Lightalarms®

Lightalarms® Emergency Lighting

In this section...

Lightalarms® Emergency Lighting

Thomas&Betts

www.tnb.com

Overview

Lighting the Way to Safety Since 1953

Since the introduction of our first product manufactured in 1953 for the specific code-driven New York City market place, Lightalarms has evolved into a leading designer and manufacturer of emergency lighting systems that are specified and installed throughout the United States.

With over fifty years of experience successfully meeting the demands and rigid code compliances of New York City, the Lightalarms product line is driven by stringent quality control standards, and innovative lamp and board designs. In addition to state-of-the-art design and manufacturing, our newly renovated North American production facility offers the fastest product delivery available in the industry today.

A member of the Thomas & Betts family of companies since November 1998, our ongoing commitment is to provide products of the highest quality at competitive prices.

New Products

Severe Series — Class I Division 2

see pages I-122–I-124 and I-126

Mini-Phantom Series

see pages I-84–I-85

Simplicity Economizer Series

see page I-130

Grande Series

see page I-139

MC Series

see page I-98

MA Series

see page I-99

Quickie II Series QLX-MRS

see page I-142

Quickie II Series LCA-2MRS

see page I-95

Thomas&Betts

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

www.tnb.com

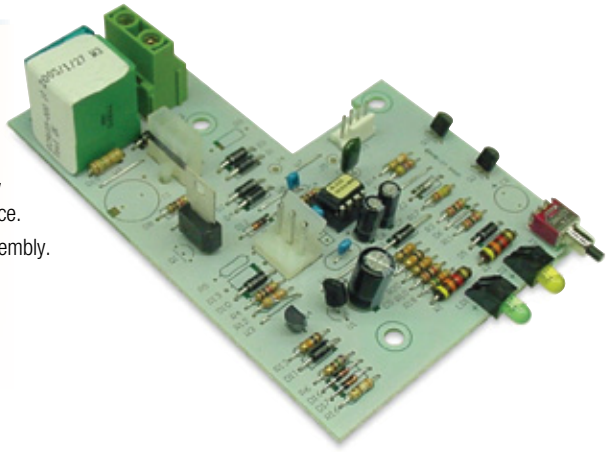
Overview

PulseType Circuitry

Lightalarms® PulseType circuitry uses the latest solid-state design to provide a technically advanced charger combined with features and functions that promote long, reliable battery life and excellent unit performance.

The design of the PulseType circuit takes into account the long periods of inactivity typical of standby emergency equipment. Batteries are kept at full capacity by a pulse charge that allows the battery to cycle continuously. This greatly reduces the problem of grid corrosion and dramatically increases battery performance.

Lightalarms® computer-tests all active components on the circuit boards during assembly. Critical functions such as brownout, low-voltage disconnect, and charge voltage are individually monitored and adjusted at the factory.



120/277 Volt Input

Capability to operate with 120 volt or 277 volt input.

Fused Output Circuit for Units with Remote Capacity

Emergency units up to 54 watts have a single fused output circuit. Units over 54 watts have two fused output circuits supplied standard.

Dual Diagnostic Indicator Lights

Dual indicators, red and amber continuously monitor the condition of the battery, charge circuit and presence of AC.

Temperature Compensation

At high ambient temperatures, batteries need less charge voltage to recharge. At cold temperatures, batteries require a higher charge to maintain full capacity. The PulseType charger automatically adjusts the charge voltage to precisely what the batteries require at a given temperature.

Sealed Relay

Sealed relay protects against environmental contaminants.

Low Voltage Battery Disconnect

The lighting load is disconnected from the battery at 87.5% of nominal battery voltage. This prevents deep discharge damage to the battery.

Brownout Protection

Emergency lamps energized when AC voltage falls to approximately 80% of nominal voltage, the level at which most fluorescent and HID fixtures extinguish.

Battery Lockout

This labor-saving feature prevents the battery from discharging when the unit is installed to a non-energized circuit. The battery is electronically locked out until the unit is energized with AC power. Contractors do not have to return to a job site to connect batteries when the building's main power is turned on. They can install the unit and connect the battery in one convenient operation.

Reverse Polarity Protection

A polarized plug is used to connect the battery to the circuit board, thus preventing damage from occurring to the system.

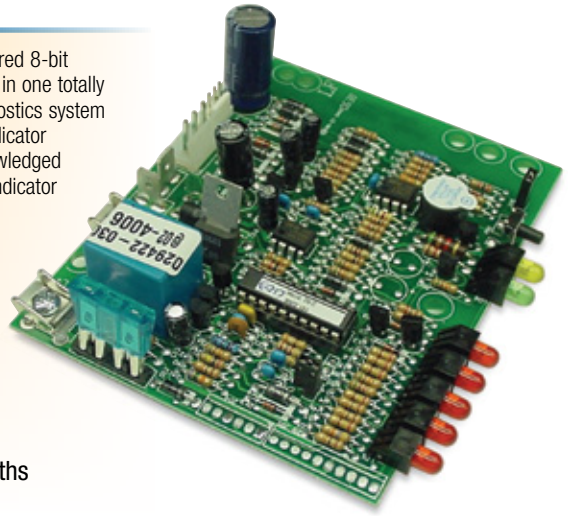
Current-Limited Output

Extends battery life by preventing overheating and battery gassing during recharge.

Overview

Improved Diagnostics

By incorporating our most popular standard diagnostic features with a high-powered 8-bit microcontroller, our Improved Diagnostics system ensures unsurpassed reliability in one totally contained system. In the event of an equipment malfunction, the Improved Diagnostics system produces an audible warning in the form of an intermittent beep, and the LED indicator associated with the fault will illuminate continuously. When the problem is acknowledged by depressing the alarm/silence/test button, the alarm is silenced, and the LED indicator changes to a flashing mode until the problem is corrected.



- Continually monitors system parameters
- Incorporates state-of-the-art microcontroller technology
- ID includes audio and visual service alarms
- IDNA non-audible version for visual service alarms only
- Self-testing in accordance with NFPA101, Life Safety Code minimum 30 seconds every 30 days, 30 minutes every six months and 90 minutes annually

Battery Failure

(Red) Illuminates if the battery is shorted or battery voltage drops below preset value. Will also detect incorrect battery (ie. 6VDC vs. 12VDC).

Battery Disconnect

(Red) Illuminates if the battery circuit is open.

Charger Failure

(Red) Illuminates when charger is not functioning properly by monitoring the charger current.

Lamp Failure

(Red) Illuminates when one or more emergency lamps fail. Also monitors remote lamps.

Service Alarm

(Red) Illuminates when a fault is detected that requires a qualified service technician.

AC-On

(Green) Lit when line voltage is present.

Charger On

(Amber) Illuminates when charger is recharging the battery.

Alarm Silence / Manual Test Switch

Button is used to acknowledge and silence audible alarms.
Also functions as a manual test switch to simulate a power failure.

Self Testing

Unit tests itself every 30 days for a minimum 30 seconds, 30 minutes on the sixth month and 90 minutes annually.

To Order for Compatible Unit

Add Suffix: -ID (for audible circuit) to model number
Add Suffix: -IDNA (for non-audible circuit) to model number

Improved diagnostics (ID or IDNA) includes a Time Delay function, if needed it can be enabled/disabled in the field (15 min) or it can be preset at the factory by including the suffix ID-TD* or IDNA-TD* (*5 min., or *10 min., or *15 min.).

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Popular Options

Lightalarms® life safety equipment is available with a range of options that can be added to enhance performance, simplify testing or adapt equipment for use in specific environments. Please refer to individual product pages to verify availability of individual options on specific equipment.

Voltmeter

Option provides a visual indication, in the test mode, of the unit's battery voltage. The good/check meter face allows maintenance personnel to recognize charger and battery function.

Add Suffix: -V

Ammeter

Option provides an indication of charge current when the unit is in the equalize mode.This verifies charger capability and the current acceptance of the battery.

Add Suffix: -A

Dual Circuit (Exit Signs)

Option provides two AC input circuits to permit 2 separate AC sources to energize the sign.

Add Suffix: -2

Tamper Proof/Vandal Resistant Screws

Tamper-proof screws may be used on certain units to avoid unauthorized entry to circuitry or vandalism.

Add Suffix: -VR

Lamp-Disconnect Switch

Option will disconnect lamp load when area is not in use during prolonged power failure. The switch may also be used to reactivate emergency power to remote or built-in heads.

Add Suffix: -DS

Photocell Test Switch

Test battery unit by pointing a flashlight at a photocell mounted on the bottom of a battery unit.

Add Suffix: -PTS

Time Delay

Option is designed to be used in areas where HID-type lamps are used for normal lighting. As these lamps require several minutes to re-strike and to produce their nominal lighting output, it is necessary to also hold the emergency lighting on for this period, even after the AC utility has been restored. A time-delay unit can be helpful in areas where it is difficult to directly access an emergency lighting unit's test switch. The power to the unit can be briefly switched off and on at the breaker panel, and the maintenance person can then return to the unit and observe a timed emergency operation.

Add Suffix: -TD* (*5 minutes or *10 minutes or *15 minutes)

Damp Location

Option for environments that are subject to moderate amounts of moisture (humidity), and a temperature range between 10° C (50° F) and 40° C (104° F).

Example: Partially protected exterior areas such as canopies, stairwells, etc.

Add Suffix: -DL

Thermal Jacket (Temperature Control Heater)

Option to be used in areas where temperature may drop below 0° C (32° F). The thermostat will activate the heating pad at 0° C and will cut off at 16° C (61° F). The heating pad is rated at 50 watts. Contact customer service for temperature limitations.

Add Suffix: -H1 (120V) -H2 (277V)

Self-Test/Diagnostic Feature (for exit signs)

Option is designed to continuously monitor the charger assembly, battery and LED assembly current. If a fault is indicated, the external service required indicator will illuminate. The diagnostic/self test will self test for minimum 30 seconds every 30 days, 30 minutes every six months and 90 minutes annually. Meets NFPA 101 Life Safety Code requirements for periodic testing.

Add Suffix: -D

Self-Test/Diagnostic Feature (for Battery Units), see previous page

Improved Diagnostic (Audible) **Add Suffix:** -ID
Improved Diagnostic (Non-Audible) **Add Suffix:** -IDNA

Decorative Series

The unseen solution — virtually invisible emergency lighting.

Phantom Series

NEW and Improved Design!

The Phantom Series is architecturally designed for unobtrusive use in walls with cavities (drywalls with 4" studs) or uninsulated ceilings with horizontal beams or T-bar structures. In normal conditions (stand-by), the unit is completely concealed in the wall or ceiling. In case of power failure, the door of the unit rotates open 180° and exposes the emergency lights (two high-efficiency MR16 lamps) to illuminate the path of egress.

Once AC power returns or at the end of discharge period, the lights turn off and the door rotates closed automatically, driven by an energy storage circuit. If needed, the backbox can be shipped separately.

For remote head, please refer to **page I-157**.

Reliability

Each unit is fully computer-tested and aligned mechanically for optimum operation. The electrical parts (motor, electronic circuitry) carry a five-year warranty.

Unit Data

The normally exposed parts of the unit (flat door and frame) are covered with a high-quality, powder-coated textured off-white finish, which integrates well with most wall and ceiling paints. The surface finish can also be customized onsite with paint, wallpaper or other coverings. The self-powered battery unit is contained in a heavy-duty galvanized steel back-box, concealed in the wall or ceiling, and includes a combined test switch and pilot light, accessible through the frame. Special bar hangers for installation in sheet rock or T-bar ceilings are included in the package. The module includes the electrical junction box and is installed on the wall stud or ceiling beam with the help of a simple, U-shape bracket. Each unit comes standard with two MR-16 halogen lamps, of specified power ranging from 12W to 50W each.

PulsePlus Battery Charger

The charger circuitry offers a 120/277VAC, 60 Hz, .25/.12 amp automatic charger, built around a micro-controller integrated circuit. Circuit standard features: current limiting, temperature-compensated cut-off voltage, brown-out transfer, low-voltage battery disconnect and battery lockout (Prevents activation in the DC mode until initial AC activation).

Power Requirements

120/277VAC, 60 Hz, .25/.12 amp

Improved Diagnostics (Optional)

This micro-controller circuitry is optional on all self-powered battery units. This circuitry is programmed to ensure the equipment readiness and reliability by continuously monitoring every critical function of the unit. If a problem occurs, the pilot light located on the front of the unit will change color from solid green to a flashing red light, indicating a fault. A detailed diagnostic legend is available on the door back side and provides fault identification (battery, charger circuitry, lamps) for the maintenance personnel. The self-test feature will simulate a power loss for minimum 30 seconds every 30 days, 30 minutes every six months and 90 minutes annually.

Power Consumption

	MAXIMUM		STAND-BY*	
AC INPUT	INPUT CURRENT	INPUT POWER	INPUT CURRENT	INPUT POWER
120VAC	.25A	30W	.1A	11W
277VAC	.12A	30W	.05A	11W

** Stand-by power consumption is 50% lower for lead-calcium batteries.*

Unit Ratings

	WATTS TO 87.5% OF RATED BATTERY VOLTAGE*			
MODEL NO.	1½ HRS.	2 HRS.	4 HRS.	8 HRS.
PHM40, PHN40	40	30	24	—
PHM70, PHN70	70	50	40	24
PHM100, PHN100	100	70	50	40

** National Electrical Code specification.*

Options

(Add Suffix to Model No.) ..... **Suffix**

Damp Location Listing (available on all models except PHN100) ..... **DL**

Improved Diagnostic (audible) ..... **ID**

Improved Diagnostic (non-audible) ..... **IDNA**

Time Delay (T1 = 5, T2 = 10 or T3 = 15 minutes) ..... **T_***

***(ID or IDNA) Includes a Time Delay function. If needed, it can be enabled/disabled in the field or it can be preset at the factory by including the suffix ID-T_ or IDNA-T_.*

Accessories (order as a separate item)

Remote test switch (Metal Faceplate): ..... **PSW**

Remote test switch (Plastic Faceplate): **PSW-1**

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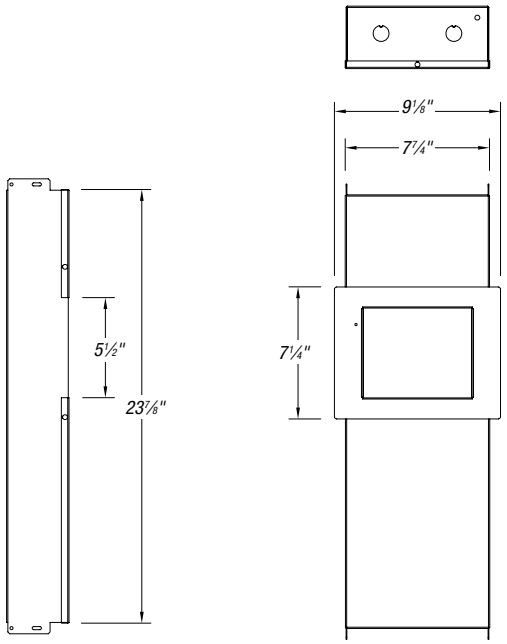
Decorative Series

Dimensions

Dimensions are approximate and subject to change.

Charger and Battery Compartment:

For use in walls or ceilings with a cavity; not for use in block walls or solid ceilings.



Catalog Numbering System

Battery Unit

PH	M	100	-	2(20)	DL

Series
PH

Battery Type
M *= Lead-Calcium*
N *= Nickel-Cadmium*

Unit Capacity
40 *= 12V, 40W*
70 *= 12V, 70W*
100 *= 12V, 100W*

Lamp Wattage
-2(12) *= 12W, MR16 Each Head*
-2(20) *= 20W, MR16 Each Head*
-2(35) *= 35W, MR16 Each Head*
-2(50) *= 50W, MR16 Each Head*
-2 (20H) *= 20W, MR16 High Lumen Output*
-2 (35H) *= 35W, MR16 High Lumen Output*
-2 (50H) *= 50W, MR16 High Lumen Output*

Options
ID *= Improved Diagnostic, Audible*
IDNA *= Improved Diagnostic, Non-Audible*
T1 *= Time Delay 5 Minutes*
T2 *= Time Delay 10 Minutes*
T3 *= Time Delay 15 Minutes*
DL *= Damp Location**
X *= Backbox Shipped Separate*
** DL Damp Location option is available on all models except PHN100.*

Generator Unit

PHG	1	-	2	(20)

Series
PHG

Input Voltage
1 *= 120VAC, 60 Hz*
2 *= 277VAC, 60 Hz*

# of Lamp
-2 *= Two Lamps*

Lamp Wattage
(12) *= 12W, Each Head*
(20) *= 20W, Each Head*
(35) *= 35W, Each Head*
(50) *= 50W, Each Head*
(20H) *= 20W, MR16 High Lumen Output*
(35H) *= 35W, MR16 High Lumen Output*
(50H) *= 50W, MR16 High Lumen Output*

Decorative Series

The next generation of concealed emergency lighting: smaller size, full retrofit, impressive illumination of the egress.

Mini-Phantom Series

Evaluated to the UL® 924 standard, the Mini-Phantom Series is the next generation of concealed emergency lighting equipment, specially designed for retrofitting in finished walls with a cavity (drywalls with 4" studs). In normal conditions (stand-by) the unit is completely concealed in the wall.

Reliability

Each unit is fully computer-tested and aligned mechanically for optimum operation. The electrical parts (motor, electronic circuitry) carry a five-year warranty.

Unit Data

The normally exposed parts of the unit (flat door and frame) are covered with a high-quality, powder-coated textured off-white finish, which integrates well with most wall and ceiling paints. The surface finish can also be customized on site with paint, wallpaper or other coverings. The self-powered battery unit is contained in a heavy-duty galvanized steel back-box, concealed in the wall or ceiling, and includes a combined test switch and pilot light, accessible through the frame. The module includes the electrical junction box and is installed on the wall stud or ceiling beam with the help of a simple, U-shape bracket. Each unit comes standard with two MR-16 halogen lamps.

PulsePlus Battery Charger

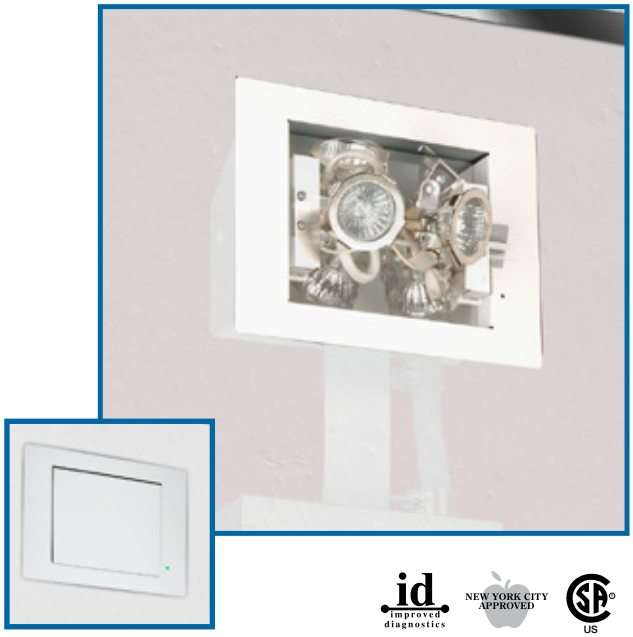
The charger circuitry offers a 120/277VAC, 60 Hz, 0.25/0.12 amp automatic charger, built around a micro-controller integrated circuit. Circuit standard features: current limiting, temperature-compensated cut-off voltage, brown-out transfer, low-voltage battery disconnect and battery lockout (prevents activation in the DC mode until initial AC activation).

Power Requirements

120/277VAC, 60 Hz, 0.25/0.12 amp

Improved Diagnostics (Optional)

This micro-controller circuitry ensures the equipment readiness and reliability by continuously monitoring every critical function of the unit. If a component failure occurs, the pilot light located on the front of the unit will change color from green to red and will flash, indicating a fault. A detailed diagnostic legend on the back side of the door provides fault identification (battery, charger circuitry, lamps) for maintenance personnel. The self-test will simulate a power loss for minimum 30 seconds every 30 days, 30 minutes every six months and 90 minutes annually.



id improved diagnostics · NEW YORK CITY APPROVED · CSA US

Power Consumption

MODEL NO.	AC INPUT	MAXIMUM INPUT CURRENT	MAXIMUM INPUT POWER	STAND-BY (NI-CAD, NIMH)* INPUT CURRENT	STAND-BY (NI-CAD, NIMH)* INPUT POWER
MPH_40	120VAC	.25A	30W	.1A	11W
	277VAC	.12A	30W	.05A	11W
MPHG	120VAC	.95A	110W**	—	—
	277VAC	.45A	110W**	—	—

** Stand-by power consumption is 50% lower for lead-calcium batteries.*

*** Maximum power when equipped with 2 x 50W lamps (generator unit).*

Unit Ratings

MODEL NO.	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	4 HRS.	8 HRS.
MPH_40	40	30	24	—

** National Electrical Code specification.*

Options

(Add Suffix to Model No.) ..... **Suffix**

Damp Location Listing (available on all models except PHN100) ..... **DL**

Improved Diagnostic (audible) ..... **ID**

Improved Diagnostic (non-audible) ..... **IDNA**

Time Delay (T1 = 5, T2 = 10 or T3 = 15 minutes) ..... **T_***

***(ID or IDNA) Includes a Time Delay function. If needed, it can be enabled/disabled in the field or it can be preset at the factory by including the suffix ID-T_ or IDNA-T_.*

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Decorative Series

Dimensions

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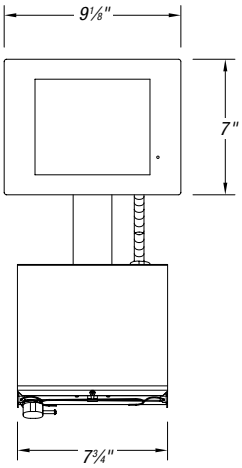
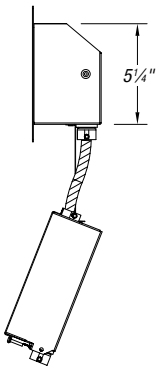
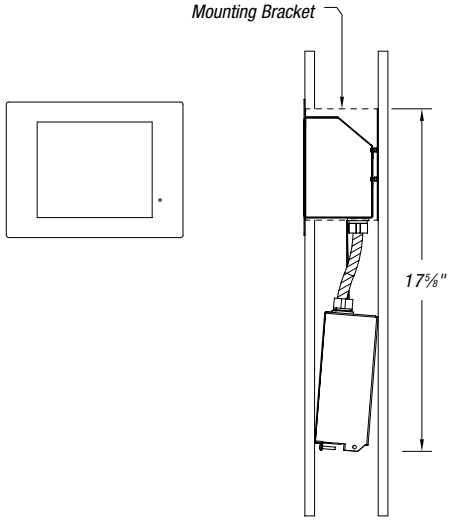




Complete Unit



Installed Unit

Catalog Numbering System

Battery Unit

MPH	M	40	-	2(20)	DL

Series
MPH

Battery Type
M *= Lead-Calcium*
N *= Nickel-Cadmium*
H *= Nickel-Metal Hydride*

Unit Capacity
40 *= 12V, 40W*

Lamp Wattage (12V MR16)
-2(12) *= 12W Each Head*
-2(20) *= 20W Each Head*
-2(20H) *= 20W, High Lumen Output*

Options
ID *= Improved Diagnostic, Audible*
IDNA *= Improved Diagnostic, Non-Audible*
T1 *= Time Delay 5 Minutes*
T2 *= Time Delay 10 Minutes*
T3 *= Time Delay 15 Minutes*
DL *= Damp Location (Only MPHN40, MPHH40)*

Generator Unit

MPH	G		1	-	2(20)	DL

Series
MPH

Battery Type
G *= Remote AC Generator*

Unit Capacity
Blank *= Max. 100W*

AC Input
1 *= 120VAC*
2 *= 277VAC*

Lamp Wattage (12V MR16)
-2(12) *= 12W Each Head*
-2(20) *= 20W Each Head*
-2 (35) *= 35W Each Head*
-2 (50) *= 50W Each Head*
-2 (20H) *= 20W, High Lumen Output*
-2 (35H) *= 35W, High Lumen Output*
-2 (50H) *= 50W, High Lumen Output*

Options
DL *= Damp Location*

Decorative Series

A combination of style and performance.
Camray Series

The Camray Series combines photometrical performance with a visually appealing design.

An efficient reflector combined with two Xenon lamps delivers an incredible center-to-center spacing.

The die-cast aluminum housing is offered in a wide range of colors to complement any interior. It will blend with the most sophisticated decor.

With its fully gasket housing, the Camray Series is also ideal for extreme outdoor environments.

Designed to meet the needs of architects and designers without sacrificing safety, this fixture is available in a wide range of colors to complement any interior.

Reliability

The Camray Series comes complete with a three-year full warranty (excluding lamps and fuses).

Unit Data

The Camray units are made of durable cast-aluminum housing, finished with textured polyester powder-coat paint. Four colors are available: off-white, black, platinum gray and dark bronze. The vacuum-plated die-cast reflector will last over time. The lens is made of an impact- and UV-resistant polycarbonate.

Units can be installed on various J-boxes with the universal mounting pattern. It can also be surface mount using the rigid conduit entry provision on the top of the unit.

Lamp Information

Camray units are furnished with two high-output Xenon lamps. These lamps, combined with a special reflector, deliver an incredible center-to-center spacing. The reflector has been designed to provide an evenly distributed illumination pattern for corridors up to 6 ft. wide.

Charger

All self-powered battery units come with a 120/277VAC 60Hz dual-input voltage. Chargers also include low-voltage disconnect to prevent deep discharge, battery lockout to prevent battery drain prior to energizing the utility power, brownout protection, which will automatically switch unit into emergency mode if the utility power sags below 80% of nominal, and battery reverse-polarity protection.

Lead-Calcium Models are equipped with the Pulse Plus circuitry that will promote long reliable battery life and excellent performance. This current limiting charger will minimize energy consumption.

Nickel Metal Hydride Models are equipped with the non-audible version of the Improved Diagnostics circuit. It will also monitor and indicate any of the following failures: battery disconnect, battery, charger and lamp failures. The unit will perform a periodical self-test, of minimum 30 seconds every 30 days, 30 minutes every six months and 90 minutes annually.

Controls or Electrical

- Lead-Calcium Models: Green LED indicates AC power is on.
- Nickel Metal Hydride Models: Bi-color LED indicates battery state of charge, test activation and four-state diagnostic status.
- Test switch allows for quick operational check of the entire system.

Power Requirements

120/277VAC, 60 Hz, 0.11/0.05 amp

Options

The Camray Series is offered in five different configurations. It can be used in a wide range of applications and environments:

- CAM Remote head: UL® Listed for damp, wet and cold locations. Operating temperature: -40° C to 60° C (-40° F to 140° F) **See page I-157**.
- CAML Regular interior package: Cost-efficient solution equipped with Lead-Calcium battery.
- CAMN Exterior Package: Designed for a wide range of temperatures. UL Listed for wet and cold locations. Equipped with NiMH battery. Operating temperature: -20° C to 40° C (-4° F to 104° F).
- CAMN2 High Output Package: Ideal for interior applications where the photometrical performance of 10W Xenon lamps is required. Equipped with NiMH battery. UL® Listed for operating temperature: 20° C to 30° C (68° F to 86° F).

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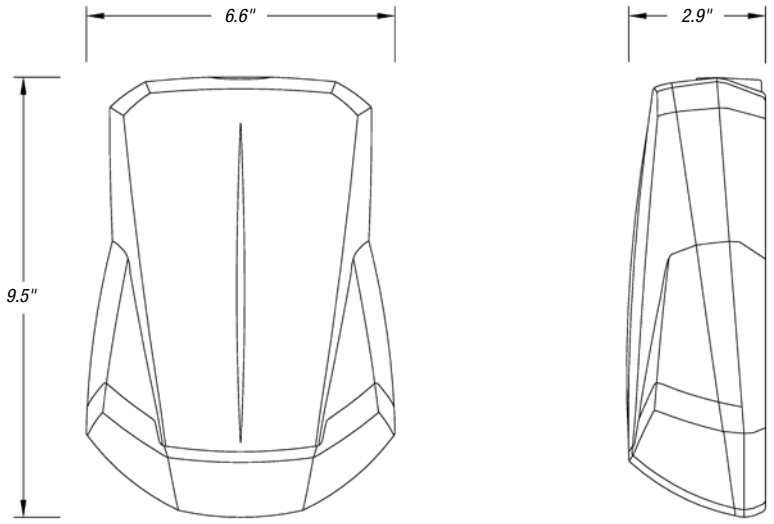
Decorative Series

Dimensions

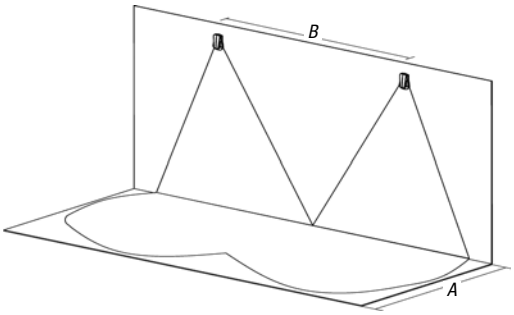
Dimensions are approximate and subject to change.



