3G4010CF

Fire Alarm Communicator for Central Station Service Fire Alarm - Commercial RF Communicator 3G (HSPA) Network Signaling Devices

INSTALLATION MANUAL
V4.0

Warning: This manual contains information on limitations regarding product use and function and information on the limitations as to liability of the manufacturer. The entire manual should be carefully read.

IMPORTANT
The equipment is fixed, wall-mounted and shall be installed in the position specified in these instructions (see Figure 1: Parts). The equipment enclosure must be fully assembled and closed, with all the necessary screws/tabs and secured to a wall before operation. Internal wiring must be routed in a manner that prevents:
- Excessive strain on wire and on terminal connections
- Loosening of terminal; connections
- Damage of conductor insulation

WARNING: Never install this equipment during a lightning storm!

Instruct the end-user to:
- Not attempt to service this product. Opening or removing covers may expose the user to dangerous voltages or other risks. Any servicing shall be referred to trained service persons only.
- Use authorized accessories only with this equipment.

Do not dispose of the battery in fire or water. Disposing of the battery in a fire will cause rupture and explosion.
Do not dispose of the waste battery as unsorted municipal waste. Consult your local regulations and /or laws regarding recycling with regard to this lead-acid battery. Doing so will help protect the environment. Some of the materials that are found within the battery could become toxic if not disposed of properly and may affect the environment.

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION AND OTHER INVOLVED PARTIES
This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to the specific values or not used at all as indicated below.

Program Feature or Option	Permitted in UL 864 (Y/N)?	Possible Settings	Settings permitted in UL 864
Supervision	Yes	5 minutes /60 minutes	5 minutes (see note below)
Inputs/Outputs	Yes	Fire/Burg signals	Fire related signals only
SMS Remote Control	No	Enable/Disable	Disable

NOTE: This product has been tested in accordance with UL 864 9th edition. According to this edition of the standard, the supervision window for reporting single-technology communicator trouble shall be set to five minutes. However, the product can be installed in accordance with the requirements of NFPA72 2013 edition, which allows for a 60-minute supervision window.

Introduction

The 3G4010CF is a wireless communicator for UL commercial fire and/or burglary applications. The 3G4010CF send alarm system information over a 3G (HSPA) or 2G (GPRS) network from the alarm control panel at the protected premises to a supervising station. The device is compatible with UL listed alarm receiver Models SG-System 5, SG-System IV, SG-SYSTEM III (using SG-DRL3-IP line card), SG-SYSTEM II and SG-SYSTEM I-IP. This product is UL listed under requirements of UL864 9th Edition and UL1610 Standards as a Fire Alarm Communicator for central station service fire alarm – commercial and it can be installed in certified installations in accordance with the requirements of UL827 Standard and NFPA72 2002 (Section 8.5.4 Other Transmission Technologies), NFPA72 2007 (Section 8.6.4 Other Transmission Technologies) or NFPA72 2010 Code (Section 26.6.3.1)

Features

- Complete solution CF kit includes tamper protection output, listed power supply and battery standby capability for 24 hours.
- Dual-band UMTS/HSPA; Quad-Band GSM/EDGE Radio
- Advanced Carrier Selection
- Bi-color wireless signal indicator
- 3G (HSPA) / 2G (GPRS) / Internet communication with Sur-Gard SG-System I-IP / II / III / IV / 5
- Compatible with listed alarm control panels that have an integrated DACT and support a 4-digit or 10-digit Contact ID communication format as described in SIA DC-05 or SIA communication format as described in DC-03 standard for 300 baud. Examples of suitable compatible alarm panels: DSC Models PC1864, PC1832, PC1616, PC4020.
- Panel Transmission Monitoring for up to four phone numbers
- Simulates landline
- Switches automatically to the 3G (HSPA) or 2G (GPRS) network in the event of landline trouble (e.g., line down)
- Four Programmable (NO/NC/SEOL) Inputs
- Contains one 12V - 7 Ah battery
- Case Tamper Output
- Landline overvoltage protection
- Four Programmable Open Collector Outputs
- DLS support for status, firmware updates and remote debug enable
- Remote Firmware Upgrade

- Remote Diagnostics
- Panel Format Detection
- SMS Command and Control
- Phone number call direction
- Easy enrollment with C24 Communications via VRU, web or mobile interface

NOTE: The 3G4010CF is designed to work with the Contact ID communication format as described in SIA DC-05 Standard or the SIA communication format as described in SIA DC-03 Standard. Before completing the field installation of the alarm monitoring system, please ensure communication with the supervising station is successful by sending several events and confirming that they have been received.

Technical Specifications

Ratings

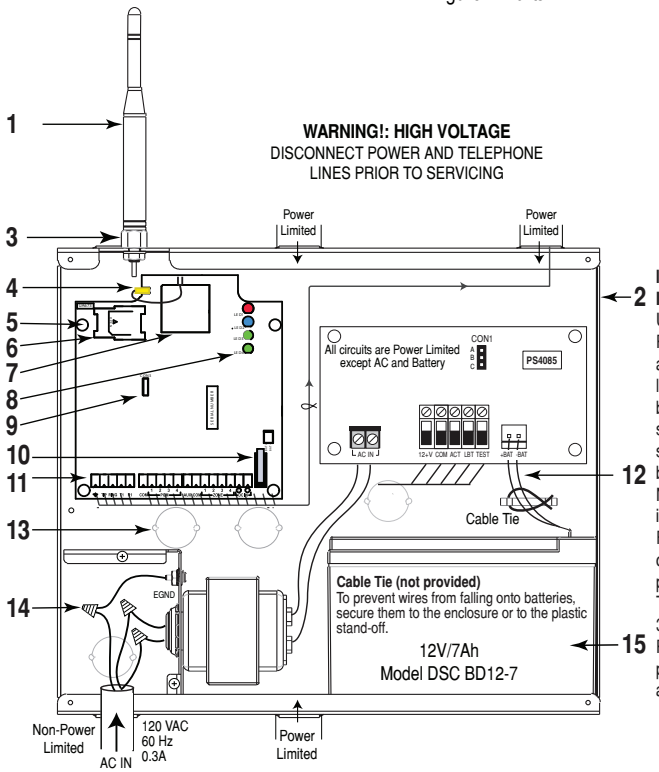
Power Supply Ratings	
Input Voltage:	120V/60Hz/0.3A
Standby Voltage:	12V/7AH
Standby Time:	24h (NSC) plus 5 minutes alarm
Low Battery Trouble Indication Threshold:	11.5VDC
Battery Deep Discharge Protection (cut-off):	9.5VDC
Battery Type:	sealed, rechargeable type, rated 12V/7Ah (for 24hr standby time)
Battery charging voltage:	13.75Vdc
Battery charge current:	700mA (maximum)
NOTE: Battery must be replaced every 3-5 years.	
Operating frequency - 2G (GSM/GPRS/EDGE):	850/1900MHz
Operating frequency - 3G (UMTS/HSPA):	850/1900MHz
Antenna gain:	2.0dBi
Environmental Specifications	
Operating temperature:	0°C-49°C (32°F-120°F)
Humidity:	93%RH Maximum (non-condensing)
Mechanical Specifications	
Enclosure Type	metal, red, hardwired transformer and high voltage connection box included
Enclosure Dimensions:	290mm x 254mm x 75mm (11.5" x 10" x 3")
Weight:	5.8Kg (12.8 lbs) (including standby battery)
Simulated Telco Loop specifications (TIP/RING)	
On-Hook Voltage:	12Vdc
Off-Hook Voltage (Maximum):	22Vdc
Loop Current :	25mA
Loop Resistance :	600 Ohms

Standard Battery Capacity

The calculation for battery capacity is based on 200mA standby current for 24 hours plus a five minute alarm at 400mA or 600mA (if the 4 PGM outputs are also activated)
The requirements are as follows:
200mA x 24h = 4800mAh capacity for standby
400mA x 5/60h= 33.33mAh capacity for alarm condition
Total = 4833.33 mAh needed for 24h and five minutes alarm transmission. The supplied battery is 7Ah.

Identification of Parts

Figure 1: Parts



INSTALL BATTERY & AC WIRING AS SHOWN

IMPORTANT!: All circuits are classified for UL installations as Power Limited/Class II Power Limited except for the battery leads and primary AC wiring which are not power limited. Do not route any wiring over circuit boards. Maintain at least 1" (25.4mm) separation. A minimum 1/4" (6.4mm) separation must be maintained at all points between Power Limited wiring and all other Non-Power Limited wiring. Route wires as indicated in the diagram.

