; IP routing; FTP; email; PROFINET CBA; C-Plug

- With Security (Firewall + VPN) and PROEnergy (Controller + Device)

6GK7343-1GX31-0XE0

**CP 443-1 Advanced communications processor;**

for connecting the SIMATIC S7-400 CPU to Industrial Ethernet; 1 x 10/100/1000 Mbit/s; 4 x 10/100 Mbit/s (IE SWITCH); RJ45 ports; ISO; TCP; UDP; PROFINET IO controller, S7 communication; open communication (SEND/RECEIVE); S7 routing; IP configuration via DHCP/block; IP Access Control List; time synchronization; expanded web diagnostics; Fast Startup; PROEnergy support; IP routing; FTP; web server; e-mail; PROFINET CBA

- With security functionality (firewall and VPN)

6GK7443-1GX30-0XE0

*Communications processors for PG/PC/IPC***CP 1628 communications processor** <sup>1)</sup>;

PCI Express x1 card for connection to Industrial Ethernet (10/100/1000 Mbit/s), with 2-port switch (RJ45) and integrated security (firewall, VPN) via HARDNET-IE S7 and S7-RED-CONNECT. For operating system support, see SIMATIC NET Software

6GK1162-8AA00

*SCALANCE M875 UMTS Router*

UMTS router for wireless IP communication from Industrial Ethernet-based programmable controllers via UMTS/GSM mobile radio networks; EGPRS Multislot Class 12; with integrated firewall and VPN with IPsec; 2 x RJ45 ports, 2 x antenna connections

**SCALANCE M875** <sup>2)</sup>

6GK5875-0AA10-1AA2

**SCALANCE M875** <sup>2)</sup>  
for Japan

6GK5875-0AA10-1CA2

**SCALANCE M875** <sup>2)</sup>  
for South Korea

6GK5875-0AA10-1EA2

*SCALANCE M874 UMTS Routers*

Mobile radio router for wireless IP communication from Industrial Ethernet-based subnets and programmable controllers via UMTS or GSM mobile radio networks; with integrated firewall and VPN with IPsec; 2 x RJ45 ports, 1 x antenna connection

**SCALANCE M874-3** <sup>2)</sup>

6GK5874-3AA00-2AA2

**SCALANCE M874-2** <sup>2)</sup>

6GK5874-2AA00-2AA2

Ordering data (continued)	Article No.	Article No.
<b>Accessories</b>		
<b>IE FC TP Standard Cable GP 2 x 2 (Type A)</b> 4-wire, shielded TP installation cable for connecting to IE FC RJ45 outlet/IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m	<b>6XV1840-2AH10</b>	
<b>IE FC RJ45 Plug 180</b> RJ45 plug-in connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface <ul style="list-style-type: none"> <li>• 1 pack = 1 unit</li> <li>• 1 pack = 10 units</li> <li>• 1 pack = 50 units</li> </ul>	<b>6GK1901-1BB10-2AA0</b> <b>6GK1901-1BB10-2AB0</b> <b>6GK1901-1BB10-2AE0</b>	
<b>IE FC Stripping Tool</b> Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables	<b>6GK1901-1GA00</b>	
<b>SITOP compact 24 V/0,6 A</b> 1-phase power supply with wide-range input 85 – 264 V AC/110 – 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design	<b>6EP1331-5BA00</b>	
<b>C-PLUG</b> Swap medium for simple replacement of devices in the event of a fault; for storing configuration or application data; can be used for SIMATIC NET products with C-PLUG slot	<b>6GK1900-0AB00</b>	
		<b>SOFTNET Security Client</b> Software for designing secure IP-based VPN connections from a programming device/PC to network segments which are secured by SCALANCE S; single license for 1 installation, runtime software (German/English), configuring tool (German/English) and electronic manual on CD-ROM (German/English/French/Spanish/Italian)
		<b>SOFTNET Security Client Edition 2008</b> <b>6GK1704-1VW02-0AA0</b> for 32-bit Windows, XP Professional + SP1, SP2, SP3
		<b>SOFTNET Security Client V3</b> <b>6GK1704-1VW03-0AA0</b> For 32-bit Windows 7 Professional, Ultimate, Windows XP Professional + SP3
		<b>SOFTNET Security Client V4</b> <b>6GK1704-1VW04-0AA0</b> For 32/64-bit Windows 7 Professional/Ultimate
		<sup>1)</sup> Shipment without individual export license is restricted to certain countries. Export to other countries requires an individual export license that must be applied for from BIS (Bureau of Industry and Security). <sup>2)</sup> Please note national approvals under: <a href="http://www.siemens.de/funkzulassungen">http://www.siemens.de/funkzulassungen</a> <sup>3)</sup> Available soon
		Note: Check the current country list: <a href="http://support.automation.siemens.com/WW/view/de/66627157">http://support.automation.siemens.com/WW/view/de/66627157</a>

# Industrial Security

## Security Integrated

### SCALANCE S

#### Overview



- Security modules for the protection of automation networks and security during data exchange between automation systems.
- Checking and filtering of data traffic by integrated firewall and thus:
  - Protection against operator mistakes
  - Prevention of unauthorized access
  - Prevention of faults and communications overload
- Authentication of the communication partners and encryption of the transmitted data with VPN and thus protection of communication against espionage and manipulation.
- Rugged, industry-compatible design of the devices
- Easy and clear configuration:  
Using the Security Configuration Tool (SCT), all SIMATIC NET security products can be configured and diagnosed from a central position.
- No changes or adaptations necessary in the existing network topology, applications or network stations since SCALANCE S can also be used as a bridge and not just as a router.
- Safeguarding of communication is independent of the protocol (e.g. PROFINET or other Ethernet-based fieldbus solutions)
- Secure remote access via the Internet possible without restrictions and with any providers
- Increased availability is possible by means of redundant protection of automation cells or ring topologies

#### Ordering data

#### Article No.

##### *SCALANCE S Industrial Security Modules*

For protection of programmable controllers and automation networks, and for safeguarding of industrial communication; configuring tool and electronic manual on CD-ROM  
German, English, French, Italian, Spanish

**SCALANCE S602<sup>1)</sup>**  
uses Stateful Inspection Firewall to protect network segments against unauthorized access

- With 10/100/1000 Mbit/s

**6GK5602-0BA10-2AA3**

**SCALANCE S612<sup>1)</sup>**  
uses Stateful Inspection Firewall to protect network segments against unauthorized access

- With 10/100/1000 Mbit/s up to 128 VPN tunnels simultaneously

**6GK5612-0BA10-2AA3**

**SCALANCE S623<sup>1)</sup>**  
uses Stateful Inspection Firewall to protect network segments against unauthorized access; up to 128 VPN tunnels simultaneously

**6GK5623-0BA10-2AA3**

**SCALANCE S627-2M<sup>1)</sup>**  
uses Stateful Inspection Firewall to protect network segments against unauthorized access

- With 10/100/1000 Mbit/s up to 128 VPN tunnels simultaneously

**6GK5627-2BA10-2AA3**

<sup>1)</sup> Shipment without individual export license is restricted to certain countries. Export to other countries requires an individual export license that must be applied for from BIS (Bureau of Industry and Security).

