Intermatic Product Catalog

Lighting Controls

Surge Protection

Weatherproof Covers

Pool & Spa Solutions

Time-Based Controls

HVAC/R Solutions

Photocontrols

Timers

INTERMATIC®

Proven Products Long-Lasting Solutions

Intermatic is a proven leader in high quality, reliable affordable controls. From Programmable Time Controls and Photocontrol Sensors, to Surge Protective Devices and Weatherproof Covers, our robust lineup helps save money through faster installations, reduced energy consumption, and extended equipment life. Keep places safe, secure, and energy efficient with solutions from Intermatic.

Highlights

- Our entire portfolio of controls is not only LED-compatible, but also mirrors the life expectancy of LED fixtures.
- We offer lighting controls for interior and exterior lighting, pumps, fans, signage, motor controls and more.
- The range of control options span from simple 24-hour, to 7-day with OFF day and holiday exceptions, to complex 365-day advanced BEMS integration.
- 100-Hour supercapacitor models or battery backup controls with expected 3-year battery life.
- Award winning surge protection that is the most comprehensive in the market.

Like Our Products, We Stand the Test of Time.

Intermatic was founded in 1891. How many companies can boast an over 120-year history? A timeline of this duration can only be achieved by continuously delivering quality products, forward-thinking, and the commitment of high-caliber employees. We're good at what we do and we never stop working towards perfecting our products.

Whether the need is for a standalone item or one that integrates into broader systems, we manufacture and distribute quality products that make sense for a multitude of lifestyles. From designing new concepts, to producing needed components to complete the bigger project with our OEMs, we will deliver.

These factors have made Intermatic one of the most recognized names among contractors, original equipment manufacturers, facility managers and consumers alike.

Designed for Today's Demands.

Engineering – Our Engineering Team challenges each other to design products that meet the market's ever-changing demands.

- Our electrical, mechanical and software engineers tackle projects from every angle.
- 3-D printing gives us fast prototyping capabilities.
- Our innovations have earned us several patents globally.

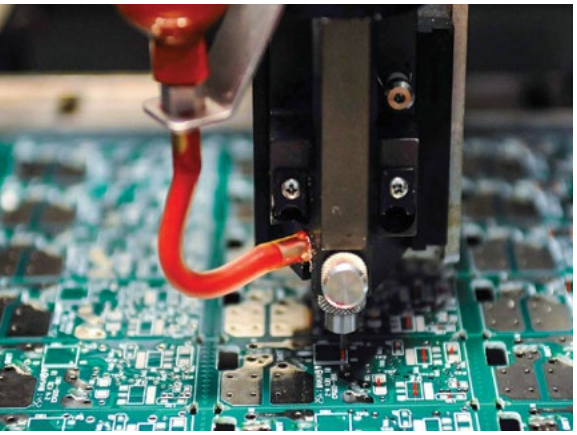
Quality Tested. Customer Approved.

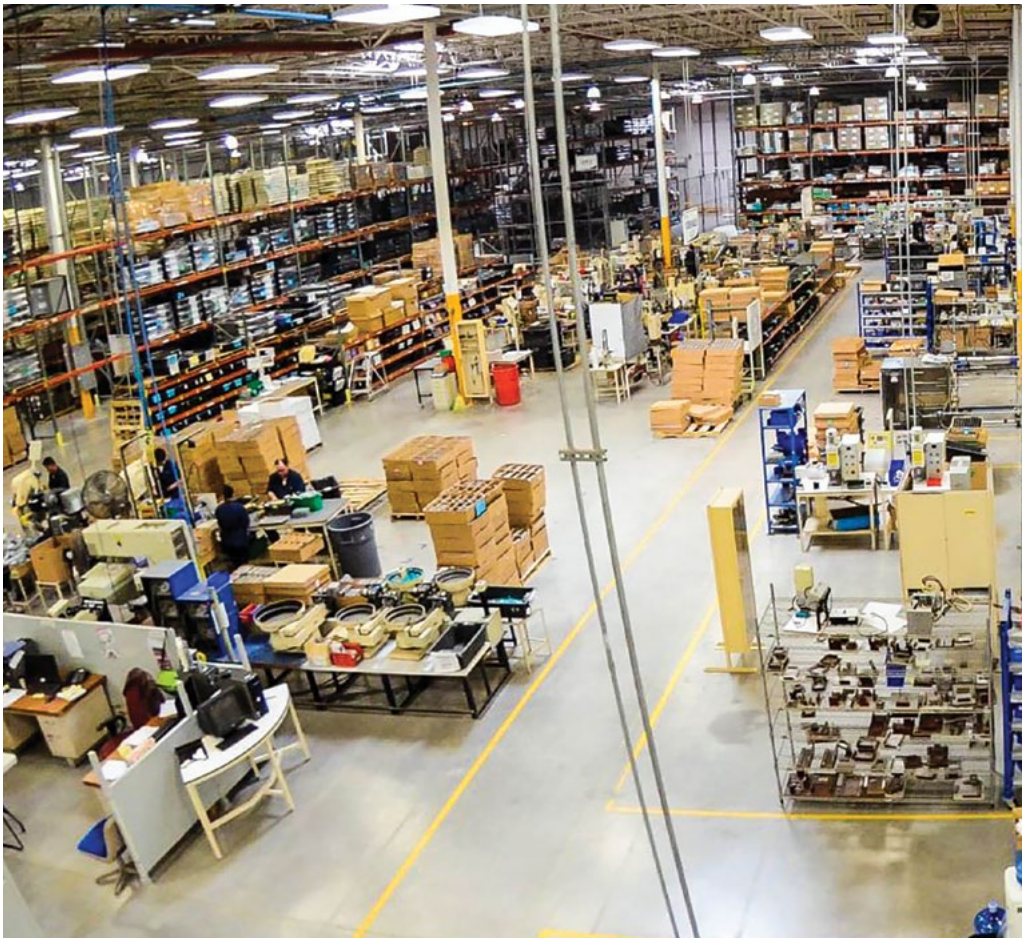
Reliability Lab – Our on-site CSA and UL Certified lab is dedicated to performing strong reliability tests that range from simulating lightning (surge testing) to torrential rainstorms (NEMA 3R testing) ensuring the dependability of our products.

- Products are tested on-site for quicker approval turnaround.
- The CSA and UL Certified Team works hand-in-hand with our design engineers.
- We test for true performance.
- Our testing processes have been cited in the media for performance in today's rapidly changing LED lighting market.

Crossing Borders. Building the Future.

Manufacturing – Our reach is not constrained by borders and our products are built in our state-of-the-art manufacturing facilities in Juarez, Mexico and Peterzell, Germany. We provide OEM opportunities to drive down the cost of our customers' products with our iterative design process, quality engineering and excellent manufacturing capabilities. Our supply chain experts in North America, Europe and Asia have excellent relationships with leading component and material manufacturers worldwide.





Inside this Catalog

Our product catalog is designed to provide you with all of the necessary information you need to make a purchasing decision.

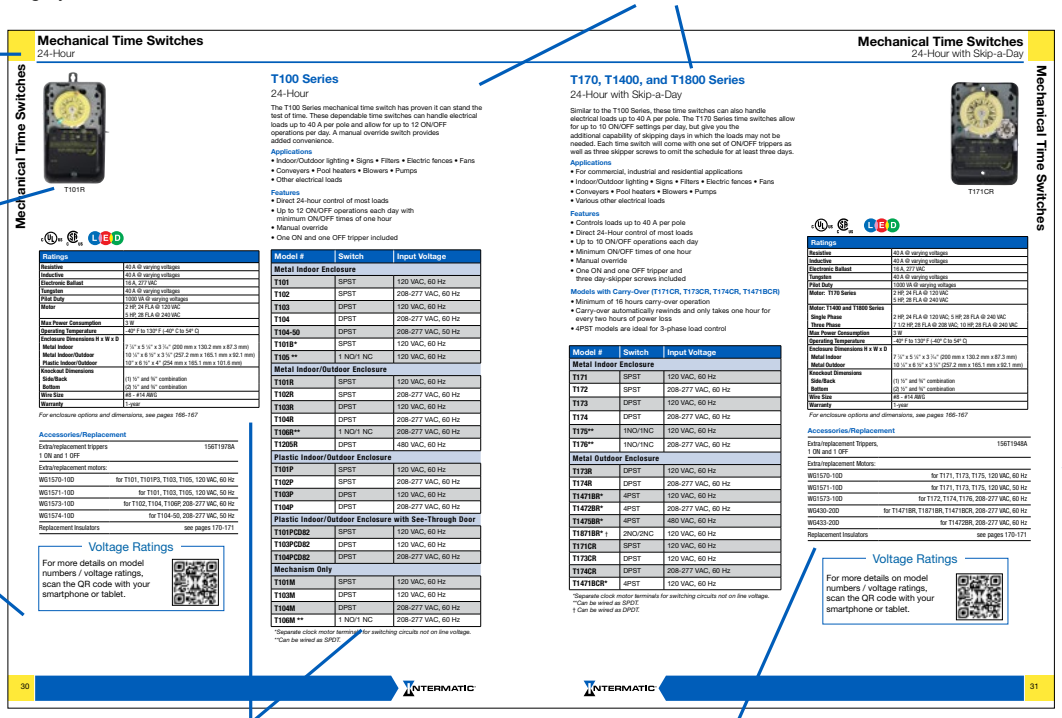
Easily find the product category with color-coded sections

Product description, applications & features

Photos

Refer to the product index in the back of the book for a complete list by Model #

Other helpful information such as dimensional drawings and wiring diagrams



Ratings and ordering charts

Any required or additional accessories are listed on the page

At Your Fingertips Online

We are always available to serve you through our Intermatic.com website and our mobile apps for tablets and smartphones.

Website – Our site is continually being updated to provide you with the most current information on products, including new releases and accessories. In addition to specifications and installation sheets, you'll find case studies and articles that detail Intermatic products in-use, solving problems at facilities like yours.

- This entire catalog is available digitally at www.intermatic.com/catalog
- Need to quickly cross-reference a product to an Intermatic solution? Check out our Cross-reference Tool by visiting: http://www.intermatic.com/en/ProductResources/ProductCrossReference
- Our iPad App - download from the App Store
  Browse and order from the convenience of anywhere

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ENTER
ESC
01 02 03 04
05 06 07 08
12:07 AM
1/01/11
INTERMATIC®
ET90000 Series
Circuits
1 ON/OFF
2 ON/OFF
3 ON/OFF
4 ON/OFF
5 ON/OFF
6 ON/OFF
7 ON/OFF
8 ON/OFF
11
12 ON/OFF

Electronic Controls

Intermatic offers a full line of 24-hour, 7-day, and dusk-to-dawn astronomic Electronic Time Controls to satisfy nearly any price point, schedule, or feature set that may be needed to fulfill a customer's needs.

The Basic Series handles simple schedules; the Basic Plus Series accommodates basic schedules that also require some tweaks, such as holidays or special events; and the Advanced Series can automate even the most demanding and constantly changing schedules.

From straightforward 24-hour, to 7-day with off-day and holiday exceptions, to complex 365-day advanced BEMS integration, we are working diligently to ensure that simple and affordable controls are available to meet all of your application needs.

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ET91615CR

ET90215CRE

ET90115C

ET90000 Series

365-Day Astronomic Time Switches

The ET90000 Series combines powerful and intuitive scheduling with truly maintenance-free convenience. The PC App and Mobile App provide real-time remote control, and the USB connection and Ethernet capabilities enable in-field updates.

Applications

• School districts • Banks • Small hotels • Franchises • Retail stores
• Municipalities • Parking lots • Offices

Features

- Automatic input voltage selection from 120 to 277 VAC, 50/60 Hz
- Over 2,000 events plus holiday schedules
- Advanced scheduling including relative dating, such as fourth Thursday of November or first week of year
- 30 A rated contacts
- 100-hour supercapacitor eliminates the need for batteries
- USB connection for uploading, downloading and transferring programs
- Easy-to-follow on-screen menus for programming to-the-minute accuracy
- Non-volatile memory protects programming indefinitely
- Firmware upgradable in-field via USB or Ethernet
- Internally expandable, in 4-circuit increments, up to 16-circuits for 4, 8, and 12-circuit models
- PC App for easy scheduling or control, either remotely or through USB flash drive
- Mobile app for real time status and overrides

Load Type	NO (Normally Open)	NC (Normally Closed)	Voltage
General Purpose & Resistive	30 A	—	12-240 VAC
General Purpose & Resistive	20 A	10 A	12-240 VAC
Resistive	20 A	10 A	28 VDC
Magnetic Ballast	20 A	3 A	120-277 VAC
Tungsten	5 A	—	12-120 VAC
Pilot Duty	470 VA	275 VA	120-240 VAC
Motor	1 HP	¼ HP	120 VAC
Motor	2 HP	½ HP	240 VAC

Ratings	
Cycle	50/60 Hz
Wiring Terminals	#20 to #6 AWG wire
MIN ON/OFF Times	1 second
MAX ON/OFF Times	365 days
Operating Temperature	-40° F to 104° F (-40° C to 40° C)
Warranty	3-year limited

Model #	Circuits	Enclosure	Ethernet
ET90115C	1	Type 1 Metal	Optional
ET90115CE	1	Type 1 Metal	Included
ET90115CR	1	Type 3R Metal	Optional
ET90115CRE	1	Type 3R Metal	Included
ET90115M*	1	—	Optional
ET90215C	2	Type 1 Metal	Optional
ET90215CE	2	Type 1 Metal	Included
ET90215CR	2	Type 3R Metal	Optional
ET90215CRE	2	Type 3R Metal	Included
ET90215M*	2	—	Optional
ET90415CR	4	Type 3R Metal	Included
ET90815CR	8	Type 3R Metal	Included
ET91215CR	12	Type 3R Metal	Included
ET91615CR	16	Type 3R Metal	Included

**Replacements for 1 & 2 circuits only.*
Note: The electronic mechanism snaps into the standard Intermatic enclosure for easy upgrading of mechanical mechanisms, if desired.

Accessories

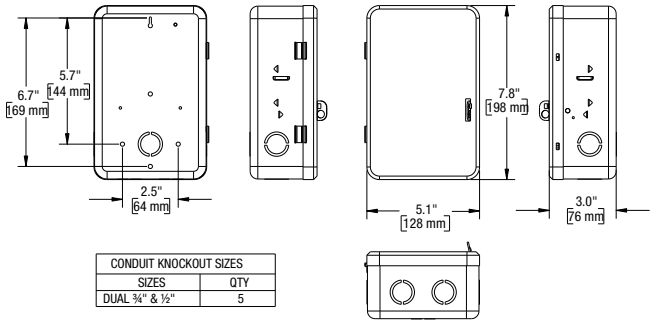
Door Assembly	ET9100
Ethernet Module	ET9232
Relay Module	ET9250

Selection Guide

Scan the QR code with your smartphone or tablet for a side-by-side comparison of our electronic control features.

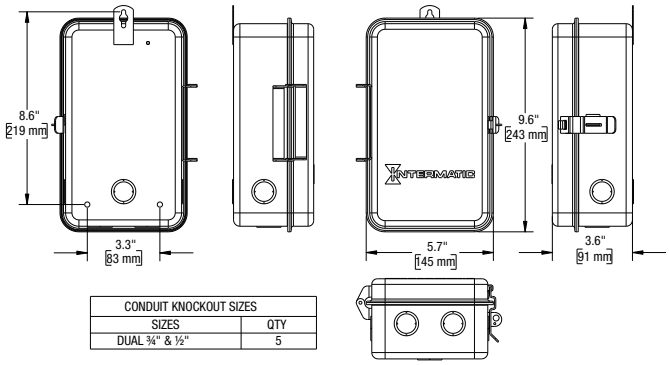
Enclosure Dimensions

Type 1, 1-2 Circuit



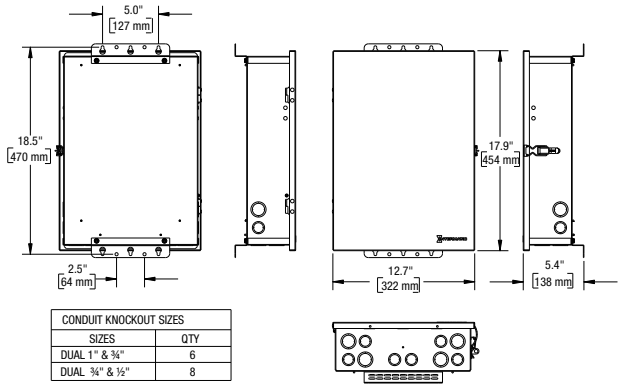
CONDUIT KNOCKOUT SIZES	
SIZES	QTY
DUAL ¾" & ½"	5

Type 3R, 1-2 Circuit



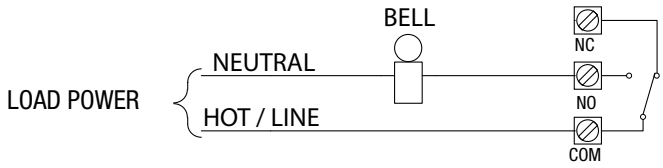
CONDUIT KNOCKOUT SIZES	
SIZES	QTY
DUAL ¾" & ½"	5

Type 3R, 4-16 Circuit

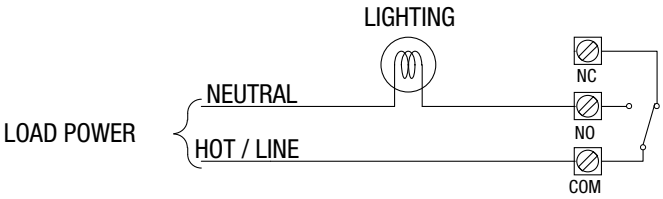


CONDUIT KNOCKOUT SIZES	
SIZES	QTY
DUAL 1" & ¾"	6
DUAL ¾" & ½"	8

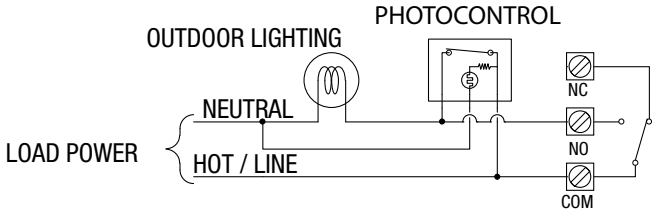
Wiring Diagrams



Typical bell, buzzer, or ringing installation. Multiple loads may be wired concurrently, within the maximum output ratings for the circuit.



Typical lighting installation. Multiple loads may be wired concurrently, within the maximum output ratings for the circuit.



Typical installation for photocontrol in parallel with time switch contacts. Either the time switch OR the photocontrol must be ON to power the load. Ideal for improved safety. Loads will activate at the scheduled times, at night, or during low-light conditions such as a storm.

ET90000 Apps

ET90000 PC App

The ET90000 PC App enables real-time remote control of each ET90000 device from the convenience of your laptop. It's a great tool for creating schedules before, during, or after installation. Plus, with the PC App you can control circuits, perform firmware updates, or download events, zones, and holidays from wherever you are working.

ET90000 Mobile App

Use the ET90000 Mobile App to check the status of your circuits in real-time from your smartphone or tablet. The remote override feature allows you to conveniently make quick changes to currently running schedules.

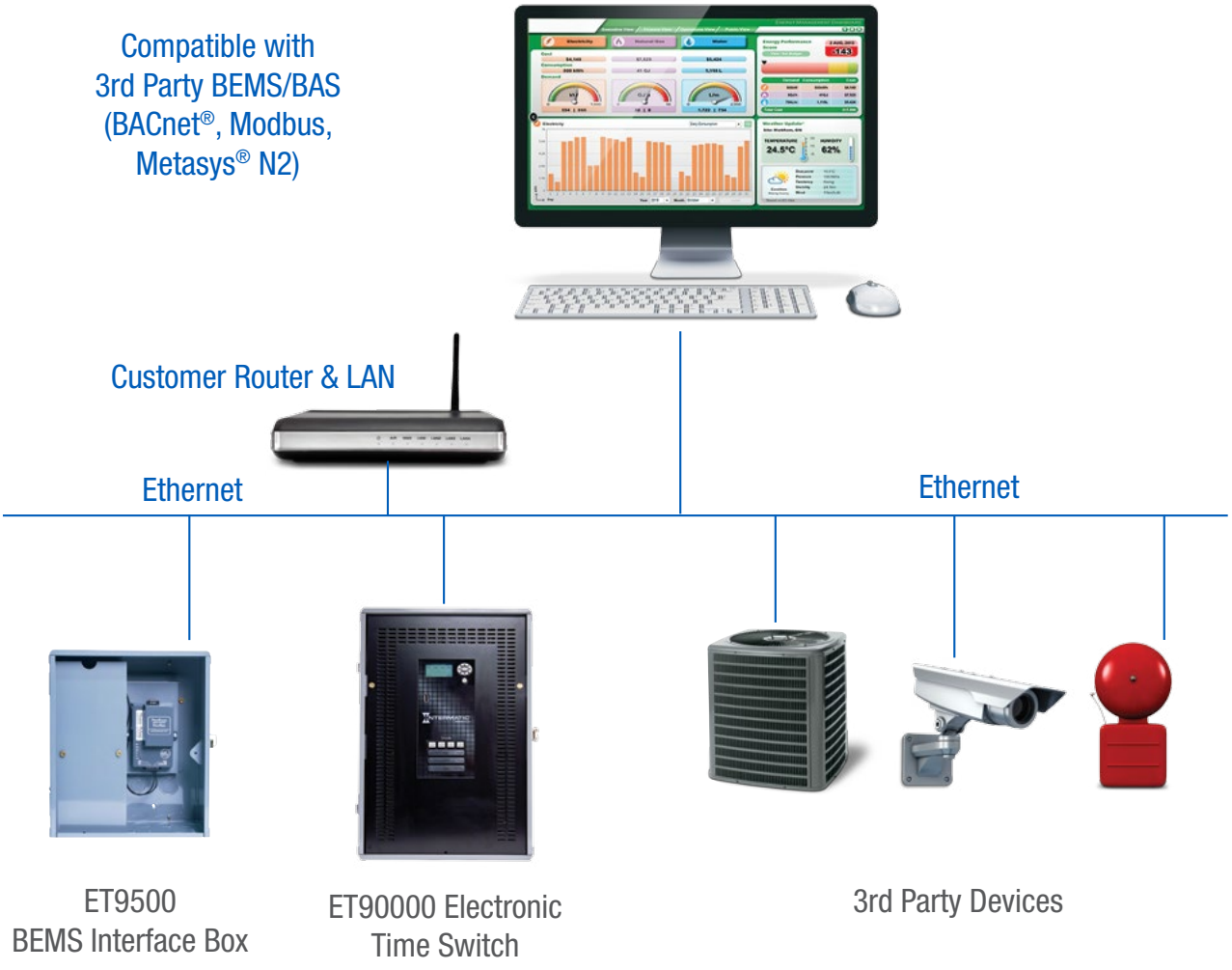
ET9500

BEMS Interface Box

The ET9500 Building Energy Management System (BEMS) Interface Box integrates the ET90000 Series with your building's automation or energy management system — for a hassle-free "integration-in-a-box" solution.

Features

- Simple Web interface for easy installation
- No configuration files to manually build or download in the field
- Field selectable for specific BEMS/BAS protocol
- Scalability to expand lighting control system when and as needed
- Each ET9500 supports up to 40 ET90000s
- Standard Type 3R metal enclosure
- BTL-certified



Applications

Schools

Office Buildings

Gas Stations

Retail Stores/Banks

Model #	Description	Enclosure
ET9500	BEMS Interface Box	Type 3R Metal

Ratings	
Power Requirements	120-277 VAC, 50/60 Hz
Operating Temperature	-40° F to 104° F (-40° C to 40° C)
Relative Humidity	10% - 90%, non-condensing
Enclosure Dimensions H x W x D	12" x 12" x 4 ¼" (304.8 mm x 304.8 mm x 108.0 mm)
Warranty	3-year limited

Metasys® is a registered trademark of Johnson Controls, Inc.
BACnet® is a registered trademark of ASHRAE.

Versatile 24-Hour, 7-Day and 7-Day Astronomic ET Series Time Switches feature several different switching output configurations to meet the needs of nearly any application. They can be installed using the surface mount bracket, or with an indoor metal, outdoor metal, or outdoor plastic enclosure. Specific models are available as a mechanism only for easy replacement. Whatever the application, we'll deliver the ideal solution for your needs!

Selection Options

Select from two options that cost-effectively meet your needs:

Basic Series
- Battery backup
- Simple scheduling

See pages 14-15

Basic+ Series
- Supercapacitor backup
- USB port
- Holiday, exception and more complex scheduling

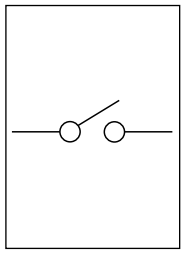
See pages 12-13

Pick the schedule that best meets the needs of the facilty:

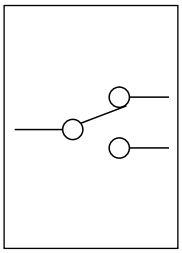
24-Hour | **7-Day** | **7-Day Astronomic**

Select a circuit/switch type:

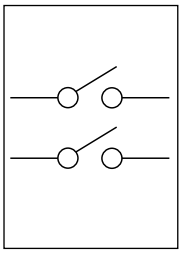
One SPST Circuit



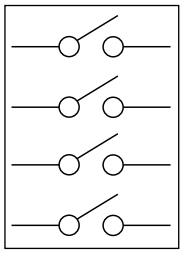
One SPDT Circuit



Two SPST Circuit



Four SPST Circuit



House your control in one of these enclosures:

Indoor Type 1 Metal

Outdoor Type 3R Metal

Outdoor Type 3R Plastic

For enclosure line drawings and knockout locations, see pages 164-165.

ET2105C

ET2705C

ET2725CP

ET2845CR

ET2000 Series

Basic Plus Electronic Time Switches

The ET2000 Series offers an easy-to-use user interface while still allowing to-the-minute scheduling capabilities for nearly any application. This series provides 50 holiday blocks with independent scheduling to ensure the loads are always in the proper ON/OFF state. This series also includes 96 ON/OFF events for even the most demanding schedules. The scheduling capabilities, configurable outputs, and a 100-hour backup without the need of batteries, make this series ideal for nearly any application.

Applications

- Interior lighting • Exterior lighting • Electric pumps
- Electric motor control • Various other electrical loads

Features

- 100-hour supercapacitor eliminates the need for batteries
- Up to 96 set points or events
- Up to 50 holiday blocks with schedule capabilities
- Automatic input voltage selection from 120 to 277 VAC, 60 Hz
- Additional mode of operation turns the ON/OFF buttons into 2-hour overrides
- Configurable outputs allow the control of various voltages and applications
- Relays incorporate zero-crossing technology to extend the life of the control
- Non-volatile EEPROM memory protects programming indefinitely
- LED compatible
- USB port makes transferring and saving of schedules easy
- 2-year limited warranty

24-Hour Schedule

Model #	Enclosure
1-Circuit SPST Switch	
ET2105C	Indoor Type 1 Metal
ET2105CP	Outdoor Type 3R Plastic
ET2105CR	Outdoor Type 3R Metal
1-Circuit SPDT Switch	
ET2115C	Indoor Type 1 Metal
ET2115CP	Outdoor Type 3R Plastic
ET2115CR	Outdoor Type 3R Metal
2-Circuit SPST Switch	
ET2125C	Indoor Type 1 Metal
ET2125CP	Outdoor Type 3R Plastic
ET2125CR	Outdoor Type 3R Metal
4-Circuit SPST Switch	
ET2145C	Indoor Type 1 Metal
ET2145CP	Outdoor Type 3R Plastic
ET2145CR	Outdoor Type 3R Metal

7-Day Schedule

Model #	Enclosure
1-Circuit SPST Switch	
ET2705C	Indoor Type 1 Metal
ET2705CP	Outdoor Type 3R Plastic
ET2705CR	Outdoor Type 3R Metal
1-Circuit SPDT Switch	
ET2715C	Indoor Type 1 Metal
ET2715CP	Outdoor Type 3R Plastic
ET2715CR	Outdoor Type 3R Metal
2-Circuit SPST Switch	
ET2725C	Indoor Type 1 Metal
ET2725CP	Outdoor Type 3R Plastic
ET2725CR	Outdoor Type 3R Metal
4-Circuit SPST Switch	
ET2745C	Indoor Type 1 Metal
ET2745CP	Outdoor Type 3R Plastic
ET2745CR	Outdoor Type 3R Metal

7-Day Astronomic Schedule

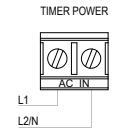
Model #	Enclosure
1-Circuit SPST Switch	
ET2805C	Indoor Type 1 Metal
ET2805CP	Outdoor Type 3R Plastic
ET2805CR	Outdoor Type 3R Metal
1-Circuit SPDT Switch	
ET2815C	Indoor Type 1 Metal
ET2815CP	Outdoor Type 3R Plastic
ET2815CR	Outdoor Type 3R Metal
2-Circuit SPST Switch	
ET2825C	Indoor Type 1 Metal
ET2825CP	Outdoor Type 3R Plastic
ET2825CR	Outdoor Type 3R Metal
4-Circuit SPST Switch	
ET2845C	Indoor Type 1 Metal
ET2845CP	Outdoor Type 3R Plastic
ET2845CR	Outdoor Type 3R Metal

Note: The electronic mechanism snaps into the standard Intermatic enclosure for easy upgrading of mechanical mechanisms, if desired.

Selection Guide

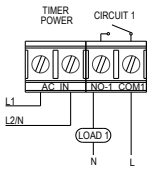
Scan the QR code with your smartphone or tablet for a side-by-side comparison of our electronic control features.

Timer Power



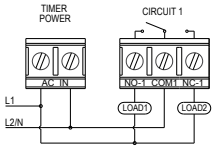
POWER TO TIMER
120/208/240/277 VAC
(AUTO VOLTAGE, NO JUMPERS REQUIRED)

1-Circuit



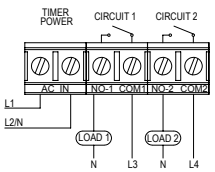
OUTPUT CONFIGURATION: IND
(120/277 VAC LOAD)

1-Circuit SPDT

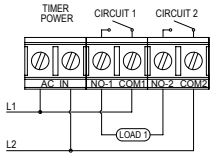


OUTPUT CONFIGURATION - SPDT

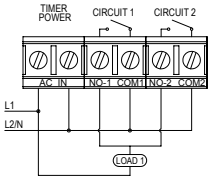
2-Circuit



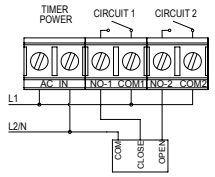
OUTPUT CONFIGURATION: IND



TIMER CONFIGURATION FOR 240 VAC DPST
OUTPUT CONFIGURATION: SIM

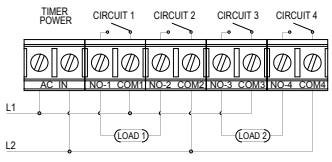


OUTPUT CONFIGURATION: PUL (BELL RINGING)

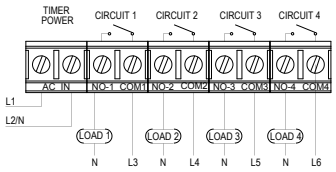


TIMER CONFIGURATION FOR CONTACTOR CONTROL
OUTPUT CONFIGURATION: PUL

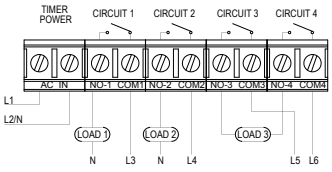
4-Circuit



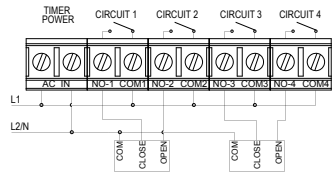
TIMER CONFIGURATION FOR TWO 208/240 VAC DPST
OUTPUT CONFIGURATION: SIM - CIRCUIT 1 AND 2
OUTPUT CONFIGURATION: SIM - CIRCUIT 3 AND 4



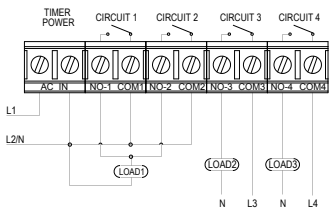
4 - INDIVIDUAL 120/277 VAC LOADS
OUTPUT CONFIGURATION: IND - CIRCUIT 1 AND 2
OUTPUT CONFIGURATION: IND - CIRCUIT 3 AND 4



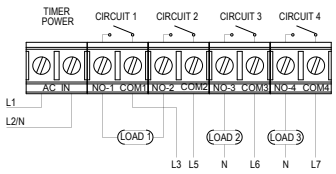
TIMER CONFIGURATION FOR COMBINATION MODE
OUTPUT CONFIGURATION: IND - CIRCUIT 1 AND 2 (120/277 VAC LOAD)
OUTPUT CONFIGURATION: SIM - CIRCUIT 3 AND 4 (208/240 VAC LOAD)



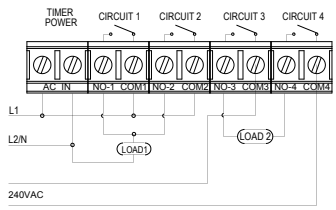
TIMER CONFIGURATION FOR TWO CONTACTOR CONTROLS
OUTPUT CONFIGURATION: PUL - CIRCUIT 1 AND 2
OUTPUT CONFIGURATION: PUL - CIRCUIT 3 AND 4



TIMER CONFIGURATION FOR COMBINATION MODE
OUTPUT CONFIGURATION: PUL - CIRCUIT 1 AND 2 (BELL RINGING)
OUTPUT CONFIGURATION: IND - CIRCUIT 3 AND 4



TIMER CONFIGURATION FOR COMBINATION MODE
OUTPUT CONFIGURATION: SIM - CIRCUIT 1 AND 2 (208/240 VAC LOAD)
OUTPUT CONFIGURATION: IND - CIRCUIT 3 AND 4 (120/277 VAC LOAD)



TIMER CONFIGURATION FOR COMBINATION MODE
OUTPUT CONFIGURATION: PUL - CIRCUIT 1 AND 2 (BELL RINGING)
OUTPUT CONFIGURATION: SIM - CIRCUIT 3 AND 4 (208/240 VAC LOAD)

Ratings – SPDT	
Input Voltage	120-277 VAC, 60 Hz
Switch Type	SPDT
Resistive (NO)	20 A, 28 VDC; 20 A, 120-240 VAC, 60 Hz
Resistive (NC)	10 A, 28 VDC; 10 A, 120-240 VAC, 60 Hz
Inductive (NO)	20 A, 120-240 VAC, 60 Hz
Inductive (NC)	10 A, 120-240 VAC, 60 Hz
Magnetic Ballast (NO)	20 A, 120-277 VAC, 60 Hz
Magnetic Ballast (NC)	3 A, 120-277 VAC, 60 Hz
Electronic Ballast (NO)	10 A, 120/277 VAC, 60 Hz
Motor (NO)	1 HP, 120 VAC, 60 Hz; 2 HP, 240 VAC, 60 Hz
Motor (NC)	¼ HP, 120 VAC, 60 Hz; ½ HP, 240 VAC, 60 Hz
Operating Temperature	-40° F to 104° F (-40° C to 40° C)
Wiring Terminals	#14 to #8 AWG
MIN ON/OFF Times	1 minute
MAX ON/OFF Times	Indefinite
Warranty	2-year limited

Ratings – SPST	
Input Voltage	120-277 VAC, 60 Hz
Switch Type	SPST
Resistive (NO)	30 A, 120-240 VAC, 60 Hz; 20 A, 28 VDC
Inductive (NO)	30 A, 120-240 VAC, 60 Hz
Magnetic Ballast (NO)	20 A, 120-277 VAC, 60 Hz
Electronic Ballast (NO)	10 A, 120/277 VAC, 60 Hz
Tungsten (NO)	5 A, 120-277 VAC, 60 Hz
Motor (NO)	1 HP, 120 VAC, 60 Hz 2 HP, 240 VAC, 60 Hz
Operating Temperature	-40° F to 104° F (-40° C to 40° C)
Wiring Terminals	#14 to #8 AWG
MIN ON/OFF Times	1 minute
MAX ON/OFF Times	Indefinite
Warranty	2-year limited

Enclosure	
Enclosure Dimensions H x W x D	
Metal Indoor	7 ⅞" x 5 ⅛" x 3 7/16" (200 mm x 130.2 mm x 87.3 mm)
Plastic Outdoor	10" x 6 ½" x 4" (254 mm x 165.1 mm x 101.6 mm)
Metal Outdoor	10 ⅛" x 6 ½" x 3 ⅝" (257.2 mm x 165.1 mm x 92.1 mm)
Knockout Dimensions	
Side/Back	(1) ½" and ¾" combination
Bottom	(2) ½" and ¾" combination

For enclosure line drawings and knockout locations, see pages 164-165.

ET1105C

ET1725CPD82

ET8415CR

ET1100, ET1700, ET8000 Series

Basic Electronic Time Switches

This series offers an easy way to upgrade from a basic mechanical time switch to an electronic time switch. These timers will allow for up-to-the-minute programming, battery backup for power loss, 14 ON/OFF events per circuit, and automatic daylight saving time corrections without the need of user interaction. They come in standard 24-hour, 7-day, and 7-day astronomic (sunrise to sunset) versions.

Applications

- Interior lighting • Exterior lighting • Electric pumps
- Electric motor control • Various other electrical loads

Features

- Selector switch to determine input voltage between 120-277 VAC, 50/60 Hz
- 14 ON/OFF events per circuit
- To-the-minute accuracy
- Temporary override or permanent manual override
- Automatic Daylight Saving Time adjustment
- Astronomic models enable dusk-to-dawn scheduling

24-Hour Schedule

Model #	Enclosure
1-Circuit SPST Switch	
ET1105CM	–
ET1105C	Indoor Type 1 Metal
ET1105CPD82	Outdoor Type 3R Plastic
ET1105CR	Outdoor Type 3R Metal
1-Circuit SPDT Switch	
ET1115CM	–
ET1115C	Indoor Type 1 Metal
ET1115CPD82	Outdoor Type 3R Plastic
ET1115CR	Outdoor Type 3R Metal
2-Circuit SPST Switch	
ET1125CM	–
ET1125C	Indoor Type 1 Metal
ET1125CPD82	Outdoor Type 3R Plastic
ET1125CR	Outdoor Type 3R Metal

7-Day Schedule

Model #	Enclosure
1-Circuit SPST Switch	
ET1705CM	–
ET1705C	Indoor Type 1 Metal
ET1705CPD82	Outdoor Type 3R Plastic
ET1705CR	Outdoor Type 3R Metal
1-Circuit SPDT Switch	
ET1715CM	–
ET1715C	Indoor Type 1 Metal
ET1715CPD82	Outdoor Type 3R Plastic
ET1715CR	Outdoor Type 3R Metal
2-Circuit SPST Switch	
ET1725CM	–
ET1725C	Indoor Type 1 Metal
ET1725CPD82	Outdoor Type 3R Plastic
ET1725CR	Outdoor Type 3R Metal

7-Day Astronomic Schedule

Model #	Enclosure
1-Circuit SPST Switch	
ET8015CM	–
ET8015C	Indoor Type 1 Metal
ET8015CPD82	Outdoor Type 3R Plastic
ET8015CR	Outdoor Type 3R Metal
1-Circuit SPDT Switch	
ET8115CM	–
ET8115C	Indoor Type 1 Metal
ET8115CPD82	Outdoor Type 3R Plastic
ET8115CR	Outdoor Type 3R Metal
2-Circuit SPST Switch	
ET8215CM	–
ET8215C	Indoor Type 1 Metal
ET8215CPD82	Outdoor Type 3R Plastic
ET8215CR	Outdoor Type 3R Metal
4-Circuit SPST Switch	
ET8415CR*	Outdoor Type 3R Metal

Note: The electronic mechanism snaps into the stadard Intermatic enclosure for easy upgrading of mechanical mechanisms, if desired.

** ET8415CR is UL Listed and includes automatic voltage detection between 120-277 VAC, 50/60Hz.*

Ratings	
Input Voltage	120/208/240/277 VAC, 50/60 Hz
Resistive	20 A, 28 VDC; 30 A, 120/240 VAC
Inductive	30 A, 120/240 VAC
Magnetic Ballast	20 A, 120-277 VAC
Tungsten	5A, 120-240 VAC
Motor	1 HP, 120 VAC; 2 HP, 240 VAC
Operating Temperature	-40° F to 104° F (-40° C to 40° C)
Wiring Terminals	#14 to #8 AWG
MIN ON/OFF Times	1 minute
MAX ON/OFF Times	Indefinite
Warranty	1-year limited

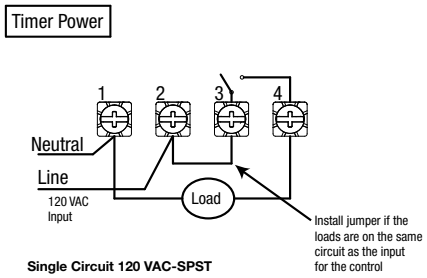
Selection Guide

Scan the QR code with your smartphone or tablet for a side-by-side comparison of our electronic control features.

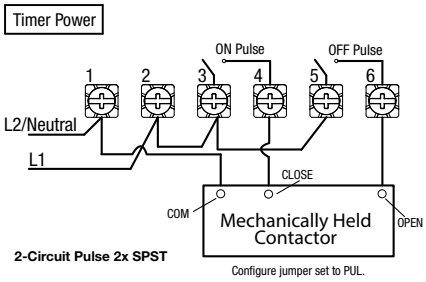
Enclosure	
Enclosure Dimensions H x W x D	
Metal Indoor	7 ⅞" x 5 ⅛" x 3 7⁄16" (200 mm x 130.2 mm x 87.3 mm)
Plastic Outdoor	10" x 6 ½" x 4" (254 mm x 165.1 mm x 101.6 mm)
Metal Outdoor	10 ⅛" x 6 ½" x 3 ⅝" (257.2 mm x 165.1 mm x 92.1 mm)
Knockout Dimensions	
Side/Back	(1) ½" and ¾" combination
Bottom	(2) ½" and ¾" combination

For enclosure line drawings and knockout locations, see pages 164-165.

ET1100, ET1700, ET8000 Series

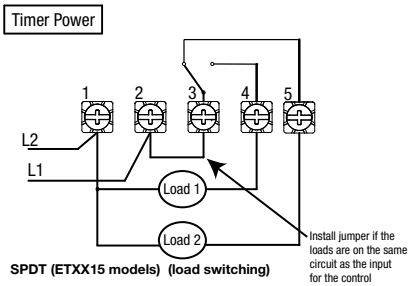


Single Circuit 120 VAC-SPST

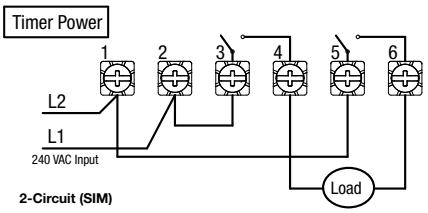


2-Circuit Pulse 2x SPST

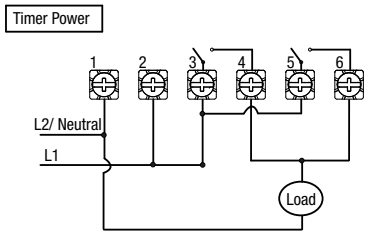
Configure jumper set to PUL.



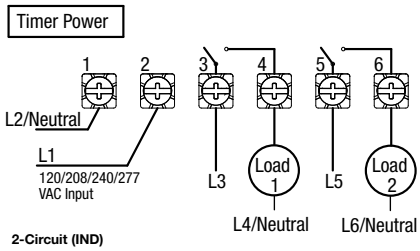
SPDT (ETXX15 models) (load switching)



2-Circuit (SIM)



2-Circuit (Per Bell Ringing)



2-Circuit (IND)

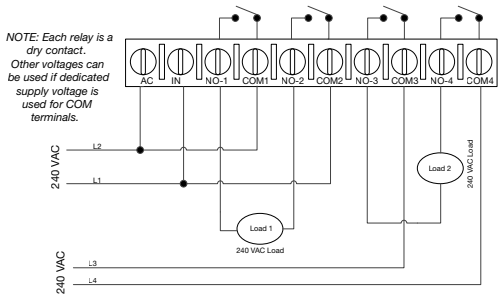
ET8415CR Wiring Diagrams

There are many different ways to set the relays on the ET8415CR Time Switch. The four relays can be used individually or in pairs of two. Refer to the table below for a complete list of ways to set the relays and illustrations for some of the common wiring installations.

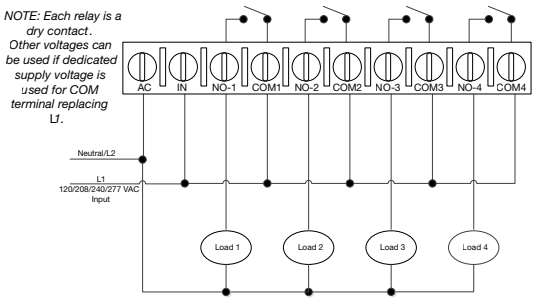
Possible switching configurations		
IND/IND	SIM/IND	PUL/IND
IND/SIM	SIM/SIM	PUL/SIM
IND/PUL	SIM/PUL	PUL/PUL

Note:
IND= Independent SIM= Simultaneous PUL= Pulse

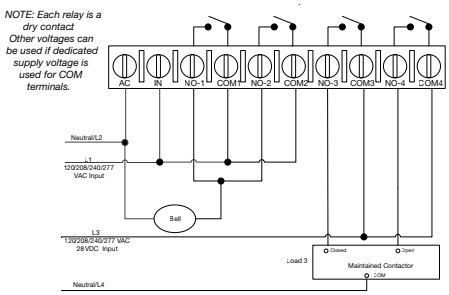
2x DPST
Operation Mode set to SIM for both sets of contacts, input and output voltage are the same.



4x SPST
Operation Mode set to IND, input and output voltage are the same.



2x Pulse
Operation mode set to PUL for both sets of contacts, each ON and OFF event for circuit 1 will ring the bell. Each ON event for Circuit 3 will close contactor and each OFF event will open contactor.



ET8215B

ET8215B

7-Day Astronomic Cellular Electronic Control

The ET8215B Cellular Electronic Control provides customized, real-time notifications, allows users to take control of their locations from anywhere, and handles a variety of different load types. Scheduling can also be configured from remote locations through an easy-to-use Web-based portal. The only tool needed for creating or modifying the schedule is a device with access to the Internet.

Applications

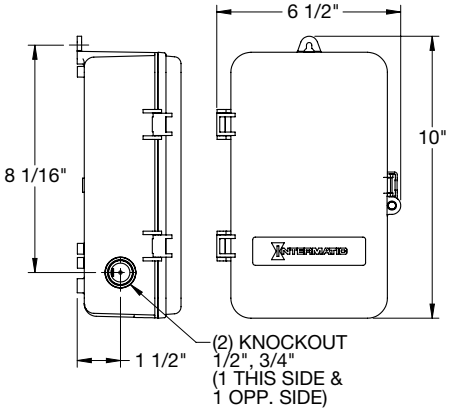
- Sign lighting • Safety lighting • Pumps • Electric motors
- Billboard lighting • Exterior lighting • Other critical loads

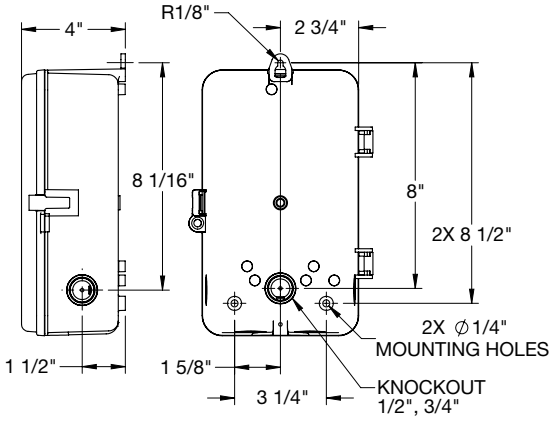
Features

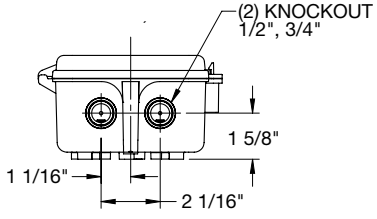
- Load monitoring
- Automatic input voltage selection from 120 to 277 VAC, 50/60 Hz
- Configurable outputs
- Cellular connectivity to ensure proper notifications get sent
- 100-hour supercapacitor eliminates batteries
- Automatic circuit recovery
- Finger-safe terminals
- USB port to easily save and transfer schedules

Dimensions

Type 3R Plastic







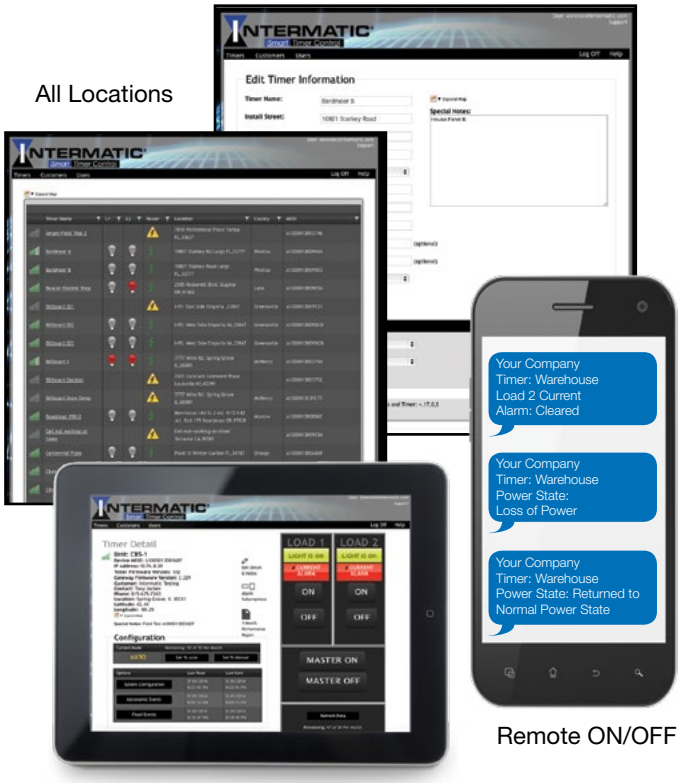
Model #	Circuits	Enclosure	Switch Configuration
ET8215B	2	Type 3R Plastic	Optional

Ratings	
Input Voltage	120-277 VAC, 50/60 Hz
Switch Type	2x SPST
Resistive	20 A, 28 VDC; 30 A, 120/240 VAC, 50/60 Hz
Inductive	30 A, 120/240 VAC, 50/60 Hz
Magnetic Ballast	20 A, 120-277 VAC, 50/60 Hz
Electronic Ballast	4.5 A, 120-277 VAC, 50/60 Hz
Tungsten	5A, 120/240 VAC, 50/60 Hz
Motor	1 HP, 120 VAC, 50/60 Hz 2 HP, 240 VAC, 50/60 Hz
Operating Temperature	-40° F to 104° F (-40° C to 40° C)
Wiring Terminals	#14 to #8 AWG
MIN ON/OFF Times	1 minute
MAX ON/OFF Times	Indefinite
Enclosure Dimensions **H x W x D**	10" x 6 ½" x 4" (254 mm x 165.1 mm x 101.6 mm)
Knockouts Dimensions	
Side/Back	(1) ½" and ¾" combination
Bottom	(2) ½" and ¾" combination
Warranty	1-year limited

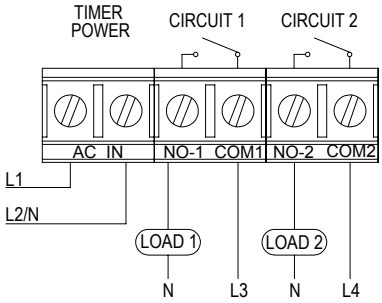
The ET8215B Web Portal user interface allows for control and scheduling to be completed from any device that has access to the Internet. Make scheduling changes, turn loads ON or OFF in real time, take notes of all maintenance activities, and see all of your controls no matter where they are located.

Features

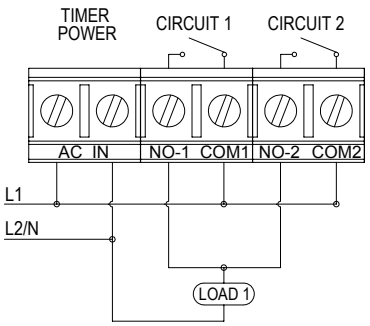
- Conveniently view the status of all your loads and controls from any location
- Real-time control
- Easily create or change scheduled events from any location with a web browser on a smartphone, tablet, or PC
- Customizable details and notes page easily keep track and save performed maintenance details
- Set up alerts to make sure the proper personnel are informed when issues arise
- Create monthly reports to keep track of proof of performance
- Map of the location of the control saves time by providing maintenance staff with exact coordinates
- Easily place the control into manual mode from nearly any device to stop scheduled events from taking place
- Track the who, what, when and where with a customizable notes section that details maintenance history



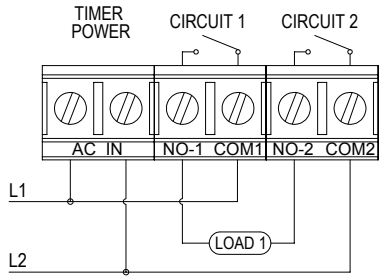
Typical Wiring Installation Diagrams



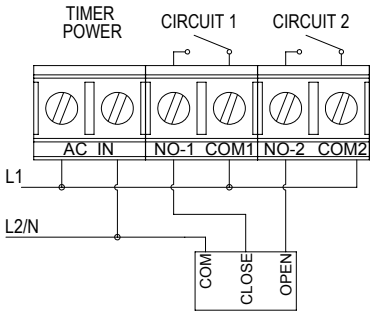
OUTPUT CONFIGURATION: IND



OUTPUT CONFIGURATION: PUL (BELL RINGING)



TIMER CONFIGURATION FOR 240 VAC DPST
OUTPUT CONFIGURATION: SIM



TIMER CONFIGURATION FOR CONTACTOR CONTROL
OUTPUT CONFIGURATION: PUL

GRÄSSLIN
6
12
18
24
4
16:43
FIX
1OFF
ON 2
MENU
1
2
basento 632 pro

Grässlin Electronic Controls

Whether 24-Hour or 7-Day ON or OFF control, cycle, pulse, annual, or holiday scheduling, Grässlin Electronic Multifunction Time Controls meet the various control timing requirements for multiple industries. Their space-saving, compact design make the Grässlin Electronic Time Controls ideally suited for industrial control panels and system manufacturers. These versatile time controls can be used for OEM integration or retrofit to control various loads, system switching, or overriding system components for a whole range of functions, such as: hydroponics, general lighting applications, greenhouse lighting, off-grid photovoltaic lighting, filtering installations, school signaling, landscape lighting, insect and pest control, advertising lighting, illuminated signs, object illumination, preheating of industrial process applications, spraying machines, ovens, heating systems, security gates, fans/ventilation systems and aqua aerobic control panels. Input voltage ranges from 12 VDC/VAC to 240 VAC ensure application versatility and consolidate stocking investments.

Contents

Grässlin DIN Rail Mount - 24-Hour, 7-Day, 365-Day Astronomic 20
PC Programming Tool for Talento882 21
Grässlin Enclosed Timer Module - 24-Hour and/or 7-Day 22
Grässlin Enclosed Timer Module - 24-Hour or 7-Day 23
Grässlin Panel, Surface/DIN Rail or Flush Mount - 24-Hour or 7-Day 24
Grässlin Panel, Surface/DIN Rail or Flush Mount - 24-Hour or 7-Day 25
Grässlin Panel, Surface/DIN Rail or Flush Mount - 24-Hour or 7-Day 26
Grässlin Flush and Surface Mount - 24-Hour or 7-Day 27

Grässlin Electronic Controls

DIN Rail Mount - 24-Hour, 7-Day, 365-Day Astronomic

Talento882

Talento882
with E200 Enclosure

Talento882 Pro

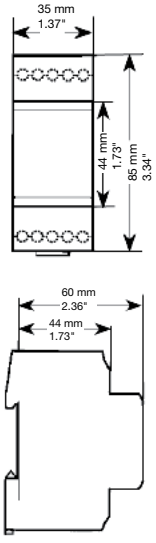
Advanced Multifunction Time Controls

The Talento882 Pro Electronic Time Switch provides time-of-day control for lighting, heating, air conditioning, pumps, motors or general electrical circuits. The time control offers 24-hour/7-day, astronomic, and 365-day programming with holiday capability. An attractive backlit LCD display indicates the load status, time of day, seasonal indicator, and a service notification when the load-monitoring hour counter function is activated. The units can be mounted to a standard DIN rail or within a Grässlin enclosure for stand-alone installations (enclosure sold separately). In addition to the conventional ON/OFF programming format, these units offer pulse and cycle functions. A pulse is simply an ON or OFF event with a duration of one or more seconds. The cycle function provides for a repeating ON event within a selectable total cycle. Both the ON duration and the total cycle duration are independently programmable in minutes or seconds. In addition, the cycle function can be set to repeat indefinitely or to occur within a time and/or date range. A channel assignable external override input is provided to execute an override switching command. The override remains in effect until the button is pressed again, the next automatic switching command begins, or when the programmable countdown timing duration (MIN 30 sec/MAX 90 min) expires.

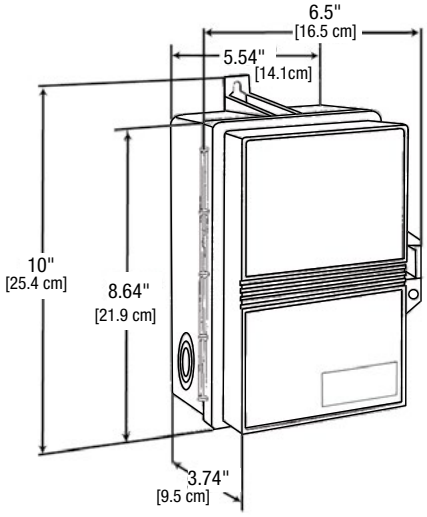
Features

- Cumulative load-monitoring hour counter with service indicator keeps track of runtime for maintenance schedules
- Automatically detects and adjusts input voltages (24 VAC/VDC - 240 VAC)
- Non-volatile memory (EEPROM)
- Random program switching function
- Assignable external input for countdown, override, or pulse function
- Weekly, annual, and holiday scheduling (ON/OFF, pulse, cycle)
- Backlit LCD with load status indicator
- Automatic Daylight Saving Time adjustment
- Astronomic program scheduling (with OFF time capability)
- 400 memory spaces
- Replaceable battery provides backup with a 10-year carry-over
- Shortest switching time: 1-second
- Manual switch: automatic/override/fixed ON/OFF
- Security features include lockable keypad cover and PIN code
- 2-Circuit independent programming
- Optional PC data transfer via IR remote interface (Talento Taxxi-P)

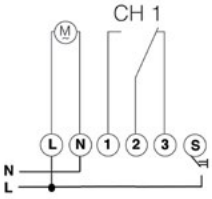
Dimensions

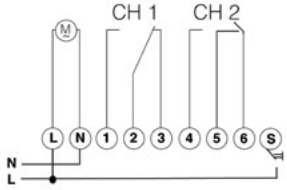


Enclosure Dimensions



Wiring Diagrams





Model #	Circuits	Programs	Mounting Type
Talento882	2	400	DIN Rail

Accessories

Handheld PC Programming Tool	Talento Taxxi-P
Plastic Type 3R Enclosure	E200

#E10694

Ratings	
Supply Voltage	24 VDC/VAC, 120-240 VAC, 50/60 Hz
Switch Type	
1-circuit	SPDT
2-circuit	SPST
Switch Ratings (NO/NC Contacts)	
General Purpose	10 A, 240 VAC
Resistive	16 A, 240 VAC
Ballast	8 A, 240 VAC
Tungsten	10 A, 240 VAC
Pilot Duty	B300, 240 VAC
Operating Temperature	14° F to 131° F (-10° C to 55° C)
Screw Terminals	#16 - #12 AWG
Warranty	1-year limited

SPECIFIERS GUIDE

Furnish and install an Intermatic Talento882 Pro, 2-circuit Electronic Time Switch. Each channel shall be independently programmable. A total of 400 memory spaces shall be provided. The time switch shall offer daily, weekly or annual programming capability with separate holiday periods of any duration. Three types of switching commands shall be provided; ON/OFF, pulse and cycle. Automatic or user-selectable Daylight Saving Time changeover shall be incorporated. An optional Windows-based software program shall be available for remote programing capability. It shall provide full graphic indication of the switching schedule, and include a database of fixed and floating holidays. Floating holidays will automatically repeat each year on the correct date. An astronomical program shall be included which will automatically adjust the switch event schedule according to the changing sunrise and sunset times. A backlit LCD shall be provided to indicate the current time, date, switch contact status and program schedule. A replaceable battery shall be provided to maintain the current date and time in the event of a power failure for up to ten years. The switch program shall be stored in non-volatile (EEPROM) memory. The SPDT switch contacts shall be rated at 16 A Resistive and the SPST contacts shall be rated at 16 A Resistive. The time switch input power shall be 24 VAC/VDC and 120-240 VAC. The time switch shall be DIN rail mountable which can be applied in a Type 1 indoor or Type 3R outdoor plastic enclosure.

TalentoTaxxi

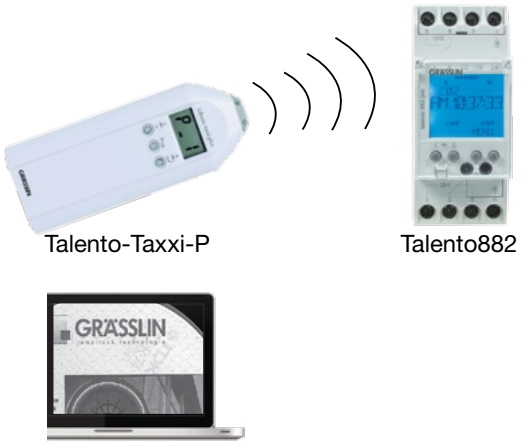
Remote PC Programming

Streamline the programming process in your facility with the Talento Taxxi Dialog Set. Simply create schedules from your PC and then transfer the data via the hand-held programmer to each Talento882.

The dialog set includes Windows®-based software, the Taxxi hand-held programmer, CD-ROM, interconnect cable and instructions. Software is also available for download from Intermatic.com.

The software contains a schedule of fixed and floating holidays that can be selected, as required, for the particular application. Floating holidays will automatically repeat on the correct date, year after year, so all fixed and floating holidays need only be programmed once. In addition, an astronomical program is included which will automatically adjust the program schedule to follow the changing sunrise and sunset times.

Once the programming is completed on the PC, it is transferred to the Taxxi hand-held programmer from which programs are downloaded into one or more installed Talento800 Series Time Controls. The Taxxi can store up to four independent programs and can also upload a program from the Talento into a PC for review or editing.