Front View **Side View**

ISO Curve

LAMP TYPE	MOUNTING HEIGHT	CENTER-TO-CENTER A = 3'	CENTER-TO-CENTER A = 6'
2 X 6W	7.5'	B = 28'	B = 19'
	8.5'	B = 25'	B = 18'
2 X 10W	7.5'	B = 30'	B = 28'
	8.5'	B = 34'	B = 30'



Note: *Photometric results shown are based on a simulation using the AGI32 software with a 1 foot-candle average and 0.1 foot-candle minimum with a 40:1 maximum ratio. Thomas & Betts assumes no responsibility for local requirements or specific project variable. This is a guideline to be used as a design aid, not guarantee of any code compliance.*

Catalog Numbering System

CAML / **LXG** - **OW** **T1**

Series
CAML *= 6V 12W, Lead Calcium (20° C to 30° C) Standard Charger*
CAMN *= 6V 12W, NiMH (-20° C to 40° C) Comes Standard with IDNA*
CAMN2 *= 6V 20W, NiMH (20° C to 30° C) Comes Standard with IDNA*

Lamp Wattage*
/LX6 *= 12W Each Head*
/LX10 *= 20W Each Head*
** Xenon wedge base T3-1/4.*

Color
-OW *= Off White*
-B *= Black*
-DB *= Dark Bronze*
-PG *= Platinum Gray*
Contact Customer Service for available colors.

Options
-T1 *= 5 Minutes*
-T2 *= 10 Minutes*
-T3 *= 15 Minutes*
Note: *Time-delay available only with IDNA CAMN and CAMN2 units.*
Limited Warranty
LD-CA battery — 3 years
NiMH battery — 5 years

Decorative Series

6- or 12-volt decorative-style T-bar unit — maintenance-free lead-calcium or nickel-cadmium battery.

TBR Series

TBR Series battery units are designed for T-bar ceiling grid installation. This slim-line, unobtrusive unit is ideally suited for any commercial location where there is limited wall space and where the greater directional flexibility of ceiling-mounted heads is needed to provide greater distribution.

Reliability
The TBR Series has a three-year full warranty (excluding lamps and fuses).

Unit Data
The TBR Cabinet is constructed of rugged steel with corrosion-resistant undercoating. Fixtures, cabinet and mounting brackets are available in mist white and black. Battery and charger are concealed above the ceiling level in the unit cabinet. The back box has a removable panel, allowing easy access to battery and circuitry. Units mount quickly and easily in standard T-bar grids without additional hardware. The TBR unit has provisions for mounting up to three lamp heads.

Lamp
Standard with two ELF645 PAR36 high-impact mar-resistant thermoplastic heads. Furnished with two 6- or 12-volt 9-watt high-intensity wedge base incandescent lamps*. Other lighting head styles are also available (see options). Do not exceed unit battery capacity.

** **Note**: For optional lamp types and wattages, refer to the lamp data chart on **pages I-166–I-167**.*

PulseType Charger
- Automatic, temperature compensated, PulseType charger.
- High capacity, automatic, dust-tight instantaneous transfer relay.
- Low-voltage disconnect prevents overdischarge of battery. Automatic brownout protection is provided.
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit.
- Fused output circuit.

Controls
- Red charger monitor LED indicates the state of charge of the battery.
- Amber AC-ON LED indicates AC power is on.
- Momentary test switch allows quick operational check of entire system.

Power Requirements
120/277VAC, 60 Hz, 0.3/0.15 amp

Options

(Add Suffix to Model No.)	Suffix
Black Housing and Heads	-B
Ammeter or Voltmeter (choose only one)	-A* or -V*
Improved Diagnostics (audible)	-ID
Improved Diagnostics (non-audible)	-IDNA
Time Delay (specify 5, 10 or 15 minutes)	-TD**
Nickel-Cadmium Battery	-N

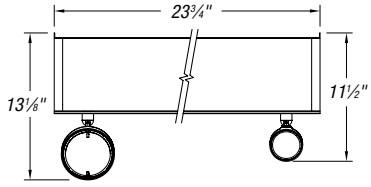
Not available with diagnostic option.

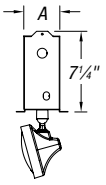
***(ID or IDNA) includes a Time Delay function. If needed, it can be enabled/disabled in the field or it can be preset at the factory by including the suffix ID-TD_ or IDNA-TD_.*

Head and Lamp Options

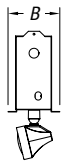
No Heads	0
Double Contact Bayonet Base, Bi-Pin Halogen, Wedge Base, Sealed Beam Lamps	/ELF 645
Bi-Pin Halogen Lamps	/ELF 2
MR16 Lamps up to 20 Watts	/ELF 3
MR16 Lamps	/DR1130

Dimensions
Dimensions are approximate and subject to change.





ELF645



ELF2 / ELF3

CABINET	A	B
S	3¼"	4⅝"
L	5⅝"	7⅛"

Unit Ratings

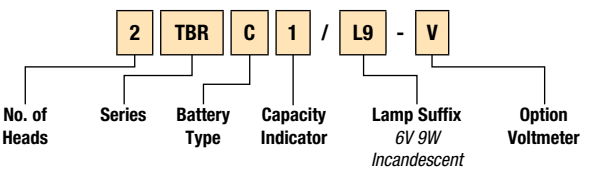
VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.	WATTS/ HEAD	CABINET SIZE
6	2TBRC1/L9	27	20	14	10	9	S
	2TBRC2/L9	54	36	25	18	9	S
	2TBRC3/L9	81	48	33	24	9	L
12	2T12BRC2/L9	54	36	25	18	9	S

** National Electrical Code specification.*

Accessories
(Order as a separate item)

Remote Test Switch (metal faceplate)	PSW
Remote Test Switch (plastic faceplate)	PSW1

Catalog Numbering System



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Decorative Series

6- or 12-volt decorative-style T-bar unit — maintenance-free lead-calcium or nickel-cadmium battery.

RD Series

RD Series battery units are designed for fully recessed installation in walls or ceilings. Models are available with two ELF645 heads standard, or two ELF2, ELF3 or DR1130 heads optional, to accent any décor.

Reliability

The RD Series has a three-year fully warranty (excluding lamps).

Unit Data

The RD Series Cabinet is constructed of 20-gauge steel with an off-white baked enamel finish. Fixtures, cabinet and mounting brackets are available in mist white and black. Mounting brackets are included for installation in grid-type suspended ceilings. Adjustable bar hangers are included, although this unit can be framed into sheet rock ceilings, studs or joints as well.

Lamp

Standard with two ELF645 PAR36 high-impact mar-resistant thermoplastic heads. Furnished with two 6- or 12-volt 9-watt high-intensity wedge base incandescent lamps*. Other lighting head styles are also available (see options). Do not exceed unit battery capacity.

** **Note**: For optional lamp types and wattages refer to the lamp data chart on **pages I-166–I-167**.*

PulseType Charger

- Automatic, temperature compensated, PulseType charger.
- High capacity, automatic, dust-tight instantaneous transfer relay.
- Low-voltage disconnect prevents overdischarge of battery. Automatic brownout protection is provided.
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit.
- Fused output circuit.

Controls

- Red charger monitor LED indicates state of charge of the battery.
- Amber AC-ON LED indicates AC power is on.
- Momentary test switch allows quick operational check of entire system.

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp

Options

(Add Suffix to Model No.)	Suffix
Black	-B
Ammeter or Voltmeter (choose only one)	-A* or -V*
Improved Diagnostics (audible)	-ID
Improved Diagnostics (non-audible)	-IDNA
Time Delay (specify 5, 10 or 15 minutes)	-TD**
Non-Standard Input Voltage	Specify

Not available with diagnostic option.

***(ID or IDNA) includes a Time Delay function. If needed, it can be enabled/disabled in the field or it can be preset at the factory by including the suffix ID-TD_ or IDNA-TD_.*

Head and Lamp Options

No Heads	0
Double Contact Bayonet Base, Bi-Pin Halogen, Wedge Base, Sealed Beam Lamps	/ELF 645
Bi-Pin Halogen Lamps	/ELF 2
MR16 Lamps up to 20 watts	/ELF 3
MR16 Lamps	/DR1130

Accessories (Order as a separate item)

Wire Guard (DR1130, ELF2, ELF3 or ELF645 heads)	WG6-L
Remote Test Switch (metal faceplate)	PSW
Remote Test Switch (plastic faceplate)	PSW1

Shown with ELF2 heads

ELF645 heads

Unit Ratings

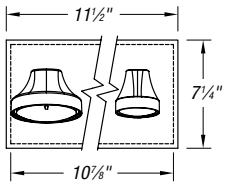
SEALED MAINTENANCE-FREE BATTERY TYPES	D.C. VOLTAGE	MODEL NO. ELF-645 LAMPS HEADS	MODEL NO. ELF-2 LAMP HEADS	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.
Unit Equipment — NO REMOTE Capability							
Nickel-Cadmium Δ	6	2RD6C1	2RD6C1/ELF2	18	12	10	-
Long-Life Lead Δ	6	2RD6E1	2RD6E1/ELF2	18	11	8	-
Lead-Calcium Δ	6	2RD6M1	2RD6M1/ELF2	18	12	9	-
Unit Equipment WITH REMOTE Capability							
Nickel-Cadmium Δ	6	2RD6C2	2RD6C2/ELF2	25	18	12	9
Δ	12	2RD12C3	2RD12C3/ELF2	36	21	15	12
Δ	6	2RD6E2	2RD6E2/ELF2	27	19	14	10
Long-Life Lead Δ	6	2RD6E3	2RD6E3/ELF2	36	24	17	13
Δ	12	2RD12E3	2RD12E3/ELF2	36	24	17	13
Δ	6	2RD6M2	2RD6M2/ELF2	27	18	14	10
Lead-Calcium Δ	6	2RD6M3	2RD6M3/ELF2	36	25	20	14
Δ	12	2RD12M3	2RD12M3/ELF2	36	25	20	14

Standard lamp is 6- or 12-volt 9-watt wedge base.

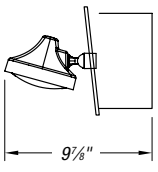
** National Electrical Code specification. Δ = Improved Diagnostics available.*

Dimensions

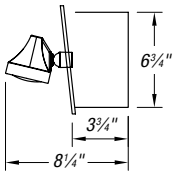
Dimensions are approximate and subject to change.



Back Box



ELF645



ELF2 / ELF3

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.

2	RD	12	C	1	/	L9	-	TD
No. of Heads	Series	DC Battery Backup	Battery Type *Ni-Cad*	Capacity Indicator		Lamp Suffix* *12V 9W Incandescent*		Option *Time Delay*

*Includes standard lamp. * See lamp data sheet for other lamp wattages.*

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Decorative Series

6-volt decorative recessed gimbal with lead-calcium, long-life lead or nickel-cadmium battery.

605P1 Series

The 605P1 Series, a classic top-hat style unit with gimbal mounted lamp, fully recesses into ceiling with only the lens and trim visible. Ideal for low ceilings and blends inconspicuously with existing recessed lighting schemes.

Reliability

The 605P1 Series has a three-year full warranty (excluding lamps).

Unit Data

All components are contained in drawn steel box. The upper side of the recessed steel housing contains the battery and charger. The lower portion of the housing will contain an 8-watt halogen lamp with a horizontal rotation of 358° and vertical angle adjustable to ±42°. Standard finish of trim is mist-white plastic. NYC-approved version will include a metal trim and gimbal assembly, also finished in mist-white. The LED pilot light and test switch are located on the side of the lamp ring.

The 605P1 Series comes standard with a slide-out chassis and two quick-connect plugs to make installation and servicing easy. Adjustable hanger bars are supplied with each unit.

Lamp

Furnished with one 6-volt, 10-watt high-intensity halogen lamp.

PulseType Charger

- Automatic, temperature-compensated, PulseType charger.
- High capacity, automatic, dust-tight instantaneous transfer relay.
- Low-voltage disconnect prevents overdischarge of battery. Automatic brownout protection is provided.
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit.
- Fused output circuit.

Controls

- Combination AC-ON/charge monitor LED
- Momentary test switch allows for quick operational check of entire system.

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp

Options

(Add Suffix to Model No.) ..... **Suffix**

Black Housing and Gimbal ..... **-B**

NYC Approved Version ..... **-M***

**Includes metal trim and gimbal assembly.*

Accessories

(Order as a separate item)

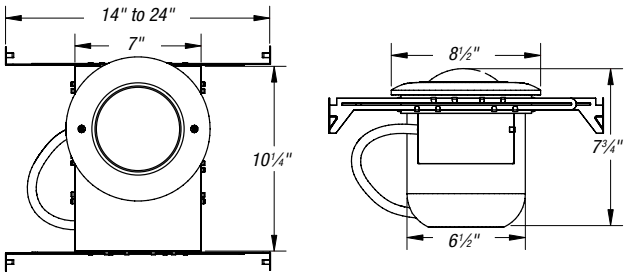
Remote Test Switch (metal faceplate) ..... **PSW**

Remote Test Switch (plastic faceplate **PSW1**

UL NEW YORK CITY APPROVED

Dimensions

Dimensions are approximate and subject to change.

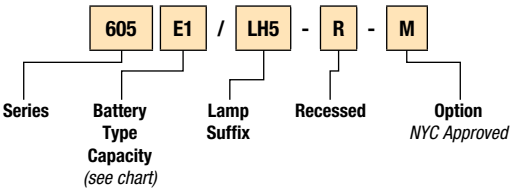


Unit Ratings

VOLTS	MODEL NO.	BATTERY TYPE	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.
No Remote Capability						
6	**LS605P1-HB**	Lead-Calcium	10	—	—	—
6	**605E1/LH5-R**	Long-Life Lead	9	—	—	—
With Remote Capability						
6	**605C1/LH5-R**	Nickel-Calcium	18	12	9	—
6	**605E2/LH5-R**	Long-Life Lead	18	11	8	—

** National Electrical Code specification.*

Catalog Numbering System



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Decorative Series

6-volt self-powered recessed down light with long-life nickel-cadmium battery evaluated to UL® 924 standard.

RSTH Decorative Series

The RSTH Decorative Series integrates contemporary design elements with the latest in high-tech emergency lighting capabilities. This self-powered down light brings architects, designers and engineers a sleek, refreshing new take on emergency lighting solutions. Designed with clean, classic lines and available in a range of colors and tones to complement any commercial or high-end interior where taste is a factor.

Reliability

The RSTH Decorative Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

This internally self-powered recessed down light is constructed of a durable powder-coated, die-cast aluminum and uses a MR16 lamp source powered by a sealed Nickel-Cadmium battery. The RSTH is furnished with a metal, fully recessed back box to house the electronics, battery and wiring. The duration of operation provided by the Nickel-Cadmium battery is 90 minutes minimum, as required by NFPA101 Life Safety Code. Standard finish is white, but also available in black, brushed nickel, chrome and polished brass. Adjustable hanger bars are supplied with each unit.

Lamp

Furnished with one 6-volt, 6-watt MR16 halogen lamp. The light source is fully adjustable by rotating the gimbal through 359° in azimuth and or positioning the lamp through 90° in pitch.

Charger

Dust-tight relay automatically and instantly energizes lamp load upon failure of AC supply. Battery protection circuit automatically shuts down lamp load when battery reaches 87.5% of its rated voltage. Charger is 100% solid state, includes auto-equalize, temperature compensation and is controlled by a 1% Zener reference

Power Requirements

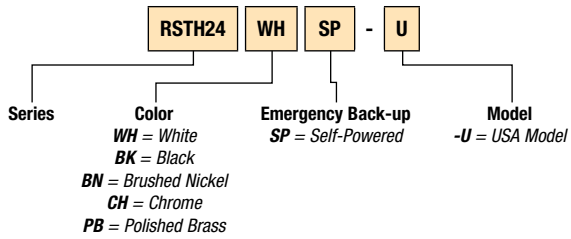
- 120V, 60 Hz, 0.046A, 4.17W
- 277V, 60 Hz, 0.024A, 4.76W

Accessories
(Order as a separate item)

Remote Test Switch (metal faceplate) ..... **PSW**

Remote Test Switch (plastic faceplate) **PSW1**

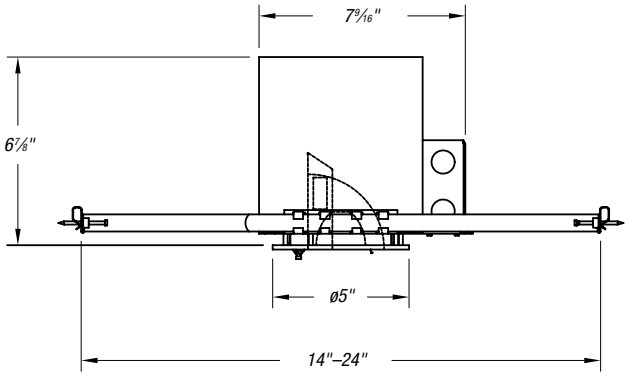
Catalog Numbering System

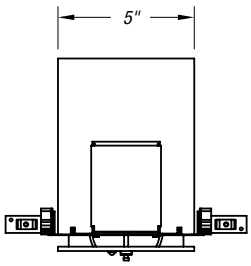


Replacement lamp number: 580.0074-L 6V 6W

Dimensions

Dimensions are approximate and subject to change.





RSTH Decorative Series including back box

Decorative Series

6-volt decorative-style equipment — sealed maintenance-free lead-calcium or nickel-cadmium battery.

Square-Lite SQ, SQ-D Series

The SQ, SQ-D Series was designed for institutional and commercial environments where overall style of décor is essential, but directional lighting is not critical. The standard Square-Lite is available as surface mount, but semi-recessed and fully recessed mounting options are also available.

Reliability

The Square-Lite SQ Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

The Square-Lite unit is constructed of impact-resistant, flame-retardant, lightweight thermoplastic material in mist-white color with a black back. A metal back box is provided where recessed installation is required. The all-metal fully recessed version is constructed of 20-gauge steel with a white baked-enamel surface trim. All models are furnished with a specially designed reflector and prismatic lens. An SQR conversion kit is available for semi-recessing into ceiling, and an FSQR conversion kit is available for fully recessed fixtures. Bar hangers are supplied with a recessed kit. To order a fully recessed metal fixture, please refer to Options.

Lamp

Furnished standard with one high-efficiency tungsten halogen lamp (6 volt, 6, 8 or 10 watts). Provides a non-directional, even light distribution with beam spread of more than 170°. The two-lamp option is available by specifying "-2" suffix (see Options).

PulseType Charger

- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents overdischarge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates the state of charge of the battery
- Momentary test switch allows quick operational check of entire system

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp

Options

(Add Prefix to Model No.)	**Prefix**
Fully Recessed Metal	**R-***

** Bar hangers included*

(Add Suffix to Model No.)	**Suffix**
Improved Diagnostics (audible)	**-ID**
Improved Diagnostics (non-audible)	**-IDNA**
Ammeter or Voltmeter (choose only one)	**-A* or -V***
Two Lamps	**-2**
Polycarbonate Lens	**-PL**
Time Delay (specify 5, 10 or 15 minutes)	**-TD_ ****

** Not available with diagnostic options.*

*** (ID or IDNA) Includes a Time Delay function. If needed, it can be enabled/disabled in the field or it can be preset at the factory by including the suffix ID-TD_ or IDNA-TD_.*

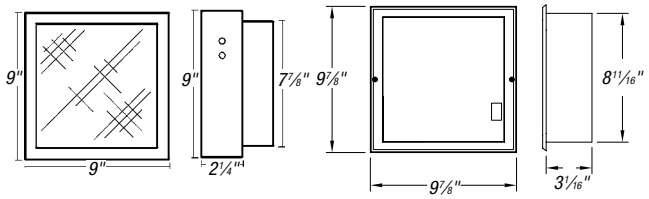
Accessories (Order as a separate item)

Wire Guard (for Semi-Recessed)	**WG1-L**
Wire Guard (for Fully Recessed)	**WG11-L**
Semi-Recessed Conversion Kit	**SQR**
Fully Recessed Conversion Kit	**FSQR**

Matching style remote fixture, Model ELF644, available. See Remote Fixtures Section.

Dimensions

Dimensions are approximate and subject to change.



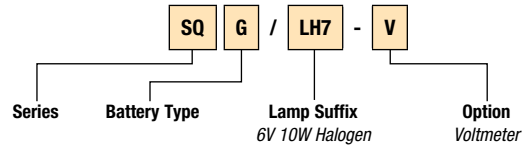
Surface Mount *Fully Recessed*

Unit Ratings

VOLTS	MODEL NO.	BATTERY TYPE	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.
No Remote Capability				
6	**SQG/LH7**	Sealed Lead-Calcium	10	—
6	**SQN/LH7**	Nickel-Cadmium	10	—
With Remote Capability				
6	**SQG-D/LH5**	Sealed Lead-Calcium	24	18
6	**SQN-D/LH5**	Nickel-Cadmium	30	18

** National Electrical Code® specification.*

Catalog Numbering System



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Commercial Battery Units

6-volt ultra-slim emergency unit — sealed maintenance-free lead-calcium battery — damp location listed.

IC-2 Series

The IC-2 Series is an aesthetically attractive, economical unit ideal for commercial or institutional facilities. This unit offers reliable performance in a low-profile, contemporary design.

Reliability

The IC-2 Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

The compact, ultra-slim housing and prismatic lenses are constructed of an injection-molded, tough thermoplastic body that will not scratch or corrode. It has a lightly textured mist-white finish that blends well with any decor. All units come with a pre-wired AC to save time and installation costs. Simply wire the mounting plate to the building AC and secure. Then, using the AC quick-connect plug, snap the housing onto the mounting plate, and the unit is ready to be powered. Attractive and versatile, the IC-2 Series battery units can be mounted in any orientation on walls and ceilings.

Lamps

Standard with two 6-watt, high-intensity, wedge base incandescent lamps.

Charger

- Automatic, temperature-compensated charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery
- Automatic brownout protection
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Momentary test switch allows for quick operational check of entire system

Power Requirements

120/277VAC, 60 Hz, 0.08/0.04 amp

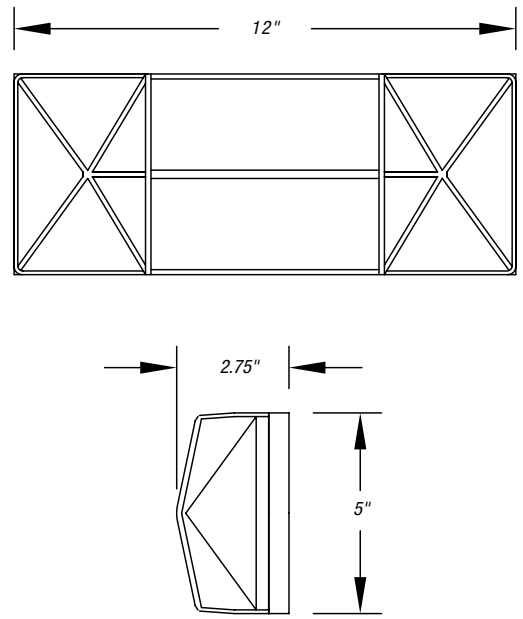
Accessories

(Order as a separate item)

Wire Guard..... **WG13-L**

Dimensions

Dimensions are approximate and subject to change.

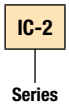


Unit Ratings

VOLTS	MODEL NO.	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.
6	IC-2	12	8

** National Electrical Code® specification.*

Catalog Numbering System



Commercial Battery Units

6-volt thermoplastic battery unit — damp location listing is standard on all models — sealed maintenance-free lead-calcium battery.

LCA-2SQ Series

The LCA-2SQ Series, an extremely versatile unit, can be wall or ceiling mounted. With the option of 11 watts remote capacity and standard damp location listing, this emergency lighting unit with adjustable heads is your solution for emergency lighting.

Reliability

The LCA-2SQ Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

Constructed of an injection-molded, UV-stabilized, UL® 94, 5VA flame-rated thermoplastic housing and back plate. The sealed maintenance-free lead-calcium battery is designed to power 11 watts remote load or extend unit run time, if necessary (refer to options "R" to order). LCA-2SQ can be wall or ceiling mounted. Unit has universal knock-out pattern on the back plate that allows for junction box mounting. An innovative snap-together design allows for fast and easy installation.

Lamps

Furnished standard with two 6-volt, 6-watt DC T5 wedge base lamps for emergency mode.

Charger

- 120/277VAC, 60 Hz, 0.08/0.04 amp
- LED indicator light and push button test switch
- Remote capacity — may power additional remote heads (up to 6V 11W)
- Low-voltage battery disconnect
- All models are damp location listed

Options

(Add Suffix to Model No.)	**Suffix**
Remote Capacity (11 watts)	**-R***

** Do not exceed rated unit capacity.*

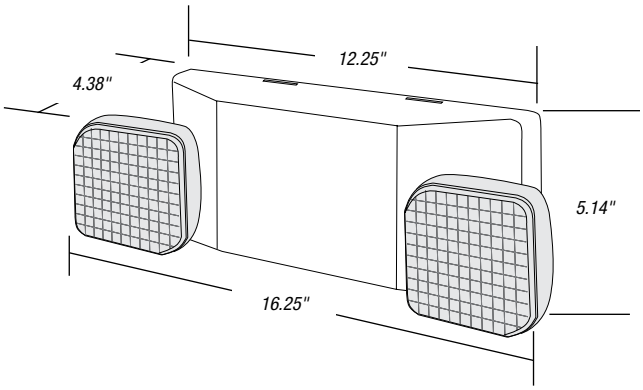
Accessories

(Order as a separate item)

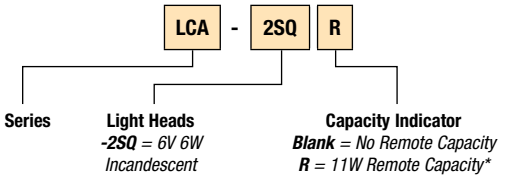
Replacement Battery	**860.0018-L**
Replacement Lamp (standard)	**570.0012-L**
Wire Guard	**WG10-L**
Vandal Shield	**CPS**
Vandal Shield (NEMA 4X)	**CPS-4X**

Dimensions

Dimensions are approximate and subject to change.



Catalog Numbering System



** Do not exceed rated unit capacity.*

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Commercial Battery Units

6-volt thermoplastic battery unit — damp location listing is standard on all models — sealed maintenance-free lead-calcium battery.

LCA-2MRS Series

The LCA-2MRS Series is the perfect battery unit for use where style and design are required in an economical package.

Reliability

The LCA-2MRS Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

The unit is completely self-contained and the housing is constructed of high-impact, UL® 94, 5VA thermoplastic. The compact design will allow for space restrictions often encountered. The snap-together housing facilitates mounting in any orientation.

Lamps

Furnished with two 6-volt, MR16 glare-free halogen lamp heads.

Charger

- Automatic, temperature-compensated charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided.
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit.

Options

(Add Suffix to Model No.)	**Suffix**
Black	**-B**

Accessories

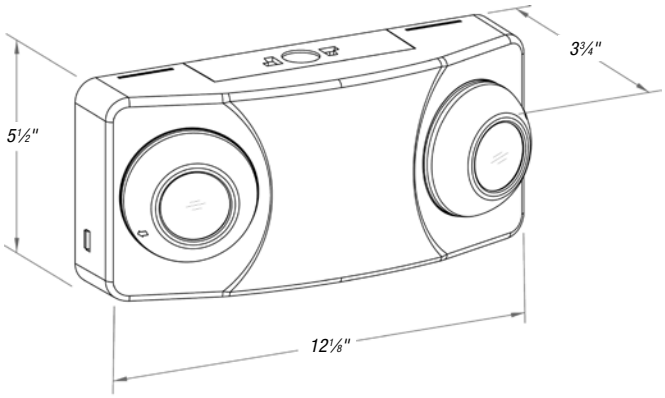
(Order as a separate item)

Replacement Battery	**860.0018-L**
Replacement Lamp (standard)	**570.0012-L**
Wire Guard	**WG10-L**
Vandal Shield	**CPS**
Vandal Shield (NEMA 4X)	**CPS-4X**

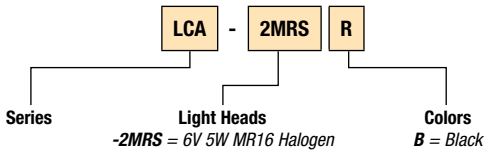
NEW Improved Look!

Dimensions

Dimensions are approximate and subject to change.



Catalog Numbering System



Commercial Battery Units

6-volt decorative-style equipment — maintenance-free sealed lead-calcium or nickel-cadmium battery (optional).

Cavalier II (CA-2) Series

The Cavalier II (CA-2) Series is an aesthetically attractive, economical unit in a compact, contemporary design. It is ideal for commercial and institutional facilities.

Reliability
The Cavalier II (CA-2) Series has a three-year full warranty (excluding lamps and fuses).

Unit Data
The housing is injection molded from high-impact, scratch- and corrosion-resistant thermoplastic and is available in an architecturally attractive mist-white color. Optional black housing is also available. The Cavalier II Series easily mounts to wall or ceiling with an independent, universal mounting plate. AC and battery quick-connect plugs simplify wiring for quick and easy installation. This unit is also suitable for damp locations.