Note:

Check the current country list:

<http://support.automation.siemens.com/WW/view/de/66627157>

#### More information

You will find more information on the topic of Industrial Security on the Internet at:

<http://www.siemens.com/industrialsecurity>

### Overview



#### **CP 1243-1 <sup>1)</sup>**

The CP 1243-1 communications processor serves to connect a SIMATIC S7-1200 to the control center software Telecontrol Server Basic via Ethernet and is also used in secure communications via IP-based networks. It is characterized by the following properties:

- Ethernet-based connection to the Telecontrol Server Basic, e.g. via the Internet
- Data transfer of measured values, control variables, or alarms optimized for remote control systems
- Automatic sending of alert emails
- Data buffering of up to 64,000 values ensures a secure database even with temporary connection failures
- Secure communication via VPN connections based on IPsec
- Access protection by means of Stateful Inspection Firewall
- Integration of S7-1200 stations into an IPv6-based network



#### **CP 1543-1**

The SIMATIC CP 1543-1 communications processor securely connects the new SIMATIC S7-1500 controller to Industrial Ethernet networks. By combining a variety of security features such as an SPI (Stateful Packet Inspection) firewall, VPN and data encryption protocols such as FTPS and SNMPv3, the communications processor protects individual S7-1500 stations or even entire automation cells against unauthorized access.

Note:

Further information on the CP 1243-1 and CP 1543-1 can be found chapter 2, PROFINET/Industrial Ethernet, under "System connection for SIMATIC S7/communication for SIMATIC S7-1200".

<sup>1)</sup> Available soon

# Industrial Security

## Security Integrated

### CP 343-1 Advanced and CP 443-1 Advanced

#### Overview



#### **CP 343-1 Advanced**

Communications processor for connecting the SIMATIC S7-300/SINUMERIK 840D powerline to Industrial Ethernet networks, also as PROFINET IO controller and IO device.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- PROFINET communication
- IT communication
- Security functionality, firewall and VPN



#### **CP 443-1 Advanced**

Communications processor for connecting a SIMATIC S7-400 to Industrial Ethernet networks, also as PROFINET IO controller or in SIMATIC H systems.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- PROFINET communication
- IT communication
- Security functionality, firewall and VPN

Note:

Further information on the CP 343-1 Advanced or CP 443-1 Advanced can be found in Chapter 2, PROFINET/Industrial Ethernet, under "System connection for SIMATIC S7/communication for SIMATIC S7-300 or S7-400".

### Overview



- PCI Express card (PCIe x1) with its own microprocessor and integrated 2-port switch (2 x RJ45 connection, 10/100/1000 Mbit/s) for the connection of a PG/PC to Industrial Ethernet
- Integrated security mechanisms (e.g. Firewall, VPN)
- ISO and TCP/IP transport protocol on board
- Communications services via
  - Open IE communication (TCP/IP and UDP)
  - ISO transport protocol
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- Integration into network management systems through the support of SNMP (V1/V3)

Note:

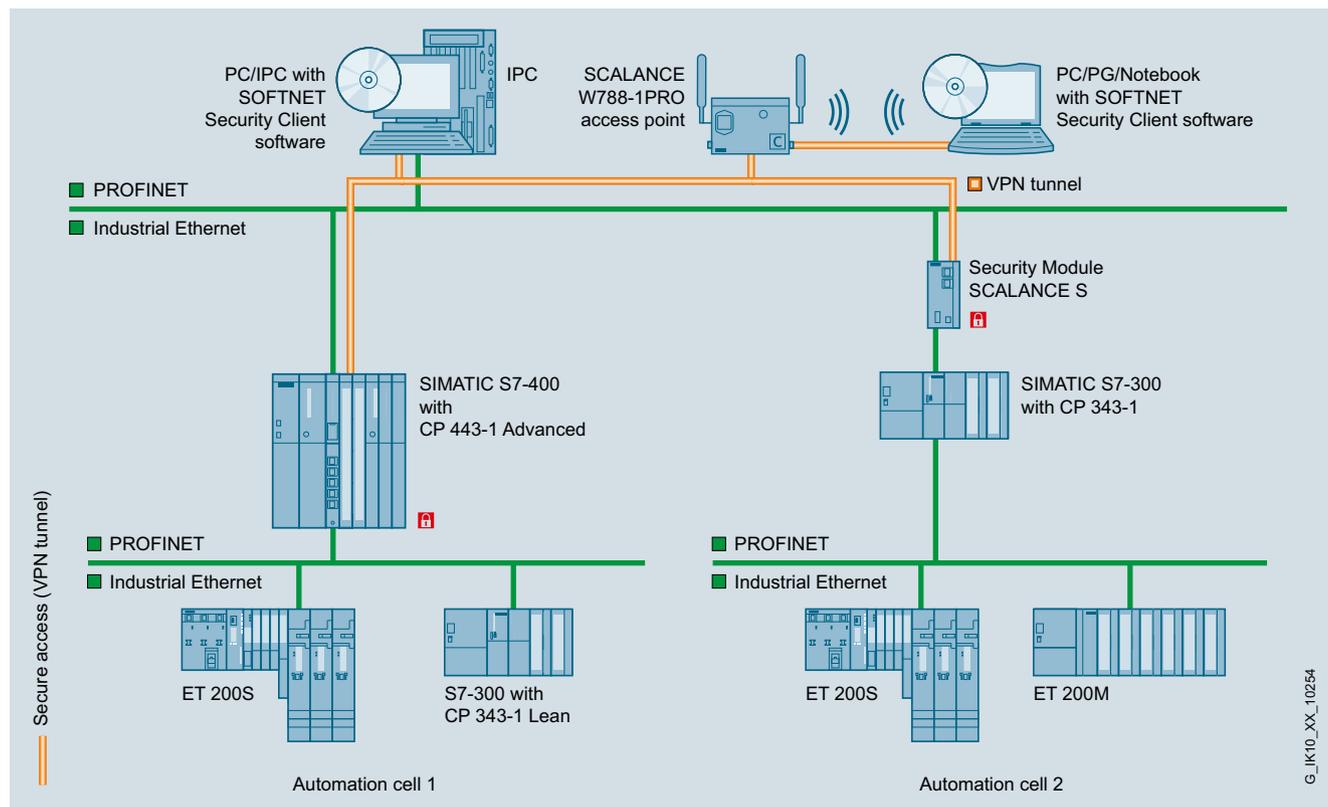
Further information on the CP 1628 can be found in Chapter 2, PROFINET/Industrial Ethernet, under "System connection for PG/PC/IPC/communication for PC-based systems".