Features

- Astronomic programming
- Fixed and floating holidays
- Stores up to four independent schedules

Talento Taxxi Includes

- Windows®-based software
- Hand-held programmer
- CD-ROM
- USB Interconnect cable

Remote PC Programming Steps

1. Load the CD-ROM into your PC or download software from Intermatic.com
2. Program your fixed, holiday, and astronomic schedules from your PC
3. Transfer programs to the hand-held programmer
4. Transfer programs at each Talento timer via the programmer's infrared interface

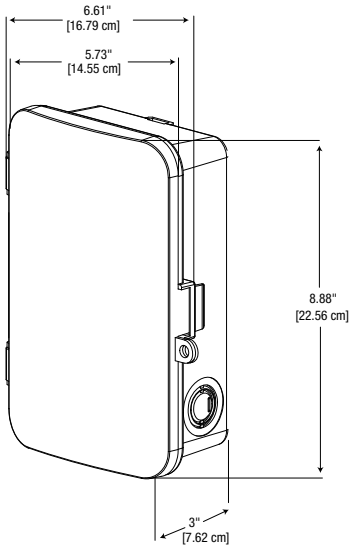
Model #	Description
Talento-Taxxi-P	Hand-held Remote PC Programming Tool for Talento882 Series

Grässlin Electronic Controls

Enclosed Timer Module - 24-Hour and/or 7-Day

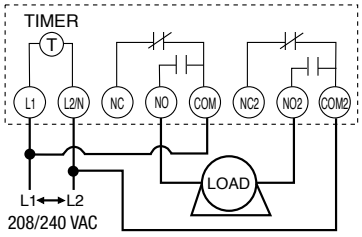
GM40AVE

Dimensions

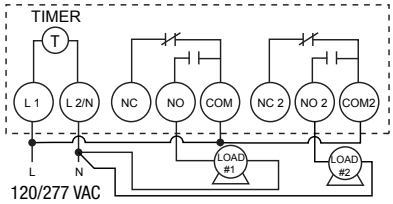


Wiring Diagrams

Typical wiring diagram 208/240 VAC



Typical wiring diagram 120/277 VAC



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patent #6.563.237

Ratings	
Supply Voltage	120-208/240 or 277 VAC, 50/60 Hz
Switch Type (2 NO/NC Contacts)	DPDT
Switch Ratings (NO Contacts)	
Resistive	40 A, 120-277 VAC
Ballast	30 A, 120 VAC; 20 A, 277 VAC
Tungsten	15 A, 120 VAC
Switch Ratings (NC Contacts)	
Resistive	30 A, 120-277 VAC
Ballast	10 A, 277 VAC
Tungsten	2 A, 120 VAC
Motor	
NO	1 HP, 16 FLA, 90 LRA @ 120 VAC 2 HP, 12 FLA, 52 LRA @ 208-277 VAC
NC	1 HP, 12 FLA, 30 LRA @ 120 VAC 2 HP, 10 FLA, 30 LRA @ 240 VAC
Operating Temperature	-40° F to 131° F (-40°C to 55°C)
Operating Humidity	0-95% RH, non-condensing
Wiring Terminals	Screw box lug
Electrical Life	50,000 operations at full load
Shipping Weight	3 lbs (1.36 kg)
Warranty	1-year limited

GM40AVE

40 A Auto-Voltage General Purpose Electronic Time Switch

The GM40AVE is a universal, electronic time switch designed for general purpose residential and commercial applications. The robust 40 A time control automatically detects the input voltage without the use of a DIP switch or selector pins. The time switch automatically selects any voltage between 120 VAC and 277 VAC. The mechanism is mounted in a compact UL Type 3R outdoor enclosure and can also be easily retrofitted into other Intermatic enclosure types. The time control features a DPDT switching configuration standard (i.e. two normally open and two normally closed contacts).

Applications

The GM40AVE is a robust time switch that is capable of switching high amperage in all types of applications, including:

- Lighting control • Access control • Commercial refrigeration
- General electrical circuits • Pumps/motors/fan control

Features

- Heavy-duty 40 A contact rating
- Automatically adjusts voltages between 120-277 VAC
- 24-Hour/7-day flexible scheduling
- Power and status LED indicators
- DPDT switching configuration (2 NO and 2 NC Contacts)
- 20 Setpoint programs
- Temporary manual override with load status indication
- Lithium battery backup with 7-year carry-over
- Type 3R outdoor enclosure with lockable hasp
- To-the-minute accuracy

Model #	Input Voltage	Battery Backup
GM40AVE	120-277 VAC, 50/60 Hz	Yes, 7-yr carry-over

SPECIFIERS GUIDE

Furnish and install a Grässlin GM40AVE Auto-Voltage 24-Hour/7-Day Electronic Time Switch with digital display. Input voltage shall be 120-208/240 or 277 VAC that the unit automatically detects and selects. All units shall incorporate DPDT contacts that shall be rated at 40 A, 2 HP @ 277 VAC. To set the starting time and to provide time indication, the unit shall have 24-Hour/7-Day to-the-minute programming and also offer 10 ON and 10 OFF setpoint programs and include 3 preset block programs to allow a selection of any combination of days for different weekday schedules. LED indicators shall provide power and status feedback. Enclosure shall be UL Type 3R suitable for both indoor/outdoor installation. The time switch shall contain a manual override for temporary ON/OFF to the next scheduled event and load status indication in LCD. The time switch shall have a 7-year carry-over.

GMX Series

16 A General Purpose 1 and 2-Circuit Electronic Time Controls

Universal GMX Electronic Series Time Controls are a low-cost alternative for applications that do not require more than 16 A. Unit can be mounted in a UL Type 1 indoor or 3R outdoor enclosure.

Applications

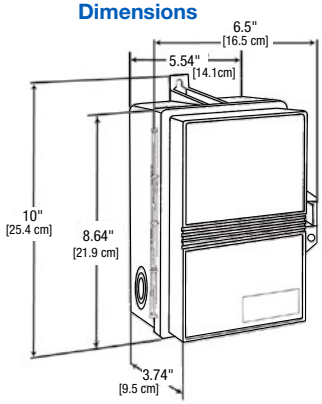
These light duty commercial time switches are ideal for 12, 24 VAC/VDC or 120, 240 VAC single-phase applications, such as:

- Lighting control • Access control • Heating • Air conditioning
- General electrical circuits • Pumps/motors/fan control

Features

- 24-Hour or 7-day applications
- Finger-safe terminals
- Manual Daylight Saving Time adjustment (D20 Models)
- Auto Daylight Saving Time adjustment (D50 Models)
- Manual override with load status indication
- GMXFM1D50 & GMX2FM2D50 models available in seven languages: English, German, French, Italian, Spanish, Dutch, and Portuguese
- Heavy-duty relay contacts for switching low or line voltage loads
- Non-metallic enclosure provides space for field added contactor or other accessories
- Available in 2-circuit

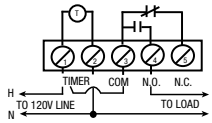
Dimensions



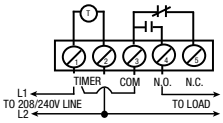
GMX

1-Circuit Wiring Diagrams

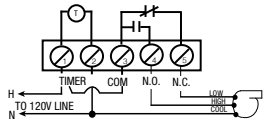
120 VAC Timer, 120 VAC Load



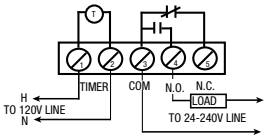
208/240 VAC Timer, 208/240 VAC Load



120 VAC Timer, 24 VAC, 120 VAC, or 240 VAC Load

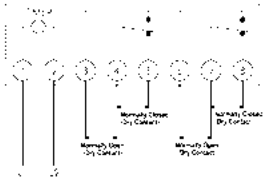


120 VAC, Two Speed Fan

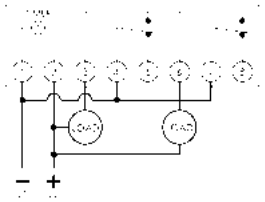


2-Circuit Wiring Diagrams

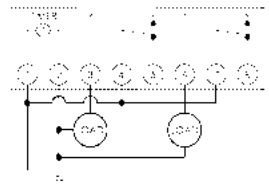
NO & NC Switching Configuration



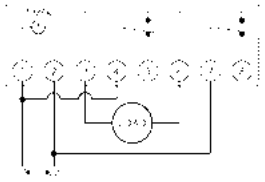
24 VAC/VDC



120 VAC



240 VAC



Model # 20 Setpoints 7-Yr Battery Backup	Model # 50 Setpoints 3-Yr Battery Backup	Input Voltage	Enclosure
1-Circuit			
–	**GMXFM1D50-I-12**	12 VAC/VDC, 50/60 Hz	Type 1 Indoor
GMXFM1D20-I-24	**GMXFM1D50-I-24**	24 VAC/VDC, 50/60 Hz	
GMXFM1D20-I-120	**GMXFM1D50-I-120**	120 VAC, 50/60 Hz	
GMXFM1D20-I-240	**GMXFM1D50-I-240**	240 VAC, 50/60 Hz	
–	**GMXFM1D50-O-12**	12 VAC/VDC, 50/60 Hz	Type 3R Outdoor
GMXFM1D20-O-24	–	24 VAC/VDC, 50/60 Hz	
GMXFM1D20-O-120	**GMXFM1D50-O-120**	120 VAC, 50/60 Hz	
GMXFM1D20-O-240	–	240 VAC, 50/60 Hz	
2-Circuit			
–	**GMX2FM2D50-I-24**	24 VAC/VDC, 50/60 Hz	Type 1 Indoor
–	**GMX2FM2D50-I-120**	120 VAC, 50/60 Hz	
–	**GMX2FM2D50-I-240**	240 VAC, 50/60 Hz	
–	**GMX2FM2D50-O-120**	120 VAC, 50/60 Hz	Type 3R Outdoor

SPECIFIERS GUIDE

Furnish and install a Grasslin GMXFM1_____ (1 circuit) or GMX2FM_____ (2 circuit) 24-Hour/7-Day Electronic Time Switch. Both 1 and 2-circuit controls shall have 24-Hour/7-Day programming, and also offer 10 ON and 10 OFF (D20 Series), or 25 ON and 25 OFF (D50 Series) setpoint programs and include two preset block programs (D50 Series) or 3 preset block programs (D20 Series) to allow a selection of any combination of days for different weekday schedules. Each circuit on the 2-circuit models shall be independently programmable. The LCD shall display time of day in AM/PM or 24-Hour (military time) format and provide load status indication. A Daylight Saving Time button shall be provided (D20 series), or an Auto Daylight Saving Time Adjustment shall be provided (D50 Series). The time switch will be programmable to-the-minute and offer a manual override for ON/OFF to the next scheduled event. The SPDT relay output will be rated for 16 A Resistive @ 277 VAC. Reserve carry-over shall be 7 years (D20 series) and 3 years (D50 series) non-replaceable, non-rechargeable battery. The enclosures shall be UL Type 3R or UL Type 1, suitable for indoor or outdoor applications.

Ratings	
Supply Voltage	12, 24 VDC/VAC; 120, 240 VAC, 50/60 Hz
Power Consumption	4 VA
Switch Type	SPDT
Contact Ratings (NO)	
Resistive	16 A, 277 VAC
Ballast	12 A, 120 VAC; 8 A, 240 VAC
Tungsten	600 W, 120 VAC; 1000 W, 240 VAC
Pilot Duty	360 VA, 120 VAC; 720 VA, 240 VAC
Motor	1/2 HP, 120 VAC; 1 HP, 240 VAC
Contact Ratings (NC)	
Resistive	16 A, 277 VAC 8A, 24 VDC
Pilot Duty	360 VA, 120 VAC
Operating Temperature	-13º F to 131º F (-25º C to 55º C) Limited display function at -13º F
Wiring Terminals	Screw
Shipping Weight	1.6 lbs. (0.73 kg)
Warranty	1-year limited

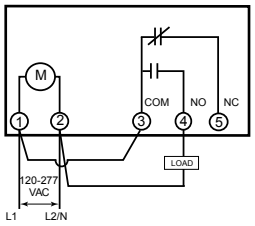
Grässlin Electronic Controls

Panel, Surface/DIN Rail or Flush Mount - 24-Hour or 7-Day

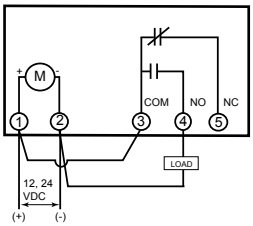
FM1D14

Wiring Diagrams

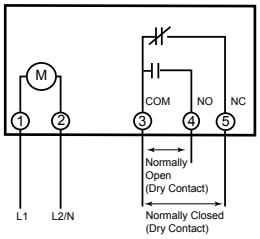
Typical Wiring
(24-277 VAC Application)



Typical Wiring
(12/24 VDC Application)

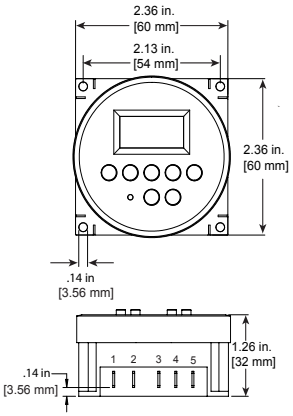


NO & NC Switching Configuration

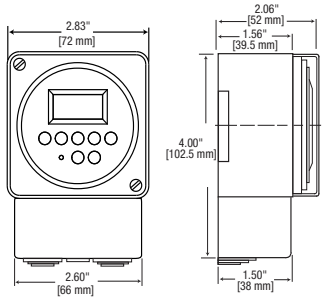


Dimensions

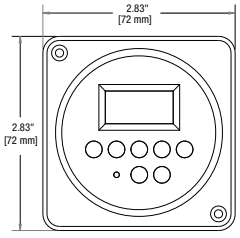
FM1D14 Panel Mount



FM1D14A Surface/DIN Rail
with Clear Dust Cover



FM1D14E Flush Mount
with Clear Dust Cover



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Ratings	
Supply Voltage	12 VDC, 24 VAC/VDC, 120-277 VAC, 50/60 Hz
Power Consumption	1.4 W
Switch Type	SPDT
Contact Ratings (NO)	
General Purpose	15 A, 277 VAC
Tungsten	1000 W, 120 VAC
Ballast	8 A, 277 VAC
Pilot Duty	B300
Electronic Ballast	4.9 A, 120 VAC
Motor	10 FLA, 60 LRA @ 250 VAC; ½ HP @ 120 VAC; 1 HP @ 250 VAC
Contact Ratings (NC)	
General Purpose	15 A, 277 VAC
Resistive	12 A, 24 VDC
Ballast	8 A, 120 VAC
Motor	10 FLA, 60 LRA @ 250 VAC; ½ HP @ 120/240 VAC
Operating Temperature	-40° F to 131° F (-40° C to 55° C) Limited display function at -13° F
Cut-out Dimensions (Flush Mount) H x W	2 ⅝" x 2 ⅝" (66 mm x 66 mm)
Wiring Terminals	
FMD14, FMD14E	¼" quick connect terminals
FMD14A	Screw terminals for #24 to #10 AWG Wire
Shipping Weight	FM1D14 .23 lbs ; FM1D14A .53 lbs ; FM1D14E .26 lbs
Warranty	1-year limited

FM1D14 Series

15 A, 1-Circuit Timer Modules

The FM1D14 Series is a great value electronic time-based control solution for ventilating, heating, cooling, lighting or other electrical loads in commercial and industrial applications. These one channel time switches are programmable for 24-hour or 7-day schedules. The FM1D14 series is intended for either panel, surface, flush or DIN rail mounting. Flush and surface/DIN rail (A & E models) are completely enclosed in a plastic housing and include a terminal cover, dust cover and subbase for installation and hard wiring.

Applications

The FM1D14 Series Electronic Time Control is a light duty commercial time switch ideal for 12 VDC, 24 VAC/VDC or 120-277 VAC single-phase applications such as:

- Generator exercising
- Scheduling occupied/unoccupied ventilation system operation
- Parts washer • Commercial refrigeration
- Pumps/motors/fans control • HVAC control circuits
- Photovoltaic control • Landscape lighting • Security gates

Features

- 24-Hour or 7-day applications
- 14 Setpoint programs
- Easy to program
- Manual override with status indication
- Self-recharging battery with backup protection up to 2500-hours
- LCD display
- 5 Preset adjustable block programs
- A & E models come with clear dust cover

Model #	Mounting	Input Voltage	Programs
FM1D14-12U	**Panel**	12 VDC, 50/60 Hz	14
FM1D14-24U		24 VAC/VDC, 50/60 Hz	14
FM1D14-AV-U		120-277 VAC, 50/60 Hz	14
FM1D14A-12	**Surface/ DIN Rail**	12 VDC, 50/60Hz	14
FM1D14A-24		24 VAC/VDC, 50/60Hz	14
FM1D14A-AV		120-277 VAC, 50/60Hz	14
FM1D14E-12	**Flush**	12 VDC, 50/60Hz	14
FM1D14E-24		24 VAC/VDC, 50/60Hz	14
FM1D14E-AV		120-277 VAC, 50/60Hz	14

Accessories

Surface/DIN Rail Mount Kit	FM-SU
Flush Mount Kit	FM-FU
Clear Dust Cover for Panel Mount Timers	DC-FME

SPECIFIERS GUIDE

Furnish and install a Grässlin FM1D14____24-Hour/7-Day Electronic Time Switch. This 1-circuit control shall have 24-Hour/7-Day programming, 7 ON and 7 OFF setpoint programs, and five preset block programs to allow a selection of any combination of days for different weekday schedules. The LCD shall display time of day in AM/PM format. A Daylight Saving Time Adjustment button shall also be provided. The time switch will be programmable to-the-minute and also offer a manual override for temporary ON/OFF to the next scheduled event. The LCD shall provide load status indication. The SPDT relay output will be rated for 15 A General Use @ 277 VAC. For carry-over, the timer module shall have a self-recharging battery with 2500 hour reserve carry-over. The time switch shall be_____(Panel) (Surface/DIN Rail), or (Flush) Mountable.

FM1D20 Series

16 A, 1-Circuit Timer Modules

The FM1D20 Series Electronic Time Controls are for ventilating, heating, cooling, lighting or other electrical loads in commercial and industrial applications. These one-channel time switches are programmable for 24-hour or 7-day schedules. They are intended for either panel, surface, flush, or DIN rail mounting. Flush and surface/DIN rail (A & E models) are completely enclosed in a plastic housing and include a terminal cover, dust cover and subbase for installation and hard wiring.

Applications

These light-duty, commercial time switches are ideal for 24 VAC/VDC or 120, 240 VAC single phase applications, such as:

- Generator exercising
- Scheduling occupied/unoccupied ventilation system operation
- Parts washer • Commercial refrigeration
- Pumps/motors/fans control • HVAC control circuits
- Lighting control • Landscape lighting • Security gates

Features

- 24-Hour or 7-day applications
- 20 Setpoint programs
- Three preset adjustable block programs
- Easy-to-follow menu driven programming
- Manual override with status indication
- Battery backup
- Large LCD
- Daylight Saving Time adjustment
- A & E models come with clear dust cover

Model #	Mounting	Voltage	Programs
FM1D20-24U	**Panel**	24 VAC/VDC, 50/60Hz	20
FM1D20-120U		120 VAC, 50/60Hz	20
FM1D20-240U		240 VAC, 50/60Hz	20
FM1D20A-24	**Surface/ DIN Rail**	24 VAC/VDC, 50/60Hz	20
FM1D20A-120		120 VAC, 50/60Hz	20
FM1D20A-240		240 VAC, 50/60Hz	20
FM1D20E-24	**Flush**	24 VAC/VDC, 50/60Hz	20
FM1D20E-120		120 VAC, 50/60Hz	20
FM1D20E-240		240 VAC, 50/60Hz	20

Accessories

Surface/DIN Rail Mount Kit	FM-SU
Flush Mount Kit	FM-FU
Clear Dust Cover for Panel Mount Timers	DC-FME

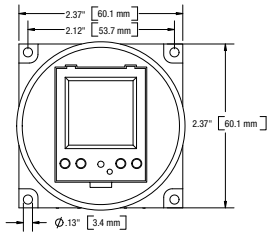
SPECIFIERS GUIDE

Furnish and install a Grässlin FM1D20____24-Hour/7-Day Electronic Time Switch. This 1-circuit control shall have 24-Hour/7-Day programming, 10 ON and 10 OFF setpoint programs, and three preset block programs to allow a selection of any combination of days for different weekday schedules. The LCD shall display time of day in AM/PM or 24-Hour (military time) format. A Daylight Saving Time Adjustment button shall also be provided. The time switch will be programmable to-the-minute and also offer a manual override for temporary ON/OFF to the next scheduled event. The LCD shall provide load status indication. The SPDT relay output will be rated for 16 A Resistive @277 VAC. Reserve carry-over of 7 years (non-replaceable, non-rechargeable battery). The time switch shall be_____(Panel), (Surface/DIN Rail) or (Flush) Mountable.

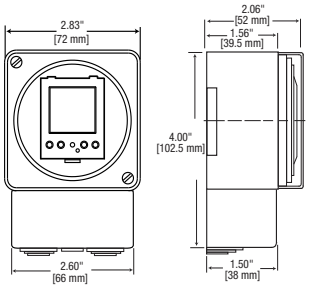
FM1D20

Dimensions

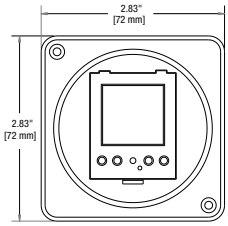
FM1D20 Panel Mount



FM1D20A Surface/DIN Rail with Clear Dust Cover

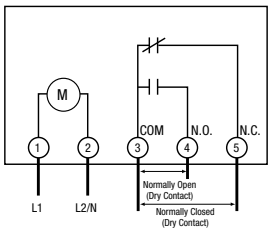


FM1D20E Flush Mount with Clear Dust Cover

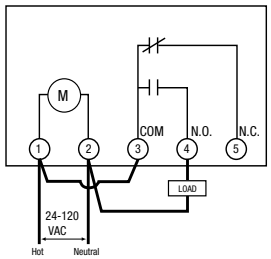


Wiring Diagrams

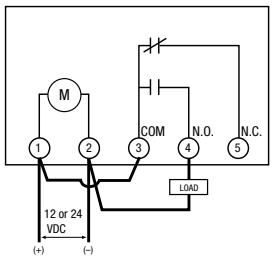
NO/NC Switch Configuration



Typical wiring 24-120 VAC application



Typical wiring 24 VDC application



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TITLE 24 LISTED

Ratings	
Supply Voltage	24 VAC/VDC, 120, 240 VAC, 50/60 Hz
Power Consumption	4 VA
Switch Type	SPDT
Contact Ratings (NO)	
Resistive	16 A, 277 VAC
Tungsten	600 W, 120 VAC; 1000 W, 240 VAC
Ballast	12 A, 120 VAC; 8 A, 240 VAC
Pilot Duty	360 VA, 120 VAC; 720 VA, 240 VAC
Motor	½ HP, 120 VAC; 1 HP, 240 VAC
Contact Ratings (NC)	
Resistive	16 A, 277 VAC
Pilot Duty	8 A, 24 VDC
	360 VA, 120 VAC
Operating Temperature:	-13º F to 131º F (-25º C to 55º C) Limited display function at -13º
Cut-out Dimensions (Flush) H x W	2 ⅝" x 2 ⅝" (66 mm x 66 mm)
Wiring Terminals	
FM1D20, FM1D20E	¼" quick connect terminals
FM1D20A	Screw terminals for #24 to #10 AWG Wire
Shipping Weight	.10 lbs (FM1D20A .53 lbs) (FM1D20E .26 lbs)
Warranty	1-year limited

Grässlin Electronic Controls

Panel, Surface/DIN Rail or Flush Mount - 24-Hour or 7-Day

FM1D50

FM1D50 Series

16 A, 1-Circuit Timer Modules

The FM1D50 Series Electronic Time-Based Controls enable switching of ventilation, heating, cooling, lighting or other electrical loads in commercial and industrial applications. These one channel time switches are programmable for 24-hour or 7-day schedules. They are intended for panel, surface, flush, or DIN rail mounting. Flush and surface/DIN rail models (A & E models) are completely enclosed in a plastic housing and include a terminal cover, dust cover and subbase for installation and hard wiring.

Applications

The FM1D50 Series Electronic Time Controls are light duty, commercial time switches ideal for 12, 24, VAC/VDC or 120, 240 VAC single phase applications such as:

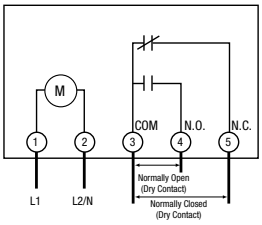
- Generator exercising
- Scheduling occupied/unoccupied ventilation system operation
- Parts washer • Commercial refrigeration
- Pumps/motors/fans control • HVAC control circuits
- Photovoltaic control • Landscape lighting • Security gates

Features

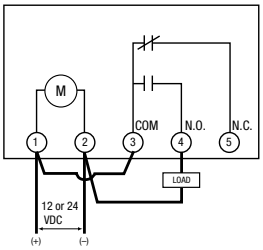
- 24-Hour or 7-day applications
- 50 Setpoint programs
- Two preset adjustable block programs
- Easy-to-follow menu driven programming
- Manual override with status indication
- Battery backup
- Large LCD
- Seven available languages: English, German, French, Italian, Spanish, Portuguese, and Dutch
- Auto Daylight Saving Time feature
- A & E Models come with clear dust cover

Wiring Diagrams

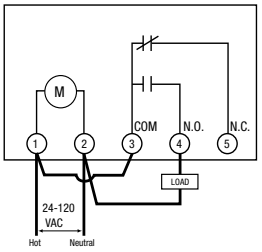
NO/NC Switching Configuration



Typical wiring
12 - 24 VDC application

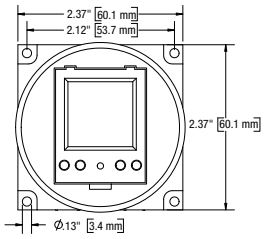


Typical wiring
24-120 VAC application

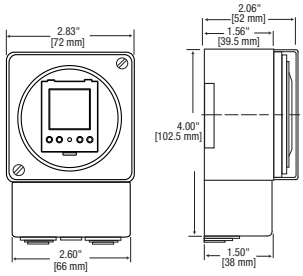


Dimensions

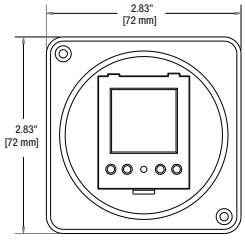
FM1D50 Panel Mount



FM1D50A Surface/DIN Rail with Clear Dust Cover



FM1D50E Flush Mount with Clear Dust Cover



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Ratings:	
Supply Voltage	12, 24 VAC/VDC, 120, 240 VAC, 50/60 Hz
Power Consumption	4 VA
Switch Type	SPDT
Contact Ratings (NO)	
Resistive	16 A, 277 VAC
Tungsten	600 W, 120 VAC; 1000 W, 240 VAC
Ballast	12 A, 120 VAC; 8 A, 240 VAC
Pilot Duty	360 VA, 120 VAC; 720 VA, 240 VAC
Motor	½ HP, 120 VAC; 1 HP, 240 VAC
Contact Ratings (NC)	
Resistive	16 A, 277 VAC
Pilot Duty	8 A, 24 VDC; 360 VA, 120 VAC
Operating Temperature	-13º F to 131º F (-25º C to 55º C) Limited display function at -13ºF
Cut-out Dimensions (Flush) H x W	2 ⅝" x 2 ⅝" (66 mm x 66 mm)
Wiring Terminals	
FM1D50, FM1D50E	¼" quick connect terminals
FM1D50A	Screw terminals for #24 to #10 AWG Wire
Shipping Weight	.10 lbs. (FM1D50A .53 lbs) (FM1D50E .26 lbs)
Warranty	1-year limited

Mounting	Model	Voltage	Programs
Panel	**FM1D50-12U**	12 VAC/VDC, 50/60 Hz	50
	FM1D50-24U	24 VAC/VDC, 50/60 Hz	50
	FM1D50-120U	120 VAC, 50/60 Hz	50
	FM1D50-240U	240 VAC, 50/60 Hz	50
Surface/ DIN Rail	**FM1D50A-12**	12 VAC/VDC, 50/60 Hz	50
	FM1D50A-24	24 VAC/VDC, 50/60 Hz	50
	FM1D50A-120	120 VAC, 50/60 Hz	50
	FM1D50A-240	240 VAC, 50/60 Hz	50
Flush	**FM1D50E-12**	12 VAC/VDC, 50/60 Hz	50
	FM1D50E-24	24 VAC/VDC, 50/60 Hz	50
	FM1D50E-120	120 VAC, 50/60 Hz	50
	FM1D50E-240	240 VAC, 50/60 Hz	50

Accessories

Surface/DIN Rail Mount Kit	FM-SU
Flush Mount Kit	FM-FU
Clear Dust Cover for Panel Mount Timers	DC-FME

SPECIFIERS GUIDE

Furnish and install a Grässlin FM1D50___ 24-Hour/7-Day Electronic Time Switch. This 1-circuit control shall have 24-Hour/7-Day programming. The timer shall also offer 25 ON and 25 OFF setpoint programs and include two preset block programs to allow a selection of any combination of days for different weekday schedules. The LCD shall display time-of-day in AM/PM or 24-Hour (military time) format and provide load status indication. Auto Daylight Saving Time Adjustment provided. The time switch will be programmable to-the-minute and also offer a manual override for ON/OFF to the next scheduled event. The SPDT relay output will be rated for 16 A Resistive @ 277 VAC. Reserve carry-over of 3 years (non-replaceable, non-rechargeable battery). The time switch shall be_____(Panel) (Surface/DIN Rail) or (Flush) Mountable.

FM2D50 Series

16 A, 2-Circuit Timer Modules

The FM2D50 Series provides 2-circuit, time-based control of ventilation, heating, cooling, lighting or other electrical loads in commercial and industrial applications. These one channel time switches are programmable for 24-hour or 7-day schedules. They are intended for surface, flush or DIN rail mounting. The control is completely enclosed in a plastic housing and includes a terminal cover, dust cover and subbase for installation and hard wiring.

Applications

The FM2D50 Series Electronic Time Controls are light duty switches that are ideal for 24 VAC/VDC or 120, 240 VAC single-phase applications, such as:

- Generator exercising
- Scheduling occupied/unoccupied ventilation system operation
- Parts washer • Commercial refrigeration
- Pumps/motors/fans control • HVAC control circuits
- Lighting control • Landscape lighting • Security gates

Features

- 24-Hour or 7-day applications
- Auto Daylight Saving Time (DST) feature
- 2-Circuit independent programming
- 50 Setpoint programs
- Two preset adjustable block programs
- Easy-to-follow, menu-driven programming
- Seven available languages: English, German, French, Italian, Spanish, Portuguese, and Dutch
- Surface, Flush or DIN rail mounting (for DIN rail mounting, order MB-DIN base, sold separately below)
- Manual override with load switch indication
- Battery backup
- Large LCD
- Clear dust cover

Model #	Voltage	Programs	Mounting
FM2D50-24	24 VAC/VDC, 50/60 Hz	50	Flush, Surface
FM2D50-120†	120 VAC, 50/60 Hz	50	Flush, Surface
FM2D50-240†	240 VAC, 50/60 Hz	50	Flush, Surface

† Title 20 Listed.

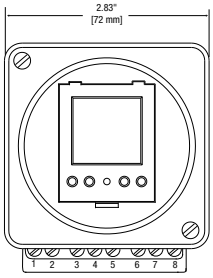
Accessories

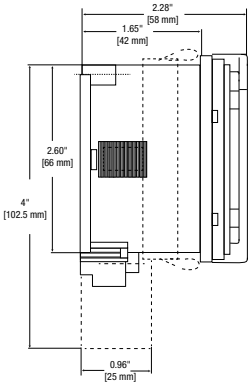
DIN Rail Mounting Base	MB-DIN

SPECIFIERS GUIDE
Furnish and install a Grässlin FM2D50_____24-Hour/7-Day Electronic Time Switch. This 2-circuit control shall have 24-Hour/7-Day programming and also offer 25 ON and 25 OFF setpoint programs and include two preset block programs that allow selection of any combination of days for different weekday schedules. Each channel shall be independently programmable. The LCD shall display time of day in AM/PM or 24-Hour (military time) format and provide load status indication. Auto Daylight Saving Time Adjustment provided. The time switch will be programmable to the minute and also offer a manual override for ON/OFF to the next scheduled event. The SPDT relay output will be rated for 16 A resistive @ 277 VAC. Reserve carry-over of three years (non-replaceable, non-rechargeable battery). The time switch shall be surface or flush mountable with a DIN Rail mounting base optional.

FM2D50

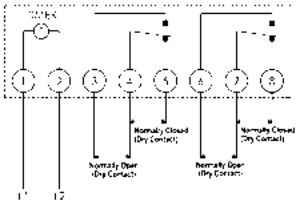
Dimensions



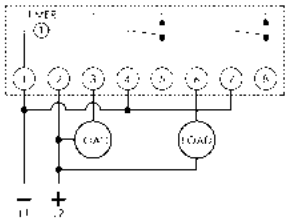


Wiring Diagrams

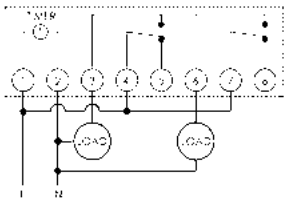
NO/NC Switching Configuration



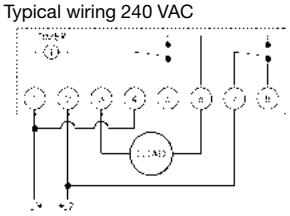
Typical wiring 24 VAC/VDC application



Typical wiring 120 VAC



Typical wiring 240 VAC



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Ratings	
Supply Voltage	24 VAC/VDC, 120, 240 VAC, 50/60 Hz
Power Consumption	4 VA
Switch Type	2x SPDT
Contact Ratings (NO/NC)	
Resistive	16 A, 277 VAC
Tungsten	600 W, 120 VAC; 1000 W, 240 VAC
Ballast	12 A, 120 VAC; 8 A, 240 VAC
Pilot Duty	360 VA, 120 VAC; 720 VA, 240 VAC
Motor	½ HP, 120 VAC; 1 HP, 240 VAC
Operating Temperature	-13° F to 131° F (-25° C to 55° C) Limited display function at -13°F
Cut-out Dimensions (Flush)	2 ⅝" x 2 ⅝" (66 mm x 66 mm)
Wiring Terminals **Surface/DIN Mount**	 Screw terminals for #24 to #10 AWG Wire
Shipping Weight	.6 lbs (.27 kg)
Warranty	1-year limited

TURN DIAL TO SET TIME
DIAL OUT
DO NOT UNSCREW
TIME
OFF
ON
6 am
8 am
10 am
12 noon
2 pm
4 pm
6 pm
8 pm
10 pm
12 mite
2 am
4 am

Mechanical Time Switches

Intermatic, the leader in mechanical time switches, offers a full line of mechanical controls for various applications. Whether you are controlling a pump, lighting, water heater, or other type of electrical load, Intermatic can provide the control you need.

Contents

24-Hour 30
24-Hour with Skip-a-Day 31
24-Hour with 15-Minute Interval 32
24-Hour Heavy-Duty 33
7-Day 34-35
Accessories 166-168, 170-172

Mechanical Time Switches
24-Hour

T101R

T100 Series
24-Hour

The T100 Series mechanical time switch has proven it can stand the test of time. These dependable time switches can handle electrical loads up to 40 A per pole and allow for up to 12 ON/OFF operations per day. A manual override switch provides added convenience.

Applications
- Indoor/Outdoor lighting • Signs • Filters • Electric fences • Fans
- Conveyers • Pool heaters • Blowers • Pumps
- Other electrical loads

Features
- Direct 24-hour control of most loads
- Up to 12 ON/OFF operations each day with minimum ON/OFF times of one hour
- Manual override
- One ON and one OFF tripper included

Ratings	
Resistive	40 A @ varying voltages
Inductive	40 A @ varying voltages
Electronic Ballast	16 A, 277 VAC
Tungsten	40 A @ varying voltages
Pilot Duty	1000 VA @ varying voltages
Motor	2 HP, 24 FLA @ 120 VAC 5 HP, 28 FLA @ 240 VAC
Max Power Consumption	3 W
Operating Temperature	-40° F to 130° F (-40° C to 54° C)
Enclosure Dimensions H x W x D	
Metal Indoor	7 ⅞" x 5 ⅛" x 3 ⁷⁄₁₆" (200 mm x 130.2 mm x 87.3 mm)
Metal Indoor/Outdoor	10 ⅛" x 6 ½" x 3 ⅝" (257.2 mm x 165.1 mm x 92.1 mm)
Plastic Indoor/Outdoor	10" x 6 ½" x 4" (254 mm x 165.1 mm x 101.6 mm)
Knockout Dimensions	
Side/Back	(1) ½" and ¾" combination
Bottom	(2) ½" and ¾" combination
Wire Size	#8 - #14 AWG
Warranty	1-year

For enclosure options and dimensions, see pages 166-167

Accessories/Replacement

Extra/replacement trippers 1 ON and 1 OFF	156T1978A
Extra/replacement motors:	
WG1570-10D	for T101, T101P3, T103, T105, 120 VAC, 60 Hz
WG1571-10D	for T101, T103, T105, 120 VAC, 50 Hz
WG1573-10D	for T102, T104, T106P, 208-277 VAC, 60 Hz
WG1574-10D	for T104-50, 208-277 VAC, 50 Hz
Replacement Insulators	see pages 168-169

Voltage Ratings

For more details on model numbers / voltage ratings, scan the QR code with your smartphone or tablet.

Model #	Switch	Input Voltage
Metal Indoor Enclosure		
T101	SPST	120 VAC, 60 Hz
T102	SPST	208-277 VAC, 60 Hz
T103	DPST	120 VAC, 60 Hz
T104	DPST	208-277 VAC, 60 Hz
T104-50	DPST	208-277 VAC, 50 Hz
T101B*	SPST	120 VAC, 60 Hz
T105 **	1 NO/1 NC	120 VAC, 60 Hz
Metal Indoor/Outdoor Enclosure		
T101R	SPST	120 VAC, 60 Hz
T102R	SPST	208-277 VAC, 60 Hz
T103R	DPST	120 VAC, 60 Hz
T104R	DPST	208-277 VAC, 60 Hz
T106R**	1 NO/1 NC	208-277 VAC, 60 Hz
T1205R	DPST	480 VAC, 60 Hz
Plastic Indoor/Outdoor Enclosure		
T101P	SPST	120 VAC, 60 Hz
T102P	SPST	208-277 VAC, 60 Hz
T103P	DPST	120 VAC, 60 Hz
T104P	DPST	208-277 VAC, 60 Hz
Plastic Indoor/Outdoor Enclosure with See-Through Door		
T101PCD82	SPST	120 VAC, 60 Hz
T103PCD82	DPST	120 VAC, 60 Hz
T104PCD82	DPST	208-277 VAC, 60 Hz
Mechanism Only		
T101M	SPST	120 VAC, 60 Hz
T103M	DPST	120 VAC, 60 Hz
T104M	DPST	208-277 VAC, 60 Hz
T106M **	1 NO/1 NC	208-277 VAC, 60 Hz

**Separate clock motor terminals for switching circuits not on line voltage.*
***Can be wired as SPDT.*

T170, T1400, and T1800 Series

24-Hour with Skip-a-Day

Similar to the T100 Series, these time switches can also handle electrical loads up to 40 A per pole. The T170 Series time switches allow for up to 10 ON/OFF settings per day, but give you the additional capability of skipping days in which the loads may not be needed. Each time switch will come with one set of ON/OFF trippers as well as three skipper screws to omit the schedule for at least three days.

Applications

- For commercial, industrial and residential applications
- Indoor/Outdoor lighting • Signs • Filters • Electric fences • Fans
- Conveyers • Pool heaters • Blowers • Pumps
- Various other electrical loads

Features

- Controls loads up to 40 A per pole
- Direct 24-Hour control of most loads
- Up to 10 ON/OFF operations each day
- Minimum ON/OFF times of one hour
- Manual override
- One ON and one OFF tripper and three day-skipper screws included

Models with Carry-Over (T171CR, T173CR, T174CR, T1471BCR)

- Minimum of 16 hours carry-over operation
- Carry-over automatically rewinds and only takes one hour for every two hours of power loss
- 4PST models are ideal for 3-phase load control

Model #	Switch	Input Voltage
Metal Indoor Enclosure		
T171	SPST	120 VAC, 60 Hz
T172	SPST	208-277 VAC, 60 Hz
T173	DPST	120 VAC, 60 Hz
T174	DPST	208-277 VAC, 60 Hz
T175**	1NO/1NC	120 VAC, 60 Hz
T176**	1NO/1NC	208-277 VAC, 60 Hz
Metal Outdoor Enclosure		
T173R	DPST	120 VAC, 60 Hz
T174R	DPST	208-277 VAC, 60 Hz
T1471BR*	4PST	120 VAC, 60 Hz
T1472BR*	4PST	208-277 VAC, 60 Hz
T1475BR*	4PST	480 VAC, 60 Hz
T1871BR* †	2NO/2NC	120 VAC, 60 Hz
T171CR	SPST	120 VAC, 60 Hz
T173CR	DPST	120 VAC, 60 Hz
T174CR	DPST	208-277 VAC, 60 Hz
T1471BCR*	4PST	120 VAC, 60 Hz

**Separate clock motor terminals for switching circuits not on line voltage.*
***Can be wired as SPDT.*
† Can be wired as DPDT.

T171CR

Ratings	
Resistive	40 A @ varying voltages
Inductive	40 A @ varying voltages
Electronic Ballast	16 A, 277 VAC
Tungsten	40 A @ varying voltages
Pilot Duty	1000 VA @ varying voltages
Motor: T170 Series	2 HP, 24 FLA @ 120 VAC 5 HP, 28 FLA @ 240 VAC
Motor: T1400 and T1800 Series **Single Phase** **Three Phase**	 2 HP, 24 FLA @ 120 VAC; 5 HP, 28 FLA @ 240 VAC 7 1/2 HP, 28 FLA @ 208 VAC; 10 HP, 28 FLA @ 240 VAC
Max Power Consumption	3 W
Operating Temperature	-40° F to 130° F (-40° C to 54° C)
Enclosure Dimensions H x W x D **Metal Indoor** **Metal Outdoor**	 7 ⅞" x 5 ⅛" x 3 7⁄16" (200 mm x 130.2 mm x 87.3 mm) 10 ⅛" x 6 ½" x 3 ⅝" (257.2 mm x 165.1 mm x 92.1 mm)
Knockout Dimensions **Side/Back** **Bottom**	 (1) ½" and ¾" combination (2) ½" and ¾" combination
Wire Size	#8 - #14 AWG
Warranty	1-year

For enclosure options and dimensions, see pages 164-165

Accessories/Replacement

Extra/replacement Trippers, 1 ON and 1 OFF	156T1948A
Extra/replacement Motors:	
WG1570-10D	for T171, T173, T175, 120 VAC, 60 Hz
WG1571-10D	for T171, T173, T175, 120 VAC, 50 Hz
WG1573-10D	for T172, T174, T176, 208-277 VAC, 60 Hz
WG430-20D	for T1471BR, T1871BR, T1471BCR, 208-277 VAC, 60 Hz
WG433-20D	for T1472BR, 208-277 VAC, 60 Hz
Replacement Insulators	see pages 168-169

Voltage Ratings

For more details on model numbers / voltage ratings, scan the QR code with your smartphone or tablet.

Mechanical Time Switches
24-Hour with 15-Minute Interval

T1905P

T1900 and T1970 Series
24-Hour with 15-Minute Interval

This series of mechanical time switches offers more flexible scheduling capabilities by offering 15-minute intervals. These units also come with trippers that slide in or out easily for fast and accurate settings. All units can control up to 20 A of electrical load and have a single pole double throw switch.

Applications
- Poultry feeders • Filters • Heaters • Blowers • Dairy equipment
- Foggers • Fans • Lighting • Various other electrical loads

Features
- Provides up to 96 operations (48 ON/48 OFF) every 24 hours
- Models with skipper wheel allow for operations to be omitted on selected day(s) of the week
- 15-minute intervals
- Trippers slide in and out of dial for fast, accurate setting

Ratings	
Resistive	20 A, 125-480 VAC
Motor	1/2 HP, 125 VAC 1 HP, 250 VAC
Max Power Consumption	3 W
Operating Temperature	-40° F to 130° F (-40° C to 54° C)
Enclosure Dimensions H x W x D	
Metal Indoor	7 7/8" x 5 1/8" x 3 7/16" (200 mm x 130.2 mm x 87.3 mm)
Metal Outdoor	10 1/8" x 6 1/2" x 3 5/8" (257.2 mm x 165.1 mm x 92.1 mm)
Plastic Indoor/Outdoor	10" x 6 1/2" x 4" (254 mm x 165.1 mm x 101.6 mm)
Knockout Dimensions	
Side/Back	(1) 1/2" and 3/4" combination
Bottom	(2) 1/2" and 3/4" combination
Wire Size	#12 - #14 AWG
Warranty	1-year

For enclosure options and dimensions, see pages 164-165

Model #	Switch	Input Voltage	Skipper Wheel
Metal Indoor Enclosure			
T1905*	SPDT	125 VAC, 60 Hz	No
T1905E*	SPDT	480 VAC, 60 Hz	No
T1906*	SPDT	208-277 VAC, 60 Hz	No
T1975†	SPDT	125 VAC, 60 Hz	Yes
T1976†	SPDT	208-277 VAC, 60 Hz	Yes
T1975E†	SPDT	480 VAC, 60 Hz	Yes
Metal Outdoor Enclosure			
T1975R†	SPDT	125 VAC, 60 Hz	Yes
T1976R†	SPDT	208-277 VAC, 60 Hz	Yes
T1975ER†	SPDT	480 VAC, 60 Hz	Yes
Plastic Indoor/Outdoor Enclosure			
T1905P*	SPDT	125 VAC, 60 Hz	No

Accessories/Replacement

*Replacement Snap Switch	133T701A
†Replacement Snap Switch	133T698A

T1905HD and T1975HD

24-Hour Heavy-Duty

T1975EHD

These heavy-duty time switches are designed to handle the toughest environments, and have fully encapsulated motors to prevent dust or debris from entering the motor. The ON/OFF trippers are permanently attached to the metal dial to avoid the accidental loss of a tripper. These time switches offer 15-minute intervals, providing up to 96 operations each day.

Applications

- Oil well pumps • Silo unloaders • Process equipment
- Other electrical loads that may be in harsh environments

Features

- Heavy-duty metal dial and metal enclosure withstands the most punishing environmental conditions
- Models with skipper wheel allow for operations to be omitted on selected day(s) of the week
- Easy-to-set trippers rotate in/out for fast, accurate setting
- Up to 96 operations (48 ON/48 OFF) every 24 hours
- 15-minute intervals between events
- Fully encapsulated motor with protected gears

Model #	Switch	Input Voltage	Skipper Wheel
Metal Indoor Enclosure			
T1905HD	SPDT	125 VAC, 60 Hz	No
T1975EHD	SPDT	480 VAC, 60 Hz	Yes
Metal Outdoor Enclosure			
T1905HDR	SPDT	125 VAC, 60 Hz	No
T1975HDR	SPDT	125 VAC, 60 Hz	Yes
T1975EHDR	SPDT	480 VAC, 60 Hz	Yes
Mechanism Only			
T1905HDM	SPDT	125 VAC, 60 Hz	No
T1975HDM	SPDT	125 VAC, 60 Hz	Yes
T1975EHDM	SPDT	480 VAC, 60 Hz	Yes

Ratings	
Resistive	20 A, 125-480 VAC
Motor	½ HP, 120 VAC 1 HP, 240 VAC
Max Power Consumption	3 W
Operating Temperature	-40º F to 130º F (-40º C to 54º C)
Enclosure Dimensions H x W x D	
Metal Indoor	7 ⅞" x 5 ⅛" x 3 ⁷⁄₁₆" (200 mm x 130.2 mm x 87.3 mm)
Metal Outdoor	10 ⅛" x 6 ½" x 3 ⅝" (257.2 mm x 165.1 mm x 92.1 mm)
Knockout Dimensions	
Side/Back	(1) ½" and ¾" combination
Bottom	(2) ½" and ¾" combination
Wire Size	#12 - #14 AWG
Warranty	1-year

For enclosure options and dimensions, see pages 164-165

Mechanical Time Switches
7-Day

T51311BC

Includes K4121
Photocontrol

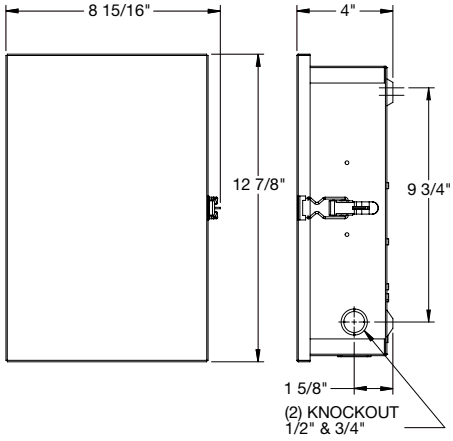
T50000B Series
7-Day Mechanical

These mechanical time switches enable dusk-to-dawn operations as well as dusk ON and fixed time OFF operations. These units come in either 2 or 3-circuit configurations and provide a carry-over of at least 16 hours in case of power outages, reducing maintenance. These time switches can handle up to 15 A of electrical loads per circuit, have separate terminals for powering the clock motor, and come equipped with a photocontrol.

Applications
- Exterior sign lighting • Façade lighting • Exterior lighting
- Other types of outdoor lighting

Features
- Includes photocontrol initiated/time switch terminated control
- Enable different ON/OFF programs each day of the week
- Recommended for applications needing to turn a load ON at dusk and OFF at a preset time
- Minimum of 16-hour carry-over for maintaining preset schedules during power failures
- Carry-over automatically rewinds when power resumes
- Only one hour of rewinding time required for every two hours of power outage
- Light level adjustment
- Single pole double throw switches and manual circuit bypass switches
- Controls the contactor coil circuit only
- Type 1 rated indoor metal enclosure

Dimensions



Ratings	
Resistive	15 A, 120-250 VAC
Tungsten	150 W, 120 VAC
Pilot Duty	420 VA, 120 VAC
Motor	½ HP, 125-250 VAC
Max Power Consumption	3 W
Operating Temperature	-40° F to 130° F (-40° C to 54° C)
Enclosure Dimensions **H x W x D**	12 ⅞" x 8 ¹⁵⁄₁₆" x 4" (327 mm x 227 mm x 101.6 mm)
Knockout Dimensions **Side/Back** **Bottom**	 (1) ½" and ¾" combination (2) ½", ¾" and 1" combination
Wire Size	#10 - #18 AWG
Warranty	1-year

Model #	Circuits	Input Voltage
T51211BC	2	120 VAC, 60 Hz
T51311BC	3	120 VAC, 60 Hz

Note: All models have separate clock motor terminals for switching circuits not on line voltage. They may be used with 24 V systems if wired in accordance with NEC regulations.
Recommended to control the coil of a lighting contactor.

Accessories/Replacement

Extra/replacement trippers, set of 7 ON/OFF	156T2548A

T7000B Series

7-Day Mechanical

These 7-Day Mechanical time switches offer the capability of having a different schedule for each day of the week. They can handle up to 40 A of electrical loads per circuit and have separate terminals for powering the clock motor. These time switches can handle up to four loads per clock, providing a single control for easier installation. Each time switch comes with 7 ON and 7 OFF trippers, allowing for at least one ON/OFF operation each day.

T7401B

Applications

• Heating • Air conditioning • Pumps • Indoor/Outdoor lighting
• Motors • Signs • Filters • Fans • Various other electrical loads

Features

• Different ON/OFF programs each day of the week
• True 7-day load control with minimum ON/OFF time of 3 ½ hours
• Separate clock motor terminals for switching loads not on line voltage
• Carry-over automatically rewinds when power resumes
• Minimum of 16-hour carry-over for maintaining preset schedules during power failures
• Available with Type 3R rated outdoor metal enclosure or Type 1 rated indoor metal in gray finish with separate grounding terminal

Ratings	
Resistive	40 A, 120-480 VAC
Inductive	40 A, 120/208/240/277 VAC
Tungsten	40 A, 120/208/240/277 VAC
Electronic Ballast	16 A, 277 VAC
Pilot Duty	1000 VA, 120-277 VAC Per Pole
Motor	
Single Phase	2 HP, 24 FLA, 120 VAC; 5 HP, 28 FLA, 240 VAC
Three Phase	7 ½ HP, 28 FLA, 208 VAC; 10 HP, 28 FLA, 240 VAC
Operating Temperature	-40° F to 130° F (-40° C to 54° C)
Enclosure Dimensions H x W x D	
Metal Indoor	13 ⅛" x 9" x 3 ¾" (333.3 mm x 228.9 mm x 95.25 mm)
Metal Outdoor	12 ½" x 9" x 4" (317.5 mm x 228.9 mm x 101.6 mm)
Knockout Dimensions	
Side/Back	(1) ½" and ¾" combination
Bottom	(2) ½", ¾" and 1" combination
Wire Size	#8 - #14 AWG
Warranty	1-year

Model #	Switch	Input Voltage
Type 1 Metal Indoor Enclosure Without Carry-Over		
T7401B	4PST NO	120 VAC, 60 Hz
T7402B	4PST NO	208-277 VAC, 60 Hz
T7801B*	2 NO/2 NC	120 VAC, 60 Hz
T7802B*	2 NO/2 NC	208-277 VAC, 60 Hz
Type 1 Metal Indoor Enclosure With Carry-Over		
T7401BC	4PST NO	120 VAC, 60 Hz
T7402BC	4PST NO	208-277 VAC, 60 Hz
T7801BC*	2 NO/2 NC	120 VAC, 60 Hz

**Can be wired as (2) DPDT.*
Note: All models have separate clock motor terminals for switching circuits not on line voltage. They may be used with 24 V systems if wired in accordance with NEC regulations.

T2000 Series

7-Day Mechanical

These compact 7-Day Mechanical time switches offer the capability of having a different schedule for each day of the week. They can handle up to 20 A of resistive loads and up to six ON/OFF settings per day.

T2005

Applications

• Pumps • Lighting • Motors • Ventilation systems
• Fans • Various other electrical loads

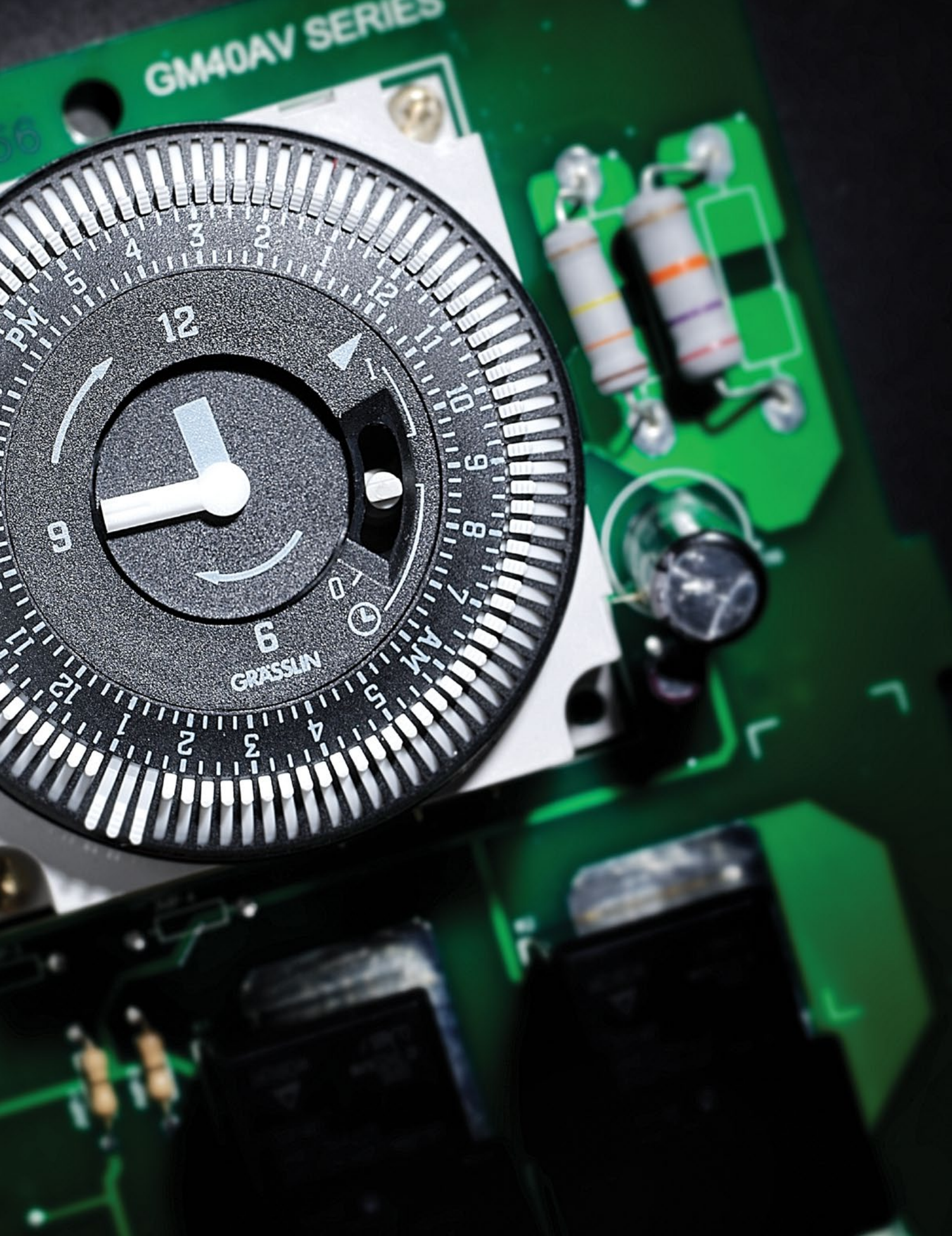
Features

• Minimum 2-hour timing intervals
• Up to 42 ON/OFF operations per week
• Type 1 rated metal indoor enclosure

Model #	Switch	Input Voltage
T2005	SPDT	120 VAC, 60 Hz
T2006	SPDT	208-277 VAC, 60 Hz

Ratings	
Resistive	20 A, 125, 208-277 VAC
Motor	½ HP, 125 VAC; 1 HP, 250 VAC
Operating Temperature	-40° F to 130° F (-40° C to 54° C)
Enclosure Dimensions H x W x D	7 ⅞" x 5 ⅛" x 3 ⁷⁄₁₆" (200 mm x 130.2 mm x 87.3 mm)
Knockout Dimensions	
Side/Back	(1) ½" and ¾" combination
Bottom	(2) ½" and ¾" combination
Wire Size	#12 - #14 AWG
Warranty	1-year

For enclosure options and dimensions, see pages 166-165


GM40AV SERIES
GRASSLIN

Specialty Time Switches

Intermatic offers a wide variety of specialty time switches including the GM40, an electromechanical control that can be used for many different applications. You'll also find Short Range Cycle Time Switches and Percentage Cycle Time Switches for applications such as ventilation or misting systems, processing equipment, and feeding equipment. Other specialty controls include Water Heater Time Switches, Mechanical Astronomic Controls, and Irrigation Controls.

Contents

Cycle Timer 38
Irrigation 39
Grässlin Electromechanical 24-Hour or 7-Day (GMAV40) 40
Astronomic 41
Grässlin Electromechanical Series Water Heater Timers 42
Water Heater Timers 43

C8835

C8800 Series

Short Range Cycle Time Switches

The C8800 Series Short Range Cycle Timers come in various timing durations allowing for unprecedented control for various applications. These time switches can handle resistive loads up to 20 A and electric motor loads up to 1 HP at 240 VAC.

Applications

- Ventilating fans • Fogging equipment • Process equipment
- Poultry & livestock feeders • Spraying equipment

Features

- Repeat cycling for ON times
- 10 trippers provided
- Dials have 120 slots
- Type 1 indoor metal enclosure

Ratings	
Switch Type	SPDT
Resistive	20 A, 120-480 VAC, 60 Hz
Motor	½ HP, 120 VAC; 1 HP, 240 VAC, 60 Hz
Operating Temperature	-40° F to 130° F (-40° C to 54° C)
Enclosure Dimensions H x W x D	7 ⅞" x 5 ⅛" x 3 ⁷⁄₁₆" (200 mm x 130.2 mm x 87.3 mm)
Knockout Dimensions	
Side/Back	(1) ½" and ¾" combination
Bottom	(2) ½" and ¾" combination
Wire Size	#12 - #14 AWG
Warranty	1-year limited

For enclosure line drawings and knockout locations, see pages 164-165.

Model #	Clock Motor Voltage	Dial Cycle	Tripper Actuating Time
C8815	125 VAC, 60 Hz	10-Min	5-Sec
C8835	125 VAC, 60 Hz	30-Min	15-Sec
C8845	125 VAC, 60 Hz	4-Hr	120-Sec
C8865	125 VAC, 60 Hz	1-Hr	30-Sec
C8866	208-277 VAC, 60 Hz	1-Hr	30-Sec

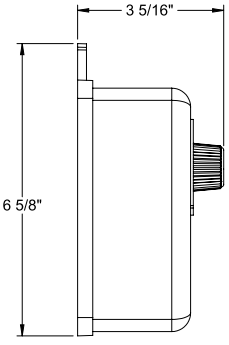
NOTE: The life of the switch contacts is affected by the size and type of the controlled load. The expected minimum life at 20 A (resistive) load is 100,000 cycles.

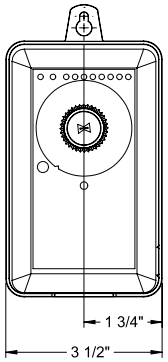
Accessories/Replacement

Extra/replacement Trippers	156T1950A
Extra/replacement Switch	133T773A

CT2000

Enclosure Dimensions





CT2000

Percentage Cycle Time Switch

The CT2000 Percentage Cycle Time Switch is a field adjustable timer, offering true flexibility for repetitive cycle times via an upfront control button. The timer provides repetitive cycling for short-cycle applications. The timer enclosure includes two slotted mounting holes on 5" centers and a ½" knockout for conduit connection.

Applications

- Ventilating fans • Fogging equipment • Process equipment
- Poultry & livestock feeders • Misting systems

Features

- Provides 8 field selectable cycle durations of 30 seconds, 1, 3, 5, 10, 30 minutes and 1 or 4 hours
- Front cover button enables true flexibility for repetitive cycle times
- Temporary and permanent manual overrides
- 30 separate positions enable precise percentage ON time selection
- User settings stored in non-volatile memory
- No DIP switches to program cycle time
- Withstands surges of up to 6,000 VAC
- Type 3R indoor/outdoor aluminum enclosure

Ratings	
Switch Type	SPDT
General Purpose	20 A, 240 VAC, 60 Hz
Resistive	20 A,120/240 VAC, 28 VDC, 60 Hz
Ballast (Fluorescent)	10 A, 277 VAC, 60 Hz
Tungsten (Incandescent)	5 A, 240 VAC, 60 Hz
Pilot Duty	470 VA, 240 VAC, 60 Hz
Motor	1 HP, 120 VAC; 2 HP, 240 VAC, 60 Hz
Surge Protection	Up to 6,000 VAC
Wire Leads 8"	
Red	#12 AWG
Black	#18 AWG
White	#18 AWG
Warranty	1-year limited

Model #	Input Voltage
CT2000	120 or 240 VAC, 60 Hz

R8800 and T8800 Series

Sprinkler/Irrigation Time Switches with 14-Day Skipper

These irrigation timers are designed to permit one to 44 "ON" operations every 24 hours and provide watering increments down to 12 minutes or up to 20 hours and 45 minutes to ensure proper watering increments. These models also allow for biweekly scheduling with the convenient 14-day skipper for maximum water conservation and odd/even day compliance.