Lamps
Furnished standard with two fully adjustable PAR36 size lamp heads with high-intensity incandescent lamps or optional halogen lamps.

CA-2 is available with an optional 6 watts halogen lamp.

CA-3 is available with an optional 6, 8 or 10 watts halogen lamp.

PulseType Charger
- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents overdischarge of battery; automatic brownout protection is provided.
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls
Combination test switch/charge monitor LED indicates battery is on charge and allows for periodic testing of the unit.

Power Requirements
Maximum 10 watts at 120/277VAC.

Options

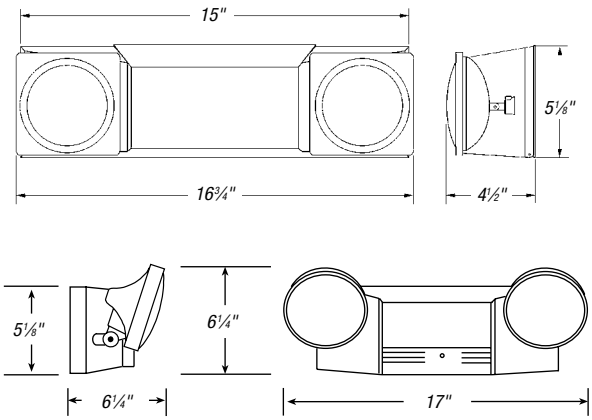
(Add Suffix to Model No.)	Suffix
Black	-B
Self Diagnostics	-SD
Voltmeter (not available with diagnostics)	-V
3-Wire Cord and Plug (120V)	-3CP*
3-Wire Cord and Plug (277V)	-3CP-277*
6W Halogen Lamp	/LH4
8W Halogen Lamp	/LH5
10W Halogen Lamp	/LH7
Nickel-Cadmium Battery	-N
Damp Location Listed	-DL

** Standard cord length is 3 ft. Custom lengths available.*

Accessories
(Order as a separate item)

Wire Guard (CA-2, CA-3)	WG16-L
Polycarbonate Shield	CPS
Polycarbonate Weatherproof Shield	CPS-4X

Dimensions
Dimensions are approximate and subject to change.



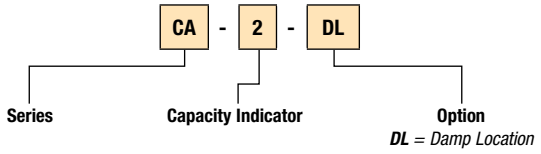
Cavalier II with halogen lamps (CA-3).

Unit Ratings

VOLTS	MODEL NO.	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.
6	CA-2	12	8
	CA-3	20	15

** National Electrical Code® specification.*

Catalog Numbering System



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Commercial Battery Units

6- or 12-volt thermoplastic emergency unit — sealed maintenance-free lead-calcium battery.

DM/DS Series

The DM/DS Series is an excellent combination of economy and quality — the best offered in the industry. This unit is compact, lightweight and corrosion resistant.

Reliability

The DM/DS Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

Construction consists of a compact, lightweight, corrosion-resistant thermoplastic cabinet with a mist-white finish. Meets UL® 94, 5VA flame classification. Both cabinets (small and large) are designed with rear keyhole mounting slots on the back plates and mount directly to any standard 4" octagonal electric box. The 6-volt small cabinet (DS3, DS6, DS7) is programmable for either top or side mounting of lamp heads. A ⅞" conduit entry is provided on the left side of the cabinet. The large cabinet (DS8, DS9 and D12S9) has a removable front panel and provisions for mounting to up to three heads.

Lamps

Thermoplastic heads can be top or side mounted (on DM or DS3, 6 and 7 only) and easily moved to either location by contractor without rewiring.

DM Models: PAR18 size heads (ELF2 head type). 2DM3 has 6W high-intensity incandescent lamps. 2DM6, 7, 8, 9, 12 have 9W high-intensity incandescent lamps.

DS Models: PAR36 size heads (EFL645 head type). 2DS3 has 6W high-intensity incandescent lamps. 2DS6, 7, 8, 9, 12 have 9W high-intensity incandescent lamps.

***Note**: Tungsten halogen lamps optional.*

PulseType Charger

- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allows for quick operational check of entire system

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp.

Options

(Add Suffix to Model No.)	Suffix
Black Housing and Heads (small cabinet only)	-B
Ammeter or Voltmeter (choose only one)	-A or -V
Time Delay (specify 5, 10 or 15 minutes)	-TD_
3-Wire Cord and Plug	-3CP*
3-Wire Cord and Plug (277V)	-3CP-277*

** Standard cord length is 3 ft. Custom lengths available.*

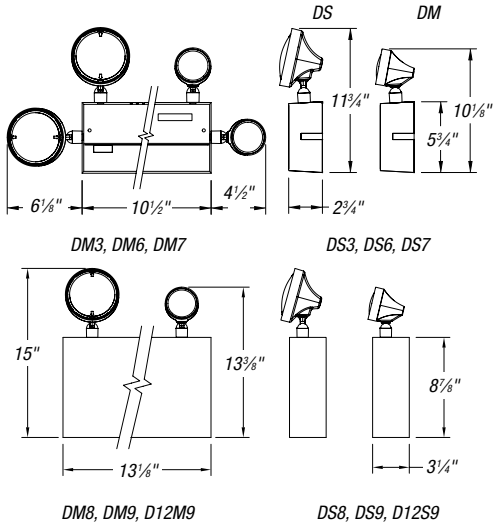
Accessories (Order as a separate item)

Wire Guard (top mounted heads)	WG1-L
Wire Guard (top mounted PAR18 heads)	WG10-L
Wire Guard (top mounted PAR36 heads)	WG4-L
Vandal-Resistant Cover	CPS*
Vandal-Resistant NEMA 4X Cover	CPS-4X*

** Small cabinet only.*

Dimensions

Dimensions are approximate and subject to change.

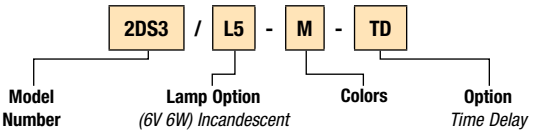


Unit Ratings

VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.
6	2DS3/L5-M	12	8
	2DS6/L9-M	18	12
	2DS7/L9-M	27	21
	2DS8/L9-M**	36	24
	2DS9/L9-M**	54	41
12	2D12S9/L9-M**	54	41

** National Electrical Code® specification. ** Utilize large "A" cabinet.*
Use "M" instead of "S" for Mini Heads (ELF2 PAR18 size heads).

Catalog Numbering System



For standard units without options, only order Model No.
Options are added to units by listing suffix at end of Model No.

Commercial Battery Units

6- or 12-volt emergency unit — sealed maintenance-free lead-calcium or nickel-cadmium battery.

MC Series

nexus® id improved diagnostics UL

The Lightalarms® MC Series emergency battery unit incorporates performance and labor-saving features, normally found only in higher capacity units, in an economical compact housing design.

The MC Series is ideally suited for commercial applications where space, performance and ease of installation are required.

Reliability

The MC Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

Compact steel cabinet with corrosion-resistant undercoating. Standard color is mist-white; black available as an option. The MC Series has rear keyhole mounting slots and is designed to mount directly to any standard 4" junction box.

Lamps

Standard unit furnished with two PAR18 size heads constructed of impact-resistant, flame-retardant thermoplastic heads complete with 6-watt MR16 halogen lamps. Also available up to 20W (MH20) high-output illumination.

Solid-State Charger

- Automatic, temperature-compensated type charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit
- Optional Improved Diagnostics comes with microcontroller-based PulseType charges

Power Requirements

120/277VAC 60 Hz, 0.3/0.15 amp.

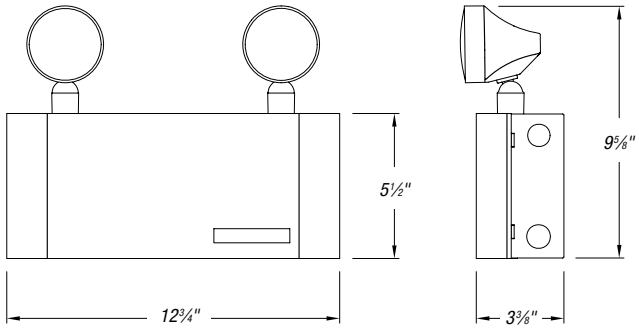
Unit Ratings

BATTERY TYPE	VOLTS	MODEL NO.	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.
Lead-Calcium	6	MCG	18	12	10	—
		MCG1	20	15	12	—
		MCG2	27	18	15	9
		MCG3	30	20	18	10
		MCG4	36	27	20	12
		MCG5	40	30	24	15
	12	MC12G1	36	27	20	12
		MC12G2	40	30	24	15
Nickel-Cadmium	6	MCN1	20	18	12	—
	12	MC12N1	36	24	15	12
		MC12N2	50	36	24	18

** National Electrical Code® specification.*

Dimensions

Dimensions are approximate and subject to change.



Catalog Numbering System

2 MCG4 / ELF3 - M6 - M - ID

Number of Heads
0 *= No Heads*
2 *= Two Heads*

Head Style
Elf3 *= Mini Plastic Mr16*

Color
M *= Mist-White Enamel Finish*
B *= Black Enamel Finish*

Lamp Type
M5 *= MR16 6V 5W*
M6 *= MR16 6V 6W*
M10 *= MR16 6V 10W*
M12 *= MR16 12V 12W*
M20 *= MR16 12V 20W*
MH20 *= 12V 20W High Output*

Series/DC Voltage/Capacity
MCG *= 6V 18W, Lead-Calcium*
MCG1 *= 6V 20W, Lead-Calcium*
MCG2 *= 6V 27W, Lead-Calcium*
MCG3 *= 6V 30W, Lead-Calcium*
MCG4 *= 6V 36W, Lead-Calcium*
MCG5 *= 6V 40W, Lead-Calcium**
MC12G1 *= 12V 36W, Lead-Calcium*
MC12G2 *= 12V 40W, Lead-Calcium*
MCN1 *= 6V 20W, Ni-Cad*
MC12N1 *= 12V 36W, Ni-Cad*
MC12N2 *= 12V 50W, Ni-Cad*
** Not available with ID/IDNA option.*

Options
ID *= Improved Diagnostics*
IDNA *= Improved Diagnostics Non-Audible*
NEX *= Nexus® Wired**
NEXRF *= Nexus® Wireless**

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Commercial Battery Units

6- and 12-volt steel emergency unit — sealed maintenance-free lead-calcium or nickel-cadmium battery.

MA Series

nexus® id Improved diagnostics UL

The Lightalarms® MC Series emergency battery unit incorporates performance and labor-saving features, normally found only in higher capacity units, in an economical compact housing design.

The MC Series is ideally suited for commercial applications where space, performance and ease of installation are required.

Reliability

The MA Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

The Lightalarms MA Series features a steel cabinet with anti-corrosion undercoating and a lower compartment containing two emergency heads with adjustable swivels and long-life MR16 halogen lamps.

Lamps

The emergency heads are installed at the bottom of the unit, providing an illumination in any downwards direction and require no tool for adjusting or aiming. The emergency heads are protected by a shock-absorbent, transparent polycarbonate cover. The cover is fixed on the equipment cabinet with two vertical screws. The standard lamp is a 6V or 12V MR16 halogen lamp. Also available up to 20W (MH20) high-output illumination.

Solid-State Charger

- Automatic, temperature-compensated type charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit
- Optional Improved Diagnostics comes with microcontroller-based PulseType charges

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp.

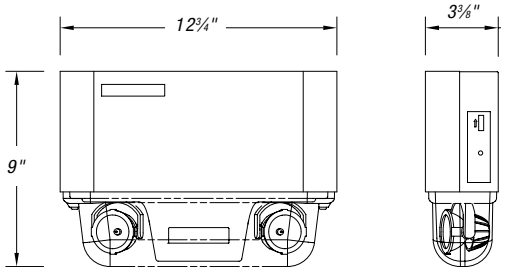
Unit Ratings

BATTERY TYPE	VOLTS	MODEL NO.	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.
Lead-Calcium	6	MAG	18	12	10	—
		MAG1	20	15	12	—
		MAG2	27	18	15	9
		MAG3	30	20	18	10
		MAG4	36	27	20	12
		MAG5	40	30	24	15
	12	MA12G1	36	27	20	12
		MA12G2	40	30	24	15
Nickel-Cadmium	6	MAN1	20	18	12	—
	12	MA12N1	36	24	15	12
		MA12N2	50	36	24	18

** National Electrical Code® specification.*

Dimensions

Dimensions are approximate and subject to change.



Power Consumption

	AC INPUT	MAXIMUM INPUT CURRENT	MAXIMUM INPUT POWER
MA	120VAC	0.20A	24W
	277VAC	0.08A	24W
MA12	120VAC	0.24A	30W
	277VAC	0.12A	30W

Catalog Numbering System

2 | MCG4 - M6 - M - ID

Number of Heads
2 *= Two Heads*

Series/DC Voltage/Capacity
MAG1 *= 6V 20W, Lead-Calcium*
MAG3 *= 6V 30W, Lead-Calcium*
MAG5 *= 6V 40W, Lead-Calcium**
MA12G2 *= 12V 40W, Lead-Calcium*
MAN1 *= 6V 20W, Ni-Cad*
MA12N1 *= 12V 36W, Ni-Cad*
MA12N2 *= 12V 50W, Ni-Cad*
** Not available with ID or IDNA options.*

Lamp Type
M5 *= MR16 6V 5W*
M6 *= MR16 6V 6W*
M10 *= MR16 6V 10W*
M12 *= MR16 12V 12W*
M20 *= MR16 12V 20W*
MH20 *= 12V 20W High Output*

Color
M *= Mist-White Enamel Finish*
B *= Black Enamel Finish*

Options
ID *= Improved Diagnostics*
IDNA *= Improved Diagnostics Non-Audible*
NEX *= Nexus® Wired**
NEXRF *= Nexus® Wireless**

Commercial Battery Units

6- or 12-volt steel emergency unit — sealed maintenance-free lead-calcium or nickel-cadmium battery.

MG/MN Series

The MG/MN Series battery unit incorporates a complete range of high-performance and labor-saving features normally found only in higher voltage units. The compact housing design meets most requirements for moderate loads. The MG/MN Series is a reliable, economical unit for all public areas.

Reliability

The MG/MN Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

Compact steel cabinet with corrosion-resistant undercoating. Standard color is mist-white; black is available as an option. The hinged front panel provides access to the battery and charger for ease of installation and maintenance. The MG/MN Series has rear keyhole mounting slots and is designed to mount directly to any standard 4" junction box.

Lamps

Standard with two ELF645 PAR36 high-impact mar-resistant thermoplastic heads. Furnished with two 6- or 12-volt 9-watt high-intensity wedge base incandescent lamps*. Other lighting head styles are also available (see options). Do not exceed unit battery capacity.

** For optional lamp types and wattages, refer to the lamp data chart on* ***pages I-166–I-167****.*

PulseType Charger

- Automatic, temperature-compensated PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allows quick operational check of entire system

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp.

Options

(Add Suffix to Model No.)	Suffix
Black Housing and Heads (replace -M with -B)	-B
Ammeter and/or Voltmeter	-A* or -V*
Lamp Disconnect Switch	-DS**
Improved Diagnostics (audible)	-ID
Improved Diagnostics (non-audible)	-IDNA
Time Delay (specify 5, 10 or 15 minutes)	-TD_**
Vandal-Resistant Screws	-VR
Front Mounted Heads (for low ceilings)	-FM
3-Wire Cord and Plug	-3CP***
3-Wire Cord and Plug (277V)	-3CP-277***
PAR18 Size Lamp Heads	/ELF2
DR1130 Decorative Heads (white)	-D1130
Nexus® Wired	-NEX
Nexus® Wireless	-NEXRF

** Not available with diagnostic option.*
*** (ID or IDNA) Includes a Time Delay function. If needed, it can be enabled/disabled in the field or it can be preset at the factory by including the suffix ID-TD_ or IDNA-TD_.*
**** Standard cord length is 3 ft. Custom lengths available.*

Shown with ELF645 heads

ELF-2 heads

Front Mounted heads

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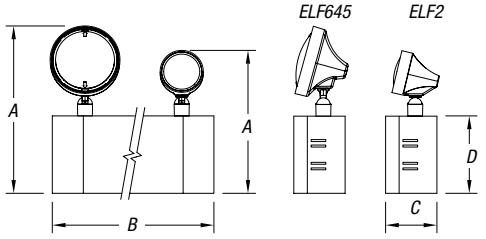
Accessories (Order as a separate item)

Mounting Platform	MP-PQA
Wire Guard (S cabinet)	WG1-L
Wire Guard (L cabinet)	WG2-L
Wire Guard (front mounted heads)	WG10-L

Dimensions

Dimensions are approximate and subject to change.



CABINET	DIMENSIONS A	B	C	D
S	11⅜" / 9¾"	11"	3½"	5¼"
L	12⅜" / 10¾"	12½"	4"	6¼"

Unit Ratings

	VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.	CABINET SIZE
Lead-Calcium	6	2MG1/L9-M	27	18	14	—	S
	6	2MG2/L9-M**	54	37	28	21	L
	12	2M12G1/L9-M	36	25	20	14	S
	12	2M12G2/L9-M**	54	37	28	21	L
Nickel-Cadmium	6	2MN1/L9-M	25	18	12	—	S
	12	2M12N1/L9-M	36	21	15	12	S
	12	2M12N2/L9-M	50	36	25	18	S

** National Electrical Code® specification.* *** Do not exceed unit rating in voltage or capacity.*

Catalog Numbering System

2	MG	1	/	L9	-	M	-	ID
No. of Heads	Series	Capacity Indicator		Lamp Suffix *6V 9W Incandescent*		Finish *Mist-White*		Option

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Commercial Battery Units

6- or 12-volt steel emergency unit — sealed maintenance-free lead-calcium battery.

PG/P12G Series

PG/P12G Series battery units combine reliability, versatility, performance and cost-efficiency in an aesthetically pleasing design. It is ideally suited for a range of commercial applications.

Reliability

The PG Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

Constructed of rugged steel with a corrosion-resistant undercoating, the PG Series cabinet has a removable front panel, providing easy access and allowing the unit to be mounted at ceiling height. Standard unit color is mist-white, but black housing and heads are also optional. All cabinets come standard with ⅞" conduit knockouts, rear keyhole mounting slots and provisions for mounting up to three heads on the cabinet.

Lamps

Standard with two ELF645 PAR36 high-impact mar-resistant thermoplastic heads. Furnished with two 6- or 12-volt 9-watt high-intensity wedge base incandescent lamps*. Other lighting head styles are also available (see options). Do not exceed unit battery capacity.

** For optional lamp types and wattages, refer to the lamp data chart on **pages I-166–I-167**.*

PulseType Charger

- Automatic, temperature-compensated PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allows quick operational check of entire system

Power Requirements

120/277VAC, 60 Hz, 0.25/0.12 amp, 30 watts (max.).

Head and Lamp Type Options

No Heads	**0**
Three Heads	**3**
Double Contact Bayonet Base, Bi-Pin Halogen, Wedge Base, Sealed Beam Lamps	**/ELF 645**
Bi-Pin Halogen Lamps	**/ELF 2**
MR16 Lamps up to 20 Watts	**/ELF 3**
MR16 Lamps	**/DR1130**

Options

(Add Suffix to Model No.)	**Suffix**
Black Housing and Heads	**-B**
Ammeter or Voltmeter (choose only one)	**-A* or -V***
Improved Diagnostics (audible)	**-ID**
Improved Diagnostics (non-audible)	**-IDNA**
Time Delay (specify 5, 10 or 15 minutes)	**-TD_****
Nickel-Cadmium Battery	**-N**
Nexus® Wired	**-NEX**
Nexus® Wireless	**-NEXRF**

** Not available with diagnostic option.*

*** (ID or IDNA) includes a Time Delay function. If needed, it can be enabled/disabled in the field or it can be preset at the factory by including the suffix ID-TD_ or IDNA-TD_.*

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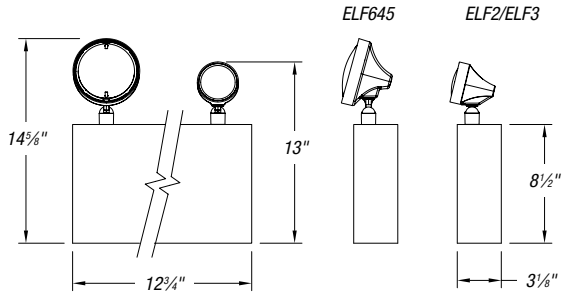
Accessories

(Order as a separate item)

Wire Guard	**WG2-L**
Mounting Platform	**MP-PQA**

Dimensions

Dimensions are approximate and subject to change.



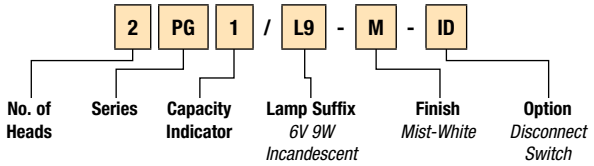
Unit Ratings

VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	WATTS TO 87.5% OF RATED BATTERY VOLTAGE*			
		1½ HRS.	2 HRS.	3 HRS.	4 HRS.
6	2PG1/L9-M	18	15	—	—
	2PG2/L9-M	54	36	27	18
12	2P12G1/L9-M	54	36	27	18

Each unit furnished with two 9W high-intensity incandescent lamps.

** National Electrical Code® specification.*

Catalog Numbering System



Commercial Battery Units

6- or 12-volt steel emergency unit — sealed maintenance-free nickel-cadmium battery.

PN/P12N Series

The UL® Listed PN/P12N Series battery unit is a traditionally styled, high-performance unit, designed for environments where lighting units may be exposed to fluctuations in temperature.

Reliability

The PN Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

Constructed of rugged steel with a corrosion-resistant undercoating, the PN Series cabinet has a removable front panel, providing easy access and allowing the unit to be mounted at ceiling height. Standard unit color is mist-white, but black housing and heads are also optional. All cabinets come standard with ⅞" conduit knockouts, rear keyhole mounting slots and provisions for mounting up to three heads on the cabinet. P12N complies with requirements of Federal Specifications W-L-305D Type 1, Class I, Style D.

Lamps

Standard with two ELF645 PAR36 high-impact, mar-resistant thermoplastic heads. Furnished with two 6- or 12-volt 9-watt high-intensity wedge base incandescent lamps*. Other lighting head styles are also available (see options.) Do not exceed unit battery capacity.

** For optional lamp types and wattages, refer to the lamp data chart on* ***pages I-166–I-167.***

PulseType Charger

- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allows for quick operational check of entire system

Power Requirements

120/277VAC, 60 Hz, 0.30/0.15 amp.

Options

(Add Suffix to Model No.)	Suffix
Black Housing and Heads	-B
Ammeter or Voltmeter (choose only one)	-A* or -V*
Improved Diagnostics (audible)	-ID
Improved Diagnostics (non-audible)	-IDNA
Time Delay (specify 5, 10 or 15 minutes)	-TD_**
Nickel-Cadmium Battery	-N
Nexus® Wired	-NEX
Nexus® Wireless	-NEXRF

** Not available with diagnostic option.*

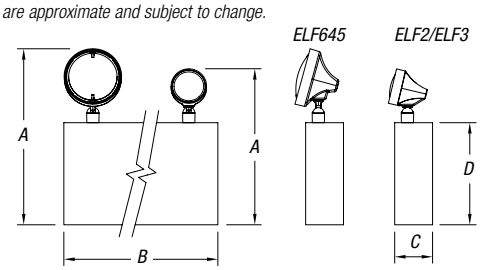
*** (ID or IDNA) Includes a Time Delay function. If needed, it can be enabled/disabled in the field, or it can be preset at the factory by including the suffix ID-TD_ or IDNA-TD_.*

Head and Lamp Options

No Heads	0
Three Heads	3
Double Contact Bayonet Base, Bi-Pin Halogen,Wedge Base, Sealed Beam Lamps	/ELF 645
Bi-Pin Halogen Lamps	/ELF 2
MR16 Lamps up to 20 Watts	/ELF 3
MR16 Lamps	/DR1130

Dimensions

Dimensions are approximate and subject to change.



CABINET	DIMENSIONS A	B	C	D
A	14⅝" / 13"	12¾"	3⅛"	8½"
B	16⅜" / 14¾"	16⅛"	5⁷⁄₁₆"	10¼"

Unit Ratings

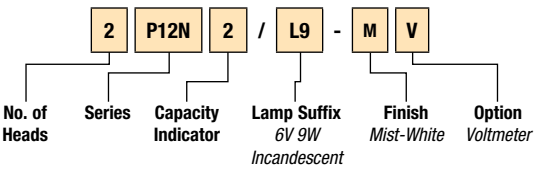
VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.	CABINET SIZE
6	2PN1/L9-M	25	20	14	10	A
12	2P12N1/L9-M	50	36	25	18	A
	2P12N2/L9-M	72	60	50	38	B

** National Electrical Code® specification.*
Each unit furnished with two 9W high-intensity incandescent lamps.

Accessories (Order as a separate item)

Wire Guard (A cabinet)	WG2-L
Wire Guard (B cabinet)	WG3-L
Mounting Platform	MP-PQA

Catalog Numbering System



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Commercial Battery Units

6- or 12-volt steel emergency unit — sealed maintenance-free lead-calcium battery.

PQ/P12Q Series

The UL® Listed PQ/P12Q Series battery unit is an effective, functional unit designed with high-capacity maintenance-free batteries for commercial, institutional or industrial environments requiring remote capability or extended emergency lighting time.

Reliability
The PQ Series has a three-year full warranty (excluding lamps and fuses).

Unit Data
Constructed of rugged steel with a corrosion-resistant undercoating, the PQ Series cabinet has a removable front panel, providing easy access and allowing the unit to be mounted at various heights. Standard unit color is mist-white, but black housing and heads are also optional. All cabinets come standard with ⅞" conduit knockouts, rear keyhole mounting slots and provisions for mounting up to three heads on the cabinet. Model 2PQ2 complies with requirements of Federal Specifications W-L-305D Type 1, Class I, Style E.

Lamps
Standard with two ELF645 PAR36 high-impact, mar-resistant thermoplastic heads. Furnished with two 6- or 12-volt 25-watt high intensity sealed beam incandescent lamps*. Other lighting head styles are also available (see options). Do not exceed unit battery capacity.

** For optional lamp types and wattages, refer to the lamp data chart on* ***pages I-166–I-167.***

PulseType Charger
- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls
- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allows for quick operational check of entire system

Power Requirements
120/277VAC, 60 Hz, 0.30/0.15 amp.

Options

(Add Suffix to Model No.)	Suffix
Black Housing and Heads (replace -M with -B)	-B
Improved Diagnostics (audible)	-ID
Improved Diagnostics (non-audible)	-IDNA
Ammeter or Voltmeter (choose only one)	-A* or -V*
Lamp-Disconnect Switch	-DS**
Time Delay (specify 5, 10 or 15 minutes)	-TD_**
Vandal-Resistant Screws	-VR
3-Wire Cord and Plug	-3CP***
3-Wire Cord and Plug (277V)	-3CP-277***

** Voltmeter and ammeter not available with the diagnostic option.*

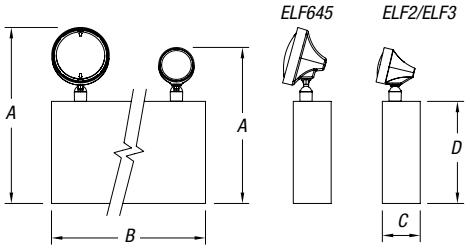
*** (ID or IDNA) Includes a Time Delay function. If needed, it can be enabled/disabled in the field or it can be preset at the factory by including the suffix ID-TD_ or IDNA-TD_.*

**** Standard cord length is 3 ft. Custom lengths available.*

Head and Lamp Options

No Heads	0
Three Heads	3
Double Contact Bayonet Base, Bi-Pin Halogen, Wedge Base, Sealed Beam Lamps	/ELF 645
Bi-Pin Halogen Lamps	/ELF 2
MR16 Lamps up to 20 Watts	/ELF 3
MR16 Lamps	/DR1130

Dimensions
Dimensions are approximate and subject to change.



CABINET	DIMENSIONS A	B	C	D
B	16⅜" / 14¾"	16⅛"	5⁷⁄₁₆"	10¼"
C	18⅜" / 16¾"	16½"	7¼"	12¼"

Unit Ratings

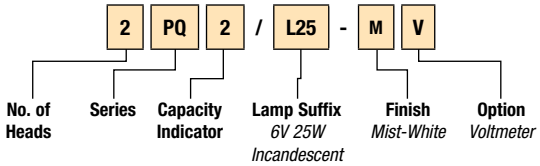
VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.	CABINET SIZE
6	2PQ1/L25-M	50	36	24	18	B
	2PQ2/L25-M	100	75	50	36	B
	2PQ3/L25-M	200	175	100	72	C
12	2P12Q1/L25-M	100	75	50	36	B
	2P12Q2/L25-M	200	150	100	72	C

** National Electrical Code® specification.*
Each unit furnished with two 9W high-intensity incandescent lamps.

Accessories (Order as a separate item)

Wire Guard	WG3-L
Mounting Platform (C cabinet)	MP-PQB
Mounting Platform (B cabinet)	MP-PQA

Catalog Numbering System
For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.