# Industrial Security

## Security Integrated

### SOFTNET Security Client

#### Overview



Secure access to automation cells protected by devices with SCALANCE S functionality with the SOFTNET Security Client

- The SOFTNET Security Client is a component of the industrial security concept for protecting automation devices and for security during data exchange between automation systems.
- It is a VPN Client for programming devices, PCs and notebooks in industrial environments and it supports secure client access via LAN or even WAN (e.g. for remote maintenance via the Internet) to automation systems protected by devices with SCALANCE S functionality
- Data transmission is protected against operator error, eavesdropping/espionage and manipulation; communication can only take place between authenticated and authorized devices
- Use of field-proven IPsec mechanisms for setting up and operating VPNs.

#### Ordering data

##### SOFTNET Security Client V4 HF1

Software for designing secure IP-based VPN connections from a programming device/PC to network segments which are secured by SCALANCE S, Scalance M, CP 343-1 Advanced, CP 443-1 Advanced, or CP 1628; single license for 1 installation, runtime software (German/English), configuration tool (German/English), and electronic manual on CD-ROM (German/English/French/Spanish/Italian) for Windows 7 Professional, Ultimate, Windows XP Professional (32 bit) + SP3

#### Article No.

6GK1704-1VW04-0AA0

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#### Overview



#### SCALANCE M874

The SCALANCE M874-3 is a mobile wireless router for cost-effectively and securely connecting Ethernet-based subnets and programmable controllers via the 3rd generation mobile wireless network (UMTS) and it supports HSPA+ (High Speed Packet Access). Thus, it allows high transfer rates of up to 14.4 Mbit/s in the downlink and up to 5.76 Mbit/s in the uplink (depending on the infrastructure of the mobile wireless provider).

The SCALANCE M874-2 is a mobile wireless router for cost-effectively and securely connecting Ethernet-based subnets and programmable controllers via the 2nd generation mobile wireless network (GSM) and it supports GPRS (General Packet Radio Service) and EDGE (Enhanced Data Rates for GSM Evolution).

The security of access and communication is ensured by the security functions of the integrated firewall and by VPN tunnels (end-to-end connection encryption through IPsec tunneling).

#### SCALANCE M875

- Router for wireless IP communication between Industrial Ethernet-based programmable controllers via mobile radio networks of the 3rd generation (UMTS) and the 2nd generation (GSM)
- High data transfer rate thanks to HSDPA
- Integrated security functions with firewall
- Use as VPN end point (IPsec)

Note:

Further information on the SCALANCE M874 wireless router can be found in Chapter 7, Industrial Remote Communication, under "Remote networks/IP-based modems and routers".



# Appendix

## Partners at Industry Automation and Drive Technologies

### Overview

**Partner at Industry Automation and Drive Technologies**

At Siemens Industry Automation and Drive Technologies, more than 85,000 people are resolutely pursuing the same goal: long-term improvement of your competitive ability. We are committed to this goal. Thanks to our commitment, we continue to set new standards in automation and drive technology. In all industries – worldwide.

All your service locally, around the globe for consulting, sales, training, service, support, spare parts ... on the entire Industry Automation and Drive Technologies range. Your personal contact can be found in our Contacts Database.

**Please select a product group:**

- Automation Technology
- Drive Technology
- Low-Voltage Controls and Distribution
- Safety Systems – Safety Integrated
- Electrical Installation Technology
- Solutions for Industries
- Service

**More Information**

- Press
- Investor Relations
- Jobs & Careers

At Siemens Industry Automation and Drive Technologies, more than 85 000 people are resolutely pursuing the same goal: long-term improvement of your competitive ability. We are committed to this goal. Thanks to our commitment, we continue to set new standards in automation and drive technology. In all industries – worldwide.

At your service locally, around the globe for consulting, sales, training, service, support, spare parts ... on the entire Industry Automation and Drive Technologies range.

Your personal contact can be found in our Contacts Database at: [www.siemens.com/automation/partner](http://www.siemens.com/automation/partner)

You start by selecting a

- Product group,
- Country,
- City,
- Service.

**Partner at Industry Automation and Drive Technologies**

**Drive Technology**

Another product group?

Please select Country:

Germany

Please select City:

Dresden

Please select Service:

[please select...]

**More Information**

- Press
- Investor Relations
- Jobs & Careers

**Partner at Industry Automation and Drive Technologies**

**Drive Technology**

Another product group?

Local Partner for this Product is

Siemens AG, Dresden  
RD 11A8B7 001 FV 14

Company:  
Vorfabrik 18A21 001

Address:  
10166 Dresden, Germany  
01139 Dresden, Germany

Tel: +49 351 984 4620  
Fax: +49 351 984 4410  
E-Mail: [rd11a8b7.001.fv14@siemens.com](mailto:rd11a8b7.001.fv14@siemens.com)  
Internet: <http://www.siemens.com/automation/partner>

Please select Country:

Germany

Please select City:

Dresden

Please select Service:

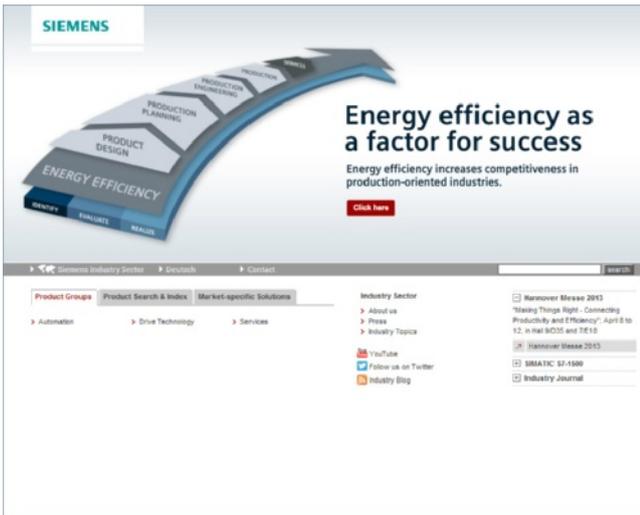
Sales

Feedback Post

**More Information**

- Press
- Investor Relations
- Jobs & Careers

#### Siemens Industry Automation and Drive Technologies in the WWW



A detailed knowledge of the range of products and services available is essential when planning and configuring automation systems. It goes without saying that this information must always be fully up-to-date.

Siemens Industry Automation and Drive Technologies has therefore built up a comprehensive range of information in the World Wide Web, which offers quick and easy access to all data required.

Under the address

[www.siemens.com/industry](http://www.siemens.com/industry)

you will find everything you need to know about products, systems and services.

#### Product Selection Using the Interactive Catalog CA 01 of Industry



Detailed information together with convenient interactive functions:

The interactive catalog CA 01 covers more than 80 000 products and thus provides a full summary of the Siemens Industry Automation and Drive Technologies product base.