For UL/ULC Commercial Fire Installations, connections between the fire alarm control panel inputs/outputs (telephone interface Tip/Ring or output relay contacts) and 3G4010CF inputs/outputs (T1/R1, Z1-Z4, PGM1-4) shall be run in a mechanical protective conduit within 20ft(UL)/18m(ULC) and in the same room.

	Part
1	3G Antenna
2	Metal Casing
3	Antenna Mounting Hardware
4	Antenna Connector
5	Anchor Screw Holes (3mm)
6	SIM Card Holder
7	3G (HSPA) Radio Module
8	Status LEDs (See page 1)

	Part
9	PC-Link Connector
10	Tamper Switch
11	Terminal Blocks
12	Battery Leads
13	Cable Entry
14	Earth Ground Wire
15	12V Battery

NOTE: Connection of metal-clad cable, conduit, metal raceway or the like is permitted as a means for grounding. Use the supplied star-washers to secure the mains connection box cover and the front cover of the enclosure.

NOTE: All circuits are classified for UL installations as Power Limited/Class II Power Limited except for the battery leads which are not power limited. Do not route any wiring over circuit boards. Maintain at least 1" (25.4mm) separation. A minimum 1/4" (6.4mm) of separation must be maintained at all points between Power Limited wiring and all other non-Power Limited wiring. Route wires as indicated above.

This equipment 3G4010CF is fixed and shall be installed by Service Persons only (Service Person is defined as a person having the appropriate technical training and experience necessary to be aware of hazards to which that person may be exposed in performing a task, and of measures available to minimize the risks to that person or other persons). It shall be installed and used within an environment that provides the pollution degree max 2, over voltages category II, in non-hazardous, indoor locations only. This manual shall be used with the Installation Manual of the relevant alarm control panel. All instructions specified within that manual must be observed.

Description

This 3G4010CF manages transmissions to a central station and can simulate the landline in the event of trouble (e.g., landline down) or even substitute the landline completely in areas where the 3G or 2G cellular service is provided and a landline is not available.

The 3G4010CF has the capability of communicating alarm signals via the 3G or 2G data network. This capability ensures a fast, reliable path to central stations equipped with a Sur-Gard System I-IP / II / III / IV / 5 receiver. By connecting a 3G4010CF to a control panel's standard PSTN interface, telephone-based Contact ID or SIA signals are decoded and seamlessly routed through the 3G or 2G network to any of the compatible receiver options.

The performance of the 3G4010CF depends greatly on cellular network coverage. Therefore, it should not be mounted without first performing placement tests to determine the best location for reception (minimum of one green LED ON). Optional antenna kits – GS15/25/50-ANT (15ft/4.6m, 25ft/7.6m or 50ft/15.2m) – are available.

Approvals Information

For Commercial Fire Monitoring Installations, the 3G4010CF can be used in the following configurations:

1. Standalone communicator, single communication technology - 5 minute supervision (heartbeat sent to supervising station every 90 seconds).
2. Back-up communicator line for a DACT (dual communication technology, no heartbeat sent). Alarm signals must be sent first over the primary communication path (DACT) and then, if this is known to have failed, over the secondary communication paths (other transmission technologies)
   - Primary: Compatible listed control unit's land line to central station (primary).
   - Secondary: 3G4010CF transmission through wireless network to central station.

Every 24 hours, a check-in signal must be sent to the central station over the primary dialer. The 3G4010CF sends a heartbeat test transmission to the supervising station every 24 hours. Each communication path shall be monitored for integrity (DACT shall have line monitoring enabled and 3G4010CF shall have cellular connection supervision enabled).

For UL Central Station Commercial Burglary Installations, the 3G4010CF can be used in the following configurations:

1. Standalone communicator, single line - 200 second supervision (heartbeat sent to supervising station every 90 seconds). Alarm receiver supervision window set to 200 seconds.
2. Primary communicator line for a DACT (heartbeat sent to supervising station every 90 seconds). Alarm receiver supervision window set to 200 seconds.
3. Back-up communicator line for a DACT (no heartbeat sent). The 3G4010CF is designed to work with the Contact ID communication format as described in SIADC-05 Standard or the 300 baud SIA communication format as described in SIA DC-03 standard.

Every 24 hours, a check-in signal must be sent to the central station over the primary dialer. The 3G4010CF sends a test transmission to the supervising station every 24 hours. Each communication path shall be monitored for integrity (DACT shall have line monitoring enabled and 3G4010CF shall have cellular connection supervision enabled). Before completing the field installation of the alarm monitoring system, please ensure communication with the supervising central station is successful by sending several events and getting confirmation that they have been received.

For ULC Commercial Fire Monitoring Installation the 3G4010CF can be used in the following configurations:

1. Active communication system with 180 seconds supervision (Heartbeat sent to signal receiving centre every 90 seconds).
2. Passive communication system in conjunction with a another communication path (e.g. DACT) (there is no heartbeat sent in this configuration, only periodic test transmission).

Alarm signals must be sent simultaneously over both communication paths (Cellular and DACT). Every 24 hours, a test transmission must be sent to the signal receiving centre over each communication path. Each communication path shall be monitored for integrity (DACT shall have line monitoring enabled and 3G4010CF shall have cellular connection supervision enabled).

For ULC Commercial Burglary Monitoring Installation the 3G4010CF can be used in the following configurations:

1. Active communication system with 180 seconds supervision and heartbeat sent to signal receiving centre every 90 seconds.
2. Passive communication system line security P1 (single communication channel) or line security P2 (used as backup in conjunction with another communication path (e.g. DACT)). There is no heartbeat sent in this configuration, only periodic test transmissions.

Every 24 hours, a test transmission must be sent to the signal receiving centre over each communication path. Each communication path shall be monitored for integrity (DACT shall have line monitoring enabled and 3G4010CF shall have cellular connection supervision enabled). For Level P2, the working communication path shall report the failure of the other channel within 240 seconds.

Installing the 3G4010CF

C24 Communications Enrolment

The 3G4010CF requires enrolment with C24 Communications to operate. For more information, please visit www.connect24.com, contact C24 Communications customer service at 1-888-251-7458 (US) / 1-888-955-5583 (Canada) or contact the central station to inquire if they are a C24 Communications Master Reseller.

NOTE: Enrollment with C24 Communications should be performed before turning on the 3G4000 unit.Before inserting or removing the SIM card, please ensure the unit is turned off.

STEP 1 - Initialize the 3G4010CF with C24 Communications

The 3G4010CF can be initialized with C24 Communications by:

VRU - 1-866-910-3865

web - www.connect24.com

mobile - m.connect24.com

To complete enrolment, a C24 profile, installer ID/PIN (or web credentials) and the 20-digit SIM number are required.

NOTE: The SIM activation process with the cellular carrier typically takes between five and ten minutes to complete.

Step 2 - Determine Best Signal Location

1. Remove the screws and the front cover of the 3G4010CF metal enclosure [1].
2. Fit the antenna [2] (ensure that the bolt [3] is fastened tightly).
3. Connect the antenna to the 3G Radio [5] and ensure the connector is secure.

NOTE: Before inserting or removing the SIM card, please ensure the unit is powered down.

4. Ensure the SIM card is placed in its socket [6].
5. Power up the 3G4010CF module [4]Use a DC power source rated 12V/0.7A connected to +/- 12V terminals [9]

Step 2a – SIM card is activated.

The red LED will be on solid, the blue LED will be off and the signal strength LEDs will display the average signal strength. In this state, the 3G4010CF is registered to the cellular network.

Red	Blue	Yellow/Green (Top)	Yellow/Green (Bottom)
ON	OFF	-	-

If the signal strength is too low (bottom signal LED off or flashing), the 3G4010CF will move to **Step 3** and scan for carriers with sufficient signal strength and attach to the carrier. If the 3G4010CF is connected to a carrier with sufficient signal strength (minimum of bottom signal strength LED on solid), it will move to **Step 4**.

Step 2b – SIM card is not activated

The red LED will flash, the blue LED will be off and the signal strength LEDs will display the average signal strength.

Red	Blue	Yellow/Green (Top)	Yellow/Green (Bottom)
FLASHING	OFF	-	-

In this state, the 3G4010CF is unable to register to the cellular network because it is inactive. The signal strength indicated is from **any** nearby cell tower (including cellular towers belonging to non-roaming partners) and does **not** necessarily reflect the signal strength of the intended network. The 3G4010CF will remain in this state until the SIM is activated. Once the SIM is activated, the 3G4010CF will move to **Step 2a**.

Step 3 – Carrier Scanning due to insufficient signal strength

The 3G4010CF will scan the surrounding cellular network and connect to the carrier to provide a signal strength of at least 7 CSQ. When this action is being performed, all four LEDs will activate to show a scanning sequence. The LEDs will cycle from top to bottom and then bottom to top. This cycle will continue until the 3G4010CF is connected to a carrier with a signal strength above 7 CSQ (minimum of bottom signal strength LED on solid).