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NEMA Enclosure Definitions

Type 1

Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment and to provide a degree of protection against falling dirt.

Type 2

Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment, to provide a degree of protection against falling dirt and to provide a degree of protection against dripping and light splashing of liquids.

Type 3

Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow and windblown dust; and that will be undamaged by the external formation of ice on the enclosure.

Type 3R

Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet and snow; and that will be undamaged by the external formation of ice on the enclosure.

Type 3S

Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow and windblown dust; and in which the external mechanism(s) remain operable when ice laden.

Type 4

Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water and hose-directed water; and that will be undamaged by the external formation of ice on the enclosure.

Type 4X

Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water and hose-directed water; and corrosion; and that will be undamaged by the external formation of ice on the enclosure.

Type 5

Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, against settling airborne dust, lint, fibers and flyings; and to provide a degree of protection against dripping and light splashing of liquids.

Type 6

Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, against hose-directed water and the entry of water during occasional temporary submersion at a limited depth; and that will be undamaged by the external formation of ice on the enclosure.

Type 6P

Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, against hose-directed water and the entry of water during prolonged submersion at a limited depth; and that will be undamaged by the external formation of ice on the enclosure.

Type 12

Enclosures constructed (without knockouts) for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, against circulating dust, lint, fibers and flyings; and against dripping and light splashing of liquids.

Type 12K

Enclosures constructed (with knockouts) for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, against circulating dust, lint, fibers and flyings; and against dripping and light splashing of liquids.

Type 13

Enclosures constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, against circulating dust, lint, fibers and flyings; and against the spraying, splashing and seepage of water, oil and noncorrosive coolants.

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Industrial and Harsh Environment Battery Units

12-volt commercial/industrial emergency unit — sealed maintenance-free lead-calcium battery.

S12E Series

The S12E Series battery unit is best suited for applications requiring high-capacity maintenance-free batteries, multiple remote capabilities or extended operating times. The 12-volt battery allows for longer remote wiring runs.

Reliability

The S12E Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

The battery and all components are housed in a heavy-duty steel cabinet with a removable front access panel for ease of installation and maintenance. The standard cabinet finish will be gray enamel, but mist-white is also available (see options). All cabinets come standard with ⅞" conduit knockouts, rear keyhole mounting slots and provisions for mounting up to three heads on the cabinet. Mounting brackets and platforms are also available (see accessories).

Lamps

Standard with two ELF645 PAR36 high-impact mar-resistant thermoplastic heads. Furnished with two 12-volt 25-watt high-intensity incandescent lamps*. Other lighting head styles are also available (see options). Do not exceed unit battery capacity.

** For optional lamp types and wattages, refer to the lamp data chart on* ***pages I-166–I-167.***

PulseType Charger

- Automatic, temperature compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allows for quick operational check of entire system

Power Requirements

120/277VAC, 60 Hz, 0.30/0.15 amp.

Options

(Add Suffix to Model No.)	Suffix
Voltmeter (not available with diagnostics)	-V
Ammeter (not available with diagnostics)	-A
Lamp Disconnect Switch	-DS**
Time Delay (specify 5, 10 or 15 minutes)	-TD_**
Improved Diagnostics (audible)	-ID*
Improved Diagnostics (non-audible)	-IDNA*
3-Wire Cord and Plug	-3CP***
3-Wire Cord and Plug (277V)	-3CP-277***
Mist White Color (replace -G with -M)	-M
Nexus® Wired	-NEX
Nexus® Wireless	-NEXRF

** S12E4, S12E5 and S12E6:*

*** (ID or IDNA) Includes a Time Delay function. If needed, it can be enabled/disabled in the field, or it can be preset at the factory by including the suffix ID-TD_ or IDNA-TD_.*

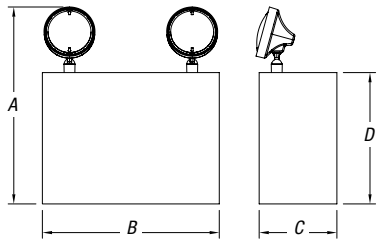
**** Standard cord length is 3 ft. Custom lengths available.*

Head and Lamp Options

No Heads	0
Three Heads	3
Double Contact Bayonet Base, Bi-Pin Halogen, Wedge Base, Sealed Beam Lamps	/ELF 645
Bi-Pin Halogen Lamps	/ELF 2
MR16 Lamps up to 20 Watts	/ELF 3
MR16 Lamps	/DR1130

Dimensions

Dimensions are approximate and subject to change.



CABINET	DIMENSIONS A	B	C	D
C	18⅜"	16½"	7¼"	12¼"
D	18⅜"	27"	7¼"	12¼"

Unit Ratings

VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.	CABINET SIZE
12	2S12E4/L25-G	200	150	107	85	C
	2S12E5/L25-G	300	225	165	127	D
	2S12E6/L25-G	400	300	214	170	D

** National Electrical Code® specification.*

Accessories (Order as a separate item)

Wire Guard (S12E4)	WG3-L
Wire Guard (S12E5/S12E6)	WG4-L
Mounting Platform (S12E4)	MP-A
Mounting Platform (S12E5/S12E6)	MP12
Mounting Bracket (S12E4)	MB-A

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.

2	S12E	4	/	L25	-	G	V	M
No. of Heads	Series	Capacity Indicator		Lamp Suffix *6V 25W Incandescent*		Finish Mist-White	Option Voltmeter	Option Ammeter

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Industrial and Harsh Environment Battery Units

12-volt commercial/industrial emergency unit — sealed maintenance-free lead-calcium battery.
S12E Series

The UL® Listed S24E Series battery unit is best suited for applications requiring high-capacity maintenance-free batteries, multiple remote capabilities or extended operating times. The 24-volt battery allows for longer remote wiring runs.

Reliability
The S24E Series has a three-year full warranty (excluding lamps and fuses).

Unit Data
The battery and all components are housed in a heavy-duty steel cabinet, with a removable front access panel for ease of installation and maintenance. The standard cabinet finish will be gray enamel, but mist-white is also available (see options). All cabinets come standard with ⅞" conduit knockouts, rear keyhole mounting slots and provisions for mounting up to three heads on the cabinet. Mounting brackets and platforms are also available (see accessories).

Lamps
Standard with two ELF645 PAR36 high-impact mar-resistant thermoplastic heads. Furnished with two 24-volt 25-watt high-intensity incandescent lamps*. Other lighting head styles are also available (see options). Do not exceed unit battery capacity.

** For optional lamp types and wattages, refer to the lamp data chart on* ***pages I-166–I-167.***

PulseType Charger
- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls
- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allows for quick operational check of entire system

Power Requirements
120/277VAC, 60 Hz, 0.3/0.15 amp.

Options

(Add Suffix to Model No.)	Suffix
Voltmeter (not available with diagnostics)	-V
Ammeter (not available with diagnostics)	-A
Lamp Disconnect Switch	-DS*
Time Delay (specify 5, 10 or 15 minutes)	-TD_**
Improved Diagnostics (audible)	-ID
Improved Diagnostics (non-audible)	-IDNA
Mist-White Color (replace -G with -M)	-M
3-Wire Cord and Plug	-3CP**
3-Wire Cord and Plug (277V)	-3CP-277**

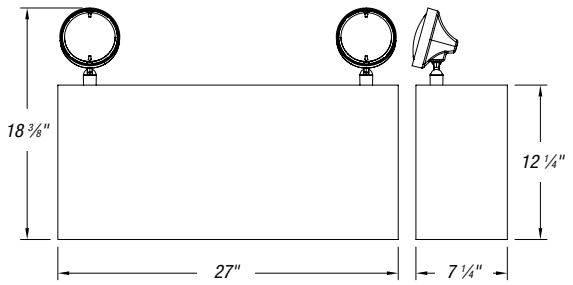
** Not required with ID option.*

*** (ID or IDNA) Includes a Time Delay function. If needed, it can be enabled/disabled in the field or it can be preset at the factory by including the suffix ID-TD_ or IDNA-TD_.*

Head and Lamp Options

No Heads	0
Three Heads	3
Double Contact Bayonet Base, Bi-Pin Halogen, Wedge Base, Sealed Beam Lamps	/ELF 645
MR16 Lamps up to 20 Watts	/ELF 3
MR16 Lamps	/DR1130

Dimensions
Dimensions are approximate and subject to change.



Unit Ratings

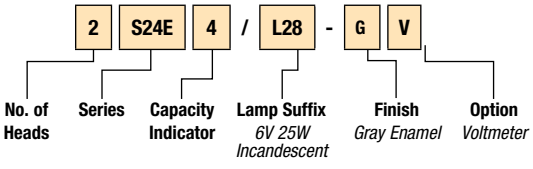
VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	WATTS TO 87.5% OF RATED BATTERY VOLTAGE*			
		1½ HRS.	2 HRS.	3 HRS.	4 HRS.
24	S24E4/L28-G	400	300	120	60

** National Electrical Code® specification.*

Accessories (Order as a separate item)

Wire Guard	WG4-L
Mounting Bracket	MB-A
Mounting Platform	MP-12

Catalog Numbering System
For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.



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Industrial and Harsh Environment Battery Units

6-volt emergency unit with remote capability — long-life, wet-refillable nickel-cadmium battery.

SN Series

The UL® Listed SN Series battery unit was designed for industrial locations requiring long-lasting emergency light units. Unit is available in a wide range of capacities and offers the special advantages of the nickel-cadmium battery, including excellent recharging capabilities.

Reliability

The SN Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

The battery and all components are housed in a heavy-duty steel cabinet, with a removable front panel for ease of installation and servicing. The front panel includes a view port for visual inspection of the battery. The 6-volt, five-cell pocket-plate nickel-cadmium battery is housed in translucent plastic cell containers. The standard cabinet finish will be gray enamel, but mist-white is also available (see options). All cabinets come standard with ⅞" conduit knockouts, rear keyhole mounting slots and provisions for mounting up to three heads on the cabinet. Mounting brackets and platforms are also available (see accessories).

Lamps

Standard with two ELF645 PAR36 high-impact mar-resistant thermoplastic heads. Furnished with two 6-volt 25-watt high-intensity incandescent lamps*. Other lighting head styles are also available (see options). Do not exceed unit battery capacity.

** For optional lamp types and wattages, refer to the lamp data chart on* ***pages I-166–I-167.***

PulseType Charger

- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents overdischarge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates sate of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allow for quick operational check of entire systems

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp.

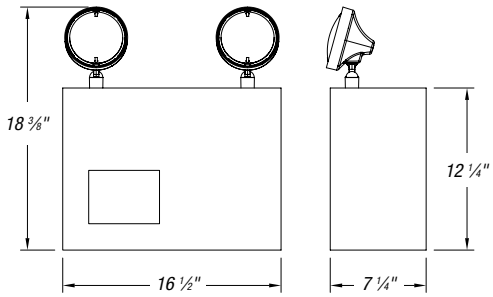
Options

(Add Suffix to Model No.)	Suffix
Mist-White Color (replace -G with -M)	-M
Voltmeter	-V
Ammeter	-A
Lamp Disconnect Switch	-DS
Time Delay (specify 5, 10 or 15 minutes)	-TD_
3-Wire Cord and Plug	-3CP*
3-Wire Cord and Plug (277V)	-3CP-277*

** Standard cord length is 3 ft. Custom lengths available.*

Dimensions

Dimensions are approximate and subject to change.



Unit Ratings

VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	WATTS TO 87.5% OF RATED BATTERY VOLTAGE*			
		1½ HRS.	2 HRS.	3 HRS.	4 HRS.
6	2SN2/L25-G	50	45	25	18
	2SN3/L25-G	70	60	35	25
	2SN4/L25-G	100	80	50	35
	2SN6/L25-G	130	105	70	50
	2SN7/L25-G	160	130	80	60

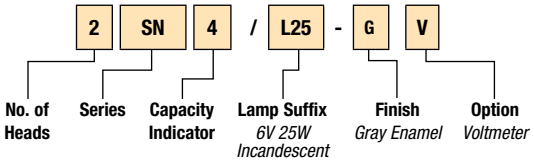
** National Electrical Code® specification.*

Accessories (Order as a separate item)

Wire Guard	WG3-L
Mounting Bracket	MB-A
Mounting Platform	MP-A

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.



Industrial and Harsh Environment Battery Units

12-volt emergency unit with remote capability — long-life wet-refillable nickel-cadmium battery.

S12N Series

The S12N Series battery units are excellent high-capacity units — ideal where extended run times may be required or remote fixtures/exits will be connected. This unit will provide excellent performance over extended temperature ranges.

Reliability

The S12N Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

Battery and all components are housed in a heavy-duty steel cabinet with a removable front panel for ease of installation and servicing. The front panel includes a view port for visual inspection of the battery, which is encased in a clean, smooth container of transparent high-impact material. Gray enamel is the standard cabinet finish. All cabinets come standard with ⅞" conduit knockouts, rear keyhole mounting slots and provisions for mounting up to three heads on the cabinet. Mounting platform is also available (see accessories).

Lamps

Standard with two ELF645 PAR36 high-impact mar-resistant thermoplastic heads. Furnished with two 12-volt 25-watt high-intensity incandescent lamps*. Other lighting head styles are also available (see options). Do not exceed unit battery capacity.

** For optional lamp types and wattages, refer to the lamp data chart on* ***pages I-166–I-167.***

PulseType Charger

- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allows quick operational check of entire system

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp.

Options

(Add Suffix to Model No.)	Suffix
Voltmeter	-V
Ammeter	-A
Lamp Disconnect Switch	-DS
Time Delay (specify 5, 10 or 15 minutes)	-TD_
Mist-White Color (replace -G with -M)	-M
3-Wire Cord and Plug	-3CP*
3-Wire Cord and Plug (277V)	-3CP-277*

** Standard cord length is 3 ft. Custom lengths available.*

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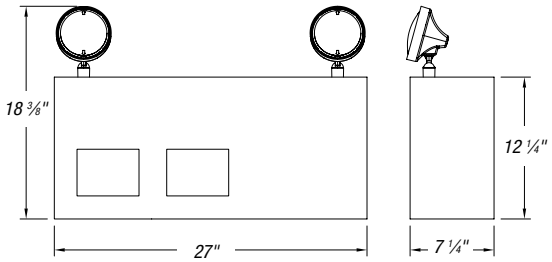
Dimensions

Dimensions are approximate and subject to change.



Unit Ratings

VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	WATTS TO 87.5% OF RATED BATTERY VOLTAGE*			
		1½ HRS	2 HRS	3 HRS	4 HRS
12	2S12N2/L25-G	100	90	50	35
	2S12N3/L25-G	140	120	70	50
	2S12N4/L25-G	200	160	100	70
	2S12N6/L25-G	260	210	150	100
	2S12N7/L25-G	320	260	170	120

** National Electrical Code® specification.*

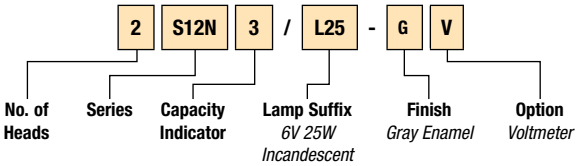
Accessories (Order as a separate item)

Wire Guard WG4-L

Mounting Platform MP12

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.



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Industrial and Harsh Environment Battery Units

24-volt commercial/industrial emergency unit — long-life wet-refillable nickel-cadmium battery.

S24N Series

The S24N Series battery unit is best suited for applications where extended run times are required and/or remote fixtures or exits will be connected. Unit offers excellent recharging capabilities and superior performance over extended temperature ranges.

Reliability

The S24N Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

The battery and all components are housed in a heavy-duty steel cabinet with a removable front access panel for ease of installation and maintenance. The standard cabinet finish will be gray enamel, but mist-white is also available (see options). All cabinets come standard with ⅞" conduit knockouts, rear keyhole mounting slots and provisions for mounting up to three heads on the cabinet. Mounting platform is also available (see accessories).

Lamps

Standard S24N Series units are furnished with two PAR36 high-impact mar-resistant thermoplastic heads with 25-watt high-intensity incandescent lamps. The heads are fully adjustable horizontally and vertically. Optional lamps are available.

PulseType Charger

- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents overdischarge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allow for quick operational check of entire systems

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp.

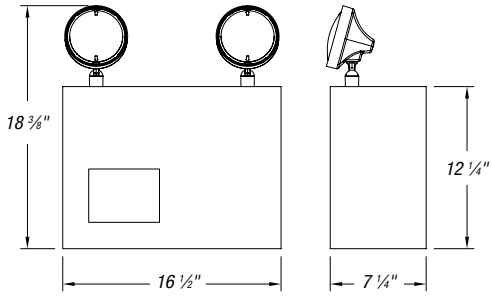
Options

(Add Suffix to Model No.)	Suffix
Mist-White Color (replace -G with -M)	-M
Voltmeter	-V
Ammeter	-A
Lamp Disconnect Switch	-DS
Time Delay (specify 5, 10 or 15 minutes)	-TD_
3-Wire Cord and Plug	-3CP*
3-Wire Cord and Plug (277V)	-3CP-277*

** Standard cord length is 3 ft. Custom lengths available.*

Dimensions

Dimensions are approximate and subject to change.



Unit Ratings

VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	WATTS TO 87.5% OF RATED BATTERY VOLTAGE*			
		1½ HRS	2 HRS	3 HRS	4 HRS
24	**2S24N4/L28-G**	400	300	120	60

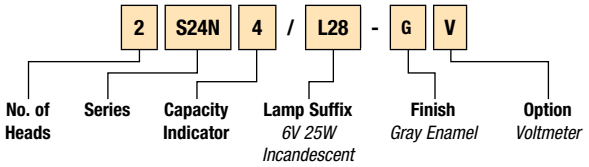
** National Electrical Code® specification.*

Accessories (Order as a separate item)

Wire Guard	**WG4-L**
Mounting Platform	**MP-12**

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.



Industrial and Harsh Environment Battery Units

6- or 12-volt weatherproof emergency unit — maintenance-free lead-calcium or wet-refillable nickel-cadmium battery.

WP Series

The WP Series battery unit is designed with a special enclosure for applications where a weatherproof unit is required.

Reliability

The WP Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

The housing is constructed of heavy-duty steel with front access to the battery and all components. The housing has a galvanized undercoating and baked gray enamel finish. Knockout and controls are concealed at bottom of housing. Welded mounting brackets are provided on top of case.

Lamps

Standard with two ELF647 PAR36 high-impact mar-resistant thermoplastic heads. Furnished with two 6- or 12-volt 25-watt high intensity incandescent lamps*. Do not exceed unit battery capacity.

** For optional lamp types and wattages, refer to the lamp data chart on* ***pages I-166–I-167.***

PulseType Charger

- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allows quick operational check of entire system

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp.

Options

(Add Suffix to Model No.)	**Suffix**
Voltmeter	**-V**
Ammeter	**-A**
Thermal Jacket (120V heater)	**-H1**
Thermal Jacket (277V heater)	**-H2**
Time Delay (specify 5, 10 or 15 minutes)	**-TD_**
Lamp Disconnect Switch	**-DS**
3-Wire Cord and Plug Kit	**-WP-3CP***
3-Wire Cord and Plug (277V) Kit	**-WP-3CP-277***

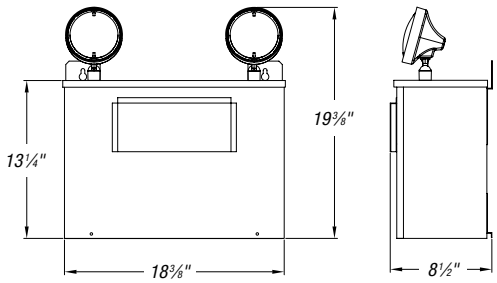
** Standard cord length is 3 ft. Custom lengths available.*

Accessories (Order as a separate item)

Wire Guard	**WG4-L**

Dimensions

Dimensions are approximate and subject to change.



Unit Ratings

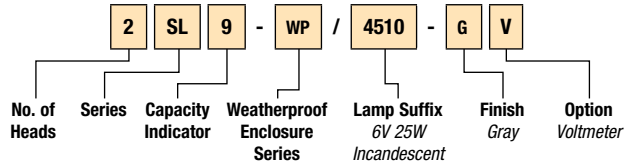
VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	BATTERY TYPE	WATTS TO 87.5% OF RATED BATTERY VOLTAGE*			
			1½ HRS.	2 HRS.	3 HRS.	4 HRS.
6	**2SN2-WP/4510**	Nickel-Cadmium	50	45	25	18
	2SN3-WP/4510		70	60	35	25
	2SN4-WP/4510		100	80	50	35
	2SN6-WP/4510		130	105	70	50
	2SN7-WP/4510		160	130	80	60
12	**2S12E4-WP/4446**	Sealed Lead-Calcium	200	150	100	75
	2S12E5-WP/4446		300	225	110	110
	2S12E6-WP/4446		400	300	150	150

** National Electrical Code® specification.*

***Note**: Above capacity ratings are subject to an ambient of 50 to 85 degrees. Extremes of temperatures beyond this range will have a detrimental effect on the specified ratings. For extreme cold, use of a thermal jacket is recommended.*

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.



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Industrial and Harsh Environment Battery Units

6-, 12- or 24-volt weather and corrosion-resistant emergency unit — sealed maintenance-free lead calcium or nickel-cadmium battery.

FG/F12G Series

The FG Series battery unit was designed for industrial applications, especially for installations in a corrosive atmosphere. This enclosure is fully gasketed and is furnished with stainless steel hardware.

Reliability

The FG Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

The housing is a molded gray high-impact thermoplastic case, featuring oil-, water- and dust-tight construction, stainless steel hardware, single-piece neoprene gasket and a vented battery compartment. External mounting feet are provided. Conduit entry can be made with a punch, drill or hole saw.

Lamps

Standard with two ELF647 PAR36 high-impact mar-resistant thermoplastic heads. Furnished with two 6- or 12-volt 25-watt high intensity incandescent lamps*. Do not exceed unit battery capacity.

** For optional lamp types and wattages, refer to the lamp data chart on* ***pages I-166–I-167.***

PulseType Charger

- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents overdischarge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allow for quick operational check of entire systems

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp.

Options

(Add Suffix to Model No.)	Suffix
Ammeter or Voltmeter (choose only one)	-A* or -V*
Improved Diagnostics (audible)	-ID
Improved Diagnostics (non-audible)	-IDNA
Time Delay (specify 5, 10 or 15 minutes)	-TD_**
Thermal Jacket (120V heater)	-H1
Thermal Jacket (277V heater)	-H2
Lamp Disconnect Switch	-DS**
Phototest Switch	-PTS
3-Wire Cord and Plug (120V)	-3CP***
3-Wire Cord and Plug (277V)	-3CP-277***
Nexus® Wired	-NEX
Nexus® Wireless	-NEXRF

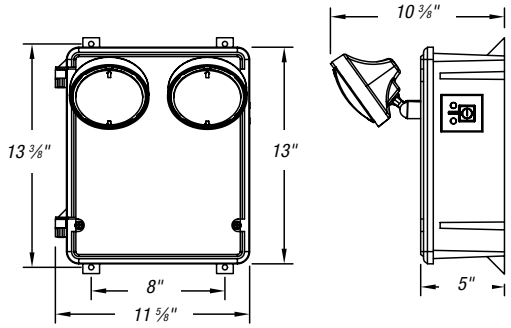
** Not available with diagnostic option.*

*** (ID or IDNA) Includes a Time Delay function. If needed, it can be enabled/disabled in the field or it can be preset at the factory by including the suffix ID-TD_ or IDNA-TD_.*

**** Standard cord length is 3 ft. Custom lengths available.*

Dimensions

Dimensions are approximate and subject to change.



Unit Ratings

VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	BATTERY TYPE	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.
6	2FG1/4510	Sealed Maintenance-Free Lead-Calcium	50	36	25
	2FG2/4510		100	75	50
12	2F12G1/4446		50	36	25
	2F12G2/4446		100	75	50
12	2F12N1/4446	Nickel-Cadmium	50	36	18
	F12N2 - 12V 100W		100	75	50
24	2F24N2/L28		100	73	37

** National Electrical Code® specification.*

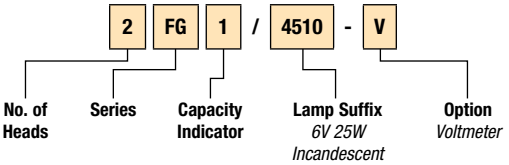
Each unit furnished with two 25W high-intensity incandescent lamps.

Accessories (Order as a separate item)

Wire Guard **WG3-L**

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.



Industrial and Harsh Environment Battery Units

6- or 12-volt NEMA 4X emergency battery unit — sealed maintenance-free lead-calcium, nickel-cadmium or nickel-metal hydride battery.

Severe V Series

nexus® NSF UL

UL® Listed for wet and damp locations
Ni-Cad battery; (10° C to 40° C/50° F to 104° F)
UL® Listed for cold weather
(-40° C to 40° C/-40° F to 104° F) — see options below

The Severe V Series was designed for use in commercial as well as industrial heavy-duty environments, such as hosedown areas, food-processing facilities and parking garages as well as harsh environments. This battery unit will deliver unsurpassed pathway illumination.

Reliability

The Severe V Series battery unit has a three-year full warranty (excluding lamps and fuses).

Unit Data

The equipment is constructed of a fully gasketed die-cast aluminum back plate and an equipment frame of industrial-grade thermoplastic with a gasket around the lens and canopy, specifically designed for harsh environments. The front of the unit is protected by clear, heavy-duty, vandal-resistant UV-stabilized polycarbonate, fixed with tamper-proof screws. Each battery unit comes standard with a non-audible improved diagnostic charger board, 15-minute time delay and lamp disconnect as well as tamper-proof screws and bit. The housings are available in three colors, mist-white, black or gray. The standard unit can be wall mounted on a 4" junction box, although a universal bracket is available as an accessory for mounting on poles, beams or strut metal framing. Units with nickel-cadmium or nickel-metal hydride batteries are listed for damp and wet locations (10° C to 40° C/50° F to 104° F). For remote fixture, refer to Severe ELF650 Series in the Remote Fixtures section.

Light Source

Fully field-adjustable lamp head assembly offers the choice of MR16 halogen lamps up to 12V, 20W-IR or high-efficiency, 4-watt, MR16 LED lamps. The unit supplies 90 minutes of emergency operation.

Charger

The Severe V Series Emergency Battery Unit is equipped with fully automatic Improved Diagnostic micro controller based-circuitry.* The micro controller tests, detects and indicates any malfunction or failure of the battery, charger circuitry or lamps. An external LED signals a general service alarm, while four internal diagnostic LEDs indicate the nature of failure. The board is factory preset to non-audible diagnostics and a 15-minute time delay. These functions can be enabled or disabled during installation. The equipment comes standard with a dual voltage input of 120/277VAC.

** The unit will perform a periodic self-test a minimum of 30 seconds every 30 days, 30 minutes every six months and 90 minutes annually.*

Options

(Add Suffix to Model No.)	Suffix
Cold Weather Location (-40° C to 40° C/-40° F to 104° F)	-CW4*
Nexus® Wired	-NEX
Nexus® Wireless	-NEXRF

** Available on 2V12G1 (24W) and 2V12G2 (36W) lead-calcium battery unit only.*

Power Consumption Chart

AC SPECIFICATION			
UNIT TYPE	VOLTAGE	CURRENT (MAX.)	EFFECTIVE POWER
Standard	120/277VAC, 60 Hz	0.2/0.11A	Less than 20W
Cold Weather (option)	120/277VAC, 60 Hz	0.7/0.40A	Less than 100W

Unit Ratings

UNIT EQUIPMENT WITH REMOTE CAPABILITY				
SEALED MAINTENANCE-FREE BATTERY TYPES	WATTS TO 87.5% OF RATED BATTERY VOLTAGE*			
	1½ HRS.	2 HRS.	3 HRS.	4 HRS.
Lead-Calcium	18	12	—	—
	24	16	12	—
	36	24	20	14
	54	36	27	20
Nickel-Cadmium**	24	18	12	—
	40	30	20	15
Nickel-Metal Hydride**	60	45	30	20

** National Electrical Code® specification.*

*** Listed for wet and damp locations*

Furnished standard with MR16 lamps.