Here you will find everything that you need to solve tasks in the fields of automation, switchgear, installation and drives. All information is linked into a user interface which is easy to work with and intuitive.

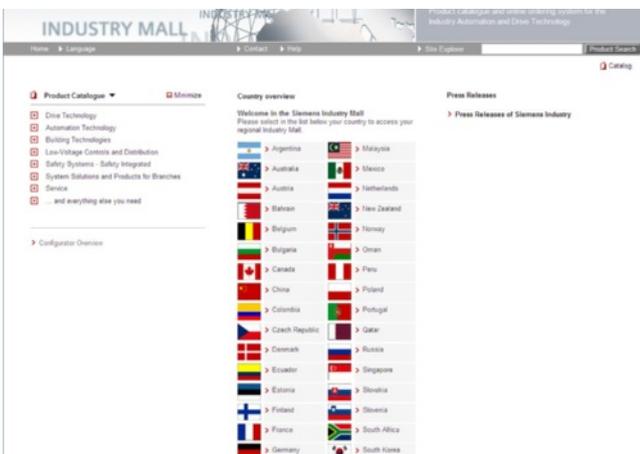
After selecting the product of your choice you can order at the press of a button, by fax or by online link.

Information on the interactive catalog CA 01 can be found in the Internet under

[www.siemens.com/automation/ca01](http://www.siemens.com/automation/ca01)

or on DVD.

#### Easy Shopping with the Industry Mall



The Industry Mall is the virtual department store of Siemens AG on the Internet. Here you have access to a huge range of products presented in electronic catalogs in an informative and attractive way.

Data transfer via EDIFACT allows the whole procedure from selection through ordering to tracking of the order to be carried out online via the Internet.

Numerous functions are available to support you.

For example, powerful search functions make it easy to find the required products, which can be immediately checked for availability. Customer-specific discounts and preparation of quotes can be carried out online as well as order tracking and tracing.

Please visit the Industry Mall on the Internet under:

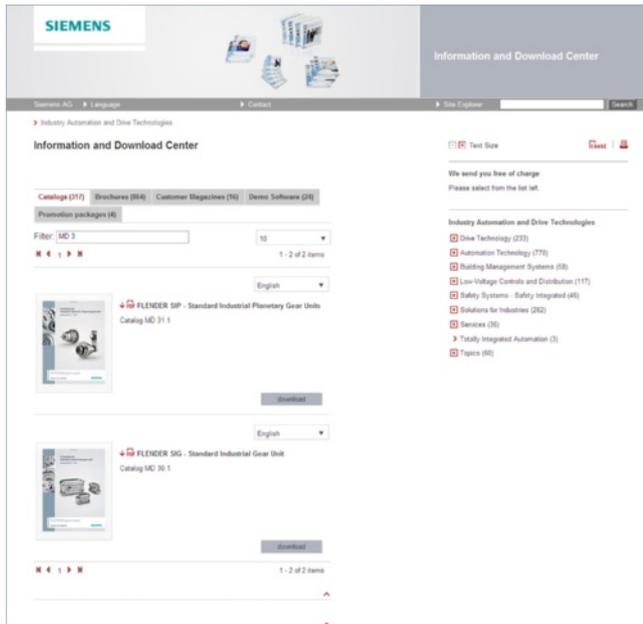
[www.siemens.com/industrymall](http://www.siemens.com/industrymall)

# Appendix

## Online Services

### Information and Download Center Social Media, Mobile Media

#### Downloading Catalogs



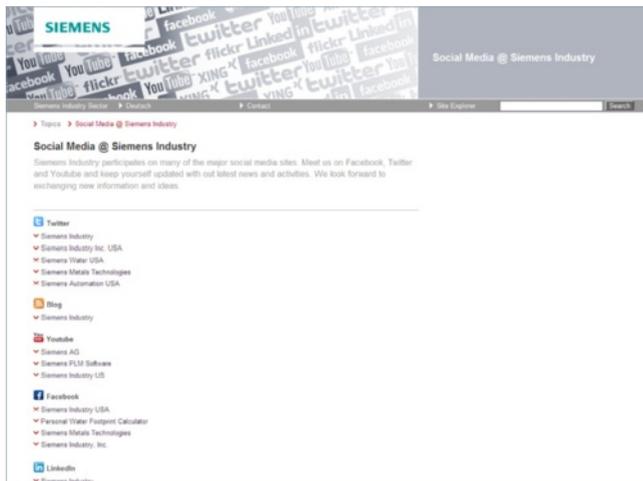
In addition to numerous other useful documents, you can also find the catalogs listed on the back inside cover of this catalog in the Information and Download Center. Without having to register, you can download these catalogs in PDF format or increasingly as digital page-turning e-books.

The filter dialog box above the first catalog displayed makes it possible to carry out targeted searches. If you enter “MD 3” for example, you will find both the MD 30.1 and MD 31.1 catalogs. If you enter “ST 70” both the ST 70 catalog and the associated news or add-ons are displayed.

Visit us on the web at:

[www.siemens.com/industry/infocenter](http://www.siemens.com/industry/infocenter)

#### Social Media



Connect with Siemens through social media: visit our social networking sites for a wealth of useful information, demos on products and services, the opportunity to provide feedback, to exchange information and ideas with customers and other Siemens employees, and much, much more. Stay in the know and follow us on the ever-expanding global network of social media.

Connect with Siemens Industry at our central access point:

[www.siemens.com/industry/socialmedia](http://www.siemens.com/industry/socialmedia)

Or via our product pages at:

[www.siemens.com/automation](http://www.siemens.com/automation)

or

[www.siemens.com/drives](http://www.siemens.com/drives)

To find out more about Siemens' current social media activities visit us at:

[www.siemens.com/socialmedia](http://www.siemens.com/socialmedia)

#### Mobile Media



Discover the world of Siemens.

We are also constantly expanding our offering of cross-platform apps for smartphones and tablets. You will find the current Siemens apps at the app store (iOS) or at Google Play (Android).

The Siemens app, for example, tells you all about the history, latest developments and future plans of the company – with informative pictures, fascinating reports and the most recent press releases.