Red	Blue	Yellow/Green (Top)	Yellow/Green (Bottom)
FLASH ON	OFF	OFF	OFF
OFF	FLASH ON	OFF	OFF
OFF	OFF	FLASH ON	OFF
OFF	OFF	OFF	FLASH ON
OFF	OFF	FLASH ON	OFF
OFF	FLASH ON	OFF	OFF
FLASH ON	OFF	OFF	OFF

Once this is completed, the 3G4010CF will move to **Step 4**.

Step 4 - Acquire C24 Communications programming

The red LED will be on solid and the blue LED will flash. The flashing of the blue LED indicates that the 3G4010CF has requested programming from C24 Communications and is waiting for a response.

 Red	 Blue	 Yellow/Green (Top)	 Yellow/Green (Bottom)
ON	FLASHING	-	-

Once remote programming is completed, the blue LED will switch to solid and the 3G4010CF will move to **Step 5**.

Step 5 – Receiver Initialization

The red LED and the blue LED are both solid and the signal strength LEDs are off.

 Red	 Blue	 Yellow/Green (Top)	 Yellow/Green (Bottom)
ON	ON	OFF	OFF

When the 3G4010CF sends a request to communicate with the central station, the top signal strength LED will begin flashing.

 Red	 Blue	 Yellow/Green (Top)	 Yellow/Green (Bottom)
ON	ON	FLASHING	OFF

When the central station communicates back with the 3G4010CF, the top signal strength LED will turn on solid.

 Red	 Blue	 Yellow/Green (Top)	 Yellow/Green (Bottom)
ON	ON	ON	OFF

When the 3G4010CF sends a request to communicate with the next central station, the bottom signal strength LED will begin flashing

 Red	 Blue	 Yellow/Green (Top)	 Yellow/Green (Bottom)
ON	ON	ON	FLASHING

and turn on solid when it receives a communication back from the central station.

 Red	 Blue	 Yellow/Green (Top)	 Yellow/Green (Bottom)
ON	ON	ON	ON

If at least one of the central stations did not respond back to the communicator, the signal strength LED corresponding to that central station will turn off. Once the initialization sequence is complete, the 3G4010CF will move on to steady state operation.

Step 6 - Mount the 3G4010CF

1. Power down the 3G4010 by removing the power source and battery leads.
2. Using the cabinet, mark the four screw locations. Drill the anchor screw holes.

NOTE: Check for cable conduits and water pipes before drilling.

3. Using anchor screws (not provided), mount the cabinet to the wall.
4. Run the cables through the cable entry or through the cabinet knockouts.
5. Complete the connections on the terminal blocks [9] and [11].

NOTE: Ensure that power and Telco circuit connections are made only after the cabinet has been secured to the building or structure, and has been connected to the protective earth ground. Descriptions of the terminals can be found in the 'Connecting the 3G4010CF' section.

6. Reattach the front cover [1] securely to the cabinet.

NOTE: Please refer to Figure 2 and Figure 3 at the end of this manual for wiring diagrams.

Connecting the 3G4010CF

(1) Earth Ground - This terminal must be connected to the Mains Earth, in order to comply with the Telecommunications Network Safety Standards (Overvoltage Protection Requirements).
TIP (2) / RNG (3) External Telephone Line - These terminals must be connected directly to the incoming telephone line.
T1 (4) / R1 (5) Internal Telephone Line - These terminals must be connected to the TIP and RING of the control panel.
COM (6,12) Common - This terminal is connected internally to Power Ground.
PGM1 (7), PGM2 (8), PGM3 (9), PGM4 (10) Programmable Open-collector Outputs - These outputs can be activated by programmed events. Refer to 'Activating the Outputs' for details. The maximum current sink of each output must not exceed 50mA.
AUX+ (11) Auxiliary 9 to 14V Output- 9 to 12V Output, 100mA PTC Protected. This terminal is used in conjunction with the PGM outputs to activate a supervision relay. Recommended relay: DSC Model RM-2 or RM1C.
NOTE: Electrical current drawn from this terminal is drawn directly from the power supply. This must be added to the 3G4010CF current when determining the total draw on the host panel or power supply.
Z1-Z4 (13-14-15-16) Programmable Inputs - These terminals can be set up to trigger events. Refer to 'Inputs' for details.
+12V (19), -12V (20) Device Power Supply - These terminals must be connected to the output of the power supply [10]. When the connections are completed, connect the Red and Black wires [12] to 12V, 7Ah battery [13].

Power Supply Module

AC - Supervised input, connect the secondary of the transformer to these terminals. Connect the primary of the transformer to a dedicated electrical circuit.

DC IN ⊕ (17), ⊖ (18) - Special application output circuit, power limited, connect to 3G4010CF power input circuit. Connect the +12V output to +12V input on the 3G4010CF module and the COM output to the - 12V input on the 3G4010CF module.
ACT (AC Trouble) - This open collector output activates when an AC Trouble is detected: Rated 50mA.
NOTE: AC Trouble output shall be connected to an input on the alarm control panel that provides immediate local annunciation and delayed remote transmission for 1 to 3 hours. If such input is not able to provide the delay for AC loss transmission, input 1 of the 3G4010CF can be used. When Input 1 is triggered, the 3G4010CF will immediately announciate an AC trouble by flashing the RED status LED 9 times, and will delay the AC loss event transmission by one hour.
LBT (Battery Trouble) - This open collector output activates when a Battery Trouble condition is detected: Rated 50mA.
TEST (Charger Trouble) - This open collector output activates when the charging circuit is in a trouble condition: Rated 50mA.
These outputs shall be connected to zone inputs of an alarm control panel in order to provide the required trouble supervision (visual and audible indication required at the control panel). The outputs are active low (switched to ground) and can be connected to a control panel directly or by using a listed supervision relay (suggested model: DSC, RM-2 or RM1C relay).
+BAT/-BAT - This connector is used to connect the standby battery, non-power limited. Use single lead battery wire assembly provided.
NOTE: When disposing of batteries, follow the instructions and precautions printed on the batteries, and contact your municipal offices for information on the disposal of used batteries.

Status LEDs

Operating Modes

The 3G4010CF features two distinct operating modes: Normal Mode and Service Mode. The unit will be in Normal Mode when the cover tamper is in a restored state. If a cover tamper is present, the unit will be in Service Mode.

Normal Mode

The 3G4010CF interface has four status LEDs. The following describes the status LEDs when the communicator is in normal operating mode with the front cover in place.

Red 	This LED indicates trouble conditions. On (solid): Trouble requiring service 1 Flash: Wireless Network Trouble 2 Flashes: Battery Trouble 3 Flashes: Input Power Trouble
Blue 	This LED indicates cellular radio activity. When this LED is on (solid), a phone line trouble condition exists. This LED turns on when the interface switches to the wireless network (due to a landline trouble condition). This LED will also flash once when the 3G4010CF transmits a signal and twice when the 3G4010CF receives a kiss-off from the central station. **NOTE:** If the 3G4010CF is programmed to be the primary communicator, the blue LED will remain off, but will still flash during the signal transmission as described above.
Yellow/Green (Top)	This LED indicates signal strength and network technology. If the 3G4010CF is operating in over a 2G channel, the LED will be YELLOW. If the 3G4010CF is operating over a 3G channel, the LED will be GREEN. When this LED is On, the reception is optimal. This LED switches On only when the bottom

LED is on.

Yellow/Green (Bottom)

This LED indicates signal strength and network technology. If the 3G4010CF is operating in over a 2G channel, the LED will be YELLOW. If the 3G4010CF is operating over a 3G channel, the LED will be GREEN. If this LED is Off and the Red LED is On, the Wireless Network service is unavailable (NO SERVICE). This LED flashes when the Wireless Network reception is poor. If this LED is on, the 3G4010CF is able to communicate with the 3G (HSPA) or 2G (GPRS) network.

Service Mode

To view detailed trouble information on the status LEDs, the 3G4010CF must be placed in Service Mode by removing the front cover. When in Service Mode, the status LEDs will indicate the trouble condition as follows.

Number of Flashes		
RED	BLUE	Trouble Type
1	OFF	Wireless network trouble - unable to connect to cellular network
2	OFF	Battery trouble - battery with low voltage output
3	OFF	Input power trouble
1	Flashing	Insufficient signal strength - poor location
2	Flashing	C24 suppressed trouble
3	Flashing	C24 communication configuration trouble
1	ON	Radio/SIM trouble - radio or SIM unresponsive
2	ON	Receiver not available trouble
3	ON	Supervision trouble
4	ON	Case or wall tamper is open
OFF	-	No trouble

Operating Principles

Simulated Landline Mode

The simulated landline provides the alarm control panel (with dialer interface) with a back up line in the event of PSTN line trouble.