Accessories (Order as a separate item)

Additional Special Bit for Tamper-Proof Screws	TPB
Universal Bracket for Mounting on Poles, I-Beams or Superstrut® Structures	PMK-L

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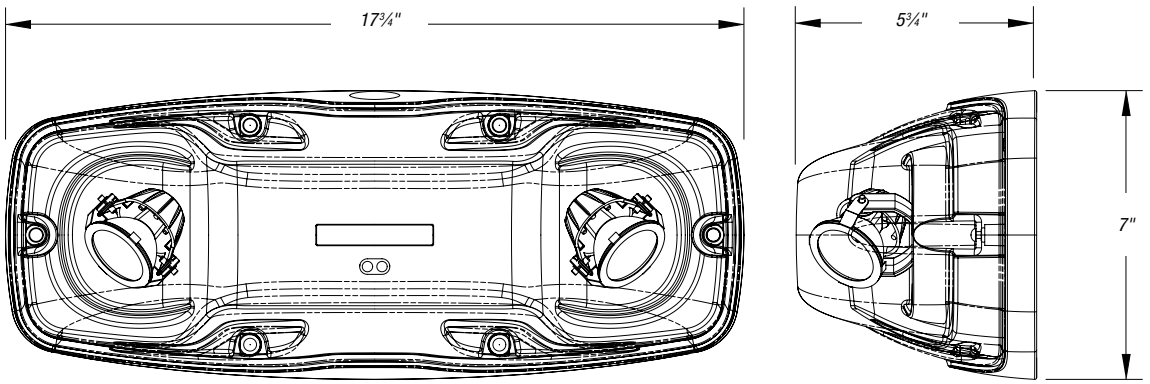
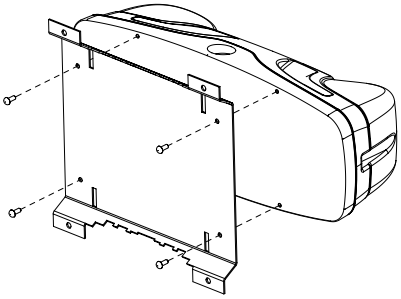
Industrial and Harsh Environment Battery Units

Dimensions

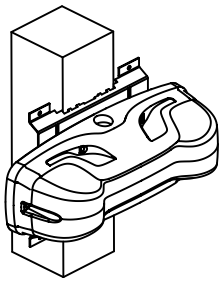
Dimensions are approximate and subject to change.



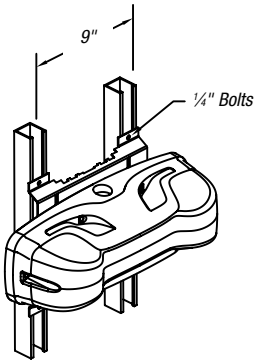
Universal Mounting Brackets



PMK KIT (screws included)



Beam Mounting



Superstrut® Mounting

Catalog Numbering System

2	V12G2	/	M12	-	B	-	D	-	

No. of Heads
2 *= 2 Heads*

Series
VG1 *= 6V 18W, Lead-Calcium*
V12G1 *= 12V 24W, Lead-Calcium*
V12G2 *= 12V 36W, Lead-Calcium*
V12G3 *= 12V 54W, Lead-Calcium*
V12N1 *= 12V 24W, Nickel-Cadmium*
V12N2 *= 12V 40W, Nickel-Cadmium*
V12H1 *= 12V 60W, NiMHR*

Lamps
L5 *= 12V 4W, LED*
M6 *= 6V 6W, MR16*
M12 *= 12V 12W, MR16*
MH20 *= 12V 20W, MR16-IR*

Color
B *= Black*
G *= Gray*
M *= White*

Charger
D *= Improved Diagnostic Non-Audible (Standard)*
DA *= Improved Diagnostic Audible*
NEX *= Nexus System Interface (CSA-US Certified)*
NEX *= Nexus® Wired*
NEXRF *= Nexus® Wireless*

Options
Blank *= No Options*
IDNA *= Improved Diagnostic, Non-Audible*
CW4 *= Cold Weather* (-40° C to 40° C)*
** Only available with V12G1 and V12G2.*

Industrial and Harsh Environment Battery Units

Severe Series NEMA 4X

Severe XV NEMA 4X Exit Sign

- NEMA 4X self-powered LED exit sign
- Standard with diagnostic/self-test feature
- Sealed maintenance-free nickel-cadmium battery
- Standard damp location listing (10° C to 40° C/50° F to 104° F)
- UL® Listed

The Severe XV NEMA 4X Exit Sign is housed in an industrial-grade polyvinyl chloride enclosure. This exit sign was designed specifically for harsh environments that would strain standard exit signage, such as schools, transit platforms, parking garages, wet and cold locations as well as any location prone to vandalism.

See page I-144

6- or 12-volt weather and corrosion-resistant emergency unit — maintenance-free nickel-cadmium battery.

Severe XV NEMA 4X Combination Exit Emergency Battery Unit

- UL® Listed for wet and damp locations (10° C to 40° C/50° F to 104° F)

The Severe XV Combo Unit is designed and engineered with style in mind and sets new standards for emergency lighting in today's toughest environments. The unit is suitable for industrial and commercial applications as well as all public facilities.

See page I-146

Severe ELF650 NEMA 4X Remote Fixture

The Severe ELF650 NEMA 4X Remote Fixture has a fully gasketed cast-aluminum back plate with a clear UV- and impact-resistant cover. The remote fixture delivers unsurpassed path-of-egress illumination. The ELF650 is available in single- or double-head models with the option of highly efficient MR16 lamps or the 5-watt, MR16 shape white LED. Easy lamp replacement, toolless lamp aiming and easy installation on a 4" octagonal box all make this remote fixture the perfect choice for any environment. Comes standard with tamper-proof screws and bit. NSF certified for food processing plants. Choice three colors: white, black or gray.

See page I-159

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Industrial and Harsh Environment Battery Units

6- or 12-volt NEMA industrial emergency unit — sealed maintenance-free lead-calcium or nickel-cadmium battery.

ECN/E12CN/ENN/E12NN Series

Series meets requirements for operation under NEMA 1, 2, 3, 3R, 3S, 4, 4X, 12 and 13 conditions.

This NEMA industrial emergency lighting unit series is designed for use in hostile environments where the presence of water, fibers, dirt, dust and corrosive gases can be potentially damaging to internal components.

Reliability

The ECN/ENN (6-volt), E12CN and E12NN (12-volt) Series have a three-year full warranty (excluding lamps and fuses).

Unit Data

All units are housed in water- and corrosion-resistant cabinets constructed from glass-reinforced structural foam. Cabinets are silicone sealed and/or gasketed around all entryways, the push-to-test switch is completely enclosed and a corrosion-resistant bushing is provided for field-installed conduit entry. Breather devices allow for ventilation of battery gases without admitting damaging elements. All external hardware is stainless steel. A unique door-hinging device allows for removal of door panel or retention of the hinge by means of a small field adjustment.

Lamps

Units are equipped with a choice of standard incandescent or halogen sealed-beam lamps. Lamps are housed in gray, industrial thermoplastic shells with matching swivels. Lamp housings are raintight and corrosion resistant. Wire connections are silicone sealed.

PulseType Charger

- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents overdischarge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allow for quick operational check of entire systems

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp.

Options

(Add Suffix to Model No.)	Suffix
Time Delay (specify 5, 10 or 15 minutes)	-TD_
Voltmeter	-V
Ammeter	-A
Lamp Disconnect Switch	-DS
Thermal Jacket (120V heater)	-H1
Thermal Jacket (277V heater)	-H2
Cord and Plug Kit (120V)	-WP-3CP*
Cord and Plug Kit (277V)	-WP-3CP-277*

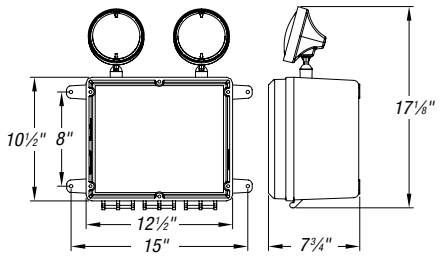
** Standard cord length is 3 ft. Custom lengths available.*

Accessories (Order as a separate item)

Wire Guard	WG3-L

Dimensions

Dimensions are approximate and subject to change.



Unit Ratings

VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	BATTERY TYPE	INPUT WATTS	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.
6	2ECN25	Sealed Lead-Calcium	18	25	20	15	12
	2ECN50		18	50	40	30	22
	2ECN100		40	100	75	50	36
	2ENN25	Sealed Nickel-Cadmium	18	25	20	15	12
	2ENN50		18	50	40	28	22
12	2E12CN50	Sealed Lead-Calcium	18	50	40	30	22
	2E12NN50	Sealed Nickel-Calcium	18	50	40	28	22

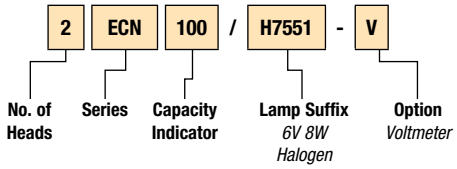
** National Electrical Code® specification.*

Lamp Selection Chart

	DC VOLTAGE	LAMP WATTAGE	LUMEN OUTPUT	LAMP TYPE	LAMP SUFFIX (ADD TO UNIT MODEL NO.)
Use with 6-Volt ECN, ENN Series	6	8	180	Halogen	H7551
		18	220	Incand.	4014
		25	350	Incand.	4510
Use with 12-Volt E12CN, E12NN Series	12	8	180	Halogen	H7555
		18	220	Incand.	4414
		25	350	Incand.	4446

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.



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Thomas&Betts

Industrial Explosion-Proof Battery Units

Hazardous Locations Definitions

Hazardous areas are those in which a potential for explosion or fire exists, due to the presence of certain gases, liquid vapors, combustible dusts or fiber particles suspended in the air. The National Electrical Code®, NEMA, OSHA, UL® and NFPA Life Safety Standards, as well as state and local codes, prescribe the use of emergency lighting equipment. This equipment itself must not contribute to the ignition of flammable or explosive substances present in the location. The Thomas & Betts Lightalarms™ brand offers a complete line of emergency lighting equipment for use in hazardous locations.

Typical Class I Locations

- Petroleum refineries and gasoline storage and dispensing areas
- Industrial firms that use flammable liquids in dip tanks for cleaning parts or other operations
- Petrochemical companies that manufacture chemicals from gas and oil
- Dry cleaning plants where vapors from cleaning fluids can be present
- Companies that have areas dedicated for spraying products with paint or plastics
- Aircraft hangars and fuel servicing areas
- Utility gas plants and operations involving storage and handling of liquified petroleum gas or natural gas

Typical Class II Locations

- Grain elevators, flour and feed mills
- Plants that manufacture, use or store magnesium or aluminum powders
- Plants that have chemical or metallurgical processes; producers of plastics, medicines, fireworks, etc.
- Producers of starch or candies
- Spice grinding plants, sugar plants and cocoa plants
- Coal preparation plants and other carbon handling or processing areas

Typical Class III Locations

- Textile mills, cotton gins, cotton seed mills and flax processing plants
- Clothing manufacturing plants
- Any plant that shapes, pulverizes or cuts wood and creates saw dust or shavings

For more information, consult the NEC®.

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

Hazardous Location Classifications

Class I (NEC-500-5)

Areas in which flammable gases or vapors may be present in sufficient quantities to be explosive or ignitable.

Class II (NEC-500-6)

Areas with risk of presence of combustible dust.

Class III (NEC-500-7)

Areas in which there are easily ignitable fibers or flyings present, due to the type of material being handled, stored or processed, but in which such fibers or flyings are not likely to be in suspension in the air in quantities sufficient to produce ignitable mixtures.

Division 1 (NEC-500-5, 6 & 7)

Normal Situation: A hazard is present in the everyday normal production operation or during frequent repair and/or maintenance activity.

Division 2 (NEC-500-5, 6 & 7)

Abnormal Situation: Potentially hazardous material is expected to be safely confined within closed containers or closed systems, and will be present in the atmosphere only through accidental rupture, breakage or abnormal operation.

Group A, B, C & D (NEC-500-3)

Gases and vapors in Class I locations are classified into four groups, by the codes A, B, C and D. These materials are grouped according to the ignition temperature of the substance, its explosion force and other flammability characteristics.

Groups E, F & G (NEC-500-3)

Combustible dust in Class II locations are classified according to ignition temperature and the conductivity of the hazardous substance.

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Industrial Explosion-Proof Battery Units

6- or 12-volt emergency lighting unit — for operation in hazardous areas. Sealed maintenance-free lead-calcium or nickel-cadmium battery.

EC/E12C/EN/E12N Series

Class I	Division 2, Groups C & D
Class II	Division 2, Groups E & F

Series meets requirements for operation under NEMA 1, 2, 3, 3R, 3S, 12 and 13 conditions.

This series of emergency lighting units is designed to meet the specific requirements of Division 2 Hazardous areas. Typical applications include any location where flammable materials are stored, handled or pumped, as well as adjacent areas where separation could break down under abnormal conditions.

Reliability

The EC, E12C, EN and E12N Series have a three-year full warranty (excluding lamps and fuses).

Unit Data

All units are housed in water- and corrosion-resistant cabinets constructed from glass-reinforced structural foam. Cabinets are fully sealed and gasketed, and all external hardware is stainless steel. Door covers are hinged in such a way to permit either retention of the hinge when opened or a complete removal of the door. All external electrical components, including the test switch and indicator light, are explosion proof in design and exceed requirements for Division 2 areas. The battery compartment is vented by a one-way breather device to permit exhaust of battery gases and relief of internal pressure without admitting external moisture or corrosives.

Lamps

Units are equipped with a choice of standard incandescent or halogen sealed-beam lamps. Lamps are housed in gray, industrial thermoplastic shells with matching swivels. Lamp housings are raintight and corrosion resistant. Wire connections are silicone sealed.

PulseType Charger

- Automatic, temperature-compensated, PulseType charger
- High-capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents overdischarge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red charger monitor LED indicates state of charge of the battery
- Amber AC-ON LED indicates AC power is on
- Momentary test switch allow for quick operational check of entire systems

Power Requirements

120/277VAC, 60 Hz, 0.3/0.15 amp.

Options

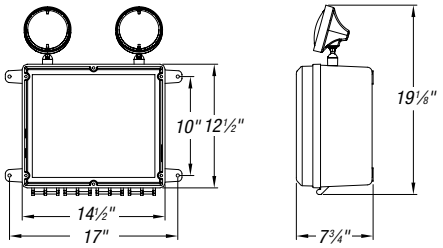
(Add Suffix to Model No.)	Suffix
Time Delay (specify 5, 10 or 15 minutes)	-TD_
Shatter-Resistant Lamp Coating	-FP

Accessories (Order as a separate item)

Wire Guard	WG3-L

Dimensions

Dimensions are approximate and subject to change.



Unit Ratings

VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	BATTERY TYPE	INPUT WATTS	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.
6	2EC50	Sealed Lead-Calcium	18	50	40	30	22
	2EC100		60	100	75	50	36
	2EN25		40	25	20	13	9
	2EN50	Sealed Ni-Cad	40	50	40	25	19
	2E12C50		18	50	40	30	22
12	2E12C100	Sealed Lead-Calcium	60	100	75	50	36
	2E12N50		60	50	40	28	20
	2E12NN50	Sealed Ni-Cad	18	50	40	28	22

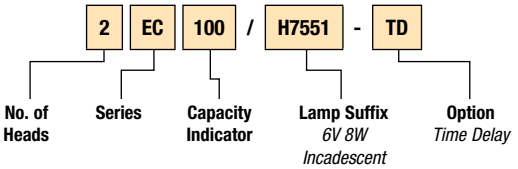
** National Electrical Code® specification.*

Lamp Selection Chart

	DC VOLTAGE	LAMP WATTAGE	LUMEN OUTPUT	LAMP TYPE	LAMP SUFFIX (ADD TO UNIT MODEL NO.)
Use with 6-Volt ECN, ENN Series	6	8	180	Halogen	H7551
		18	220	Incand.	4014
		25	350	Incand.	4510
Use with 12-Volt E12CN, E12NN Series	12	8	180	Halogen	H7555
		18	220	Incand.	4414
		25	350	Incand.	4446

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.

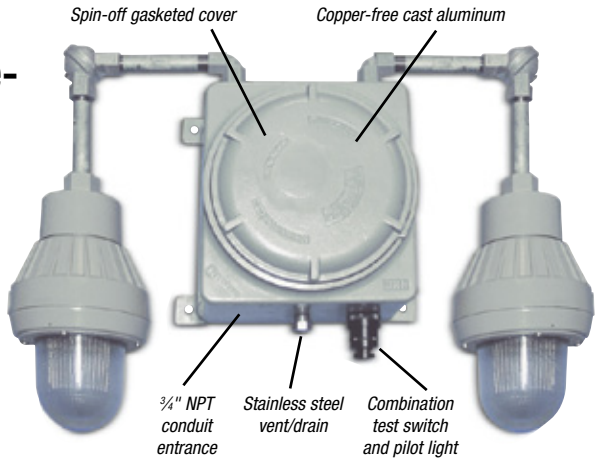


Industrial Explosion-Proof Battery Units

6- or 12-volt hazardous location emergency unit — sealed maintenance-free nickel-cadmium battery for operation in hazardous areas.

EXP6N/EXP12N Series

Class I	Division 1 & 2, Groups C & D
Class II	Division 1 & 2, Groups E, F & G



Lighting fixture and battery housing comply with NEC®, OSHA and NEMA specifications for all above Classes and Groups

The EXP Series explosion-proof lighting systems are completely self-contained and designed to allow safe operation of the battery and electronics in the classified areas specified above.

Reliability

The EXP Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

EXP systems consist of a power unit and any combination of lighting fixture and/or exit sign. The entire system can be located within the hazardous area. Manufactured in accordance with UL® 844, 1203 and 924, EXP systems feature an explosion-proof cabinet and spin-off gasketed cover. Each piece is constructed of one-piece, heavy-gauge, corrosion-resistant, copper-free cast aluminum to prevent propagation of internally generated arcs into the hazardous atmosphere. A silicone conformal coating on the circuit board helps to protect the electronics against humidity. The EXP series features a sealed maintenance-free nickel-cadmium battery with a long life, minimal gassing and superior resistance to temperature extremes.

Lamps

Series EXP systems are designed so that one or two explosion-proof fixtures can be mounted on the cabinet, in various configurations, i.e., one lamp and one exit fixture, two lamp fixtures, two exit fixtures, etc. Fixtures mounted on the cabinet are ordered as part of the system by catalog number. See see the catalog numbering system. Lightalarms® lamp fixtures are heavy cast aluminum with Pyrex® lenses. A medium screw base is standard; double contact bayonet base and halogen lamps are optional. For complete information, refer to the Series EPF401 spec sheets. Lightalarms® exit signs are rectangular, heavy-duty steel boxes with exit lettering on single face (X402) or double face (2X402). Exit signs are for DC or AC operation. For complete information, refer to the X402 Series.

Charger

Completely automatic, the charger features a solid-state transfer and is capable of recharging the batteries in accordance with UL® 924. The charger will provide a high charge rate immediately upon restoration of AC power and a trickle rate to maintain the battery charged. The charger is a constant-current type.

Controls

- Combination momentary test switch and AC-ON pilot light

Power Requirements

Dual-input voltage transformer, 120/277VAC, 60 Hz, 0.3/0.15 amp (other voltages available on request).

Pyrex® is a registered trademark of Corning Glass.

Unit Ratings

VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	INPUT WATTS	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.	8 HRS.
6	EXP6N18	18	18	12	—	—	—
	EXP6N25	25	25	18	9	9	—
	EXP6N36	36	36	21	12	12	6
	EXP6N50	50	50	36	18	18	10
12	EXP12N36	36	36	21	12	12	6
	EXP12N50	50	50	36	18	18	10
	EXP12N72	72	72	42	24	24	12

** National Electrical Code® specification.*

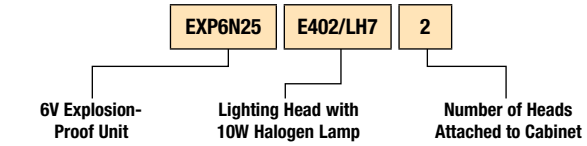
Options

(Add Suffix to Model No.)	Suffix
Time Delay (specify 5, 10 or 15 minutes)	-TD_
Transfer Switch	-TS

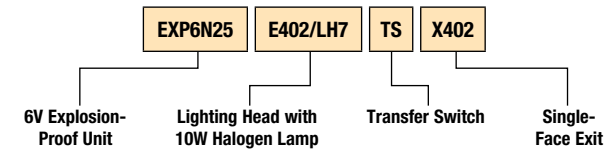
Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.

Example 1: System with two lamp fixtures only



Example 2: System with one lamp fixture and one exit sign



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Industrial Explosion-Proof Battery Units

Lamp Selection

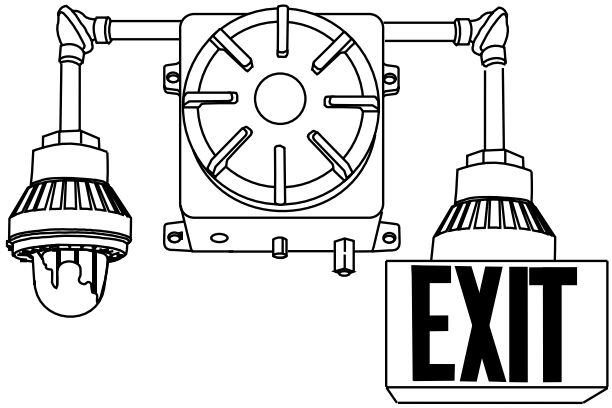
LAMP TYPE	VOLTAGE	LAMP WATTAGE	REPLACEMENT PART NO.	LAMP SUFFIX (ADD TO UNIT MODEL NO.)
High-Intensity Tungsten (HIT)	6V	9W	135	L9
	6V	18W	136	L18
	12V	9W	138	L9
	12V	18W	139	L18
	12V	25W	140	L25
Bi-Pin Halogen	6V	6W	784	LH4
	6V	8W	785	LH5
	6V	10W	787	LH7
	6V	12W	786	LH6
	6V	15W	JC6V-15W	LH1
	12V	8W	774	LH8
	12V	12W	783	LH3

Note: *Units are supplied standard with appropriate wattage (HIT) high-intensity tungsten lamps (unless otherwise specified). Alternate wattage lamps or halogen lamps may be substituted as required. For run times other than 90 minutes, refer to Unit Ratings chart.*

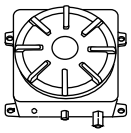
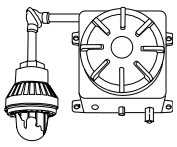
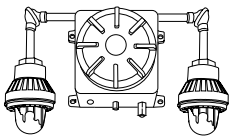
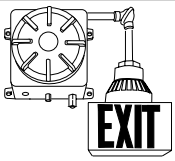
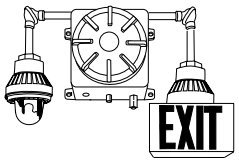
Dimensions

Dimensions are approximate and subject to change.

Housing: 12" x 12" x 9½".
Mounting Lugs: 10" and 13½" on center
Overall Dimensions (including fixtures): 38" x 38" x 10"



Standard Configurations for EXP Series

UNIT	CAT. NO.	DESCRIPTION
 *(Remote capability)*	**EXP12N50**	12V self-contained hazardous area emergency lighting power unit complete with battery and charger.
	EXP12N50-TS	12V self-contained hazardous area emergency lighting power unit complete with battery charger and transfer switch.
	**EXP6N50E402/LH1**	Single-head unit with 6V, 15W bi-pin halogen lamp.
	EXP6N50E402/LH1-TS	Single-head unit with 6V lamp with transfer switch option.
	**EXP6N50E402/L9-2**	6V self-contained hazardous area emergency lighting power units complete with battery and charger and two heads. Each fixture supplied with one 9W HIT lamp.
	EXP6N50E402/L9-TS-2	6V self-contained hazardous area emergency lighting. Power unit complete with battery, charger, two heads and transfer switch. Each fixture supplied with one 9W HIT lamp.
	**EXP6N25TSX402R**	Self-contained unit with integral low-voltage transfer panel (TS) to operate the 15W exit lamp in both normal and emergency modes. Suggested catalog number shown indicates single-face exit with red stencil faceplate. For green, substitute G for R. For double face, substitute 2X402 for X402.
	**EXP6N50E402LH1TSX402R**	In addition to the 15W exit lamp which operates in both normal and emergency modes, greater emergency lighting can be achieved with one additional emergency lighting head. Each fixture supplied with one 6V, 15W (LH1) bi-pin halogen lamp.

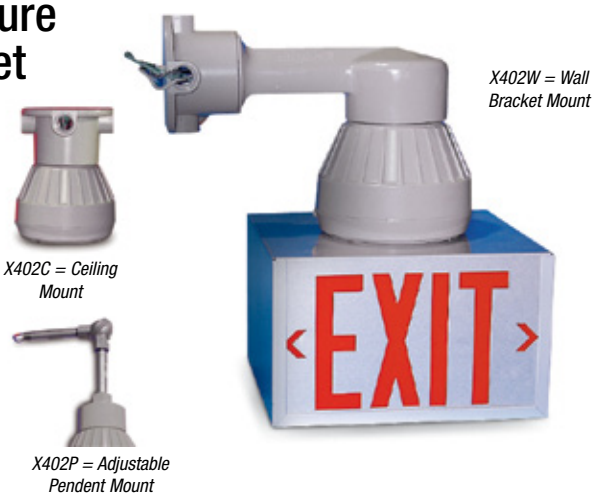
Note: *Above units are supplied with appropriate wattage high-intensity tungsten (HIT) lamps (unless otherwise specified). Alternate wattages, lamps or halogen lamps may be substituted as required. Exit sign provided with 25W lamps only.*

Industrial Explosion-Proof Battery Units

Explosion-proof remote exit sign fixture for operation in hazardous and/or wet locations — AC or DC operation.

X402 Series

Class II — Divisions 1 and 2, Groups E, F & G (60W max.)
Class III — Division 1 and 2 (150W max.)
Lighting fixture complies with NEC®, OSHA and NEMA specifications for all above Classes and Groups and is UL® Listed for use in paint spray areas (75W max.).



These remote emergency exit signs are designed for mounting in locations that are remote from their power source.

Reliability

The X402 Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

X402 fixtures are manufactured of heavy cast aluminum with Pyrex® lenses. All attached hardware is designed for explosion-proof applications. The exit housing is a heavy-duty steel box with a gray baked-enamel finish. Stenciled exit lettering is available on one or two faces. The legend is available in red or green lettering and meets UL® 924 with respect to brush stroke and width. All X402 Series exit signs have extra-large downlight openings. They can be wall, ceiling or pendant mounted. The X402 Series exit signs are designed for mounting in locations that are remote from their power source*. They are offered with 6-, 12- and 24-volt lamps for DC operation.

** If power source is installed outside hazardous areas, the length of connection wires should be carefully considered to ensure that voltage of emergency power unit and wire size of connecting circuit are adequate to offset voltage drop in circuit.*
Pyrex is a registered trademark of Corning Glass.

Transfer Circuit (not designed for hazardous areas)

TS panels are required for remote explosion-proof fixtures that are NORMALLY ON as constant operation fixtures. Panels are available for 25, 50, 75 or 100 watt. Maximum load (6V max. 50W, 12V max. 100W, 24V max. 200W).

Model TS Ordering

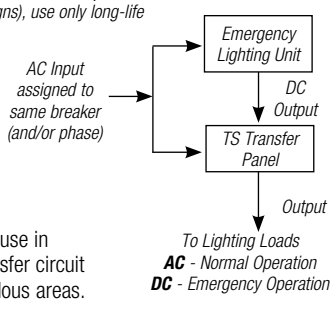
To make the proper TS selection, the following information is required:

1) DC output voltage of emergency lighting system MUST be matched to DC input of TS panel load.
2) Number of fixtures to be connected to TS panel.
3) Total wattage of fixtures to be connected to TS panel.

Note: *For normally on applications (e.g. exit signs), use only long-life lamp (XX) Series.*

How to Order Transfer Panel

120 / 12 - TS - 50
AC DC Model Watts
Input Output
(For multi-phase monitoring, contact factory.)



Mounting

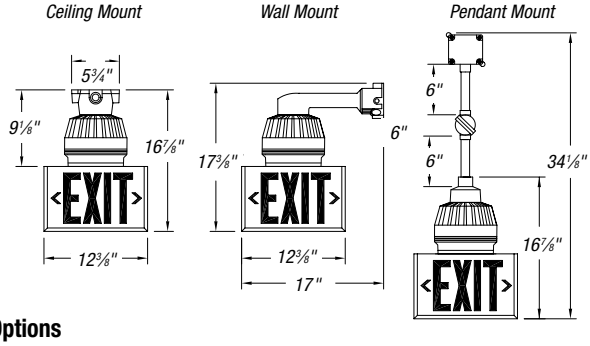
The transfer circuit is not designed for use in hazardous or explosive areas. The transfer circuit is to be mounted remotely from hazardous areas.

Electrical Specifications for Transfer Panel

Input Voltage: From AC: 120V, 60 Hz, 1-phase (other voltages available); From DC: 6, 12, 24 or 120V (select)
Output Voltage: Must be identical to DC Input Voltage
Wattage: Panel oversized 10–20% greater than total connected load

Dimensions

Dimensions are approximate and subject to change.



Options

(Add Suffix to Model No.) ..... **Suffix**
Open-Face Panels with Special Symbols or Legends ..... **Contact Factory**
3-Sided Exit Face Triangle ..... **-3F**
(Unbreakable 3-sided white acrylic triangle with easy mounting to regular explosion-proof lighting fixture. Open design permits full air circulation for cool operation and provides excellent down light. 6" high EXIT letters with red ¼" stroke on white background meet all safety specifications. Directional arrows included.)