T8845PV

Applications

- Multistation hydro-indexing valves • Greenhouses • Lawn sprinklers
- Irrigation control • Drip irrigation systems

Features

- Up to 44 ON/OFF settings per day
- Water metering increments from 12 minutes to 20 hours and 45 minutes
- 14-Day skipper enables irrigation to be omitted on selected day(s)
- Provides for every other day operation
- ON/OFF/AUTO switch enables shutdown during rainy days and extended watering during dry periods without disturbing the cycle set on dial
- Type 3R plastic indoor/outdoor enclosure

Model #	Switch	Clock Motor Voltage	Load Voltage	Amps (per pole)	HP
Mechanism Only					
T8805M101C	DPST	125 VAC, 60 Hz	125 VAC, 60 Hz	15 A	½
R8806M101C	DPST	240 VAC, 60 Hz	240 VAC, 60 Hz	30 A	3
Plastic Type 3R Enclosure					
T8805P101C	SPST	125 VAC, 60 Hz	125 VAC, 60 Hz	15 A	½
R8806P101C	DPST	208/277 VAC, 60 Hz	240 VAC, 60 Hz	30 A	3
R8815P101C*	DPST	125 VAC, 60 Hz	120 VAC, 60 Hz	30 A	1½
R8816P101C*	DPST	208/277 VAC, 60 Hz	240 VAC, 60 Hz	30 A	3
T8845PV**	SPST	110/125 VAC, 60 Hz	24 VAC, 60 Hz	20 VA	-

**Provided with a slide switch to enable/disable a Rain Sensor (not included).*
***Includes 24 Volt, 20 VA transformer.*

Ratings	
Operating Temperature	-40° F to 130° F (-40° C to 54° C)
Enclosure H x W x D	
Plastic Indoor/Outdoor	10" x 6 ½" x 4" (254 mm x 165.1 mm x 101.6 mm)
Knockout Dimensions	
Side/Back	(1) ½" and ¾" combination
Bottom	(2) ½" and ¾" combination
Warranty	1-year limited

For enclosure line drawings and knockout locations, see pages 164-165.

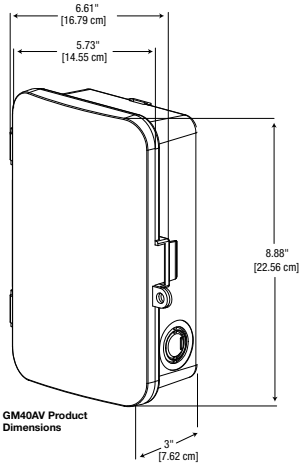
Accessories/Replacement

Extra/replacement trippers	156T1950A pack of 12
Extra/replacement switch	133T700A
Additional Skipper Pins	156T1954A pack of 14

GM40AV

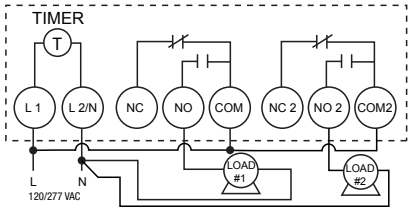
Captive Trippers can't be lost

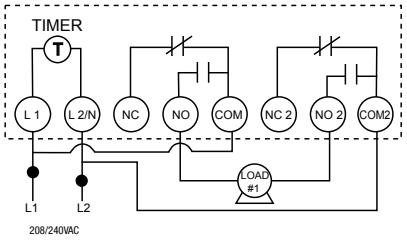
Enclosure Dimensions



GM40AV Product Dimensions

Wiring Diagram





GM40AV Series

40 A Autovoltage General Purpose Time Control

The GM40AV Time Control is a universal, electromechanical time switch designed for general purpose residential and commercial applications. The robust 40 A time control automatically detects the input voltage without the use of a DIP switch or selector pins. The time control automatically selects any voltage between 120 VAC and 277 VAC. The mechanism is mounted in a compact UL Type 3R outdoor enclosure and can also be easily retrofitted into other Intermatic enclosure types. The time control features a DPDT switching configuration standard (i.e. two normally open and two normally closed contacts).

Applications

The GM40AV is a robust time switch capable of switching high amperage. Below are examples of the many applications where the GM40AV can be used:

- Lighting control • Access control • Commercial refrigeration
- General electrical circuits • Pumps • Motors • Fan control

Features

- Autovoltage selection 120 VAC - 277 VAC
- Captive trippers - trippers cannot be lost
- 40 A rating
- Self-recharging battery backup models; "Q" models feature 7-day carry-over
- Power and status LED indicators
- 24-Hour or 7-day models available
- Up to 48 ON/OFF operations per 24-hour period or 42 ON/OFF operations per week on "W" models
- DPDT switching configuration standard (2 NO and 2 NC Contacts)
- Manual three-way ON/OFF/AUTO override switch
- Easy-to-read clock face
- Type 3R outdoor enclosure

Model #	Autovoltage	Switch Type	Enclosure	Battery Backup	Timing
GM40AV	120-277 VAC, 60 Hz	DPDT	Type 3R Outdoor	No	24-Hour, 15-Minute Intervals
GM40AV-Q*	120-277 VAC, 50/60 Hz	DPDT	Type 3R Outdoor	Yes	24-Hour, 15-Minute Intervals
GM40AV-M	120-277 VAC, 60 Hz	DPDT	Mechanism Only	No	24-Hour, 15-Minute Intervals
GM40AV-W	120-277 VAC, 60 Hz	DPDT	Type 3R Outdoor	No	7-Day, 2-Hour Intervals
GM40AV-QW*	120-277 VAC, 50/60 Hz	DPDT	Type 3R Outdoor	Yes	7-Day, 2-Hour Intervals

**Q models are Title 20 listed.*

Ratings	
Supply Voltage	120-277 VAC, 60 Hz (Q Models 50/60 Hz)
Switch Type (2 NO/NC Contacts)	DPDT
Switch Ratings (NO Contacts)	
Resistive	40 A, 120-277 VAC
Ballast	30 A, 120 VAC; 20 A, 277 VAC
Tungsten	15 A, 120 VAC
Pilot Duty	300 VA, 120-240 VAC
Switch Ratings (NC Contacts)	
Resistive	30 A, 120-277 VAC
Ballast	10 A, 277 VAC
Tungsten	2 A, 120 VAC
Motor	
NO	1 HP, 16 FLA, 90 LRA @ 120 VAC; 2 HP, 12 FLA, 52 LRA @ 208-277 VAC
NC	1 HP, 12 FLA, 30 LRA @ 120 VAC; 2 HP, 10 FLA, 30 LRA @ 240 VAC
Operating Temperature	-40° F to 131° F (-40° C to 55° C)
Operating Humidity	0-95% RH, non-condensing
Wiring Terminals	Screw box lug
Electrical Life	50,000 operations at full load
Enclosure Dimensions H x W x D	8.88" x 6.61" x 3" (22.56 mm x 16.79 mm x 7.62 mm)
Shipping Weight	3 lbs.
Warranty	1-year limited

SPECIFIERS GUIDE

Furnish and install a Grässlin GM40AV_____Auto-Voltage 24-Hour or 7-Day Time Control with captive trippers. Input voltage shall be 120-277 VAC which the unit detects and selects automatically. All units shall incorporate DPDT contacts that shall be rated at 40 A, 2 HP @ 208-277 VAC. To set the starting time and provide time indication, the unit shall have an authentic clock face with hour and minute hands and 15-minute or 2-hour (W models only) interval captive trippers. LED indicators shall provide power and status feedback. The enclosure shall be UL Type 3R suitable for both indoor or outdoor installation. The time switch shall contain a 3-way ON/OFF/AUTO manual override switch. For carry-over: "Q" Models shall have a quartz drive with self-recharging battery backup providing 7-day carry-over.

c UL us #E10694 c UL us #E10694 RoHS Compliant 2002/95/EC

patent #6,563,237

TITLE 20 LISTED

INTERMATIC

V45000 Series

Astronomic Dial Time Switches with Skipper

The V45000 Series astronomic dial time switches are mechanical time switches with skipper and carry-over features. They automatically adjust to seasonal changes as the days grow shorter or longer, minimizing the time once required of maintenance staff to manually adjust times throughout the year.

Applications

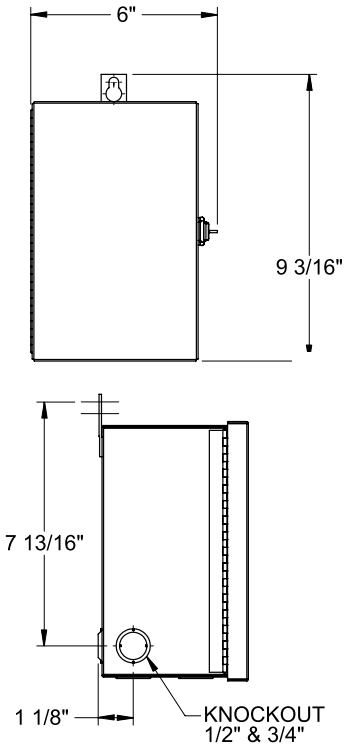
- Parking lot lighting • Walkway lighting • Landscape lighting • Store fronts
- Other outdoor lighting applications

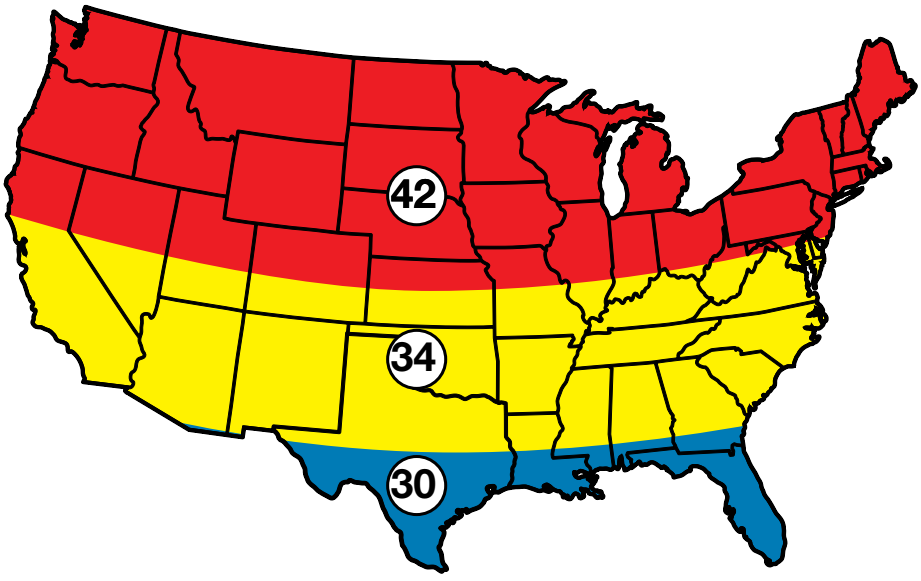
Features

- Adjusts for seasonal changes
- 3PST switch configuration
- Three skipper screws furnished
- Independent clock motor terminals
- Only one hour required to rewind the carry-over for every two hours of outage
- Type 3R metal enclosure

V45472CR30

Enclosure Dimensions





Ordering Guidelines: See map to find your latitude zone.
Add the zone to the end of the model number.
For example: If you are in Zone 42 (Red), the order number is V45471CR42.

Latitude	Model #	Carry-over	VAC, 60 HZ
30º	V45471CR30	Yes	120
	V45472CR30	Yes	208-277
	V45471R30	No	120
	V45472R30	No	208-277
34º	V45471CR34	Yes	120
	V45472CR34	Yes	208-277
	V45471R34	No	120
	V45472R34	No	208-277
42º and above	V45471CR42	Yes	120
	V45472CR42	Yes	208-277
	V45471R42	No	120
	V45472R42	No	208-277

Ratings	
Switch Type	3PST
Resistive	40 A, 120-277 VAC
Inductive	20 A, 120-277 VAC, Single Phase
Tungsten	40 A, 120 VAC
Pilot Duty	1000 VA, 120-277 VAC
Motor	2 HP, 120 VAC; 5 HP, 240 VAC
Operating Temperature	32º F to 104º F (0º C to 40º C)
Enclosure Dimensions H x W x D	9 3⁄16" x 6" x 4 7⁄8" (233.4 mm x 152.4 mm x 123.8 mm)
Enclosure	Type 3R metal, beige finish. Hasp, with hole for lock, holds permanently attached, side-hinged door closed
Knockout Dimensions	Combination ½" - ¾" nominal knockouts, (1) on back and sides, (2) on bottom
Wire Size	#8 - #14 AWG
Warranty	1-year

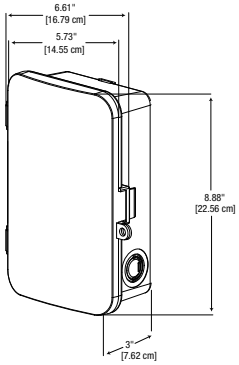
Specialty Time Switches

Grässlin Electromechanical Water Heater Timers

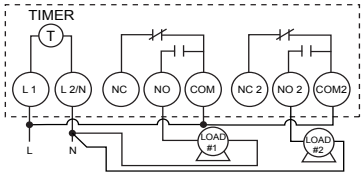
Utilities in many areas of the country offer two electric rates for residential or commercial customers. One rate has the regular daytime electrical rate, the other is the "off-peak" rate. The "off-peak" rate provides customers with lower priced electricity during the nighttime and weekend periods.

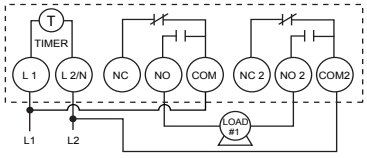
WHAVQ4

Enclosure Dimensions



Wiring Diagrams





WHAVQ Series

24-Hour / 7-Day with Battery Backup Autovoltage Electric Water Heater Timers

The WHAVQ series Water Heater Timers are designed for control of residential or commercial electric water heaters up to 10,000 Watts capacity running at 240 VAC. The unit is mounted in a UL Type 3R Outdoor enclosure and can be placed in basements or mechanical rooms.

Application

These units are designed to save energy and maximize electric heated hot water usage throughout the day. For example, the unit could be programmed to turn ON during periods of high usage such as in the early morning hours and OFF during low demand periods such as late evenings.

Features

- 40 A rating
- Captive trippers - cannot be lost
- 24-hour or 7-day models available
- Three-way ON/OFF/AUTO manual override
- Power and status LED indicators
- Self-recharging battery backup with 7-day carry-over
- Rainproof UL Type 3R enclosure
- Saves energy by shutting hot water heaters OFF during "off peak periods"
- Autovoltage selection 120-277 VAC
- Easy-to-read clock face

c UL us RoHS Compliant Patent# 6,563,237

Ratings	
Switch Configuration	DPDT (2 NO and 2 NC contacts)
Switch Rating for NO	40 A Resistive, 250 VAC, 10,000 W
Switch Rating for NC	30 A Resistive, 250 VAC, 7,500 W
Operating Temperature	-4° F to 104° F (-20° C to 40° C)
Operating Humidity	0 to 95% RH, non-condensing
Electrical Life	50,000 operations at full load
Reserve Carry-over	7-Day battery backup
Shipping Weight	3 lbs.
Warranty	1-year limited

Model #	Voltage	Output	Timing
WHAVQ4	120-277 VAC, 60 Hz	40 A DPDT	24-Hour with Battery Backup
WHAVQ7	120-277 VAC, 60 Hz	40 A DPDT	7-Day (Skip-a-Day) with Battery Backup

SPECIFIERS GUIDE

Furnish and install a Grässlin WHAVQ____ electric water heater time switch with captive trippers and a quartz drive with 7-day reserve carry-over from a rechargeable battery. Input voltage shall be 120-277 VAC on all models. Output shall be (DPDT) rated at 40 A, 250 VAC, NO contacts. 30 A, 250 VAC, NC contacts. To set starting time and to provide time indication, the unit shall have an authentic clock face with hour and minute hands. Enclosure shall be UL Type 3R rainproof. For carry-over, the time controls shall have quartz drive with 7-day reserve carry-over from a rechargeable battery.

EH10 and EH40

Electronic Water Heater Time Switches

The EH Series Electronic Time Switches provide control for electric water heaters with to-the-minute accuracy in programming and time-keeping. The use of a water heater timer allows the customer to shift electricity use to "off-peak" time periods in an attempt to reduce utility costs. These time switches can be programmed for repeat daily scheduling, 5-day work week scheduling, weekend scheduling or individual day scheduling. Models are available for both 120 and 240 VAC applications.

EH10

Applications

• Residential • Institutional • Industrial • Commercial
• Military facilities • Schools

Features

• 42 ON/OFF events per week
• 7-day scheduling
• To-the-minute programming and time-keeping accuracy
• External override switch
• LED load indicator
• Replaceable battery backup

Model #	Input Voltage	Switch	Watts	Enclosure
EH10	120 VAC	SPST	3600	Type 1 Indoor Metal
EH40	240 VAC	DPST	7200	Type 1 Indoor Metal

Ratings	
Switch Rating for EH10	30 A Inductive, 30 A Resistive, 5 A Tungsten, 1 HP, 120 VAC, 60 Hz
Switch Rating for EH40	30 A Inductive, 30 A Resistive, 5 A Tungsten, 1 ½ HP, 240 VAC, 60 Hz
Metal Indoor	7 ⅞" x 5 ⅛" x 3 ⁷⁄₁₆" (200 mm x 130.2 mm x 87.3 mm)
Knockout Dimensions	
Side/Back	½" and ¾" combination
Bottom	(2) ½" and ¾" combination
Warranty	1-year

For enclosure line drawings and knockout locations, see pages 164.

T104-20 and WH40

Mechanical Water Heater Time Switches

With the easy-to-set "Yellow Dial", these time switches allow for basic control of electric hot water heaters. These time switches offer a minimum ON/OFF time of one hour, and are available for 208-250 VAC applications. With the proven reliability of our mechanical line, these time switches provide dependable electric water heater control.

T104-20

Applications

• Residential • Institutional • Industrial • Commercial
• Military facilities • Schools

Features

• Three sets of ON/OFF trippers
• Enables shifting electricity use into off-peak hours to reduce energy costs
• Convenient external override switch (WH40 model)

Model #	Switch Type	Clock Motor	Amps per pole	Watts Resistive	External Override
T104-20	DPST	208-250 VAC, 60 Hz	40 A	10000	No
WH40	DPST	208-250 VAC, 60 Hz	40 A	10000	Yes

Ratings	
Power Consumption	3 W MAX
Operating Temperature Range	-40° F to 130° F (-40° C to 54° C)
Enclosure	
Metal Indoor	7 ⅞" x 5 ⅛" x 3 ⁷⁄₁₆" (200 mm x 130.2 mm x 87.3 mm)
Knockout Dimensions	
Side/Back	½" and ¾" combination
Bottom	(2) ½" and ¾" combination
Warranty	1-year

For enclosure line drawings and knockout locations, see pages 164.

GRÄSSLIN

Grässlin Mechanical Time Switches

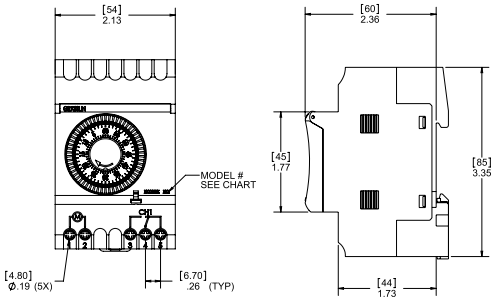
Whether 24-Hour, 7-Day, ON or OFF control, Mechanical Time Switches are an economical solution when the switching interval length of time is sufficient. Grässlin Mechanical Time Controls state-of-the-art versatility meets the various control timing requirements and fit/form factors for multiple industries. Thanks to their space-saving and compact design, the Grässlin Mechanical Time Controls are ideally suited for industrial control panels and system manufacturers. These versatile time controls can be used for OEM integration or retrofit to control various loads, system switching, or overriding system components for a whole range of functions, such as: hydroponics, general lighting applications, commercial refrigeration, aerobic waste water systems, pool and spa, filtering installations, landscape lighting, insect and pest control, hot water pump circulation, fans and ventilation systems, and many more. Input voltage ranges from 12 VDC/VAC to 240 VAC ensure application versatility and consolidate stocking investments.

Contents

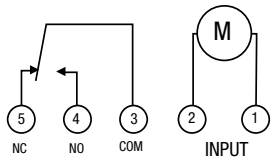
Cycle Timer Modules 46
Panel Mount Timer Modules, 24-Hour or 7-Day..... 47
Flush or Surface/DIN Rail Mount Timer Modules, 24-Hour 48
Flush or Surface/DIN Rail Mount Timer Modules, 7-Day 49
Enclosed Timer Module, 24-Hour or 7-Day.....50-51

TALENTO121-120

Dimensions



Switch Configuration



Talento 121 Series

16 A, 1-Hour Repeat Cycle Time Switch

The Talento 121 is a synchronous motor driven electromechanical one-hour time switch intended as a low-cost repeat cycle timer for industrial processes and other applications. It provides continuous ON/OFF cycling of a load in a pattern which will repeat every hour. Captive trippers allow setting up to 24 ON and 24 OFF times in 1.25-minute increments over a one-hour period. It may be used in conjunction with a Grässlin 24-hour or 7-day Time Switch to provide repeat cycle timed switching only during selected periods of the day or week. It may be DIN rail mounted, or mounted in a Grässlin indoor or outdoor enclosure.

Features

- 1.25 minute resolution
- Up to 24 ON/OFF times per hour
- Captive trippers
- SPDT 16 A switch
- DIN rail or enclosure mounting
- 3-Way override

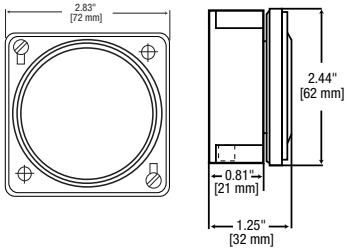
c UL us #E10694 CE RoHS Compliant 2002/95/EC UL

Ratings	
Supply Voltage	120, 208-240 VAC, 60 Hz
Switch Type	SPDT, Isolated Contacts
Resistive	16 A, 125-250 VAC, 60 Hz
Tungsten	750 W, 250 VAC, 60 Hz
Operating Temperature	-13° F to 130° F (-25° C to 55° C)
Operating Humidity	0 to 95% RH, non-condensing
Dimensions H x W x D	3.35" x 2.13" x 2.36" (8.5 mm x 5.4 mm x 6.0 mm)
Wiring Connections	Screw terminals for up to #12 AWG wire
Ship Weight	.66 lbs (.29 kg)
Warranty	1-year limited

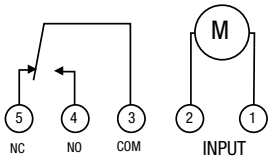
Model #	Input Voltage	Mounting	Total Cycle Time	Timing Interval per Tripper
TALENTO121-120	120 VAC, 60 Hz	DIN Rail	1-Hr	1.25-Min
TALENTO121-240	208-240 VAC, 60 Hz	DIN Rail	1-Hr	1.25-Min
GMX121-0-120	120 VAC, 60 Hz	Type 3R Enclosure	1-Hr	1.25-Min

FM1S12HU-120U

Dimensions



Switch Configuration



FM1S12HU-120U

21 A, 12-Hour Repeat Cycle Time Switch

The FM1S12HU-120U is a sychronous motor driven electromechanical 12-hour time switch intended as a low cost repeat cycle timer for industrial processes and other applications. It provides continuous ON/OFF cycling in a pattern which will repeat every 12 hours. Captive trippers allow setting up to 48 ON and 48 OFF times in 7.5 minute increments over a 12-hour period.

Features

- 21 A SPDT switch
- Captive trippers enable up to 48 ON and 48 OFF times in 7.5-minute intervals
- Panel mount

c SP us LR3730 c UL us #E10694 CE RoHS Compliant 2002/95/EC

Ratings	
Supply Voltage	120 VAC, 60 Hz
Power Consumption	1 VA
Switch Rating	SPDT
Resistive	21 A, 250 VAC
Inductive	1 HP, 125 VAC; 2 HP, 240 VAC
Tungsten	1350 W, 120 VAC
Dimensions H x W	2.60" x 2.83" (66 mm x 72 mm)
Wiring Connections	¼" quick-connects
Shipping Weight	.15 lbs (.07 kg)
Warranty	1-year limited

Model #	Input Voltage	Total Cycle Time	Timing Interval per Tripper
FM1S12HU-120U	120 VAC, 60 Hz	12-Hr	7.5-Min

Accessories

Clear Dustcover	DC-FME-A
Surface/DIN Rail Mount	FM-SU
Flush Mount Kit	FM-FU
Outdoor Enclosure	E200
Indoor Enclosure	E150

FM1 Series

21 A, 1-Circuit, Panel Mount Timer Modules

FM1STUZH

The FM1 Series Timer Modules are designed to be integrated inside of a machine control panel, circuit board, or other equipment. They are a simple and low cost alternative for applications that do not require more than 21 A or 2 HP, 240 VAC. The FM1 is designed for 24-hour or 7-day control or overriding a functional typical state of a heating, ventilation, refrigeration, lighting, security, or pump system. The FM1 series is ideal for 12, 24 VAC/VDC,120 or 208/240VAC single-phase general applications.

Applications

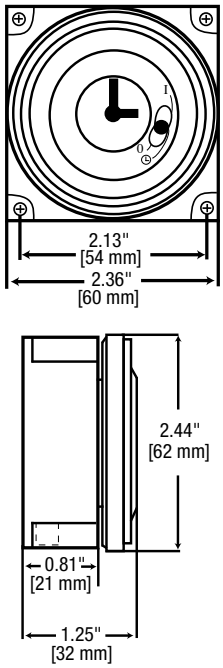
- Commercial refrigeration • Pool & Spa • Ventilation
- Hot water pump circulation • Hydroponic systems
- Lighting panel control • Landscape lighting
- Bug and pest control systems • Aerobic waste water systems

Features

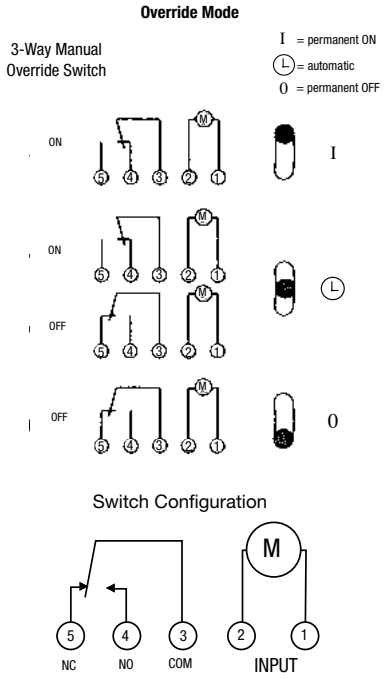
- 21 A SPDT Switch
- Captive trippers with 15-minute intervals on 24-hour models and 2-hour intervals on 7-day models
- 7-Day carry-over battery backup on Q models
- Noise immune – ideal for robust applications
- Synchronous drive or quartz drive Q models with self-recharging battery backup
- True clock face, easy-to-set
- Available with or without override
- Compact size
- Clear plastic cover (DC-FME-A), sold separately below
- Standalone or with indoor/outdoor enclosure, sold separately below

Dimensions

FM1 Panel Mount Series



Wiring Diagrams



Model # Synchronous	Model # Quartz w/ Battery Backup	Voltage	Override	MIN ON/ OFF Time
24-Hour				
FM1STUZ-24U	FM1QTUZ-24U*	24 VAC, 60 Hz	No	15-Min
FM1STUZ-120U	FM1QTUZ-120U*	120 VAC, 60 Hz	No	
FM1STUZ-240U	FM1QTUZ-240U*	208/240 VAC, 60 Hz	No	
FM1STUZ220/50	–	220, 50 Hz	No	
FM1STUZH-24U	FM1QTUZH-24U*	24 VAC, 60 Hz	Yes	
FM1STUZH-120U	FM1QTUZH-120U*	120 VAC, 60 Hz	Yes	
FM1STUZH-240U	–	208/240 VAC, 60 Hz	Yes	
FM1STUZH220/50	–	220, 50 Hz	Yes	
7-Day				
FM1SWUZ-24U	–	24 VAC, 60 Hz	No	2-Hr
FM1SWUZ -120U	FM1QWUZ-120U*	120 VAC, 60 Hz	No	
FM1SWUZ -240U	FM1QWUZ-240U*	208/240 VAC, 60 Hz	No	
FM1SWUZH-24U	–	24 VAC, 60 Hz	Yes	
FM1SWUZH -120U	FM1QWUZH-120U*	120 VAC, 60 Hz	Yes	
FM1SWUZH -240U	FM1QWUZH-240U*	208/240 VAC, 60 Hz	Yes	

Quartz models operate at 12-24 VDC/VAC, 120, or 208/240 VAC and are Title 20 listed.

LR3730 #E10694 2002/95/EC

Ratings	
Supply Voltage	24, 120, 208/240 VAC, 60 Hz; 220, 50 Hz
Quartz Models	12, 24 VAC/VDC, 120, 208/240 VAC, 50/60 Hz
Power Consumption	1 VA
Switch Type	SPDT
Resistive	21 A, 120-250 VAC
Tungsten	1350 W, 120 VAC
Motor	1 HP, 120 VAC; 2 HP, 250 VAC
Operating Temperature	-40° F to 185° F (-40° C to 85° C) -4° F to 131° F (-20° C to 55° C) with battery backup
Battery Backup Option	7-Day carry-over Q Models
Dimensions H x W x D	2.36" x 2.36" x 1.25" (60 mm x 60 mm x 32 mm)
Wiring Terminals	¼" quick connect terminals
Shipping Weight	.15 lbs. (.07 kg)
Warranty	1-year limited

Accessories

Clear Dust Cover	DC-FME-A
Surface/DIN Rail Mount	FM-SU
Flush Mount Kit	FM-FU
Outdoor Enclosure	E200
Indoor Enclosure	E150

SPECIFIERS GUIDE

Furnish and install a Grässlin FM1 _____ (24-Hour) (7-Day) Timer Module with_____ (15-Minute) (2-Hour) interval captive trippers and_____ (Quartz) (Synchronous) drive. Input voltage shall be_____ (12) (24) VDC, (12) (24) (120) (220) (208/240) VAC, and SPDT switch contacts shall be rated at:
• 21 A Resistive • 2 HP @ 250 VAC
To set the starting time and to provide time indication, the unit shall incorporate an authentic clock face. For override, the timer module shall contain a 3-way ON/OFF/AUTO switch. For carry-over, the timer module shall have a quartz drive with 7-day reserve carry-over from a self-recharging battery. Installation for panel mounting.

Grässlin Mechanical Time Switches

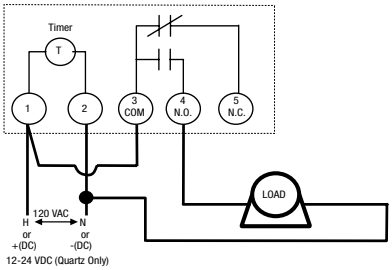
Flush or Surface/DIN Rail Mount, 24-Hour

MIL72A

MIL72E

Wiring Diagrams

12-24 VDC & 120 VAC application



MIL72 Series

MIL72 Series

21 A, 1-Circuit, 24-Hour Timer Modules

The MIL72 series time switches are designed to be mounted inside a control panel and can accommodate surface/DIN rail or flush panel mounting. The MIL72 series is a light duty commercial time switch for 12, 24 VAC/VDC, 120 or 208/240 VAC single-phase applications.

Applications

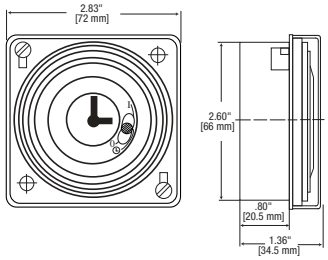
- Commercial refrigeration • Pumps/motor/fan control
- Hydroponic systems • Aerobic wastewater treatment systems
- Boilers • Generator exercising

Features

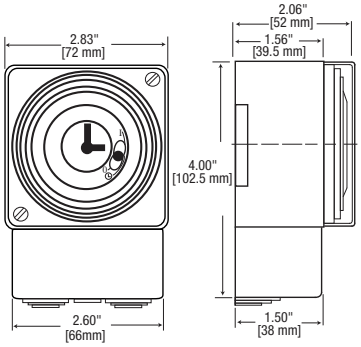
- 21 A SPDT switch
- Synchronous drive or quartz drive (Q models) with self-recharging battery backup
- 7-Day carry-over battery backup on Q models
- Captive trippers with 15-minute intervals
- Available with or without override
- True clock face, easy-to-set
- Clear plastic dust-cover
- Compact size
- Surface/DIN rail or flush mount

Dimensions

MIL72E Flush Mount with Clear Dust Cover



MIL72A Surface Mount/DIN Rail Mount with Clear Dust Cover



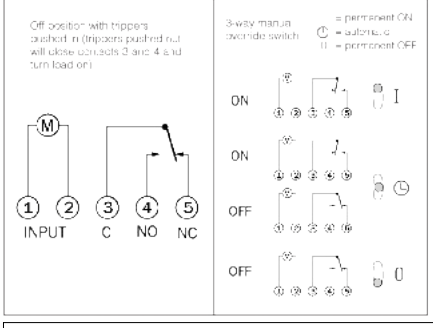
Model # Flush Mount (MIL72E)	Model # Surface Mount/ DIN Rail (MIL72A)	Volts AC	MIN ON/ OFF Time	Override
Synchronous				
MIL72ESTUZ-24	MIL72ASTUZ-24	24 VAC, 60 Hz	15-Min	No
MIL72ESTUZ-120	MIL72ASTUZ-120	120 VAC, 60 Hz		
MIL72ESTUZ-240	MIL72ASTUZ-240	240 VAC, 60 Hz		
MIL72ESTUZH-24	MIL72ASTUZH-24	24 VAC, 60 Hz	15-Min	Yes
MIL72ESTUZH-120	MIL72ASTUZH-120	120 VAC, 60 Hz		
MIL72ESTUZH220	MIL72ASTUZH220	220 VAC, 60 Hz		
MIL72ESTUZH-240	MIL72ASTUZH-240	240 VAC, 60 Hz		
Quartz with Battery Backup				
MIL72EQTUZH-24*	MIL72AQTUZH-24*	24 VAC, 50/60 Hz	15-Min	Yes
MIL72EQTUZH-120*	MIL72AQTUZH-120*	120 VAC, 50/60 Hz		
MIL72EQTUZ-24*	–	24 VAC, 50/60 Hz	15-Min	No
MIL72EQTUZ-120*	MIL72AQTUZ-120*	120 VAC, 50/60 Hz		
MIL72EQTUZ-240*	MIL72AQTUZ-240*	240 VAC, 50/60 Hz		

**Quartz Models operate on 12-24 VDC/VAC, 120 or 208/240 VAC, and 50/60 Hz and are Title 20 listed.*

LR3730 #E10694 2002/95/EC

Ratings	
Supply Voltage	24, 120, 220, 208/240 VAC, 60 Hz
Quartz Models	12, 24 VAC/VDC; 120, 208/240 VAC, 50/60 Hz
Power Consumption	
24 VAC	0.1 VA
120 VAC	0.5 VA
240 VAC	1.0 VA
Switch Type	SPDT
Resistive	21 A, 120-250 VAC
Tungsten	1350 W, 120 VAC
Motor	1 HP, 120 VAC; 2 HP, 250 VAC
Operating Temperature	-40° F to 185° F (-40° C to 85° C) -4° F to 131° F (-20° C to 55° C) with battery backup
Battery Backup Option	7-Day carry-over Q Models
Dimensions H x W x D	
Surface/DIN rail	4" x 2.83" x 2.06" (102.5 mm x 72 mm x 52 mm)
Flush Mount	2.60" x 2.83" x 1.36" (66 mm x 72 mm x 34.5 mm)
Flush Mount Cutout Dimensions	2 ⅝" x 2 ⅝" (66 mm x 66 mm)
Wiring Connections	
MIL72A	Screw terminal connections
MIL72E	¼" quick connects accept up to #12 AWG wire
Shipping Weight	1 lb. (.45 kg)
Warranty	1-year limited

Terminal Connections



SPECIFIERS GUIDE

Furnish and install a Grässlin MIL72 _____ (24-Hour) Time Switch with_____ (15-Minute) interval captive trippers and_____(Quartz)(Synchronous) drive. Input voltage shall be_____(12) (24) VDC, (12) (24) (120) (220) (208/240) VAC, and SPDT switch contacts shall be rated at 21A Resistive, 2 HP @ 250 VAC. To set the starting time and provide time indication, the unit shall incorporate an authentic clock face. Installation available for surface, flush and DIN Rail mounting. The time switch shall contain a 3-way ON/OFF/AUTO override. For carry-over: the time switch shall have a quartz drive with 7-Day reserve carry-over from a self-recharging battery.

MIL72 Series

21 A, 1-Circuit, 7-Day Timer Modules

The MIL72 series time switches are designed to be mounted inside a control panel and can accommodate surface/DIN rail or flush panel mounting. The MIL72 series is a light duty commercial time switch for 12, 24 VAC/VDC, 120 or 208/240 VAC single-phase applications.

Applications

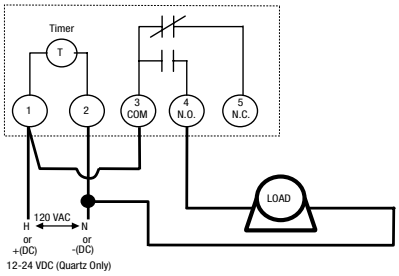
- Generator exercising • Commercial refrigeration
- Pumps/motor/fan control • Hydroponic systems
- Aerobic wastewater treatment systems • Boilers

Features

- 21 A SPDT switch
- Synchronous drive or quartz drive (Q Models) with self-recharging battery backup
- 7-Day carry-over battery backup on Q models
- Captive trippers with 2-hour intervals
- Available with or without override
- True clock face, easy-to-set
- Surface/DIN rail or flush mount
- Clear plastic dust cover
- Compact size

Wiring Diagrams

12-24VDC & 120VAC application



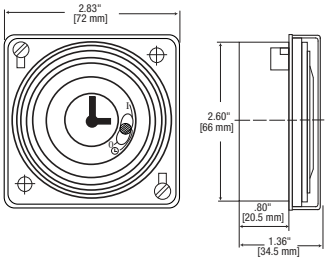
MIL72 Series

MIL72A

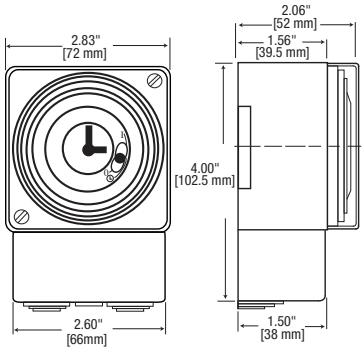
MIL72E

Dimensions

MIL72E Flush Mount with Clear Dust-cover



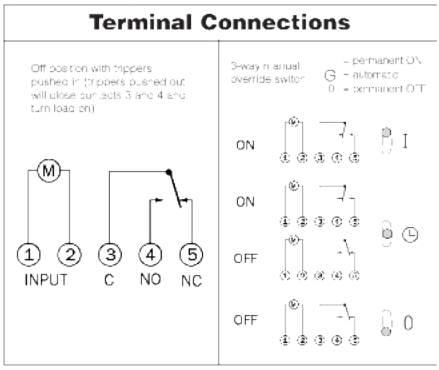
MIL72A Surface Mount with Clear Dust-cover



Model # Flush Mount (MIL72E)	Model # Surface Mount/ DIN Rail (MIL72A)	Volts AC	MIN ON/OFF Time	Override
Synchronous				
MIL72ESWUZ-24	**MIL72ASWUZ-24**	24 VAC, 60 Hz	2-Hr	No
MIL72ESWUZ-120	**MIL72ASWUZ-120**	120 VAC, 60 Hz		
MIL72ESWUZ-240	**MIL72ASWUZ-240**	208/240 VAC, 60 Hz		
MIL72ESWUZH-24	**MIL72ASWUZH-24**	24 VAC, 60 Hz	2-Hr	Yes
MIL72ESWUZH-120	**MIL72ASWUZH-120**	120 VAC, 60 Hz		
MIL72ESWUZH-240	**MIL72ASWUZH-240**	240 VAC, 60 Hz		
Quartz with Battery Backup				
MIL72EQWUZH-24*	**MIL72AQWUZH-24***	24 VAC, 50/60 Hz	2-Hr	Yes
MIL72EQWUZH-120*	**MIL72AQWUZH-120***	120 VAC, 50/60 Hz		
MIL72EQWUZH-240*	**MIL72AQWUZH-240***	240 VAC, 50/60 Hz		
MIL72EQWUZ-120*	**MIL72AQWUZ-120***	120 VAC, 50/60 Hz	2-Hr	No
–	**MIL72AQWUZ-240***	208/240 VAC, 50/60 Hz		

**Quartz Models operate on 12-24 VDC/VAC, 120 or 208/240 VAC, and 50/60 Hz and are Title 20 listed.*

Terminal Connections



SPECIFIERS GUIDE

Furnish and install a Grässlin MIL72 _____ (7-Day) Time Switch with_____ (2-Hour) interval captive trippers and_____(Quartz)(Synchronous) drive. Input voltage shall be_____ (12) (24) VDC, (12) (24) (120) (220) (208/240) VAC, and SPDT switch contacts shall be rated at 21 A Resistive, 2 HP, 250 VAC. To set the starting time and provide time indication, the unit shall incorporate an authentic clock face. Installation available for surface, flush and DIN Rail mounting. The time switch shall contain a 3-way ON/OFF/AUTO override. For carry-over: the time switch shall have a quartz drive with 7-Day reserve carry-over from a self-recharging battery.

LR3730 #E10694 2002/95/EC

Ratings	
Supply Voltage	24, 120, 208/240 VAC, 60 Hz
Quartz Models	12, 24 VAC/VDC; 120, 208/240 VAC, 50/60 Hz
Power Consumption	
24 VAC	0.1 VA
120 VAC	0.5 VA
240 VAC	1.0 VA
Switch Type	SPDT
Resistive	21 A, 120-250 VAC
Tungsten	1350 W, 120 VAC
Motor	1 HP, 120 VAC; 2 HP, 250 VAC
Operating Temperature	-40° F to 185° F (-40° C to 85° C) -4° F to 131° F (-20° C to 55° C) with battery backup
Battery Backup Option	7-Day carry-over Q Models
Dimensions H x W x D	
Surface/DIN rail	4" x 2.83" x 2.06" (102.5 mm x 72 mm x 52 mm)
Flush Mount	2.60" x 2.83" x 1.36" (66 mm x 72 mm x 34.5 mm)
Flush Mount Cut Out Dimensions	2 ⅝" x 2 ⅝" (66 mm x 66 mm)
Wiring Connections	
MIL72A	Screw terminal connections
MIL72E	¼" quick connects accept up to #12 AWG wire
Shipping Weight	1 lb. (.45 kg)
Warranty	1-year limited

Grässlin Mechanical Time Switches

Enclosed Timer Module, 24-Hour or 7-Day

GMXSW-O-120

#E10694 RoHS Compliant 2002/95/EC

Ratings	
Supply Voltage **Quartz Models**	24, 120, 208/240 VAC, 60 Hz 12, 24 VAC/VDC, 120, 208/240 VAC, 50/60 Hz
Power Consumption	1 VA
Switch Type	SPDT
Resistive	21 A, 120-250 VAC
Tungsten	1350 W, 120 VAC
Motor	1 HP, 120 VAC; 2 HP, 250 VAC
Operating Temperature	-40º F to 185º F (-40º C to 85º C) -4º F to 131º F (-20º C to 55º C) with battery backup
Operating Humidity	0 to 95% non-condensing
Battery Backup Option	7-Day carry-over Quartz Models
Dimensions **H x W x D**	10" x 6 ½" x 3 ¾" (25.4 cm x 16.5 cm x 9.5 cm)
Wiring Terminals	Screw terminal accepts up to #12 AWG wire
Shipping Weight	2 lbs. (.91 kg)
Warranty	1-year limited

GMX Series

21 A, General Purpose, 1-Circuit Time Controls

The GMX series time controls are universal mechanical time switches. They are a low cost alternative for applications that do not require more than 21 A or 2 HP @ 240 VAC. The unit is mounted in a UL Type 1 indoor or Type 3R outdoor plastic enclosure. The GMX is a light-duty commercial time switch ideal for 24, 120 or 208/240 VAC single-phase general applications.

Applications

- Lighting Control • HVAC • Pumps/motor/fan control
- General electrical circuits • Commercial refrigeration

Features

- 21 A SPDT Switch
- UL Type 1 indoor or Type 3R outdoor plastic enclosure
- Manual 3-way override
- Captive trippers with 15-minute intervals on 24-hour models and 2-hour intervals on 7-day models
- True clock face, easy-to-set
- Finger-safe terminals
- Enclosure provides space for field-added contactor or other accessories
- Synchronous drive or quartz drive ("Q" Models) with self-recharging battery backup

Model # Synchronous	Model # Quartz w/ Battery Backup* (7-Day Carry-over)	Voltage	MIN ON/OFF Time	Enclosure
24-Hour				
GMXST-I-120	**GMXQT-I-120***	120 VAC, 60 Hz	15-Min	Type 1 Indoor
GMXST-I-240	**	208/240 VAC, 60 Hz		Type 1 Indoor
GMXST-O-24	**	24 VAC, 60 Hz		Type 3R Rainproof
GMXST-O-120	**GMXQT-O-120***	120 VAC, 60 Hz		Type 3R Rainproof
GMXST-O-240	**	208/240 VAC, 60 Hz		Type 3R Rainproof
7-Day				
**	**GMXQW-I-24***	24 VAC, 60 Hz	2-Hr	Type 1 Indoor
GMXSW-I-120	**	120 VAC, 60 Hz		Type 1 Indoor
GMXSW-O-24	**	24 VAC, 60 Hz		Type 3R Rainproof
GMXSW-O-120	**GMXQW-O-120***	120 VAC, 60 Hz		Type 3R Rainproof
GMXSW-O-240	**GMXQW-I-240***	208/240 VAC, 60 Hz		Type 3R Rainproof

**Quartz Models operate on 12-24 VDC/VAC, 120 or 208/240 VAC, and 50/60 Hz and are Title 20 listed.*

***Considered upon request.*

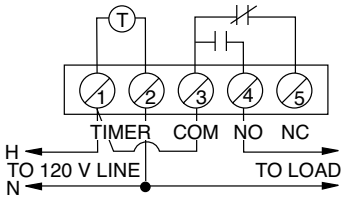
SPECIFIERS GUIDE

Furnish and install a Grässlin GMX_____ (24-Hour)(7-Day) Time Switch with_____ (15-Minute)(2-Hour) captive trippers and_____(Quartz)(Synchronous) drive. Input voltage shall be_____(12) (24) VDC, (12) (24) (120) (220) (208/240) VAC, and SPDT contacts shall be rated at 21 A, 2 HP @ 240 VAC. To set the starting time and provide time indication, the unit shall have an authentic clock face with hour and minute hands. Enclosure to be_____(UL Type 1)(UL Type 3R). The time switch shall contain a 3-way ON/OFF/AUTO manual override. The time control shall have a quartz drive with 7-Day reserve carry-over from a self-recharging battery.

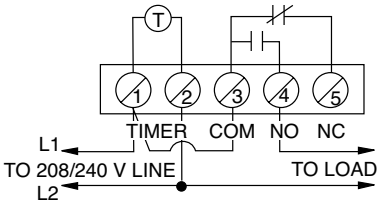
Wiring Diagrams

Typical Wiring for GMX Series

120 V Timer and Load



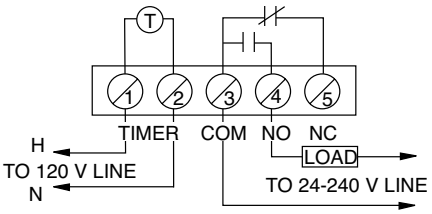
208/240 V Timer and Load



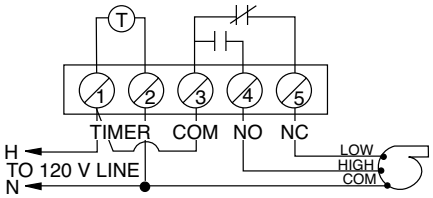
Wiring Diagrams

Typical Wiring for GMX Series

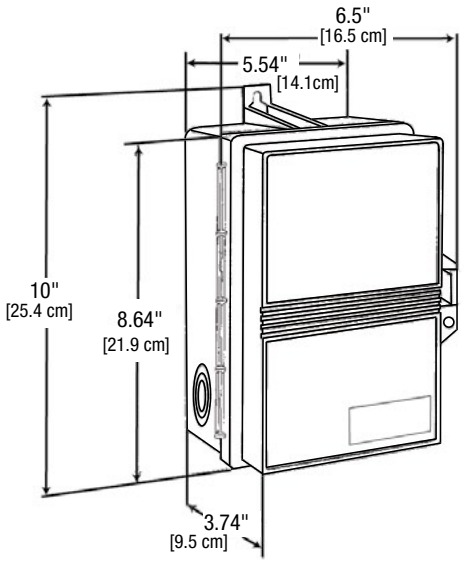
120 V Timer 24-240 V Load



120 V Two Speed Fan

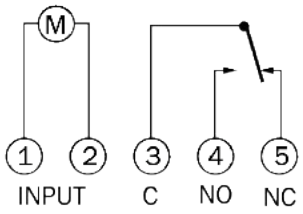


Enclosure Dimensions



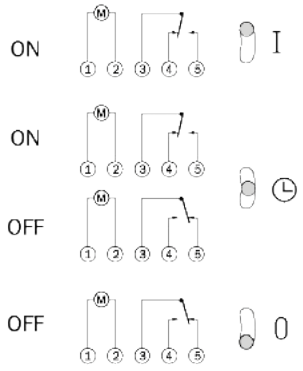
Terminal Connections

Off position with trippers pushed in (trippers pushed out will close contacts 3 and 4 and turn load on)



3-way manual override switch

I = permanent ON
◷ = automatic
0 = permanent OFF



12:00
AM
INTERMATIC

In-Wall Timers

Designed to take the place of standard in-wall switches, these programmable, full-featured timers can turn a variety of loads ON and OFF according to a 7-day, 24-hour, or countdown time schedule. They provide a convenient, cost-effective way to automate a wide variety of applications – from outdoor lighting and water features, to attic fans and garage lights – for increased productivity, security, and energy savings.

Timers with Astronomic clock functionality automatically adjust to seasons and determine dusk and dawn times, allowing for a "set it once and forget it" implementation.

Contents

7-Day Programmable Timers 54-55
24-Hour Programmable Timers 56-57
Electronic Countdown Timers.....58-59
Mechanical Spring Wound Countdown Timers 60-61

ST01

White

Ivory

Light Almond

Ratings	
Operating Voltage	120-277 VAC, 12-28 VDC
Resistive	
EI600	20 A, 120-277 VAC
ST01	15 A, 120-277 VAC
Inductive Ballast (Fluorescent)	
EI600	16 A, 120-277 VAC
ST01	8 A, 120 VAC; 4 A, 208-277 VAC
Incandescent	15 A, 120 VAC; 6A, 208-277 VAC
Motor	1 HP, 120 VAC; 2 HP, 240 VAC
DC Loads	4 A, 12 VDC; 2 A, 28 VDC
Operating Temperature	32° F to 104° F (0° C to 40° C)
Dimensions H x W x D	4 ⅛" x 1 ¾" x 1 $^{13}/_{16}$" (104.8 mm x 44.5 mm x 46 mm)
Warranty	
EI600	5-year limited
ST01	1-year limited

Note: Not for use with sunlamps, saunas, or loads that could cause personal injury if timed incorrectly.

Heavy-Duty 7-Day Programmable Timers

EI600 and ST01 Series

Highly versatile Heavy-Duty Timers are ideal for any application that requires a simple or complex ON/OFF schedule, regardless of load. No neutral connection is required.

Features

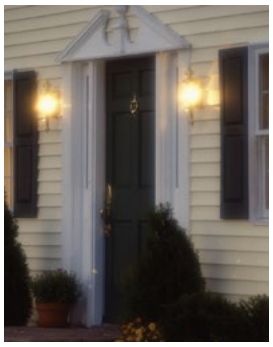
- Versatile 7-day programmable schedules with up to 40 ON/OFF events
- Astronomic Clock feature determines dawn and dusk times
- Automatic Daylight Saving Time (DST) adjustment
- Random mode varies ON/OFF schedule to provide a "lived-in" appearance
- Single or 3-way switch compatible installation
- Incandescent/fluorescent/CFL/LED compatible
- Isolated switch allows timer to be used with any load type, including AC and DC loads
- Replaceable CR2 lithium battery provides up to three years of operation
- No neutral wire connection enables easy retrofitting and quicker installation

White	Ivory	Light Almond	Max Load Handling Capability
EI600WC	**EI600C**	**EI600LAC**	20 A
ST01	—	**ST01A**	15 A

Note: For use with a standard decorator plate, not included.

7-Day/24-Hour Timer Applications

• Entryway lighting • Deck and landscape light controls • Attic fans • Pumps
• Small commercial – signage and store lighting • Hallway lighting



Standard 7-Day Programmable Timers - 15 A

EI500 Series

For installation on 15 A circuits, this timer provides 24-hour or 7-day programming of lights, fans, pumps and other medium-duty loads.

Features

- 7-day programmable schedules with 14 ON/OFF events
- Automatic Daylight Saving Time (DST) adjustment
- Random mode varies ON/OFF schedule to provide a "lived-in" appearance
- Single pole circuit
- Incandescent/fluorescent/CFL/LED compatible
- Built-in rechargeable, non-serviceable battery backup
- Requires neutral connection

White	Ivory	Light Almond
EI500WC	EI500C	EI500LAC

Note: For use with a standard decorator plate, not included.

White

Ivory

Light Almond

EI500LAC

Ratings	
Operating Voltage	125 VAC, 60 Hz
General Purpose	15 A
Resistive	15 A
Inductive Ballast (Fluorescent)	1000 VA
Electronic/LED Ballast	500 VA
Incandescent	1000 W
Motor	¼ HP
Operating Temperature	32° F to 104° F (0° C to 40° C)
Dimensions H x W x D	4 ⅛" x 1 ¾" x 1 7⁄16" (104.8 mm x 44.5 mm x 36.5 mm)
Warranty	1-year limited

Note: Not for use with sunlamps, saunas, or loads that could cause personal injury if timed incorrectly.

Standard 7-Day Programmable Timers - 12 A

EJ600 Series

A 12 A rated timer that provides full 7-day programming capabilities with dusk-to-dawn functionality, ideal for use with medium to low power loads.

Features

- 7-day programmable schedules with 14 ON/OFF events
- Astronomic clock feature determines dawn and dusk times
- Automatic Daylight Saving Time (DST) adjustment
- Random mode varies ON/OFF schedule to provide a "lived-in" appearance
- Single or 3-way switch compatible installation
- Incandescent/fluorescent/CFL/LED compatible
- Built-in rechargeable, non-serviceable battery backup
- Requires neutral connection

White	Light Almond
EJ600	EJ600A

Note: For use with a standard decorator plate, not included.

White

Light Almond

EJ600

Ratings	
Operating Voltage	120 VAC, 60 Hz
Resistive	12 A, 120 VAC
Inductive Ballast (Fluorescent)	500 VA
Incandescent	
Single-Gang	15 A, 120 VAC
Multi-Gang	12 A, 120 VAC
Motor	½ HP
Operating Temperature	32° F to 104° F (0° C to 40° C)
Dimensions H x W x D	4 ⅛" x 1 ¾" x 1 7⁄16" (104.8 mm x 44.5 mm x 36.5 mm)
Warranty	1-year limited

Note: Not for use with sunlamps, saunas, or loads that could cause personal injury if timed incorrectly.

EJ351

Electromechanical / Self-Learning 24-Hour Timer

EJ351

This simple-to-install, simple-to-use timer repeats a daily ON/OFF schedule when programmed or through the built-in self-learning mode. The self-learning mode observes the ON/OFF events in the first 24-hours of operation then repeats on subsequent days.

Features

- Up to 48 ON/OFF events per day
- Self-learning, repeats first 24-hour ON/OFF usage pattern if not programmed
- Random mode varies ON/OFF schedule to provide a "lived-in" appearance
- 15-Minute memory guard in event of power failure
- Compatible with incandescent lights only
- No neutral wire connection enables easy retrofitting and quicker installation

Ratings	
Operating Voltage	120 VAC, 60 Hz
Min. Load Requirement	40 W
Incandescent **Single-Gang** **Double-Gang**	 500 W 400 W
Operating Temperature	32° F to 104° F (0° C to 40° C)
Dimensions **H x W x D**	4 ¼" x 1 ¾" x 2 ⅛" (108 mm x 44.5 mm x 54 mm)
Warranty	1-year limited

Note: Not for use with CFL/LED lights.

Model #	Description
EJ351	White, Self-Learning Timer

Note: For use with a standard decorator plate or toggle switch plate, not included.

E1010

E1020

Heavy Duty Mechanical In-Wall Timers - 15 A

E1000 Series

These Heavy-Duty In-Wall Timers are ideal for turning on lights, fans, pumps, and other heavy duty loads for energy savings, security and convenience. The timer provides up to 12 ON and 12 OFF operations per day.

Features

- E1010 includes one ON/OFF permanently attached tripper for single ON/OFF control per 24-hour period
- E1020 includes two ON/OFF trippers and can accommodate up to 12 ON/OFF trippers
- Programmable in 30-minute intervals
- Turns ON/OFF heavy-duty loads for energy savings, security, and convenience
- Mounts to any standard junction box
- Requires neutral connection

Ratings:	
Operating Voltage	125 VAC, 60 Hz
Resistive	15 A
Incandescent	1500 W
Motor	12 FLA
Dimensions **H x W x D**	4 ¼" x 3 ¼" x 1 ⅜" (108 mm x 82.6 mm x 34.9 mm)
Warranty	1-year limited

Model #	Description
E1010	White with Permanent Trippers
E1020	White with Removable Trippers

Accessories and Replacement

Trippers for E1020 (two-pack)	156EB1954A

Heavy-Duty Mechanical In-Wall Timers - 20 A

KM2 Series

For installing on circuits up to 20 A, this timer provides automatic 24-hour ON/OFF control of outdoor/indoor lighting, fans, pumps, office equipment and other types of loads.

Features

- 72 trippers provide 36 ON/OFF events per 24-hour period
- Captive trippers with 20-minute switching intervals
- 3-way (SPDT) switch available
- 3 position ON/OFF/AUTO override provides continuous ON or OFF operation
- Reliable synchronous timer motor
- Multiple wall plates available
- Easy wiring and installation
- Heavy-Duty 20 A rating
- Requires neutral connection

Model #	Wall Plate Configuration	
Single Switch (SPST)		
KM2ST-1G	Timer Only	
KM2ST-2G	Timer + Toggle Switch	2-Gang
KM2ST-3G		3-Gang
KM2ST-4G		4-Gang
KM2ST-2D	Timer + Decorator Switch	2-Gang
KM2ST-3D		3-Gang
KM2ST-2R	Timer + Receptacle	2-Gang
3-Way Switch (SPDT)		
KM2STU-1G	Timer Only	

Accessories/Replacement

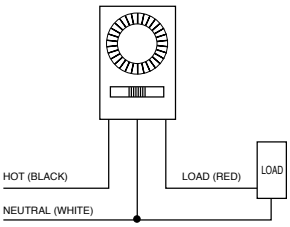
Faceplates See page 170 for full list

Ratings	
Operating Voltage	120 VAC, 60 Hz
Resistive	20 A
Incandescent	1350 W, 120 VAC
Motor	1 HP, 120 VAC
Operating Temperature	-40° F to 180° F (-40° C to 82° C)
Relative Humidity	0 to 95%, non-condensing
Wiring Terminals	
SPST	(3) #14 AWG color coded
SPDT	(4) #14 AWG color coded
Warranty	1-year limited

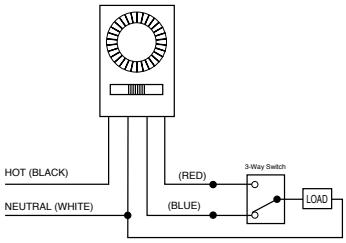
KMS2T-IG

Wiring Diagrams

Standard Installation

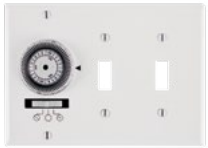


3-Way Installation



Timer Toggle Switch Plate

2-Gang

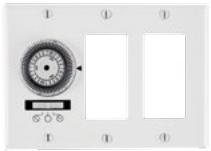


3-Gang

4-Gang

Timer and Decorator Switch Plate

2-Gang



3-Gang

Timer and Receptacle Plate

2-Gang

EI400WC

White

Ivory

Light Almond

Programmable Electronic Countdown Timer

EI400 Series

Offering a programmable countdown time between one-second and 24-hours, this versatile timer can handle any application, regardless of load type. No neutral connection is required.

Features

- Programmable countdown time interval from one-second to 24-hours
- Settings stored in non-volatile memory
- Optional audible and/or visual warning of impending load switch OFF
- Lockable settings help avoid unintended changes
- Single pole or 3-way switch compatible installation
- Incandescent/fluorescent/CFL/LED compatible
- Isolated switch allows timer to be used with any load type including AC and DC loads
- Replaceable CR2 lithium battery provides up to three years of operation
- No neutral wire connection enables easy retrofitting and quicker installation

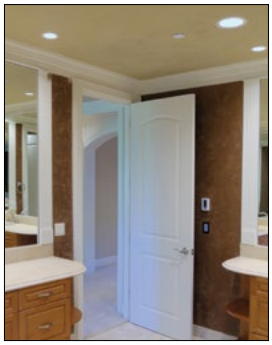
White	Ivory	Light Almond
EI400WC	EI400C	EI400LAC

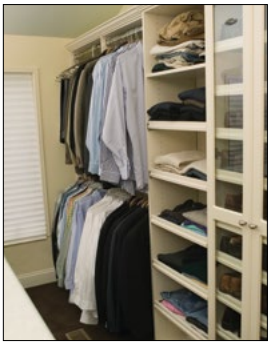
Ratings	
Operating Voltage	120-277 VAC 12-28 VDC
Resistive	20 A
Incandescent	15 A ,120 VAC 6 A, 208-277 VAC
Inductive Ballast (Fluorescent)	16 A, 120-277 VAC
Motor	1 HP, 120 VAC 2 HP, 240 VAC
DC Loads	4 A, 12 VDC 2 A, 28 VDC
Operating Temperature	32° F to 122° F (0° C to 50° C)
Dimensions H x W x D	4 ⅛" x 1 ¾" x 1 ⁹⁄₁₆" (104.8 mm x 44.5 mm x 46 mm)
Warranty	5-year limited

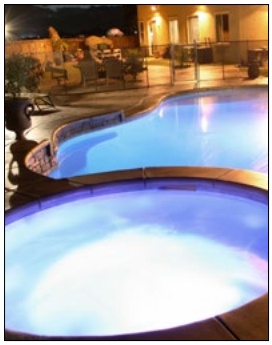
Note: Not for use with sunlamps, saunas, or loads that could cause personal injury if timed incorrectly.