NOTE: The 3G4010CF must be programmed as a back-up communicator for Simulated Landline Mode to operate.

If the voltage on the landline terminals (TIP/RNG) drops below 2.8V for a period of between 10 seconds and 45 seconds - depending on the alarm control panel connected to the T1/R1 terminals- the 3G4010CF switches the connected telephone device to the cellular network. After waiting between 30 and 40 seconds, it checks the landline for one of the following:

- If the landline has been restored, the 3G4010CF switches the connected device back to the landline, OR
- If the landline is still down, the 3G4010CF continues the simulation until the landline is restored. The 3G4010CF will not switch during ongoing calls.

NOTE: When the landline is down, the 3G4010CF provides a dial tone to any device connected to T1 and R1, including any telephones on the premises. The phones on the premises will not, however, be able to dial out over the 3G4010CF.

Panel Transmission Monitoring (PTM)

The 3G4010CF can also monitor the panel's attempt to communicate with the central station. If it determines that the panel is having difficulty, it switches the line to the cellular network. This feature is only active when the 3G4010CF is configured as a back up communicator. This feature is in addition to the regular line voltage detection.

The 3G4010CF monitors the phone line for four consecutive failed attempts within a 12-minute window. A failed attempt is assumed to have occurred when a line seizure takes place during dialing (either the alarm panel or the customer telephone), but no 1400Hz tone (Contact ID kiss-off) or 2025 Hz tone(SIA kiss-off)is sent from the receiver.

Once the conditions for a failed attempt are met, the 3G4010CF connects the panel to the cellular network to communicate the events. When the 3G4010CF switches the line it stays in this mode until the panel hangs up. On the next event the 3G4010CF restarts the error detection sequence before switching.

The 3G4010CF performs this sequence on any phone number that is detected on the line. Specific central station phone numbers can be programmed into the 3G4010CF if desired. Up to four, 20-digit numbers can be added to your profile at Connect 24. If programmed, the 3G4010CF will only look for a Contact ID or SIA kiss-off after these numbers are dialed. A Telephone Line Monitoring trouble (PGM output activation and/or reporting code if applicable) is also activated and/or transmitted when the PTM is activated. A restoral is sent at the end of the call.

Cellular Communications Sequence

When an alarm is triggered:

- The control panel goes off-hook.
- The 3G4010CF asserts a dial tone.
- The Control panel dials the number of the central station. Ensure that the alarm panel inserts a minimum one second pause, or has Dial Tone Search enabled before dialing the number.
- The 3G4010CF detects the DTMF dialing and stops dial tone.

NOTE: The 3G4010CF is unable to decode pulse dialing.

If the panel is programmed for Contact ID format:

- The 3G4010CF sends the required Contact ID dual-tone handshake to the panel.
- After receiving the handshake, the control panel transmits an alarm message in Contact ID format.
- The 3G4010CF decodes and transforms the Contact ID digits into an IP packet and sends it to the central station receiver over the cellular network.
- The central station receiver acknowledges the alarm and sends a command to the 3G4010CF to generate the corresponding 1400Hz Kiss-off signal for a minimum of 800 msec.

After the 3G4010CF generates a Kiss-off signal, it sends the next alarm or, if no further alarms need to be sent, the control panel goes on-hook.

If the panel is programmed for SIA (300 baud) format:

- The 3G4010CF sends the required SIA handshake to the panel.
- After receiving the handshake, the control panel transmits an alarm message in the SIA format.
- The 3G4010CF decodes and transforms the SIA events into an IP packet that it sends to the central station receiver over the cellular network.
- The central station's receiver acknowledges the alarm and sends a command to the 3G4010CF to generate the corresponding 2025Hz kiss-off signal for a minimum of one second.
- After the 3G4010CF generates a kiss-off signal, it sends the next alarm or, if no further alarms need to be sent, the control panel goes on hook.

NOTE: The 3G4010CF automatically adjusts the order of the handshakes based on the last format the control panel used to transmit an event.

Inputs

The 3G4010CF has four inputs that can be used to trigger specific communications. These events will transmit using the Contact ID or SIA format with Inputs 1-4 reporting as [991] to [994] respectively.

Default settings are:

INPUT 1- AC LOSS	INPUT 3 - FIRE ALARM
INPUT 2 - FIRE SUPERVISORY	INPUT 4 - SYSTEM TROUBLE

Inputs can be configured as follows:

Normally Open - input will activate when a short condition is detected between the terminal and COM.

Normally Closed - input will activate when an open condition is detected between the terminal and COM.

Single End of Line - input will activate when a short or open condition is detected between the terminal and COM and will restore when a 5.6Kohm resistor is detected between the terminal and COM.

NOTE: These inputs are programmable to communicate using either the Contact ID or SIA format.

NOTE: For UL/ULC listed installations, End of Line supervision must be used for all inputs.

NOTE: When the 3G4010CF is configured in land line mode, these inputs should be restricted to monitoring of trouble conditions.

Outputs

The 3G4010CF has four programmable outputs to activate in response to the associated events. Refer to the 3G4010CF Wiring Diagram (Figure 2) at the back of this manual.

Activating the Outputs

The 3G4010CF has four open collector outputs capable of a maximum of 50mA. Internal events on the 3G4010CF can trigger the outputs to turn on an LED or activate an input on the host panel. The default settings are as follows.

OUTPUT 1 Landline Trouble - Output is normally high and will switch to ground when the telephone line is down.

OUTPUT 2 Cellular Module or Network Trouble - Output is normally high and will switch to ground when the 3G4010CF can not communicate with the 3G or 2G network.

OUTPUT 3 Power Supply or Battery Trouble - Output is normally high and will switch to ground when there is a problem with the power source.

OUTPUT 4 General Module Trouble - Output is normally low and will switch to high when a Cellular Network Trouble, Power Supply/Battery Trouble, and/or a Failure to Communicate (FTC) trouble is detected.

NOTE: PGM4 must be connected to the control panel as shown in Figure 4 (Residential applications) or Figures 8-9 (Commercial applications). Program the control panel input Zone/Point as 24hr 'Supervisory' with keypad-only notification when activated. Output 4 on the 3G4010CF must be set as 'Active High'.

NOTE: Once an output has been activated automatically, it will not restore its state until all the causes of activation are cleared.

Reporting Codes

3G4010CF Reporting Codes	CID	SIA	Programmable	Comments
Zone 1 Activation	E301 991	AT 991	YES	AC Loss*
Zone 1 Restoral	R301 991	AR 991	YES	AC Loss Restore *
Zone 2 Activation	E200 992	FS 992	YES	Fire Supervisory*
Zone 2 Restoral	R200 992	FV 992	YES	Fire Supervisory Restore*
Zone 3 Activation	E110 993	FA 993	YES	Fire *
Zone 3 Restoral	R110 993	FH 993	YES	Fire Restore *
Zone 4 Activation	E300 994	YX 994	YES	System Trouble *
Zone 4 Restoral	R300 994	YZ 994	YES	System Trouble Restore *
PSTN Line Down	E351 000	LT 000	FIXED	Telco 1 Fault
PSTN Line Restoral	R351 000	LR 000	FIXED	Telco 1 Fault Restore
Periodic Test	E603 XXX	RP XXX	FIXED	Test Transmission <Receiver Path>
Periodic Test with Trouble	E608 XXX	RY XXX	FIXED	Test Transmission <Receiver Path>
Radio Activation	R552 000	RS 000	FIXED	Remote Programming Successful
Internal Buffer Full	E624 000	JL 000	FIXED	
FTC Restoral	R354 000	YK 000	FIXED	Communications Restored
Firmware Update Successful	R901 000	LS 000	FIXED	
Firmware Update Fail	E902 000	LU 000	FIXED	
Firmware Update Begin	E901 000	LB 000	FIXED	
System Tamper	E145 000	ES 000	FIXED	Expansion Module Tamper
System Tamper Restore	R145 000	EJ 000	FIXED	Expansion Module Tamper Restore

* C24 Communications default value

NOTE: The 3G4010CF does not support remote programming (local hardware default required). Upon activation through Connect 24, the product will operate as described in this manual.