**Your machines and plant can do more  
– with Industry Services.**

**Overview**

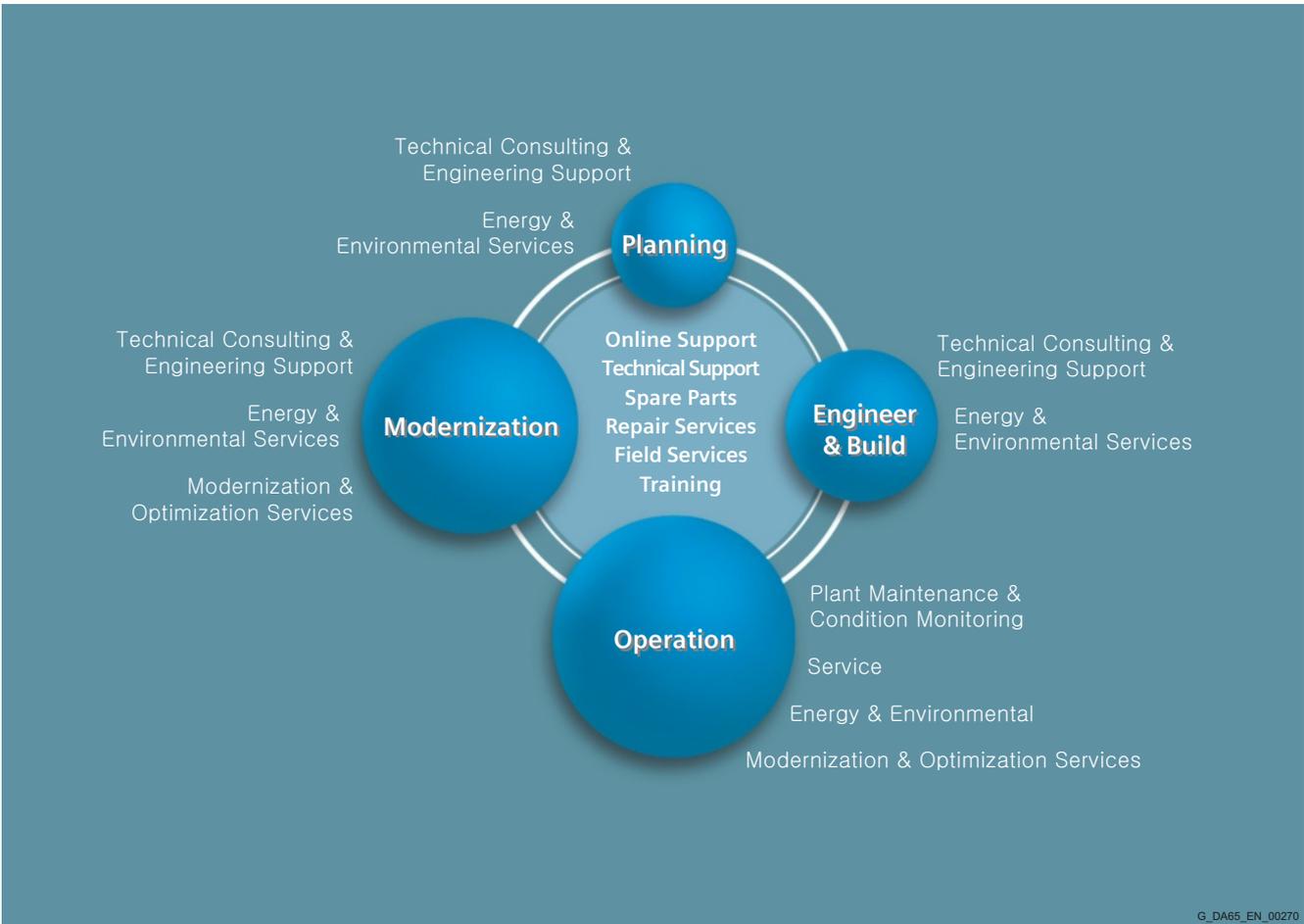


Whether it is production or process industry - in view of rising cost pressure, growing energy costs, and increasingly stringent environmental regulations, services for industry are a crucial competitive factor in manufacturing as well as in process industries.

All over the world Siemens supports its customers with product, system, and application-related services throughout the entire life cycle of a plant. Right from the earliest stages of planning, engineering, and building, all the way to operation and modernization. These services enable customers to benefit from the Siemens experts' unique technological and product knowledge and industry expertise.

Thus downtimes are reduced and the utilization of resources is optimized. The bottom line: increased plant productivity, flexibility, and efficiency, plus reduced overall costs.

Discover all advantages of our service portfolio:  
[www.siemens.com/industry-services](http://www.siemens.com/industry-services)



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Siemens supports its clients with technology based Services across a plants entire life cycle.

# Appendix

## Industry Services

### Industry Services for the entire life cycle

#### Online Support

Online support is a comprehensive information system for all questions relating to products, systems, and solutions that Siemens has developed for industry over time. With more than 300,000 documents, examples and tools, it offers users of automation and drive technology a way to quickly find up-to-date information. The 24-hour service enables direct, central access to detailed product information as well as numerous solution examples for programming, configuration and application.

The content, in six languages, is increasingly multimediated – and now also available as a mobile app. Online support's "Technical Forum" offers users the opportunity to share information with each other. The "Support Request" option can be used to contact Siemens' technical support experts. The latest content, software updates, and news via newsletters and Twitter ensure that industry users are always up to date.

#### Online Support App



Using the Online Support app, you can access over 300,000 documents covering all Siemens industrial products - anywhere, any time. Regardless of whether you need help implementing your project, fault-finding, expanding your system or are planning a new machine.

You have access to FAQs, manuals, certificates, characteristics curves, application examples, product notices (e.g. announcements of new products) and information on successor products in the event that a product is discontinued.

Just scan the product code printed on the product directly using the camera of your mobile device to immediately see all technical information available on this product at a glance. The graphical CAx information (3D model, circuit diagrams or EPLAN macros) is also displayed. You can forward this information to your workplace using the e-mail function.

#### Technical Support

The ability to quickly analyze system and error messages and take appropriate action are key factors in ensuring that plants run safely and efficiently. Questions can arise at any time and in any industry, whether it's an individual product or a complete automation solution. Siemens technical support offers individual technical assistance in matters related to functionality, how to operate, applications, and fault clearance in industrial products and systems – at any time and globally, over the phone, by e-mail, or via remote access. Experienced experts from Siemens answer incoming questions promptly. Depending on the requirements, they first consult specialists in the areas of development, on-site services, and sales. Technical support is also available for discontinued products that are no longer available. Using the support request number, any inquiry can be clearly identified and systematically tracked.



[www.siemens.com/industry/onlinesupport](http://www.siemens.com/industry/onlinesupport)

The search function retrieves product information and articles and supports you with a personalized suggestion list. You can find your favorite pages – articles you need frequently – under "mySupport". You also receive selected news on new functions, important articles or events in the News section.

Scan the QR code  
for information on  
our Online Support  
app.



The app is available free of charge from the Apple App Store (iOS) or from Google Play (Android).

[www.siemens.com/industry/onlinesupportapp](http://www.siemens.com/industry/onlinesupportapp)



#### Spare Parts

Drive and automation systems must be available at all times. Even a single missing spare part can bring the entire plant to a standstill – and result in substantial financial losses for the operator. The spare parts services from Siemens protects against such losses – with the aid of quickly available, original spare parts that ensure smooth interaction with all other system components. Spare parts are kept on hand for up to ten years; defective parts can be returned. For many products and solutions, individual spare parts packages ensure a preventive stock of spare parts on-site. The spare parts services is available around the world and around the clock. Optimum supply chain logistics ensure that replacement components reach their destination as quickly as possible. Siemens' logistics experts take care of planning and management as well as procurement, transportation, customs handling, warehousing, and complete order management for spare parts.