Countdown Timer Applications

• Bathroom fans • Spas • Hot tubs • Storage closets • Garage lights







Electronic Countdown Timers with Preset Times

EI200 Series

This timer requires no programming; preset countdown times are activated by pressing a single button. Silent operation makes this timer ideal for applications where the noise of mechanical countdown timers is of concern.

Features

- Provides silent operation in time ranges from five minutes to 12 hours
- Single button time selection, with some models having a HOLD mode, for continuous ON operation
- Replaces single-pole switches in a variety of applications
- Incandescent/fluorescent/CFL/LED compatible
- For use with decorator-style wall plate (not included)
- Requires neutral connection

White

Ivory

Light Almond

Without HOLD
EI235W

With HOLD
EI200W

White	Ivory	Light Almond	Preset Times
Without HOLD			
EI205W	**EI205**	**EI205LA**	5 Min - 15 Min - 30 Min - 45 Min - 1 Hr
EI215W	**EI215**	**EI215LA**	15 Min - 30 Min - 1 Hr - 2 Hr - 4 Hr
EI235W	**EI235**	**EI235LA**	15 Min - 30 Min - 45 Min - 1 Hr - 2 Hr
With HOLD			
EI200W	**EI200**	**EI200LA**	5 Min - 10 Min - 15 Min - 30 Min
EI210W	**EI210**	**EI210LA**	10 Min - 20 Min - 30 Min - 60 Min
EI220W	**EI220**	**EI220LA**	1 Hr - 2 Hr - 4 Hr - 8 Hr
EI230W	**EI230**	**EI230LA**	2 Hr - 4 Hr - 8 Hr - 12 Hr

Ratings	
Operating Voltage	120 VAC, 60 Hz
Resistive	15 A, 1800 W
Inductive Ballast (Fluorescent)	8 A, 1000 VA
Electronic/LED Ballast	500 VA
Incandescent	8.3 A, 1000 W
Motor	¼ HP
Operating Temperature	32° F to 122° F (0° C to 50° C)
Dimensions H x W x D	4 ⅛" x 1 $^{11}/_{16}$" x 1 $^{7}/_{16}$" (104.8 mm x 42.93 mm x 36.5 mm)
Warranty	1-year limited

Note: Not for use with sunlamps, saunas, or loads that could cause personal injury if timed incorrectly.

Without HOLD
FD60MWC

With HOLD
FD6HHW

White

Ivory

Light Almond

Spring Wound Countdown Timers - Decorator Style

FD Series

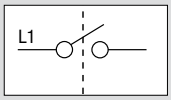
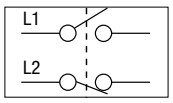
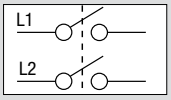
The FD Series Decorator Countdown Timers are designed to replace any standard or decorator style wall switch, single or multi-gang. These mechanical timers do not require electricity to operate. They automatically limit the ON times for fans, lighting, motors, heaters, and other energy consuming loads.

Features

- No electricity required to operate
- Replaces any standard or decorator single or multi-gang wall switch
- Automatically limits ON time for energy consuming loads
- Quick and easy installation
- Time-saving up front terminal connection with teeter-type terminals
- Models available from 5-minute to 12-hour countdown time intervals
- Incandescent/fluorescent/CFL/LED compatible
- No neutral connection is required

Ratings	
Operating Voltage	125-277 VAC, 60 Hz
Resistive	20 A, 125 VAC; 10 A, 250/277 VAC
Tungsten/Incandescent	7 A, 125 VAC
Motor	1 HP, 125 VAC 2 HP, 250 VAC
Operating Temperature:	32º F to 104º F (0º C to 40º C)
Dimensions H x W x D	4 ⅛" x 1 ¾" x 1 ¼" (104.8 mm x 44.5 mm x 31.8 mm)
Warranty	1-year limited

Note: Not for use with sunlamps, saunas, or loads that could cause personal injury if timed incorrectly.

Without HOLD			With HOLD			
White	Ivory	Light Almond	White	Ivory	Maximum Time	Switch Type
SPST						
FD5MW	**FD5M**	–	–	–	5 Min	 **SPST** Configuration
FD15MWC	**FD15MC**	**FD15MAC**	**FD15MHW**	**FD15MH**	15 Min	
FD30MWC	**FD30MC**	**FD30MAC**	**FD30MHW**	**FD30MH**	30 Min	
FD60MWC	**FD60MC**	**FD60MAC**	**FD60MHW**	**FD60MH**	60 Min	
FD2HW	**FD2H**	–	–	–	2 Hr	
FD4HW	**FD4H**	–	–	–	4 Hr	
FD6HW	**FD6H**	–	**FD6HHW**	**FD6HH**	6 Hr	
FD12HWC	**FD12HC**	–	**FD12HHW**	**FD12HH**	12 Hr	
2-Circuit (1) NO + (1) NC						
FD32HW	**FD32H**	–	–	–	2 Hr	 *For **SPDT** Configuration Jumper L1 & L2 Together
FD34HW	**FD34H**	–	–	–	4 Hr	
FD36H		–	–	–	6 Hr	
DPST						
-	**FD415M**	–	–	–	15 Min	 **DPST** Configuration
FD430MW	**FD430M**	–	–	–	30 Min	
FD460MW	**FD460M**	–	–	–	60 Min	
FD46HW	**FD46H**	–	–	–	6 Hr	

Note: For use with decorator or toggle-style switch plates (not included).

Accessories/Replacement

Knob-Wall Switch FD Series - Ivory	146MT573
Knob-Wall Switch FD Series - White	146MT574
Knob-Wall Switch FD Series - Almond	146MT575
Faceplates	See page 170

Spring Wound Countdown Timers - Commercial

FF Series

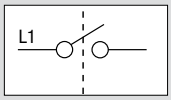
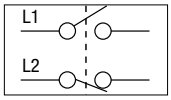
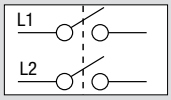
The FF Series Commercial Countdown Timers are designed to replace any standard wall switch and do not require electricity to operate. These energy-efficient switches automatically limit the ON times for fans, lighting, motors, heaters, and other energy consuming loads. A commercial "brushed metal" look plate (plastic construction) meets NEC requirements.

Features

- No electricity required to operate
- Replaces any standard single or multi-gang wall switch
- Automatically limits ON time for energy consuming loads
- Quick and easy installation
- Time-saving up front terminal connection with teeter-type terminals
- Brushed metal look switch plate meets NEC requirements (plate is included)
- Incandescent/fluorescent/CFL/LED compatible
- No neutral connection is required

Without HOLD
FF5M

With HOLD
FF6HH

Without HOLD	With HOLD	Maximum Time	Switch Type
SPST			
FF5M	FF5MH	5 Min	 **SPST** Configuration
FF15MC	FF15MH	15 Min	
FF30MC	FF30MH	30 Min	
FF60MC	FF60MHC	60 Min	
FF2H	–	2 Hr	
FF4H	–	4 Hr	
FF6H	FF6HH	6 Hr	
FF12HC	FF12HHC	12 Hr	
2 Circuit (1) NO + (1) NC			
FF315M	–	15 Min	 *For **SPDT** Configuration Jumper L1 & L2 Together
FF330M	–	30 Min	
FF360M	–	60 Min	
FF32H	FF32HH	2 Hr	
FF34H	FF34HH	4 Hr	
FF36H	–	6 Hr	
FF312H	FF312HH	12 Hr	
DPST			
FF415M	–	15 Min	 **DPST** Configuration
FF430M	–	30 Min	
FF460M	–	60 Min	
FF46H	–	6 Hr	
FF412H	–	12 Hr	

Accessories/Replacement

Knob-Wall Switch FF Series - White	146MT577
Knob-Wall Switch FF Series - Black	146MT579
Faceplates	See page 170

Ratings	
Operating Voltage	125-277 VAC, 60 Hz
Resistive	20 A, 125 VAC; 10 A, 250/277 VAC
Incandescent	7 A, 125 VAC
Motor	1 HP, 125 VAC 2 HP, 250 VAC
Operating Temperature	32° F to 104° F (0° C to 40° C)
Dimensions H x W x D	4 ⅛" x 1 ¾" x 1 ¼" (104.8 mm x 44.5 mm x 31.8 mm)
Warranty	1-year limited

Note: Not for use with sunlamps, saunas, or loads that could cause personal injury if timed incorrectly.

AUTO
8:42
PM
WE
OK
MODE
PROG
ON/OFF

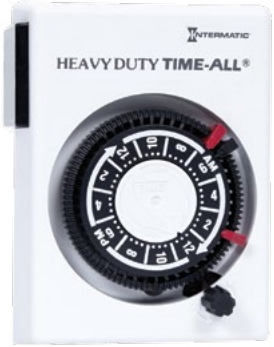
Plug-In Timers

Plug-in Timers help keep homes safe and comfortable by curtailing energy consumption of electrical devices. Intermatic offers a timer for any need big or small, such as appliances, outdoor lighting, fans, pumps and air conditioners.

A versatile product line-up includes mechanical, digital, indoor and outdoor timers. They feature flexible scheduling and user-friendly programming, along with multiple-events scheduling, an Astronomic dusk-to-dawn function, automatic Daylight Saving Time adjustments, and to-the-minute accuracy.

Contents

Indoor..... 64-65
Outdoor..... 66-67



HB110 Series

HB113

HB112

HB114

Heavy-Duty Appliance Plug-In Timers

HB110 Series

Plug-in timers provide 24-hour ON/OFF scheduling for high power appliances, such as window mounted air conditioners, by accepting their specialized NEMA plugs.

Features

- 2 ON/2 OFF settings per day with removable trippers, more ON/OFF events with addition of extra trippers
- Minimum 30-min ON/OFF time
- Manual ON/OFF Override
- Grounded 125 and 240 V NEMA receptacle and plug
- Plugs directly into wall outlet

Model #	Volt	Amp	Rcpt/Plug
HB113	125 V	20 A	5-20
HB112	240 V	15 A	6-15
HB114		20 A	6-20

Accessories/Replacements

ON Tripper - Red	107SB189
OFF Tripper - Black	107SB192

Ratings	
Operating Voltage	
HB113	125 VAC, 60 Hz
HB112, HB114	240 VAC, 60 Hz
Resistive	
HB113, HB114	20 A
HB112	15 A
Inductive Ballast	8 A
Tungsten (HB113)	1250 W
Pilot Duty	
HB113	576 VA
HB112, HB114	768 VA
Motor	
HB113	1 HP
HB112, HB114	2 HP
Air Conditioner	
HB113	12 A
HB112, HB114	8 A
Dimensions H x W x D	4 ¼" x 3" x 2 ⅛" (108 mm x 76 mm x 54 mm)
Warranty	1-year

Note: Not for use with sunlamps, saunas, or load that could cause personal injury if timed incorrectly.

Indoor Applications

• Lamps • Appliances • Electronics • Heaters • Window Air Conditioning • Chargers

Heavy-Duty 24-Hour Mechanical Plug-In Timer

TN311 Series

Plug-in timer provides a quick and easy way to automate ON/OFF schedules and plugs into a regular outlet.

Features

- 3 ON/3 OFF settings per day with removable trippers, more ON/OFF events with addition of extra trippers
- Minimum 30-min ON/OFF time
- Grounded receptacle and 3-prong plug
- Plugs directly into wall outlet

Model #	Volt	Amp	Rcpt/Plug
TN311	125 V	15 A	5-15

Accessories/Replacements

ON Tripper - Turquoise	107TN222
OFF Tripper - Red	107TN221

TN311

1x

Ratings	
Operating Voltage	125 VAC, 60 Hz
Resistive	15 A
Inductive Ballast	15 A
Tungsten/Incandescent	1875 W
Motor	⅓ HP
Dimensions H x W x D	3 ⅛" x 3" x 2" (79 mm x 76 mm x 51 mm)
Warranty	5-year limited

Heavy-Duty 7-Day Digital Plug-In Timer

DT620 Series

Full feature plug-in timer provides full 7-day programming with astronomical clock and Daylight Saving Time (DST) adjustment in a convenient plug-in for quick and easy automation.

Features

- 28 ON/OFF programmable events
- Full 7-day programming options, including astronomical clock, automatic DST adjustment, and random mode
- Two grounded receptacles and 3-prong plug
- LR44 battery backup (included)
- Plugs directly into wall outlet

Model #	Volt	Amp	Rcpt/Plug
DT620	120 V	15 A	5-15

DT620

2x

Ratings	
Operating Voltage	120 VAC, 60 Hz
Resistive	15 A
Inductive Ballast	12 A
Tungsten/Incandescent	1000 W
Motor	½ HP
Dimensions H x W x D	3 3/16" x 3 5/16" x 2 ¼" (81 mm x 84 mm x 57 mm)
Warranty	1-year

P1101

P1121

P1131

Outdoor Mechanical Plug-In Timers With Built-In Enclosure

P1100 Series

These plug-in timers are grounded and utilize a flip-open enclosure rated for outdoor use. Great for providing timer function to pumps, landscaping or holiday lighting.

Features

- 2 ON/2 OFF settings per day with removable trippers, more ON/OFF events with addition of extra trippers
- Minimum 30-min ON/OFF time
- Built into outdoor rated enclosure with clear or black flip cover
- Grounded standard or twist-lock style NEMA plug and receptacle
- Plugs directly into wall outlet

Ratings	
Operating Voltage	120 VAC, 60 Hz
Resistive	
P1101, P1121	15 A
P1131	20 A
Tungsten/Incandescent	
P1101	1800 W
P1121	1800 W
Motor	1 HP
Dimensions H x W x D	
P1101, P1131	5 ⅜" x 5 ⅛" x 2 ½" (137 mm x 130 mm x 64 mm)
P1121	5 ⅝" x 3 ⅝" x 3 ¼" (137 mm x 92 mm x 83 mm)
Warranty	1-year limited

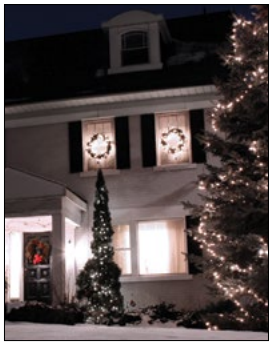
Model #	Volt	Amp	Rcpt/Plug	Cord length	Cover
P1101	120 V	15 A	5-15	22"	Clear
P1121				13"	Black
P1131		20 A	L5-20	22"	Clear

Accessories/Replacements

ON Tripper - Red	107TN221
OFF Tripper - Turquoise	107TN222
Kit - Two ON/OFF Trippers	156PB10398A

Outdoor Applications

• Pumps • Water Fountains • Aerators • Landscape/Holiday Lighting • Engine Block Heaters



Heavy-Duty Outdoor Mechanical Plug-In Timers

TN111RM40

Plug-in timer rated for installation into a Type 3R outdoor low voltage transformer enclosure. Simple implementation of ON/OFF schedule.

Features

- 2 ON/2 OFF settings per day with removable trippers, more ON/OFF events with addition of extra trippers
- Minimum 30-min ON/OFF time
- Rated for outdoor when used in a Type 3R enclosure
- Manual override dial

TN111RM40

Model #	Volt	Amp	Rcpt/Plug
TN111RM40	125 V	15 A	1-15

Ratings	
Operating Voltage	125 VAC, 60 Hz
Resistive	9 A (1125 W)
Inductive Ballast	9 A
Dimensions H x W x D	3 ⅛" x 3" x 2" (79 mm x 76 mm x 51 mm)
Warranty	1-year limited

Accessories/Replacements

ON Tripper - Red	107TN221
OFF Tripper - Turquoise	107TN222
Kit - Two ON/OFF Trippers	156PB10398A

Heavy-Duty 7-Day Outdoor Digital Plug-In Timers

HB880R

Full feature plug-in timer provides 7-day programming in a weatherproof enclosure with astronomical clock and Daylight Saving Time (DST) adjustment in a convenient plug-in for quick and easy automation.

Features

- 14 ON/OFF programmable events
- Full 7-day programming options, including astronomical clock, automatic DST adjustment, and random mode
- Rainproof, outdoor rated enclosure with two grounded receptacles
- 3-prong plug on a 24" long cord
- Incandescent/fluorescent/CFL/LED compatible
- AA battery backup (included)
- Plugs directly into wall outlet

HB880R

Model #	Volt	Amp	Rcpt/Plug
HB880R	120	15 A	5-15

Ratings	
Operating Voltage	120 VAC, 60 Hz
Resistive	15 A
Inductive Ballast	8.3 A
Electronic/LED Ballast	500 VA
Tungsten/Incandescent	1000 W
Motor	½ HP
Dimensions H x W x D	5 ⅜" x 5 1⁄16" x 1 ⅞" (137 mm x 129 mm x 48 mm)
Warranty	1-year limited

Occupancy Sensors

Intermatic offers a broad selection of In-Wall and Ceiling Mount Sensors in both PIR (Passive Infrared) and Dual (PIR/Ultrasonic) technologies. Sensors offer energy savings by automatically turning lights off when spaces are unoccupied. When achieving maximum energy efficiency is critical, Intermatic sensors are California Title 20 compliant and can be used to achieve LEED certification.

Intermatic occupancy sensors are ideal for use in offices, industrial/warehouses, single and multifamily homes, schools, hospitals, and nursing/rehabilitation centers.

Contents

Low-Voltage Ceiling Mount 70
Line Voltage Ceiling Mount 71
Commercial Grade In-Wall 72
Residential Grade In-Wall 73

IOS-CMP-DT-LV

Ratings	
Operating Voltage	24 VDC
Current Consumption	20 mA
Power Supply	IOS-PP24
Coverage Pattern	360°, 1600 ft² PIR, 1000 ft² Ultrasonic
Adjustable Light Level	10 fc to daylight
Adjustable Time Delay	5 sec to 30 min
Operating Temperature	32° F to 122° F (0° C to 50° C)
Dimensions H x Dia	1 ⅜" x 4 ⁹⁄₁₆" (35 mm x 116 mm)
Warranty	2-year limited

Low-Voltage Ceiling Mount Dual Tech Sensor

IOS-CMP-DT-LV

This ceiling mount sensor detects presence using a combination of Passive Infrared (PIR) and ultrasonic technologies, and in conjunction with a remote power pack unit, turns the load ON and OFF when presence is detected.

Features

- Ultrasonic and PIR sensing for presence detection, even in areas with partitions and/or with small movements
- Low-voltage, ceiling mounted sensor
- Coverage: 360°, 1600 ft² PIR, 1000 ft² Ultrasonic mounted on 8 to 11 ft ceiling
- Adjustable time delay
- Adjustable ambient light sensor override
- Powered by IOS-PP24 power pack, sold separately

Model #	Description	Technology
IOS-CMP-DT-LV	Low-Voltage Ceiling Mount Sensor	Dual Technology (PIR/Ultrasonic)

IOS-CMP-LV

Ratings	
Operating Voltage	24 VDC
Power Supply	IOS-PP24
Coverage Pattern	360°, 1200 ft²
Adjustable Light Level	10 fc to 150 fc
Adjustable Time Delay	15 sec to 30 min
Operating Temperature	32° F to 122° F (0° C to 50° C)
Dimensions H x Dia	1 ⅜" x 4 ⁹⁄₁₆" (35 mm x 116 mm)
Warranty	2-year limited

Low-Voltage Ceiling Mount PIR Sensor

IOS-CMP-LV

This ceiling mount sensor detects presence using Passive Infrared (PIR) technology and, in conjunction with a remote power pack unit, turns the load ON and OFF when presence is detected.

Features

- PIR sensing for presence detection
- Low-voltage, remote-mounted sensor
- Coverage: 1200 ft² when mounted on 8 to 11 ft ceiling
- Adjustable time delay and optional walk-through detection mode
- Adjustable ambient light sensor override
- Powered by IOS-PP24 power pack, sold separately

Model #	Description	Technology
IOS-CMP-LV	Low-Voltage Ceiling Mount Sensor	PIR

IOS-PP24

Ratings	
Operating Voltage	120-277 VAC, 50/60 Hz
Inductive	20 A, 120/240/277 VAC
Incandescent	15 A, 120 VAC
Motor	1 HP, 120/240 VAC
Operating Temperature	32° F to 131° F (0° C to 55° C)
Dimensions H x W x D	2 ¾" x 1 ¹⁵⁄₁₆" x 1 ⅝" (70 mm x 49 mm x 41 mm)
Warranty	2-year limited

Low-Voltage Power Pack

IOS-PP24

Features

- For use with Low-Voltage Occupancy Sensors IOS-CMP-LV and IOS-CMP-DT-LV
- Controls up to six low-voltage sensors
- Zero-crossing technology for long life and performance
- Incandescent/Fluorescent/CFL/LED compatible

Model #	Description	Technology
IOS-PP24	Power Pack	Zero-crossing

Line Voltage Ceiling Mount Dual Tech Sensor

IOS-CMP-DT-U

This ceiling mount unit turns lights ON and OFF when presence is detected using a combination of Ultrasonic and Passive Infrared (PIR) sensing technologies.

Features

- Ultrasonic and PIR sensing improves presence detection while avoiding false triggers, even in areas with partitions and/or small movements
- Zero-crossing technology for long life and performance
- Coverage: 360°, 1600 ft² PIR, 1000 ft² Ultrasonic mounted on 8 to 11 ft ceiling
- Adjustable ambient light sensor override
- Requires neutral connection

Model #	Description	Technology
IOS-CMP-DT-U	Line Voltage Ceiling Mount Sensor	Dual Technology (PIR/Ultrasonic)

IOS-CMP-DT-U

Ratings	
Operating Voltage	120/277 VAC, 50/60 Hz
Electronic Ballast	5 A, 120/277 VAC, 50/60 Hz
Incandescent	800 W, 120 VAC, 50/60 Hz
Motor	¼ HP, 120 VAC, 50/60 Hz
Coverage Pattern	360° 1600 ft² PIR, 1000 ft² Ultrasonic
Adjustable Light Level	10 fc to daylight
Adjustable Time Delay	5 sec to 30 min
Operating Temperature	32° F to 122° F (0° C to 50° C)
Dimensions H x Dia	1 ⅜" x 4 ⅝" (35 mm x 116 mm)
Warranty	2-year limited

Line Voltage Ceiling Mount PIR Sensor

IOS-CMP-U

Using Passive Infrared (PIR) sensing technology, this ceiling mount unit turns lights ON and OFF when presence is detected in a room without partitions or obstructions.

Features

- PIR technology sensing for presence detection
- Coverage: 1200 ft² when mounted on 8 to 11 ft ceiling
- Zero-crossing technology for long life and performance
- Adjustable ambient light sensor override
- Requires neutral connection

Model #	Description	Technology
IOS-CMP-U	Line Voltage Ceiling Mount Sensor	PIR

IOS-CMP-U

Ratings	
Operating Voltage	120-277 VAC, 60 Hz
Resistive	10 A, 120 VAC, 60 Hz
Electronic Ballast	800 VA, 120 VAC, 60 Hz; 1600 VA, 277 VAC, 60 Hz
Tungsten/Incandescent	800 W, 120 VAC, 60 Hz
Motor	¼ HP, 120 VAC, 60 Hz
Coverage Pattern	360° 1200 ft²
Adjustable Light Level	10 fc to 150 fc
Adjustable Time Delay	15 sec to 30 min
Operating Temperature	32° F to 131° F (0° C to 55° C)
Dimensions H x Dia	1 ⅜" x 4 ⅝" (35 mm x 116 mm)
Warranty	2-year limited

High Bay/Fixture Mount PIR Sensor

IOS-HB-U

For installation on High Bay Light Fixtures. Provides ON/OFF control of lights by presence in warehouses and other industrial spaces.

Features

- Passive Infrared (PIR) sensing for presence detection
- Two lenses included
- Coverage: 1200 ft² (Lens 1) or 2800 ft² (Lens 2) when mounted at 15 to 50 ft
- Zero-crossing technology for long life and performance
- Adjustable ambient light sensor override

Model #	Description	Technology
IOS-HB-U	High Bay/Fixture Mount Sensor	PIR

Lens 2

IOS-HB-U

Ratings	
Operating Voltage	120-277 VAC, 60 Hz
Resistive	10 A, 120 VAC, 60 Hz
Electronic Ballast	800 VA, 120 VAC, 60 Hz; 1600 VA, 277 VAC, 60 Hz
Tungsten/Incandescent	800 W, 120 VAC, 60 Hz
Motor	¼ HP, 120 VAC, 60 Hz
Coverage Pattern	360° 1200 ft² (lens 1) 2800 ft² (lens 2)
Adjustable Light Level	10 fc to 150 fc
Adjustable Time Delay	15 sec to 30 min
Operating Temperature	32° F to 131° F (0° C to 55° C)
Dimensions H x Dia	2 ¾" x 4" (70 mm x 102 mm)
Warranty	2-year limited

IOS-DOV-DT-WH

Line Voltage In-Wall Dual Tech Switch

IOS-DOV-DT-WH

This Occupancy/Vacancy in-wall switch unit can be used as a replacement to a standard wall switch to turn lights ON and OFF when presence is detected by a combination of Ultrasonic and PIR sensing technologies.

Features

- Ultrasonic and Passive Infrared (PIR) sensing for presence detection, even in areas with partitions and/or with small movements
- Coverage: 180°, 1200 ft² PIR, 400 ft² Ultrasonic
- Zero-crossing technology for long life and performance
- Adjustable time delay
- Optional walk-through detection mode
- Adjustable ambient light sensor override
- Requires neutral connection
- Fits standard decorator wall plate (included)

Ratings	
Operating Voltage	120/277 VAC, 50/60 Hz
Electronic Ballast	5 A, 120/277 VAC, 50/60 Hz
Incandescent	800 W, 120 VAC, 50/60 Hz
Motor	¼ HP, 120 VAC, 50/60 Hz
Coverage Pattern	180°, 1200 ft² PIR, 400 ft² Ultrasonic
Adjustable Light Level	10 fc to Daylight
Adjustable Time Delay	15 sec to 30 min
Operating Temperature	32° F to 122° F (0° C to 50° C)
Dimensions H x W x D	1 ¾" x 1 5⁄16" x 2 ⅝" (44 mm x 33 mm x 67 mm)
Warranty	2-year limited

Model #	Description	Technology
IOS-DOV-DT-WH	Line Voltage In-Wall Switch	Dual Technology (PIR/Ultrasonic)

IOS-DOV-WH

IOS-DDR-WH

Ivory

Self-Adaptive In-Wall PIR Sensor Switch

IOS-DSR/DOV/DDR Series

These in-wall switches detect presence using PIR sensing technology. They have a self-adjusting feature that optimizes delay-off time based on actual occupancy.

Features

- Passive Infrared (PIR) sensing for presence detection
- Coverage: 180°, 1200 ft² with non-obstructed views
- User-selectable Vacancy or Occupancy switch mode
- Zero-crossing technology for long life and performance
- Automatic self-adaptive time delay based on occupancy patterns
- IOS-DSR/DDR models feature optional walk-through detection mode
- Adjustable ambient light sensor override
- Incandescent/Fluorescent/CFL/LED compatible
- IOS-DOV models require a neutral connection
- Fits standard decorator wall plate (included)

Ratings	IOS-DOV	IOS-DDR
Operating Voltage	120 VAC, 60 Hz	120/277 VAC, 60 HZ
Resistive	800 W, 120 VAC, 60 Hz	
Inductive Ballast	800 VA, 120 V, 60 Hz	800 VA, 120 V, 1600 VA, 277 V, 60 Hz
Incandescent	800 W, 120 V, 60 Hz	
Motor	¼ HP, 120 V, 60 Hz	
Coverage Pattern	180°, 1200 ft²	
Adjustable Light Level	30 Lux to Daylight	
Adjustable Time Delay	15 sec to 30 min	
Operating Temperature	32° F to 131° F (0° C to 55° C)	
Dimensions H x W x D	1 ¾" x 1 5⁄16" x 2 ⅝" (44 mm x 33 mm x 67 mm)	
Warranty	5-year limited	

Model #		Circuits	Require Neutral	Nightlight
White	**Ivory**			
IOS-DSR-WH	**IOS-DSR-IV**	1 Circuit	No	No
IOS-DOV-WH	**IOS-DOV-IV**		Yes	No
IOS-DOV-NL-WH	**IOS-DOV-NL-IV**			Yes
IOS-DDR-WH	**IOS-DDR-IV**	2 Circuits	No	No

Residential Grade In-Wall PIR Vacancy and Occupancy Sensor Switches

IOS-DPB Series

These in-wall switches detect presence using PIR sensing technology. They provide automatic OFF (vacancy switches) or ON/OFF (occupancy switches) for small to medium size rooms.

Features

- Passive Infrared (PIR) sensing for presence detection
- Adjustable PIR sensitivity
- Adjustable time delay 15 sec to 30 min
- Adjustable ambient light sensor override for occupancy switch models
- Coverage: 150º, 980 ft² with non-obstructed views
- IOS-DPBIF and IOS-DPBIF2 models are Incandescent/Fluorescent/CFL/LED compatible and require a neutral connection
- 'No neutral' models offered for retrofit applications
- Fits standard decorator wall plate (included)

Model #		Switch Type	Requires Neutral
White	Ivory		
IOS-DPBIF2-WH	IOS-DPBIF2-IV	Vacancy	Yes
IOS-DPBIF-WH	IOS-DPBIF-IV	Occupancy	Yes
IOS-DPBIMF-WH*	IOS-DPBIMF-IV*		No

*Note: *Not compatible with LED load, only incandescent and inductive loads. Min 25W load required.*

Ivory

IOS-DPBIF-WH

Ratings	
Operating Voltage	120 VAC, 60 Hz
Resistive	500 W, 120 VAC
Inductive Ballast	500 VA, 120 VAC, 60 Hz
Incandescent	500 W, 120 VAC, 60 Hz
Motor	1/8 HP, 120 VAC
Coverage Pattern	150º, 980 ft²
Adjustable Light Level	30 Lux to Daylight
Adjustable Time Delay	15 sec to 30 min
Operating Temperature	32° F to 131° F (0° C to 55° C)
Dimensions H x W x D	1 5⁄8" x 1 7⁄16" x 2 3⁄4" (41 mm x 37 mm x 70 mm)
Warranty	2-year limited

Residential Grade Occupancy Switch with Manual Override

IOS-DSI Series

These in-wall switches detect presence using PIR sensing technology to automatically turn lights ON/OFF for small to medium size rooms. These models provide users with a manual ON/OFF/AUTO override switch.

Features

- Passive Infrared (PIR) sensing for presence detection
- Adjustable PIR sensitivity
- Adjustable time delay 15 sec to 30 min
- Adjustable ambient light sensor override
- Coverage: 150º, 980 ft² with non-obstructed views
- IOS-DSIF models are Incandescent/Fluorescent/CFL/LED compatible and require a neutral connection
- 'No neutral' models offered for retrofit applications
- Fits standard decorator wall plate (included)

Model #		Switch Type	Requires Neutral
White	Ivory		
IOS-DSIF-WH	IOS-DSIF-IV	Occupancy	Yes
IOS-DSIMF-WH*	IOS-DSIMF-IV*		No

*Note: *Not compatible with LED load, only incandescent and inductive loads. Min 25W load required.*

Ivory

IOS-DSIF-WH

Ratings	
Operating Voltage	120 VAC, 60 Hz
Resistive	500 W, 120 VAC
Inductive Ballast	500 VA, 120 VAC
Incandescent	500 W, 120 VAC
Motor	1/8 HP, 120 VAC
Coverage Pattern	150º, 980 ft²
Adjustable Light Level	30 Lux-Daylight
Adjustable Time Delay	15 sec to 30 min
Operating Temperature	32° F to 131° F (0° C to 55° C)
Dimensions H x W X D	1 5⁄8" x 1 7⁄16" x 2 3⁄4" (41 mm x 37 mm x 70 mm)
Warranty	2-year limited

7
3
2
10
11
4
ASSLIN
CH1
CH2
02
50
02
LightMaster
CH1

LightMaster™

The LightMaster™ lighting control system gives YOU the power to independently control circuits based on the amount of natural light in an area. Simply adjust the LightMaster™ foot-candle dials to a desired light level and instantly manage light the way you see it.

LightMaster™ is ideal for any lighting application where operation is based on natural light. The sensors can be installed in a 330-foot radius from the controller in different accessible areas, such as a rooftop or a window, for easy service access and reduced maintenance costs.

LightMaster™ also features unmatched accuracy with independent settings that enable indoor lighting to stay off until natural lighting is reduced, while outdoor lighting turns on when natural light is lost. The unique lighting control system turns lights ON during inclement weather and avoids nuisance ON/OFF switching caused from lightning or car lights. A single LightMaster™ Sensor can provide a signal for up to 20-circuits to help conserve energy and promote a safer lit area for customers and workers.

Contents

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LM2-O-882T

Kit includes LS2 Sensor

LightMaster™ Control System with Timer

LM2-O-882T

The LightMaster™ Control System with Timer operates on time as well as ambient light-level sensing. When natural light is available, the LightMaster™ will allow for this to be used, saving energy costs, and ensuring the proper amount of light is available. The LM2-O-882T provides 365-day scheduling, along with Holiday scheduling to increase energy efficiency. LightMaster™ is an affordable alternative to expensive or unreliable lighting controls. It is a cost-effective solution for providing additional light level control beyond the typical timer or photocontrol. It can be added to an existing timer. LightMaster™ offers true dusk-to-dawn operation as well as dusk-on and timed-OFF operations and can achieve additional energy savings by adjusting light levels throughout the day or night. Additionally, it offers an affordable solution for daylight harvesting. Features include a delay setting to avoid nuisance ON/OFF switching of lighting during intermittent environmental changes, such as clouds, lightning, or headlights. LightMaster™ is essential where activities are impacted by changing and inadequate light levels throughout the day. It will turn lighting ON during inclement weather and OFF when normal light levels resume. It is more reliable than photocontrols and can save maintenance costs over time.

Applications

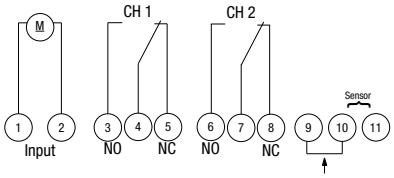
- Security lighting • Atriums • Awnings • Site lighting
- Industrial yard lighting • Perimeter lighting • Signage
- Interior/ exterior lighting

Features

- 2-circuit control unit
- Single sensor controls both circuits
- Independent light-level and time delay adjustments for each circuit
- Timer turns lighting ON/OFF as needed to maximize energy savings
- 365-day and Holiday scheduling for maximum flexibility without additional maintenance expenses
- Type 3R indoor/outdoor plastic rainproof enclosure

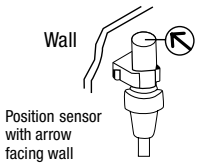
Wiring Diagrams

3-4 and 6-7 closes on light level decreasing below setpoint



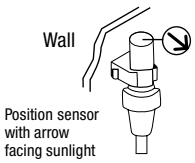
Jumper required between 9 and 10

Dusk to Dawn Control



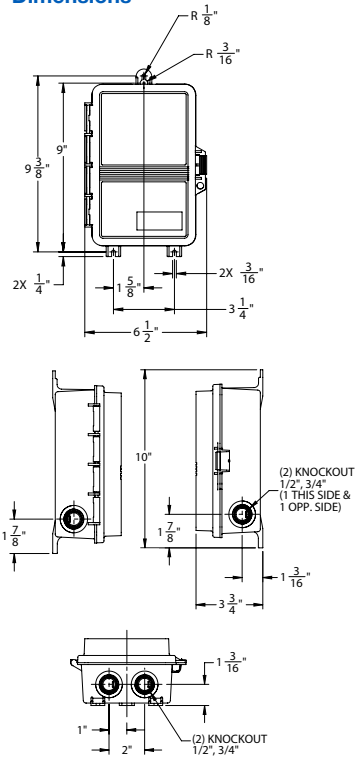
LS1 or LS2

Interior Lighting Control (Daylight Harvesting)



LS2

Dimensions



Model #	Sensor	Sensor Type	Light Intensity
LM2-O-882T	LS2	Dark	50 to 1,000 fc

For enclosure options and dimensions, see page 167.

Accessories/Replacement

Transparent Sensor 0.2 to 50 fc, Transparent Case (IP65)	LS1
Dark Sensor 50 to 1,000 fc, Dark UV Filter Case (IP65)	LS2

Ratings	
Input Voltage	120 VAC, 60 Hz
Switch Type	SPDT
Relay	SPDT "dry" contacts per circuit
Resistive	10 A, 120-277 VAC
Inductive Ballast	8 A, 120-277 VAC
Sensor Type	
LS1	Transparent Sensor 0.2 to 50 fc, Transparent case
LS2	Dark Sensor 50 to 1,000 fc, Dark UV Filter case
Sensor Time Delay	0 to 100 sec
Max Power Consumption	3 W
Operating Temperature	
Control	-4° F to 131° F (-20° C to 55° C)
Sensor	-22° F to 158° F (-30° C to 70° C)
Humidity Range	
Control	0 to 95% RH, non-condensing
Sensor	0 to 100% RH
Enclosure Dimensions H x W x D	10" x 6 ½" x 3 ¾" (254 mm x 165.1 mm x 95.3 mm)
Warranty	1-year limited

LightMaster™ Control System

LM2-O-120

The LightMaster™ Control System operates on ambient light-level sensing. When natural light is available, the LightMaster™ will allow for this to be used, saving energy costs, and ensuring the right amount of light is available. LightMaster™ is an affordable alternative to expensive or unreliable lighting controls and a cost-effective solution for providing additional light level control beyond the typical timer or photocontrol. It can be added to an existing timer. LightMaster™ offers true dusk-to-dawn operation and can achieve additional energy savings by adjusting light levels throughout the day or night. Additionally, it offers an affordable solution for daylight harvesting. The LightMaster™ features a delay setting to avoid nuisance ON/OFF switching of lighting during intermittent environmental changes, such as clouds, lightning, or headlights. The LightMaster™ is essential where activities are impacted by changing and inadequate light levels throughout the day. It will turn lighting ON during inclement weather and OFF when normal light levels resume. The LightMaster™ is more reliable than photocontrols and can provide savings on maintenance costs over time.

Applications

- Security lighting • Atriums • Awnings • Site lighting
- Industrial yard lighting • Perimeter lighting • Signage
- Interior/exterior lighting

Features

- 2-circuit control unit
- One sensor controls both circuits
- One sensor can provide a signal for up to 10 LightMaster™ control modules
- Independent light-level and time delay adjustments for each circuit
- Type 3R rainproof enclosure

Model #	Sensor	Sensor Type	Light Intensity
LM2-O-120	LS2	Dark	50 to 1,000 fc

For enclosure options and dimensions, see page 167.

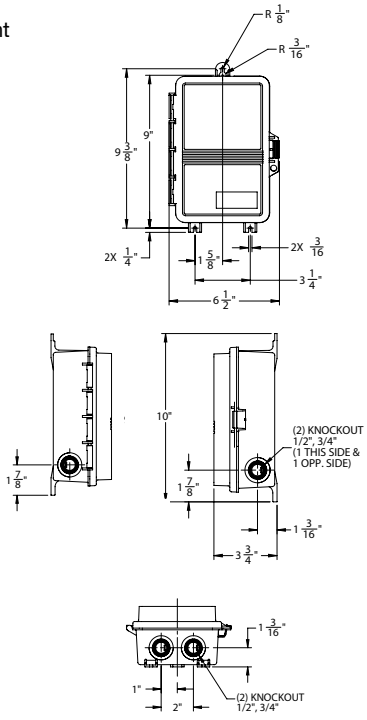
Accessories/Replacement

Transparent Sensor 0.2 to 50 fc, Transparent Case (IP65)	LS1
Dark Sensor 50 to 1,000 fc, Dark UV Filter Case (IP65)	LS2

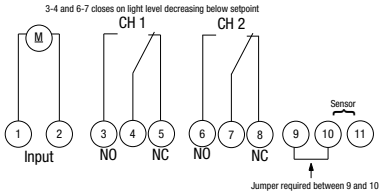
Kit includes LS2 Sensor

LM2-O-120

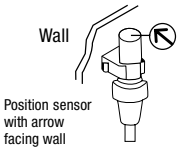
Dimensions



Wiring Diagrams

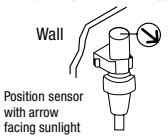


Dusk to Dawn Control



LS1 or LS2

Interior Lighting Control (Daylight Harvesting)



LS2

Ratings	
Input Voltage	120 VAC, 60 Hz
Switch Type	SPDT
Relay	SPDT "dry" contacts per circuit
Resistive	10 A, 120-277 VAC
Inductive Ballast	8 A, 120-277 VAC
Sensor Type	
LS1	Transparent sensor 0.2 to 50 fc, transparent case
LS2	Dark sensor 50 to 1,000 fc, dark UV filter case
Sensor Time Delay	0 to 100 seconds
Max Power Consumption	3 W
Operating Temperature	
Control	-4° F to 131° F (-20° C to 55° C)
Sensor	-22° F to 158° F (-30° C to 70° C)
Humidity Range	
Control	0 to 95% RH, non-condensing
Sensor	0 to 100% RH
Enclosure Dimensions H x W x D	10" x 6 ½" x 3 ¾" (254 mm x 165.1 mm x 95.3 mm)
Warranty	1-year limited

PC2-120

PC1-120

LS1 Sensor

LS2 Sensor

PC Series

LightMaster™ Control Modules with Sensor

The PC Series offers the same control features as the LightMaster™ Series, but allows for the units to easily mount onto a DIN rail for custom installations. This series comes in both 1 and 2-circuit controls, and your choice of either a transparent or dark sensor for your application needs. Up to 10 units can be combined to allow large areas of lighting to be controlled from a single LS Series sensor, reducing maintenance and installation costs.

Applications

- Security lighting • Parking lot lighting • Site lighting • Industrial yard lighting
- Perimeter lighting • Interior/exterior lighting

Features

- Transparent and dark sensor types available to accommodate your distinct light level needs
- Adjustable light-level sensitivity control
- DIN rail mountable
- 0 to 100-second adjustable sensor time delay

Ratings	
Input Voltage	120 VAC, 60 Hz
Switch Type	SPDT
Relay	SPDT "dry" contacts per circuit
Resistive	10 A, 120-277 VAC
Inductive Ballast	8 A, 120-277 VAC
Sensor Type	
LS1	Transparent sensor 0.2 to 50 fc, transparent case
LS2	Dark sensor 50 to 1,000 fc, dark UV filter case
Sensor Time Delay	0 to 100 sec
Max Power Consumption	2.5 VA
Operating Temperature	
Control	-4° F to 131° F (-20° C to 55° C)
Sensor	-22° F to 158° F (-30° C to 70° C)
Humidity Range	
Control	0 to 95% RH non-condensing
Sensor	0 to 100% RH
Dimensions	
Modules H x W x D	3 ⅜" x 2 ⅛" x 2 ⅝" (85.8 mm x 54 mm x 66.7 mm)
Sensors L x Dia	3" x 1 ¼" (76.2 mm x 31.8 mm)
Warranty	1-year limited

Model #	Circuits	Sensor	Sensor Type	Light Intensity
PC2-120-LS1	2	LS1	Transparent	0.2 to 50 fc
PC2-120-LS2	2	LS2	Dark	50 to 1,000 fc
PC1-120-LS1	1	LS1	Transparent	0.2 to 50 fc
PC1-120-LS2	1	LS2	Dark	50 to 1,000 fc

For enclosure options and dimensions, see page 167.

LightMaster™ Control Modules

LightMaster™ Accessories

Individual 1 and 2-circuit control modules are available to allow for easy expansion for the application needs. Simply add another module to allow the sensor that is already part of the system to take on additional areas of lighting control. Each module comes with independent time delay as well as light level control for each channel, ensuring that the lighting comes on only when needed, making this the ideal solution for controlling different areas of lighting with a single control device.

PC1-120

PC2-120

Features

- 1 or 2-circuit control units
- Convenient dial-style adjustment controls for ease of use
- Individual light-level adjustment per circuit
- Adjustable dials for setting foot-candle levels
- 0 to 100-second sensor time delay adjustment per circuit
- DIN rail mountable
- Use with ambient light sensors, sold separately below

Model #	Circuits
PC1-120	1
PC2-120	2

For enclosure options and dimensions, see page 167.

Ratings	
Input Voltage	120 VAC, 60 Hz
Switch Type	SPDT
Relay	SPDT "dry" contacts per circuit
Resistive	10 A, 120-277 VAC
Inductive Ballast	8 A, 120-277 VAC
Sensor Time Delay	0 to 100 seconds
Max Power Consumption	2.5 VA
Operating Temperature	
Control	-4° F to 131° F (-20° C to 55° C)
Sensor	-22° F to 158° F (-30° C to 70° C)
Humidity Range	
Control	0 to 95% RH non-condensing
Sensor	0 to 100% RH
Dimensions H x W x D	3 ⅜" x 2 ⅛" x 2 ⅝" (85.8 mm x 54 mm x 66.7 mm)
Warranty	1-year limited

Ambient Light Sensors

LightMaster™ Accessories

The LS Series Ambient Light Sensors detect the amount of natural or ambient light that is available. These sensors themselves do not perform the switching ON/OFF of the loads, allowing for them to outlast typical photocontrols. These sensors detect the amount of light that is available and provide that information to the control modules which in turn perform the switching operations. These sensors are available for both direct and indirect exposure to ambient light. Typically, the dark sensor is used for direct exposure to light, while the transparent sensor would be ideal for indirect exposure to light.

LS1 Sensor

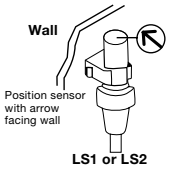
LS2 Sensor

Features

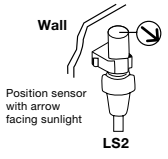
- Transparent and opaque sensors for all lighting applications
- One sensor can provide a signal for up to 10 LightMaster™ control modules
- Accurate, reliable measurement for precise foot-candle light-level settings
- IP65 cases
- 1-year limited warranty

Wiring Diagrams

Dusk-to-Dawn Control



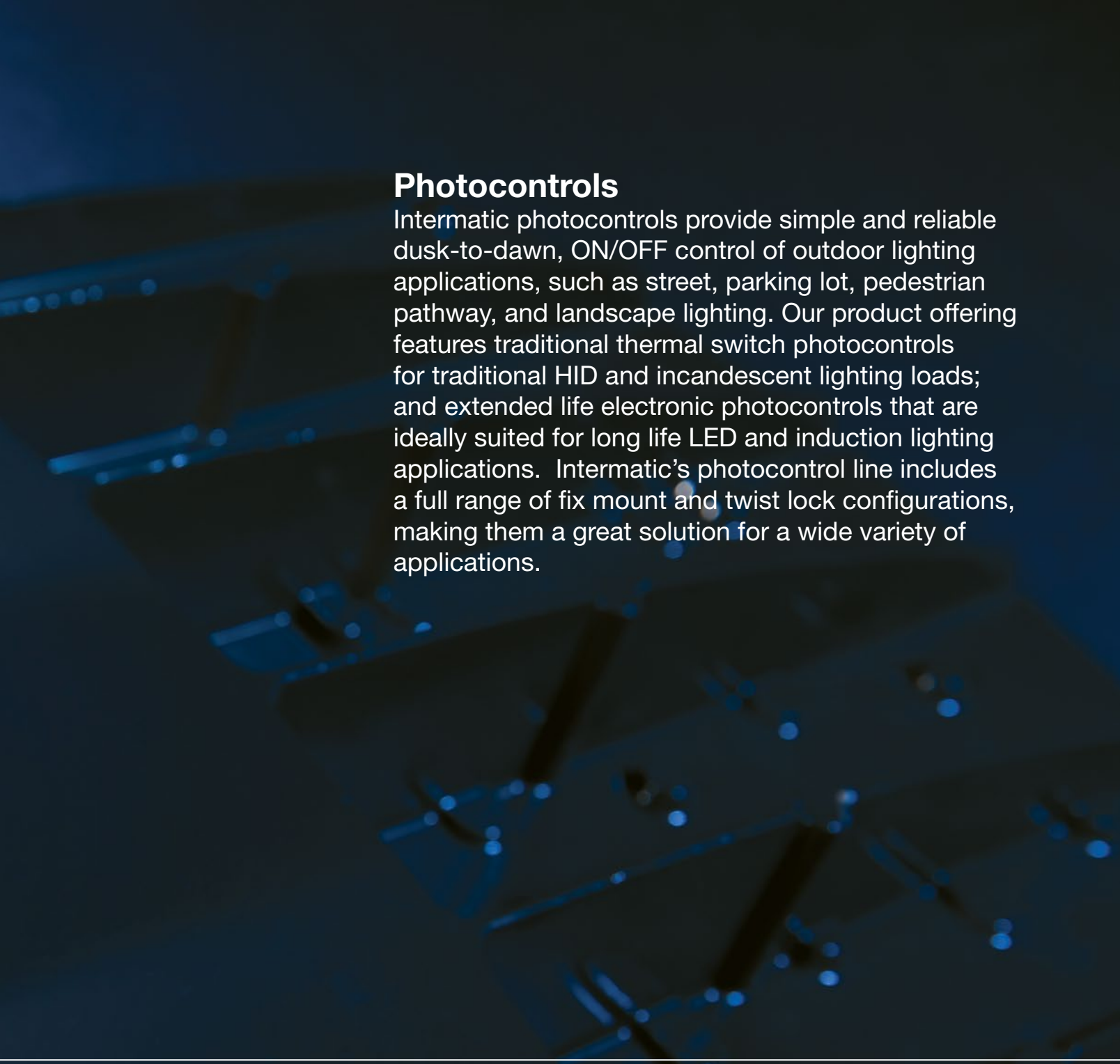
Interior Lighting Control
(Daylight Harvesting)



Model #	Sensor	Sensor Type	Light Intensity	Mounting Type
LS1	LS1	Transparent	0.2 to 50 fc	½" Conduit Fitting
LS2	LS2	Dark	50 to 1,000 fc	½" Conduit Fitting

For ratings, see page 78.

INTERMATIC INC
MADE IN MEXICO
LED4536SC
120-277VAC, 50/60 Hz.
ELECTRONIC BALLAST 8A (LED)
1000 W TUNGSTEN
1800 VA BALLAST
RAINTIGHT
PHOTOCONTROL
C 181753 US
INSTALL
REMOVE
V-120-27



Photocontrols

Intermatic photocontrols provide simple and reliable dusk-to-dawn, ON/OFF control of outdoor lighting applications, such as street, parking lot, pedestrian pathway, and landscape lighting. Our product offering features traditional thermal switch photocontrols for traditional HID and incandescent lighting loads; and extended life electronic photocontrols that are ideally suited for long life LED and induction lighting applications. Intermatic's photocontrol line includes a full range of fix mount and twist lock configurations, making them a great solution for a wide variety of applications.

Contents

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Twist Lock Electronic 87

Intermatic, a well-established, leading supplier of photocontrols, provides lighting controls that best meet your needs and budget. Our comprehensive portfolio includes:

Traditional Thermal Switch Photocontrols

Thermal Photocontrols are electromechanical switches that are based on a Cadmium Sulphide (CdS) photosensor and a bimetallic, thermically sensitive switch mechanism. These simple switches provide a very cost-effective means for dusk-to-dawn control of traditional HID and incandescent lighting loads. In traditional installations, Intermatic photocontrols match the life of the lamp, helping to avoid extra maintenance costs.

- **Low Initial Cost**
- **3 to 5-Year Design Life**
- **1 to 2-Year Product Warranty**

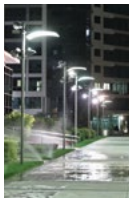
Electronic Photocontrols

Today's long-lasting lighting installations require lighting controls that are equal to the task. Our Electronic Photocontrols meet the extended life expectations of new light fixtures, such as those associated with LED and induction lighting technologies. Electronic photocontrols include a solid-state light sensor and relays that feature zero-crossing technology for more precise control and long service life. These premium photocontrols enable full realization of the cost-saving and productivity benefits of maintenance-free installations.

- **Tested to Ensure 10,000 + ON/OFF Cycles for Maximum ROI**
- **10 to 20-Year Design Life**
- **6 to 12-Year Product Warranty**

Applications

• Steet lighting • Perimeter lighting
• Landscape lighting • Parking Lot lighting
• Pathway lighting • Park and Recreational lighting



Testing in Action

Intermatic's electronic photocontrols utilize zero-crossing techniques to suppress the impact of inrush current. Scan your smartphone or tablet over the QR code to see the visible reduction of inrush current when tested in our UL-certified laboratory.

Button and Wall Mount Thermal Photocontrols

K4000 Series

These photocontrols install within lighting fixtures, post lamps, or in-wall boxes to provide dusk-to-dawn ON/OFF control of outdoor lighting.

Features

- Mechanical bimetal switch with Cadmium Sulfide photocell
- Compact size fits into standard outlet box, post lamp, wall pack and other lighting fixtures
- Delay feature prevents unwanted OFF switching
- ⅜"-18 NPSM, ¾" long stem with locking nut and washer gasket
- K4321C includes weatherproof wall plate and neoprene gasket

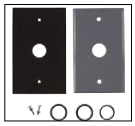
Model #	Style	Voltage	Tungsten	Ballast
K4021C	Button	120 V	1800 W	1000 VA
K4023C		208-277 V	3100-4150 W	1700-2300 VA
K4027*		347 V	5205 W	2880 VA
K4035†		480 V	7200 W	4000 VA
	In-Wall	120 V	1800 W	1000 VA

*Note: *K4027 is only CSA. †K4035 is not UL/CSA certified.*

Accessories

Light Shield	6LV1352
Wall Plate Kit	K43-WP-KIT

6LV1352


K43-WP-KIT

K4021C

K4321C

Ratings	
Operating Voltage	120/208-277/347/480 VAC, 50/60 Hz
Inductive Ballast	8.3 A
Incandescent	15 A
Activation	1 to 5 fc ON, 3 to 15 fc OFF
Operating Temperature	-40° F to 158° F (-40° C to 70° C)
Wire Leads	#18 AWG, 9" L
Dimensions H x W x D	1 13/16" x 15/16" x 13/16" (46 mm x 23.8 mm x 20.6 mm)
Warranty	2-year limited

Screw-In Lamp Photocontrol

NE1C

This photocontrol screws into a standard light socket to provide quick installation of dusk-to-dawn photocontrol to any lamp fixture.

Features

- For interior or external lights
- ON at dusk, OFF at dawn
- Accommodates any incandescent light up to 150 W

Model #	Style
NE1C	Lamp Screw-In

NE1C

Ratings	
Operating Voltage	120 VAC, 60 Hz
Incandescent	150 W
Activation	1 to 5 fc ON, 3 to 15 fc OFF
Operating Temperature	-40° F to 158° F (-40° C to 70° C)
Warranty	1-year limited

K4121C

K4423M

Stem Mount Thermal Photocontrols

K4100 and K4400 Series

These photocontrols install on standard outdoor light fixtures and electrical boxes with ½" threaded or ⅞" punch-out holes for dusk-to-dawn ON/OFF control of outdoor lighting.

Features

- Mechanical bimetal switch with Cadmium Sulfide photocell
- Delay feature prevents unwanted OFF switching
- Plastic and die-cast metal housing options
- ½"-14 NPSM threaded stem
- Washer gasket and locking nut included
- #18 AWG, 9" wire leads

Model #	Voltage	Tungsten	Ballast	Housing
K4121C	120 V	1800 W	1000 VA	Plastic
K4123C	208-277 V	3100-4150 W	1700-2300 VA	
K4127*	347 V	5205 W	2880 VA	
K4135†	480 V	7200 W	4000 VA	
	120 V	1800 W	1000 VA	Metal
	208-277 V	3100-4150 W	1700-2300 VA	

*Note: *K4127 is only CSA. †K4135 is not UL/CSA certified.*

K4221C

K4251

Stem and Swivel Mount Thermal Photocontrols

K4200 Series

These photocontrols are provided with a swivel arm for easy and flexible installation to standard outdoor light fixtures or electrical boxes.

Features

- Mechanical bimetal switch with Cadmium Sulfide photocell
- Delay feature prevents unwanted OFF switching
- High strength, UV resistant plastic housing
- Swivel with ½"-14 NPSM threaded stem
- Washer gasket and locking nut included
- #18 AWG, 6" wire leads

Model #	Voltage	Tungsten	Ballast	Sensor Location
K4221C	120 V	1800 W	1000 VA	Side
K4223C*	208-277 V	3100-4150 W	1700-2300 VA	
K4227*	347 V	5205 W	2880 VA	
K4235†	480 V	7200 W	4000 VA	
*	120 V	1800 W	1000 VA	Top
*	208-277 V	3100-4150 W	1700-2300 VA	

*Note: *K4223C, K4227, K4251, K4253 are only CSA certified.*
†K4235 is not UL/CSA certified.

For all Models Above

Ratings	
Operating Voltage	120/208-277/347/480 VAC, 50/60 Hz
Inductive Ballast	8.3 A
Incandescent	15 A
Activation	1 to 5 fc ON, 3 to 15 fc OFF
Operating Temperature	-40° F to 158° F (-40° C to 70° C)
Wire Leads	#18 AWG, 9" L
Dimensions H x W x D	STEM: 3" x 1 9⁄16" x 1 9⁄16" (76.2 mm x 39.7 mm x 39.7 mm) STEM & SWIVEL: 5 ½" x 1 9⁄16" x 1 9⁄16" (139.7 mm x 39.7 mm x 39.7 mm) STEM & SWIVEL (top lens): 4" x 1 3⁄8" (101.6 mm x 34.9 mm)
Warranty	2-year limited; 1-year for K4251 & K4253

Accessories

Light Guard	22LG116
Swivel Arm	K42-SW-A

22LG116

K42-SW-A

LC4521

Twist Lock Thermal Photocontrols

LC4500 Series

These photocontrols install on light fixtures with ANSI C136.10 NEMA receptacle commonly found on street light fixtures. Twist Lock design facilitates fast installation and replacement of photocontrol.

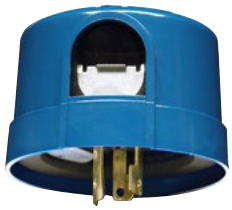
Features

- Mechanical bi-metal switch with Cadmium Sulfide photocell
- Integral high impact thermoplastic housing
- Twist lock plug for quick installation and changeover
- Delay feature prevents unwanted OFF switching
- Complies with ANSI C136.10 standard
- Tested to 3,650 ON/OFF cycles

Model #	Voltage	Tungsten	Ballast	Protection
LC4521C	120 V	1800 W	1000 VA	None
LC4523	208-277 V	3100-4150 W	1700-2300 VA	
LC4527*	347 V	5205 W	2880 VA	
LC4535	480 V	7200 W	4000 VA	
LC4536C	120-277 V	1800-4155 W	1000-2300 VA	
	120 V	1800 W	1000 VA	2400 V Spark Gap Surge Arrester
	208-277 V	3100-4150 W	1700-2300 VA	
	480 V	7200 W	4000 VA	
	480 V	7200 W	4000 VA	

*Note: *LC4527 is only CSA certified.*

Ratings	
Operating Voltage	120/208-277/347/480 VAC
Inductive Ballast	8.3 A
Incandescent	15 A
Activation	5 fc ON, 15 fc OFF
Operating Temperature	-40° F to 158° F (-40° C to 70° C)
Dimensions H x Dia	2 ¾" x 3" (69.9 mm x 76.2 mm)
Warranty	2-year limited



LC2100

Low-Cost Multivoltage Twist Lock Thermal Photocontrols

LC2100

This model combines a silicon diode photosensing element with thermal switch to provide a multivoltage, cost-effective photocontrol.

Features

- Mechanical bimetal switch with Silicon Diode photocell
- Thermoplastic housing with window
- Multivoltage covers 120 to 277 VAC applications
- Complies with ANSI C136.10

Model #	Voltage	Tungsten	Ballast
LC2100	120-277 V	1800 W	1000 VA

Ratings	
Operating Voltage	110-277 VAC, 50/60 Hz
Inductive Ballast	1800 VA
Incandescent	1000 W
Activation	1.5 fc ON, 6 fc OFF
Operating Temperature	-40° F to 158° F (-40° C to 70° C)
Dimensions H x Dia	2 7/32" x 3" (56.4 mm x 76.2 mm)
Warranty	1-year limited

For all Models Above

Accessories

Shorting Plug, Rating: 15 A, 480 VAC Max	K4500
ANSI C136.10 Locking type receptacle, (9" lead)	K121
ANSI C136.10 Locking type receptacle, (30" lead)	K121-30
Sealed locking type receptacle with pole bracket	K122

K4500

K121/K121-30

K122

EK4036S

EK4336S

EK4136S

EK4436SM

EK4236S

EK4736S

Fixed Mount Electronic Photocontrols

8 YEAR Limited Warranty

EK4000 Series

These electronic photocontrols permanently install on outdoor electrical boxes, in-wall boxes, or outdoor lighting fixtures. Ideal for LED and new induction fixtures with long-life expectations.

Features

- Non-drift silicon light sensor with IR filter
- DC relay with zero-crossing circuitry for extended life
- Conformal coated PCB
- 15-year design life
- Exceeds 10,000 ON/OFF switching cycles
- Fail ON mode
- Ideal for single or multifixture HID and LED installations (up to 1,650 W @ 277 VAC)
- 255 J MOV surge protection element
- ½"-14 NPSM threaded stem fits standard outlet boxes and wall packs
- Overall dimensions within ANSI C136.24 guidelines
- #18 AWG wire leads

Model #	Type
EK4036S	Button
EK4336S	In-Wall
EK4136S	Stem Plastic
EK4436SM	Stem Metal
EK4236S	Stem & Swivel Side Lens
EK4736S	Stem & Swivel Top Lens

Induction HID

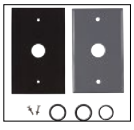
Ratings	
Operating Voltage	120-277 VAC, 50/60 Hz
Inductive Ballast	1800 VA
Electronic Ballast	6 A
Incandescent	1000 W
Activation	1.5 fc ON, 2.25 fc OFF
Time Delay	2 to 5 sec
MOV*	255 J / 5,000 A surge
Fail Mode	ON
Operating Temperature	-40° F to 158° F (-40° C to 70° C)
Wire Leads	#18 AWG, 9" or 6" L
Dimensions H x W x D	BUTTON: 2 ¼" x 1 5⁄16" x 1 ¼" (57.2 mm x 33.3 mm x 31.8 mm) STEM PLASTIC: 2 ¼" x 1 5⁄16" x 1 ¼" (57.2 mm x 33.3 mm x 31.8 mm) STEM METAL: 2 11⁄16" x 1 ¾" x 2 3⁄16" (68.3 mm x 44.5 mm x 55.6 mm) STEM & SWIVEL: 5 ⅜" x 1 5⁄16" x 1 ¼" (142.9 mm x 33.3 mm x 31.8 mm)
Warranty	8-year limited

MOV Metal Oxide Varistor.*

Accessories

Light Shield	6LV1352
Wall Plate Kit	K43-WP-KIT

6LV1352


K43-WP-KIT

12 YEAR Limited Warranty

Specifier Grade

LED4536SC

Photocontrol specifically designed for 20-year service to match the life expectancy of long-life LED and new induction fixtures.