Swinger Shutdown

To prevent "runaway" signals to the central station, the 3G4010CF is equipped with Swinger Shutdown which limits certain trouble events to a maximum of four reports every 24 hours. The condition will restore and the counter will reset at midnight. Swinger Shutdown applies to the following trouble conditions:

- System Tamper/Restore
- Low Battery Trouble/Restore
- TLM Trouble/Restore
- Input Power Trouble/Restore
- FTC Restore

Hardware Default

A local hardware default is required in order to update the unit with the latest configuration from C24 Communications.
To perform the hardware default, follow these steps:

1. Power down the unit (remove primary DC power and remove the backup battery) and remove all connections to Zone1, Zone 2, PGM1 and PGM.
2. Connect a wire between Z2 (terminal 7) and PGM2 (terminal 8) or Z1 (terminal 13) and PGM1 (terminal 7).
3. Power up the radio by connecting the battery first and then primary DC power.
4. Wait for 20 seconds and then completely power down the unit.
5. Disconnect the wire between the Zone and PGM terminals.
6. Power up and let the unit complete the update (the LEDs will stop flashing when the downloading is complete).

NOTE: Failure to perform hardware default will result in the unit transmitting with the previously programmed configuration.

Communicator Reset/Update

The firmware of the device can be updated over Cellular or PC-Link:

- When the firmware update begins, all LED are ON.

RED	BLUE	Yellow/Green (Top)	Yellow/Green (Bottom)
ON	ON	ON	ON

- During the firmware update process the LEDs will be cycled individually in a chaser pattern. (different from the Advanced Carrier Selection pattern)

RED	BLUE	Yellow/Green (Top)	Yellow/Green (Bottom)
FLASH ON	OFF	OFF	OFF
OFF	FLASH ON	OFF	OFF
OFF	OFF	FLASH ON	OFF
OFF	OFF	OFF	FLASH ON
FLASH ON	OFF	OFF	OFF
OFF	FLASH ON	OFF	OFF
OFF	OFF	FLASH ON	OFF
OFF	OFF	OFF	FLASH ON

- After a successful update, the unit will automatically restart.

NOTE: Several resets will take place during a single Firmware update session.

NOTE: The unit will re-request programming after firmware update; the version number will be updated and viewable via C24 Communications.

NOTE: Unit must not be powered down while Firmware Update Takes Place.

NOTE: Unit will not process remote firmware update requests while it exhibits the following trouble, if the trouble occurs after the unit has processed the firmware update request, it will not interrupt the firmware update request.

• Input Power Trouble

• Low Battery Trouble

Low Power Radio Shutdown

When the battery voltage reaches the low battery threshold of 9.6V, the unit turns off the radio to prevent unnecessary network registrations. In this state, the unit does not communicate any events.

Radio shutdown is indicated by the LEDs as follows:

- Red LED indicates low battery trouble.
- Two green LEDs blinking on/off together indicates the radio is not ready.

This LED sequence will display until the low battery voltage is restored and the radio is enabled again.

SMS Command and Control

NOTE: For UL/ULC installations, this feature has not been investigated by UL/ULC and its use is not permitted.

The user can remotely arm/disarm their security panel and control PGM outputs by following these steps:

Arming/Disarming the Security Panel

1. Set up a PGM output to Remote Arming in C24 Communications
2. Ensure this PGM output is connected to a relay to their security panel zone
3. Set up the zone on the security panel as momentary or maintained arming
   a. If the Security Panel uses Momentary key switching, the configuration on Communicator PGM shall be with a time field of 05 (in this configuration, both arm and disarm will generate the pulse)
   b. If the security Panel uses maintained key arming, the configuration on the communicator PGM shall be filled with a time field of 00
4. Optionally the panel arm state can be configured for the communicator to detect by setting a panel PGM output to reflect panel arm state, have that relay connected to a communicator zone configured to follow panel arm state.

Remote Control of PGM

1. Set up a PGM or both PGM output to Remote Control PGM configuration
   a. PGM can be latched or timed
      i. setting the PGM timer to 00 will configure the PGM to be latched, it will not turn off unless the turn off command is received
      ii. setting the PGM timer with a time value between 1 second to 255 seconds will configure the PGM to be timed, the PGM will activate

2. Configure in C24 Communications the Phone Number allowed to use SMS command and control and the access code
   a. Up to 6 different phone numbers can be programmed to perform SMS command and control
   b. The password can be 4 to 8 alphanumeric characters and it will not be case sensitive

The SMS command and control can be sent in the following format:

For arming/disarming the Security Panel
Arm <access code>, example Arm 12345678

For activating/deactivating a specific PGM
Activate <PGM #> <access code>, Activate 1 12345678

The following SMS command and control operations are available.

- Arming

Language	Command Label (shall not be case sensitive)
English	Arm
French	Armement
Spanish	Armado

- Disarming

Language	Command Label (shall not be case sensitive)
English	Disarm
French	Desarmement
Spanish	Desarmado

- Activate PGM

Language	Command Label (shall not be case sensitive)
English	Activate
French	Activation
Spanish	Activar

- Deactivate PGM

Language	Command Label (shall not be case sensitive)
English	Deactivate
French	Desactivation
Spanish	Desactivar

- Status Request

Language	Command Label (shall not be case sensitive)
English	Status Request
French	Etat Démandé
Spanish	Petición de Estado

Invalid command will be sent when no zones are programmed to read security arm status.

- Help

Language	Command Label (shall not be case sensitive)
English	Help
French	Aide
Spanish	Ayuda

Help command will return all the commands available corresponding to the language of the help command being sent.

Phone Number Call Direction

The user has the ability to program the PTM phone numbers to receiver group 1 or receiver 2.

The programmed number in Communicator must also be programmed as the panel phone number. When the communicator detects the phone number it will communicate to the receivers to the corresponding group.
NOTE: If no PTM phone number is programmed, all panel calls will go to Receiver Group 1.

Troubleshooting Guide

Powering up the 3G4010CF – when powering up the 3G4010CF, always connect the battery first (if used) before connecting primary DC power from the control panel or transformer.
Wiring Primary – R-1/T-1 of 3G4010CF to RING/TIP of control panel, DC power from control panel or DC transformer to DC input, backup battery.
Wiring Backup – Incoming line to RING/TIP on 3G4010, R-1/T-1 of 3G4010CF to RING/TIP of control panel, R-1/T-1 of control panel to house phones, DC power from control panel or DC transformer to DC input, backup battery.
Testing Communications – when the 3G4010CF transmits a signal for the control panel, or for an internal transmission, the BLUE light will flash one time when the signal is transmitted and two times when it gets a kiss-off.
SIM – the SIM should be activated at least 24 hours prior to installation. The 3G4010CF will show signal strength with an inactive SIM, however it will display the signal strength of any available wireless network. The SIM must be active to ensure the signal strength displayed is that of the wireless network provider for which the SIM belongs to.
Panel Programming – the control panel should be programmed to communicate Contact ID or SIA exactly the same way it would be programmed to communicate Contact ID or SIA over the telephone line.

Green/Yellow LED Status	What it means:	CSQ Values	Signal Strength Status
Both Signal Strength LEDs **ON**	Excellent Signal Strength	14+	• Unit can be installed in the current mounting location.
Top LED **FLASHING** with bottom LED **ON**	Excellent Signal Strength	11-13	• Unit can be installed in the current mounting location.
Bottom LED **ON**	Good Signal Strength	7-10	• Unit can be installed in the current mounting location.
Bottom LED **FLASHING**	Poor Signal Strength	5-6 (no trouble) 1-4 (with trouble)	• Ensure the antenna cable is plugged securely into the radio connector. • If the SIM is active, connect a battery to the unit and test various locations for good/excellent signal strength. • Connect an antenna extension kit (GS-15ANT, GS-25ANT, GS-50ANT or GS8-ANTP).
Both LEDs **OFF**	No Signal Strength	0	• If the red LED is also FLASHING, refer to the RED LED chart. • Verify SIM card is activated. • Ensure the antenna cable is plugged securely into the radio connector. • If the SIM is active, connect a battery to the unit and test various locations for good/excellent signal strength. • Connect an antenna extension kit (GS-15ANT, GS-25ANT, GS-50ANT or GS8-ANTP).
Both LEDs **Flashing ON/OFF** together	Signal Strength is invalid	N/A	Radio is in process of network registration.
Both LEDs **Alternating**	Radio Reset Sequence	N/A	Radio is performing a Reset. If the issue persists, please verify the SIM card is inserted correctly.

NOTE: When the Signal Strength LED is showing Green, it indicates your communicator is connected to a 3G Tower. When the Signal Strength LED is showing Yellow, it indicates your communicator is connected to a 2G Tower.

Blue LED Status (Normal Mode)	What It Means: Wireless Communicator Status/Communication Indicator
Blue LED **ON**	When used as a backup communicator, the blue LED will be ON when there is a no phone line connected to the 3G4010CF TIP and RING, or the line voltage goes below 2.8VDC.
Blue LED **OFF**	A good phone line is connected to the 3G4010CF . (more than 2.8 VDC detected across the 3G4010CF TIP and RING terminals).