Single-Face Exit = X402W or X402C or X402P
Double-Face Exit = 2X402W or 2X402C or 2X402P

Lamp Selection

LAMP TYPE	VOLTAGE	LAMP WATTAGE	LAMP TYPE	AVERAGE LIFE (HOURS)	SUFFIX	REPLACEMENT PART NO.
Quartz Bi-Pin	6V	15W	JC-6V15W	2,000	6	580.0086
Medium Base	12V	25W	25A-12	1,000	12	570.0071
	24V		143A	1,000	24	570.0118
	120V		A19	2,500	120	570.0136

Catalog Numbering System

2	X402	C	6	-	R

- **No. of Faces:** *Blank = 1*, *2 = Double*
- **Series:** X402
- **Mounting:** *C = Ceiling*, *P = Pendant*, *W = Wall*
- **Lamp Type:** *6 = 6V 15W*, *12 = 12V 25W*, *24 = 24V 25W*, *120 = 120V 25W*
- **Letter Color:** *R = Red*, *G = Green*

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Industrial Explosion-Proof Battery Units

Explosion-proof remote lighting fixture for operation in hazardous and/or wet locations — AC or DC operation.

EPF401 Series

EPF401 fixtures are designed for mounting in locations that are remote from their power source.* They are offered with 6-, 12- and 24-volt lamps for DC operation. They also comply with NEC®, OSHA and NEMA specifications for all above Classes and Groups and are UL® Listed for use in paint spray areas (75W max.).

Reliability

The EPF401 Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

The EPF401 Series fixtures are manufactured of heavy cast aluminum with Pyrex® lenses. All attached hardware is designed for explosion-proof applications. Single and double pendant mount fixtures include elbows, swivels, a conduit extension pipe (6" increments) and a combination explosion-proof junction box/mounting plate. They can be wall, ceiling or pendant mounted. The EPF401 Series is designed for mounting in locations that are remote from their power source.* They are offered with 6-, 12- and 24-volt lamps for DC operation.

** If power source is installed outside hazardous areas, the length of connection wires should be carefully considered to ensure that voltage of emergency power unit and wire size of connecting circuit are adequate to offset voltage drop in circuit.*
Pyrex is a registered trademark of Corning Glass.

Options

(Add Suffix to Model No.) ..... **Suffix**

Angle Reflector — Highly reflective white finish inside and out. Attaches to globe holder ring with four screws ..... **-AG**

Dome Reflector — Highly reflective white finish inside and out. Attaches to globe holder ring with four screws ..... **-DM**

Guard — One-piece aluminum casting construction. Attaches to globe holder ring with four screws ..... **-GD**

Lamp Selection

LAMP TYPE	DC VOLTAGE	LAMP WATTAGE	REPLACEMENT PART NO.	LAMP SUFFIX (ADD TO UNIT MODEL NO.)
High-Intensity Tungsten (HIT)	6V	9W	135	L9
	6V	18W	136	L18
	12V	9W	138	L9
	12V	18W	139	L18
	12V	25W	140	L25
Bi-Pin Halogen	6V	6W	784	LH4
	6V	8W	785	LH5
	6V	10W	787	LH7
	6V	12W	786	LH6
	6V	15W	JC6V-15W	LH1
	12V	8W	774	LH8
	12V	12W	783	LH3

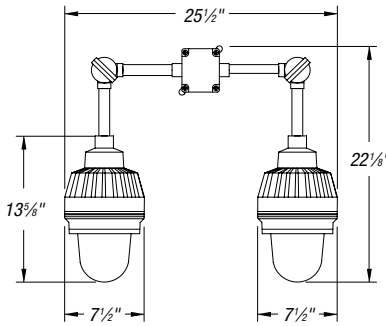
Note: *Units are supplied standard with appropriate wattage high-intensity tungsten (HIT) lamps (unless otherwise specified). Alternate wattage lamps or halogen lamps may be substituted as required. For run times other than 90 minutes, refer to unit ratings.*

For AC or DC operation

Dimensions

Dimensions are approximate and subject to change.

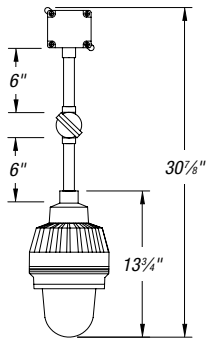
Double Pendant Mount



EPF401
(12 lbs.)

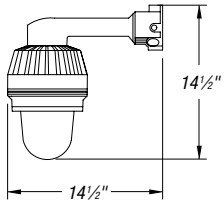
EPF401D
(21 lbs.)

Pendant Mount



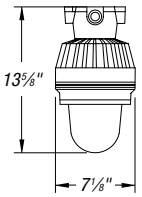
EPF401P
(14 lbs.)

Wall Mount



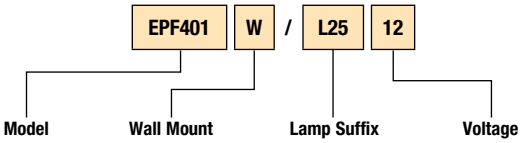
EPF401W
(14 lbs.)

Ceiling Mount



EPF401C
(14 lbs.)

Catalog Numbering System



Industrial Explosion-Proof Battery Units

Hazardous location exit sign — Class I Division 2 compliant.

Severe XVHZ

The XVHZ Series of exit signs has been designed specifically for installation in hazardous locations and other high-abuse industrial conditions, including weather exposure, high impacts, vibrations and variations in temperature. The XVHZ Series of exit signs is ideally suited for areas where the presence of flammable gases, vapors or liquids is able to create an explosive gas atmosphere.

Sealed Maintenance-Free Batteries — Nickel-Cadmium

- CSA US listed for hazardous locations
- Evaluated to UL® 844 standard for Class I Division 2, Groups A, B, C and D
- Evaluated to UL 924 and UL 1598 standards
- Temperature Code: T6 (maximum 85° C/185° F)
- Suitable for cold-weather: -20° C (self-powered with “CW” option) and -40° C (AC only)
- 120 to 277VAC 2-wire universal AC input
- Single-face heavy-duty ⅛" thick aluminum back plate
- Energy efficient: consumes less 2.5 watts in any configuration
- Sealed faceplate constructed of heavy-duty, vandal-resistant polycarbonate
- Polyvinyl chloride frame with built-in gasket to prevent water infiltration
- Exit sign module illuminated by long-life, energy-efficient LEDs
- Tamper-resistant, hermetically sealed magnetic test switch
- Self-test/self-diagnostic circuitry is standard on self-powered models
- Comes standard with industrial-grade, die-cast aluminum junction box
- ½" electrical conduit entry on both sides and at the top
- Each unit comes standard with one tamper-proof driver bit

Reliability

The XVHZ Series has a five-year full warranty.

Unit Data

Will not dent, peel, rust or corrode. The sealed faceplate is constructed of heavy-duty, vandal-resistant polycarbonate and features an evenly illuminated legend. The fully gasketed faceplate is fastened with stainless steel tamper-resistant screws. Magnetically operated test switch. Models can be wall or ceiling mounted. Legend and chevron complies with UL® and CSA requirements. Severe XVHZ Series signs are unaffected by the vibrations, ambient temperature swings and typical power surges detrimental to standard exit light sources.

High-Performance Circuitry

- Self contained — batteries and circuitry located inside the exit housing
- Battery-operated units come standard with self-testing and diagnostic circuitry
- Fully automatic charger is solid state
- AC, AC/DC and self-powered models have universal, 2-wire input 120V to 277VAC, 50/60 Hz
- Sealed, maintenance-free nickel-cadmium battery provides 90 minutes of emergency operation
- Batteries recharge per UL® 924 requirements

nexus® id improved diagnostics SP US

Diagnostic/Self-Test Feature (Standard)

Diagnostic/self-test circuitry is standard on all self-powered models. This circuitry is programmed to ensure the exit sign’s readiness and reliability by continuously monitoring every critical function of the unit. If a problem occurs, a single “Service Required” indicator illuminates immediately. A detailed diagnostic display is located on the inside of the exit sign, out of sight from the general public. The detailed diagnostic display inside the exit sign will further indicate the nature of the fault. The self test will test the unit for the minimum 30 seconds each month, 30 minutes every 60 days and 90 minutes annually.

Options

Description	Suffix
Cold Weather (-20°C/-4°F) (self-powered)	**-CW**
Nexus® Wired	**-NEX**

Accessories (Order as a separate item)

Tamper-Proof Bit (extra)	**TBP**
Convert Single to Double Face, Red*	**DFKR**
Convert Single Face to Double Face, Green	**DFKG**

** In the field.*

Accessories (Order as a separate item)

Tamper-Proof Bit	**690.0454-L**

Applications

- Manufacturing Plants
- Chemical Plants, Food Processing Areas
- Paint Shops
- Moisture, Dirt or Dust Concerns
- Oil Refineries
- Wet or Corrosive Conditions
- Gas Stations

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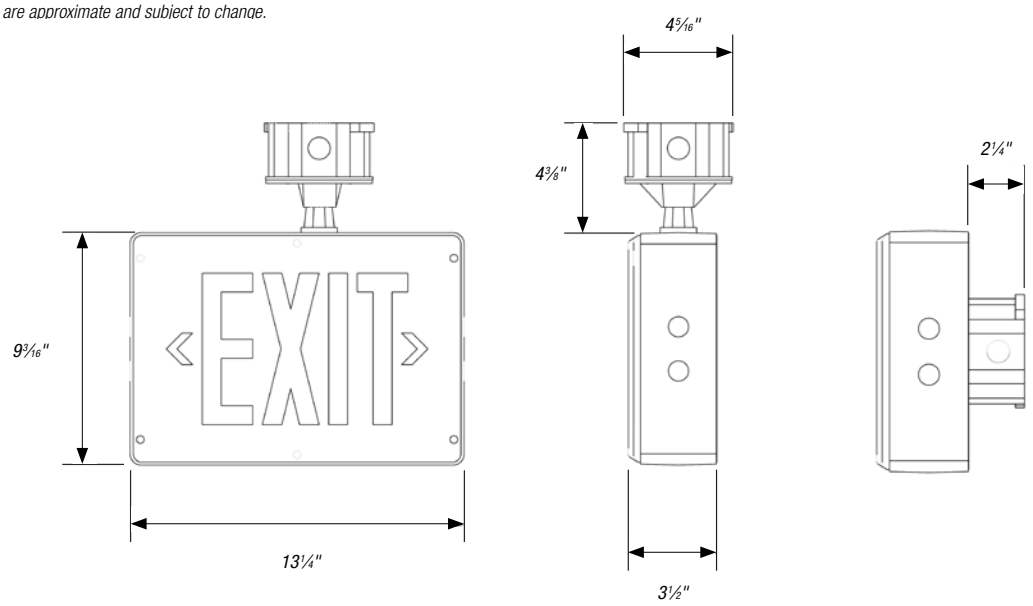
Industrial Explosion-Proof Battery Units

Dimensions

Dimensions are approximate and subject to change.



Power Consumption

MODEL	AC SPECS		DC SPECS	
AC-Only Red	120 to 277VAC	Less than 2W	—	—
AC-Only Green	120 to 277VAC	Less than 1.5W	—	—
Self-Powered Red	120 to 277VAC	Less than 2W	Ni-Cad battery	Min. 90 minutes
Self-Powered Green	120 to 277VAC	Less than 2.5W	Ni-Cad battery	Min. 90 minutes

Catalog Numbering System

GG | XVEHZ | - | 2 | - | R | - | D | - | 4X | CW

Color of Body/Face
GG *= Gray/Gray*

Series
XVHZ *= AC Only*
XVEHZ *= Self-Powered (Ni-Cad)*

Face(s)
1 *= Single (Ceiling/ Wall Mount)*
2 *= Double (Ceiling Mount Only)*

Legend
R *= Red*
G *= Green*

Diagnostic
D *= Improved Diagnostic**
NEX *= Nexus Interface**
NEX *= Nexus® Wired*
** Self-powered only.*

Housing
4X *= Suitable for Wet Locations*

Options
CW *= Red*
-20° C for self-powered,
-40° C for AC/DC.

Industrial Explosion-Proof Battery Units

Hazardous location combination exit emergency battery unit — Class I Division 2 compliant exit sign.

Severe XVH

The Severe XVH Series is designed specifically for installation in hazardous locations and other high-abuse industrial conditions, including weather exposure, high impacts, vibrations and variations in temperature. The XVH Series is ideally suited for areas where the presence of flammable gases, vapors or liquids is able to create an explosive gas atmosphere.

Sealed Maintenance-Free Batteries — Nickel-Cadmium, Nickel-Metal Hydride

- CSA US listed for hazardous locations
- Evaluated to UL® 844 standard for Class I Division 2, Groups A, B, C and D
- Evaluated to UL® 924 and UL® 1598 standards
- Polyvinyl chloride frame, with built-in gasket to prevent water infiltration
- Designed for wall-mount installation only
- Heavy-duty ⅛"-thick aluminum back plate with key-holes for secure wall-mount installation
- Comes standard with industrial-grade, die-cast aluminum junction box
- Sealed faceplate constructed of heavy-duty, vandal-resistant polycarbonate
- Exit sign module illuminated by long-life, energy-efficient LEDs
- Two MR16 halogen lamps, shielded by a cast aluminum housing and a polycarbonate cover
- Sealed, maintenance-free nickel-cadmium or nickel-metal hydride batteries
- Comes standard with self-test/self-diagnostic functions
- ½" electrical conduit entry on both sides and at the top

Reliability

The Severe XVH Series has a five-year full warranty (excluding lamps and fuses).

Unit Data

The rugged PVC body will not dent, peel, rust or corrode. The sealed faceplate is constructed with a heavy-duty, vandal-resistant polycarbonate cover and fastened with stainless steel tamper-resistant screws. The test switch is magnetically operated. Models are only wall mounted. The innovative, fully field-adjustable lamp head assembly comes standard with a selection of MR16 lamps for optimum illumination over the path of egress.

Temperature Codes

LAMP RATING	TEMPERATURE CODE	MAX. TEMPERATURE	REPLACEMENT PART NO.
6V 10W	T3C	160° C	**580.0079**
12V 12W	T3A	180° C	**580.0080**
12V 20W	T2D	215° C	**580.0068**

***Note**: Use qualified replacement lamps to avoid risk of over-heating*

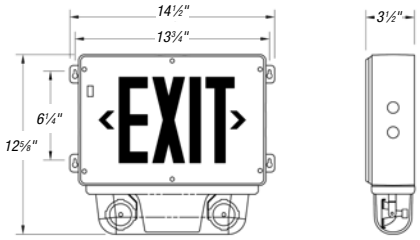
Power Consumption

MODEL	AC INPUT (VAC)	MAXIMUM CURRENT (A)	MAXIMUM POWER (W)	STAND-BY CURRENT (A)	STAND-BY POWER (W)	UNIT POWER* 1.5	UNIT POWER* 2 HRS	UNIT POWER* 3 HRS	UNIT POWER* 4 HRS
XVH	120/277	0.15/0.07	16	0.09/0.03	8	20	15	—	—
XVH12N	120/277	0.30/0.08	29	0.13/0.05	10	24	18	12	—
XVH12H	120/277	0.30/0.08	29	0.13/0.05	10	40	30	20	12

** National Electrical Code® specification.*

Dimensions

Dimensions are approximate and subject to change.



Charger

Fully automatic pulse charger offers 120/277VAC, 60-Hz, current-limiting, temperature-compensated, short-circuit proof, low-voltage battery disconnect, brownout protection and standard solid-state transfer features.

Diagnostic/Self-Test Feature

Diagnostic/self-test circuitry is standard on all self-powered models. This circuitry is programmed to ensure the exit sign's readiness and reliability by continuously monitoring every critical function of the unit. If a problem occurs, a single "Service Required" indicator illuminates immediately. A detailed diagnostic display is located on the inside of the exit sign, out of sight from the general public. The detailed diagnostic display inside the exit sign will further indicate the nature of the fault. The unit will automatically self test for a minimum of 30 seconds every 30 days, 30 minutes in the sixth month and 90 minutes annually.

Options

Description	Suffix
Nexus® Interface	**-NEX**
Improved Diagnostics (non-audible)	**-D**
Improved Diagnostics (audible)	**-DA**

Accessories (Order as a separate item)

Tamper-Proof Bit (extra) ..... **TBP**

Applications

- Manufacturing Plants
- Chemical Plants, Food Processing Areas
- Paint Shops
- Moisture, Dirt or Dust Concerns
- Oil Refineries
- Wet or Corrosive Conditions
- Gas Stations

Catalog Numbering System

GG XVH R D / 2 M10

- **Housing/Face Color** — ***GG** = Gray/Gray*
- **Series** — ***XVH** = 6V 20W, Ni-Cad*; ***XVH12N** = 12V 24W, Ni-Cad*; ***XVH12H** = 12V 40W, Ni-MH*
- **Legend Color** — ***R** = Red legend*; ***G** = Green legend*
- **Diagnostic** — ***D** = Improved Diagnostics (non-audible)*; ***DA** = Improved Diagnostics (audible)*; ***NEX** = Nexus system interface*; ***NEX** = Nexus® wired*; ***NEXRF** = Nexus® wireless*
- **No. of Heads** — ***0** = 0 head**; ***2** = Two heads*; ** A remote load must be attached.*
- **Lamp/Wattage** — ***M10** = 6V 10W MR16*; ***M12** = 12V 12W MR16*; ***MH20** = 12V 20W MR16 High output*

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Industrial Explosion-Proof Battery Units

6- or 12-volt, Class I Division 2 emergency unit — sealed maintenance-free lead-calcium battery.

EL/E12L Series

This series of self-contained emergency lighting units is designed to meet the specific requirements of Class I Division 2 hazardous areas, Groups A, B, C and D.

Typical Applications: Manufacturing or chemical plants, paint shops, wet or corrosive areas and food processing areas*.

** Shatter-resistant Teflon® lamp coating optional.*

Reliability

The EL/E12L Series has a three-year full warranty (excluding lamps and fuses).

Unit Data

All units are housed in water- and corrosion-resistant cabinets constructed from glass-reinforced structural foam and are fully sealed and gasketed. External electrical components, including text switch and indicator light, are explosion proof in design and exceed requirements for Class I Division 2, Group A, B, C and D. The battery compartment is vented by a one-way breather device to permit exhaust of battery gases and relief of internal pressure without admitting external moisture or corrosives. Temperature code: T4A (max. 120° C).

Lamps

Units are equipped with a choice of standard incandescent or halogen sealed-beam lamps. Lamps are housed in gray, industrial thermoplastic shells with matching swivels. Lamp housings are raintight and corrosion resistant. Wire connections are silicone sealed.

PulseType Charger

- Micro-controller-based, temperature-compensated, PulseType charger
- High capacity, automatic, dust-tight instantaneous transfer relay
- Low-voltage disconnect prevents over discharge of battery; automatic brownout protection is provided
- Labor-saving AC line latch prevents battery discharge during installation to a non-energized circuit
- Fused output circuit

Controls

- Red AC-ON LED indicates AC power is on
- Momentary test switch allows for quick operational check of entire system

Power Requirements

- 120/277VAC, 60 Hz, 0.3/0.15 amp
- Diagnostic feature: Red pilot light will flash in case of battery or lamp failure

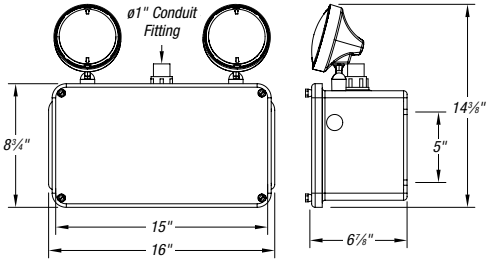
Options

(Add Suffix to Model No.)	Suffix
Time Delay (specify 5, 10 or 15 minutes)	-TD_
Thermal Jacket (120-volt heater)	-H1
Thermal Jacket (277-volt heater)	-H2
Shatter-Resistant Teflon® Coated Lens	-FP*

Teflon is a registered trademark of E.I. DuPont de Nemours and Company.

Dimensions

Dimensions are approximate and subject to change.



Accessories (Order as a separate item)

Wire Guard **WG3-L**

Lamp Selection

	DC VOLTAGE	LAMP WATTAGE	LUMEN OUTPUT	LAMP TYPE	LAMP SUFFIX (ADD TO UNIT MODEL NO.)
Use with 6-Volt 2EL24 Series	8	8	180	Halogen	**H7551**
	9	9	220	Incand.	**7613**
Use with 12-Volt 2E12L56 Series	8	8	350	Halogen	**H7555**
	12	12	180	Incand.	**4044**

Unit Selection

VOLTS	MODEL NO. (UNIT/LAMP SUFFIX)	BATTERY TYPE	INPUT WATTS	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.
6	**2EL24**	Lead-Calcium	24	24	18	10	6
12	**2E12L56**			56	37	21	12

** National Electrical Code® specification.*

Standard Feature (all models)

Radius of Protection: 2 ft.
Normal Life Span: 1 yr.

VC2-1 Vapor Capsule

Stahlin Vapor Capsules contain a unique vapor phase inhibitor designed to protect metallic surfaces within an enclosure against airborne corrosion. By simply placing these self-contained capsules inside an enclosure, the vapors readily permeate every point, passivating all metallic surfaces. When the capsule is removed from its sealed package, it begins to emit an invisible, non-toxic vapor which is diffused throughout the surrounding atmosphere until the air is saturated. The vapor then passivates the metal surfaces against atmospheric corrosion by reducing the electro-chemical activity on the metal surfaces.

Catalog Numbering System

2	S12E	4	/	H7551	-	V

- 2 — No. of Heads
- S12E — Series
- 4 — Capacity Indicator
- H7551 — Lamp Suffix (*6V 8W Halogen*)
- V — Option (*Time Delay*)

Industrial Explosion-Proof Battery Units

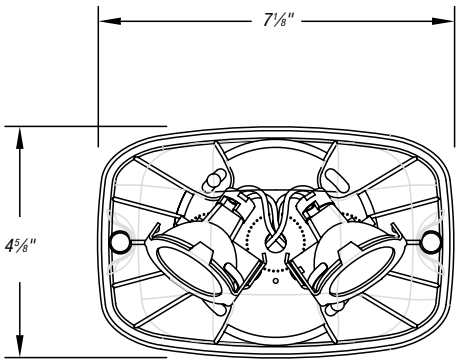
Class I, Division 2 compliant remote fixtures for hazardous locations.

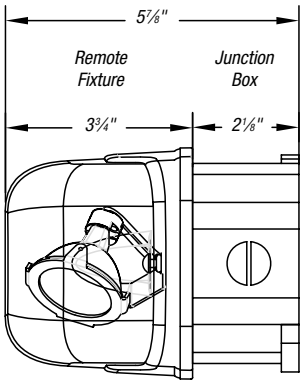
Severe ELF651 Series

The Severe ELF651 Series of Remote Fixtures has been designed specifically for installation in hazardous locations and other high-abuse industrial environments subject to weather exposure, high impacts, vibrations and variations in temperature. The Severe ELF651 Series of Remote Fixtures is ideally suited for areas where there is a risk of the presence of flammable gases, vapors or liquids able to create an explosive gas atmosphere.

Dimensions

Dimensions are approximate and subject to change.





Power and Temperature Ratings

LAMP TYPE	INPUT VOLTAGE	POWER (EACH OF 2 LAMPS)	TEMPERATURE CODE
MR16	6 Volts	10 Watts	T3B (max. 165° C)
MR16	12, 24 Volts	12 Watts	T3B (max. 165° C)
MR16	12, 24, 120 Volts	20 Watts	T2C (max. 230° C)

Note: *Use qualified replacement lamps to avoid risk of overheating.*

Catalog Numbering System

ELF651 / **M10** - **G** **6**

Series
ELF651 *= Single*
ELF651D *= Double*

Lamp Type/Wattage
M10 *= MR16 10W (6V only)*
M12 *= MR16 12W (12V, 24V)*
M20 *= MR16 20W (12V, 24V, 120V)*
MH20 *= MR16-IR 20W (12V only)*

Color
G *= Gray*

Voltage
6 *= 6V*
12 *= 12V*
24 *= 24V*
120 *= 120VAC/VDC*

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Industrial Explosion-Proof Battery Units

Severe ELF647C Series

The Severe ELF647C Series is a Class I Division 2, Group A, B, C and D single lighting head with fully adjustable swivel, gasketed aluminum canopy and junction box.

Finish:
Standard gray (blank) or black (-B)

Volts:
6 or 12 volt

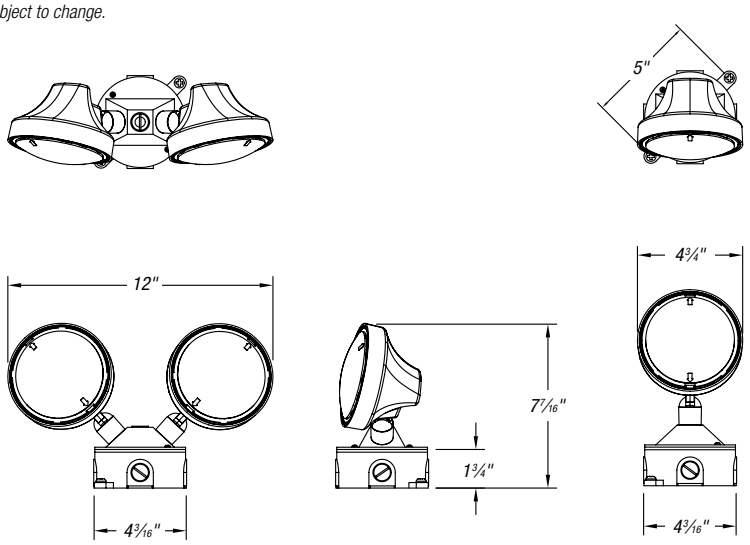
Mounting:
Standard with round plate for mounting directly to 4" outlet box

Maximum Watts:
12 watts per head

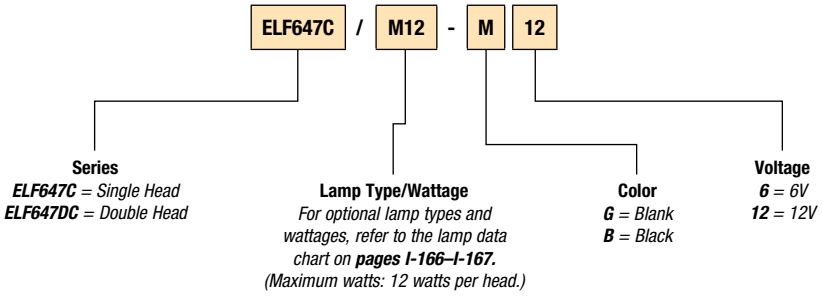
Lamps:
- Wedge base incandescent
- Bi-Pin halogen
- PAR36 sealed beam

Dimensions

Dimensions are approximate and subject to change.



Catalog Numbering System



Exit Signs

Universal-mount 6" or 8" die-cast aluminum edge-lit LED exit sign. Evaluated to UL® 924 standard.

Simplicity Series

The Simplicity Series combines a clean, modular design with state-of-the-art technology and ease of installation. Elegantly discreet, this designer series of exit signs will complement the most prestigious interiors while providing mounting versatility and energy efficiency.

Reliability

The Simplicity Series has a five-year full warranty.

Unit Data

The Simplicity Series is constructed of die-cast aluminum, making it lightweight yet rugged. A modular design and a universal back box allow for easy installation for all mounting applications.

The aesthetically pleasing trim plate design in your choice of either flat, dome or pyramid shape accents any décor perfectly. The die-cast aluminum trim ring used for recessed applications ensures a proper seal and will eliminate light leaks. Bar hangers are included with all edge-lit signs. Our LED edge-lit acrylic face panels are the pinnacle of the industry. State-of-the-art technology allows us to extrude the acrylic panels, resulting in maximum clarity and illumination proven superior to molded panels. Furthermore, our precision-etched red or green letters, available in 6" or 8" heights, enhance clarity and illumination. The LED strip design allows for rotation for either ceiling or wall mounting. The LED strip light source offers unequaled energy efficiency with long-life legend illumination. A nickel-cadmium battery illuminates the sign for a minimum of 90 minutes in emergency mode. AC-only signs come wired as AC/DC signs, which operate off a remote DC power source when AC power fails. DC input is a 2-wire, 6–48VDC universal input.

Circuitry

Fully integrated circuitry includes a 2-wire 120–277VAC voltage input regulator, as well as an automatic, constant-current battery charger with solid-state transfer and AC LED monitor and test switch.

Power Requirements

120/277Vac, 50/60 Hz. Energy consumption: AC-only signs use less than 2W; self-powered signs use 2.5W for single- and double-face signs.