Features

- Non-drift silicon light sensor with IR filter
- DC relay with zero-crossing circuitry for extended life
- All components meet 20-year life expectancy
- Conformal coated PCB
- Exceeds 15,000 ON/OFF switching cycles
- Ideal for single or multifixture HID and LED installations (up to 2,220 W @ 277 VAC)
- 510 J MOV surge protection

8 YEAR Limited Warranty

Select Grade

EK4536

Designed to meet a 15-year service life, this photocontrol is LED-compatible and backed by an 8-year warranty.

Features

- Non-drift silicon light sensor with IR filter
- DC relay with zero-crossing circuitry for extended life
- 15-year design life
- Conformal coated PCB
- Exceeds 10,000 ON/OFF switching cycles
- Ideal for single or multifixture HID and LED installations (up to 1,650 W @ 277 VAC)
- 510 J MOV surge protection

6 YEAR Limited Warranty

Standard Grade

ELC4536

LED-compatible photocontrol features a 10-year life expectancy. Ideal for single fixture control of smaller LED fixtures that require a cost-effective solution.

Features

- Non-drift silicon light sensor with IR filter
- All components meet over 10-year life expectancy
- Exceeds 3,650 ON/OFF switching cycles
- Ideal for single HID and LED fixtures (up to 550 W @ 277 VAC)
- Power-up ON delay (45-60 sec) for easy installation verification and troubleshooting
- 510 J MOV surge protection

For all Models above

Model #	LED Driver Rating	Warranty
LED4536SC	8 A	12-Year
EK4536	6 A	8-Year
ELC4536	2 A	6-Year

Accessories

Shorting Plug Locking Rating: 15 A, 480 V max	K4500
ANSI C136.10 Locking Type Receptacle, (9" lead)	K121
ANSI C136.10 Locking Type Receptacle, (30" lead)	K121-30
Sealed locking type receptacle with pole bracket	K122

K4500

K121/K121-30

K122

Induction HID

Ratings	
Operating Voltage	120-277 VAC, 50/60 Hz
Inductive Ballast	1800 VA
Electronic Ballast	LED4536SC 8 A EK4536 6 A ELC4536 2 A
Incandescent	1000 W
Activation	1.5 fc ON, 2.25 fc OFF
Time Delay	2 to 5 sec
Operating Temperature	-40˚ F to 158˚ F (-40˚ C to 70˚ C)
Dimensions H x Dia	LED4536SC 2 ¾" x 3" (69.9 mm x 76.2 mm) EK4536 2 ¾" x 3" (69.9 mm x 76.2 mm) ELC4536 2 ¼" x 3 3/16" (57.2 mm x 81 mm)
Warranty	LED4536SC 12-year limited EK4536 8-year limited ELC4536 6-year limited

GRÄSSLIN
0 0 0 0 0 1 2
h
UWZ 48 - L
24-30V~ 60Hz
1 2 3 4

Grässlin Hour Meters

As a pioneer for hour meters, Grässlin by Intermatic decisively placed its stamp on this product market. The time-tested Grässlin Hour Meters from the FWZ, GZ, RZ, & UWZ lines are maintenance-free, robust and reliable for years to come. We offer a fully developed range of hour meters for use within or externally to industrial control panels, pumps, machinery, heaters, and other various applications which require load usage monitoring for preventive maintenance scheduling. The hour meters from Grässlin guarantee safe and highly reliable load usage monitoring.

Contents

Grässlin AC Hour Meters Non-Reset Type 90
Grässlin DC and Vibratory Hour Meters Non-Reset Type 91
Grässlin AC Hour Meters Non-Reset Type 92-93

Grässlin Hour Meters

Flush Panel Mount AC Hour Meters (Non-Reset Type)

The FWZ Series AC Hour Meters are flush panel mountable designed to fit into tight locations. They are non-resettable and flush panel mounted with watertight/dust-tight sealed bezels designed to withstand IP54 environmental rating (with use of a gasket). All models are black plastic (except FWZ72B which is blue-silver on colorless frosted polycarbonate) with white numerals on a black background. Tenths and hundredths numerals are yellow.

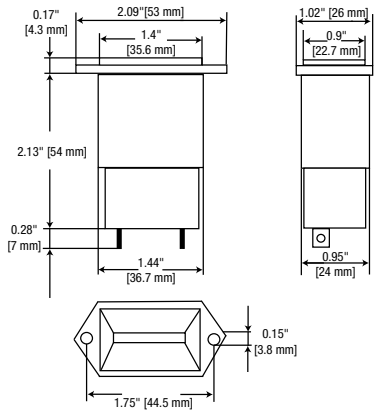
FWZ53 Series

Flush Panel Mount

Ratings	
Voltage Available	24, 120 or 220 VAC
Frequency	60 Hz 50 Hz available on 120, 220 VAC only
Power Consumption	1 VA
Bezel	2.09" x 1.02" (53 mm x 26 mm)
Capacity	99,999.99 hours
Digits	0.16" high numerals
Operating Temperature	-40° F to 160° F (-40° C to 72° C)
Termination	Combination ¼" spade and screw clamp
Panel Opening	1.50" x 1.00" rectangular (38 x 25 mm)
Mounting	Flush panel retainer mounted (2) 0.150" holes for #6 screws
Material	Black plastic
Weight	1.2 oz.
Gasket Model #	G-53U (sold separately)
Ordering Information	FWZ53 + Desired Voltage + Frequency + U

Dimensions

FWZ53



FWZ55 Series

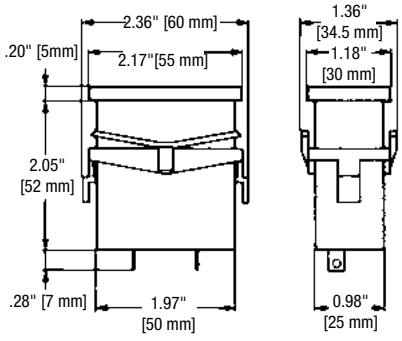
Flush Panel Mount

Ratings	
Voltage Available	120, 220 or 240 VAC
Frequency	60 Hz 50 Hz available on 220 VAC only
Power Consumption	1 VA
Bezel	2.17" x 1.18" (60 mm x 30 mm)
Capacity	99,999.99 hours
Digits	0.16" high numerals
Operating Temperature	-40° F to 160° F (-40° C to 72° C)
Termination	Combination ¼" spade and screw clamp; Rear access screw terminals available (Model "K")
Panel Opening	2.06" x 1.08" rectangular (52 mm x 27.5 mm)
Mounting	Flush-panel retainer mounted with slip-on retaining bracket
Material	Black plastic
Weight	1.8 oz.
Gasket Model #	G-55U (sold separately)
Ordering Information	FWZ55 + K* + Desired Voltage + Frequency + U

** Rear access screw terminals*

Dimensions

FWZ55



Black

Blue Silver

FWZ72 Series

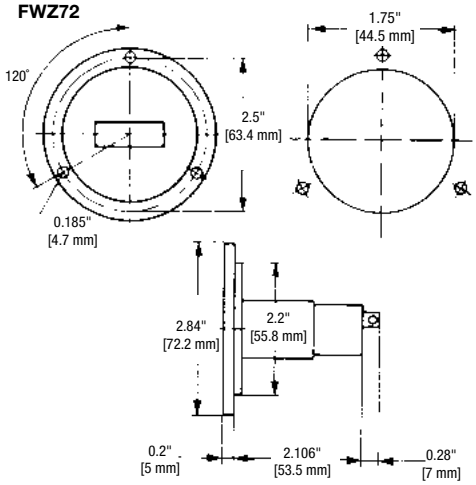
Flush Panel Mount

Ratings	
Voltage Available	24, 120 or 240 VAC
Frequency	60 Hz
Power Consumption	1 VA
Bezel	2.83" round (72 mm), 3 hole
Capacity	99,999.99 hours
Digits	0.16" high numerals
Operating Temperature	-40° F to 160° F (-40° C to 72° C)
Termination	Combo ¼" spade and screw clamp; Rear access screw terminals available (Model "K")
Panel Opening	1.75" (44.5 mm) round or 1.50" x 1" rectangular (38 mm x 24 mm)
Mounting	Flush panel mounted with (3) 0.185" holes for #8 screws
Material	
FWZ72	Black plastic, 24 or 120 VAC
FWZ72K	Black plastic, 240 VAC
FWZ72B	Blue/silver/clear frosted polycarbonate, 120 or 240 VAC
FWZ72C	Clear frosted polycarbonate, 120 VAC
Weight	1.8 oz.
Gasket Model #	G-72U (sold separately)
Ordering Information	FWZ72 + Suffix K*, B, or C + Desired Voltage + Frequency + U

** Rear access screw terminals*

Dimensions

FWZ72



Ordering Example:

To build a model #, choose the Hour Meter Series at the frequency you want. Add a "K" suffix for rear access screw terminals (on applicable models). Then specify voltage. Only 50 Hz models need to be denoted in the model #. Voltages not currently available will be considered on a case by case basis.

Series	+	VAC	+	Hz	+	Unit Pack	=	Model #
FWZ53	+	220	+	/50	+	U	=	FWZ53-220/50U

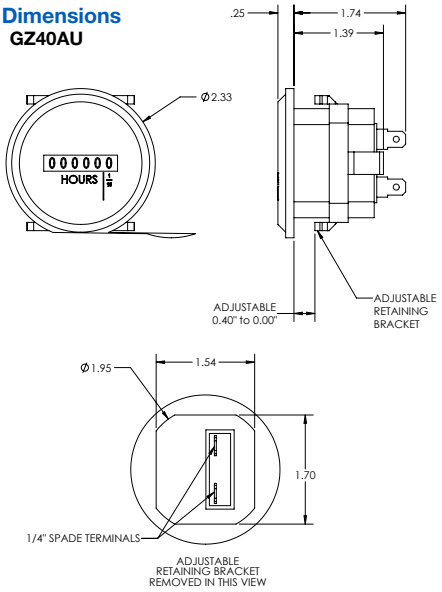
#151753 #E22587

The Grässlin GZ Series DC Hour Meters are the answer to applications requiring low power load usage metering. Compact, tamperproof GZ40 meters are sealed against the environment (IP rated up to IP66) to provide years of service. Accumulated load usage hours are stored in the mechanical indicating counter; therefore, no battery is required to maintain elapsed time. An input diode provides polarity protection. A quartz crystal time base ensures accurate, long-term timekeeping.

GZ40AU
Flush Mount

Ratings	
Voltage Available	10-80 VDC
Power Consumption	.03 W, 12 VDC; .70 W, 48 VDC
Bezel	SAE, 2.31" Dia (59 mm)
Capacity	99,999.9 hours
Digits/Display	(6) 0.125" high numerals-hours: white on black, tenths: red on white
Vibration Resistance	10-75 Hz, 1-8 g
Operating Temperature	-22° F to 150° F (-30° C to 65° C)
Electrical Connection	¼" spade termination
Mounting	Flush with Bracket
Protected From	Reverse polarity, inductive switching
Environmental Rating	IP66
Weight	2 oz.
Model #	GZ40AU

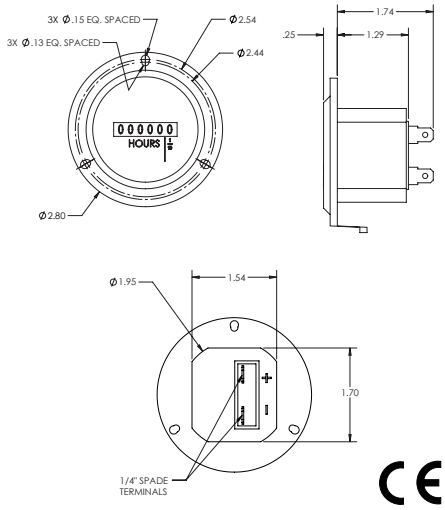
Dimensions
GZ40AU



GZ40BU
Flush Mount

Ratings	
Voltage Available	10-80 VDC
Power Consumption	.03 W, 12 VDC; .70 W, 48 VDC
Bezel	3-Hole, 2.80" Dia (72 mm)
Capacity	99,999.9 hours
Digits/Display	(6) 0.125" high numerals-hours: white on black, tenths: red on white
Vibration Resistance	10-75 Hz, 1-8 g
Operating Temperature	-22° F to 150° F (-30° C to 65° C)
Electrical Connection	¼" spade termination
Mounting	Flush
Protected From	Reverse polarity, inductive switching
Environmental Rating	IP66
Weight	2 oz.
Model #	GZ40BU

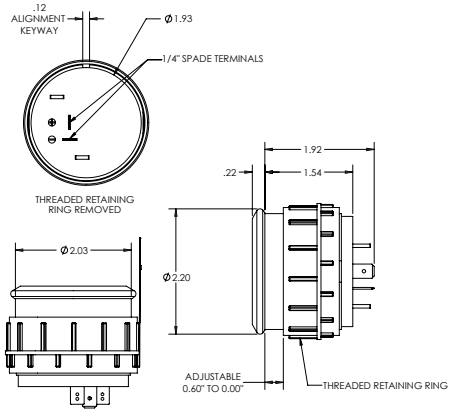
Dimensions
GZ40BU



GZ52BU
Flush Mount

Ratings	
Voltage Available	8-30 VDC
Power Consumption	.03 W, 12 VDC
Current Consumption	< 3 mA, 12 VDC
Bezel	2.28" Dia (58 mm)
Mechanical Movement	2-Phase step motor
Capacity	99,999.9 hours
Digits/Display	(6) 0.125" high numerals-hours: white on black, tenths: red on white
Vibration Resistance	DIN EN60068-2-64
Accuracy	+/-0.5 sec/day at 20° C
Operating Temperature	-40° F to 185° F (-40° C to 85° C)
Storage Temperature	-40° F to 194° F (-40° C to 90° C)
Electrical Connection	¼" quick connectors
Mounting	Flush Bracket (Screw Type)
Operating Indicator	LED
Protected From	Reverse polarity, inductive switching
Environmental Rating	IP65
Weight	2 oz.
Model #	GZ52BU

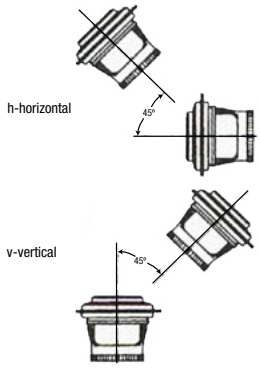
Dimensions
GZ52BU



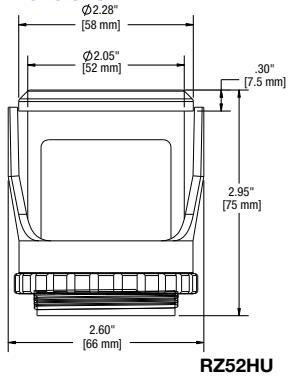
No electrical connection required. The RZ Series Vibration Hour Meters convert vibrations into energy to drive the minute hand. This sensitive hour meter can operate from the slightest vibrations, such as a moving car. Horizontal or vertical mounting position to 45°.

RZ52 Series
Flush Mount Vibratory Hour Meters

Mounting Angles



Dimensions



RZ52HU

Ratings	
Capacity	99,999.9 hours
Digits/Display	(6) 0.125" high numerals
Vibration Sensitivity	.18 g at 15 Hz
Accuracy	+/- 3% at uninterrupted operation
Ambient Temperature	-20° F to 140° F (-28° C to 60° C)
Dimensions Dia x D	2.28" x 2.95" (58 mm x 75 mm)
Panel Cutouts	Ø 2.04" (52 mm)
Mounting Depth	2.95" (75 mm)
Mounting Position	H to 45° V to 45°
Environmental Rating	IP65
Weight	3.5 oz
Model #	
Horizontal Mount	RZ52HU
Vertical Mount	RZ52VU

Grässlin Hour Meters

Surface/DIN Rail Mount AC Hour Meters (Non-Reset Type)

The UWZ Series AC Hour Meters are designed to meet IP20 environmental ratings for indoor applications. All models are light gray in color with white numerals on a black background. Tenths and hundredths numerals are yellow. An orange dial adjacent to the hundredths digit provides running indication.

UWZ48 Series

Plug-in Surface Mount

The UWZ48 Surface Mount Hour Meter uses a plug-in base where terminal protection is not necessary. The socket base is easy to install and connect. Simply plug the meter into the base and secure with a screw.

Ratings	
Voltage Available	24, 120, or 240 VAC
Frequency	60 Hz
Power Consumption	1 VA
Bezel	1.89" x 1.89" (48 mm x 48 mm)
Capacity	99,999.99 hours
Digits	0.16" high numerals
Operating Temperature	-40° F to 160° F (-40° C to 72° C)
Electrical Connection	Screw lugs
Mounting	Surface
Material	Light gray plastic
Weight	2.5 oz.
Ordering Information	UWZ48 + Desired Voltage + U

UWZ48A Series

Enclosed Surface Mount

The UWZ48A Enclosed Surface Mount is used with a terminal cover for added safety. Installation requires fixing the base to a wall or panel with two screws, wiring the base, and plugging in the meter with the terminal cover.

Ratings	
Voltage Available	24 or 120 VAC
Frequency	60 Hz
Power Consumption	1 VA
Bezel	1.89" x 1.89" (48 mm x 48 mm)
Capacity	99,999.99 hours
Digits	0.16" high numerals
Operating Temperature	-40° F to 160° F (-40° C to 72° C)
Electrical Connection	Screw lugs
Mounting	Surface
Material	Light gray plastic
Weight	2.5 oz.
Ordering Information	UWZ48A + Desired Voltage + U

UWZ48V Series

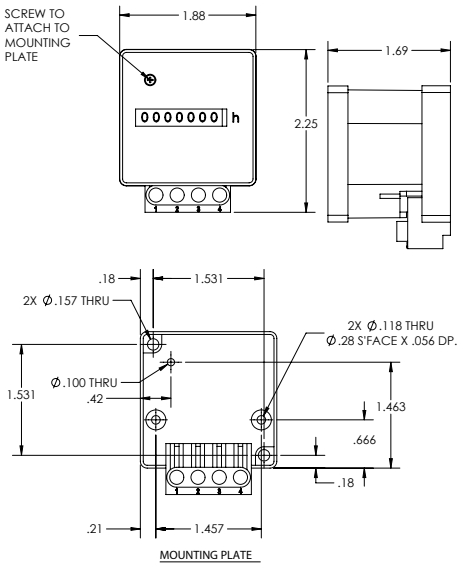
DIN Rail Mount

A special snap-on socket base allows for fast positioning onto a DIN rail.

Ratings	
Voltage Available	24 or 120 VAC
Frequency	60 Hz
Power Consumption	1 VA
Bezel	1.89" x 1.89" (48 mm x 48 mm)
Capacity	99,999.99 hours
Digits	0.16" high numerals
Operating Temperature	-40° F to 160° F (-40° C to 72° C)
Electrical Connection	Combination ¼" spade and screw clamp
Mounting	DIN Rail
Material	Light gray plastic
Weight	2.5 oz.
Ordering Information	UWZ48V + Desired Voltage + U

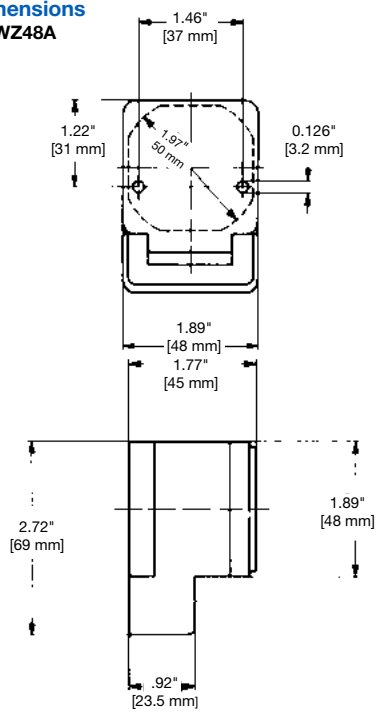
Dimensions

UWZ48



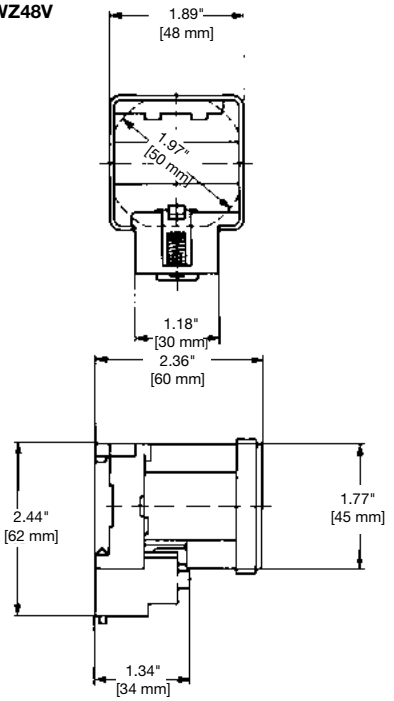
Dimensions

UWZ48A



Dimensions

UWZ48V



Ordering Example:

To build a model #, choose the Hour Meter Series at the voltage you need and add a U suffix. All models are 60 Hz.

Series	+	VAC	+	U	=	Model #
UWZ48	+	240	+	U	=	UWZ48-240U

#151753 #E22587

INTERMATIC

UWZ Accessories

55 mm Bezel

for UWZ48E

BEZ55-GRAYU

BEZ55-BLACKU

72 mm Bezel

for UWZ48E

BEZ72U Gray

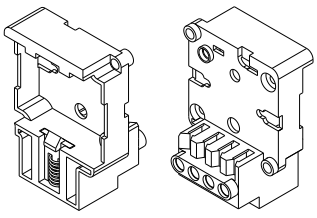
72 mm Bezel with 3 Pins

for round 3-bolt hole opening for UWZ48E

BEZ72PU Gray

DIN Rail Mounting Base

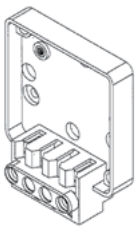
for UWZ48E



MB–48V

Flush Mount Base

for UWZ48



691

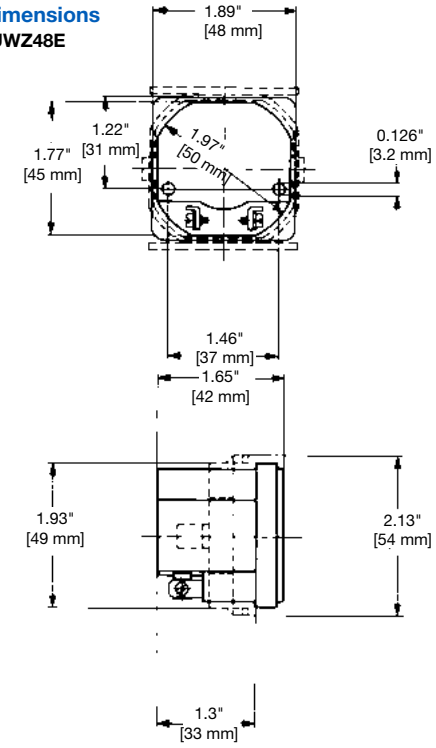
UWZ48E Series

Flush Mount

Flush mounted with bracket, the UWZ48E unit fits into a 1.79" x 1.79" (45.5 x 45.5 mm) cutout. The thickness of the panel for flush mounting can be up to .35" (9 mm). The unit is secured in position by a plastic slip-on retaining bracket. The unit also fits square or round openings for 72 mm with optional 72 mm bezel.

Ratings	
Voltage Available	24, 120, 220 or 240 VAC
Frequency	50 or 60 Hz
Power Consumption	1 VA
Bezel	1.89" x 1.89" (48 mm x 48 mm)
Capacity	99,999.99 hours
Digits	0.16" high numerals
Operating Temperature	-40° F to 160° F (-40° C to 72° C)
Electrical Connection	Combination ¼" spade and screw clamp
Material	Light gray plastic
Weight	2.1 oz.
Ordering Information	UWZ48E + Desired Voltage + Frequency + U

Dimensions
UWZ48E



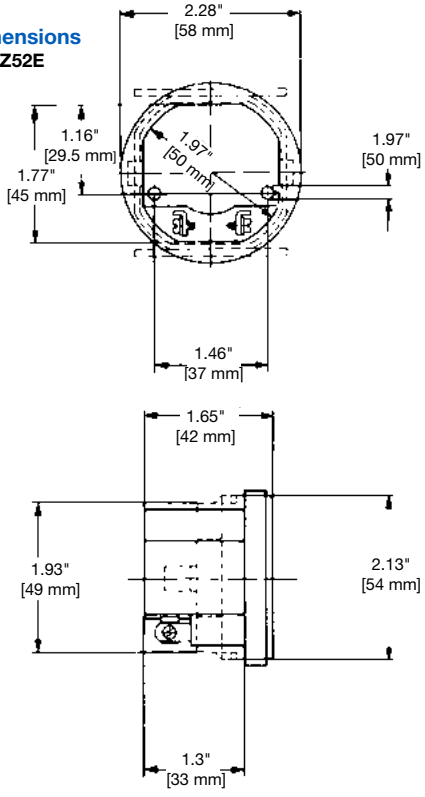
UWZ52E Series

Flush Mount

Flush mounted with bracket, the UWZ52E with round face is fastened with a plastic slip-on retaining bracket.

Ratings	
Voltage Available	120 VAC
Frequency	60 Hz
Power Consumption	1 VA
Bezel	2.28" Ø (58 mm)
Capacity	99,999.99 hours
Digits	0.16" high numerals
Operating Temperature	-40° F to 160° F (-40° C to 72° C)
Electrical Connection	Combination ¼" spade and screw clamp
Material	Light gray plastic
Weight	2.1 oz.
Ordering Information	UWZ52E + Desired Voltage + Frequency + U

Dimensions
UWZ52E

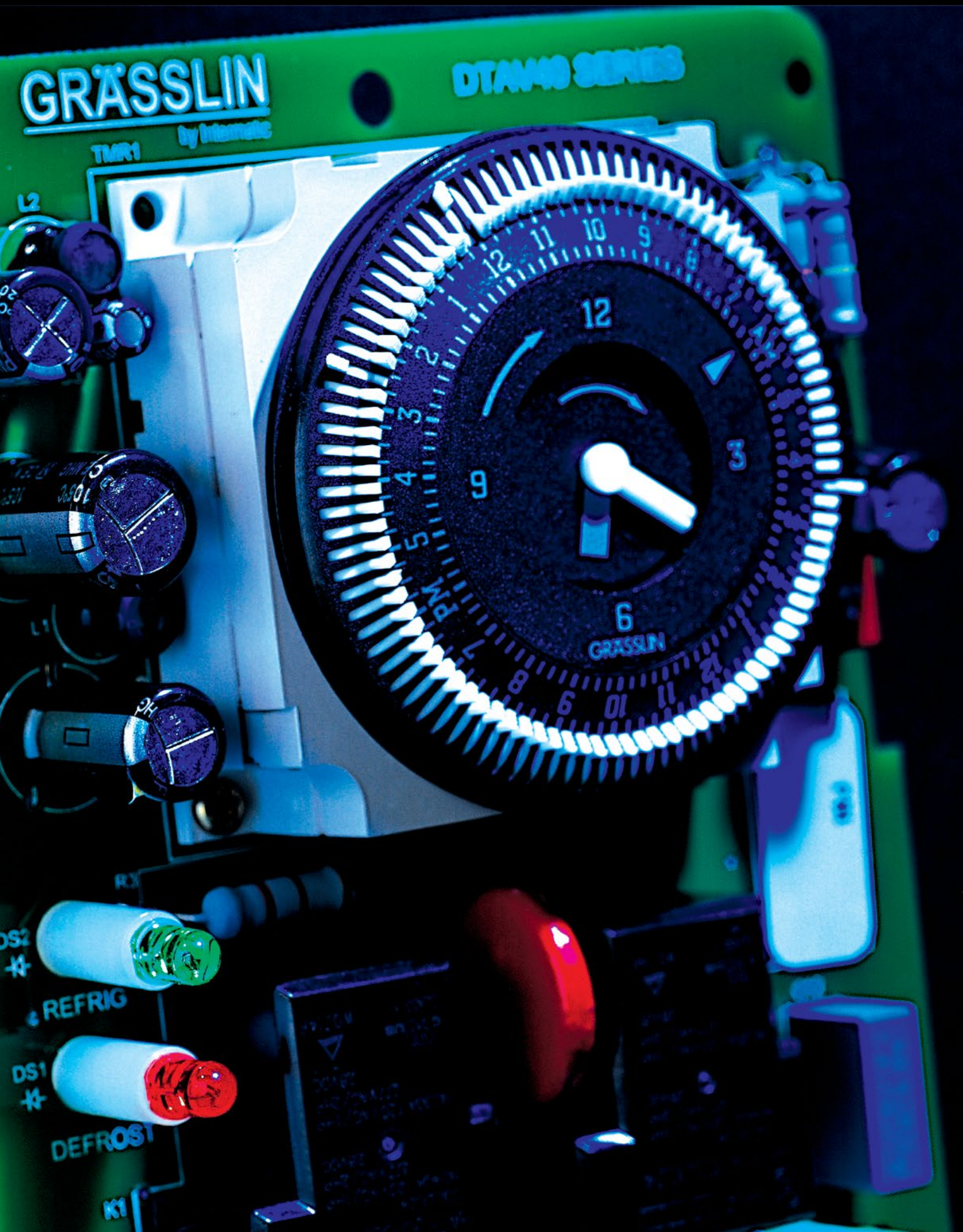


#151753

#E22587

Ordering Example:
To build a model #, choose the Hour Meter Series at the frequency you want. Then specify voltage and add a U suffix. Only 50 Hz models need to be denoted in the model #.

Select:	Series	+ VAC	+ Hz	= Model #
50 Hz Models:	**UWZ48E**	+ 220	+ /50U	= UWZ48E-220/50U
60 Hz Models:	**UWZ48E**	+ 24	+ (60)	= UWZ48E-24U


GRÄSSLIN
by Intermatic
TIMR1
L2
L1
RX
DS2
REFRIG
DS1
DEFROST
K1
12
3
6
9
GRASSLIN

Defrost Timer Controls / HVAC/R

Grässlin Defrost Timers were designed specifically for OEM or contractor integration control of various loads within commercial refrigeration systems which require systematic overriding of these loads to defrost evaporator coils in medium (cooler) or low-temperature (freezer) applications. Whether voltage specific mechanical, autovoltage electromechanical, or electronic, Grässlin Defrost Timers offer consolidated value solutions to meet the commercial refrigeration contractor or OEM's needs. Grässlin Defrost Timers are used in electric or hot gas defrost applications where the defrost is terminated when the coil is frost-free, as sensed by a temperature or pressure switch, even though the defrost programmed termination time has not been reached. The time termination functions as a fail-safe and will terminate the defrost if the temperature or pressure switch fails to do so. The temperature or pressure switch on the refrigeration coil has contacts which close on a temperature or pressure rise above freezing, indicating that frost and ice have melted from the evaporator coil.

Contents

Grässlin 24-Hour Electromechanical Defrost Timer 96-97
Grässlin 24-Hour and/or 7-Day Electronic Defrost Timer 98
DTAV Series Common Wiring Diagrams & Enclosure/Mounting Dimensions..... 99
24-Hour Mechanical Defrost Timer 100-101

DTAV40

DTAV40 Inside

c UL us #E10694 RoHS Compliant 2002/95/EC

Ratings	
Input Voltage	
All Models	120-240 VAC, 60 Hz
Q Model	120-240 VAC, 50/60 Hz
Switch Type	1 SPDT, 1 NC SPST
Resistive	40 A, 120-240 VAC
Motor	1 HP, 16 FLA, 96 LRA @ 120 VAC 2 HP, 12 FLA, 72 LRA @ 240 VAC
Operating Temperature	-40º F to 104º F (-40º C to 40º C)
Quartz	-4º F to 104º F (-20º C to 40º C)
Operating Humidity	0-95% RH, non-condensing
Wiring Connections	Screw box lug terminals. Up to one #8 AWG Wire
Enclosure/Mounting	UL Type 1, UL Type 3R, or Bracket
MIN ON/OFF	15 minutes
MAX ON/OFF	23 hours, 45 minutes
Electrical Life	50,000 operations at full load
Shipping Weight	3 lbs.
Warranty	1-year limited

DTAV40 Series

Time Initiated and Temperature, Pressure or Time Terminated 40 A Autovoltage Electromechanical Defrost Timer

For electric heat, hot gas or compressor shutdown defrost. The Grässlin DTAV40 Series Auto Voltage Defrost Timer is applicable to air defrost (compressor shutdown) and electric or hot gas defrost systems where the defrost cycle is terminated by the timer. If the coil is frost-free, the timer can also be terminated by temperature or pressure switches before the programmed defrost termination time has been reached. The time termination functions as a fail-safe and terminates the defrost cycle if the temperature or pressure switch fails to do so.

Applications

- Medium and low-temperature commercial refrigeration systems

Features

- DTAV40 Series replaces over 40 competitive models
- 40 A, 2 HP Rating
- Autovoltage automatically adjusts between 120 and 240 VAC
- Q model features self-recharging battery backup with 7-day carry-over
- Can mount in an existing enclosure – no tools required for installation
- Moisture resistant conformal-coated board
- LED indicators for defrost and refrigeration cycles
- Defrost cycles are programmed independently
- "Real-time" clock face for quick, easy and accurate setting
- Defrost times programmable in 15-minute intervals
- Captive trippers won't get lost
- Finger-safe box lug terminals

Model #	Enclosure	Battery Backup
DTAV40	UL Type 3R Outdoor Plastic	No
DTAV40Q	UL Type 3R Outdoor Plastic	Yes (7 Days)
DTAV40IM	UL Type 1 Metallic (Not Raintight)	No
DTAV40M	Mechanism Only	No

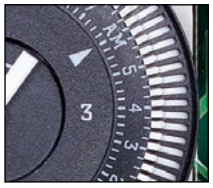
Notes: For mounting & enclosure dimensions see page 99.
For wiring examples see page 99.

Accessories/Replacements

Bracket Mount (material electrically isolated) mounting screws included	DT-B

Specification
Furnish and install a Grässlin_____Defrost Control, which will automatically adjust between 120 VAC and 240 VAC operation and shall have defrost initiation times settable in 15-minute intervals with captive trippers. The defrost timer shall be housed in a UL Type 3R indoor/outdoor plastic enclosure or UL Type 1 metallic enclosure. The relay output will be rated for 40A Resistive, 2 HP @ 240 VAC. Defrost termination to be by time (or by a remote temperature or pressure switch). For carry-over, the time controls shall have quartz a drive with (DTAV40Q) 7-Day reserve carry-over from a self-recharging battery.

Setting Defrost Times



Configure defrost times easily! Just scan the QR code with your smartphone or tablet for details on how to choose a defrost starting time.

DTAV40VM

40 A Autovoltage Electromechanical Defrost Timer with Voltage Monitoring and Short Cycle Protection

The Grässlin DTAV40VM Auto Voltage Defrost Timer with Voltage Monitoring and Short Cycle Protection offers all of the same features as the DTAV40 Series, plus it also includes built-in voltage monitoring and short cycle delay options to help protect the compressor and increase system life.The low-voltage monitor circuit measures the input voltage across several line cycles. A brownout condition exists if an average input voltage falls below 95 VAC (+/-2 VAC) for 120 VAC operation or 190 VAC (+/-2 VAC) for 240 VAC operation. A brownout condition triggers short cycle protection and disables normal compressor operation until normal operating voltage is restored.

DTAV40VM

DTAV40VM Inside

Applications

- Medium and low-temperature commercial refrigeration systems

Features

Same features as DTAV40 series on pg 96, plus:

- Voltage monitoring protects against low-voltage conditions (brownouts)
- Adjustable short cycle delay helps extend compressor life
- DTAV40VM replaces over 40 competitive models, including the DTMV40

Model #	Enclosure
DTAV40VM	UL Type 3R Raintight Plastic

Notes: For mounting & enclosure dimensions see page 99.
For wiring examples see page 99.

Accessories/Replacements

Bracket Mount (material electrically isolated) mounting screws included	DT-B

Specification
Furnish and install a Grässlin_____Defrost Control, which will automatically adjust between 120 VAC and 240 VAC operation. The defrost timer shall have defrost initiation times settable in 15-minute intervals with captive trippers. The defrost timer shall incorporate voltage monitoring to protect against low-voltage conditions. The defrost timer shall also incorporate a short cycle delay adjustable from 0 sec. (off), 6 sec. minimum to 10 min. max to prevent rapid compressor cycling. The defrost timer shall be housed in a UL Type 3R indoor/outdoor plastic enclosure. The relay output shall be rated for 40 A Resistive, 2 HP @ 240 VAC. Defrost termination to be by time (or by a remote temperature or pressure switch).

c UL us #E10694 RoHS Compliant 2002/95/EC

Ratings	
Input Voltage	120-240 VAC, 60 Hz
Switch Type	1 SPDT, 1 NC SPST (NC in powered state)
Resistive	40 A, 120-240 VAC
Motor	1 HP, 16 FLA, 96 LRA @ 120 VAC 2 HP, 12 FLA, 72 LRA @ 240 VAC
Voltage Protection	< 95 VAC for 120 VAC <190 VAC for 240 VAC (+/- 2 VAC)
Short Cycle Delay	0 (disabled), 6-second, 30-second, 1, 2, 4, 6, 8, 10-minute
Operating Temperature	-40° F to 104° F (-40° C to 40° C)
Operating Humidity	0-95% RH, non-condensing
Wiring Connections	Screw box lug terminals. Up to one #8AWG Wire
Enclosure/Mounting	UL Type 3R
MIN ON/OFF	15 minutes
MAX ON/OFF	23 hours, 45 minutes
Electrical Life	50,000 Operations at full load
Shipping Weight	3 lbs.
Warranty	1-year limited

Adjusting Short Cycle Time

Adjust the short cycle delay time easily! For step-by-step instructions, scan the QR code with your smartphone or tablet.

DTAV40E2

DTAV40E2 Inside

c UL us
#E10694

Ratings	
Input Voltage	120-240 VAC, 50/60 Hz
Switch Type	1 SPDT, 1 NC SPST
Resistive	40 A, 120-240 VAC
Motor	1 HP, 16 FLA, 96 LRA @ 120 VAC 2 HP, 12 FLA, 72 LRA @ 240 VAC
Operating Temperature	-13º F to 104º F (-25 ºC to 40 ºC)
Operating Humidity	0-95% RH, non-condensing
Wiring Connections	#8 AWG
Enclosure/Mounting	UL Type 3R
MIN ON/OFF	1 minute
MAX ON/OFF	23 hours, 45 minutes
Electrical Life	50,000 operations at full load
Shipping Weight	3 lbs.
Warranty	1-year limited

DTAV40E2 Series

Time Initiated and Temperature, Pressure or Time Terminated 40 A Autovoltage Electronic Defrost Timer

The Grässlin DTAV40E2 Electronic Autovoltage Defrost Timer has flexible 7-day scheduling and to-the-minute defrost duration control to increase system efficiency (decrease defrost scheduling during low demand periods). It is applicable to air defrost (compressor shutdown) and electric or hot gas defrost systems where the defrost cycle is terminated by the timer. If the coil is frost-free, the timer can also be terminated by temperature or pressure switches before the programmed defrost termination time has been reached. The time termination functions as a fail-safe and cancels the defrost cycle if the temperature or pressure switch fails to do so.

Applications

- Medium and low-temperature commercial refrigeration systems

Features

- 24-Hour/7-Day flexible scheduling increases system efficiency
- 40 A, 2 HP rating
- DTAV40 Series replaces over 40 competitive models
- Autovoltage automatically adjusts between 120 and 240 VAC, 50/60 Hz
- Self-recharging battery backup with 2500-hour carry-over
- Can mount in an existing enclosure – no tools required for installation
- LED indicators for defrost and refrigeration cycles
- Finger-safe box lug terminals
- Simple to program

Model #	Enclosure	Battery Backup
DTAV40E2	UL Type 3R Raintight Plastic	Yes (2500-Hour)

Notes: For mounting & enclosure dimensions see page 99.
For wiring examples see page 99.

Specification
Furnish and install a Grässlin_____Defrost Control, which will automatically adjust between 120 VAC and 240 VAC operation and shall have defrost initiation times settable in 1-minute intervals with an integrated electronic timer interface. This control shall have 24-Hour/7-Day programming, 7 ON and 7 OFF setpoint programs, and 5 preset block programs to allow a selection of any combination of days for different weekday schedules. The LCD shall display time of day in AM/PM format. A daylight Saving Time adjustment button shall also be provided. The timer shall provide a manual override button to initiate a manual defrost. The defrost timer shall be housed in a UL Type 3R indoor/outdoor plastic enclosure. The relay output will be rated for 40 A Resistive, 2 HP @ 240 VAC. Defrost terminations to be by time (or by a remote temperature or pressure switch). For carry-over, the time controls shall have 2500-Hour reserve carry-over from a self-recharging battery.

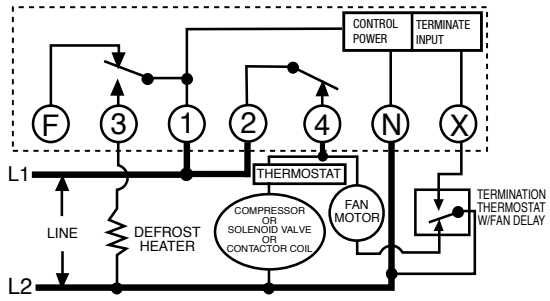
Set up system scheduling

The electronic face and programming buttons make scheduling straightforward and easy. Just scan the QR code with your smartphone or tablet for details.

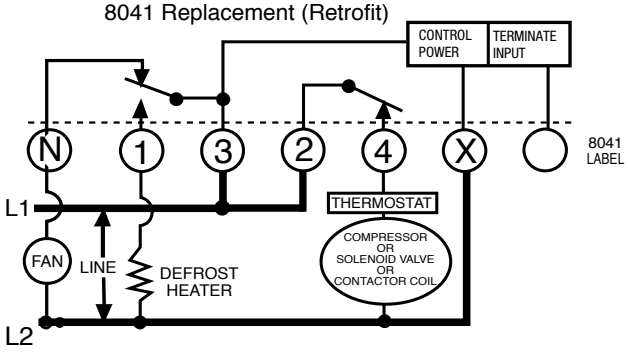
Wiring Diagrams

Wiring diagrams in powered refrigeration mode.

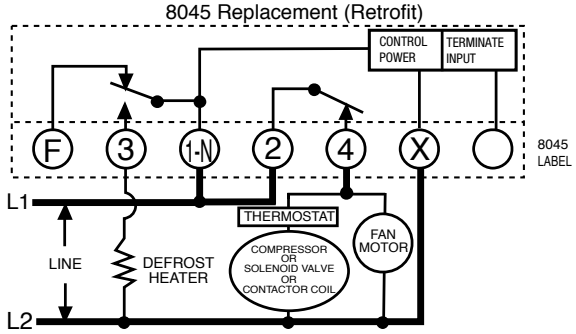
8145 Replacement (Retrofit)
DTAV40 Default Out of Box



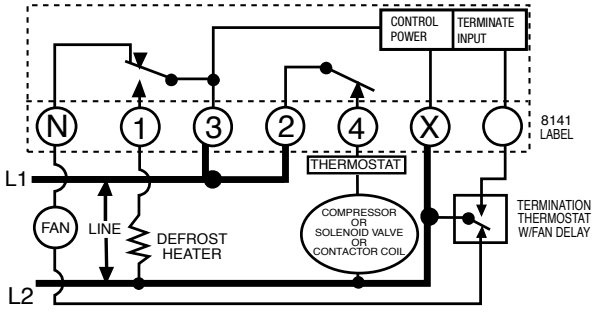
8041 Replacement (Retrofit)



8045 Replacement (Retrofit)

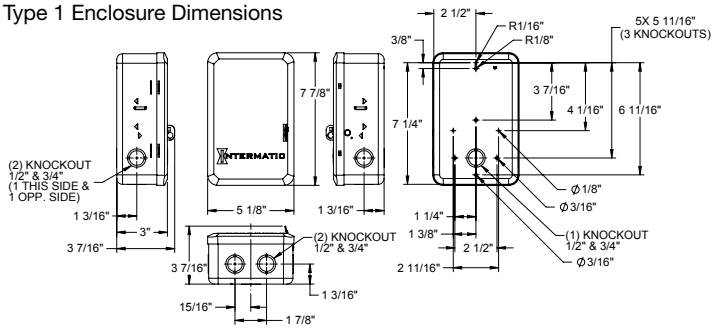


8141 Replacement (Retrofit)

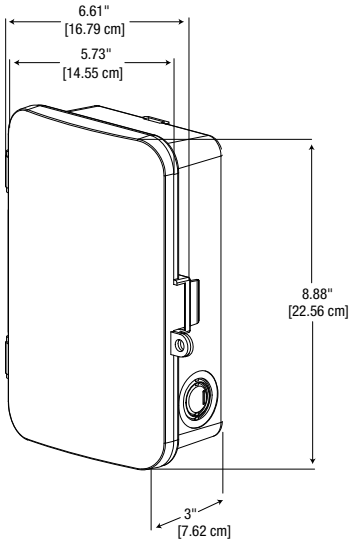


Dimensions

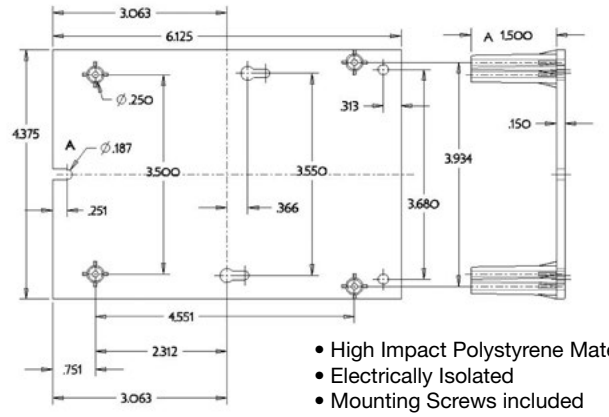
Type 1 Enclosure Dimensions



Type 3R Enclosure Dimensions



DT-B Bracket Dimensions



Note: All dimension in inches. Drawing not to scale.

- High Impact Polystyrene Material
- Electrically Isolated
- Mounting Screws included
- UL94HB Flame Class Rating

Universal Replacement (See wiring diagrams for examples)				
Grässlin	Paragon		Precision	
DTAV40 =	8141-00	8143-20	6141-00	6143-20
	8143-00	8145-20	6143-00	6145-20
	8145-00	8041-20	6145-00	6041-20
	8041-00	8045-20	6041-00	6045-20
	8043-00	8047-20	6043-00	6047-20
	8045-00	8245-20	6045-00	6245-20
	8047-00	8247-20	6047-00	6247-20
	8141-20		6141-20	

Note: Equivalent in function, terminal identification, and wiring allows for quick and easy installation.

G8045-00

SA33993 151753
UL873,UL917,CSA24,CSA117 Refrigeration Controller

Ratings	
Input Voltage	120 or 208-240 VAC, 60Hz
G8045-00, G8145-00	120 VAC, 60 Hz
G8045-20, G8145-20	208-240 VAC, 60 Hz
Switch Type	1 NO, 1 NC
Resistive	40 A, 120-240 VAC
Pilot Duty	1000 V
Motor	2 HP, 120-240 VAC
Operating Temperature	-40° F to 104° F (-40°C to 40°C)
Operating Humidity	0-95% RH, non-condensing
Wiring Connections	
Large	#14-8 AWG
Small	#18-12 AWG
MIN ON/OFF	4 minutes
MAX ON/OFF	110 minutes
Electrical Life	30,000 operations at full load
Shipping Weight	2.75 lbs.
Warranty	2-year limited

G8000 Series

Time Initiated and Temperature, Pressure or Time Terminated 40 A Mechanical Defrost Timer

The Grässlin G8000 Series Mechanical Defrost Timer is applicable to air defrost (compressor shutdown) and electric or hot gas defrost systems where the defrost cycle is terminated by the timer. If the coil is frost-free, the timer can also be terminated by temperature or pressure switches before the programmed defrost termination time has been reached. The time termination functions as a fail-safe and terminates the defrost cycle if the temperature or pressure switch fails to do so. The encapsulated design prevents dust and dirt build-up to ensure reliable and lasting performance. The G8000 easily snaps into competitive enclosures and is equivalent in function, terminal identification and wiring, allowing a quick and easy installation.

Applications

- Medium and low-temperature commercial refrigeration systems

Features

- Exceeds UL873 Refrigeration standard for 30,000 cycle switch design
- Heavy-duty welded and silver-plated 40 A contacts
- Mounts in existing enclosures, no tools required
- Encapsulated timer module design prevents dust and dirt build-up
- Heavy-duty synchronous motor for accurate timekeeping
- Defrost durations programmable in 2-minute increments
- Up to 6 defrost cycles per day
- Works with external temperature or pressure switches
- Includes 4 trippers and spare tripper holder is built-in
- MIN defrost time: 4 minutes
- MAX defrost time: 110 minutes

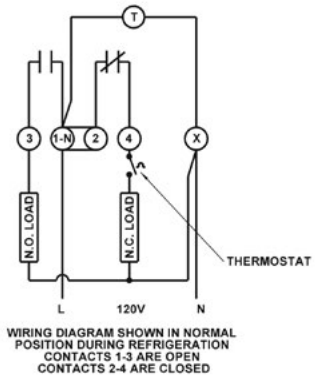
Model #	Description
G8045-00	Time Initiated, Time Terminated, 120 VAC, Type 1 Enclosure
G8045-20	Time Initiated, Time Terminated, 208-240 VAC, Type 1 Enclosure
G8145-00	Time Initiated. Temperature, Pressure, or Time Terminated, 120 VAC, Type 1 Enclosure
G8145-20	Time Initiated. Temperature, Pressure, or Time Terminated, 208-240 VAC, Type 1 Enclosure

Optional bracket-mount, "mechanism only" model available in bulk packs of 20; To order, add a "B" suffix to model number (i.e. G8045-00B).

Specification
Furnish and install a Grässlin_____Defrost Control, which shall have up to 6 defrost cycles per day with initiation times settable in 2 minute increments from 4 to 110 minutes. The defrost timer shall be housed in a UL Type 1 indoor metallic enclosure or be supplied with a suitable bracket mount. The contacts shall be 1 NO, 1 NC and rated for 40 A Resistive, 2 HP @ 240 VAC. Defrost termination to be by time (or by a remote temperature or pressure switch). Defrost Time Switch shall comply with UL Refrigeration standard UL873.

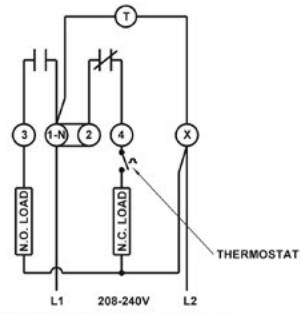
G8000 Series Wiring Diagrams

G8045-00



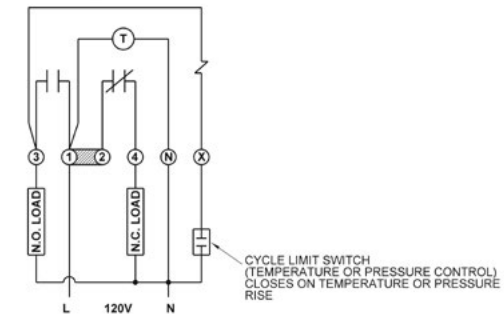
WIRING DIAGRAM SHOWN IN NORMAL POSITION DURING REFRIGERATION
CONTACTS 1-3 ARE OPEN
CONTACTS 2-4 ARE CLOSED

G8045-20



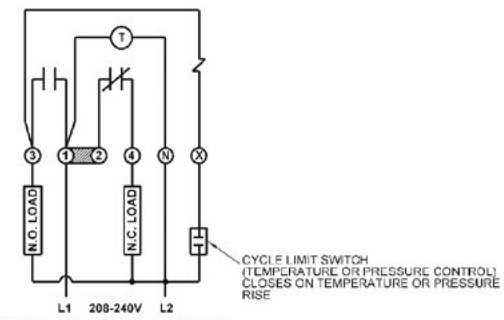
WIRING DIAGRAM SHOWN IN NORMAL POSITION DURING REFRIGERATION
CONTACTS 1-3 ARE OPEN
CONTACTS 2-4 ARE CLOSED

G8145-00



WIRING DIAGRAM SHOWN IN NORMAL POSITION DURING REFRIGERATION
CONTACTS 1-3 ARE OPEN
CONTACTS 2-4 ARE CLOSED

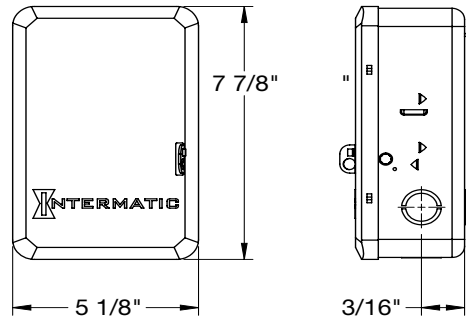
G8145-20

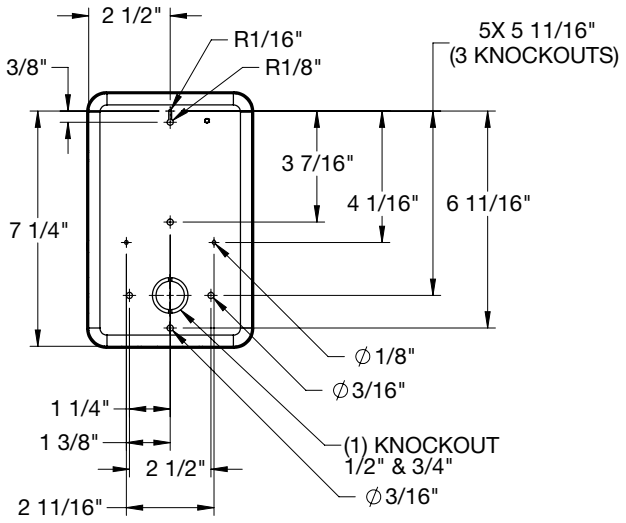


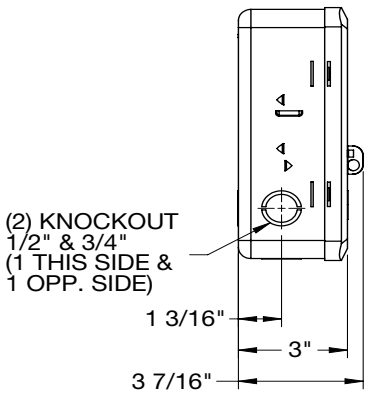
WIRING DIAGRAM SHOWN IN NORMAL POSITION DURING REFRIGERATION
CONTACTS 1-3 ARE OPEN
CONTACTS 2-4 ARE CLOSED

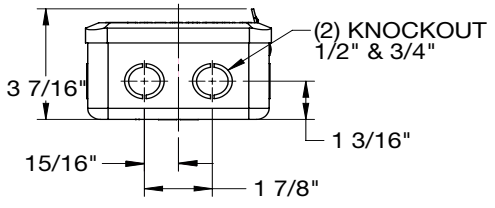
G8000 Series Dimensions

Type 1 Enclosure Dimensions









ERMATIC
SURGE PROTECTIVE DEVICE
ANSI/UL1449 3rd EDITION
LE
WITCH
CCB240
2 POLE
ON
OFF
OFF
INTERMATIC
Imable Surge Module
POWER
PROTECTION
ON: PROTECTED
OFF: REPLACE
INTERMATIC
POWER
PROTECTION
ON: PROTECTED
OFF: REPLACE
INTERMATIC
POWER
PROTECTION
ON: PROTECTED
OFF: REPLACE
WARNING
Risk of Electric Shock
Turn Module Power Switch to "OFF" position before replacing Consumable Surge Modules. Module Power Switch is NOT used as an over-current protection device (OCPD).
Mettez l'interrupteur d'alimentation du module en position d'arrêt (OFF) avant de changer les modules anti-surintensité consommables. L'interrupteur d'alimentation du module ne sert PAS de dispositif de protection contre les surintensités.
WARNING
Risk of Electric Shock
Disconnect power to unit at power source before servicing internal wiring for installation or maintenance. Replace dead front after servicing or installation. Service to be performed by qualified personnel only.

Surge Protection

An estimated $250-$500 million* a year is lost from property damage caused by power surges and spikes. Surge Protection is one of the most overlooked safeguards. Most people protect their electronics but leave more valuable equipment unsecured from surges and spikes. Don't be the next victim. Safeguard your equipment with Intermatic Surge Protection. Intermatic offers a complete line of surge protective devices for single family residences, commercial office spaces, HVAC/R equipment, pools and spas. It covers everything from irrigation and farm equipment to pumps, lighting fixtures, traffic lights, and motors. Why take the costly risk? Invest in peace of mind with Intermatic surge protective devices.

Every modern facility is a strong candidate for surge protection. Intermatic has a broad line of Service Entrance, Panelboard and Point-of-Use Surge Protection that is capable of protecting all types of facilities, such as Industrial Manufacturing, Commercial Office Space, Healthcare Facilities, Institutional Buildings, Government Buildings and Campuses, Hospitality, Retail Space, and Single or Multifamily Residences.

** National Lightning Detection Network*

Contents

Education 104-107
Type 1 or 2 SPD for Residential and Light Commercial 108-110
Type 3 SPD for Light Commercial and Industrial 111
Type 2 SPD - Includes Telephone and Coax Line Protection 112
Telephone or Coax Line Surge Protection 113
Type 1 or 2 SPD for Light Commercial and Outdoor 114
Type 1 or 2 HVAC Surge Protective Device 115

Causes of Power Disturbances

Electrical disturbances and downtime cost North American companies and residents more than $26 billion every year. Lightning and fluctuations in utility power (caused by grid switching, for example) are often suspected to be the main culprits. However, the overwhelming cause of power disturbances is actually from transient voltage surges from equipment inside a facility. In fact, it is estimated that 65% of all transient voltage surges are generated from inside sources, while only 35% come from outside.* Triggers of transient surges can range from the stopping and starting of motors, appliances and electronics, to even the simple action of switching lights ON and OFF.

** NEMA Surge Protection Institute*

What Requires Surge Protection?

Every process and appliance within a building is controlled by electrical equipment and electronic components. Virtually all devices that are powered by electricity are vulnerable. The following types of systems will benefit from surge protection:

- Home Theater Systems
- Computers/Peripherals/Servers
- HVAC/R Systems and Controls
- Electronically Commutated Motors
- Pool and Spa Systems and Controls
- Smart phones/Tablets/Gaming Systems
- Charging Equipment for Hybrid and Electric Cars
- Variable Frequency Drives
- Security and Fire Alarm Systems
- Programmable Logic Controllers
- Network Servers/Routers/Modems
- Lighting Ballasts
- Uninterruptible Power Supplies
- Home Automation Controls
- Pumps, Motors and Related Equipment with Electronic Controls or Starters
- Telecom Equipment
- Generator Automatic Transfer Switches (ATS)

ANSI/UL 1449 3rd Edition Surge Protection Compliance

UL 1449 2nd Edition underwent a major revision requiring additional safety testing at medium-fault current levels for Transient Voltage Surge Suppressors (TVSS). UL 1449 3rd Edition was published in September 2006 with compliance required by September 2009. The major differences are:

- UL 1449 3rd Edition is now an American National Standard (ANSI)
- Change in terminology from Transient Voltage Surge Suppressors to Surge Protective Devices (SPD)
- Voltage Protection Rating (VPR) is now tested at 6 kV/3 kA
- Nominal Discharge Current (In) is a new addition

Terminology Change

The full title of UL 1449 2nd Edition is, "UL Standard for Safety for Transient Voltage Surge Suppressors, UL 1449". The new title of UL 1449 3rd Edition is, "UL Standard for Safety for Surge Protective Devices, UL 1449." "Surge Protective Devices" is a more general description and covers devices beyond what we formerly called TVSS. The term SPD also covers what are referred to as Secondary Surge Arrestors.

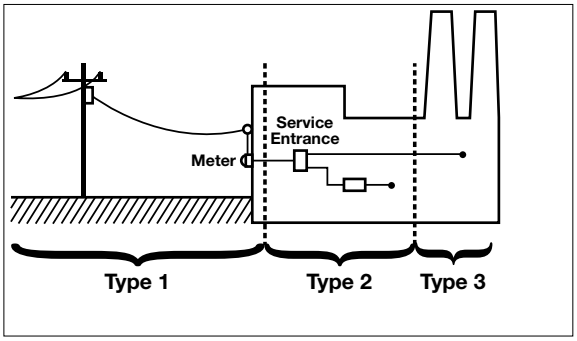
UL 1449 3rd Edition gives four designations to surge protective devices depending on where in the electrical system the device is connected.

Type 1 — Permanently connected device installed before or after the service disconnect overcurrent device and intended to be installed with no external overcurrent protective device. This type of SPD most closely relates to devices that were called secondary surge arrestors prior to 3rd Edition.

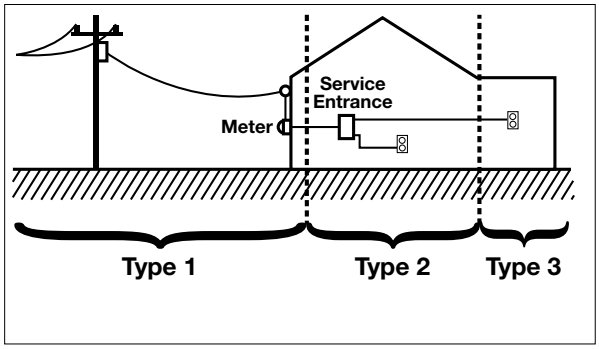
Type 2 — Permanently connected device installed after the service disconnect overcurrent device. This type of SPD most closely relates to devices that were called transient voltage surge suppressors prior to 3rd Edition.

Type 3 — Point of use SPDs that are installed with a minimum of 30 feet of conductor length from the service panel. These 30 feet of conductor length does not include conductors used to attach the SPD. Some examples of Type 3 SPDs are cord connected, direct plug-in and receptacle type SPDs.

Industrial



Residential



Voltage Protection Rating (VPR)

The measured limiting voltage test in UL 1449 3rd Edition uses a 6 kV/3 kA combination wave surge to determine the Voltage Protection Rating (VPR) of the SPD. This test is similar to the Suppressed Voltage Rating (SVR) as performed in UL 1449 2nd Edition. The key difference between the tests in 2nd Edition and 3rd Edition is that the magnitude of the current used for the test is six times greater in 3rd Edition versus 2nd Edition. This much higher current level will mean that the Voltage Protection Rating (VPR) will likely be significantly higher.