Blue LED Status (Normal Mode)	What It Means: Wireless Communicator Status/Communication Indicator
Blue LED FLASHING	The blue LED will flash one time when the 3G4010CF transmits a signal and two times when a kiss-off is received.

NOTE: Blue LED is always OFF when 3G4010CF is used as a primary communicator.

# of Flashes		Trouble Type	Trouble Notes
Red	Blue		
On	On	No Signal Strength	• Verify SIM card is activated. • Ensure the antenna cable is plugged securely into the radio connector. • If the SIM is active, connect a battery to the unit and test various locations for good/excellent signal strength. • Connect an antenna extension kit (GS8-ANTP, GS-15ANT, GS-25ANT or GS-50ANT).
1	Off	Wireless Network Trouble	• Ensure the SIM card has been activated. • The antenna cable should be plugged securely into the radio connector. • Ensure there is good signal strength (at least one green light ON). • Verify the installation area is not experiencing a network outage.
2	Off	Battery Trouble	• If a battery is not used in the installation, ensure that the "Internal Battery Connected" is not selected in C24 Communications. • If a battery is used in the installation, verify the battery is connected properly • Measure the battery under load and verify it is charged to at least 11.8VDC. If not, wait at least 1 hour for the battery to charge. • Remove the battery and measure the voltage; the voltage should be at least 11.8VDC. • Verify the input DC supply is rated at 13.8VDC @ 180mA minimum. • Replace battery
3	Off	Input Power Trouble	• Ensure the power source connected to the 3G4010 is providing 13.8VDC @ 180mA.
1	Flash	Insufficient Signal Strength	• Ensure the antenna cable is plugged securely into the radio connector. • If the SIM is active, connect a battery to the unit and test various locations for good/excellent signal strength. • Connect an antenna extension kit (GS8-ANTP, GS-15ANT, GS-25ANT or GS-50ANT)
2	Flash	Not Used	
3	Flash	C24 Communications Configurations Trouble	• Ensure the SIM card is activated and correctly initialized through C24 Communications.
1	On	Radio/SIM Trouble	• Ensure the SIM Card is inserted correctly and firmly. • Ensure the antenna cable is plugged securely into the radio connector.
2	On	Receiver Not Available Trouble	• Contact the monitoring station to verify that the 3G4010CF programming is correct (port, IP address, DNIS). • Contact your central station to verify they are not experiencing any receiver issues.
3	On	Supervision Trouble	• Contact your central station to verify they are not experiencing any receiver issues.
4	On	Tamper Trouble	• Ensure the front cover is secured and the case tamper is closed.

The Red light will flash to indicate various trouble conditions outlined previously. If multiple trouble conditions are present, the red light will flash according to the highest priority trouble. For example, if both a 3G4010CF wireless network trouble (one flash) and a low battery trouble (two flashes) are present; the red light will flash one time. Once the 3G4010CF wireless network trouble condition is corrected, the red light will then begin flashing two times.

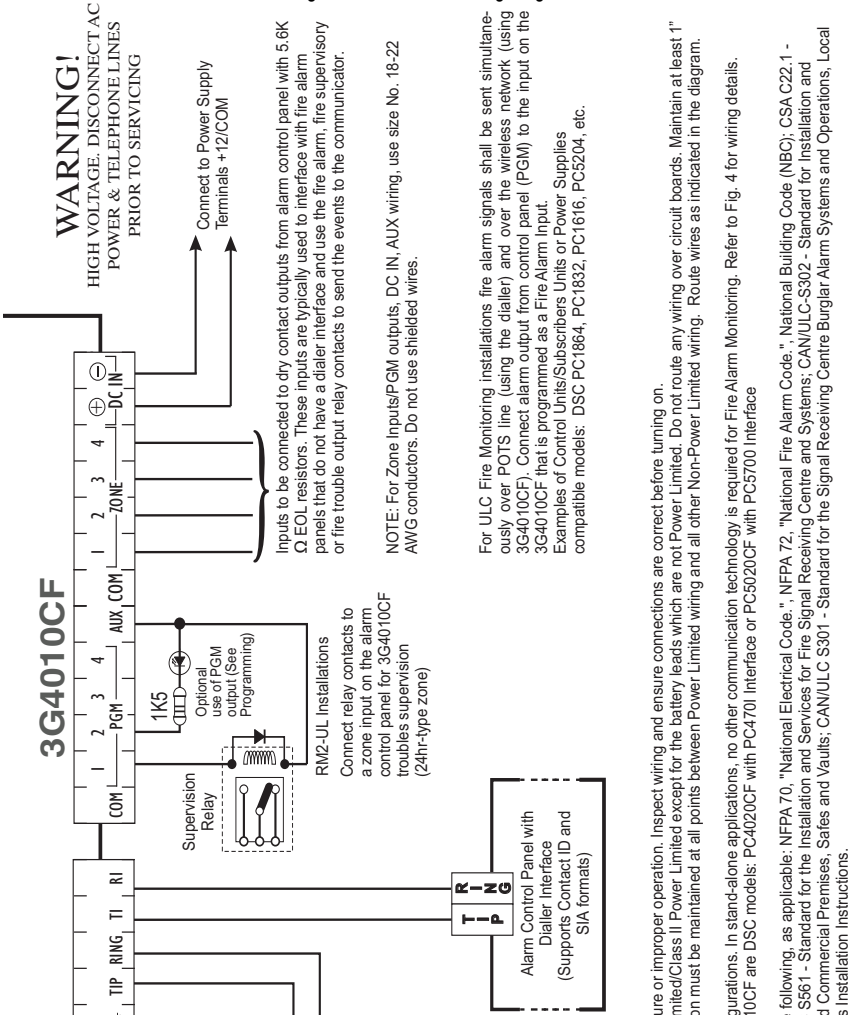
General Troubles With Your System	
The control panel is displaying a telephone line trouble condition	• Ensure T1 and R1 of the 3G4010CF are wired to the TIP and RING terminals of the control panel. • If the 3G4010CF is being used as the primary communicator, the blue light will always be OFF. • If the 3G4010CF red light is FLASHING, refer to the troubleshooting chart in this guide.

General Troubles With Your System	
The control panel displays a communication trouble condition	• Ensure the panel is programmed for Contact ID or SIA. • Ensure the control panel does not indicate a TLM trouble condition. • If the 3G4010CF red light is FLASHING refer to the troubleshooting chart in this guide.
No signals are received at the central station but no trouble condition is displayed	• Ensure the control panel has a central station phone number programmed. • Ensure the control panel has the correct account number programmed. • Verify the reporting codes are programmed or the auto Contact ID/SIA option is enabled. • Ensure the control panel communicator is enabled. • Connect a handset to T1 and R1 of the 3G4010CF in monitor mode to verify the control panel is trying to communicate.
Not receiving internal signals generated directly from the 3G4010	• Ensure the 3G4010CF was initialized with the correct account number. This can be checked by logging into the C24 Communications website. • Ensure that there are no trouble conditions on the 3G4010CF.
The phone line is seized when the 3G4010 is connected	• Verify correct phone line wiring. • Ensure the Ringer Equivalency Number (REN) is not being exceeded on the line.

General Information	
Removing/Connecting the antenna	• To remove the antenna from the 3G4010CF, place your thumb on the end of the connector at the modem, then place a screwdriver between the modem and connector. Gently turn the screwdriver away to 'pop' out the connector from the modem. • To install the antenna, firmly push the connector into the modem until it 'snaps' into place.
Enrolling a 3G4010CF	• The 3G4010CF can be enrolled by going through the GVRU voice prompt, and completing the activation of the SIM card, and the initialization of the 3G4010CF. • The 3G4010CF can also be enrolled using the C24 Communications website (www.connect24.com) or the C24 Communications mobile site (m.connect24.com).
SIM card activation period	• A SIM card can take up to 24 hours to be activated by the provider. However, it typically takes less than an hour for the SIM card to be activated.
Checking SIM status	• Go to www.connect24.com and login. A search can be performed for a specific account and its current status • SIM status can also be checked through the GVRU.
Critical Shutdown on 3G4010CF backup battery (with no DC input applied)	• If the 3G4010CF backup battery is used and is below 10.5VDC, the unit will go into critical shutdown. • The critical shutdown state will be displayed by the red light flashing followed by the yellow and two green lights flashing. • The lights will continue to flash in this sequence until the battery is charged above 11.8VDC.
Swinger Shutdown for 3G4010CF Troubles	• Trouble events can send a maximum of 4 troubles and restorals per day. • Swinger Shutdown only affects signal transmissions, not the functionality of the 3G4010CF lights or PGM outputs. • Swinger shutdown is reset at midnight or upon a full power cycle of the 3G4010CF.