#### Repair Services

Reliable electrical and electronic equipment is crucial for operating continuous processes. That is why it is essential that motors and converters always undergo highly specialized repair and maintenance. Siemens offers complete customer and repair services – on site and in repair centers – as well as technical emergency services worldwide. The repair services include all measures necessary to quickly restore the functionality of defective units. In addition, services such as spare parts logistics, spare parts storage and rapid manufacturing are available to plant operators in all verticals. With a global network of certified repair shops operated by Siemens as well as third parties, Siemens handles the maintenance and overhaul of motors, converters, and other devices as an authorized service partner.



#### Field Services

It's a top priority in all industries: the availability of plants and equipment. Siemens offers specialized maintenance services such as inspection and upkeep as well as rapid fault clearance in industrial plants – worldwide, continuously, and even with emergency services as needed. The services include startup as well as maintenance and fault clearance during operation. The startup service includes checking the installation, function tests, parameterization, integration tests for machines and plants, trial operation, final acceptance, and employee training. All services, including remote maintenance of drives, are also available as elements of customized service contracts.



# Appendix

## Industry Services

### Industry Services for the entire life cycle

#### **Training**

Increasingly, up-to-date knowledge is becoming a determining factor in success. One of the key resources of any company is well-trained staff that can make the right decision at the right moment and take full advantage of the potential. With SITRAIN – Training for Industry, Siemens offers comprehensive advanced training programs. The technical training courses convey expertise and practical knowledge directly from the manufacturer. SITRAIN covers Siemens' entire product and system portfolio in the field of automation and drives. Together with the customer, Siemens determines the company's individual training needs and then develops an advanced training program tailored to the desired requirements. Additional services guarantee that the knowledge of all Siemens partners and their employees is always up-to-date.



#### **Technical Consulting & Engineering Support**

The efficiency of plants and processes leads to sustainable economic success. Individual services from Siemens help save substantial time and money while also guaranteeing maximum safety. Technical consulting covers the selection of products and systems for efficient industrial plants. The services include planning, consulting, and conceptual design as well as product training, application support, and configuration verification – in all phases of a plant's lifecycle and in all questions related to product safety. Engineering support offers competent assistance throughout the entire project, from developing a precise structure for startup to product-specific preparation for implementation as well as support services in areas such as prototype development, testing and acceptance.



#### **Energy & Environmental Services**

Efficient energy use and resource conservation – these top sustainability concerns pay off – both for the environment and for companies. Siemens offers integrated solutions that unlock all technical and organizational potential for successful environmental management. Customized consulting services are aimed at sustainably lowering the cost of energy and environmental protection and thus increasing plant efficiency and availability. The experts provide support in the conceptual design and implementation of systematic solutions in energy and environmental management, enabling maximum energy efficiency and optimized water consumption throughout the entire company. Improved data transparency makes it possible to identify savings potential, reduce emissions, optimize production processes, and thereby noticeably cut costs.



### **Modernization & Optimization Services**

High machine availability, expanded functionality and selective energy savings – in all industries, these are decisive factors for increasing productivity and lowering costs. Whether a company wants to modernize individual machines, optimize drive systems, or upgrade entire plants, Siemens' experts support the projects from planning to commissioning.

Expert consulting and project management with solution responsibility lead to security and make it possible to specifically identify savings potential in production. This secures investments over the long term and increases economic efficiency in operation.



### **Plant Maintenance & Condition Monitoring**

Modern industrial plants are complex and highly automated. They must operate efficiently in order to ensure the company's competitive strength. In addition, the steadily increasing networking of machines and plants require consistent security concepts. Maintenance and status monitoring as well as the implementation of integrated security concepts by Siemens' experts support optimum plant use and avoid downtime. The services include maintenance management as well as consulting on maintenance concepts, including the complete handling and execution of the necessary measures. Complete solutions also cover remote services, including analysis, remote diagnosis, and remote monitoring. These are based on the Siemens Remote Services platform with certified IT security.



### **Service Contracts**

Making maintenance costs calculable, reducing interfaces, speeding up response times, and unburdening the company's resources – the reduced downtimes that these measures achieve increase the productivity of a plant. Service contracts from Siemens make maintenance and repairs more cost-effective and efficient. The service packages include local and remote maintenance for a system or product group in automation and drive technology. Whether you need extended service periods, defined response times, or special maintenance intervals, the services are compiled individually and according to need. They can be adjusted flexibly at any time and used independently of each other. The expertise of Siemens' specialists and the capabilities of remote maintenance thus ensure reliable and fast maintenance processes throughout a plant's entire lifecycle.



## Safety of electronic devices

### Overview

The information listed here is mainly of a fundamental nature and applies regardless of the type and vendor of the electronic control system.

#### Reliability

The reliability of devices and components is being driven as high as possible by employing extensive and cost-effective measures in development and production.

This includes

- Selection of high-quality components;
- Worst-case design calculation of all circuits;
- Systematic and computer-controlled testing of all subcontracted components;
- Burn-in of all large-scale integrated circuits (e.g. processors, memories etc.);
- Measures to prevent static charging when working at or with MOS circuits;
- Visual checks at various stages of production;
- In-circuit testing of all modules, i.e. computer-aided testing of all components and their interaction in the circuit;
- Hot endurance run at high ambient temperature over several days;
- Meticulous computer-controlled final testing;
- Statistical evaluation of all returns for immediate introduction of remedial actions.

These measures are regarded as basic measures in safety engineering. They prevent or keep control of the majority of potential faults.

#### Risks

Wherever faults are liable to cause injury to persons or damage to property it is necessary to introduce measures aimed in particular at the safety of the plant and, therefore, of the control system. Special, plan-specific directives exist for these applications and need to be taken into account when configuring the control system.

In the case of safety-relevant electronic control systems the measures needing to be taken to prevent or keep control of faults are aimed at the risk presented by the plant. In such a case the basic measures listed above are no longer sufficient above a certain level of hazard potential. Additional measures have to be implemented and certified (e.g. dual-channel arrangements, tests, checksums etc.) for the control system.

### Division into a safe and a non-safe zone

In practically all plants there are parts which perform safety-related functions (e.g. emergency stop pushbuttons, mesh guards, two-hand controls). In order not to have to consider the complete control system in terms of safety engineering it is customary to divide the control system into a **safe** and a **non-safe** zone. No special requirements are imposed on the safety of the control system in the non-safe zone because there would be no impact on the safety of the plant if the electronics failed in this case. In the safe zone, on the other hand, you are only allowed to use control systems and/or circuits which satisfy the directives in question.