Diagnostic/Self-Test (optional)

The diagnostic/self-test feature continuously monitors the charger assembly, battery and LED assembly current. If a fault is indicated, the external service-required indicator will illuminate. The internal fault indicators will then state the nature of the fault. The diagnostic/self-test will self test for a minimum 30 seconds every 30 days, 30 minutes every 60 days and 90 minutes annually. Meets NFPA 101 Life Safety Code® requirements for periodic testing (Self-Powered unit only).

idEXIT improved diagnostics — NEW YORK CITY APPROVED

Options

(Add Suffix to Model No.)	Suffix
Self-Test Diagnostics (self-powered only)	-D
Flasher/Buzzer (self-powered only)	-FB
Fire Alarm Activated Flasher (self-powered only)	-FAF
Dual Circuit (AC models only)	-Y
Self-Test Diagnostics (self-powered only)	-D
Less Back Box	-X
Less Panel	-LP
Nexus® Wired	-NEX
Nexus® Wireless	-NEXRF

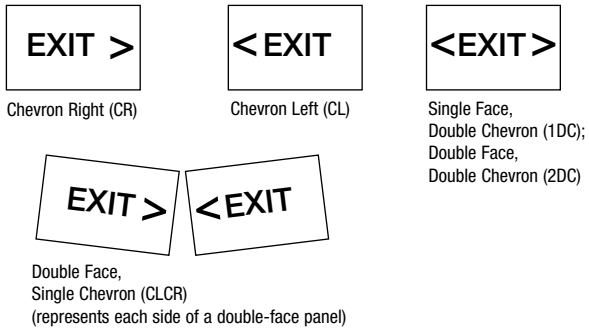
For special wording, contact factory.

Accessories (Order as a separate item)

Pendant, White	PW-*
Pendant, Black	PB-*

** For custom pendant length (12", 24", 36", etc.) for dome and pyramid trims, contact your Thomas & Betts sales representative.*

Arrow (Chevron) designation



** Wording and chevrons not to scale. For illustration purposes only.*

Power Consumption

MODEL	AC SPECS		DC SPECS	
AC-Only	120 to 277VAC	2W	—	—
AC/DC	120 to 277VAC	2W	6 to 48VDC	Less than 2W
Self-Powered	120 to 277VAC	2.5W	Ni-Cad Battery	Min. 90 Minutes

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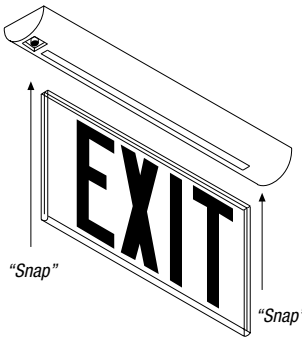
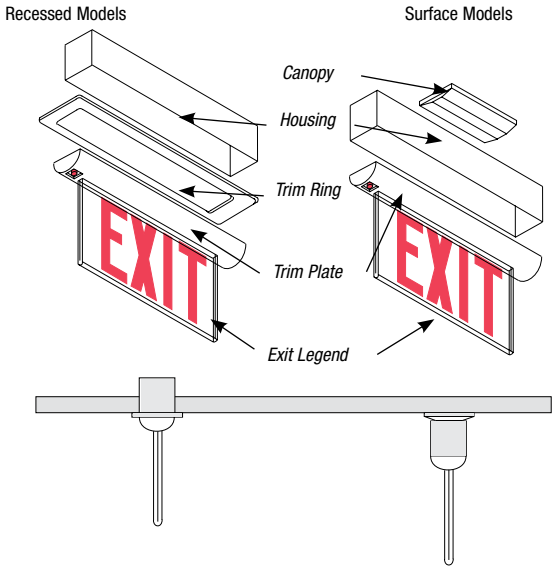
Exit Signs

Easy installation



- A quick-connect plug is used to wire the LED strip to the charger and power supply
- Torsion springs on the trim plate slide into the back box to provide a tight seal between both
- The modular design results in easy snap in of face panel



Dimensions

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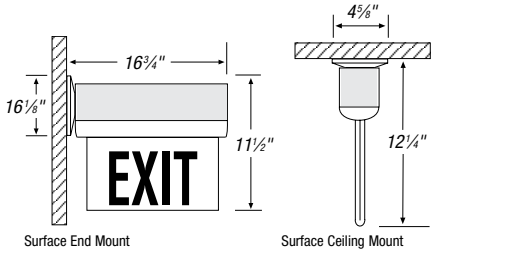
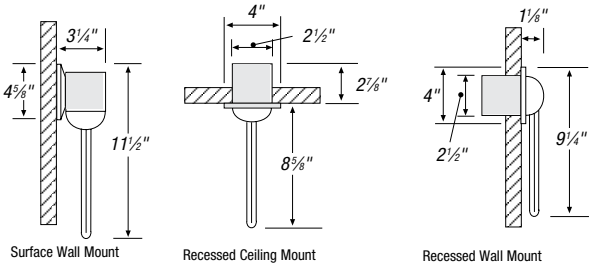
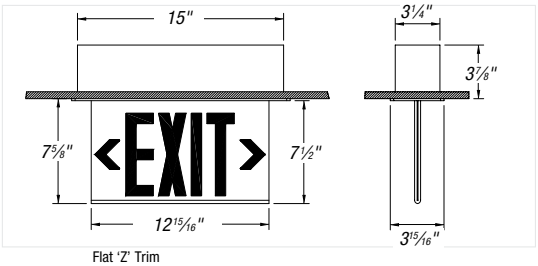






Catalog Numbering System

	SPLED	-	W	-	RW	-	D	-	CR	-	FB

Panel Size
Blank *= 6" Letters*
8 *= 8" Letters*

Series
SLED *= AC Only*
SPLED *= Self-Powered*

Unit Color*
W *= White*
A *= Brushed Aluminum*
B *= Black*
** Custom finish available.*

Panel Type
RC* *= Red/Clear*
RM *= Red/Mirror*
RW *= Red/White*
GC* *= Green/Clear*
GM *= Green/Mirror*
GW *= Green/White*
** Not available as double face.*

Trim
D *= Dome*
P *= Pyramid*
Z *= Flat Trim Recessed ceiling only.*

Directional Chevron
Blank *= Single Face, No Chevron*
2 *= Double Face, No Chevron*
CR *= Chevron Right*
CL *= Chevron Left*
CLCR *= Double Face, Single Chevron*
1DC *= Single Face, Double Chevron*
2DC *= Double Face, Double Chevron*

Options*
FB *= Flasher/Buzzer*
** For special wording, contact factory.*

Exit Signs

Slim-profile surface-mounted LED edge-lit exit sign — available in extruded aluminum or off-white finishes.

Simplicity Economizer Series

The Lightalarms® Simplicity Economizer Series combines a slim, modular design with state-of-the-art technology and ease of installation, including field-installed directional arrows. Elegant and economical, these exit signs complement any interior design while providing mounting versatility and energy efficiency.

- Slim-profile extruded-aluminum housing
- Slim-profile die-cast aluminum canopy
- Choice of finishes: textured aluminum or off-white
- Universal surface mounting: wall, ceiling or end mount
- Click-to-open housing door allows easy access to the panel and electrical wiring
- Acrylic panel with curved contour provides superior clarity and illumination
- Legend with a choice of red or green 6" letters and easy-to-add field-installed stick-on translucent directional arrows
- Choice of legend background: clear, white or mirror
- Simple, 2-wire universal AC input (120 to 277VAC, 60 Hz) prevents installation errors
- Simple, 2-wire universal DC input: 6 to 24VDC
- Long-life LED light ensures low maintenance costs and superior illumination
- Energy-efficient power consumption: less than 3W for self-powered version and less than 2W for AC-only single or double face
- Sealed nickel-cadmium batteries provide 90 minutes of emergency lighting
- UL® 924 listed

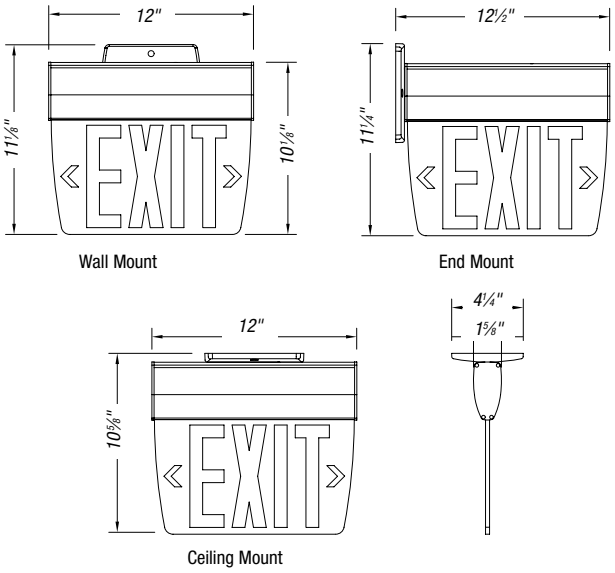
Unit Warranty*

Unit carries a three-year full warranty.

** Subject to proper installation and maintenance.*

Dimensions

Dimensions are approximate and subject to change.



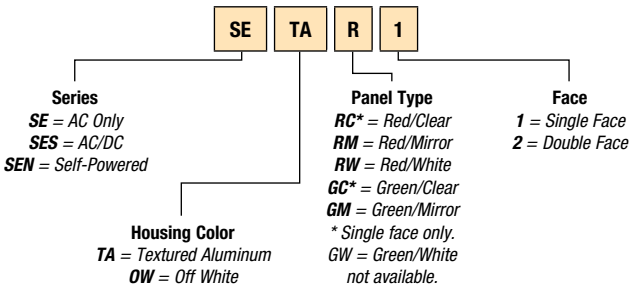
** Recessed-mount option also available. Contact your Thomas & Betts sales representative.*

Power Consumption

MODEL	AC SPECS		DC SPECS	
AC-Only	120 to 277VAC	Less than 2 W	—	—
AC/DC	120 to 277VAC	Less than 2 W	6 to 24VDC	Less than 1.5W
Self-Powered	120 to 277VAC	Less than 3 W	—	—

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.



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Fax: 901.252.1354

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Exit Signs

Die-cast aluminum LED exit sign — AC, AC/DC or self-powered models evaluated to UL® 924 standard.

Genesis GX/GXE Series

NEW YORK CITY APPROVED

id Improved diagnostics

The Genesis GX/GXE Series combines visual appeal, durability and energy efficiency in a compact, contemporary design. Self-diagnostics are standard on self-powered models.

Reliability

The Genesis GX/GXE Series has a five-year full warranty.

Unit Data

The Genesis Series, constructed of precision die-cast aluminum housing, features invisible, universal chevrons and mounting knockouts. A low-profile mounting canopy is included with all exit signs for universal top, end or back mount. High-intensity LEDs with diffuser disperse light and enhance brightness for a full, even illumination. LEDs draw less than 2W of electricity for either single- or double-face signs. A long-life, maintenance-free, sealed nickel-cadmium battery is included. AC-only signs come wired as AC/DC signs, which operate off a remote DC power source when AC power fails. DC input is a 2-wire, 6–48VDC universal input. Self-powered models' circuitry and batteries are contained inside the exit sign housing.

Circuitry

Fully integrated circuitry includes a 2-wire 120–277VAC AC voltage input regulator, as well as an automatic, constant-current battery charger with solid-state transfer and AC LED monitor and test switch.

Diagnostic/Self-Test

Diagnostic/self-test circuitry is standard on all self-powered models. This circuitry is programmed to ensure the exit sign's readiness and reliability by continuously monitoring every critical function of the unit. If a problem occurs, a single "Service Required" indicator illuminates immediately. A detailed diagnostic display is located on the inside of the exit sign, out of sight from the general public. The detailed diagnostic display inside the exit sign will further indicate the nature of the fault. The self test will test the unit for a minimum 30 seconds every 30 days, 30 minutes every 60 days and 90 minutes annually.

Options

(Add Prefix to Model No.)	**Prefix**
8" EXIT Legend for NYC Code	**-8**
(Add Suffix to Model No.)	**Suffix**
Dual Circuit (AC only)	**-2**
Open Face/Special Wording	**-Y**
Vandal-Resistant Screws	**-VR**
Lexan® Face Shield with Vandal-Resistant Screws	**-LVR**
Fire Alarm Flasher (self-powered signs only)	**-FAF**
Flasher/Buzzer (self-powered signs only)	**-FB**
Damp Location Listing	**-DL**

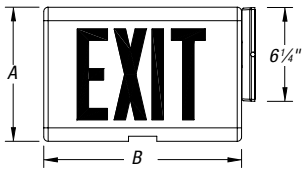
Lexan is a registered trademark of Sabic Innovative Plastics IP B.V.

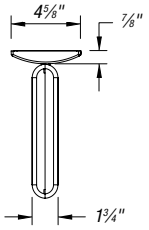
Custom color and finishes available upon request.

Nexus® Wired	**-NEX**
Nexus® Wireless	**-NEXRF**

Dimensions

Dimensions are approximate and subject to change.





LETTERS	DIMENSIONS A	B
6"	8⅞"	13⁄16"
8"	10½"	15¼"

Power Consumption

6" MODEL	AC SPECS		DC SPECS	
AC-Only	120 to 277VAC	1.25W	—	—
AC/DC	120 to 277VAC	1.25W	6 to 48VDC	Less than 1.5W
Self-Powered	120 to 277VAC	1.6W	Ni-Cad Battery	Min. 90 Minutes

8" MODEL	AC SPECS		DC SPECS	
AC-Only	120 to 277VAC	2.5W	—	—
AC/DC	120 to 277VAC	2.5W	6 to 48VDC	Less than 1.6W
Self-Powered	120 to 277VAC	2.9W	Ni-Cad Battery	Min. 90 Minutes

Accessories (Order as a separate item)

Pendant Mount White	**GPW-***
Pendant Mount Black	**GPB-***
Wire Guard (wall mount, 6 in.)	**WG13-L**
Wire Guard (ceiling mount, 6 in.)	**WG14-L**
Wire Guard (end mount, 6 in.)	**WG15-L**
Vandal Shield (wall mount)	**VRC**
Vandal Shield, NEMA 4X (wall mount)	**VRC-4X**

** Specify length of pendant (12", 24", 36", etc.).*

Catalog Numbering System

2	GXE	-	B	-	R	-	A	-	VR	-	N

Letter Size
Blank *= 6" Letters*
2 *= 6" Letters/Double Face*
8 *= 8" Letters*
82 *= 8" Letters/Double Face*

Series
GX *= AC Only*
GXE *= Self-Powered*

Housing Color
B *= Black*
W *= White*
A *= Brushed Aluminum*
DB *= Dark Bronze*
PB *= Polished Brass*

Letter Color
R *= Red*
G *= Green*

Face Color
B *= Black*
W *= White*
A *= Brushed Aluminum*

Options
See Options

Standard Series Designator

Exit Signs

Master and remote proximity LED exit signs, surface or recess mounted — evaluated to UL® 924 standard.

Genesis GXEM Floor Proximity Series

The Genesis GXEM Floor Proximity Series are premium die-cast exit signs that combine style with superior performance and durability. This series can be surface or recess mounted at the floor level. Choose from AC-only, AC-dual circuit and DC-remote fixtures supplied by a master Genesis exit sign.

Reliability

The Genesis GXEM Floor Proximity Series has a five-year full warranty.

Unit Data

Genesis master units are constructed of die-cast aluminum. The floor proximity remote units' housing and stencil face, finished in white or black, are constructed of rugged steel. When the floor proximity remote unit is ordered with a brushed aluminum finish, the stencil face is aluminum. The floor proximity remote sign is available for slim-line surface mount or a recess. All connecting hardware is included. The tamper-proof screws and clear, high-impact polycarbonate shield make the sign vandal resistant. The LEDs are very reliable, providing even illumination and low maintenance costs. The red LEDs draw less than one watt.

The remote floor proximity exit signs are wired to a single-face Genesis LED master exit sign, which is mounted above the door. The remote floor proximity unit can be mounted up to 10 feet away from the master sign. This master sign will power and control both signs in AC and emergency mode (both signs are 120/277V for master/floor proximity operation).

Circuitry

Fully integrated circuitry includes an automatic, constant-current battery charger with solid-state transfer and AC LED monitor and test switch. An improved diagnostic/self-test feature is standard.

Power Requirements

120/277VAC.

Diagnostic/Self-Test Feature (standard)

The diagnostic/self-test feature continuously monitors the charger assembly, battery and LED assembly current. If a fault is indicated, the external "Service Required" indicator will illuminate. The internal fault indicators will then indicate the nature of the fault. The diagnostic/self-test will self test for a minimum 30 seconds every 30 days, 30 minutes every 60 days and 90 minutes annually. Meets NFPA 101 Life Safety Code requirements for periodic testing (self-powered master exit sign only).

Options

(Add Suffix to Model No.) ..... **Suffix**
Vandal-Resistant Screws ..... **-VR**
Vandal-Resistant Screws and Shield ..... **-LVR**

Custom colors and finishes are available upon request.

Power Consumption

	MODELS	AC SPECS		DC SPECS	
RED	AC-Only	120 to 277VAC	1.2W	—	—
	AC-2 Circuit	120/277 and 277/277VAC	2.6W	—	—
	Self-Powered	120 to 277VAC	3.8W	Ni-Cad Battery	Min. 90 Minutes
GREEN	AC-Only	120 to 277VAC	.9W	—	—
	AC-2 Circuit	120/277 and 277/277VAC	3.3W	—	—
	Self-Powered	120 to 277VAC	5W	Ni-Cad Battery	Min. 90 Minutes

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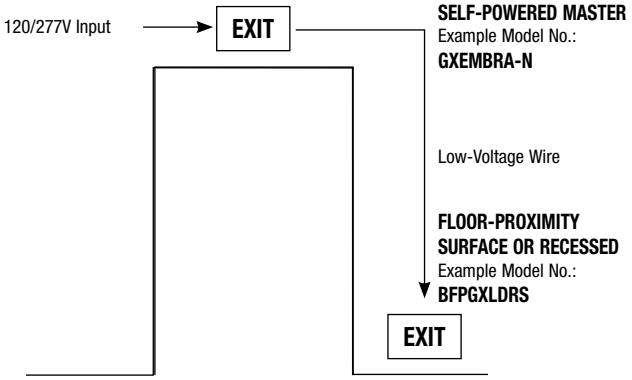
How to Order Typical Applications

Self-Powered Master with Floor-Proximity Unit



Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.

Self-Powered Master (Unit for above door)

GXEM	B	R	A	-	N
Series	Housing Color: ***B*** = Textured Aluminum, ***W*** = Off White, ***A*** = Brushed Aluminum	Letter Color: ***R*** = Red, ***G*** = Green	Face Color: ***B*** = Black, ***W*** = Off White, ***A*** = Brushed Aluminum		Standard Series Designator

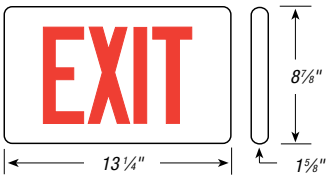
Floor Proximity Unit (Unit on side of door)

B	FPGXLD	R	S	-	LVR
Housing Color: ***B*** = Black, ***W*** = White, ***A*** = Brushed Aluminum	Series	Letter Color: ***R*** = Red, ***G*** = Green	Mounting: ***R*** = Recessed, ***S*** = Surface		Options

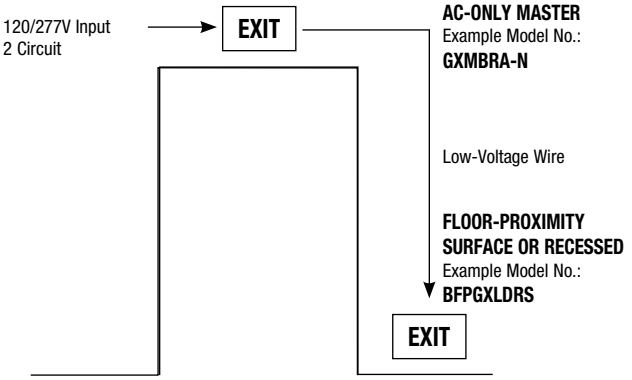
Dimensions

Dimensions are approximate and subject to change.

Self-Powered/AC-Only Master:
GXEMBRA-N (Self-Powered)
GXMBRA-N (AC-Only)



AC-Only Master with Floor-Proximity Unit 2-Circuit Application



Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.

AC-Only Master (Unit for above door)

GXM	B	R	A	-	N
Series	Housing Color: ***B*** = Black, ***W*** = White, ***A*** = Brushed Aluminum	Letter Color: ***R*** = Red, ***G*** = Green	Face Color: ***B*** = Black, ***W*** = Off White, ***A*** = Brushed Aluminum		Standard Series Designator

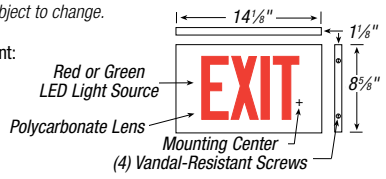
Floor Proximity Unit (Unit on side of door)

B	FPGXLD	R	S	-	LVR
Housing Color: ***B*** = Black, ***W*** = White, ***A*** = Brushed Aluminum	Series	Letter Color: ***R*** = Red, ***G*** = Green	Mounting: ***R*** = Recessed, ***S*** = Surface		Options

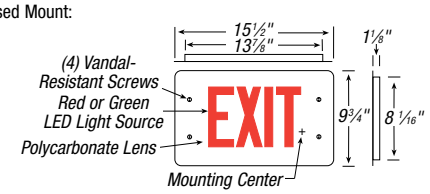
Dimensions

Dimensions are approximate and subject to change.

Floor Proximity Slave Surface Mount:
FP-GXLDGS-LVR
FP-GXLDRS-LVR



Floor Proximity Slave Recessed Mount:
FP-GXLDGR-LVR
FP-GXLDRR-LVR



Exit Signs

Universal mount LED die-cast aluminum exit signs — AC, AC/DC or self-powered.

Galaxy XLD/XLED Series

Galaxy XLD/XLED Series exit signs save energy while providing excellent visual performance. This series offers universal mounting capabilities as well as long-lasting LED performance.

Reliability

The Galaxy XLD/XLED Series has a five-year full warranty.

Unit Data

The Galaxy XLD/XLED Series housing is constructed of die-cast aluminum and features invisible, universal chevron and mounting knockouts. All self-powered models are self contained; all circuitry and batteries are contained inside the sign. All AC-only signs come wired as AC/DC signs, which operate off a remote DC power source when AC power fails. They offer long-life, high performance, low power consumption and provide an even illumination in normal and emergency modes. A low-profile mounting canopy is included with all exit signs for universal top, end or back mount.

Choice of Models

AC-Only Models: 120 through 277VAC, 50/60 Hz universal input. Include a slimline canopy for top and end mounting.

AC/DC Models: 120 through 277VAC, 50/60 Hz universal input with a 6 to 24VDC wire harness. Include a slimline canopy for top and end mounting.

Self-Powered Models are self contained, and batteries and circuitry are located inside the exit sign housing: 120 through 277VAC, 50/60 Hz universal input. Sealed maintenance-free nickel-cadmium battery provides 90 minutes of emergency illumination. Include a slimline canopy for top and end mounting.

Diagnostic/Self-Test (standard)

Diagnostic/self-test circuitry is standard on all self-powered models. This circuitry is programmed to ensure the sign's readiness and reliability by continuously monitoring every critical function of the unit. If a problem occurs, a single "Service Required" indicator illuminates immediately. A detailed diagnostic display is located on the inside of the exit sign, out of sight from the general public. The detailed diagnostic display inside the exit sign will further indicate the nature of the fault. The self test will test the unit for minimum 30 seconds every 30 days, 30 minutes every 60 days and 90 minutes annually.

Options

(Add Prefix to Model No.)	**Prefix**
Fully Recessed	**R-**
(Add Suffix to Model No.)	**Suffix**
Dual Circuit (AC only)	**-2**
Vandal-Resistant Screws	**-VR**
Lexan® Face Shield with Vandal-Resistant Screws	**-LVR**
Fire Alarm Activated Flasher*	**-FAF**
Buzzer and Flasher*	**-FB**
Damp Location	**-DL**
Open Face/Special Wording	**-Y**

Custom colors and finishes are available upon request.

** Not available with AC/DC.*

Accessories (Order as a separate item)

Pendant, White	**PW-***
Pendant, Black	**PB-***

** Specify length of pendant (12", 24", 36", etc.).*

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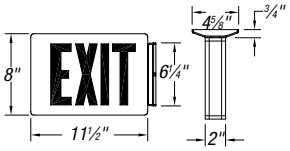
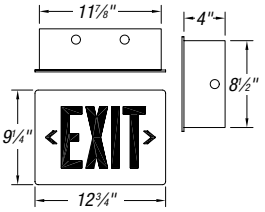
Dimensions

Dimensions are approximate and subject to change.

Surface Mount



Fully Recessed Mount



Unit Ratings

SERIES		HOUSING COLORS		LETTER/STENCIL COLORS		STANDARD SERIES DESIGNATOR
DESCRIPTION	SYM.	DESCRIPTION	SYM.	DESCRIPTION	SYM.	
AC Only						
Single Face	XLD	Black	B	Red/Black	RB	N
				Green/Black	GB	
		White	W	Red/White	RW	
				Green/White	GW	
Double Face	2XLD	Brushed Aluminum	A	Red/Brushed Aluminum	RA	
				Green/Brushed Aluminum	GA	
Self-Powered						
Single Face	XLED	Black	B	Red/Black	RB	N
				Green/Black	GB	
		White	W	Red/White	RW	
				Green/White	GW	
Double Face	2XLED	Brushed Aluminum	A	Red/Brushed Aluminum	RA	
				Green/Brushed Aluminum	GA	

Power Consumption

MODEL (6")	AC SPECS		DC SPECS	
AC-Only	120 to 277VAC	1.4W	—	—
AC/DC	120 to 277VAC	1.4W	6 to 24VDC	Less than 1.5W
Self-Powered	120 to 277VAC	1.7W	Ni-Cad Battery	Min. 90 Minutes

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.

2XLED	A	R	A	-	VR	N*
Series *Double-Face Self-Powered Exit Sign*	**Housing Color** *Brushed Aluminum*	**Letter Color** *Red*	**Stencil Color** *Brushed Aluminum*		**Option** *Time Delay*	**Standard Series Designator***

** The "-N" designator features self-powered units with improved diagnostics and AC units with DC remote input (6–24VDC).*

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Exit Signs

Die-cast self-powered exit signs with sealed lead-calcium or nickel-metal hydride battery.

Galaxy XL Series

Galaxy XL Series are self-powered LED exit signs with excess battery capacity designated to power remote emergency lights and exit signs.

Reliability
The Galaxy XL Series has a five-year full warranty.

Unit Data
The Galaxy XL series has a housing constructed of die-cast aluminum. Each unit comes standard with a power canopy that houses the battery, input transformer and printed circuit board. The standard Galaxy exit sign comes with a black frame and a brushed aluminum face; optional colors are available. The Galaxy series may be ceiling, end or back mounted (single-face exit only) to the power canopy. The power canopy surface mounts directly to a junction box. They offer long life, high performance, low-power consumption and provide an even illumination in normal and emergency modes. AC-only signs come wired as AC/DC signs, which operate off a remote DC power source when AC power fails. DC input is a 2-wire, 6–48VDC universal input.

Circuitry
Fully integrated circuitry includes an automatic, constant-current battery charger with solid-state transfer and AC LED monitor and test switch.

Power Requirements
Input: 120/277VAC, 60 Hz, 0.06/0.03 amp max.
Output: 6VDC, 9W, 12W and 24W.

Diagnostic/Self-Test (optional)
The diagnostic/self-test feature continuously monitors the charger assembly, battery and LED assembly current. If a fault is indicated, the external "Service Required" indicator will illuminate. The internal fault indicators will then indicate the nature of the fault. The diagnostic/self-test will self test for minimum 30 seconds every 30 days, 30 minutes every six months and 90 minutes annually. Meets NFPA 101 Life Safety Code® requirements for periodic testing.

Options

(Add Suffix to Model No.)	Suffix
Improved Diagnostics, Audible (lead-calcium only)	-ID
Improved Diagnostics, Non-Audible (lead-calcium or nickel-metal hydride)	-IDNA
Time Delay	-TD
Flasher/Buzzer	-FB
Fire-Alarm Activated Flasher	-FAF
Vandal-Resistant Screws	-VR
Vandal-Resistant Face Shield and Screws	-LVR

Application Flexibility
Lead-Calcium Models (PCL): Sealed, maintenance-free lead-calcium batteries power the exit sign for an estimated period of 20+ hours minimum with no remote load or 90 minutes run time with 9W remote load.

Nickel-Metal Hydride Models (PCN): Sealed, maintenance-free nickel-metal hydride batteries power the exit sign for an estimated period of 20+ hours minimum with no remote load or 90 minutes run time with 12W remote load.

Nickel-Metal Hydride Models (PCX): Sealed, maintenance-free nickel metal hydride batteries power the exit sign for an estimated period of 40+ hours minimum with no remote load or 90 minutes run time with 24W remote head.

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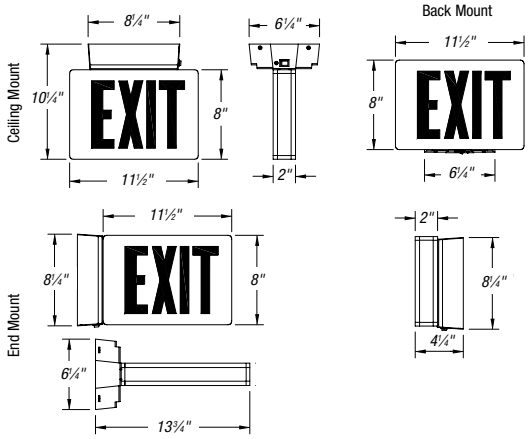
UL

Dimensions
Dimensions are approximate and subject to change.