It is recommended that the product is tested at least once per year.

Figure 2: 3G4010CF Wiring Diagram

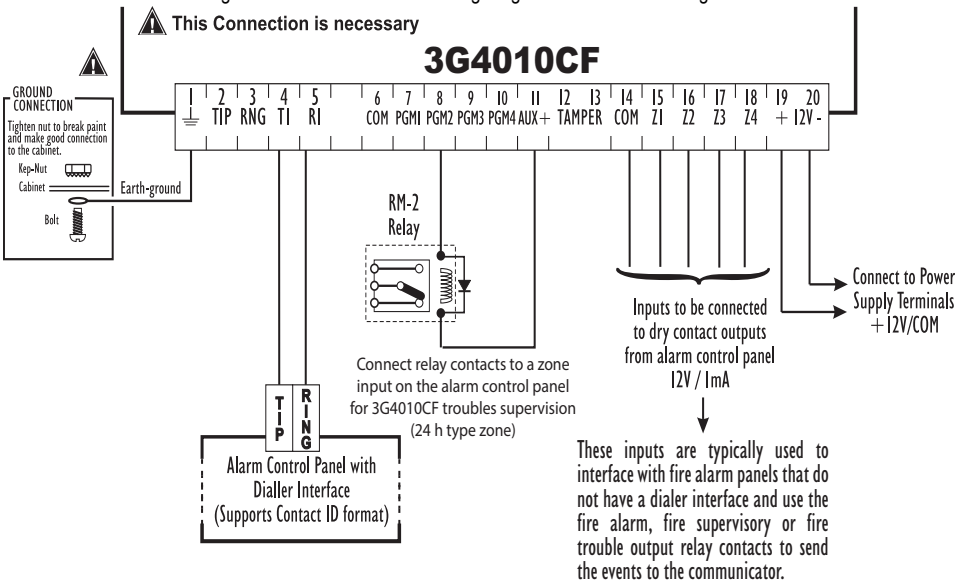


WARNING: Incorrect connections may result in PTC failure or improper operation. Inspect wiring and ensure connections are correct before turning on.
All circuits are classified for UL installations as Power Limited/Class II Power Limited except for the battery leads which are not Power Limited. Do not route any wiring over circuit boards. Maintain at least 1" (25.4mm) separation. A minimum 1/4" (6.4mm) separation must be maintained at all points between Power Limited wiring and all other Non-Power Limited wiring. Route wires as indicated in the diagram.

Phone line connection is required only for back-up configurations. In stand-alone applications, no other communication technology is required for Fire Alarm Monitoring. Refer to Fig. 4 for wiring details.
Suggested compatible DACT models for use with 3G4010CF are DSC models: PC4020CF with PC4701 Interface or PC5020CF with PC5700 Interface

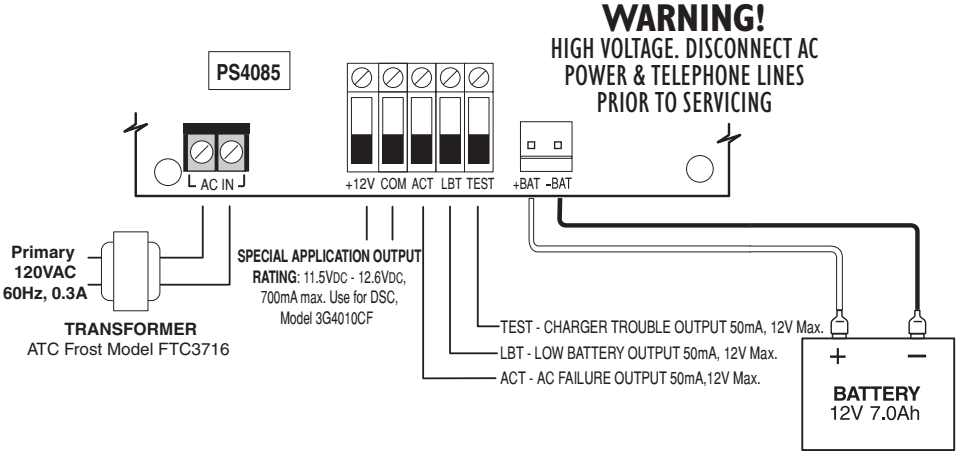
The 3G4010CF shall be installed in accordance with the following, as applicable: NFPA 70, "National Electrical Code.", NFPA 72, "National Fire Alarm Code.", National Building Code (NBC); CSA C22.1 - Canadian Electrical Code, Part 1; Section 32, CAN/ULC S561 - Standard for the Installation and Services for Fire Signal Receiving Centre and Systems; CAN/ULC-S302 - Standard for Installation and Classification of Burglar Alarm Systems for Financial and Commercial Premises, Safes and Vaults; CAN/ULC S301 - Standard for the Signal Receiving Centre Burglar Alarm Systems and Operations, Local Authorities Having Jurisdiction (AHJ) and Manufacturer's Installation Instructions.

Figure 3: 3G4010CF Module Wiring Diagram - Standalone Configuration



NOTE: If the control panel PGM output connected to the 3G4010CF input latches (remains closed) after an alarm has occurred, the 3G4010CF input will remain active. The latched PGM output must be reset or future alarms will not be reported via the zone input of the 3G4010CF and additional alarms may be triggered when the 3G4010CF is locally or remotely restarted. Please contact panel vendor for details on how to reset the control panel PGM.

Figure 4: Power Supply Wiring Diagram



These outputs shall be connected to zone inputs of an alarm control panel in order to provide the required trouble supervision (visual and audible indication required at the control panel). The outputs are active low (switched to ground) and can be connected to a control panel directly or by using a listed supervision relay (suggested model: DSC, RM-2 or RM1C).

Figure 5: Telephone Connection

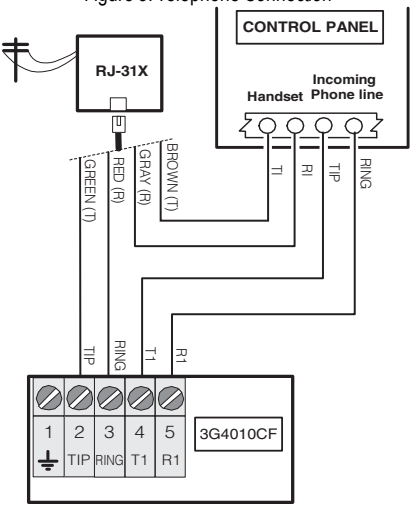
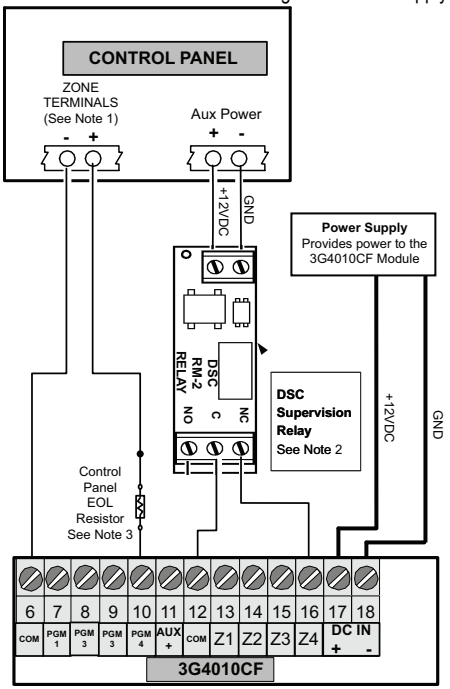


Figure 6: Power Supply and Supervision Wiring Diagram



NOTES:

1. Program the zone/point as "Supervisory" type with keypad only annunciation when in alarm. Do NOT use a zone/point that is normally used for 2-wire smoke detectors.
2. The power supervision relay (RM-2 or RM1C) is only used when the 3G4010CF is not powered by the control panel. When the radio is powered by the control panel, the relay is not required since a loss of input power will generate a signal to the CMC.
3. Output 4 on the 3G4010CF must be set as "Active High" (default).

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EXCLUSIVE REMEDY AND LIMITATION OF WARRANTY - UNDER NO CIRCUMSTANCES SHALL DSC BE LIABLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES BASED UPON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT LIABILITY, OR ANY OTHER LEGAL THEORY. SUCH DAMAGES INCLUDE, BUT ARE NOT LIMITED TO, LOSS OF PROFITS, LOSS OF THE SOFTWARE PRODUCT OR ANY ASSOCIATED EQUIPMENT, COST OF CAPITAL, COST OF SUBSTITUTE OR REPLACEMENT EQUIPMENT, FACILITIES OR SERVICES, DOWN TIME, PURCHASERS TIME, THE CLAIMS OF THIRD PARTIES, INCLUDING CUSTOMERS, AND INJURY TO PROPERTY.
DSC recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this SOFTWARE PRODUCT to fail to perform as expected.