The following zonal divisions are customary in practice:

- Control systems with little safety engineering, e.g. machine control systems.
- Control systems with balanced zones, e.g. chemical plants, aerial ropeways.
- Control systems with mainly safety engineering, e.g. incineration plants.

#### Important

Even if a maximum of design-based safety is achieved in the configuration of an electronic control systems – e.g. through multi-edge configuration – it is still essential to closely follow the instructions in the operating manuals as otherwise wrong actions may suspend precautions for preventing potential faults or may create additional sources of danger.

**Overview****Software types**

Software requiring a license is categorized into types. The following software types have been defined:

- Engineering software
- Runtime software

**Engineering software**

This includes all software products for creating (engineering) user software, e.g. for configuring, programming, parameterizing, testing, commissioning or servicing.

Data generated with engineering software and executable programs can be duplicated for your own use or for use by third-parties free-of-charge.

**Runtime software**

This includes all software products required for plant/machine operation, e.g. operating system, basic system, system expansions, drivers, etc.

The duplication of the runtime software and executable programs created with the runtime software for your own use or for use by third-parties is subject to a charge.

You can find information about license fees according to use in the ordering data (e.g. in the catalog). Examples of categories of use include per CPU, per installation, per channel, per instance, per axis, per control loop, per variable, etc.

Information about extended rights of use for parameterization/configuration tools supplied as integral components of the scope of delivery can be found in the readme file supplied with the relevant product(s).

**License types**

Siemens Industry Automation & Drive Technologies offers various types of software license:

- Floating license
- Single license
- Rental license
- Rental floating license
- Trial license
- Demo license
- Demo floating license

**Floating license**

The software may be installed for internal use on any number of devices by the licensee. Only the concurrent user is licensed. The concurrent user is the person using the program. Use begins when the software is started. A license is required for each concurrent user.

**Single license**

Unlike the floating license, a single license permits only one installation of the software per license.

The type of use licensed is specified in the ordering data and in the Certificate of License (CoL). Types of use include for example per instance, per axis, per channel, etc.

One single license is required for each type of use defined.

**Rental license**

A rental license supports the "sporadic use" of engineering software. Once the license key has been installed, the software can be used for a specific period of time (the operating hours do not have to be consecutive).

One license is required for each installation of the software.

**Rental floating license**

The rental floating license corresponds to the rental license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

**Trial license**

A trial license supports "short-term use" of the software in a non-productive context, e.g. for testing and evaluation purposes. It can be transferred to another license.

**Demo license**

The demo license support the "sporadic use" of engineering software in a non-productive context, for example, use for testing and evaluation purposes. It can be transferred to another license. After the installation of the license key, the software can be operated for a specific period of time, whereby usage can be interrupted as often as required.

One license is required per installation of the software.

**Demo floating license**

The demo floating license corresponds to the demo license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

**Certificate of license (CoL)**

The CoL is the licensee's proof that the use of the software has been licensed by Siemens. A CoL is required for every type of use and must be kept in a safe place.

**Downgrading**

The licensee is permitted to use the software or an earlier version/release of the software, provided that the licensee owns such a version/release and its use is technically feasible.

**Delivery versions**

Software is constantly being updated. The following delivery versions

- PowerPack
- Upgrade

can be used to access updates.

Existing bug fixes are supplied with the ServicePack version.

**PowerPack**

PowerPacks can be used to upgrade to more powerful software. The licensee receives a new license agreement and CoL (Certificate of License) with the PowerPack. This CoL, together with the CoL for the original product, proves that the new software is licensed.

A separate PowerPack must be purchased for each original license of the software to be replaced.

## Software Licenses

## Overview

**Upgrade**

An upgrade permits the use of a new version of the software on the condition that a license for a previous version of the product is already held.

The licensee receives a new license agreement and CoL with the upgrade. This CoL, together with the CoL for the previous product, proves that the new version is licensed.

A separate upgrade must be purchased for each original license of the software to be upgraded.

**ServicePack**

ServicePacks are used to debug existing products. ServicePacks may be duplicated for use as prescribed according to the number of existing original licenses.

**License key**

Siemens Industry Automation & Drive Technologies supplies software products with and without license keys.

The license key serves as an electronic license stamp and is also the "switch" for activating the software (floating license, rental license, etc.).

The complete installation of software products requiring license keys includes the program to be licensed (the software) and the license key (which represents the license).

**Software Update Service (SUS)**

As part of the SUS contract, all software updates for the respective product are made available to you free of charge for a period of one year from the invoice date. The contract will automatically be extended for one year if it is not canceled three months before it expires.

The possession of the current version of the respective software is a basic condition for entering into an SUS contract.

**SIMATIC NET Software Update Service**

The SIMATIC NET Software Update Service includes automatic delivery of the relevant updates of the SIMATIC NET PC software CD, which is available following the signing of the contract.

The CD contains SIMATIC NET software for Industrial Ethernet, PROFINET, OPC server and PROFIBUS, so that your software is always up to date.

The following boundary conditions apply:

The customer must already have a current software version, so an update/upgrade may be required beforehand.

The update service is valid for one year following the date specified in the order.

It shall be extended automatically for a further year, provided that it is not cancelled 3 months in advance by the customer or by the responsible Siemens partner.

When the contract is extended, the customer will be invoiced for the cost of a further year.

You can download explanations concerning license conditions from [www.siemens.com/automation/salesmaterial-as/catalog/en/terms\\_of\\_trade\\_en.pdf](http://www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf)



## Conditions of sale and delivery

### 1. General Provisions

By using this catalog you can acquire hardware and software products described therein from Siemens AG subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as "T&C"). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

#### 1.1 For customers with a seat or registered office in Germany

For customers with a seat or registered office in Germany, the following applies subordinate to the T&C:

- the "General Terms of Payment"<sup>1)</sup> and,
- for software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or Registered Office in Germany"<sup>1)</sup> and,
- for other supplies and services, the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"<sup>1)</sup>.

#### 1.2 For customers with a seat or registered office outside Germany

For customers with a seat or registered office outside Germany, the following applies subordinate to the T&C:

- the "General Terms of Payment"<sup>1)</sup> and,
- for software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or Registered Office outside of Germany"<sup>1)</sup> and
- for other supplies and/or services, the "General Conditions for Supplies of Siemens Industry for Customers with a Seat or Registered Office outside of Germany"<sup>1)</sup>.

### 2. Prices

The prices are in € (Euro) ex point of delivery, exclusive of packaging.

The sales tax (value added tax) is not included in the prices. It shall be charged separately at the respective rate according to the applicable statutory legal regulations.

Prices are subject to change without prior notice. We will charge the prices valid at the time of delivery.