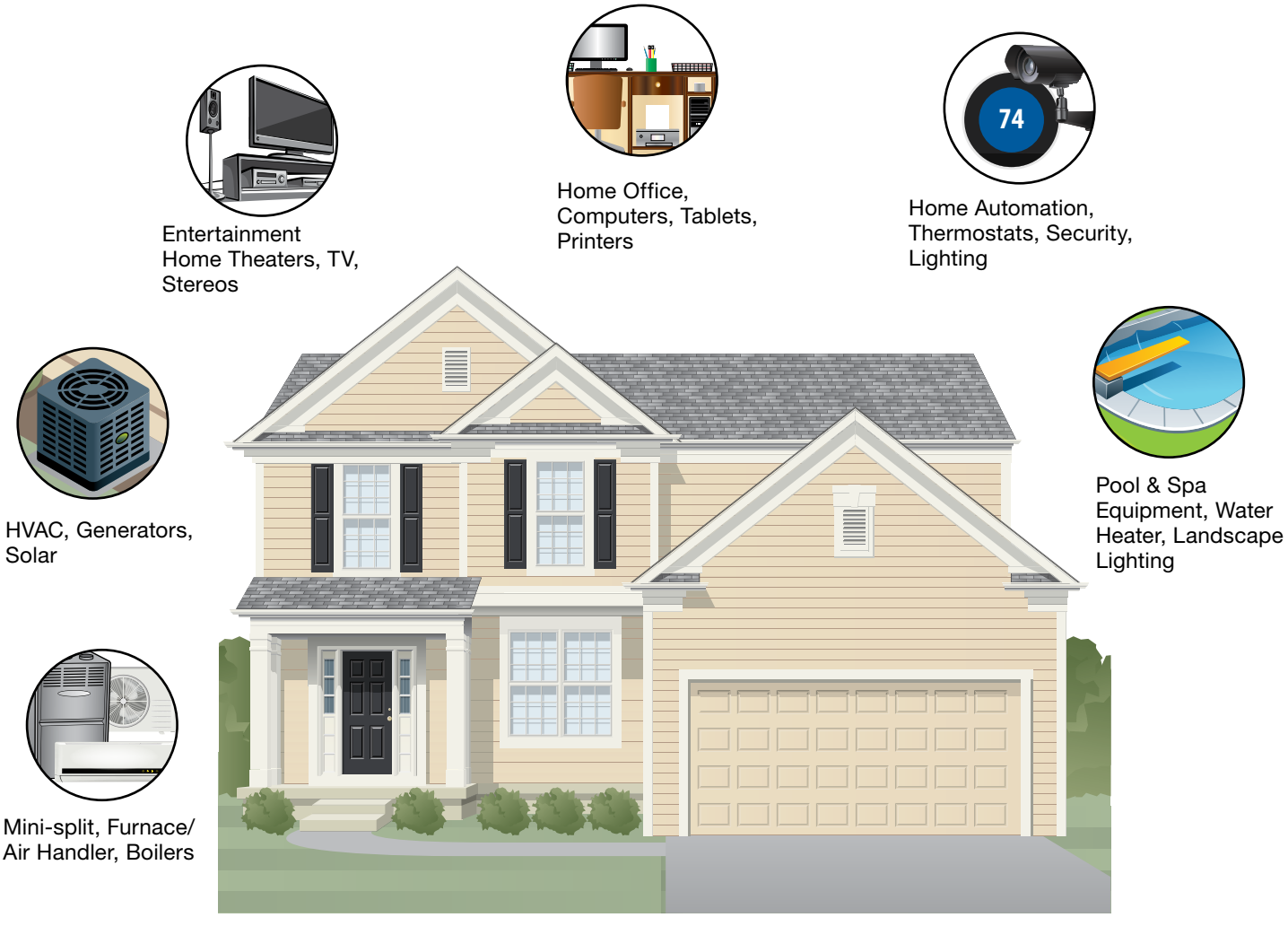
Nominal Discharge Current (In)

The addition of the nominal discharge current test is new to UL 1449 3rd Edition. The nominal discharge current value is selected by the manufacturer and can be either 10 kA or 20 kA for a Type 1 SPD or 3 kA, 5 kA, 10 kA or 20 kA for Type 2 SPDs. The SPD is tested by being subjected to a total of 15 impulses of the manufacturer-selected nominal discharge current.

Joule Ratings

Many end-users look at Joule ratings to determine which surge protector to purchase. Unfortunately, Joule ratings can be misleading according to IEEE research. When a surge protector is submitted for third party agency testing. A Joule rating is not a tested parameter. Joule ratings are an unreliable measurement for determining a product's surge protection capacity because there is no clear standard for energy ratings of SPDs on Joules.

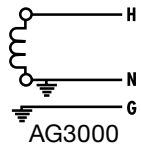
Typical Surge Protective Device (SPD) Applications



Common Voltage Configurations

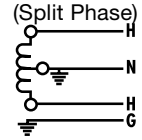
The wiring diagrams below illustrate the common voltage configurations for Intermatic surge products. Locate the desired voltage configuration and surge protector part number, and then go to the applicable product page to order the desired item(s).

120 VAC Single Phase



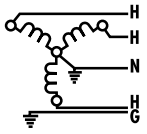
AG3000
AG2401C3
IG1240RC3
IG3240RC3
IG1300-2T-1C3
IG1300-4T-2C3
IG2240 Series
IG2280 Series

120, 240 VAC Single Phase
(Split Phase)



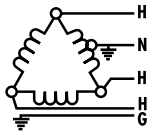
AG3000
IG1240RC3
IG3240RC3
IG1300-2T-1C3
IG1300-4T-2C3
IG2240 Series
IG2280 Series

120, 208 VAC Three Phase Wye



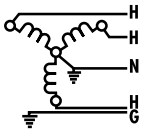
AG2083C3

120, 240 VAC Three Phase HLD
(High Leg Delta)



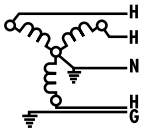
AG2403C3

277, 480 VAC Three Phase Wye



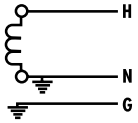
AG4803C3

347, 600 VAC Three Phase Wye



AG6503C3
AG6503L3

277, 480 VAC Single Phase



AG4801C3

Note: All SPDs protect against surges that travel along the electrical pathway and are not applicable to direct lightning strikes that travel down non-electrical paths. Be sure to have at least a 20 A dual pole breaker(s) to help prevent the circuits from shorting. Type 1 SPDs are normally mounted before panels, which would not include a breaker.

Surge Glossary

Maximum Continuous Operating Voltage (MCOV): The maximum RMS voltage that may be applied to each mode of a surge protection device. (Listed on the product)

Modes Of Protection: Electrical paths within a system which an SPD offers defense against surge events. Examples of protection include, Line to Neutral (L-N), Line to Ground (L-G), Line to Line (L-L) and Neutral to Ground (N-G). (Listed on the product)

Nominal Discharge Current (In): Peak value of the current through the SPD having a current wave shape of 8/20 where the SPD remains functional after 15 surges. (Listed on the product)

Nominal System Voltage: The voltage level at which a system normally operates. Nominal system voltages include, but are not limited to, 120, 208, 240, 277, 347, 480, 600 VAC. (Listed on the product)

Short Circuit Current Rating (SCCR): The measurement of how much current the electrical system can supply during a fault condition. This value determines where an SPD may be installed.
(Listed on the product)

Surge: A sudden and sharp increase of current or voltage within electric circuits.

Surge Protective Device (SPD): A device used to limit a surge on equipment by diverting or limiting it. SPDs were previously known as Transient Voltage Surge Suppressors or secondary surge arresters.

Voltage Protection Rating (VPR): The value assigned by UL which specifies the measured limited voltage value of the SPD. VPR rating is formally known as the “suppressed voltage rating”. (Listed on the product)

IG2240-IMS

IG2280-OM

IG2240-P

Surge Protective Device with Consumable Modules

IG2200 Series

The Surge Protective Device (SPD) with Consumable Modules provides coverage of your customer's big investment equipment, from appliances and computers, to HVAC equipment and TVs. This innovative SPD uses Consumable Modules with LED lights for quick and easy indication when protection has been compromised. A blue light indicates the SPD unit is ON and a green light indicates surge protection is active. Trusted, state-of-the-art TPMOV® (Thermally Protected Metal Oxide Varistor) surge protection technology eliminates the potentially hazardous failure modes that are commonly associated with standard MOV technology. Type 1 applications include outdoor installations before service entrances and utility meter cabinets. Type 2 applications include installations after service entrances. UL Listed to ANSI/UL 1449 3rd edition.

Applications

• Residential • Light Commercial

Features

- 6 Modes of protection
- TPMOV® surge protection technology
- Module Power Switch, included on select models, enables convenient disconnection of power at the SPD when replacing Consumable Modules
- Includes three Consumable Modules with LED power and protection status lights
- Consumable Modules replace quickly and easily, eliminating the need to install a new SPD unit
- Tamper-proof Consumable Module doors, will only open when Consumable Module is being inserted
- Type 3R Rainproof Enclosure for indoor/outdoor applications in plastic or metal
- 10-year product warranty
- $25,000 connected equipment warranty for 10 years on appliances and electronics

c UL us

US SPD Type1
Canada SPD Type 2

Ratings	
Service Voltage	120/240 VAC, 50-60 Hz
Phase	Single
Modes of Protection	6 (L1-N, L2-N, L1-G, L2-G, N-G, L1-L2)
Surge Protection Technology	TPMOV®
Operating Temperature	-31° F to 185° F (-35° C to 85° C)
# of Leads / Length	4 / 18"
Lead Gauge	#10 AWG
Dimensions H x W x D	See page 109 for dimensions
Product Warranty	10-year
Connected Equipment Warranty	10-year/$25,000

Accessories	In* (kA)	SCCR** (kA)	
Replacement Consumable Module for IG2240 Series	10 kA	10 kA	IG120RSM10
Replacement Consumable Module for IG2280 Series	20 kA	100 kA	IG120RSM20
Flush Mount Kit for IG2240-IM, IG2240-IMS, IG2280-IM			IG2200-FMK

IG120RSM10

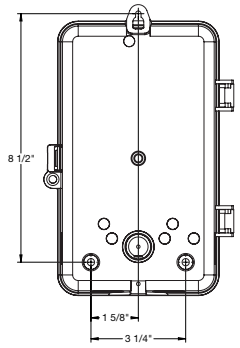
IG2200-FMK

Model #	SPD Type	In* (kA)	SCCR** (kA)	MCOV†	VPR‡	Module Power Switch
Type 3R Rainproof, Plastic Enclosure						
IG2240-PS	1 or 2	10	10	L-N, N-G 150 L-L, L-G 300	L-L 1500 L-G 1500 L-N 800 N-G 700	Yes
	2	20	100	L-N, N-G 150 L-L, L-G 300	L-L 1200 L-G 1500 L-N 800 N-G 700	No
IG2240-P	2	10	10			No
Type 3R Rainproof, Metal Enclosure						
IG2240-OMS	1 or 2	10	10	L-N, N-G 150 L-L, L-G 300	L-L 1500 L-G 1500 L-N 800 N-G 700	Yes
	2	20	100	L-N, N-G 150 L-L, L-G 300	L-L 1200 L-G 1500 L-N 800 N-G 700	No
IG2240-OM	2	10	10			No
Type 1 Indoor, Metal Enclosure						
IG2240-IMS	1 or 2	10	10	L-N, N-G 150 L-L, L-G 300	L-L 1500 L-G 1500 L-N 800 N-G 700	Yes
	2	20	100	L-N, N-G 150 L-L, L-G 300	L-L 1200 L-G 1500 L-N 800 N-G 700	No
IG2240-IM	2	10	10			No

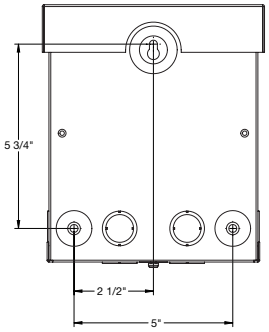
*Nominal Discharge Current
**Short Circuit Current Rating
†Maximum Continuous Operating Voltage
‡Voltage Protection Rating

Dimensions for IG 2200 Series

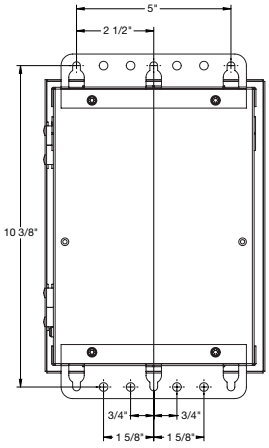
Plastic Indoor/Outdoor Enclosure



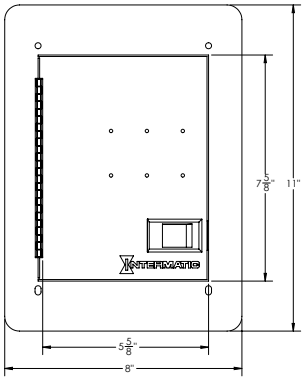
Metal Outdoor Enclosure



Metal Indoor Enclosure

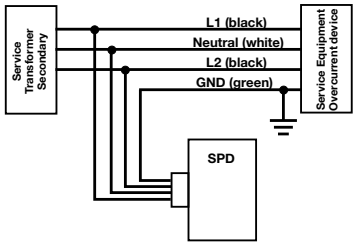


Flush Mount Kit



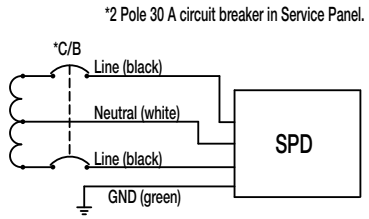
Type 1 Installation

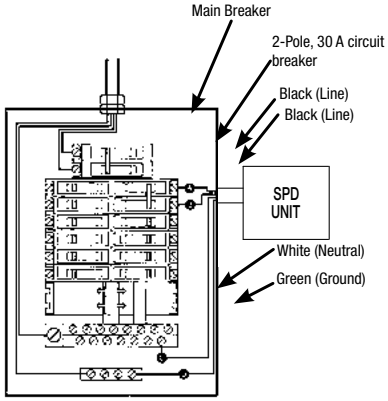
120/240 VAC Single-Phase



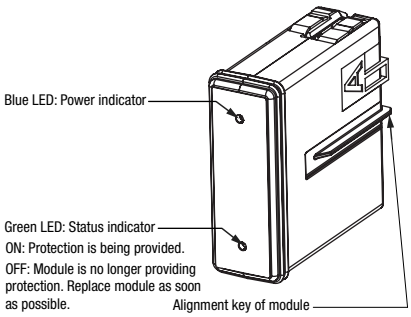
Type 2 Installation

120/240 VAC Single-Phase





Replaceable Consumable Module

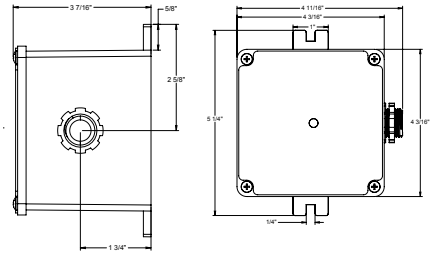


Surge Protection

Type 1 or 2 SPD for Residential and Light Commercial

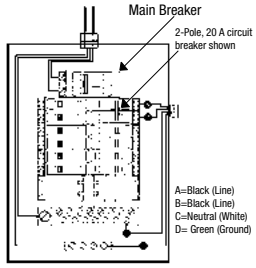
IG3240RC3

Dimensions

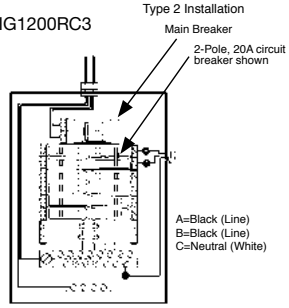


Type 2 Installation

IG1240RC3/IG3240RC3



IG1200RC3



Type 1 or Type 2 SPD

IG Series

The IG Series Surge Protective Devices (SPD) are designed for a variety of applications. A green LED indicator provides status of protection. Trusted, state-of-the-art TPMOV® (Thermally Protected Metal Oxide Varistor) surge protection technology eliminates the potentially hazardous failure modes that are commonly associated with standard MOV technology. Type 1 applications include outdoor installations before service entrances and utility meter cabinets. Type 2 applications include installations after service entrances. CSA certified to ANSI/UL 1449 3rd edition.

Applications

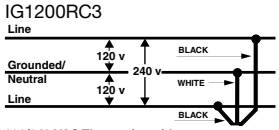
• Residential • Light Commercial

Features

- Three or six modes of surge protection depending on model
- TPMOV® surge protection technology
- Green LED indicator provides status of protection
- Type 3R rainproof enclosure for indoor/outdoor applications in plastic or metal
- 3, 5 or 10-year product warranties
- $7,500, $10,000 or $25,000 connected equipment warranties on appliances and electronics

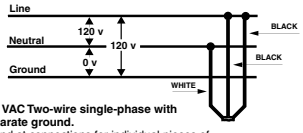
Type 1 Installation

IG1200RC3



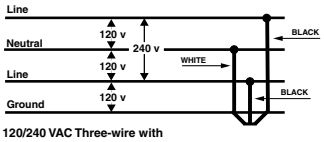
120/240 VAC Three-wire with grounded neutral.
Found at Service entrances and Meter Cans.

IG1200RC3



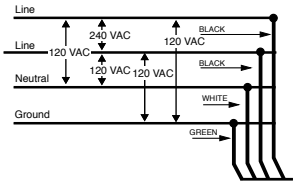
120 VAC Two-wire single-phase with separate ground.
Found at connections for individual pieces of equipment such as pumps and single-phase motors.
NOTE: Both Black wires connect to Line.

IG1200RC3



120/240 VAC Three-wire with separate ground.
Found in Main Disconnect Switches, Main Distribution panels, Load Centers Sub panels and equipment locations.

IG1240RC3/IG3240RC3



Model #	Modes of Protection	MCOV*	VPR**	No. of Leads/ Length	Lead Gauge	Product Warranty	Connected Equip Warranty
Type 3R Rainproof, Plastic							
IG1200RC3	3 (L1-N, L2-N, L1-L2)	L-N/G 150 L-L 300	L-L 1200 L-N/G 700	3 / 30"	#12 AWG	3-Year	3-Year/$7,500
	6 (L1-N, L2-N, L1-G, L2-G, N-G, L1-L2)	L-N, N-G 150 L-L, L-G 300	L-L 1200 L-G 1200 L-N 700 N-G 700	4 / 30"	#12 AWG	5-Year	5-Year/$10,000
Type 3R Rainproof, Metal							
IG3240RC3	6 (L1-N, L2-N, L1-G, L2-G, N-G, L1-L2)	L-N, N-G 150 L-L, L-G 300	L-L 1200 L-G 1200 L-N 700 N-G 700	4 / 30"	#12 AWG	10-Year	10-Year/$25,000

**Maximum Continuous Operating Voltage*
***Voltage Protection Rating*

US LR38068 TYPE 1
C US LR38068 TYPE 2

Ratings	
Service Voltage	120/240 VAC, 50-60 Hz
Phase	Single
SPD Type	1 or 2
In† (kA)	20
SCCR†† (kA)	50
Surge Protection Technology	TPMOV®
Operating Temperature	-31° F to 185° F (-35° C to 85° C)
Dimensions	See dimension drawings above

† Nominal Discharge Current †† Short Circuit Current Rating

Accessories

Flush Mount Kit for IG1200RC3 / IG1240RC3	IG1240FMP33
Flush Mount Kit for IG3240RC3	IG3240FMP33

IG1240FMP33

IG3240FMP33

Point-of-Use Surge Strips

IG Series

Type 3 Point-of-Use Surge Protective Devices (SPD) are designed for heavy industrial use with 3 modes of surge protection (L-N, L-G, N-G). Features a 15 A resettable breaker and #14 AWG SJT power cord with molded plug. CSA certified to ANSI/UL 1449 3rd edition.

Applications

• Commercial • Industrial

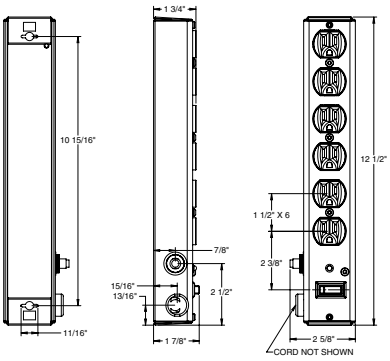
Features

- 3 Modes of protection
- Metal Oxide Varistor (MOV) surge protection technology
- 15 A resettable breaker
- #14 AWG SJT power cord with molded plug
- LED protection indicator
- Extruded aluminum housing
- 5-year product warranty
- $5,000, $10,000, or $25,000 connected equipment warranties on appliances and electronics

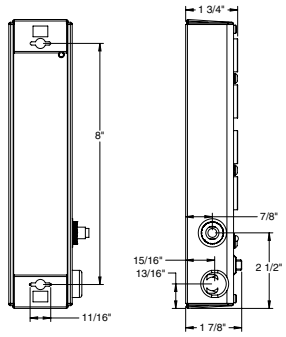
IG112463

IG112663

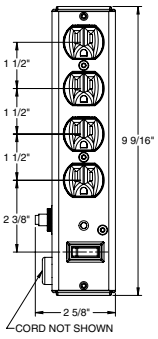
Dimensions

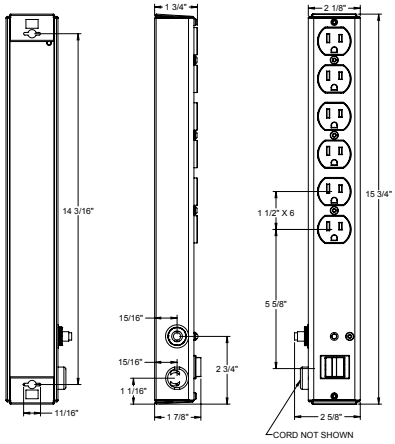


Dimensions for IG112663, IG112663BLK10



Dimensions for IG112463





Dimensions for IG20663, IG206153, IG20B123, IG2012B153

Model #	Voltage Protection Rating	Cord Length	Outlets	Illuminating ON/OFF Switch	EMI/RFI Noise Filtration	Color	Product Warranty	Connected Equipment Warranty
IG112463	L-N 700 L-G 600 N-G 600	6'	4	Yes	No	White	5-Year	5-Year/$10,000
IG112663		6'	6	Yes	No	White	5-Year	
IG112663BLK10		10'	6	Yes	No	Black	5-Year	
	L-N 400 L-G 400 N-G 500	6'	6	No	Yes	White	5-Year	5-Year/$25,000
		15'	6	No	Yes	White	5-Year	
IG20B123	L-N 700 L-G 600 N-G 600	6'	6	No	Yes	White	5-Year	5-Year/$5,000
IG2012B153		15'	6	No	Yes	White	5-Year	

Accessories

Mounting Bracket Plate for all IG strips; Extruded Aluminum Alloy; 6" x 1 15/16" (152 mm x 50 mm)	24EG5133

24EG5133

Ratings	
Service Voltage	125 VAC, 15 A, 60 Hz
SPD Type	3
MCOV*	130
Surge Protection Technology	MOV
Operating Temperature	-4° F to 104° F (-20° C to 40° C)
Dimensions	6 " x 1 15/16 " (152 mm x 50 mm)
Product Warranty	5-year limited

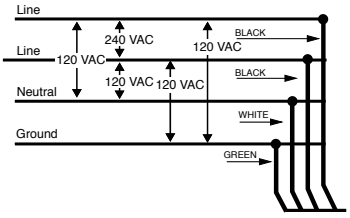
Maximum Continuous Operating Voltage

Surge Protection

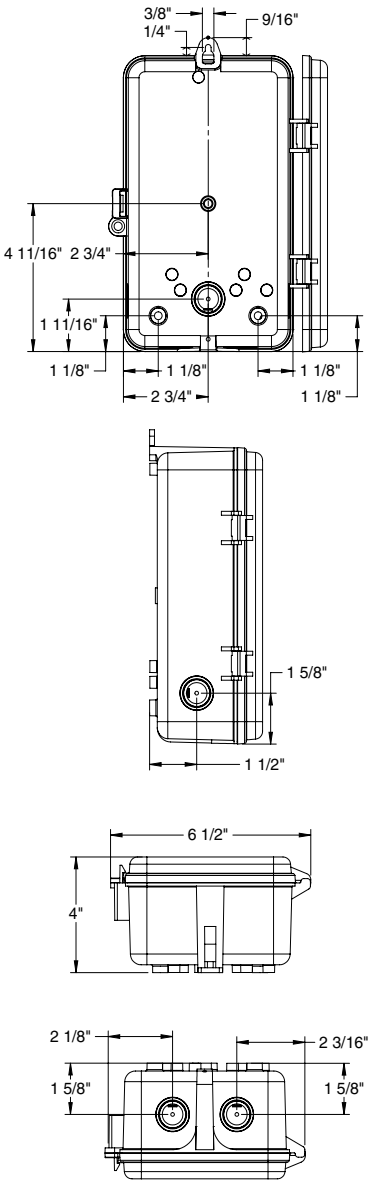
Type 2 SPD - Includes Telephone and Coax Line

IG1300-2T-1C3

Wiring Diagrams



Dimensions



Type 2 SPD Panel Guard

IG1300 Series

The IG1300 Series provides protection for telephone and coax lines in addition to AC Power. Trusted, state-of-the-art TPMOV® (Thermally Protected Metal Oxide Varistor) surge protection technology eliminates the potentially hazardous failure modes that are commonly associated with standard MOV technology. A green LED indicator provides status of protection. The IG1300 Series Surge Protective Devices are designed for Type 2 applications for installations after service entrances. CSA certified to ANSI/UL 1449, 3rd edition, UL 497A for phone line, and UL 497B for coax cable.

Applications

• Residential • Light Commercial

Features

- Six modes of protection for AC SPD
- TPMOV® surge protection technology for AC SPD
- Green LED indicator provides status of protection
- Provides telephone (analog phone line, modem, or DSL) and coax line protection (cable TV, cable Internet, or Satellite TV)
- Type 3R plastic rainproof enclosure for indoor/outdoor installations
- UL 497A is for telephone protection
- UL 497B is for coax protection
- 5-year product warranty
- $10,000 connected equipment warranty for 5 years on appliances and electronics

C US
LR38068
TYPE 2

Ratings	
Service Voltage	120/240 VAC, 50-60 Hz
Phase	Single
SPD Type	2
Modes of Protection	6 (L1-N, L2-N, L1-G, L2-G, N-G, L1-L2)
In (kA)*	20
SCCR (kA)**	50
Surge Protection Technology	TPMOV® (AC only)
Operating Temperature	-31° F to 185° F (-35° C to 85° C)
# of Leads / Length	4 / 24"
Lead Gauge	#12 AWG
Dimensions H x W x D	6½" x 4" x 10" (165 mm x 102 mm x 254 mm)
Product Warranty	5-year
Connected Equipment Warranty	5-year/$10,000

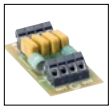
Nominal Discharge Current
**Short Circuit Current Rating*

Model #	Enclosure	No. of Telephone Lines Protected	No. of Coax Lines Protected	MCOV†	VPR‡
IG1300-2T-1C3	Type 3R Plastic	2	1	L-N, N-G 150 L-L, L-G 300	L-L, L-G 1200 L-N, N-G 700
		4	2		

†Maximum Continuous Operating Voltage
‡Voltage Protection Rating

Accessories

Spare telephone/modem/DSL Internet protection module for IG1300-2T-1C3	IG2T



IG2T

INTERMATIC®

Coax or Telephone Line Protective Devices

IG Series

The IG Series Telephone Line or Coax Cable Protective Devices are designed for indoor or outdoor installations. Listed to UL 497A for phone line and UL 497B for coax cable.

Applications

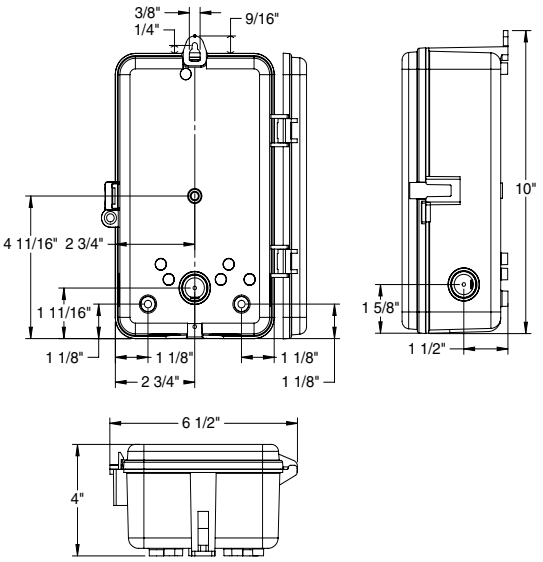
• Residential • Light Commercial

Features

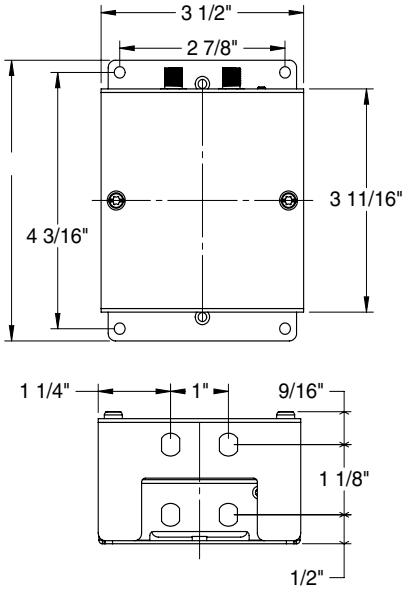
- Modes of protection: Tip-to-ground, tip-to-ring, and ring-to-ground for telephone models
- Provides telephone (analog phone line, modem, or DSL) and coax line protection (cable TV, cable Internet, or satellite TV)
- #24 to #16 AWG for telephone models
- Type F Thread for coax models
- Gas tube protection
- UL 497A is for telephone protection
- UL 497B is for coax protection
- 5-year product warranty
- $10,000 connected equipment warranty for 5 years on appliances and electronics

Dimensions

IG2T3R, IG1C3R



IG1CM, IG2TM, IG4TM

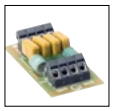


IG2TM

Model #	Enclosure	No. of Telephone Lines Protected	Wire Configuration	No. of Coax Lines Protected	Modes of Protection	Surge Technology
IG2TM	Type 1 Indoor, Metal	2	4	–	Tip-to-Ground, Tip-to-Ring, Ring-to-Ground	Gas Tube Protection 350 VDC Breakdown
		4	8	–		
IG2T3R	Type 3R Rainproof, Plastic	2 (Expandable Up to 12)	4 (Up to 24 Wire)	–		
	Type 1 Indoor, Metal	–	–	1 (Expandable Up to 2)	–	Gas Tube Protection 90 VDC Breakdown
IG1C3R	Type 3R Rainproof, Plastic	–	–	1 (Expandable Up to 6)	–	

Accessories

2 Spare Telephone/Modem/DSL Internet Protection Modules for IG1CM, IG1CM3R	IG2T
1 Spare Coax Cable Protection Module for IG1CM, IG1CM3R	IG1C



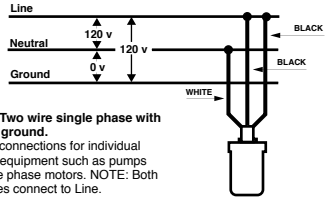
IG2T

IG1C

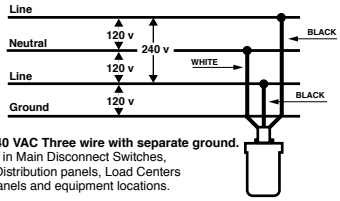
Surge Protection
Type 1 or 2 SPD for Light Commercial and Outdoor

AG2401C3

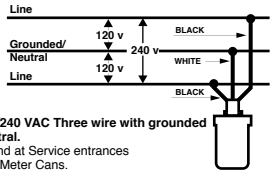
Wiring Diagrams for AG2401C3



120 VAC Two wire single phase with separate ground.
Found at connections for individual pieces of equipment such as pumps and single phase motors. NOTE: Both Black wires connect to Line.



120/240 VAC Three wire with separate ground.
Found in Main Disconnect Switches, Main Distribution panels, Load Centers Sub panels and equipment locations.



120/240 VAC Three wire with grounded neutral.
Found at Service entrances and Meter Cans.

US LR38068 TYPE 1 | C US LR38068 TYPE 2

Ratings	
SPD Type	1 or 2
In† (kA)	20
SCCR‡ (kA)	50
Surge Protection Technology	TPMOV®
Operating Temperature	-31° F to 185° F (-35° C to 85° C)
Dimensions H x Dia	4 3⁄16" x 3" (106 mm x 76 mm)
Product Warranty	1-year

†Nominal Discharge Current
‡Short Circuit Current Rating

Type 1 or 2 SPD
AG Series

The AG Series Surge Protective Devices (SPD) are designed for a variety of applications. Trusted, state-of-the-art TPMOV® (Thermally Protected Metal Oxide Varistor) surge protection technology eliminates the potentially hazardous failure modes that are commonly associated with standard MOV technology. A green LED indicator provides status of protection. Type 1 applications include outdoor installations before service entrances and utility meter cabinets. Type 2 applications include installations after service entrances. Outdoor applications include irrigation equipment, farm equipment, pumps, lighting fixtures, traffic signaling devices, HVACR controls, and motors. UL Listed to ANSI/UL 1449 3rd edition or CSA certified to ANSI/UL 1449 3rd edition.

Applications
- Light commercial • Outdoor applications
- 3-Phase rooftop HVAC units

Features
- Three or six modes of protection
- TPMOV® surge protection technology
- Green LED protection indicator
- Type 4X watertight, plastic enclosure for outdoor installations
- UV-resistant polycarbonate housing
- ½" threaded nipple for ⅞" nominal conduit knockout
- 1-year product warranty

Model #	Service Voltage	Modes of Protection	MCOV**	VPR***	Lead Length	Lead Gauge
Single Phase Models						
AG2401C3*	120/240 VAC	3 (L1-N, L2-N, L1-L2)	L-L 300 L-G 150 L-N 150	L-L 1200 L-G 700 L-N 700	18"	#12 AWG
	277/480 VAC		L-L 640 L-G 320 L-N 320	L-L 2000 L-G 1200 L-N 1200	18"	#10 AWG (Black, White) #6 AWG (Green)
Three Phase Models						
AG2083C3	208 VAC	6 (L1-N, L2-N, L3-N, L1-L2, L1-L3, L2-L3)	L-L 300 L-G 150 L-N 150	L-L 1200 L-G 700 L-N 700	18"	#12 AWG
	277/480 VAC		L-L 640 L-G 320 L-N 320	L-L 2000 L-G 1200 L-N 1200	18"	#12 AWG
AG6503C3*	347/600 VAC		L-L 840 L-G 420 L-N 420	L-L 2500 L-G 1500 L-N 1500	18"	#10 AWG
AG6503L3*	347/600 VAC				36"	
	120/208/240 VAC High Leg Delta		L1/L3-NG 150 L2-NG 270 L1-L3 300 L1/L3-L2 420	L1/L3-NG 700 L2-NG 1000 L1-L3 1200 L1/L3-L2 1500	18"	#12 AWG

**CSA and UL Recognized*
***Maximum Continuous Operating Voltage*
****Voltage Protection Rating*

Accessories

Mounting Bracket for AG Series	AG1BRKT

AG1BRKT

Wiring Diagrams

For more details on model numbers /wiring diagrams / ratings scan the QR code with your smartphone or tablet.

HVAC Surge Protective Device

AG3000

Power surges are the silent killer for home appliances and HVAC equipment. Most homeowners protect their electronics, but leave more valued equipment unprotected. Surges can wipe out equipment and leave you searching for answers. Search no more. The easy-to-install AG3000 Surge Protective Device (SPD) is the perfect add-on for HVAC equipment.

A green LED indicator provides status of protection. Trusted, state-of-the-art TPMOV® (Thermally Protected Metal Oxide Varistor) technology eliminates the potentially hazardous failure modes that are commonly associated with standard MOV technology. UL Listed to ANSI/UL 1449 3rd edition.

AG3000

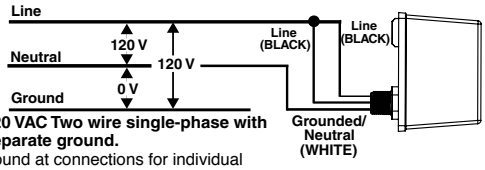
Applications

• Air handlers • Furnace • Central air conditioner
• Mini-Splits • Hydronic heating • Heat pumps

Features

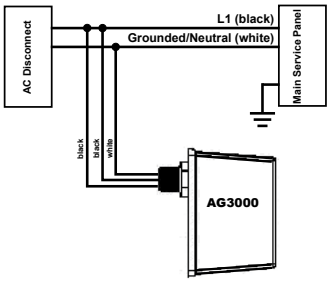
- Three modes of protection
- TPMOV® surge protection technology
- Green LED indicator provides status of protection
- Type 4X watertight and UV resistant plastic enclosure
- 3-year product warranty
- $7,500 connected equipment warranty for 3 years

Wiring Diagrams

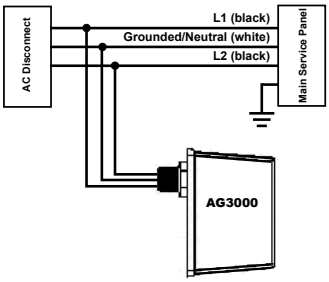


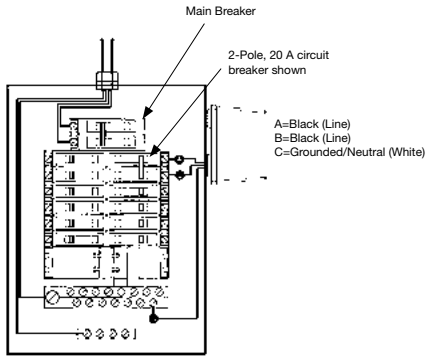
120 VAC Two wire single-phase with separate ground.
Found at connections for individual pieces of equipment such as pumps, single phase motors and HVAC applications.
NOTE: Both Black wires connect to Line.

AG3000 Wiring Diagram - Type 1
120 VAC



AG3000 Wiring Diagram - Type 1
240 VAC





Model	Enclosure
AG3000	Type 4X Watertight

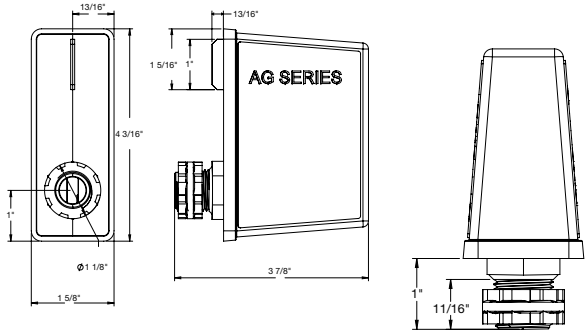
US SPD Type 1
Canada SPD Type 2

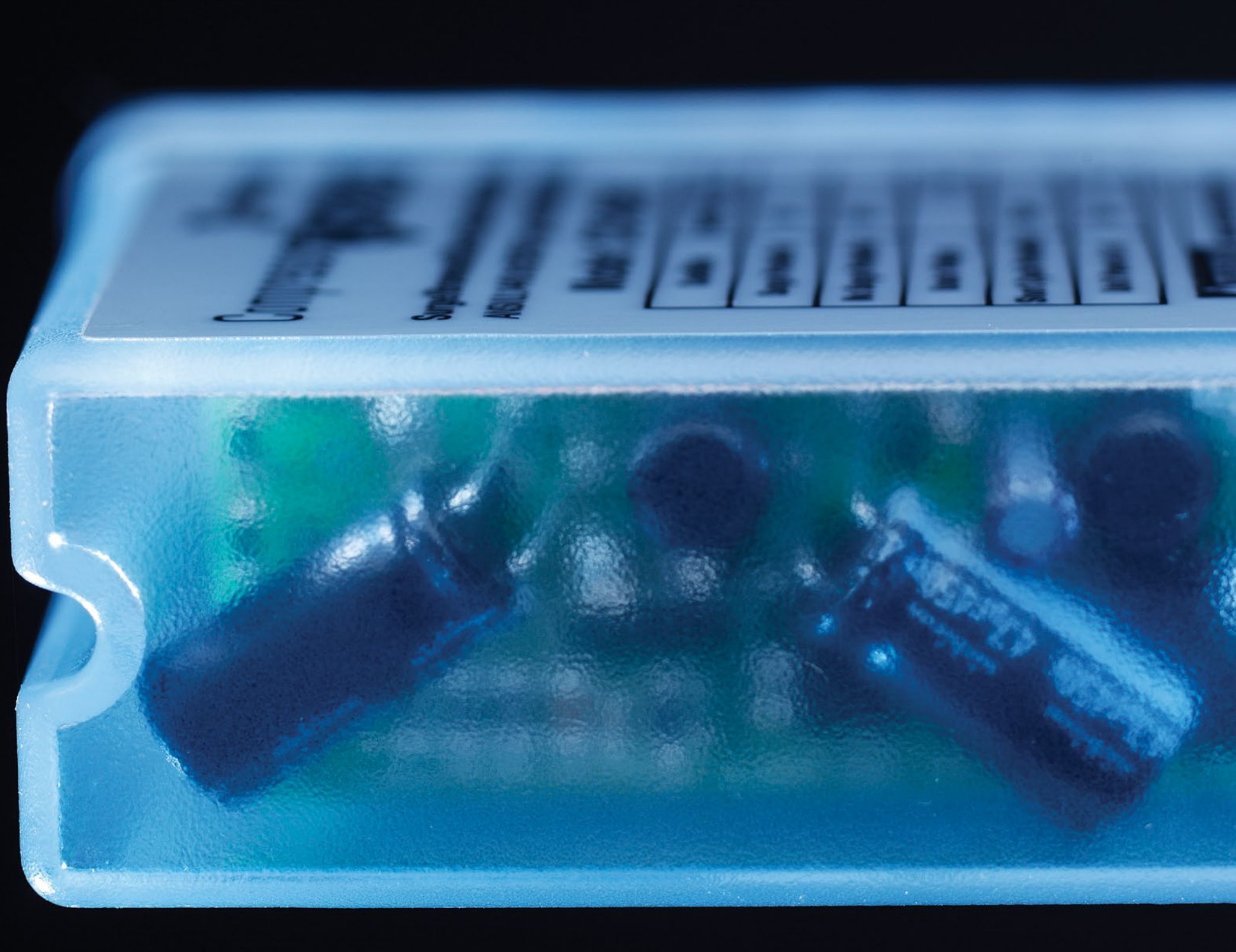
HVACR

Ratings	
Service Voltage	120/240 VAC, 50-60 Hz
Phase	Single
SPD Type	1 or 2
MCOV	L-N 150, L-L 300
In (kA)*	10
SCCR**	20
VPR‡	L-L 900, L-N/G 600
Modes of Protection	3 (L1-N, L2-N, L1-L2)
Surge Protection Technology	TPMOV®
Operating Temperature	-40º F to 158º F (-40º C to 70º C)
No. of Leads / Lead Length	3 / 18"
Lead Gauge	#10 AWG
Dimensions H x W x D	3 ⅞" x 1 ⅝" x 4 ³⁄₁₆" (98 mm x 41 mm x 106 mm)
Product Warranty	3-year
Connected Equipment Warranty	3-year/$7,500

†Maximum Continuous Operating Voltage
**Nominal Discharge Current*
***Short Circuit Current Rating*
‡Voltage Protection Rating

Dimensions





HVAC Power Protection

Power disturbances damage air conditioner compressors without warning. Let the Compressor Defender™ take the hit so your customers' central air conditioners or heat pumps are never damaged due to power quality issues or weather-related power disturbances. The all-in-one Compressor Defender™ device protects compressors, circuit boards and all electrical associated controls in residential and light commercial central air conditioners and heat pumps from brownouts, surges, and system short cycling.

Contents

Undervoltage, Surge and Short Cycle Protection 118-119

CD1-024R

Compressor Defender™ Undervoltage, Surge, and Short Cycle Protective Device

CD1-024R

The Compressor Defender™ is the only all-in-one undervoltage and surge power protection device on the HVAC Market, providing protection for central A/C and heat pump condensing units and their associated motors, controls, and components—both electronic and mechanical. It can be installed inside the condensing unit or externally on the outdoor A/C disconnect.

Autosense voltage technology protects at any voltage from 120-240 VAC, making it an ideal solution for residential or light commercial installations. Trusted, state-of-the-art TPMOV® (Thermally Protected Metal Oxide Varistor) surge protection technology eliminates the potentially hazardous failure modes that are associated with standard MOV technology. The device is also designed with integrated, 3-minute short cycle time delay protection.

Applications

- 1 or 2-stage central air conditioners and heat pumps for residential and light commercial heating and cooling, or pool and spa heating systems

Features

- TPMOV® (Thermally Protected Metal Oxide Varistor) surge protection technology
- 3-year, $7500 connected equipment warranty
- Patent-pending auto-sense voltage technology
- Quick-reacting, 3-line cycle undervoltage response time
- 120-240 VAC universal input
- 24 VAC/VDC, 2 A control thermostat output
- 3-Minute short cycle time delay
- Two LED indicators provide real time status for quick and easy troubleshooting and functional visibility for end users
- Surge protection complies with the latest UL 1449 3rd Edition surge protective device requirements
- Undervoltage protection complies with AHRI standard 110-2012 Range B[2] Protective Device

Ratings:		
Input Voltage	120-240 VAC, Single Phase, 60 Hz	
Thermostat Relay	Normally Closed Relay, 24 VAC	
SPD Type	Type 2 SPD	
Control Output Current Rating	2 A @ 24 VAC, isolated NC contact	
Max Continuous Overvoltage (MCOV)	L-N/G: 150V, L-L: 300V	
Voltage Protection Rating (VPR)	L-N/G: 700, L-L: 1200	
Nominal Discharge Rating	In (10 kA)	
SCCR (Short Circuit Current Rating)	20 kA	
Undervoltage Response Time	3 line cycles	
Short Cycle Delay	3 min	
Operating Temp	-40º F to 158º F (-40º C to 70º C)	
Enclosure	Type 3 Outdoor	
Wire Size	#10 AWG	
Shipping Weight	1.2 lbs	
Product Warranty	3-year limited	
Connected Equipment Warranty	3-year / $7500	
Undervoltage Pickup Table	**Nominal System Voltage**	**Range B[2] Protection**
	120 VAC	106 VAC
	208 VAC	184 VAC
	240 VAC	212 VAC

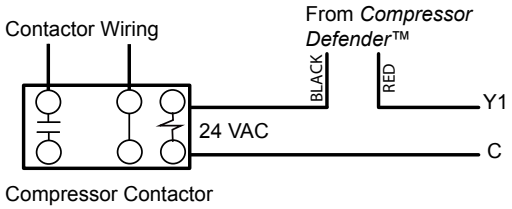
Model	Enclosure
CD1-024R	Type 3 Outdoor

Specification

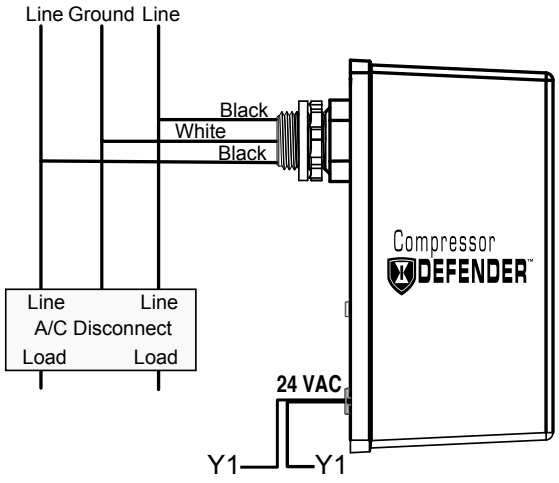
Furnish and install an Intermatic CD1-024R Compressor Defender™. The unit shall protect HVAC Compressors (Scroll & Reciprocating), and the electronics inside central air conditioners, heat pumps, light commercial packaged rooftop units, or pool and spa heating systems, from under/overvoltage conditions, surge events, and system short cycling caused from AC power interruptions. The unit shall be capable of opening up to a 2 A @ 24 VAC thermostat connection. The unit shall be compatible with 120, 208, and 240 VAC voltage systems. The unit shall provide Type 2 surge protection with a nominal discharge current rating of 10 kA, a short circuit current rating of 20 kA, and a voltage protection rating of L-N/G: 700, L-L: 1200. The unit shall have a 3-minute short cycle delay. The Compressor Defender™ shall have normally closed operation. If surge or voltage monitoring protection is lost, the unit shall continue normal compressor and thermostat operation without surge protection.

Wiring Diagrams

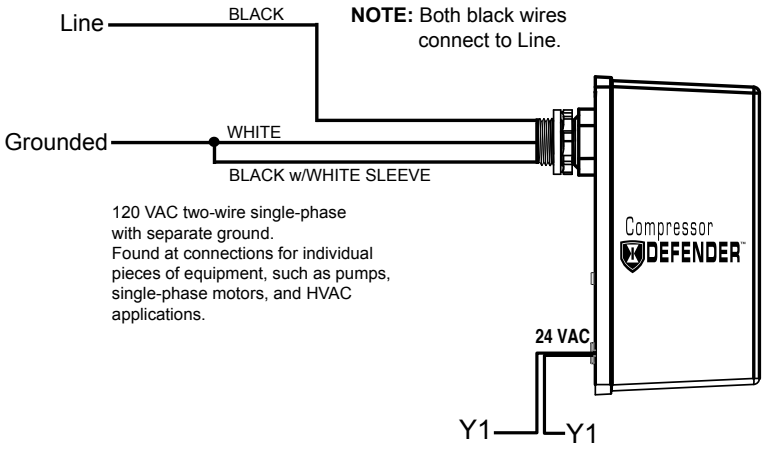
Applicable to both single and two-stage central A/C & heat pumps.



Typical 208/240 VAC Recommended Application

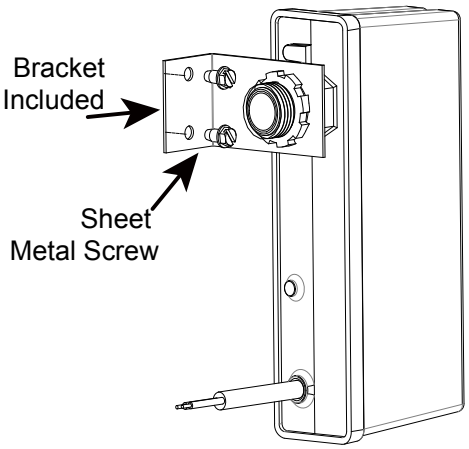


Typical 120 VAC Application



Mounting

Mounting Inside Panel/ Condenser



LED Diagnostic Indicator Key

Condition	Green LED	Red LED
Surge Protection	ON	-
No Surge Protection	OFF	-
Undervoltage	-	Flash
Short Cycle Protection	Flash	-
Unit Power Lost	OFF	OFF

INTERMATIC®
MEETS NEC 2014 SECTION 406.9 (B1) REQUIREMENTS FOR
EXTRA DUTY AND WET LOCATIONS WHEN COVER IS CLOSED

Weatherproof Covers

Our durable line-up of Die-Cast and Plastic Weatherproof Covers offers long-lasting protection in all types of rugged applications: industrial, commercial, manufacturing, residential, and more! Time-saving features and resilient construction make these weatherproof covers the most versatile around.

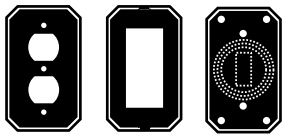
Stay compliant 2014 NEC Article 406.9 (B)(1) Intermatic Extra-Duty Weatherproof Covers meet or exceed the latest NEC requirements for extra-duty applications and wet locations.

- For the 2014 NEC, all 15 and 20 A, 125 and 250 VAC receptacles installed in a wet location still must have enclosures and covers that are weatherproof, whether an attachment plug cap is inserted or not.
- A revision now requires all enclosures and covers installed in wet locations for 15 and 20 A, 125 and 250 VAC receptacles to be Listed, and of the "extra duty" type, not just boxes supported from grade.
- This requirement is enforced at dwelling units as well. The requirement for weather-resistant type receptacles in wet locations is still applicable in the 2014 NEC. This also applies to Article 590.4(D)(2) for extra-duty covers for all 15 and 20 A, 125 and 250 VAC receptacles installed in temporary installations in a wet location.
- Exceeds CEC Article 26-702.

Contents

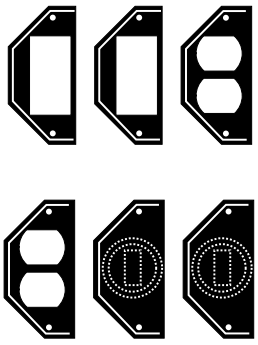
Accessories and Outlet Post.....122
Extra-Duty Die-Cast In-Use Covers.....123
Extra-Duty Plastic In-Use Covers..... 124-125
Plastic In-Use Covers 126-129

WP17

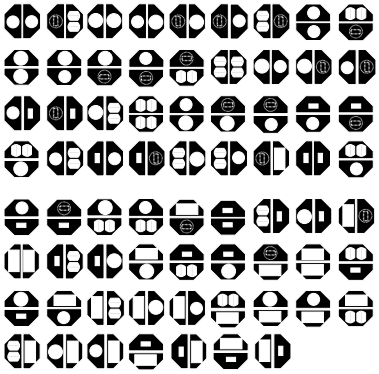


16 Configurations in One

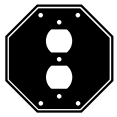
WP217



70 Configurations in One



WP101



WP102

WP107

WP213

WP10HP

Single and Double-Gang Inserts

For Weatherproof Covers

These Flexi-Guard Inserts fit single-gang or double-gang models of all plastic, extra-duty plastic, and extra-duty die-cast models. Each insert package can be purchased separately. All weatherproof covers come with inserts, mounting screws, gasket, base, and cover assembly.

Applications

- Industrial • Commercial • Manufacturing • Residential
- Agricultural • Signage • Athletic fields

WP17 Single-Gang Insert Features

- Standard in all single-gang covers
- Three inserts - 16 possible configurations
- Converts to either toggle or round receptacle sizes: 1 ⅜" (35 mm), 1 ⅝" (41 mm), 1 ⅞" (48 mm) or 2 ⅛" (54 mm)

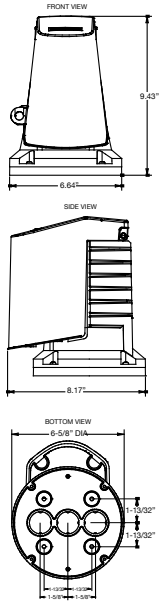
WP217 Double-Gang Insert Features

- Standard in all double-gang covers
- Six inserts - 70 possible configurations
- Converts to either toggle or round receptacle sizes: 1 ⅜" (35 mm) or 1 ⅝" (41 mm)

Model #	Type	Description
WP17	Single-Gang	16 Configurations in 1
WP217	Double-Gang	70 Configurations in 1
WP101	Double-Gang	Duplex
WP102	Double-Gang	GFCI
WP107	Double-Gang	Round 1 ⅜", 1 ⅝", 1 ¾" (35 mm, 41 mm, 44 mm)
WP213	Double-Gang	Round 2 ⅛", 2 ⅝" (55 mm, 67 mm)
WP10HP	—	Hinge Pin (10-pc)

WP2000

Dimensions



Single-Gang Outlet Post

The WP2000 Flexi-Guard Outlet post provides a solution for supplying power to gardens and other areas. Remote mounted energy saving photocontrols, timers, or photocontrol and timer combinations are also available to activate area lighting.

Applications

- Residential • Landscaping

Features

- Complies with 2014 NEC Article 314.15 for damp and wet locations
- Exceeds CEC Article 26-702
- UL Certified for Type 3R outdoor enclosures
- Meets requirements for cold impact testing: -60° F (-51° C)
- Heavy-duty UV stabilized polycarbonate cover, mounting base and inserts
- Lockable hasp: Accepts up to ¼" (6 mm) dia shank
- Single-gang inserts provided for GFCI, duplex, toggle or round receptacles 1 ⅜" (35 mm), 1 ⅝" (41 mm), 1 ⅞" (48 mm), or 2 ⅛" (54 mm)
- Max cord size: (2) #12 AWG or higher
- Provisions for installing mechanical or digital timers (sold separately) to control area lighting:
  PB913N84: 24-hour, 120 V mechanical timer – allows for 2 ON/OFF daily cycles
  PB313EK: 24-hour, 120 V electronic timer – allows for 8 ON/OFF daily cycles
- Provisions for fixed-position, stem-mounting, and stem & swivel mounting photocontrols for area lighting
- All ports accept ½" (13 mm), ¾" (19 mm), or 1" (25 mm) PVC conduit (adapters included)
- Base includes mounting holes and template for optional concrete/pavement mounting
- Warranty: 1-year limited

Model #	Depth	Hinge	Flexi-Guard Inserts	Color
WP2000	2 ½" (64 mm)	Vertical	WP17	Green

Extra-Duty Die-Cast In-Use Weatherproof Covers

Single and Double-Gang Models

Die-Cast In-Use Aluminum Weatherproof Covers are extra-duty rated and easy to install. Heavy-duty die-cast aluminum construction ensures long-lasting durability. Covers come with an adhered gasket, mounting screws, base, cover assembly, and inserts to meet the needs of a variety of applications.

Applications

- Industrial • Commercial • Manufacturing • Residential
- Agricultural • Signage • Athletic fields • Municipalities

Features

- Complies with 2014 NEC Article 406.9 (B)(1) for wet locations and extra-duty applications
- Exceeds CEC Article 26-702
- UL Certified for Type 3R outdoor enclosures
- Meets requirements for cold impact testing: -60° F (-51° C)
- Heavy-duty die-cast aluminum cover and mounting base with UV stabilized polycarbonate inserts
- ⅛" (3 mm) thick, pre-adhered neoprene gasket with slits for mounting screws
- Lockable hasp: All models accept up to ¼" (6 mm) dia shank
- Impact rated: 12 lb. impact test to ensure cover remains intact
- Reinforced hinge pin designed to exceed 40 lb. hinge hang/stress test
- Warranty: 1-year limited

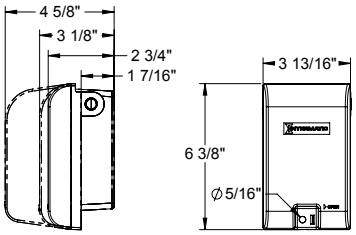
Single-Gang Models

- Three inserts provided with all models that allow each model to meet multiple installations (up to 16 configurations)
- Max cord size: #12 AWG or higher

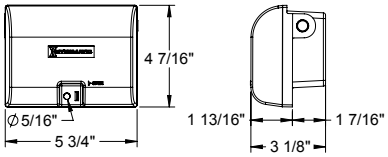
Double-Gang Models

- Six inserts provided with all models that allow each model to meet multiple installations (up to 70 configurations)
- Max cord size: (2) #12 AWG or higher

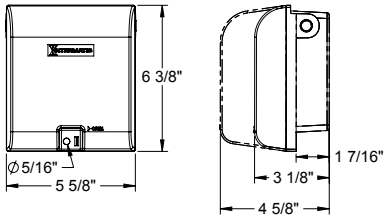
Dimensions



Single-Gang



WP1010HMXD



Double-Gang

Single-Gang

Model #	Color	Depth	Flexi-Guard Inserts
WP3110MXD	Gray	2 ¾" (70 mm)	WP17
WP1010MXD	Gray	3 ⅛" (79 mm)	WP17
WP1010HMXD*	Gray	3 ⅛" (79 mm)	WP17
WP1250MVXD	Gray	4 ⅝" (117 mm)	WP17

**Note: WP1010HMXD is a horizontal mount.*

Double-Gang

Model #	Color	Depth	Flexi-Guard Inserts
WP1030MXD	Gray	3 ⅛" (79 mm)	WP217
WP1250MXD	Gray	4 ⅝" (117 mm)	WP217

Accessories (detailed on pg 122)

Single-Gang Inserts	WP17
Double-Gang Inserts	WP217

WP3110MXD

WP1010MXD

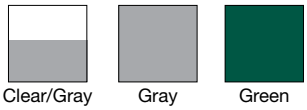
WP1010HMXD

WP1250MVXD

WP1030MXD

WP1250MXD

WP5000G



Extra-Duty Plastic In-Use Weatherproof Covers

Single and Double-Gang Models

Plastic In-Use Weatherproof Covers are extra-duty rated and easy to install. Covers come with an adhered gasket, mounting screws, base, cover assembly, and inserts to meet the needs of a variety of applications.