Regulatory Information

MODIFICATION STATEMENT
Digital Security Controls has not approved any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the equipment.
Digital Security Controls n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peuvent annuler le droit d'utilisation de l'appareil par l'utilisateur.

INTERFERENCE STATEMENT
This device complies with Part 15 of the FCC Rules and Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

WIRELESS NOTICE
This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. The antenna should be installed and operated with minimum distance of 20 cm between the radiator and your body.
Antenna gain must be below:

Frequency Band	3G4010CF
GSM850 / FDD V	6.21 dBi

Frequency Band	3G4010CF
PCS1900 / FDD II	3.76 dBi

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet appareil est conforme aux limites d'exposition aux rayonnements de la IC pour un environnement non contrôlé. L'antenne doit être installé de façon à garder une distance minimale de 20 centimètres entre la source de rayonnements et votre corps. Gain de l'antenne doit être ci-dessous:

Bande de fréquence	3G4010CF
GSM850 / FDD V	6.21 dBi
PCS1900 / FDD II	3.76 dBi

L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec à autre antenne ou autre émetteur.

FCC CLASS B DIGITAL DEVICE NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

CAN ICES-3 (B) / NMB-3 (B)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de classe B est conforme à la norme canadienne ICES-003.

FCC ID:F53143G4010

3G4010 Product Identifier US: F5314MO00B3G4010

REN: 0.0B

USOC Jack: RJ-31X

WARNING: To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20cm or more must be maintained between the antenna of this device and persons during device operation.

Telephone Connection Requirements

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

Ringer Equivalence Number (REN)

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call.

In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local Telephone Company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format. US: AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

Incidence of Harm

If this equipment 3G401CF causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the Telephone Company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Changes in Telephone Company Equipment or Facilities

The Telephone Company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the Telephone Company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

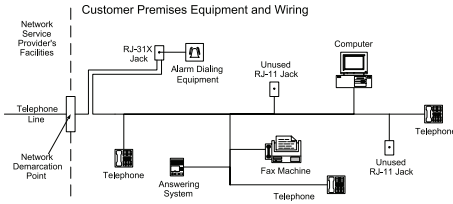
Equipment Maintenance Facility

If trouble is experienced with this equipment for repair or warranty information, please contact the facility indicated below. If the equipment is causing harm to the telephone network, the Telephone Company may request that you disconnect the equipment until the problem is solved. This equipment is of a type that is not intended to be repaired by the end user.

DSC c/o APL Logistics, 757 Douglas Hill Rd., Lithia Springs, GA 30122

Additional Information

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information. Alarm dialling equipment must be able to seize the telephone line and place a call in an emergency situation. It must be able to do this even if other equipment (telephone, answering system, computer modem, etc.) already has the telephone line in use. To do so, alarm dialling equipment must be connected to a properly installed RJ-31X jack that is electrically in series with and ahead of all other equipment attached to the same telephone line. Proper installation is depicted in the figure below. If you have any questions concerning these instructions, you should consult your telephone company or a qualified installer about installing the RJ-31X jack and alarm dialling equipment for you.



Industry Canada Compliance Statement

This Equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that that Industry Canada approved the equipment. The Ringer Equivalence Number (REN) for this terminal equipment is 0.0. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all devices does not exceed 5.

IC:160A-3G4010

Cet équipement est conforme aux spécifications techniques applicables aux équipements terminaux d'Industrie Canada. Ceci est confirmé par le numéro d'enregistrement. L'abréviation IC précédant le numéro d'enregistrement signifie que l'enregistrement a été effectué sur la base de la Déclaration de conformité indiquant que le produit est conforme aux spécifications techniques d'Industrie Canada. Cecin'implique pas que le produit ait été approuvé par Industrie Canada.

Le nombre équivalent de sonneries (REN) de cet appareil terminal est 0.0. Le REN attribué à chaque équipement terminal fournit une indication sur le nombre maximum de terminaux pouvant être connectés sur une interface téléphonique. La terminaison sur une interface peut constituer en n'importe quelle combinaison d'appareils, à la condition seulement que la somme des Nombres équivalents de sonneries de tous les appareils ne soit pas supérieure à 5.

This Class B digital apparatus meets all requirements of the Canadian interference-causing equipment regulations. Cet appareil numérique de la Classe B respecte toutes les exigences de règlement sur le matériel brouilleur du Canada.

The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

NIST Validation of encryption algorithm AES128 certificate No. 3161

Warranty

Digital Security Controls warrants the original purchaser that for a period of twelve months from the date of purchase, the product shall be free of defects in materials and workmanship under normal use. During the warranty period, Digital Security Controls shall, at its option, repair or replace any defective product upon return of the product to its factory, at no charge for labour and materials. Any replacement and/or repaired parts are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer. The original purchaser must promptly notify Digital Security Controls in writing that there is defect in material or workmanship, such written notice to be received in all events prior to expiration of the warranty period. There is absolutely no warranty on software and all software products are sold as a user license under the terms of the software license agreement included with the product. The Customer assumes all responsibility for the proper selection, installation, operation and maintenance of any products purchased from DSC. Custom products are only warranted to the extent that they do not function upon delivery. In such cases, DSC can replace or credit at its option.

International Warranty

The warranty for international customers is the same as for any customer within Canada and the United States, with the exception that Digital Security Controls shall not be responsible for any customs fees, taxes, or VAT that may be due.

Warranty Procedure

To obtain service under this warranty, please return the item(s) in question to the point of purchase. All authorized distributors and dealers have a warranty program. Anyone returning goods to Digital Security Controls must first obtain an authorization number. Digital Security Controls will not accept any shipment whatsoever for which prior authorization has not been obtained.

Conditions to Void Warranty

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

- damage incurred in shipping or handling;
- damage caused by disaster such as fire, flood, wind, earthquake or lightning;
- damage due to causes beyond the control of Digital Security Controls such as excessive voltage, mechanical shock or water damage;
- damage caused by unauthorized attachment, alterations, modifications or foreign objects;
- damage caused by peripherals (unless such peripherals were supplied by Digital Security Controls);
- defects caused by failure to provide a suitable installation environment for the products;
- damage caused by use of the products for purposes other than those for which it was designed;
- damage from improper maintenance;
- damage arising out of any other abuse, mishandling or improper application of the products.

Items Not Covered by Warranty

In addition to the items which void the Warranty, the following items shall not be covered by Warranty: (i) freight cost to the repair centre; (ii) products which are not identified with DSC's product label and lot number or serial number; (iii) products disassembled or repaired in such a manner as to adversely affect performance or prevent adequate inspection or testing to verify any warranty claim. Access cards or tags returned for replacement under warranty will be credited or replaced at DSC's option. Products not covered by this warranty, or otherwise out of warranty due to age, misuse, or damage shall be evaluated, and a repair estimate shall be provided. No repair work will be performed until a valid purchase order is received from the Customer and a Return Merchandise Authorisation number (RMA) is issued by DSC's Customer Service.

Digital Security Controls's liability for failure to repair the product under this warranty after a reasonable number of attempts will be limited to a replacement of the product, as the exclusive remedy for breach of warranty. Under no circumstances shall Digital Security Controls be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any other legal theory. Such damages include, but are not limited to, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, down time, purchaser's time, the claims of third parties, including customers, and injury to property. The laws of some jurisdictions limit or do not allow the disclaimer of consequential damages. If the laws of such a jurisdiction apply to any claim by or against DSC, the limitations and disclaimers contained here shall be to the greatest extent permitted by law. Some states do not allow the exclusion or limitation of incidental or consequential damages, so that the above may not apply to you.

Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) And of all other obligations or liabilities on the part of Digital Security Controls Digital Security Controls neither assumes responsibility for, nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

This disclaimer of warranties and limited warranty are governed by the laws of the province of Ontario, Canada.

Digital Security Controls recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

Installer's Lockout

Any products returned to DSC which have the Installer's Lockout option enabled and exhibit no other problems will be subject to a service charge.

Out of Warranty Repairs

Digital Security Controls will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to Digital Security Controls must first obtain an authorization number. Digital Security Controls will not accept any shipment whatsoever for which prior authorization has not been obtained.

Products which Digital Security Controls determines to be repairable will be repaired and returned. A set fee which Digital Security Controls has predetermined and which may be revised from time to time, will be charged for each unit repaired.

Products which Digital Security Controls determines not to be repairable will be replaced by the nearest equivalent product available at that time. The current market price of the replacement product will be charged for each replacement unit.

Tech Support: 1-800-387-3630 (Canada & U.S.) or 905-760-3000
www.dsc.com

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