To compensate for variations in the price of raw materials (e.g. silver, copper, aluminum, lead, gold, dysprosium and neodym), surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials. A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

An exact explanation of the metal factor can be downloaded at:

[www.siemens.com/automation/salesmaterial-as/catalog/en/terms\\_of\\_trade\\_en.pdf](http://www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf)

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

### 3. Additional Terms and Conditions

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the individual pages of this catalog - especially with regard to data, dimensions and weights given - these are subject to change without prior notice.

### 4. Export regulations

We shall not be obligated to fulfill any agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes and/or other sanctions.

Export of goods listed in this catalog may be subject to licensing requirements. We will indicate in the delivery details whether licenses are required under German, European and US export lists. Goods labeled with "AL" not equal to "N" are subject to European or German export authorization when being exported out of the EU. Goods labeled with "ECCN" not equal to "N" are subject to US re-export authorization.

The export indications can be viewed in advance in the description of the respective goods on the Industry Mall, our online catalog system. Only the export labels "AL" and "ECCN" indicated on order confirmations, delivery notes and invoices are authoritative.

Even without a label, or with label "AL:N" or "ECCN:N", authorization may be required i .a. due to the final disposition and intended use of goods.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you must comply with all applicable national and international (re-)export control regulations.

If required for the purpose of conducting export control checks, you (upon request by us) shall promptly provide us with all information pertaining to the particular end customer, final disposition and intended use of goods delivered by us respectively works and services provided by us, as well as to any export control restrictions existing in this relation.

The products listed in this catalog may be subject to European/German and/or US export regulations. Any export requiring approval is therefore subject to authorization by the relevant authorities.

Errors excepted and subject to change without prior notice.

1) The text of the Terms and Conditions of Siemens AG can be downloaded at [www.siemens.com/automation/salesmaterial-as/catalog/en/terms\\_of\\_trade\\_en.pdf](http://www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf)

## Industry Automation, Drive Technologies and Low-Voltage Power Distribution

Further information can be obtained from our branch offices listed at [www.siemens.com/automation/partner](http://www.siemens.com/automation/partner)

<b>System Solutions</b> <b>Interactive Catalog on DVD</b>	<i>Catalog</i>		
Products for Automation and Drives and Low Voltage Power Distribution	<b>CA 01</b>		
<b>Building Control</b>			
GAMMA Building Control	ET G1		
<b>Drive Systems</b>			
SINAMICS G130 Drive Converter Chassis Units	D 11		
SINAMICS G150 Drive Converter Cabinet Units			
SINAMICS GM150, SINAMICS SM150 Medium-Voltage Converters	D 12		
ROBICON Perfect Harmony Medium-Voltage Air-Cooled Drives Germany Edition	D 15.1		
<i>Digital: SINAMICS G180 Converters – Compact Units, Cabinet Systems, Cabinet Units Air-Cooled and Liquid-Cooled</i>	D 18.1		
SINAMICS S120 Chassis Format Units and Cabinet Modules	D 21.3		
SINAMICS S150 Converter Cabinet Units			
SINAMICS DCM Converter Units	D 23.1		
SINAMICS DCM Cabinet	D 23.2		
SINAMICS and Motors for Single-Axis Drives	D 31		
Three-Phase Induction Motors SIMOTICS HV, SIMOTICS TN	D 84.1		
• Series H-compact			
• Series H-compact PLUS			
Asynchronous Motors Standardline	D 86.1		
Synchronous Motors with Permanent-Magnet Technology, HT-direct	D 86.2		
DC Motors	DA 12		
SIMOREG DC MASTER 6RA70 Digital Chassis Converters	DA 21.1		
SIMOREG K 6RA22 Analog Chassis Converters	DA 21.2		
<i>Digital: SIMOREG DC MASTER 6RM70 Digital Converter Cabinet Units</i>	DA 22		
SIMOVERT PM Modular Converter Systems	DA 45		
SIEMOSYN Motors	DA 48		
MICROMASTER 420/430/440 Inverters	DA 51.2		
MICROMASTER 411/COMBIMASTER 411	DA 51.3		
SIMOVERT MASTERDRIVES Vector Control	DA 65.10		
SIMOVERT MASTERDRIVES Motion Control	DA 65.11		
Synchronous and asynchronous servomotors for SIMOVERT MASTERDRIVES	DA 65.3		
SIMODRIVE 611 universal and POSMO	DA 65.4		
<i>Note: Additional catalogs on SIMODRIVE or SINAMICS drive systems and SIMOTICS motors with SINUMERIK and SIMOTION can be found under Motion Control</i>			
<b>Low-Voltage Three-Phase-Motors</b>			
SIMOTICS Low-Voltage Motors	D 81.1		
MOTOX Geared Motors	D 87.1		
SIMOGEAR Geared Motors	MD 50.1		
SIMOGEAR Gearboxes with adapter	MD 50.11		
<b>Mechanical Driving Machines</b>			
FLENDER Standard Couplings	MD 10.1		
FLENDER High Performance Couplings	MD 10.2		
FLENDER SIG Standard industrial gear unit	MD 30.1		
FLENDER SIP Standard industrial planetary gear units	MD 31.1		
<b>Process Instrumentation and Analytics</b>			
Field Instruments for Process Automation	FI 01		
<i>Digital: SIPART Controllers and Software</i>	MP 31		
Products for Weighing Technology	WT 10		
<i>Digital: Process Analytical Instruments</i>	PA 01		
<i>Digital: Process Analytics, Components for the System Integration</i>	PA 11		
<i>Digital: These catalogs are only available as a PDF and/or as an e-book.</i>			
<b>Low-Voltage Power Distribution and Electrical Installation Technology</b>	<i>Catalog</i>		
SENTRON Protection, Switching, Measuring and Monitoring Devices	LV 10.1		
SIVACON · ALPHA Switchboards and Distribution Systems	LV 10.2		
Standards-Compliant Components for Photovoltaic Plants	LV 11		
3WT Air Circuit Breakers up to 4000 A	LV 35		
3VT Molded Case Circuit Breakers up to 1600 A	LV 36		
<i>Digital: SIVACON System Cubicles, System Lighting and System Air-Conditioning</i>	LV 50		
<i>Digital: ALPHA Distribution Systems</i>	LV 51		
ALPHA FIX Terminal Blocks	LV 52		
SIVACON S4 Power Distribution Boards	LV 56		
SIVACON 8PS Busbar Trunking Systems	LV 70		
<b>Motion Control</b>			
SINUMERIK & SIMODRIVE Automation Systems for Machine Tools	NC 60		
SINUMERIK & SINAMICS Equipment for Machine Tools	NC 61		
SINUMERIK 840D sl Type 1B Equipment for Machine Tools	NC 62		
SINUMERIK 808 Equipment for Machine Tools	NC 81.1		
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To ensure the secure operation of a plant or machine it is also necessary to take suitable preventive action (e.g. cell protection concept) and to integrate the automation and drive components into a state-of-the-art holistic industrial security concept for the entire plant or machine. Any third-party products that may be in use must also be taken into account. Please find further information at:

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