Applications

- Industrial • Commercial • Manufacturing • Residential
- Agricultural • Signage • Athletic fields

Features

- Complies with 2014 NEC Article 406.9 (B)(1) for wet locations and extra-duty applications
- Exceeds CEC Article 26-702
- UL Certified for Type 3R outdoor enclosures
- Meets requirements for cold impact testing: -60° F (-51° C)
- Heavy-duty UV stabilized polycarbonate cover, mounting base, and inserts
- ⅛" (3 mm) thick, pre-adhered neoprene gasket with slits for mounting screws
- Lockable hasp: All models accept up to ¼" (6 mm) dia shank
- Impact rated: 12-lb. impact test to ensure cover remains intact
- Reinforced hinge pin designed to exceed 40 lb. hinge hang/stress test
- Warranty: 1-year limited

Single-Gang Models

- Three inserts provided with all models that allow each model to meet multiple installations (up to 16 configurations)
- Max cord size: (2) #14 AWG or (1) #12 AWG

Double-Gang Models

- Six inserts provided with all models that allow each model to meet multiple installations (up to 70 configurations)
- Max cord size: (2) #12 AWG or (1) #10 AWG; 30/50 A (1) #6 AWG

WP5500C

WP5103C

Single-Gang - Vertical/Horizontal

Clear/ Gray	Gray	Black	Yellow	Orange	White	Green	Beige	Bronze	Red	Depth	Flexi-Guard Inserts
WP5000C	WP5000G	WP5000BL	WP5000Y	WP5000OR	WP5000W	WP5000GN	WP5000B	WP5000BR	WP5000R	2 ¼" (57 mm)	WP17
WP5100C	WP5100G	WP5100BL	WP5100Y	WP5100OR	WP5100W	WP5100GN	WP5100B	WP5100BR	WP5100R	2 ¾" (70 mm)	WP17
WP5103C*	–	–	–	–	–	–	–	–	–	2 ¾" (70 mm)	WP17
WP5110C	WP5110G	WP5110BL	WP5110Y	WP5110OR	WP5110W	WP5110GN	WP5110B	WP5110BR	WP5110R	3 ⅝" (92 mm)	WP17

Double-Gang - Vertical

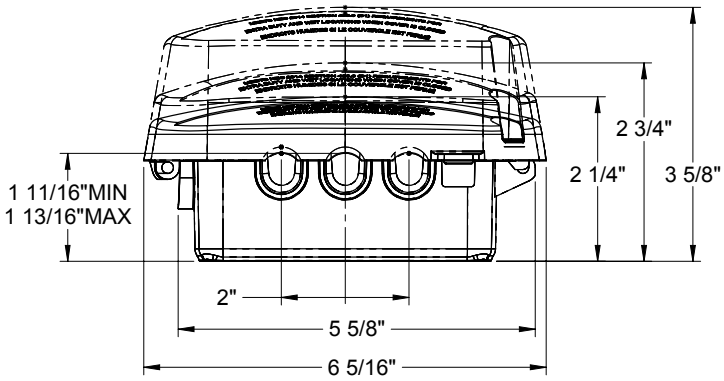
Clear/ Gray	Gray	Black	Yellow	Orange	White	Green	Beige	Bronze	Red	Depth	Flexi-Guard Inserts
WP5220C	WP5220G	WP5220BL	WP5220Y	WP5220OR	WP5220W	WP5220GN	WP5220B	WP5220BR	WP5220R	2 ¼" (57 mm)	WP217
WP5221C	–	–	–	–	–	–	–	–	–	2 ¼" (57 mm)	WP101, WP102
WP5225C	WP5225G	WP5225BL	WP5225Y	WP5225OR	WP5225W	WP5225GN	WP5225B	WP5225BR	WP5225R	2 ¾" (70 mm)	WP217
WP5240C	WP5240G	WP5240BL	WP5240Y	WP5240OR	WP5240W	WP5240GN	WP5240B	WP5240BR	WP5240R	3 ⅝" (92 mm)	WP217
WP5500C	WP5500G	–	WP5500Y	–	–	–	–	–	–	30/50 A**	WP107, WP213

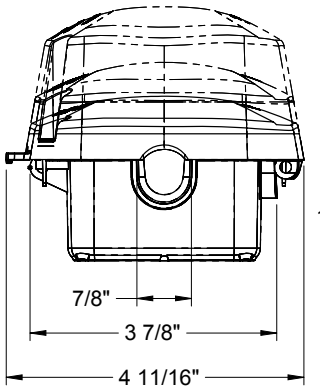
** Includes 3/0 adapter plate for 3" (76 mm) round box.* ***30/50 A = 4 ¾" (121 mm) depth.*

Accessories (detailed on pg 122)

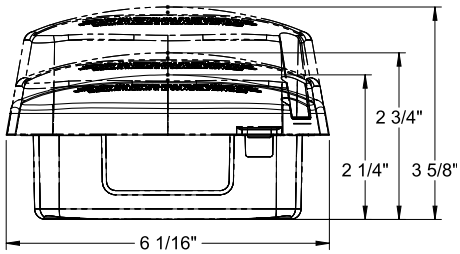
Single-Gang Inserts	WP17
Double-Gang Inserts	WP217
Hinge Pin	WP10HP

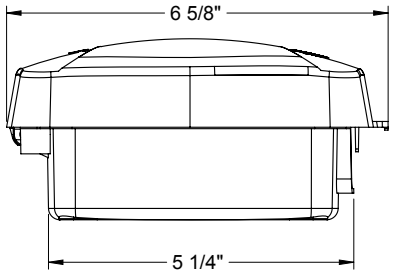
Single-Gang



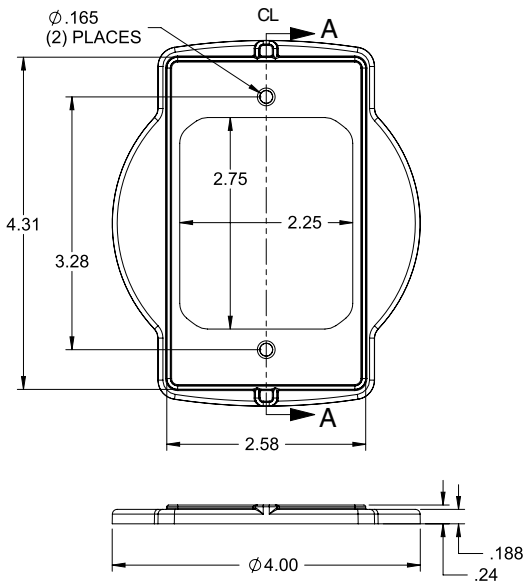


Double-Gang

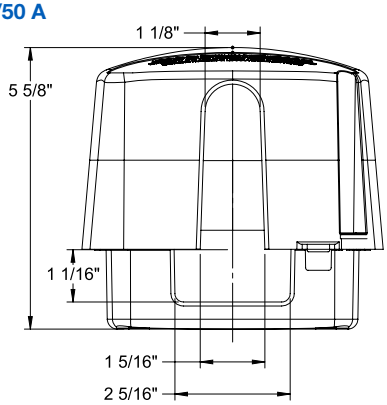




WP5103C



Double-Gang 30/50 A



WP3100

WP3103C

WP1100C

Plastic In-Use Weatherproof Covers

Single-Gang Models

Plastic In-Use Weatherproof Covers are easy to install and include adhered gasket, mounting screws, base, cover assembly, and inserts to meet the needs of a variety of applications.

Applications

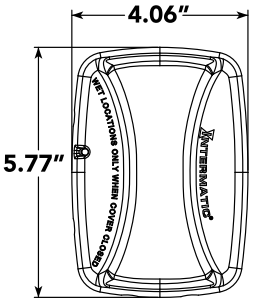
- Industrial • Commercial • Manufacturing • Residential
- Agricultural • Signage • Athletic fields

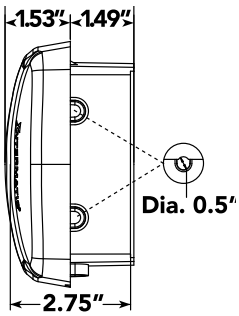
Features

- Complies with 2014 NEC Article 314.15 for damp and wet locations
- Exceeds CEC Article 26-702
- UL Certified for Type 3R outdoor enclosures
- Meets requirements for cold impact testing: -60° F (-51° C)
- Heavy-duty UV stabilized polycarbonate cover, mounting base and inserts
- ⅛" (3 mm) thick, pre-adhered neoprene gasket with slits for mounting screws
- Lockable hasp: All models accept up to ¼" (6 mm) dia shank; Except WP3100C & WP3103C accept up to ⅛" (3 mm) dia shank
- Three inserts provided with all models that allow each model to meet multiple installations (up to 16 configurations)
- Max cord size: (2) #14 AWG or (1) #12 AWG
- Mounts vertically or horizontally
- Warranty: 1-year limited

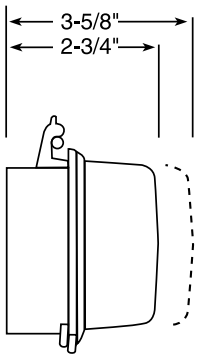
Dimensions

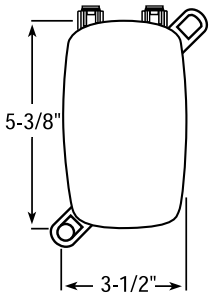
WP3100





WP1100C, WP1110C





Single-Gang - Vertical/Horizontal Hinge

Model #	Color	Depth	Flexi-Guard Inserts
WP3100C*	Clear	2 ¾" (70 mm)	WP17
WP3103C**	Clear	2 ¾" (70 mm)	WP17
WP1100C	Clear	2 ¾" (70 mm)	WP17
WP1100WC	White	2 ¾" (70 mm)	WP17
WP1110C	Clear	3 ⅝" (92 mm)	WP17
WP1110GC	Gray	3 ⅝" (92 mm)	WP17
WP1110WC	White	3 ⅝" (92 mm)	WP17

**Hidden Hinge.*
***Includes 3/0 Adapter Plate for 3" (76 mm) Round Box.*

Accessories (detailed on pg 122)

Single-Gang Inserts	WP17

Plastic In-Use Weatherproof Covers

Single-Gang Models

Plastic In-Use Weatherproof Covers are easy to install. Covers come with an adhered gasket, mounting screws, base, cover assembly, and inserts to meet the needs of a variety of applications.

Applications

- Industrial • Commercial • Manufacturing • Residential
- Agricultural • Signage • Athletic fields

Features

- Complies with 2014 NEC Article 314.15 for damp and wet locations
- Exceeds CEC Rule 26-702
- UL Certified for Type 3R outdoor enclosures
- Meets requirements for cold impact testing: -60° F (-51° C)
- Heavy-duty UV stabilized polycarbonate cover, mounting base and inserts
- ⅛" (3 mm) thick, pre-adhered neoprene gasket with slits for mounting screws
- Three inserts provided with all models that allow each model to meet multiple installations (up to 8 configurations)
- Max cord size: (2) #14 AWG or (1) #12 AWG
- Warranty: 1-year limited

WP1000C

WP1000HC

Single-Gang - Vertical Hinge

Model #	Color	Depth	Flexi-Guard Inserts
WP1000C	Clear	2 ¼" (57 mm)	WP17
WP1000GC	Gray	2 ¼" (57 mm)	WP17
WP1000WC	White	2 ¼" (57 mm)	WP17
WP1010C	Clear	3 ⅛" (79 mm)	WP17

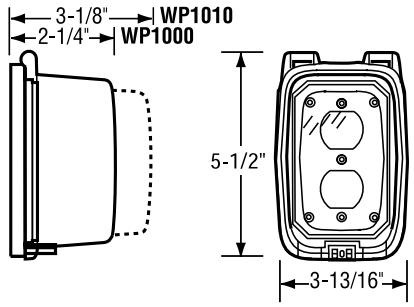
Single-Gang - Horizontal Hinge

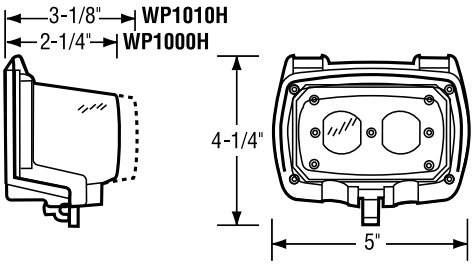
Model #	Color	Depth	Flexi-Guard Inserts
WP1000HC	Clear	2 ¼" (57 mm)	WP17
WP1000HGC	Gray	2 ¼" (57 mm)	WP17
WP1010HC	Clear	3 ⅛" (79 mm)	WP17
WP1150C	Clear	4 ¾" (121 mm)	WP17

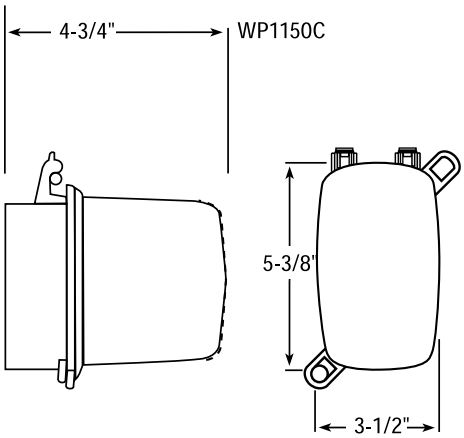
Accessories (detailed on pg 122)

Single-Gang Inserts	WP17

Dimensions

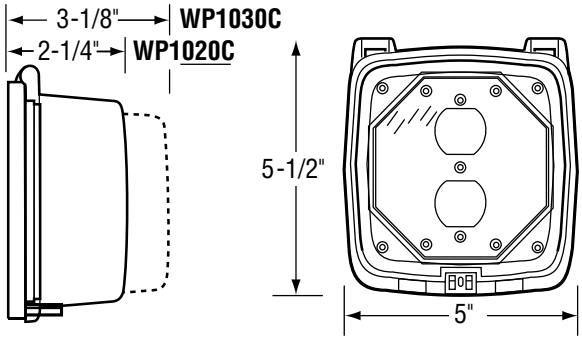




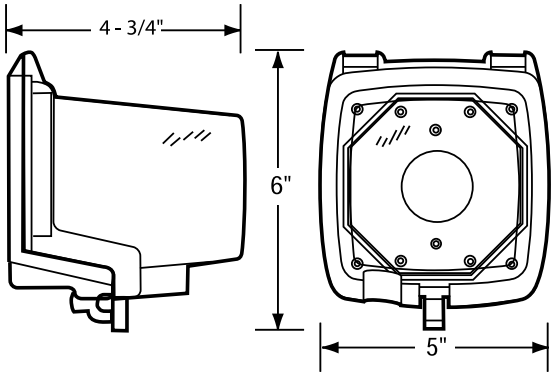


WP1020C

Dimensions



WP1050



Plastic In-Use Weatherproof Covers

Double-Gang Models

Plastic In-Use Weatherproof Covers are easy to install and include a gasket, mounting screws, base, cover assembly, and inserts to meet the needs of a variety of applications.

Applications

- Industrial • Commercial • Manufacturing • Residential
- Agricultural • Signage • Athletic fields

Features

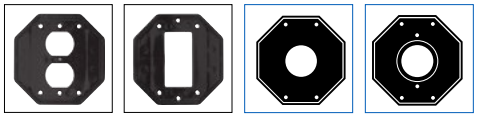
- Complies with 2014 NEC Article 314.15 for damp and wet locations
- Exceeds CEC Article 26-702
- UL Certified for Type 3R outdoor enclosures
- Meets requirements for cold impact testing: -60° F (-51° C)
- Heavy-duty UV stabilized polycarbonate cover, mounting base and inserts
- ⅛" (3 mm) thick neoprene gasket with slits for mounting screws
- Two inserts provided with all models for multiple installations
- Max cord size: (2) #14 AWG or (1) #12 AWG; WP1050 (2) #14 AWG or (1) #10 AWG
- Warranty: 1-year limited

Double-Gang - Vertical Hinge

Model #	Color	Depth	Flexi-Guard Inserts
WP1020C	Clear	2 ¼" (57 mm)	WP101, WP102
WP1020GC	Gray	2 ¼" (57 mm)	WP101, WP102
WP1020WC	White	2 ¼" (57 mm)	WP101, WP102
WP1030C	Clear	3 ⅛" (79 mm)	WP101, WP102
WP1050	Clear	4 ¾" (121 mm)	WP102, WP107

Accessories (detailed on pg 122)

Double-Gang Duplex Insert	WP101
Double-Gang GFCI Insert	WP102
Double-Gang Insert - Round 1 ⅜" (35 mm), 1 ⅝"(41 mm), 1 ¾" (44 mm)	WP107
Double-Gang Insert - Round 2 ⅛" (55 mm), 2 ⅝" (67 mm)	WP213



WP101 WP102 WP107 WP213

Plastic In-Use Weatherproof Covers

Double-Gang Models

Plastic In-Use Weatherproof Covers are easy to install and include a gasket, mounting screws, base, cover assembly, and inserts to meet the needs of a variety of applications.

Applications

- Industrial • Commercial • Manufacturing • Residential
- Agricultural • Signage • Athletic Fields

Features

- Complies with 2014 NEC Article 314.15 for damp and wet locations
- Exceeds CEC Article 26-702
- UL Certified for Type 3R outdoor enclosures
- Meets requirements for cold impact testing: -60° F (-51° C)
- Heavy-duty UV stabilized polycarbonate cover, mounting base and inserts
- ⅛" (3 mm) thick neoprene gasket with slits for mounting screws
- Six inserts provided with all models that allow each model to meet multiple installations (up to 70 configurations)
- Max cord size: (2) #14 AWG or (1) #12 AWG; WP1250 (2) #14 AWG or (1) #10 AWG
- Warranty: 1-year limited

WP1250

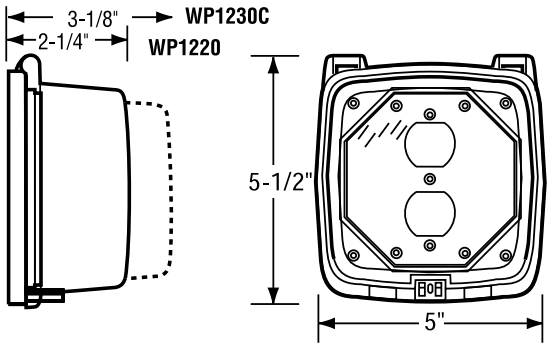
Double-Gang - Vertical Hinge

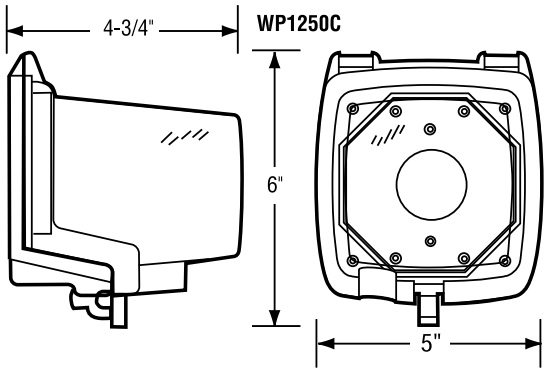
Model #	Color	Depth	Flexi-Guard Inserts
WP1220C	Clear	2 ¼" (57 mm)	WP217
WP1220GC	Gray	2 ¼" (57 mm)	WP217
WP1220WC	White	2 ¼" (57 mm)	WP217
WP1230C	Clear	3 ⅛" (79 mm)	WP217
WP1250C	Clear	4 ¾" (121 mm)	WP217

Accessories (detailed on pg 122)

Double-Gang Insert	WP217

Dimensions





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INTERMATIC
1
2
3
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5
MULTI WAVE™
Control System
PE653
Pool/Spa Controller
RAINPROOF (TYPE 3R) CONTROL PANEL FOR INDOOR OR OUTDOOR USE. SUITABLE FOR SWIMMING POOL/SPA APPLICATIONS.
SPEAKS Z-WAVE®
Wireless Control
Variable Speed
Two - Speed
Thermostat
Freeze Protection
WARNING
High voltage
Risk of shock
Remove power
before opening
door
US Patent Nos.
6,891,838
6,914,893
7,103,511
154--01138

Pool & Spa Controls

Remember when the backyard swimming pool was flanked by a few pieces of aluminum lawn furniture and a flimsy round charcoal grill? Not any more! Today, the backyard is an extension of the home's living space, demanding the same high standards of convenience, functionality and value. For almost 60 years, Intermatic has been providing high-quality electronic controls and accessories for the Pool and Spa industry with a focus on affordability, reliability and simplicity. Looking for low-voltage safety transformers, freeze protection systems, surge protective devices, or any other electrical essentials for your project? You'll find just what you need on the following pages.

We offer a variety of electronic and mechanical controls, including MultiWave™ Wireless Control Systems for pool and spa automation.

Need help configuring your pool and spa controls? Visit www.checkfrank.com from any personal computer, tablet or smartphone for product recommendations and wiring diagrams.

Contents

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MultiWave™ Wireless Control Systems

A perfect retrofit upgrade for existing mechanical timers or new construction installations. Intermatic offers three MultiWave™ Wireless Control Systems that provide automatic remote control for residential and light commercial pool and spa applications. Remotely control pumps (including variable speed), valves, lights, heaters, cleaners, blowers, solar heating/cooling, water features and more.

For customized designs, the MultiWave checkfrank™ system configurator tool makes installation, configuration and operation easy. Use your PC, tablet or smartphone to visit **checkfrank.com** anytime. All MultiWave™ systems utilize the popular Z-Wave communication platform.

PE653RC

MultiWave™ Basic Control System

PE653RC

A wireless electronic controller for pool or spa automation. Retrofit existing mechanical timers or install with new construction. Integrates with home automation software that utilizes Z-Wave wireless technology.

Applications

• Pool or spa equipment • Single body of water • No valve rotation

Features

- Controls 5 circuits
- Controls pumps, lights, cleaners, and heaters
- Operates single, two, and Pentair® IntelliFlo® and IntelliPro® variable-speed pumps
- 24-hour timing with 3 ON/OFF events per circuit
- Includes receiver, wireless remote, water and air temperature sensors, (3) AA batteries, equipment labels, flathead screwdriver, raintight enclosure, raintight cap and mount for remote mounting antenna
- Type 3R metal indoor/outdoor enclosure
- See MultiWave™ ECS and ECS Plus Systems on page 134 for additional control options

Ratings	
Max Power Consumption	5 W
Operating Voltage	120-240 VAC, 50/60 Hz
Circuit 1	
Resistive	20 A
Motor	80 LRA, 120/240 VAC 17 FLA, 120/240 VAC
Circuit 2-5	
Resistive	15 A
Motor	60 LRA, 120/240 VAC 10 FLA, 120/240 VAC
Enclosure Dimensions H x W x D	9 ⅜" x 5 ½" x 3 ¾" (238.1 mm x 139.7 mm x 95.3 mm)
Knockout Dimensions	
Bottom	(2) combination ½" - ¾"
Left	(1) combination ½" - ¾"
Back	(1) combination ½" - ¾"
Right	(1) combination ½" - ¾"
Warranty	2-year

Model #	Description	Application
PE653RC	Electronic Controller	Wireless Basic Control System

Pentair®, IntelliFlo® and IntelliPro® are registered trademarks of Pentair Ltd.

Accessories/Replacement

Expansion Module	P5043ME
Receiver	PE653
Wireless Remote	PE953
Water/Solar Temp. Sensor	PA122
Freeze Air Temp. Sensor	178PA28A

checkfrank™

Quickly access product recommendations, installation guides, and wiring diagrams from anywhere with checkfrank™. Scan your smartphone or tablet over the QR code for details.

PE20065RC

MultiWave™ Basic with 60 A Load Center

PE20065RC

All the features of the MultiWave™ Basic plus a 60 A load center.

Applications

• Pool or spa equipment • Single body of water • No valve rotation

Features

• Type 3R indoor/outdoor metal load center
• Two knockouts for GFCIs and switches
• Four position 60 A breaker base

Model #	Description	Application
PE20065RC	60 A Load Center	Wireless Basic Control System

Ratings	
Load Center Rating	60 A, 120/240 VAC or 120/208 VAC single phase
Operating Voltage	120-240 VAC, 50/60 Hz
Circuit 1	
Resistive	20 A
Motor	80 LRA @ 120/240 VAC, 17 FLA @ 120/240 VAC
Circuit 2-5	
Resistive	15 A
Motor	60 LRA @ 120/240 VAC, 10 FLA @ 120/240 VAC
Enclosure Dimensions H x W x D	16 ⅞" x 10 ⅞" x 4 ⅝" (428.6 mm x 276.2 mm x 117.5 mm)
Knockout Dimensions	
Bottom	(1) 1 ⅛" diameter hole, (6) combination ½" - ¾", (3) combination ¾" - 1"
Left	(2) combination ½" - ¾"
Back	(1) combination ¾" - 1"
Right	(1) 1 ¾" x 2 ¾" for mounting switches or GFCI
Warranty	2-year

PE30065RC

MultiWave™ Basic with 80 A Load Center

PE30065RC and PE30065RCT3

All the features of the MultiWave™ Basic plus an 80 A load center. The PE30065RCT3 includes a built-in 300 W transformer.

Applications

• Pool or spa equipment • Single body of water • No valve rotation

Features

• Type 3R indoor/outdoor metal load center
• Four knockouts for GFCIs and switches
• Eight position 80 A breaker base

Model #	Description	Application
PE30065RC	80 A Load Center	Wireless Basic Control System
PE30065RCT3	80 A Load Center with 300 W transformer	Wireless Basic Control System

Ratings	
Load Center Rating	80 A, 120/240 VAC or 120/208 VAC single phase
Operating Voltage	120-240 VAC, 50/60 Hz
Circuit 1	
Resistive	20 A
Motor	80 LRA @ 120/240 VAC, 17 FLA @ 120/240 VAC
Circuit 2-5	
Resistive	15 A
Motor	60 LRA @ 120/240 VAC, 10 FLA @ 120/240 VAC
Transformer	300 W
Input Voltage	120 VAC, 60 Hz
Output Voltage	12, 13, 14 VAC
Enclosure Dimensions H x W x D	22 ⅞" x 14 ⅞" x 4 ¾" (581.0 mm x 377.8 mm x 120.7 mm)
Knockout Dimensions	
Bottom	(1) 1 ⅛" diameter hole, (6) combination ½" - ¾", (4) ½", (2) combination 1 ⅛" - 1 ⅜" - 1 11⁄16"
Left	(2) combination ½" - ¾"
Back	(4) combination ½" - ¾", and (2) combination ¾" - 1"
Right	(1) 1 ¾" x 2 ¾" for mounting switches or GFCI
Warranty	2-year

PE25065RC

MultiWave™ ECS System

PE25065RC

This system includes the MultiWave™ Basic and an Expansion Module to control up to four valve actuators, two heaters, most name brand variable speed pumps and solar heating/cooling. The Remote Switch feature provides simple ON/OFF control of several components (i.e., spa heater, spa blower, spa lights) simultaneously with the flip of a single switch.

Applications

- Pool and spa combinations • Water features
- Solar heater/cooling
- New construction or upgrade existing manually or mechanically controlled equipment

Features

- Controls 5-circuits
- Controls 4 actuator ports (actuators not included); 2 for pool to spa valve rotation, 1 for water feature valve rotation, and 1 for solar applications
- Controls 2 heater circuits
- USB port for ease of upgrading firmware
- Load center dead front has two knockouts for switches and GFCIs
- Remote switch for simple ON/OFF control of several components at the same time
- Visit www.checkfrank.com for configuration assistance

Model #	Description
PE25065RC	MultiWave Basic System with Expansion Module

Ratings	
Load Center Rating	60 A, 120/240 VAC or 120/208 VAC single phase
Operating Voltage	120/240 VAC, 50/60 Hz
Circuit 1	
Resistive	20 A
Motor	80 LRA @ 120/240 VAC, 17 FLA @ 120/240 VAC
Circuit 2-5	
Resistive	15 A
Motor	60 LRA @ 120/240 VAC, 10 FLA @ 120/240 VAC
Enclosure Dimensions H x W x D	16 ½" x 10 ⅞" x 4 ¼" (419.1 mm x 276.2 mm x 108.0 mm)
Knockout Dimensions	
Bottom	(1) 1 ⅛" diameter hole, (6) combination ½" - ¾", (3) combination ¾" - 1"
Left	(2) combination ½" - ¾"
Back	(1) combination ¾" - 1"
Right	(1) 1 ¾" x 2 ¾" for mounting switches or GFCI
Warranty	2-year

PE35065RC

MultiWave™ ECS Plus System

PE35065RC

This system includes the MultiWave™ ECS, two PE24VA Intermatic Valve Actuators, and an upgraded 80 A Load Center with 8 breaker base.

Applications

- Pool and spa combinations • Water features
- Solar heater/cooling
- New construction or upgrade existing manually or mechanically controlled equipment

Features

- Controls 5-circuits
- Controls 4 actuator ports (two actuators included); 2 for pool to spa valve rotation, 1 for water feature valve rotation, and 1 for solar applications
- Controls 2 heater circuits
- USB port for ease of upgrading firmware
- Load center with eight position 80 A breaker base
- Load center dead front has four knockouts for switches and GFCIs
- Remote switch for simple ON/OFF control of several components at the same time
- Visit www.checkfrank.com for configuration assistance

Model #	Description
PE35065RC	MultiWave Basic System with 80 A Load Center, Expansion Module and 2 Valve Actuators

Ratings	
Load Center Rating	80 A, 120/240 VAC or 120/208 VAC single phase
Operating Voltage	120/240 VAC, 50/60 Hz
Circuit 1	
Resistive	20 A
Motor	80 LRA @ 120/240 VAC, 17 FLA @ 120/240 VAC
Circuit 2-5	
Resistive	15 A
Motor	60 LRA @ 120/240 VAC, 10 FLA @ 120/240 VAC
Enclosure Dimensions H x W x D	22" x 14 ¾" x 4 ¼" (558.8 mm x 374.7 mm x 108.0 mm)
Knockout Dimensions	
Bottom	(1) 1 ⅛" diameter hole, (6) combination ½" - ¾", (4) ½", (2) combination 1 ⅛" - 1 ⅜" - 1 ¹¹⁄₁₆"
Left	(2) combination ½" - ¾"
Back	(4) combination ¾" - 1", (2) combination ¾" - 1"
Right	(1) 1 ¾" x 2 ¾" for mounting switches or GFCI
Warranty	2-year

Don't Forget

Spring Wound Timers, see page 60-61; Weatherproof Covers, see pages 122-129

PE653

MultiWave™ 5-Circuit Wireless Receiver

PE653

Features

- Ideal addition to an existing enclosure installation
- Connects with PA122 water/solar temperature sensor and 178PA28A air sensor, sold below
- Communicates with pumps, cleaners, heaters, and lights
- Ideal for upgrading mechanical timers
- 2-year warranty

Model #	Description
PE653	5 Circuit RC Timer

PE953

MultiWave™ Wireless Remote

PE953

Features

- On-demand control of MultiWave™ functions and other Z-Wave devices
- Backlit display shows time of day, equipment status, water and air temperatures, and ON/OFF schedules
- Water-resistant
- Includes 3 AA batteries and equipment labels
- 2-year warranty

Model #	Description
PE953	Wireless Remote

PA122

Water/Solar Temperature Sensor

PA122

Features

- Monitors pool/spa water temperature to control conventional gas or electric heating
- Monitors air temperature for solar heating/cooling
- 1-year warranty

Model #	Description
PA122	Water/Solar Temperature Sensor, 10k OHM

Note: Needed to enable thermostat feature on the PE653RC

178PA28A

Freeze Air Temperature Sensor

178PA28A

Features

- Monitors outside air temperature
- Protects pool/spa equipment and plumbing
- Perfect for below-freezing outdoor environments
- 1-year warranty

Model #	Description
178PA28A	Freeze Probe Kit, 10k OHM

Note: Needed to enable freeze protection feature on PE653RC

P5043ME

MultiWave™ Expansion Module

P5043ME

Use the Expansion Module exclusively with the MultiWave™ Basic system to boost overall control capacity.

Applications

- Pool and spa combinations • Water features
- Solar heating and cooling

Features

- Controls most name brands of variable speed pumps
- Remote switch initiates multiple functions with one switch
- USB port makes firmware updates easier
- See MultiWave™ ECS and ECS Plus on page 134 for complete systems

Model #	Description
P5043ME	Mechanism Only

Note: Not for stand-alone use

Ratings	
Operating Voltage	240 VAC, 50/60 Hz, 75 VA MAX
Valve Actuator Voltage	24 VAC, 18 VA MAX for each actuator
Motor Control Output Threshold	24 VAC or 24 VDC, 500 mA
Remote Switch Output Supply	24 VAC, 55 mA MAX
Heater Control	24 VAC, 1 A MAX
Warranty	1-year

P4043ME

PE140

Valve Actuator Controls

P4043ME

This switching device is most suited for controlling electronic valve actuators which direct the flow of water to desired equipment. It can also be used with a spring wound timer or simple switch to control fountains or other aquatic features.

Applications

- Pool and spa combinations • Water features • Water gardening

Features

- Easily snaps into most existing Intermatic enclosures with available mechanism support bracket
- Controls up to three valve actuators
- Switches heater thermostat HIGH/LOW
- Remote control capabilities

Model #	Description
P4043ME	Mechanism Only
PE140	Mechanism (P4043ME) with Type 3R Enclosure

Ratings	
Input Voltage	120/240 VAC, 50/60 Hz
Valve Actuator Supply	24 VAC, 40 VA
Warranty	1-year

PE24VA

24-Volt Valve Actuator

PE24VA

Applications

- Pool and spa combinations • Water features
- Solar heating/cooling

Features

- Reliable control of 2-way and 3-way diverter valves
- Easy-to-adjust cam rotates valves to multiple settings
- Compatible with all pool/spa valves and controls

Model #	Description
PE24VA	24 V Valve Actuator

Ratings	
Valve Actuator Supply	24 VAC
Warranty	1-year

P4243ME

Valve/Pump Switch Mechanism

P4243ME

This switching mechanism is most suited for controlling shared equipment.

Applications

- Pool and spa combinations • Water features
- Water gardening • Solar heating

Features

- Controls up to 2 circuits
- Controls up to 3 valve actuators simultaneously
- Automatic HIGH/LOW water temperature selector
- Manual load control
- Wireless remote and master controller connections

Model #	Description
P4243ME	Valve/Pump Switch Mechanism Only

Ratings	
Valve Actuator Supply	24 VAC, 40 VA
Resistive	17 A, 120/240 VAC, 50/60 Hz
Tungsten	10 A, 120 VAC, 50/60 Hz
Motor	1 ½ HP, 120 VAC, 50/60 Hz 3 HP, 240 VAC, 50/60 Hz
Warranty	1-year

P1353ME

PE153

PE153PF

Freeze Probe included

Digital 3-Circuit Time Switch

P153 Series

This multipurpose 24-hour control is capable of automatically switching loads according to a preset daily schedule.

Applications

- Pool/spa pumps • Lights • Heaters • Cleaner pumps
- Booster pumps

Features

- Controls single and two-speed pumps and cleaner/booster pumps
- Three ON/OFF events per circuit per day
- Seven preprogrammed modes, see chart below for details
- Freeze and heater protection
- LCD readout
- Multivoltage input and output
- Countdown and override features enable programs to be overridden and automatically resumed without requiring the user to reprogram the system

Model #	Includes
P1353ME	Mechanism Only
PE153	Type 3R Metal Enclosure
PE153F	Type 3R Metal Enclosure with Freeze Probe
PE153P	Type 3R Plastic Enclosure
PE153PF	Type 3R Plastic Enclosure with Freeze Probe

Accessories/Replacement

Freeze Probe	178PA28A
Insulator for Timer	124--00066

Ratings	
Operating Voltage	120/240 VAC, 50/60 Hz
Switch Type	3-SPST
Resistive	17 A, 120/240 VAC, 50/60 Hz
Tungsten	5 A, 120/240 VAC, 50/60 Hz
Motor	80 LRA @ 120/240 VAC 17 FLA @ 120/240 VAC
Warranty	1-year

7 Preprogrammed Modes

Mode #	Switches Control	Additional Comments
1	Aux 1, Aux 2, Aux 3	—
2	Pump High, Pump Low, Aux 3	2-speed pump timing and protection
3	Pump, Aux 2, Booster/Cleaner Pump	Filter/cleaner pump timing and protection
4	Pump High, Pump Low, Booster/Cleaner Pump	2-speed and filter/cleaner pump timing and protection
5	Pump L1, Pump L2, Aux 3	1st and 2nd switch controls a 240 VAC pump, where L1 and L2 are disconnected when the pump is OFF
6	Aux 1, Aux 2, Aux 3 Heater green mode	Identical to Mode 1, with capability to run a heater when the filter pump is manually turned ON only This mode is ideal for connecting Circuit 1 to a circulation pump in a spa *NOTE: When spa is not in use, the clock does not turn the heater ON. When spa is in use, the heater can be activated by manually switching Circuit 1 ON*
7	Pump High, Pump Low, Common Hot Leg	Identical to Mode 2, with the capability to break both hot lines of a 240 VAC two-speed pump connection

Electronic Pump Motor Controller with Seasonal Adjustment

PE103

Control single and two-speed pumps and auxiliary equipment with this 3-circuit programmable device. The seasonal adjustment feature can be programmed to automatically adjust filter pump ON/OFF schedules according to the season.

Applications

• Filter pumps • Auxiliary equipment

Features

- Saves up to 40% in monthly utility bills compared to standard timers
- Meets most rebate incentives
- Enables separate daily schedules
- Easy-to-follow on-screen setup for programming
- Autovoltage adjust
- Efficient low-speed operation for all seasons
- User programmable high and low-speed events
- 100+ hour supercapacitor memory retention
- Available with Type 3R indoor/outdoor lockable metal enclosure

Model #	Description
PE103	Mechanism (P1403ME) with Type 3R Enclosure
P1403ME	Mechanism Only

PE103

P1403ME

Ratings	
Operating Voltage	120-277 VAC, 50/60 Hz
Clock Source Voltage	120-277 VAC, 50/60 Hz
Power Consumption	7 W MAX
Switch Type	4-SPST
Resistive	30 A @ 24 VAC, 20 A @ 28 VDC
Inductive	30 A @ 24 VAC
Tungsten	5 A @ 120/277 VAC
Motor	16 FLA, 96 LRA @ 120 VAC 17 FLA, 80 LRA @ 240 VAC
Warranty	1-year

PE10000

PE15300F

Pool/Spa Control System with Type 3R Power Center

PE10000 Series

Can be used as a power center only, or add mechanisms or wiring devices for complete control systems.

Applications

• Filter pumps • Cleaner pumps • Booster pumps • Lighting

Features

- 3-SPST mechanism (P1353ME) controls 1 and 2-speed filter pumps, cleaner/booster pumps, and pool/spa landscape lighting; P1353ME sold separately on page 138
- Power center dead front has two knockouts for switches or GFCIs
- Use also with MultiWave™ Systems, see page 134
- Wiring devices may be installed in these load centers with the use of Standoffs, sold separately below

Model #	Description
PE10000	Power Center Only
PE15300F	Power Center with Mechanism (P1353ME) and Freeze Probe (178PA28A)
PE15300	Power Center with Mechanism (P1353ME)

Ratings	
Operating Voltage	120/240 VAC, 50/60 Hz
Switch Type	3-SPST
Resistive	17 A, 120/240 VAC
Tungsten	5 A, 120/240 VAC
Motor	80 LRA, 17 FLA @ 120/240 VAC
Auxiliary Switch	2 A, 24 VAC
Enclosure Dimensions H x W x D	14 ⅞" x 14 ⅞" x 4 ¾" (377.8 mm x 377.8 mm x 120.7 mm)
Knockout Dimensions	
Bottom	(1) 1 ⅛" diameter hole, (3) ½", (7) ½" - ¾", (2) ¾" - 1"
Left	(2) ½" - ¾"
Back	(1) ½" - ¾", (1) ¾" - 1"
Right	(1) 1 ¾" x 2 ¾"
Warranty	1-year

PE20000

PE25300F

60 A Pool/Spa Control System with Type 3R Load Center

PE20000 Series

Can be used as a load center only, or add mechanisms or wiring devices for complete control systems.

Applications

• Filter pumps • Cleaner pumps • Booster pumps • Lighting

Features

- 60 A, 4-position breaker base
- 3-SPST mechanism (P1353ME) controls single and two-speed filter pumps, cleaner/booster pumps, and pool/spa landscape lighting; P1353ME sold separately on page 138
- Load center dead front has two knockouts for switches or GFCIs
- Use also with MultiWave™ Systems, see page 134
- Wiring devices may be installed in these load centers with the use of Standoffs, sold separately below

Model #	Description
PE20000	Load Center Only
PE25300F	Load Center with Mechanism (P1353ME) and Freeze Probe (178PA28A)
PE25300	Load Center with Mechanism (P1353ME)

Ratings	
Operating Voltage	120/240 VAC, 50/60 Hz
Switch Type	3-SPST
Resistive	17 A, 120/240 VAC
Tungsten	5 A, 120/240 VAC
Motor	80 LRA, 17 FLA @ 120/240 VAC
Auxiliary Switch	2 A, 24 VAC
Enclosure Dimensions H x W x D	16 ⅞" x 10 ⅞" x 4 ¾" (428.6 mm x 276.2 mm x 120.7 mm)
Knockout Dimensions	
Bottom	(1) 1 ⅛" diameter hole, (6) ½" - ¾", (3) ¾" - 1"
Left	(2) ½" - ¾"
Back	(1) ¾" - 1"
Right	(1) 1 ¾" x 2 ¾"
Warranty	1-year

Accessories/Replacement

Freeze Probe	178PA28A
Spacer-Standoff, 3" long - 2 pack	21T166A
Spacer-Standoff, 3" long - 4 pack	21T156A

PE30000

PE35300

80 A Pool/Spa Control System with Type 3R Load Center

PE30000 Series

Can be used as a load center only, or add mechanisms or wiring devices for complete control systems.

Applications

• Filter pumps • Cleaner pumps • Booster pumps • Lighting

Features

- 80 A 8-position breaker base
- 3-SPST mechanism (P1353ME) controls single and two-speed filter pumps, cleaner/booster pumps, and pool/spa landscape lighting; P1353ME sold separately on page 138
- Load center dead front has four knockouts for switches or GFCIs
- Transformer option provides low voltage for LED lights
- Wiring devices may be installed in these load centers with the use of Standoffs, sold separately below

Model #	Description
PE30000*	Load Center Only
PE30000T3*	Load Center with 300 W Transformer
PE35300	Load Center with Mechanism (P1353ME)

Use also with MultiWave™ Systems on page 134

Ratings	
Operating Voltage	120/240 VAC, 50/60 Hz
Switch Type	3-SPST
Resistive	17 A, 120/240 VAC
Tungsten	5 A, 120/240 VAC
Motor	80 LRA, 17 FLA @ 120/240 VAC
Auxiliary Switch	2 A, 24 VAC
Enclosure Dimensions H x W x D	22 ⅞" x 14 ⅞" x 4 ¾" (581.0 mm x 377.8 mm x 120.7 mm)
Knockout Dimensions	
Bottom	(1) 1 ⅛" diameter hole, (6) ½" - ¾", (3) ¾" - 1
Left	(2) ½" - ¾"
Back	(1) ¾" - 1"
Right	(1) 1 ¾" x 2 ¾"
Warranty	1-year

PE40000

PE45300

125 A Pool/Spa Control System with Type 3R Load Center

PE40000 Series

Can be used as a load center only, or add mechanisms or wiring devices for complete control systems.

Applications

• Filter pumps • Cleaner pumps • Booster pumps • Lighting

Features

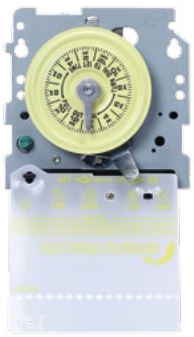
- 125 A 8-position breaker base
- 3-SPST mechanism (P1353ME) controls single and two-speed filter pumps, cleaner/booster pumps, and pool/spa landscape lighting; P1353ME sold separately on page 138
- Load center dead front has two knockouts for switches or GFCIs
- Wiring devices may be installed in these Load Centers with the use of Standoffs, sold separately below

Model #	Description
PE40000	Load Center only
PE45300	Load Center with Mechanism (P1353ME)

Ratings	
Operating Voltage	120/240 VAC, 50/60 Hz
Switch Type	3-SPST
Resistive	17 A, 120/240 VAC
Tungsten	5 A, 120/240 VAC
Motor	80 LRA, 17 FLA @ 120/240 VAC
Auxiliary Switch	2 A, 24 VAC
Enclosure Dimensions H x W x D	26 ⅞" x 18 ⅞" x 5 ¾" (682.6 mm x 479.4 mm x 146.1 mm)
Knockout Dimensions	
Bottom	(1) 1 ⅛" diameter hole, (13) ½" - ¾", (2) ¾" - 1"
Left	(2) ½" - ¾", (2) ¾" - 1"
Back	(4) ½" - ¾", (2) ¾" - 1"
Right	(1) 1 ¾" x 2 ¾"
Warranty	1-year

Accessories/Replacement

Freeze Probe	178PA28A
Spacer-Standoff, 3" Long - 2 Pack	21T166A
Spacer-Standoff, 3" Long - 4 Pack	21T156A


T101M

T104M201

24-Hour Mechanical Time Switch Only

T100 Series

Heavy-duty mechanical time switches control a single load.

Applications

• Pumps • Lighting • Heaters

Features

- Highest motor load ratings in the industry
- 12 ON/OFF operations per day
- ON/OFF trippers included
- Can be installed in most Intermatic enclosures
- Available with pool heater protection
- Teeter-type terminals for multiple load connections

Ratings	
Heater Control Circuit	10 A, 240 VAC MAX
Resistive	40 A @ varying voltages
Inductive	40 A @ varying voltages
Electronic Ballast	16 A, 277VAC
Tungsten	40 A @ varying voltages
Pilot Duty	1000 VA @ varying voltage
Motor	2 HP, 24 FLA @ 120 VAC 5 HP, 28 FLA @ 240 VAC
Max Power Consumption	3 W
Operating Temperature	-40° F to 130° F (-40° C to 54° C)
Warranty	1-year

Model #	Switch	Input Voltage
Without Pool Heater Protection		
T101M	SPST	120 VAC, 60Hz
T103M	DPST	
T104M	DPST	208-277 VAC, 60Hz
T106M	SPDT	
With Pool Heater Protection		
T104M201	DPST	208-277 VAC, 60Hz

Accessories/Replacement

1 Set of ON/OFF Trippers	156T1978A
Replacement 125 VAC, 60 Hz Motor (T101M, T103M)	WG1570
Replacement 208-277 VAC, 60 Hz Motor (T104M, T106M, T104M20)	WG1573
Insulator for Timers	124--00066

Voltage Ratings

For more details on model numbers / voltage ratings scan the QR code with your smartphone or tablet.

Don't Forget

Enclosures see page 164-166

24-Hour Mechanical Time Switch in Enclosure

T100 Series

Heavy-duty mechanical time switches control a single load.

Applications

• Pumps • Lighting • Heaters

Features

- Highest motor load ratings in the industry
- 12 ON/OFF operations per day
- ON/OFF trippers included
- Available with pool heater protection
- Teeter-type terminals for multiple load connections

T104P3

T101R201

Model #	Switch	Input Voltage	Enclosure
Without Pool Heater Protection			
T101P3	SPST	120 VAC, 60 Hz	Type 3R Plastic
T104P3	DPST	208-277 VAC, 60 Hz	
T106P3	1 NO/ 1 NC		
T101R3	SPST	120 VAC, 60 Hz	Type 3R Metal
T104R3	DPST	208-277 VAC, 60 Hz	
With Pool Heater Protection			
T101P201	SPST	120 VAC, 60 Hz	Type 3R Plastic
T104P201	DPST	208-277 VAC, 60 Hz	
T101R201	SPST	120 VAC, 60 Hz	Type 3R Metal
T104R201	DPST	208-277 VAC, 60 Hz	

Accessories/Replacement

1 Set of ON/OFF Trippers	156T1978A
Replacement 125 VAC, 60 Hz Motor (T101P3, T101R3, T101P201, T101R201)	WG1570
Replacement 208-277 VAC, 60 Hz Motor (T104P3, T106P3, T104R3, T104P201, T104R201)	WG1573
Insulator	124--00066

Ratings	
Heater Control Circuit	10 A, 240 VAC MAX
Resistive	40 A @ varying voltages
Inductive	40 A @ varying voltages
Electronic Ballast	16 A, 277VAC
Tungsten	40 A @ varying voltages
Pilot Duty	1000 VA @ varying voltage
Motor	2 HP, 24 FLA @ 120 VAC 5 HP, 28 FLA @ 240 VAC
Max Power Consumption	3 W
Operating Temperature	-40° F to 130° F (-40°C to 54°C)
Enclosure Dimensions H x W x D **Plastic Outdoor** **Metal Outdoor**	 10" x 6 ½" x 4" (254.0 mm x 165.1 mm x 101.6 mm) 10 ⅛" x 6 ½" x 3 ⅝" (257.2 mm x 165.1 mm x 92.1 mm)
Knockout Dimensions **Side/Back** **Bottom**	 ½" and ¾" combination (2) ½" and ¾"
Warranty	1-year

Voltage Ratings

For more details on model numbers / voltage ratings scan the QR code with your smartphone or tablet.

T10000R

T10101R

Control System with Type 3R Power Center

T10000R Series

Can be used as a power center only, or add mechanisms or wiring devices for complete control systems.

Applications

• Pool/spa equipment • Lights

Features

- Available with one or two heavy-duty time switch mechanisms
- Accepts any combination of PF1000M, P1403ME, P1353ME, P4043ME, P4243ME, T100M, or RC2000M Series mechanisms
- Load center dead front has two knockouts for switches or GFCIs
- Mechanism specifications and ratings on page 142
- Wiring devices may be installed in these Load Centers with the use of Standoffs, sold separately below
- Control two-speed pumps with the T10604R

Ratings	
Resistive	30 A, 120/208/240 VAC
Inductive	30 A, 120/208/240 VAC
Tungsten	30 A, 120/208/240 VAC
Pilot Duty	1000 VA, 120/208/240 VAC
Motor	2 HP, 24 FLA @ 120 VAC 5 HP, 28 FLA @ 240 VAC
Operating Temperature	-40°F to 130°F (-40°C to 54°C)
Load Center Dimensions H x W x D	12 ⅞" x 10 ⅞" x 4 ¾" (327.0 mm x 276.2 mm x 120.7 mm)
Knockout Dimensions	
Bottom	(5) combination ½" - ¾" and (2) combination ¾" - 1"
Left	(1) combination ½" - ¾"
Back	(1) combination ½" - ¾" and (1) ¾" - 1"
Right	(1) 1 ¾" x 2 ¾"
Warranty	1-year

Model #	Mechanism(s)	Switch	Mechanism Supply Voltage
T10000R	Power Center Only	—	—
T10004R	(1) T104M	DPST	240 VAC, 60 Hz
T10006R	(1) T106M	SPDT	240 VAC, 60 Hz
T10101R	(2) T101M	SPST/SPST	120/120 VAC, 60 Hz
T10404R	(2) T104M	DPST/DPST	240/240 VAC, 60 Hz
T10604R	T106M & T104M	SPDT/DPST	240/240 VAC, 60 Hz
T12404R*	T104M201 & T104M	DPST/DPST	240/240 VAC, 60 Hz

**The heater protection switch is closed when the time switch contacts are open to allow remote operation of heater. A flow or pressure switch must always be part of heater control circuit.*

Accessories/Replacement

Trippers (1 ON/OFF)	156T1978A
Insulator for Timers	124--00066
Spacer-Standoff, 3" Long - 2 Pack	21T166A
Spacer-Standoff, 3" Long - 4 Pack	21T156A

60 A Control System with Type 3R Load Center

T21000R Series

Can be used as a load center only, or add a heavy-duty mechanical time switch or wiring devices for a complete system.

Applications

• Pool/spa equipment • Lights

Features

- Comes with 4-position breaker base and equipment grounding bar
- Accepts PF1000M, P1403ME, P1353ME, P4043ME, P4243ME, T100M, or RC2000M Series mechanisms
- Accepts many interchangeable type breakers
- Load center dead front has two knockouts for switches or GFCIs
- Mechanism specifications and ratings on page 142
- Wiring devices may be installed in these Load Centers with the use of Standoffs, sold separately below

Model #	Mechanism	Switch	Mechanism Supply Voltage
T21000R	Load Center Only	—	—
T21001R	T101M	SPST	120 VAC, 60 Hz
T21004R	T104M	DPST	240 VAC, 60 Hz

Accessories/Replacement

Trippers (1 ON/OFF)	156T1978A
Insulator for Timers	124--00066
Spacer-Standoff, 3" Long - 2 Pack	21T166A
Spacer-Standoff, 3" Long - 4 Pack	21T156A

T21000R

T21001R

Ratings	
Load Center Rating	60 A, 120/240 VAC 120/208 VAC, 60 Hz Single Phase, 60 Hz
Operating Voltage	120-240 VAC, 60 Hz
Switch Type **T21001R** **T21004R**	 SPST DPST
Resistive	30 A, 120/208/240 VAC
Inductive	30 A, 120/208/240 VAC
Tungsten	30 A, 120/208/240 VAC
Pilot Duty	1000 VA, 120/208/240 VAC
Motor	2 HP, 24 FLA @ 120 VAC 5 HP, 28 FLA @ 240 VAC
Operating Temperature	-40°F to 130°F (-40°C to 54°C)
Load Center Dimensions **H x W x D**	16 ⅞" x 8 ⅞" x 4 ¾" (428.6 mm x 225.4 mm x 120.7 mm)
Knockout Dimensions **Bottom** **Left** **Back** **Right**	 (5) combination ½" - ¾" and (3) combination ¾" - 1" (1) combination ½" - ¾" (1) combination ½" - ¾" and (1) ¾" - 1" (1) 1 ¾" x 2 ¾"
Warranty	1-year

T30004R

T30401R

100 A Control System with Type 3R Load Center

T30000R Series

Can be used as a Load Center only, or add mechanisms or wiring devices for complete control systems.

Applications

• Pumps • Lighting

Features

- Comes with an 8 or 16 circuit breaker base, equipment grounding bar, and optional mechanical time switch(es)
- Reduces installation costs
- Eliminates the need for additional service panels
- Accepts any combination of PF1000M, P1403ME, P1353ME, P4043ME, P4243ME, T100M, or RC2000M series mechanisms
- Fully compatible with all electrical requirements for pool/spa installations
- Load center dead front has two knockouts for switches or GFCIs
- Mechanism specifications and ratings on page 142
- Wiring devices may be installed in these Load Centers with the use of Standoffs, sold separately below

Ratings	
Load Center Rating	100 A, 120/240 VAC 120/208 VAC Single Phase, 60 Hz
Resistive	30 A, 120/208/240 VAC
Inductive	30 A, 120/208/240 VAC
Tungsten	30 A, 120/208/240 VAC
Pilot Duty	1000 VA, 120/208/240 VAC
Motor	2 HP, 24 FLA @ 120 VAC 5 HP, 28 FLA @ 240 VAC
Operating Temperature	-40°F to 130°F (-40°C to 54°C)
Load Center Dimensions H x W x D	16 ⅞" x 10 ⅞" x 4 ¾" (428.6 mm x 276.2 mm x 120.7 mm)
Knockout Dimensions	
Bottom	(4) ½" - ¾", (3) ½", (2) ¾" - 1"
Left	(1) ¾" - 1"
Back	(5) ½" - ¾"
Right	(1) 1 ¾" x 2 ¾"
Warranty	1-year

Model #	Mechanism(s)	Switch	Mechanism Supply Voltage
T30000R5	Load Center only	—	—
T30004R	(1) T104M	DPST	240 VAC, 60Hz
T30404R	(2) T104M	DPST/DPST	240/240 VAC, 60Hz
T30401R	T104M & T101M	DPST/SPST	240/120 VAC, 60Hz
T30604R	T106M & T104M	SPDT/DPST	240/240 VAC, 60Hz
T32404R*	T104M201 & T104M	DPST/DPST	240/240 VAC, 60Hz

**The heater protection switch is closed when the time switch contacts are open to allow remote operation of heater. A flow or pressure switch must always be part of heater control circuit.*

Accessories/Replacement

Trippers (1 ON/OFF)	156T1978A
Insulator for Timers	124--00066
Spacer-Standoff, 3" Long - 2 Pack	21T166A
Spacer-Standoff, 3" Long - 4 Pack	21T156A

125 A Control System with Type 3R Load Center

T40000R Series

Can be used as a Load Center only, or add mechanisms or wiring devices for complete control systems.

Applications

• Pumps • Lighting

Features

- Comes with an 8 or 16 circuit breaker base, equipment grounding bar, and optional mechanical time switch(es)
- Reduces installation costs
- All-in-one electrical load center eliminates the need for additional service panels
- Accepts any combination of PF1000M Series, P1403ME, P1353ME, P4043ME, P4243ME, T100M Series, or RC2000M Series mechanisms
- Control two-speed pumps with the T30604R
- Fully compatible with all electrical requirements for pool and spa installations
- Load center dead front has four knockouts for switches or GFCIs (Note: T40000R4 has one knockout)
- Mechanism specifications and ratings on page 142
- Wiring devices may be installed in these Load Centers with the use of Standoffs, sold separately below

T40000R

T40004R

Model #	Mechanism	Switch	Mechanism Supply Voltage
T40000R	Load Center	—	—
T40004R	(1) T104M	DPST	240 VAC, 60 Hz
T40404R	(2) T104M	DPST	240 VAC, 60 Hz
T40000R4	Load Center with Compartment for Optional Wiring Devices		—

Accessories/Replacement

Freeze Probe	178PA28A
Spacer-Standoff, 3" long - 2 pack	21T166A
Spacer-Standoff, 3" long - 4 pack	21T156A

Ratings	
Load Center Rating	125 A MAX, 120/240 VAC 120/208 VAC Single Phase, 60 Hz
Switch Type	DPST
Resistive	30 A, 120/208/240 VAC
Inductive	30 A, 120/208/240 VAC
Tungsten	30 A, 120/208/240 VAC
Pilot Duty	1000 VA, 120/208/240 VAC
Motor	2 HP, 24 FLA @ 120 VAC 5 HP, 28 FLA @ 240 VAC
Operating Temperature	-40°F to 130°F (-40°C to 54°C)
Load Center Dimensions H x W x D	20 ⅞" x 12 ⅞" x 4 ¾" (530.2 mm x 327.0 mm x 120.7 mm)
Knockout Dimensions	
Bottom	(5) ½" - ¾", (4) ½", (2) ¾" - 1", 1¼"
Left	(2) ½" - ¾"
Back	(4) ½" - ¾", (2) ¾" - 1"
Right	(1) 1 ¾" x 2 ¾"
Warranty	1-year

T10004RT1

T40604RT3

Control System with Transformer and Power or Load Center

Mechanical Controls

These mechanical control systems include built-in transformers for ease of installation.

Applications

- Low-voltage lighting

Features

- All-in-one control power for pool/spa installation
- Easy to wire
- Can house additional Intermatic mechanisms and components
- Control two-speed pumps with the T40604RT3
- Heavy-duty Type 3R metal indoor/outdoor power and load center
- Mechanism specifications and ratings on page 142
- Wiring devices may be installed in these Load Centers with the use of Standoffs, sold separately below

Ratings	
Power Center Rating	62 A per leg, 109 A MAX, 120/240 VAC 120/208 VAC Single Phase, 60 Hz
Load Center Rating	100 A, 120/240 VAC 120/208 VAC Single Phase, 60 Hz
Switch Type **T103M/T104M** **T106M****	 DPST 1 NO/1 NC
Resistive	30 A, 120/208/240 VAC
Inductive	30 A, 120/208/240 VAC
Tungsten	30 A, 120/208/240 VAC
Pilot Duty	1000 VA, 120/208/240 VAC
Motor	2 HP, 24 FLA @ 120 VAC 5 HP, 28 FLA @ 240 VAC
Operating Temperature	-40°F to 130°F (-40°C to 54°C)
Power Center Dimensions H x W x D	12 ⅞" x 12 ⅛" x 4 ¾" (327.0 mm x 327.0 mm x 120.7 mm)
Load Center Dimensions H x W x D	20 ⅞" x 12 ⅛" x 4 ¾" (530.2 mm x 327.0 mm x 120.7 mm)
Knockout Dimensions T10000R Series **Bottom** **Left** **Back** **Right**	 (5) ⅞" - 1 ⅛", (2) ⅞", (2) 1 ⅛" - 1 ⅜" (1) ⅞" - 1 ⅛" (1) ⅞" - 1 ⅛", (1) 1 ⅛" - 1 ⅜" (1) 1 ¾" x 2 ¾"
Knockout Dimensions T40000R Series **Bottom** **Left** **Back** **Right**	 (5) ⅞" - 1 ⅛", (4) ⅞", (2) 1 ⅛" - 1 ⅜" - 1 ⅝" (2) ⅞" - 1 ⅛" (4) ⅞" - 1 ⅛", (2) 1 ⅛" - 1 ⅜" (1) 1 ¾" x 2 ¾"
Warranty	1-year

*** Can be wired as SPDT*

Model #	Description	Mechanism Supply Voltage	Transformer		
			Watts	Input Voltage, 60 Hz	Output Voltage
Power Center					
T10004RT1	Power Center with T104M	240 VAC	100	120 VAC, 1 A	12 or 13 VAC
T10004RT3	Power Center with T104M	240 VAC	300	120 VAC, 3 A	12, 13 or 14 VAC
T40000RT3	Load Center Only	—	300	120 VAC, 3 A	12, 13 or 14 VAC
Load Center					
T40003RT3	Load Center with T103M	120 VAC	300	120 VAC, 3 A	12, 13 or 14 VAC
T40004RT1	Load Center with T104M	240 VAC	100	120 VAC, 1 A	12 or 13 VAC
T40004RT3	Load Center with T104M	240 VAC	300	120 VAC, 3 A	12, 13 or 14 VAC
T40604RT3	Load Center with T106M, T104M	240 VAC	300	120 VAC, 3 A	12, 13 or 14 VAC

Accessories/Replacement

Trippers (1 ON/OFF)	156T1978A
Insulator for Timers	124--00066
Spacer-Standoff, 3" Long - 2 Pack	21T166A
Spacer-Standoff, 3" Long - 4 Pack	21T156A

Surge Protective Device

PS3000

Mount the PS3000 to your pool electrical panel to protect all your expensive pool and spa equipment against power surges. Designed with trusted, state-of-the-art TPMOV® (Thermally Protected Metal Oxide Varistor) surge protection technology to eliminate the potentially hazardous failure modes that are commonly associated with standard MOV technology.

Applications

- All Pool and Spa equipment powered by the electrical service panel

Features

- TPMOV® Surge Protection Technology
- Meets ANSI UL1449 3rd Edition Standards
- 120/240 VAC single phase SPD for use on a variety of pool equipment
- Green LED protection indicator
- Type 4X watertight and UV resistant plastic enclosure
- Three modes of protection
- Includes (3) 18", #10 AWG leads
- 3-year warranty
- $7,500 connected equipment warranty

Model #	Wiring Configuration
PS3000	L1, L2, L/N-G

PS3000

US SPD Type 1
Canada SPD Type 2

Ratings	
Service Voltage	120/240 VAC, 50/60 Hz
SPD Type	1 or 2
Nominal Discharge Current	10 kA
SCCR**	20 kA
Voltage Protection Rating (VPR)	
L-N/G	600
L-L	900
MCOV*	
L-N	150
L-L	300
Dimensions H x W x D	3 7/8" x 1 5/8" x 4 3/16" (98 mm x 41 mm x 106 mm)
Warranty	3-year

**MCOV Maximum Continuous Operating Voltage*
***SCCR Short Circuit Current Rating*

Surge Protective Device

IG1200RC3

For surge protection requiring higher ratings than the PS3000.

Applications

- All Pool and Spa equipment powered by the electrical service panel

Features

- TPMOV® Surge Protection Technology
- Meets ANSI UL1449 3rd Edition Standards
- 120/240 VAC single-phase SPD for use on a variety of pool equipment
- Green LED protection indicator
- Type 3R rainproof enclosure for indoor/outdoor applications
- Three modes of protection (L1-N, L2-N, L1-L2)
- Includes (3) 30" long, #12 AWG lead
- 3-year warranty
- $7,500 connected equipment warranty

Model #	Wiring Configuration
IG1200RC3	L1, L2, L/N-G

**MCOV Maximum Continuous Operating Voltage*
***SCCR Short Circuit Current Rating*

IG1200RC3

Ratings	
Service Voltage	120/240 VAC, 50-60 Hz
SPD Type	1 or 2
Nominal Discharge Current	20 kA
SCCR**	50 kA
Voltage Protection Rating (VPR)	
L-N/G	700
L-L	1200
MCOV*	
L-N	150
L-L	300
Dimensions H x W x D	5 11/16" x 4 3/16" x 3 7/16" (144.5 mm x 106.4 mm x 87.3 mm)
Warranty	3-year

**MCOV Maximum Continuous Operating Voltage*
***SCCR Short Circuit Current Rating*

PF1112T PF1222TB1

Control System with Freeze Protection and Power or Load Center

PF1100 and PF1200 Series Mechanical Panels

Protects pool/spa equipment against freeze damage.

Applications

- For pools/spas requiring one or two time switches
- Used in cold climates

Features

- GFCI and switch mounting capabilities
- Turns pump and heater ON when outdoor temperature drops below user-adjustable setpoint on thermostat
- Heavy-duty Type 3R metal indoor/outdoor enclosure
- Mechanism specifications and ratings on page 142

Ratings	
Power Center Rating	92 A per leg, 168 A MAX, 120/240 VAC 120/208 VAC Single Phase, 60 Hz
Load Center Rating	85 A MAX, 120/240 VAC 120/208 VAC Single Phase, 60 Hz
Operating Voltage	240 VAC
Switch Type	DPST
Resistive	30 A, 120/208/240 VAC
Inductive	30 A, 120/208/240 VAC
Tungsten	30 A, 120/208/240 VAC
Pilot Duty	1000 VA, 120/208/240 VAC
Motor	2 HP or 24 FLA @ 120 VAC 5 HP or 28 FLA @ 240 VAC
Thermostat Range	33° F to 42° F (0.5°C to 5.5°C) with 5° differential
Power Center Dimensions H x W x D	12" x 12 ⅞" x 4 ¼" (304.8 mm x 327.0 mm x 108.0 mm)
Load Center Dimensions H x W x D	16 ⅞" x 10 ⅞" x 4 ¾" (428.6 mm x 276.2 mm x 120.7 mm)
Warranty	1-year

Model #	Description	HP	Heater Protection
PF1112T	Power Center with (1) T104M Time Switch	3	No
PF1202T	Power Center with (2) T104M Time Switches	3	No
PF1222TB1*	Load Center with (2) T104M Time Switches	3	Yes

**4/8 Breaker base and heater protection.*
Note: Wiring devices may be installed in these Load Centers with the use of Standoffs.

Accessories/Replacement

Trippers (1 ON/OFF)	156T1978A
Insulator for Timers	124--00066
Replacement Freeze Protection Thermostat	178T24
Spacer-Standoff, 3" Long - 2 Pack	21T166A
Spacer-Standoff, 3" Long - 4 Pack	21T156A

Voltage Ratings

For more details on timer / voltage ratings, scan the QR code with your smartphone or tablet.

Single-Circuit Freeze Protection Controls

PF1100 Mechanical Series

Protect pool/spa equipment against freeze damage.

Applications

- Pool/spa equipment used in cold climates

Features

- Turn pump and heater ON when outdoor temperature drops below user-adjustable setpoint on thermostat
- Models with or without mechanical timer mechanism

PF1102M

PF1102

PF1102MT

PF1102T

Model #	Description
PF1102M	Thermostat Only - 240 VAC
PF1103M*	Thermostat Only - 120/240 VAC
PF1102	Thermostat in Type 3R Metal Enclosure
PF1103*	Thermostat in Type 3R Metal Enclosure
PF1102MT	Timer Thermostat Mechanism Only
PF1103MT*	Timer Thermostat Mechanism Only
PF1102T	Thermostat & Timer Mechanism in Type 3R Metal Enclosure
PF1103T*	Thermostat & Timer Mechanism in Type 3R Metal Enclosure

**Neutral must be installed.*

Accessories/Replacement

Trippers - Turquoise (ON)	107TN222
Trippers - Red (OFF)	107TN221
Replacement Freeze Protection Thermostat	178T24

Ratings	
Operating Voltage	
PF1102	240 VAC
PF1103	120/240 VAC
HP	
PF1102	3
PF1103	1.5/3
Thermostat Range	33° F to 42° F (0.5° C to 5.5° C) with 5° differential
Enclosure Dimensions H x W x D	9 ⅝" x 5 ¾" x 3 ⅝" (244.5 mm x 146.1 mm x 92.1 mm)
Knockout Dimensions	
Bottom	(2) ½" - ¾"
Left	(1) ½" - ¾"
Back	(4) ½" - ¾", (2) ¾" - 1"
Right	(1) ½" - ¾"
Warranty	1-year

RC2163BFE

Remotely Operated Control System

RC2163BFE Pool/Spa Combination Control Panel

Control ON/OFF timing of pool/spa loads remotely, away from the water. Includes actuators for turning valves between pool and spa modes.

Applications

- Pool/spa combinations

Features

- Use spring wound timer, toggle switch or wireless receiver/transmitter to operate equipment
- Heater control
- Digital override timer for spa mode
- (2) PE24VA 24 V valve actuators included
- Heavy-duty Type 3R metal indoor/outdoor load center

Ratings	
Load Center Rating	100 A, 120/240 VAC 120/208 VAC Single Phase, 60 Hz
Operating Voltage	120/240 VAC
Filter Pump **Single Speed Only** **Single or Two Speed**	 1.5 HP @ 120 VAC, 3 HP @ 240 VAC 1 HP @ 120 VAC, 2 HP @ 240 VAC
Breaker Spaces	8 /16
No. of Actuator Connections	3
Load Center Dimensions **H x W x D**	16 ⅞" x 10 ⅞" x 4 ¾" (428.6 mm x 276.2 mm x 120.7 mm)
Warranty	1-year

Model #	Remote Command
RC2163BFE	Any SPST Switch*

**Sold separately.*

Accessories/Replacement

Spacer-Standoff, 3" Long - 2 Pack	21T166A

Don't Forget

Spring Wound Timers, see pages 60-61

RC2123PT

Multifunction Air Switches with 24-Hour Timer

RC2000 Timer Switches

Control ON/OFF timing safely, without electricity, near the water.

Applications

- Pool and spa pumps and lights

Features

- Remote control for one or two separate loads
- Multiple ON/OFF settings per day
- Flexible air hose enables operation up to 75 feet
- Type 3R plastic indoor/outdoor enclosure

Ratings	
Operating Voltage	120/240 VAC, 60 Hz
Switch Type **RC2123PT** **RC2343PT**	 SPDT 4 Function
Switch Ratings (Each Circuit) **Resistive** **Motor**	 20 A, 120/240 VAC 1 HP, 120 VAC 2 HP, 240 VAC
Enclosure Dimensions **H x W x D**	9 ⅝" x 5 ¾" x 3 ⅝" (244.5 mm x 146.1 mm x 92.1 mm)
Warranty	1-year

Model #	Mechanism
RC2123PT	One or Two Speed Pump ON/OFF with Timer
RC2343PT	One or Two Speed Pump and Blower ON/OFF with Timer

Accessories/Replacement

Trippers - Turquoise (ON)	107TN222
Trippers - Red (OFF)	107TN221

Air-Actuated Remote Control

RC2100 Switch Series

RC2103S

Safely control pool/spa equipment without electricity near the water.

Applications

- Pool/spa pumps and lights

Features

- Type 3R plastic indoor/outdoor enclosure
- Controls one piece of equipment with one air button (button sold separately below)
- Control works with up to 100-ft long air tube

Model #	Description
RC2103S	Remote Control

Ratings	
Operating Voltage	
Line and Neutral	120 VAC, 60 Hz
Line, Line 2, and Neutral	240 VAC, 60 Hz
Switch Type	SPST
Switch Ratings	
Resistive	20 A, 120/240 VAC
Motor	1 HP, 120 VAC 2 HP, 240 VAC
Dimensions H x W x D	4 ⅛" x 4 ⅛" x 3 ⅜" (104.8 mm x 104.8 mm x 85.7 mm)
Warranty	1-year

Air Switches and Accessories

RC Series

Applications

- Air control equipment

Features

- Replaces existing buttons and accessories

Model #	Description
RC4G	1" Gunite Air Button - 100 ft. Range
RC6F	1 ½" Fiberglass Air Button - 150 ft. Range
RC117	Air Tubing - 75 ft. Length
RC150	Air Tubing - 500 ft. Length
RC122B	Air Tubing and Air Button (RC4G) - 25 ft. Length
RC127B	Air Tubing and Air Button (RC4G) - 75 ft. Length
RC510	Air Tubing Coupler (pack of 10)

RC4G

RC6F

RC117

RC122B

RC510

RC613

RC613R

Outdoor Radio Receivers

RC600 Series

Control loads with the receiver mounted ON/OFF button or wirelessly via a remote transmitter.

Applications

• Pumps • Lights

Features

• Respond to handheld transmitter (provided separately below)
• For indoor/outdoor use
• Handle a variety of switching applications
• Enable connected loads to be turned ON/OFF remotely
• Maximum range 100 ft. (see RC939 transmitter below)
• Beige outdoor grade plastic enclosure

Ratings	
Switch Type	SPST
RC613/L, RC615	
Resistive	15 A
Tungsten	10 A, 1200 W
RC613R	
Resistive	20 A
Tungsten	12 ½ A, 1500W
Dimensions H x W x D	
RC613/L, RC615	4 ½" x 3" x 1 ¾" (114.3 mm x 76.2 mm x 44.5 mm)
RC613R	8" x 4 ¼" x 3 ⅜" (203.2 mm x 108.0 mm x 85.7 mm)
Warranty	1-year

Model #	Description
RC613*	Receiver with Manual ON/OFF button, 6" Leads
RC613L*	Receiver with Manual ON/OFF button (3) 36" Leads
RC615	Timer Interface Module
RC613R	Heavy-Duty Receiver Module

**Not recommended for use with LED lights.*

RC939

Handheld 3-Channel Radio Transmitter

RC939

Transmit signals to the RC family of radio receivers for remote ON/OFF control.

Applications

• Pool and spa pumps • Blowers • Lights

Features

• Operates up to three RC600 Series receivers (see above)

Ratings	
Dimensions H x W x D	2 ½" x 1 ¼" x ½" (63.5 mm x 31.8 mm x 12.7 mm)
Warranty	1-year

Model #	Description	Range	Battery
RC939	3-Channel Radio Transmitter	100 ft.*	CR2D32

**Range depends on many factors including age of battery, proximity of large metal objects, location of receiver, and environmental conditions at the time of transmission.*

Safety Transformers

PX Series

These safety transformers are specifically designed to supply 12-14 VAC and are suitable for direct connection to underwater pool/spa lights.

Applications

- LED pool lights • Submersible fixtures
- Outdoor landscape and decorative lighting

Features

- Mounting brackets on the top and bottom
- Built-in circuit protection disconnects power temporarily in case of overload*
- Complies with NEC Code 680.23 requirements for underwater luminaries

PX50

PX300S

Model #	Input Voltage	Output Voltage	Watts
3R Beige Metal Enclosure			
PX50	120 VAC, ½ A	12 or 13 VAC	50
PX100	120 VAC, 1 A	12 or 13 VAC	100
PX300	120 VAC, 3 A	12, 13 or 14 VAC	300
PX600	120 VAC, 6 A	12, 13 or 14 VAC	600
3R Brown Stainless Steel Enclosure			
PX50S	120 VAC, ½ A	12 or 13 VAC	50
PX100S	120 VAC, 1 A	12 or 13 VAC	100
PX300S	120 VAC, 3 A	12, 13 or 14 VAC	300
PX600S	120 VAC, 6 A	12, 13 or 14 VAC	600

**Disconnection is not permanent; the transformer is equipped with a thermal protector. The circuit will "re-energize" when the transformer cools.*

Ratings PX50, 100, 300	
Dimensions H x W x D	7 ¼" x 5 ¼" x 4 ½" (184.2 mm x 133.4 mm x 114.3 mm)
Knockout Dimensions	
Bottom	(4) combination ½" - ¾"
Left	(2) combination ½" - ¾"
Back	(2) combination ½" - ¾"
Right	(2) combination ½" - ¾"
Warranty	1-year

Ratings PX600	
Dimensions H x W x D	10" x 10" x 5 ⅜" (254.0 mm x 254.0 mm x 136.5 mm)
Knockout Dimensions	
Bottom	(2) combination ½" - ¾", (4) combination ¾" - 1"
Left	(2) combination ½" - ¾"
Back	(2) combination ½" - ¾"
Right	(2) combination ½" - ¾"
Warranty	1-year

PJB4175

PJB2175

Pool/Spa Light Junction Boxes

PJB Series

These polymeric junction boxes are code compliant and provide safe, reliable connections for low voltage lights.

Applications

• Pools • Spas • Landscape lighting

Features

- Accommodates flexible cords from #16 - 3 up to #12 - 3, #10 - 2 and non-metallic conduits from ½" to 1"
- Watertight, multifixture enclosure
- Easy access ground bar
- PA114 Wall/Post Mounting Bracket (sold separately)
- Complies with NEC Code 680.24 requirements for junction boxes
- 1-year warranty

Model #	Light Connections	Dimensions H x W x D
PJB2175	2	7 ¼" x 3" x 4" (184.2 mm x 76.2 mm x 101.6 mm)
PJB4175	4	8 ¾" x 5" x 4 ⅝" (222.3 mm x 127.0 mm x 117.5 mm)

Accessories/Replacement

Mounting bracket for Pool/Spa Light Junction Boxes	PA114

PB873MKZ

PB913N/PB914N

PB913N66/PB914N66

PB913N84/ PB914N84

Panel Mount Timers

PB Series

Features

- Automated control for pumps, cleaners, and other types of loads
- 3 different mounting methods
- Quick connect terminals for easy installation
- 24-hour timing cycle - MIN ON time 1-hr, MAX ON time 23-hr, 30-min intervals
- 7-day timing cycle - 6 to 162-hr ON time, 3-hr intervals

Model #	Dial Input	Operating Voltage	No. of Trippers	Manual Override
Without Manual Override				
PB873MKZ	7-Day	120 VAC, 60 Hz	56	No
PB913N	24-Hour	120 VAC, 60 Hz	48	No
PB914N	24-Hour	208-277 VAC, 60 Hz	48	No
With Manual Override				
PB913N66	24-Hour	120 VAC, 60 Hz	48	Yes
PB914N66	24-Hour	208-277 VAC, 60 Hz	48	Yes
PB913N84	24-Hour	120 VAC, 60 Hz	4	Yes
PB914N84	24-Hour	208-277 VAC, 60 Hz	4	Yes

Ratings	
Switch Type	SPST
Resistive	20 A, 120-277 VAC
Tungsten	1250 W, 125 VAC
Pilot Duty	360 VA, 120-240 VAC
Motor	1 HP, 16 FLA @ 120 VAC 2 HP, 12 FLA @ 240 VAC
Quick Connect Terminals	(4) ¼" male (2) for load (2) for independent clock motor
Dimensions H x W x D	3 ⅓" x 2 ¹³⁄₁₆" x 1 ⁶¹⁄₆₄" (84.6 mm x 71.4 mm x 49.6 mm)
Warranty	1-year

Accessories/Replacement

Trippers - Clip, ON/OFF, 24-Hr	156PB10398A

Other Timer Options

FM1 Series Panel Mount Timers, see page 47; GM40AV and GM40AV-M Electromechanical Time Switches, see page 40

PB313E

PB373E

Electronic Panel Mount Timers

PB300 Series

Applications

• Pumps • Mechanical timer replacement

Features

- 24-hour and 7-day models
- Turn equipment ON/OFF up to 8 times per day
- Select feature enables timers to be continuously in ON/OFF/AUTO mode
- Rugged construction
- Beige, electrical-grade plastic enclosure
- 3-year service life replaceable lithium battery

Ratings	
Switch Type	
24-Hour Models	SPDT
7-Day Models	SPST
Dimensions H x W x D	2 ⅜" x 2 ⅜" x 1 1⁄16" (60.3 mm x 60.3 mm x 27.0 mm)
Warranty	1-year

Model #	Supply Voltage	A	HP	FLA
24-Hour				
PB313E	120 VAC, 50/60 Hz	16	½	8
PB313EK*	120 VAC, 50/60 Hz	16	½	8
PB314E	240 VAC, 50/60 Hz	16	½	8
PB314EK*	240 VAC, 50/60 Hz	16	½	8
7-Day				
PB373E**	120 VAC, 50/60 Hz	20	1	16
PB374E**	240 VAC, 50/60 Hz	20	2	12

**EK models are replacement kits for PB Series timers.*
***Output voltage is same as supply.*

P7103ME

P1103FE

Electronic Time Switch Mechanisms

P7103ME & P1103FE

These digital time switches allow multiple ON/OFF cycles within a 24-hour time period for up to seven days.

Applications

• Pumps • Mechanical timer replacement

Features

- Turn equipment ON/OFF up to 8 times per day
- To-the-minute programming accuracy
- Dual-voltage input (3-wire)
- Safety door prevents unwanted entry into wiring compartment
- Timer override
- Select feature enables timers to be continuously in ON/OFF/AUTO mode
- 24-hour and 7-day models
- 3-year service life replaceable lithium battery

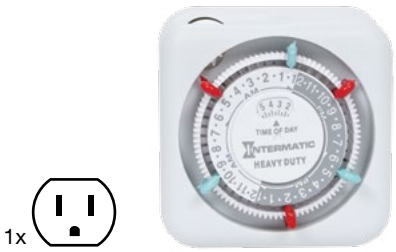
Ratings	
Operating Voltage	120 VAC, 50/60 Hz
Switch Type	DPST
Resistive	20 A, 120-240 VAC
Tungsten	10 A, 120 VAC
Motor	1.5 HP @ 120 VAC, 50/60 Hz 3 HP @ 240 VAC, 50/60 Hz
Dimensions H x W x D	9 7⁄16" x 6 ½" x 3 11⁄16" (239.7 mm x 165.1 mm x 93.7 mm)
Warranty	1-year

Model #	Description
P7103ME*	7-Day Mechanism Only
P1103FE	24-Hour with Type 3R Plastic Enclosure

**Standard mechanism fits in all standard Intermatic enclosures and power and load centers.*

Don't Forget

Spring Wound Timers, see page 60-61; In-Wall Timers, see pages 54-59; Weatherproof Covers, see pages 122-129



TN311

24-Hour Indoor Mechanical Plug-In Timer

TN311 Heavy-Duty Timer

Features

- 3 ON/OFF settings per day
- Grounded receptacle and 3-prong plug
- Accepts up to 12 sets of trippers

Model #	Volt	A	Rcpt/Plug
TN311	125 VAC	15 A	5-15

Ratings	
Operating Voltage	125 VAC, 60 Hz
Resistive	15 A
Inductive Ballast	15 A
Tungsten/Incandescent	1875 W
Motor	1/3 HP
Dimensions H x W x D	3 ⅛" x 3" x 2" (79.4 mm x 76.2 mm x 50.8 mm)
Warranty	5-year limited

DT620

7-Day Indoor Digital Plug-In Timer

DT620 Heavy-Duty Timer

Features

- Full 7-day programming options, including astronomic clock, automatic DST adjustment, and random mode
- 28 ON/OFF settings
- 2 grounded receptacles and grounded plug

Model #	Volt	A	Rcpt/Plug
DT620	120 VAC	15 A	5-15

Ratings	
Operating Voltage	120 VAC, 60 Hz
Resistive	15 A
Inductive Ballast	12 A
Tungsten/Incandescent	1000 W
Motor	1/2 HP
Dimensions H x W x D	3 3/16" x 3 5/16" x 2 ¼" (81.0 mm x 84.1 mm x 57.2 mm)
Warranty	1-year

TN111RM40

24-Hour Outdoor Mechanical Plug-In Timer

TN111RM40 Heavy-Duty Timer

Features

- 2 ON/OFF settings per day
- Manual override
- Rated for outdoor use in a Type 3R outdoor enclosure

Model	Volt	A	Rcpt/Plug
TN111RM40	125 VAC	15 A	1-15

Ratings	
Operating Voltage	125 VAC, 60 Hz
Resistive	9 A (1125 W)
Inductive Ballast	9 A
Dimensions H x W x D	3 ⅛" x 3" x 2" (79.4 mm x 76.2 mm x 50.8 mm)
Warranty	1-year limited

HB880R

7-Day Outdoor Digital Plug-In Timer

HB880R Heavy-Duty Timer

Features

- Full 7-day programming options, including astronomic clock, automatic DST adjustment, and random mode
- Controls incandescent, fluorescent, LED, and CFL
- 2 grounded receptacles with 24" cord and grounded plug
- AA battery backup

Model #	Volt	A	Rcpt/Plug
HB880R	120 VAC	15 A	5-15

Ratings	
Operating Voltage	120 VAC, 60 Hz
Resistive	15 A
Inductive Ballast	8.3 A
Electronic/LED Ballast	500 VA
Tungsten/Incandescent	1000 W
Motor	1/2 HP
Dimensions H x W x D	5 ⅜" x 5 1/16" x 1 ⅞" (136.5 mm x 128.6 mm x 47.6 mm)
Warranty	1-year limited

P1101

P1121

P1131

Outdoor Mechanical Plug-In Timers With Built-In Enclosure

P1100 Series

Features

- Control filter pumps
- ON/OFF control for outdoor decorations, engine block heaters and other appliances

Ratings	P1101	P1121	P1131
Operating Voltage	120 VAC, 60 Hz	120 VAC, 60 Hz	120 VAC, 60 Hz
Resistive	15 A	15 A	20 A
Tungsten /Incandescent	1800 W	15 A	—
FLA / LRA	15 FLA / 90 LRA	15 FLA / 90 LRA	16 FLA / 96 LRA
Motor	1 HP	1 HP	1 HP
Dimensions H x W x D	5 ⅜" x 5 ⅛" x 2 ½" (136.5 mm x 130.2 mm x 63.5 mm)	5 ⅝" x 3 ⅝" x 3 ¼" (142.9 mm x 92.1 mm x 92.6 mm)	5 ⅜" x 5 ⅛" x 2 ½" (136.5 mm x 130.2 mm x 63.5 mm)
Warranty	1-year limited		

Model #	A	Rcpt/Plug	Cord Length	Cover
P1101	15	5-15	22"	Clear
P1121			13"	Black
P1131	20	5L-20	22"	Clear

Accessories/Replacements

Trippers - Red (OFF)	107TN221
Trippers - Turquoise (ON)	107TN222
Trippers - Clip, ON/OFF, 24-Hr	156PB10398A

P1251P

Two-Circuit Portable Outdoor Timers

P1200 Series

Use these convenient plug-in timers instead of hard-wired controls. They offer plug-in receptacles for convenience and ease of use.

Applications

• Above ground pool pumps • Lights • Fountains

Features

- 24-hour with 23 ½-hour MAX ON time
- Timed circuit controlled by timer; Photocontrol circuit controlled by photocell or timer (P1251P only)
- Built-in GFCI protected circuits and three-prong grounded plug for time switch supply
- Type 3R plastic indoor/outdoor enclosure
- 2 ON/OFF trippers standard
- Accepts up to 12 sets of trippers

Ratings	
Resistive	15 A (1800 W)
Tungsten	15 A (1800 W)
Motor	1 HP, 15 FLA, 90 LRA @ 120 VAC
Enclosure Dimensions H x W x D	9 ⅜" x 5 ½" x 4" (238.1 mm x 139.7 mm x 101.6 mm)
Cord	3 wire, outdoor grade, 24" with grounded plug
Warranty	1-year

Model #	Photocontrol	Receptacle & Plug
P1251P	Yes	5-15
P1261P	No	5-15

Accessories/Replacements

Trippers - Red (OFF)	107TN221
Trippers - Turquoise (ON)	107TN222
Light Shield for Button Photocontrol	6LV1352

Emergency Shut-Off Switch

PA600 Series

Safety switch intended for disconnecting electrical equipment from its power source, quickly and safely, in case of emergency.

Features

- Fits in single-gang junction box
- Rated for outdoor installation
- Disconnects electrical equipment from its power source in case of emergency
- Electrical grade plastic housing
- Beige, powder-coated steel faceplate

Model #	Description
PA600	Emergency Shut-off Switch

PA600

Ratings	
Operating Voltage	120, 240 VAC
Switch Type	DPST
Resistive	20 A
Motor	1 HP, 120 VAC 3 HP, 240 VAC

Fireman Switch

156T4042A

Features

- Coordinated control for pool/spa heaters and filter pumps
- Turns OFF gas pool/spa heater before filter pump shuts down to extend heater life
- 10 A, 250 VAC MAX

Model #	Description
156T4042A	Fireman Switch

156T4042A

Indoor and Outdoor Enclosures

2T511GA Shown

Enclosures and Accessories

Selecting an enclosure that best meets your needs:

Intermatic Enclosures
pages 164-166

Type 1 Indoor Metal

Type 3R Outdoor Metal

Type 3R Outdoor Plastic

Grässlin Enclosures
pages 167

Type 1 Indoor Plastic

Type 3R Outdoor Plastic

Type 3R Outdoor Plastic

Mounting Options

Flush Mount Metal Enclosures

Surface Mount Bracket

Mounting Options

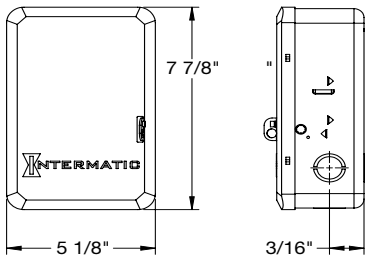
DIN Rail/Surface or Flush Mount Options

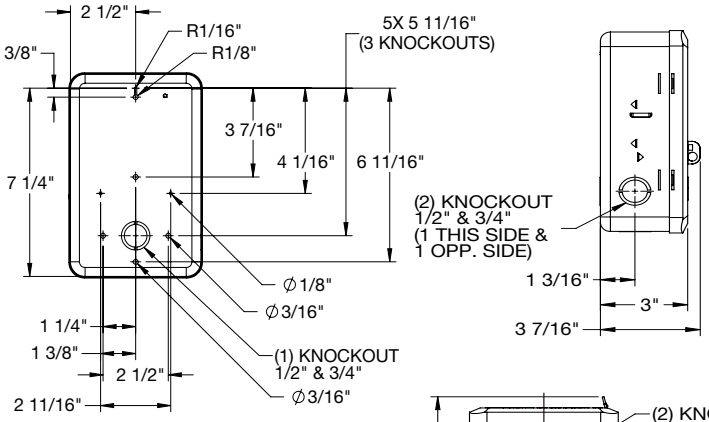
Contents

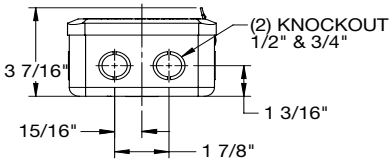
Metal Enclosures 164
Plastic Enclosures 165
Specialty Mounting Options 166
Grässlin Plastic Enclosures 167
Accessories 168-170

2T2040GA

Enclosure Dimensions







Indoor Metal Enclosure

Type 1

These drawn steel, powder coated enclosures offer a spring style hasp to ensure the enclosure remains closed and allows for a lock to be used to prevent unauthorized access to the controls.

Features

- Drawn steel with gray powder coat paint finish
- Combination ½" and ¾" nominal knockouts with one on back and each side of enclosure, and two on bottom
- Convenient mounting holes
- Lockable hasp holds door closed

Model #	Color	Dimensions H x W x D
2T2040GA	Gray	7 ⅞" x 5 ⅛" x 3 ⁷⁄₁₆" (200 mm x 130.2 mm x 87.3 mm)

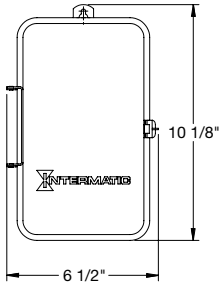
Accepts a wide range of Intermatic Time Switches, including most T100, T170, T1900, T2000, C8800, EH, ET1100, ET1700, ET2000, ET8000, ET90115, and ET90215 Series units.

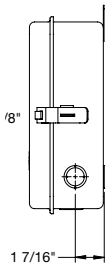
2T511GA

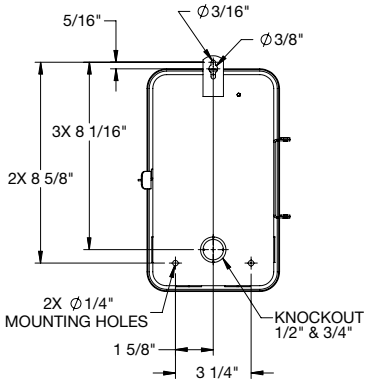
2T2485GA

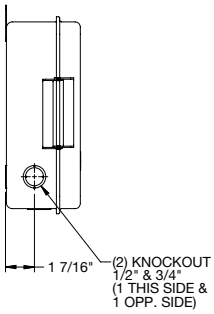
Enclosure Dimensions

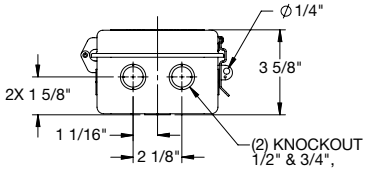
2T511GA / 2T2485GA











Outdoor Metal Enclosures

Type 3R Rainproof

These drawn steel, powder coated enclosures keep controls protected from rain, sleet, snow, and ice. They have a swinging hasp that allows for a lock to be used to prevent unauthorized access to the controls.

Features

- Drawn steel with gray or beige powder coat paint finish
- Combination ½" and ¾" nominal knockouts with one on back and each side of enclosure, and two on bottom
- Separate grounding terminal
- Convenient mounting holes
- Lockable hasp holds door closed

Model #	Color	Dimensions H x W x D
For Most Mechanical and Electronic Controls		
2T511GA*	Gray	10 ⅛" x 6 ½" x 3 ⅝" (257.2 mm x 165.1 mm x 92.1 mm)
2T2485GA*	Beige	10 ⅛" x 6 ½" x 3 ⅝" (257.2 mm x 165.1 mm x 92.1 mm)
For Carry-Over Models		
2T2331GA**	Gray	10 ⅛" x 6 ½" x 3 ¹¹⁄₁₆" (257.2 mm x 165.1 mm x 93.7 mm)

**Available for T100, T170, T1900, T2000 ,C8800, EH, ET1100, ET1700, ET2000, ET8000, ET90115, and ET90215 Series units.*
***Available for T100CR, T170CR, T1400, and T1800 Series units.*

Outdoor Plastic Enclosures

Type 3R Rainproof

These heavy-duty industrial grade plastic enclosures include molded mounting brackets for easy installation, and have a lockable hasp to prevent unauthorized access to the controls. These plastic enclosures are non-corroding, and are great for applications in high moisture or dusty locations.

Features

- Heavy-duty industrial grade plastic
- Perfect for high humidity and dusty environments
- Combination ½" and ¾" nominal knockouts with one on back and each side of enclosure, and two on bottom
- Lockable hasp holds door closed

Model #	Description	Dimensions H x W x D
2T2500GA	Gray	10" x 6 ½" x 4" (254 mm x 65.1 mm x 101.6 mm)
2T2502GA	Beige	10" x 6 ½" x 4" (254 mm x 65.1 mm x 101.6 mm)
2T2926A	Gray with See-Through Window	10" x 6 ½" x 4" (254 mm x 65.1 mm x 101.6 mm)

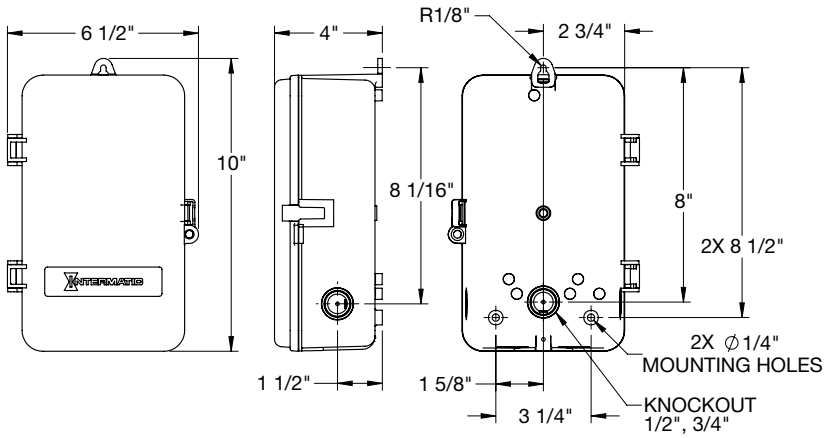
Available for T100, T170, T1400, T1900, T2000 ,C8800, EH, ET1100, ET1700, ET8000, ET2000, ET90115, and ET90215 Series units.

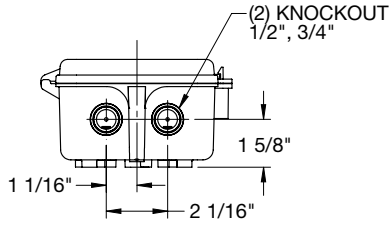
2T2500GA

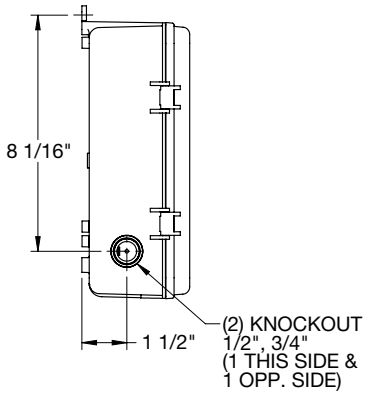
2T2502GA

2T2926A

Enclosure Dimensions

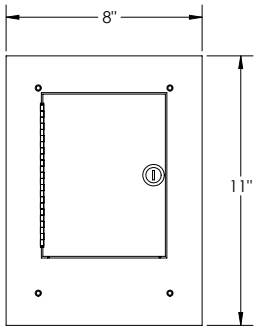






2T2365GA

Enclosure Dimensions



Flush Mount Metal Enclosures

Type 1 Rated

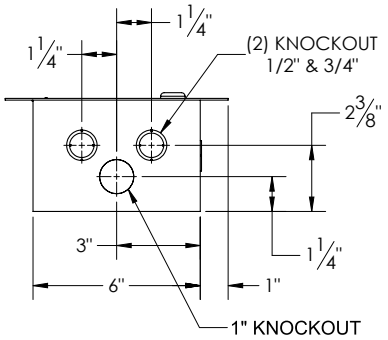
These enclosures are great for concealing the controls in the wall, and providing a finished, flush appearance. Enclosures are made of heavy-duty steel and also include a locking mechanism to prevent unauthorized access to the controls.

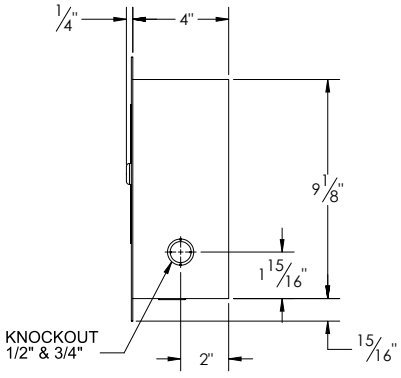
Features

- Heavy-duty construction with hinged door
- Lockable door with key
- Various mounting holes

Model	Dimensions H x W x D	Cover Size
Riveted Mounting Bracket		
2T2365GA*	9 ⅛" x 6" x 4 ⅛" (231.8 mm x 152.4 mm x 104.8 mm)	11" x 8" (279.4 mm x 203.2 mm)
Adjustable Bracket Mount Locations		
2T308A**	9 ⅛" x 6" x 4 ⅛" (231.8 mm x 152.4 mm x 104.8 mm)	11" x 8" (279.4 mm x 203.2 mm)

**Available for ET1100, ET1700, ET2000, ET8000, EH, ET90115, and ET90215 series units.*
***Available for T100, T170, T1900, T2000, and C8800 series units.*





22T338GR

Surface Mount Bracket

Mounting Brackets

This bracket has been designed to be used when mounting the controls into areas where an enclosure will not be needed or when mounting the control into another form of enclosure. The bracket also accepts a wide range of Intermatic controls.

Features

- Ideal for panel mounting mechanical or electronic time switch controls

Model #	Description	Dimensions H x W x D
22T338GR	Surface Mount Snap-In Bracket	6" x 5" x 2" (152.4 mm x 127 mm x 50.8 mm)

Accepts a wide range of Intermatic Time Switches, including most T100, T170, T1900, T2000, C8800, ET1100, ET1700, ET2000, ET8000, ET90115, and ET90215 series units.

The Grässlin E150, E200, and E300 are outdoor rated plastic enclosures which provide mounting for any Grässlin Electromechanical and Electronic Time Switches. These enclosures are also well-suited for use with pool controls, relays, contactors, and other control or electrical mechanisms. The E150 is Type 1 rated for indoor applications. The E200 and E300 are Type 3R "Rainproof" rated for outdoor and wet or dusty locations. Bosses are provided for mounting of a DIN rail. Additional bosses provide a means of mounting a printed circuit board assembly. Provision for interior cover panel is also provided.

Indoor Plastic Enclosure

E150

Applications

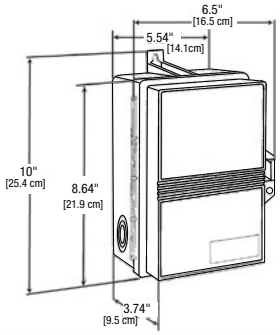
Provisions for mounting any Grässlin Time Control or LightMaster™ Control System

Features

- Type 1 indoor enclosure
- High impact all-plastic enclosure eliminates rust and corrosion
- Rugged heavy-duty construction
- Provision for padlock seal
- Five combinations of ½" and ¾" knockouts

Model#	Dimensions H x W x D
E150	8.64" x 6.5" x 3.74" (21.9 cm x 16.5 cm x 9.5 cm)

Enclosure Dimensions



E150

Ratings	
Overall, w/mounting tabs	10" x 6 ½" x 3 ¾"
Base exterior	8" x 5" x 2 ⅖"
Base interior	7 ½" x 4 ½" x 2"
Door exterior	8 7⁄10" x 5 ½" x 1 ⅖"
Weight:	1 lb

Outdoor Plastic Enclosure

E200

Applications

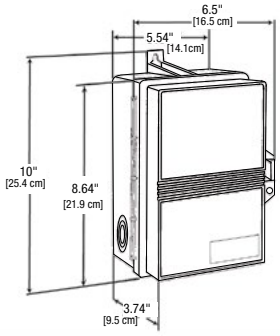
Provisions for mounting any Grässlin Time Control or LightMaster™ Control System

Features

- Type 3R Outdoor enclosure
- High impact all-plastic enclosure eliminates rust and corrosion
- Rugged heavy-duty construction
- Provision for padlock seal
- Five combinations of ½" and ¾" knockouts

Model #	Dimensions H x W x D
E200	8.64" x 6.5" x 3.74" (21.9 cm x 16.5 cm x 9.5 cm)

Enclosure Dimensions



E200

Ratings	
Overall, w/mounting tabs	10" x 6 ½" x 3 ¾"
Base exterior deep	8" x 5" x 2 ⅖"
Base interior	7 ½" x 4 ½" x 2"
Door exterior	8 7⁄10" x 5 ½" x 1 ⅖"
Weight	1 lb

Outdoor Plastic Enclosure

E300

Applications

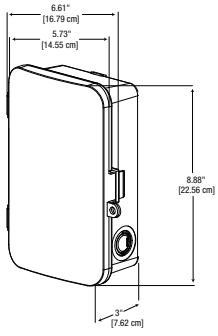
Provisions for mounting any Grässlin Time Control

Features

- Type 3R outdoor enclosure
- High impact all-plastic enclosure eliminates rust and corrosion
- Rugged heavy duty construction
- Provision for padlock seal
- Five combinations of ½" and ¾" knockouts

Model #	Dimensions H x W x D
E300	8.88" x 6.61" x 3" (22.56 cm x 16.79 cm x 14.55 cm)

Enclosure Dimensions



E300

Ratings	
Overall, w/mounting tabs	8.88" x 6.61" x 3" (22.56 cm x 16.79 cm x 14.55 cm)
Weight	1.33 lbs. (60 kg)

Don't Forget

Add an Intermatic relay or other accessories to your Grässlin Enclosure with a Grässlin Time Control for heavy-duty applications requiring 25 A @ 277 VAC, 3 HP. Applicable accessories include: Relays 143T137 (24 VAC coil voltage), 143PS107 (24 VDC coil voltage), 143T304 (120 VAC coil voltage), 22—00012 (4" metal Din rail). See Pages 168-170 for further accessory details.

Model #	Description
HVAC Power Protection	
22--00091	Compressor Defender™ Mounting Bracket
Defrost Time Controls/HVAC/R	
DT-B	Defrost Timer Bracket
156--01318A	DTAV40 Plate Assembly
Electronic Controls	
101--00040	Battery Holder for ET100
176ET17A	120 VAC Surge Suppressor
6ET1398GA	Flush Mount Door Assembly with Lock
NOISEFILTER	Noise Filter
ET-NF	Noise Filter for Electronic Controls
22T338GR	Mounting Bracket for ET90115, ET90215, ET1100, ET1700, ET8000, ET2100, ET2700 and ET2800 Series Electronic Controls
ET9100	ET90415-ET91615 Replacement Door Assembly
ET9232	Ethernet Module for ET90000 Upgrade or Replacement
ET9250	4-Circuit Relay Board for Upgrade or Replacement of ET90415CR-ET91615CR Panels
124--00101	Insulator for ET Series controls (ET1100, ET1700, ET8000, ET2100, ET2700, ET2800 Series)
ET9500	BEMS Interface Box for ET90000 Series
Grässlin Time Controls	
24--00109	Wall Plate for KM2ST-1G or KM2STU-1G, Single Gang, White
24--00046	Wall Plate for KM2ST-2D, 2 Gang (Timer and Decorator Switch), White
24--00041	Wall Plate for KM2ST-2G, 2 Gang (Timer and Toggle Switch), White
24--00045	Wall Plate for KM2ST-2R, 2 Gang (Timer and Receptacle), White
24--00051	Wall Plate for KM2ST-3D, 3 Gang (Timer and 2 Decorator Switches), White
24--00042	Wall Plate for KM2ST-3G, 3 Gang (Timer and 2 Toggle Switches), White
24--00043	Wall Plate for KM2ST-4G, 4 Gang (Timer and 3 Toggle Switches), White
DC-FME	Clear Dust Cover for Electronic Panel Mount
DC-FME-A	Dust Cover for Electronic Panel Mount
FM-FU	FM1 Flush Mount Housing Kit
FM-SU	FM1 Surface/DIN Rail Kit
180-0014	FM1 Housing Terminal Base
Grässlin Hour Meters	
691	Housing Base for UWZ48 Surface Mount
G-53U	FWZ53 Flush Mount Gasket
BEZ55-GRAYU	55 mm Gray Bezel for UWZ48E
BEZ55-BLACKU	55 mm Black Bezel for UWZ48E
BEZ72U	72 mm Gray Bezel for UWZ48E
BEZ72PU	72 mm Bezel with 3 Pins for Round 3-Bolt Hole Opening for UWZ48E
MB-48V	DIN Rail Mounting Base for UWZ48E

Model #	Description
LightMaster™ Lighting Control System	
LS1	Transparent Sensor 0.2 to 50 fc
LS2	Dark Sensor 10 to 1000 fc
PC1-120	1-Circuit Control Unit 120 VAC
PC2-120	2-Circuit Control Unit 120 VAC
Mechanical Time Switches	
107T119	Tripper (Silver) for T8800 and R8800 Series (Day Skipper)
107T73	Replacement Day Wheel Pins (These go into the actual Day Wheel)
119T85	24 VAC, 20 VA (S) Transformer
119T86A	24 VAC Transformer for T8845PV
124T1948	Insulator for Single Pole Time Switch (T101, T102, T171, T172)
124T1949	Insulator for Double Pole Time Switch (T103, T104, T105, T173, T174, T175, T176, T185, WH40)
124T1952	Insulator for Double Pole Time Switch (T103, T104, T105, T173, T174, T175, T176, T185, WH40)
124T1953	Insulator for 4PST Time Switch
124T1954	Insulator for T101B with Independent Motor Wiring
124T2058	Insulator for T1905, T1906, T2006, T2005, C8815, C8825, C8835, C8845, C8855, C8865, C8866
124T2097	Insulator for R8806P101C, T8805P101C, T8845PV
124T2098	Insulator for WH21
124T2375	Insulator for T30004R30
124T905	Insulator for T1905HDM, T1975EHDM, T1975HD, T1976, T1975, T1975ER, T1905
124T907A	Insulator Assembly (S001)
130T1042	Grounding Terminal Bar
131T68GA	125 VAC, 60 Hz Motor and Carry-over for T7400BC and T800BC Series
133T698A	Replacement Snap Switch for T1970 Series
133T700A	Micro Switch for T8800 amd R8800 Series
133T701A	Replacement Snap Switch for T1900 and T2000 Series
133T773A	Replacement Snap Switch for C8800 Series
143T138	Relay Kit, DPST, 3 HP, 240 VAC (S)
143T302A	Relay Kit, Assembly (S001)
143T304	Relay Kit, DPST, 3 HP, 120 VAC (S)
146T400	Knob-Switch (S)
156T1948A	Trippers for T170, T1400, T1800 Series Includes 1 ON, 1 OFF, and 1 ON with Skipper Extension
156T1949A	Tripper for T185 (Variable 10 to 60 Minute Interval)
156T1950A	Set of 12 Trippers for T1900, T2000, C8800, R8800 and T8800 Series
156T1950AD12	12 Bags of 156T1950A Trippers for T1900, T2000, C8800, R8800, and T8800 Series
156T1954A	14 Skipper Pins for R8800, and T8800 Series
156T1957A	Skipper Screws

Model #	Description
Mechanical Time Switches (continued)	
156T1978A	1 Set of ON/OFF Trippers for T100, T7000, and WH40
156T1978AD12	12 Pack of 156T1978A Trippers for T100, T7000, and WH40
156T1978AII	2 Sets of ON/OFF Trippers for T100, T7000, and WH40
156T2548A	7 Sets of ON/OFF Trippers for T7400 and T7800 Series
156T2978A	Package Accessory Trippers
156T3085A	Skipper Screws for T170 Series, T1470 Series, and T1870 Series
22T338GR	Bracket for T100, T170, T1900, T2000, & C8800 Series
WG1570-10D	125 VAC, 60Hz Motor for T101, T103, T105
WG1573-10D	208-277 VAC, 60 Hz Motor for T102, T104, T106, T172, T174, WH40
WG730-14D	125 VAC, 60 Hz Motor for R8800, T1900, T1970, and T8800 Series
WG733-14D	208-277 VAC, 60 Hz Motor for R8800, T1900, T1970, and T8800 Series
Metal Trippers	
156T1948A	Trippers (1) Set (ON/OFF/ON Cutout) for T170, P171, T1400, and T1800 Series
156T1949A	Tripper Variable (10 to 60 Min) for T185
156T1950A	Trippers (12 ON/OFF) for T1900, T2000, C8800, R8800 and T8800 Series
159T1954A	14 Pins for R8800 and T8800 Series
156T1957A	Skipper Screws (3 per package)
156T1978A	Trippers (1 ON/1 OFF) for T100, T7000, and WH40
156T2548A	Trippers 7 sets (ON/OFF) for T5100, T7400 and T7800 Series
156EB1945A	Trippers for E1020 (Pack of 2)
156T3085A	3 Skipper Screws for T170, P171, T1400, T1800 and WH Series
156T3230A	Trippers (1) Set (ON/OFF/ON Cutout) for WH Series
156T3225A	Trippers WH40
Photocontrols	
6LV1352	Light Shield for Button Photocontrol (K4000 Series, K4321, K4400 Series, EK4036S, EK4336S, EK4436SM)
K43-WP-KIT	Wall Plate Kit (for Button – K4000 Series, EK4036S)
22LG116	Replacement Light Guard for Thermal Photocontrols (K4100 and K4200 Series)
K42-SW-A	Swivel Arm
K4500	Shorting Plug, Rating: 15 A, 480 VAC Max
K121	ANSI C136.10 Locking Type NEMA Receptacle, (9" lead)
K121-30	ANSI C136.10 Locking Type NEMA Receptacle, (30" lead)
K122	Sealed Locking Type NEMA Receptacle with Pole Bracket
Plastic Trippers	
107SB234	Green (ON) for HB35R, HB36R (Outdoor)

Model #	Description
Plastic Trippers (continued)	
107SB189	Red (OFF) for HB35R, HB36R (Outdoor)
107SB216	Green (ON) for HB31R, HB32R
107SB217	Red (OFF) for HB31R, HB32R
107HB254	Green (ON) for HB11, HB1113RC, HB1116R, HB3116R8, P1121 (Outdoor)
107HB255	Red (OFF) for HB11, HB1113RC, HB1116R, HB3116R8, P1121 (Outdoor)
107TN222	Turquoise (ON) for TN, PB, TB Series, P1101, P1131, P1161, P1261P, AL300TPWS, AL600TPWS and AL900TPWS
107TN221	Red (OFF) for TN, PB, TB Series, P1101, P1131, P1161, P1261P, AL300TPWS, AL600TPWS and AL900TPWS
107SB189	Red (ON) for SB Series, HB112C, HB113C, HB114C (Indoor), AL300RTW, AL600TW, AL900TW, AL60TW and ML Series Transfomer Timers
107SB192	Black (OFF) for SB Series, HB112C, HB113C, HB114C (Indoor), AL300RTW, AL600TW, AL900TW, AL60TW and ML Series Transfomer Timers
Pool & Spa	
119T267	Transformer - 100 W, 120 V, 60 Hz
119T340	Transformer - 300 W, 120 V, 60 Hz
124--00066	Insulator for Timers
124T2411A	Time Switch Insulator - 10 Pack
124T2530A	8-Pole Buss Bar Assembly
133RC1144	Pressure Sensing Momentary Air Switch - 3 A
143RC140	Relay - 4-Function Stepper
143RC151	Relay - DPST, 3 HP, 24 VAC
143T135	Relay - DPST, 3 HP, 240 VAC
143T136	Relay - DPST, 3 HP, 120 VAC
143T145A	Relay - DPST, 3 HP, 24 VDC
156PB10398A	Trippers - Clip, ON/OFF, 24-Hr
156T6738A	Insulators for Time Switch Manual Lever - 10 pack
178T24	Freeze Protection Thermostat
21T156A	Spacer-Standoff, 3" long - 4 pack
21T166A	Spacer-Standoff, 3" long - 2 pack
22T904A	Breaker Hold-Down Kit (If breaker is used as a backfed device)
2T2485GA	Case - Raintight, Beige, Painted
2T2502GA	Case - Rainproof, Plastic
PA102	Switch Assembly with Thermostat and Relay
PA114	Mounting Bracket for Pool/Spa Light Junction Boxes
PA115	Trippers - OFF - 25 pack
PA117	Replacement Latch Kit
PA120	Relay - DPST with 24 VAC coil
Specialty Time Switches	
133T1115A	Toggle Switch for T8800 and R800 Series
133T700A	Micro switch for T8800 and R800 Series

Model #	Description
Surge Protection	
AG1BRKT	Mounting Bracket for AG2401C3, AG48013, AG2083C3, AG4803C3, AG6503C3, AG6503L3, AG2403C3
24EG5133	Mounting Bracket Plate for Type 3 SPD Surge Strips
IG1240FMP33	Flush Mount Kit for IG1200RC3 and IG1240RC3
IG3240FMP33	Flush Mount Kit for IG3240RC3
IG2T	Spare Telephone/Modem/DSL Internet Protection Module
IG1C	Spare Coax Cable Protection Module
IG120RSM10	Replacement Consumable Module for IG2240 Series
IG120RSM20	Replacement Consumable Module for IG2280 Series
IG2200-FMK	Flush Mount Kit for IG2240-IM, IG2240-IMS, IG2280-IM
Timers	
146MT573	Knob-Wall Switch FD Series - Ivory
146MT574	Knob-Wall Switch FD Series - White
146MT575	Knob-Wall Switch FD Series - Almond
146MT577	Knob-Wall Switch FF Series - White
146MT579	Knob-Wall Switch FF Series - Black
148FD5024	Plate for 5-Min with HOLD (FF5MH)
148FD5025	Plate for 5-Min without HOLD (FF5M)
148FD5029	Plate for 60-Min with HOLD (FF60MHC)
148FD5030	Plate for 6-Hr without HOLD (FF36H, FF46H, FF6H)
148FD5031	Plate for 6-Hr with HOLD (FF6HH)
148FD5032	Plate for 12-Hr without HOLD (FF12HC, FF312H, FF412H)
148FD5033	Plate for 12-Hr with HOLD (FF12HHC, FF312HH)
148FD5034	Plate for 2-Hr without HOLD (FF2H, FF32H)
148FD5035	Plate for 2-Hr with HOLD (FF32HH)
148FD5036	Plate for 4-Hr without HOLD (FF34H, FF4H)
148FD5037	Plate for 4-Hr with HOLD (FF34HH)
148FD5038	Plate for 30-Min with HOLD (FF30MH)
148FD5039	Plate for 15-Min with HOLD (FF15MH)
148FD5052	Plate for 5-Min without HOLD, White (FD5MW)
148FD5054	Plate for 15-Min with HOLD, White (FD15MHW)
148FD5056	Plate for 30-Min with HOLD, White (FD30MHW)
148FD5058	Plate for 60-Min with HOLD, White (FD60MHW)
148FD5059	Plate for 6-Hr without HOLD, White (FD46HW, FD6HW)
148FD5060	Plate for 6-Hr with HOLD, White (FD6HHW)
148FD5061	Plate for 12-Hr without HOLD, White (FD12HWC)
148FD5062	Plate for 12-Hr with HOLD, White (FD12HHW)

Model #	Description
Timers (continued)	
148FD5063	Plate for 2-Hr without HOLD, White (FD2HW, FD32HW)
148FD5064	Plate for 5-Min without HOLD, Ivory (FD5M)
148FD5066	Plate for 15-Min with HOLD, Ivory (FD15MH)
148FD5068	Plate for 30-Min with HOLD, Ivory (FD30MH)
148FD5070	Plate for 60-Min with HOLD, Ivory (FD60MH)
148FD5071	Plate for 6-Hr without HOLD, Ivory (FD36H, FD46H, FD6H)
148FD5072	Plate for 6-Hr with HOLD, Ivory (FD6HH)
148FD5073	Plate for 12-Hr without HOLD, Ivory (FD12HC)
148FD5074	Plate for 12-Hr with HOLD, Ivory (FD12HH)
148FD5075	Plate for 2-Hr without HOLD, Ivory (FD2H, FD32H)
148FD5076	Plate for 4-Hr without HOLD, Ivory (FD34H, FD4H)
148FD5077	Plate for 15-Min without HOLD, Light Almond (FD15MAC)
148FD5078	Plate for 30-Min without HOLD, Light Almond (FD30MAC)
148FD5079	Plate for 60-Min without HOLD, Light Almond (FD60MAC)
148FD5080	Plate for 4-Hr without HOLD, White (FD34HW, FD4HW)
FD15MP	Plate for 15-Min without HOLD, Ivory (FD15MC, FD415M)
FD15MPW	Plate for 15-Min without HOLD, White (FD15MWC)
FD30MP	Plate for 30-Min without HOLD, Ivory (FD30MC, FD430M)
FD30MPW	Plate for 30-Min without HOLD, White (FD30MWC, FD430MW)
FD60MP	Plate for 60-Min without HOLD, Ivory (FD460M, FD60MC)
FD60MPW	Plate for 60-Min without HOLD, White (FD460MW, FD60MWC)
FF15MP	Plate for 15-Min without HOLD, Ivory (FF15MC, FF315M, FF415M)
FF30MP	Plate for 30-Min without HOLD, Ivory (FF30MC, FF330M, FF430M)
FF60MP	Plate for 60-Min without HOLD, Ivory (FF360M, FF460M, FF60MC)
Weatherproof Covers	
WP17	Single-Gang Inserts
WP217	Double-Gang Inserts
WP101	Double-Gang Duplex
WP102	Double-Gang GFCI
WP107	Double-Gang Round 1 ⅜", 1 ⅝", 1 ¾" (35 mm, 41 mm, 44 mm)
WP213	Double-Gang Round 2 ⅛", 2 ⅝" (55 mm, 67 mm)
WP10HP	Replacement Hinge Pins (10-pc)

Reference

Reference

Timer Selection Guide 172-173
NOM (Normas Oficiales Mexicanas)..... 174
Product Index..... 175-177

Reference
Timer Selection Guide

Mechanical/Electronic	Time Switch Type	24-Hour, 7-Day or 365-Day	# of Circuits	A Rating	Switch Rating	Total ON/OFF Events
Electromechanical	Auto-Voltage or Multivoltage	24-Hour or 7-Day	1	40	SPDT, DPDT	96-Events for 24-Hours/ 48-Events for Weekly with Captive Trippers
Mechanical	Panel Mount	24-Hour or 7-Day	1	21	SPDT	96-Events for 24-Hours/ 48-Events for Weekly with Captive Trippers
Mechanical	Flush, Surface or DIN Rail Mount	24-Hour or 7-Day	1	21	SPDT	96-Events for 24-Hours/ 48-Events for Weekly with Captive Trippers
Mechanical	General Purpose	24-Hour	1	40	SPST, SPDT, DPDT	12
Mechanical	24-Hour with Skipper	24-Hour	1	40	SPST, SPDT, DPDT, 4PST	10
Mechanical	24 Hour with Skipper	24-Hour	1	20	SPDT	96
Mechanical	Short Range Cycle Timer	10, 30-Minutes; 1, 4-Hours	1	20	SPDT	10
Mechanical	Percentage Cycle Timer	1, 3, 5, 10, 30-Minutes; 1, 4-Hours (CT1000 does not have a 4-Hour Increment)	1	20	SPST	3% to 97% Cycle Duration
Mechanical	Irrigation/Sprinkler	24-Hour with Skip-a-day Selection	1	15-25	SPDT	60
Mechanical	7-Day with Photocontrol	7-Day	1, 2, & 3	15	SPDT	1 per Circuit
Mechanical	Compact 7-Day	7-Day	1	20	SPDT	84
Mechanical	7-Day Dial with/without Carry-over	7-Day	1	40	4PST	Different ON/OFF Program for Each Day of the Week
Mechanical	Water Heater	24-Hour	1	40	DPST	T104-20 (2 ON/OFF per Day) WH (1 ON/OFF per Day)
Mechanical	Astronomic Dial with Skipper	24-Hour with Skip-a-day Selection	1	40	3PST	N/A
Electromechanical	Defrost Timer	24-Hour	1	40	SPDT, SPST	1 to 24/24-Hour Period
Mechanical	In-Wall Spring Wound	Decorator and Commercial Style	1	15	Varies	Various increments with/ without “HOLD”
Mechanical	In-Wall Mechanical	24-Hour	1	20	SPST	36 (72 Captive Trippers in 20-Minute Increments)
Electronic	Auto-Voltage 120-277 VAC	24-Hour or 7-Day	1	40	SPDT, DPDT	96
Electronic	Panel Mount	24-Hour and/or 7-Day	1 & 2	16	SPDT	Various
Electronic	Flush, Surface or DIN Rail Mount	24-Hour and/or 7-Day	1 & 2	16	SPDT	Various
Electronic	24-Hour, Multivoltage	24-Hour	1 & 2	30	SPST, DPST	28
Electronic	24-Hour with Holiday, Multivoltage	24-Hour with Exceptions	1, 2 & 4	30		96+
Electronic	7-Day, Multivoltage	7-Day with Exceptions	1 & 2	30	SPST, SPDT, DPST	28
Electronic	7-Day with Holiday, Multivoltage	7-Day with Exceptions	1, 2 & 4	30		96+
Electronic	7-Day Astronomic, Multivoltage	Astronomic 7-Day	1 & 2	30	SPST, SPDT, DPST	28
Electronic	7-Day Astronomic with Holiday, Multivoltage	Astronomic 7-Day with Exceptions	1, 2 & 4	30		96+
Electronic	365-Day Advanced Control	365-Day	1, 2, 4, 8 & 16	30	SPST, SPDT, DPST, DPDT	2000+
Electronic	365-Day Advanced Control (DIN Rail Mount)	365-Day	2	16	SPST, SPDT	400
Electronic	Water Heater	7-Day with Exceptions	1	30	SPST, DPST	42
Electronic	In-Wall	Count Down Timers in Various Increments	1	15	SPST	N/A
Electronic	In-Wall	Programmable Countdown Timer 24-Hour	1	20	Single Pole/Three Way	1
Electronic	In-Wall	Programmable 7-Day	1	15	Single Pole	7
Electronic	In-Wall	Programmable 7-Day with Astro	1	15/20	Single Pole/Three Way	40/Week

Minimum ON/OFF Time	Temperature Input	Skip-A-Day	Carry-over	Astro	Daylight Saving Time	Product Series	Page(s)
15-Minutes for 24-Hours/ 48-Events for Weekly with Captive Trippers	No	Yes	Optional	No	No	GM40AV	40
15 Minutes for 24 Hours/48 Events for Weekly with Captive Trippers	No	No	Optional	No	No	FM1 - SERIES	46-47
15 Minutes for 24 Hours/48 Events for Weekly with Captive Trippers	No	No	Optional	No	No	MIL72 SERIES	48-49
1 Hour		No	No	No	No	T100	30
1 Hour		Yes	Optional	No	No	T170	31
15 Minutes		Yes	Optional	No	No	T1900	32-33
5 Seconds		No	No	No	No	C8800 Series	38
1 Second		No	No	No	No	CT2000	38
12 Minute		Yes	No	No	No	R8800/T8800 Series	39
N/A		No	Yes	No	No	T50000B Series	34
2 Hours		No	No	No	No	T2000	35
3.5 Hours		No	Optional	No	No	T7000 Series	35
1 Hour		No	Yes	No	No	T104-20/WH40	43
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15-Minutes Minimum ON/OFF Time; 23-Hours 45-Minutes Max Off Time	Yes	No	Optional	No	No	DTAV40	96
Varies		N/A	N/A	N/A	N/A	FD Series & FF Series	60-61
20 Minute		N/A	N/A	N/A	N/A	KM2 Series	57
1 Minute		Yes	Yes	No	No	GM40AVE	22
1 Minute	No	Yes	Yes	No	Yes	FMD - SERIES	24-27
1 Minute	No	Yes	Yes	No	Yes	FMD - A&E SERIES	24-25
1 Minute		Yes	Yes	No	Yes	ET1100	14-15
1 Minute		Yes	Yes	No	Yes	ET2100	12-13
1 Minute		Yes	Yes	No	Yes	ET1700	14-15
1 Minute		Yes	Yes	No	Yes	ET2700	12-13
1 Minute		Yes	Yes	Yes	Yes	ET8000	14-15
1 Minute		Yes	Yes	Yes	Yes	ET2800	12-13
1 Second		Yes	Yes	Yes	Yes	ET90000	8
1 Second	No	Yes	Yes	Yes	Yes	TALENT0882	20
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Varies		N/A	N/A	N/A	N/A	EI200	59
1 Second		N/A	N/A	No	No	EI400	58
1 Minute		N/A	N/A	No	No	EI500	55
1 Minute		N/A	N/A	Yes	Yes	ST01C/EI600	54

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Intermatic Incorporated
Global Headquarters
7777 Winn Road
Spring Grove IL 60081
www.intermatic.com
+1 815 675 7000

Grässlin GmbH
Europe Manufacturing/Warehouse/Distribution
GmbH Bundesstr 36
D-78112 St. Georgen Germany
www.graesslin.de
+49 7724 933 0

Intermatic de Mexico, S. de R.L. de C.V.
Juárez Manufacturing
Ave. Don Manuel Talamas Camandari #405
Parque Industrial Independencia I
Cd. Juárez Chihuahua Mexico CP32575
+52 656 295 3935

Intermatic Incorporated
El Paso Warehouse/Distribution
12429 Rojas Drive
El Paso, TX 79928

Intermatic Far East LLC
Asia Sales Office
1002, Tower 3, Phase 1
Enterprise Square
No. 9 Sheung Yuet Rd.
Kowloon Bay, Kowloon Hong Kong
+852 2340 3209

Intermatic Canada ULC
Canadian Sales Office
6045 Netherhart Road-Unit 1
Mississauga, Ontario L5T 1G5
+1 905 696 7621

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