Unit Ratings

SERIES		BATTERY TYPE		HOUSING COLORS		LETTER/STENCIL COLORS	
DESCRIPTION	SYM.	DESCRIPTION	SYM.	DESCRIPTION	SYM.	DESCRIPTION	SYM.
Single Face	XL	Lead-Calcium *(6V 9W Remote Capacity)*	PCL	Black White Brushed Aluminum	B	Red/Black	RB
						Green/Black	GB
		Nickel-Metal Hydride *(6V 12W Remote Capacity)*	PCN		W	Red/White	RW
						Green/White	GW
Double Face	2XL	Nickel-Metal Hydride *(6V 24W Remote Capacity)*	PCX		A	Red/Brushed Aluminum	RA
						Green/Brushed Aluminum	GA

Power Consumption

MODEL (6")	AC SPECS		DC SPECS	
Self-Powered	120 to 277VAC	3.7W	Ni-Cad Battery	Min. 90 Minutes

Catalog Numbering System
For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.

2XL	PCN	A	RA	-	ID
Series *Double-Face LED Exit Sign*	**Battery Type** *Nickel-Metal Hydride 6V 12W Remote*	**Housing Color** *Brushed Aluminum*	**Legend/Face Color** *Red/Brushed Aluminum*		**Option** *Improved Diagnostics*

Exit Signs

Steel incandescent exit signs and combination units — AC-only, battery and combo units available.
X4 Incandescent Series

The X4 Incandescent Series exit signs and power pack combination units offer a complete package of features to make installation fast and easy.

Reliability

The X4 Series has a three-year full warranty (excluding lamps and fuses). AC-only signs are UL® Listed for use in damp locations.

Unit Data

The X4 Series is constructed of a rugged steel housing with programmable directional chevrons. All exit signs are universal and come standard with canopy kit, extra stencil and diffuser to permit any mounting either as single or double face. A completely self-contained power pack provides a minimum of 90 minutes of emergency lighting.

Circuitry

Automatic, constant-current battery charger with solid-state transfer and AC LED monitor and test switch.

Choice of Models

Exit Sign

AC Input (AC-only and AC/DC models): 120VAC or 277VAC
DC Input (AC/DC models): 6, 12 or 24VDC
Self-Powered: 120/277VAC; lead-calcium or nickel-cadmium battery

Combination Units

Remote Capacity: Lead-calcium models (X4E)
No Heads: 10W remote capacity

Lamps

12W (two per sign) AC
3.7W (three per sign) DC

Power Requirements

Dual voltage 120/277VAC, 60 Hz, 0.3/0.15 amp

Options

(Add Suffix to Model No.)	Suffix
AC/DC Remote (6–24VDC)	-DC
Dual Circuit (AC units only)	-2
Flasher/Buzzer (power pack only)	-FB
Open Face/Special Wording	-Y

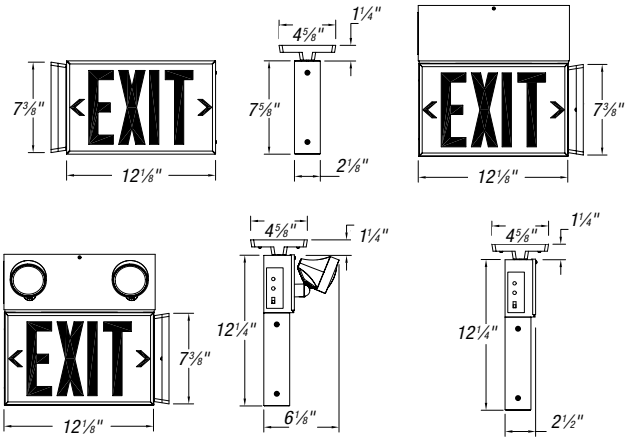
Accessories (Order as a separate item)

277V Conversion Kit, Black	CTXB-277
277V Conversion Kit, White	CTXW-277
White Pendant	PW-*
Black Pendant	PB-*
Wire Guard (ceiling or end mount)	WG5-L
Wire Guard (wall mount)	WG12-L
Wire Guard (combination unit)	WG6-L

** Specify length of pendant (12", 24", 36", etc.).*

Dimensions

Dimensions are approximate and subject to change.



Power Consumption (Incandescent Exit Sign)

MODEL		AC SPECS		DC SPECS	
EXIT SIGN (INCAND.)	AC-ONLY	120VAC or 277VAC	Less than 24W	—	—
	SELF-POWERED	120 to 277VAC	Less than 30W	Lead-Calcium Nickel-Cadmium	Min. 90 Minutes
MINI-SYSTEMS		120 to 277VAC	Less than 30W	See Unit Ratings Chart	

Unit Ratings (Combination Unit)

BATTERY TYPE	DC VOLTAGE	CAT. NO.	WATTS TO 87.5% OF RATED BATTERY VOLTAGE*			
			1½ HRS.	2 HRS.	3 HRS.	4 HRS.
Lead-Calcium	6	X4E	22	22	9	6
Nickel-Cadmium		X4EN	16	16	6	—

** National Electrical Code® specification.*

Catalog Numbering System

U X4 - E - B - R - B [ ] / 2M - FAF

Style — *U = Universal 2 Faces & Canopy*

Model — *X4 Series*

Type — *Blank = AC Only*
E = Self-Powered Lead-Calcium with Power Pack
EN = Self-Powered Ni-Cad with Power Pack
N = Self-Powered (self-contained, no additional power pack needed) (Exit Sign only)

Color — *W = White*
B = Black

Letter Color — *R = Red*
G = Green

Stencil — *W = White*
B = Black
A = Aluminum

Voltage* — *Blank = 120 Volt*
-277 = 277 Volt
** AC only.*

Combo Unit — *0 = 0 Heads, Power Use for Remote Fixtures*
1L = 1 Large Head
1M = 1 Mini Head
2L = 2 Large Heads
2M = 2 Mini Heads

Options — *FAF = Fire Alarm Flasher*

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Exit Signs

Steel LED exit signs and combination units — AC-only, battery and combo units available.
X4 LED Series

X4 LED Series exit signs and power pack combination units offer a complete package of features to make installation fast and easy.

Reliability

The X4 LED Series has a three-year full warranty (excluding lamps and fuses). AC-only signs are UL® Listed for use in damp locations.

Unit Data

The X4 Series is constructed of a rugged steel housing with programmable directional chevrons. All exit signs are universal and come standard with canopy kit, extra stencil and diffuser to permit any mounting either as single or double face. They employ a long-life, energy-efficient red LED light source, and a completely self-contained power pack provides a minimum of 90 minutes of emergency lighting.

Choice of Models

Exit Sign

Fully integrated circuitry includes a 2-wire 120–277VAC voltage input regulator, as well as an automatic, constant-current battery charger with solid-state transfer and AC LED monitor and test switch.

Combination Units

Remote Capacity: Lead-calcium battery (X4E)
No Heads: 26W remote capacity
Two 6W ELF2 Mounted Heads: 12W remote capacity
Remote Capacity: Nickel-cadmium battery (X4EN)
No Heads: 20W remote capacity
Two 6W ELF2 Mounted Heads: 8W remote capacity

Power Requirements

Dual voltage 120/277VAC, 60 Hz, 0.3/0.15 amp

Options

(Add Suffix to Model No.)	Suffix
AC/DC Remote (6–24VDC)	-DC
Fire Alarm Flasher (power pack only)	-FAF
Dual Circuit (AC units only)	-2
Flasher/Buzzer (power pack only)	-FB
Open Face/Special Wording	-Y
Nexus® Wired	-NEX
Nexus® Wireless	-NEXRF

Accessories (Order as a separate item)

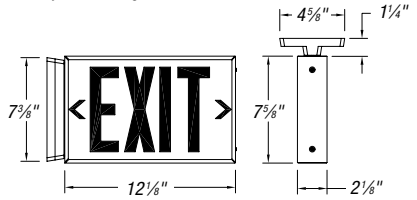
White Pendant	PW-*
Black Pendant	PB-*
Wire Guard (ceiling or end mount)	WG5-L
Wire Guard (wall mount)	WG12-L
Wire Guard (combination unit)	WG6-L

** Specify length of pendant (12", 24", 36", etc.).*

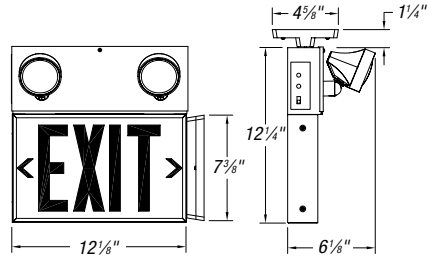
Dimensions

Dimensions are approximate and subject to change.

X4 AC-Only
X4N Self-Powered



X4E Self-Powered
X4EN Self-Powered



Power Consumption (LED Exit Sign)

MODEL		AC SPECS		DC SPECS	
EXIT SIGN (INCAND.)	AC-ONLY	120VAC or 277VAC	Less than 1.5W	—	—
	SELF-POWERED	120 to 277VAC	Less than 3W	Lead-Calcium Nickel-Cadmium	Min. 90 Minutes
MINI-SYSTEMS		120 to 277VAC	Less than 5W	See Unit Ratings Chart	

Unit Ratings (Combination Unit)

BATTERY TYPE	DC VOLTAGE	CAT. NO.	WATTS TO 87.5% OF RATED BATTERY VOLTAGE*			
			1½ HRS.	2 HRS.	3 HRS.	4 HRS.
Lead-Calcium	6	X4E	30	20	14	10
Nickel-Cadmium		X4EN	24	18	12	9

** National Electrical Code® specification.*

Catalog Numbering System

U **X4** - **E** - **W** - **R** - **W** **LED** / **2M** - **FAF**

- **Style**: ***U*** = *Universal 2 Faces & Canopy*
- **Model**: ***X4 Series***
- **Type**: ***Blank*** = *AC Only*; ***E*** = *Self-Powered Lead-Calcium with Power Pack*; ***EN*** = *Self-Powered Ni-Cad with Power Pack*; ***N*** = *Self-Powered (self-contained, no additional power pack needed) (Exit Sign only)*
- **Color**: ***W*** = *White*; ***B*** = *Black*
- **Letter Color**: ***R*** = *Red*; ***G*** = *Green*
- **Stencil**: ***W*** = *White*; ***B*** = *Black*; ***A*** = *Aluminum*
- **Light**: ***LED*** = *LED*
- **Combo Unit**: ***0*** = *0 Heads, Power Use for Remote Fixtures*; ***1L*** = *1 Large Head*; ***1M*** = *1 Mini Head*; ***2L*** = *2 Large Heads*; ***2M*** = *2 Mini Heads*
- **Options**: ***DC*** = *AC/DC Remote*

Exit Signs

Extruded aluminum LED exit signs and combination units — AC-only, AC/DC, battery and combo units available.

X3 Series

X3 Series exit signs and power packs combine versatility, energy efficiency and performance in a moderately priced package.

Reliability

The X3 Series has a three-year full warranty (excluding lamps and fuses). AC-only signs are UL® Listed for use in damp locations.

Unit Data

The X3 Series housing is constructed of extruded aluminum and features universal chevrons and a bottom aperture that provides a down-light effect. Universal exit signs are supplied with canopy kit, extra stencil and diffuser set to permit any mounting either as single or double face. A long-life, energy-efficient, LED light source reduces maintenance and energy costs. LED combination units have additional 13–19W remote capacity with two 6W mounted heads, depending on the model.

Light Source

The unit comes standard with two 6V, 6W high-intensity wedge base incandescent lamps. Other lamp options are available.

Choice of Models

Exit Sign

AC Input: Universal 2-wire 120 to 277VAC, 50/60 Hz
AC/DC Models: Universal 2-wire 6 to 24VDC
Self-Powered Models: Long-life, sealed nickel-cadmium battery

Combination Units

Remote Capacity: Lead-calcium battery (UX3E)
No Heads: 26W remote capacity
Two 6W ELF2 Mounted Heads: 12W remote capacity
Remote Capacity: Nickel-cadmium battery (EN)
No Heads: 20W remote capacity
Two 6W ELF2 Mounted Heads: 8W remote capacity

Power Requirements

Dual voltage 120/277VAC, 60 Hz, 0.3/0.15 amp

Options

(Add Suffix to Model No.)	Suffix
AC/DC Remote (6–24VDC)	-DC
Flasher/Buzzer Combo (power pack)	-FB

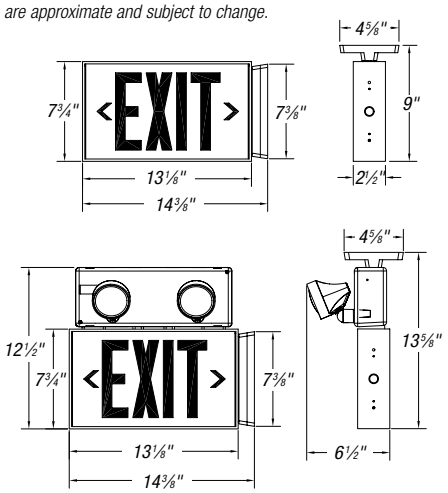
Accessories (Order as a separate item)

277V Conversion Kit, Black	CTXB-277
277V Conversion Kit, White	CTXW-277
White Pendant	PW-*
Black Pendant	PB-*

** Specify length of pendant (12", 24", 36", etc.).*

Dimensions

Dimensions are approximate and subject to change.



Power Consumption

MODEL	AC SPECS		DC SPECS	
AC-ONLY	120 or 277VAC	Less than 2.5W	—	—
AC/DC	120 to 277VAC	Less than 1.5W	6 to 24VDC	Less than 1.5W
SELF-POWERED	120 to 277VAC	Less than 3W	Nickel-Cadmium	Min. 90 Minutes

Unit Ratings (Combination Unit)

BATTERY TYPE	DC VOLTAGE	CAT. NO.	WATTS TO 87.5% OF RATED BATTERY VOLTAGE*			
			1½ HRS.	2 HRS.	3 HRS.	4 HRS.
Lead-Calcium	6	UX3E	30	20	15	10
Nickel-Cadmium		UX3EN	24	18	12	9

** National Electrical Code® specification.*
Total DC power available for local and remote emergency lights.

Catalog Numbering System

U **X3** - **EN** - **B** - **R** - **A** **LED** / **2M** - **FB**

- **Style** — ***U*** = *Universal 2 Faces & Canopy*
- **Model** — ***X3 Series***
- **Type** — ***Blank*** = *AC Only*; ***E*** = *Self-Powered Lead-Calcium with Power Pack*; ***EN*** = *Self-Powered Ni-Cad with Power Pack*; ***N*** = *Self-Powered (self-contained Ni-Cad) (Exit Sign only)*
- **Color** — ***W*** = *White*; ***B*** = *Black*
- **Letter Color** — ***R*** = *Red*; ***G*** = *Green*
- **Stencil** — ***W*** = *White*; ***B*** = *Black*; ***A*** = *Aluminum*
- **Light Source** — ***LED*** = *120 Volt*
- **Combo Unit** — ***0*** = *0 Heads, Power Use for Remote Fixtures*; ***1L*** = *1 Large Head*; ***1M*** = *1 Mini Head*; ***2L*** = *2 Large Heads*; ***2M*** = *2 Mini Heads*
- **Options** — ***FB*** = *Flasher/Buzzer*

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Exit Signs

Specification-grade, universal-mount LED exit sign with thermoplastic housing and snap-fit design.

Grande Series

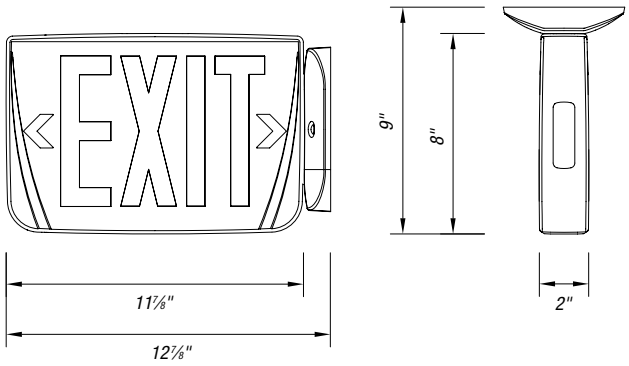
nexus® id improved diagnostics UL

Lightalarms® Grande Series is a compact exit sign with an all-in-one, snap-fit design. Easy to install and affordable, the Grande Series exit sign is ideally suited for commercial and spec-grade applications.

- Durable, injection-molded, thermoplastic housing
- Supplied with two faceplates, backplate for wall mount and easy-install canopy for end and ceiling mounting
- Universal, field-selectable snap-in/-out chevrons
- Indirect refractive technology provides bright, even illumination
- Long-life LED light source ensures low maintenance costs and superior illumination
- Energy-efficient power consumption: less than 3.5 watts for self-powered version and less than 3 watts for AC-only single or double face
- Dual-voltage input: 120/277VAC
- UL® 924 Listed
- All models are UL Listed for damp location
- Optional Improved Diagnostic circuitry, flasher/buzzer and fire alarm-activated flasher
- Optional vandal-resistant shield with tamper-proof screws

Dimensions

Dimensions are approximate and subject to change.



Unit Warranty*

Five years of full warranty.

** Subject to proper installation and maintenance.*

Accessories (Order as a separate item)

Wire Guard (wall mount)..... **WG1-L**
Wire Guard (ceiling mount and end mount) **WG5-L**

Catalog Numbering System

GRAN **AC** - **R** - **W**

Series
GRAN *= LED Plastic Sign*

Unit Type Standard Models
AC *= AC Only (120/277V)*
DC *= 120/277VAC & 6 to 48VDC*
N *= Self-Powered Ni-Cad*

Legend Color/No. of Face
R *= Red Universal*
R1 *= Red Single Face**
R2 *= Red Double Face**
G *= Green Universal*
G1 *= Green Single Face**
G2 *= Green Double Face**
Open Face
RW *= Red on White*
GW *= Green on White*
** Open face required with special wording legends.*

Housing Color
W *= White*
B *= Black*

Options
BA *= Brushed Aluminum Exit Stencil*
FB *= Flasher Buzzer (ND model only)*
FL *= Flasher (ND model only)*
FAF *= Fire Alarm Activated Flasher (AC, DC, 21, 22 or ND models only)*
FBF *= Flasher Buzzer + Fire Alarm-Activated Flasher (ND model only)*
VR* *= Tamper-Proof Screws*
LVR1* *= Polycarbonate Shield with Tamper-Proof Screws*
-NEX *= Nexus® Wired*
-NEXRF *= Nexus® Wireless*
** Please specify single or double face, red or green.*

Exit Signs

Thermoplastic LED exit sign and combination unit — sealed maintenance-free lead-calcium or nickel-cadmium battery.

X2 Squire Series

The X2 Squire Series is compact, easy to install and affordable.
This series is ideally suited for commercial and institutional applications.

Reliability
The X2 Squire Series has three-year full warranty (excluding fuses and lamps).

Unit Data
The housing is constructed of a durable thermoplastic, available in mist-white or black. Units come standard with two stencil plates, red diffusing lens and backplate for universal wall, end or ceiling mount. Stencil and open face signs have programmable directional chevrons. The light source of the exit sign is red LED technology, which provides a uniform illumination on the legend. Batteries provide 90 minutes of emergency operation.

Lamps
Standard emergency illumination is provided by two, 6W incandescent, PAR18 or PAR36 size lamps assemblies. These heads are molded of high-impact thermo-polymer material. Heads are mounted directly to the front of the power pack or can be remotely mounted. MR16 and quartz bi-pin halogen lamps are also available (Mini Heads only).

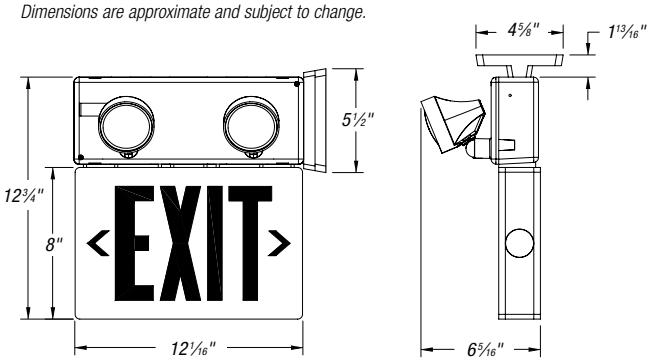
Circuitry
Fully integrated circuitry includes an automatic battery charger and AC LED monitor and test switch.

Choice of Models
Combination Units
Remote-Capacity Lead-Calcium Models (E):
No Heads: 26W remote capacity
Two 6W ELF2 Heads: 12W remote capacity
Remote Capacity Nickel-Cadmium Models (EN):
No Heads: 20W remote capacity
Two 6W ELF2 Heads: 8W remote capacity

Power Requirements
120/277VAC, 60 Hz, 0.3/0.15 amp

Options
(Add Suffix to Model No.) ..... **Suffix**
Improved Diagnostics (audible) ..... **-ID**
Flasher/Buzzer ..... **-FB**
Vandal-Resistant Screws ..... **-VR**
Fire Alarm Flasher ..... **-FAF**

Dimensions
Dimensions are approximate and subject to change.



Accessories (Order as a separate item)
Black Pendant ..... **PB-***
White Pendant ..... **PW-***
Wire Guard (wall mount) **WG6-L**
** Specify length of pendant (12", 24", 36", etc.).*

Unit Ratings (Combination Unit)

BATTERY TYPE	DC VOLTAGE	CAT. NO.	WATTS TO 87.5% OF RATED BATTERY VOLTAGE* 1½ HRS.	2 HRS.	3 HRS.	4 HRS.
Lead-Calcium	6	**UX2E**	30	20	15	10
Nickel-Cadmium		**UX2EN**	24	18	12	9

** National Electrical Code® specification.*
Total DC power available for local and remote emergency lights.

Catalog Numbering System

U **X2** - **EN** - **B** - **R** - **A** **LED** / **2M** - **FB**

- **Style** — ***U*** = *Universal 2 Faces & Canopy*
- **Model** — ***X2 Series***
- **Type** — ***Blank*** = *AC Only*; ***E*** = *Self-Powered Lead-Calcium with Power Pack*; ***EN*** = *Self-Powered Ni-Cad with Power Pack*; ***N*** = *Self-Powered (self-contained Ni-Cad) (Exit Sign only)*
- **Color** — ***W*** = *White*; ***B*** = *Black*
- **Letter Color** — ***R*** = *Red*; ***G*** = *Green*
- **Stencil** — ***W*** = *White*; ***B*** = *Black*; ***A*** = *Aluminum*
- **Light Source** — ***LED*** = *120 Volt*
- **Combo Unit** — ***0*** = *0 Heads, Power Use for Remote Fixtures*; ***1L*** = *1 Large Head*; ***1M*** = *1 Mini Head*; ***2L*** = *2 Large Heads*; ***2M*** = *2 Mini Heads*
- **Options** — ***FB*** = *Flasher/Buzzer*

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Exit Signs

Thermoplastic LED exit signs — AC-only and battery units available.

Quickie II Series

The Quickie II Series is a compact, all-in-one snap-together design. Easy to install and affordable, the Quickie II Series is ideally suited for any commercial application, especially those in which large numbers of exit signs are required.

Reliability

The Quickie II Series has a three-year full warranty. All models are UL® Listed for use in damp locations.

Unit Data

The housing is constructed of thermoplastic material, available in mist-white. The design incorporates a snap-in canopy for top or end mount for virtually tool-free installation. Universal mounting comes complete with two face plates, one backplate and canopy.

The light source of the exit sign is red LED technology, which provides uniform illumination on the legend. Batteries provide 90 minutes of emergency operation.

- Replaceable, sealed nickel-cadmium battery
- Provides a minimum 90 minutes of continuous emergency illumination
- Batteries recharge per UL® 924 specifications
- All models consume less than 2.5 watts

Power Requirements

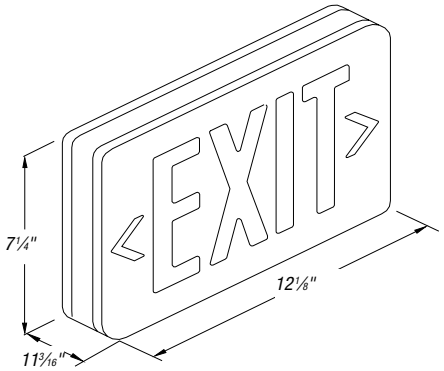
120/277VAC, 50/60 Hz

Accessories (Order as a separate item)

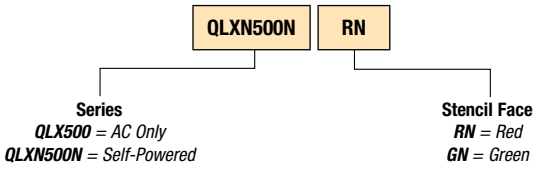
Wire Guard (wall mount)..... **WG1-L**
Wire Guard (ceiling mount and end mount) **WG5-L**

Dimensions

Dimensions are approximate and subject to change.



Catalog Numbering System



Exit Signs

Thermoplastic LED exit signs with a sealed maintenance-free lead-calcium battery.

Quickie II QLX-MRS Series

The Quickie II QLX-MRS Series features a compact, all-in-one, snap-together design. Easy to install and affordable, the QLX-MRS Series is ideally suited for any commercial application, especially those in which large numbers of exit signs are required.

Reliability

The Quickie II QLX-MRS Series has a three-year full warranty (excluding lamps and fuses). All models are UL® Listed for use in damp locations.

Unit Data

The housing is constructed of thermoplastic material, available in mist-white. The design incorporates a snap-in canopy for top or end mount for virtually tool-free installation. Universal mounting comes complete with two face plates, one backplate and canopy.

The light source of the exit sign is red LED technology, which provides uniform illumination on the legend. Batteries provide 90 minutes of emergency operation.

- 6V, sealed, maintenance-free lead-calcium battery
- Fully adjustable, glare-free, 6V 5W MR16 lamps

Lamps

The QLX-MRS comes complete with two glare-free MR16 lamps with front glass cover and directional heads. It will remain illuminated in emergency mode for a period of 90 minutes. This unit is not capable of powering remote heads.

Circuitry

Fully integrated circuitry includes a 120/277VAC input voltage, as well as an automatic battery charger and AC LED monitor and test switch.

Power Requirements

120/277VAC, 60 Hz

Options

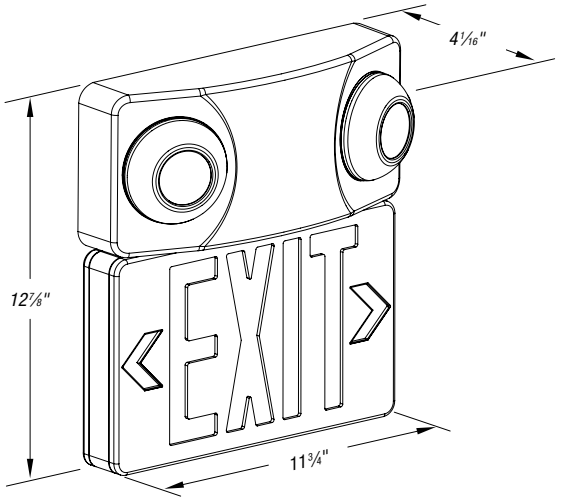
(Add Suffix to Model No.)	**Suffix**
Black	**-B**

Accessories (Order as a separate item)

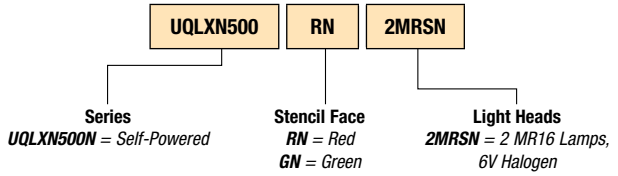
Replacement MR16 Lamp, 6V 5W	**580.0072-L**
Wire Guard (wall mount)	**WG6-L**

Dimensions

Dimensions are approximate and subject to change.



Catalog Numbering System



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Exit Signs

Thermoplastic LED combination units with a sealed maintenance-free lead-calcium battery. Damp location listing is standard on all models.

Quickie II QLXN500-SQ Series

The Quickie II QLXN500-SQ Series is a combo unit with field-adjustable heads to accommodate job-site mounting requirements.

Reliability

The Quickie II QLXN500-SQ Series has a three-year full warranty (excluding lamps and fuses). All models are UL® Listed for use in damp locations.

Unit Data

The housing, faceplates and canopy are constructed of a durable high-impact thermoplastic material (UL® 94, 5VA Flame rating) available only in mist-white. The Quickie II is suitable for wall or ceiling mounting and comes standard with two faceplates, a backplate and a snap-fit canopy that requires no hardware to secure to the unit.

The two 6V, 6W wedge base, glare-free emergency lighting heads can be positioned as top mount or side mount without disassembly or rewiring of the unit.

The light source of the exit sign is red LED technology, which provides uniform illumination on the legend. LED lamps are operated in normal (AC input) and emergency (DC input) modes.

The unit is powered in the emergency mode by a sealed, maintenance-free lead-calcium battery that is pre-wired to accommodate an additional battery should a remote load be required. The remote capacity option enables the unit to power additional remote heads (up to 6V, 12W) with an additional battery.

Lamps

The unit comes standard with two fully adjustable, glare-free, 6V, 6W wedge base lamps.

Power Requirements

Universal voltage, 2-wire input 120/277VAC, 60 Hz

Options

(Add Suffix to Model No.)	Suffix
Remote Capacity (12W)*	R

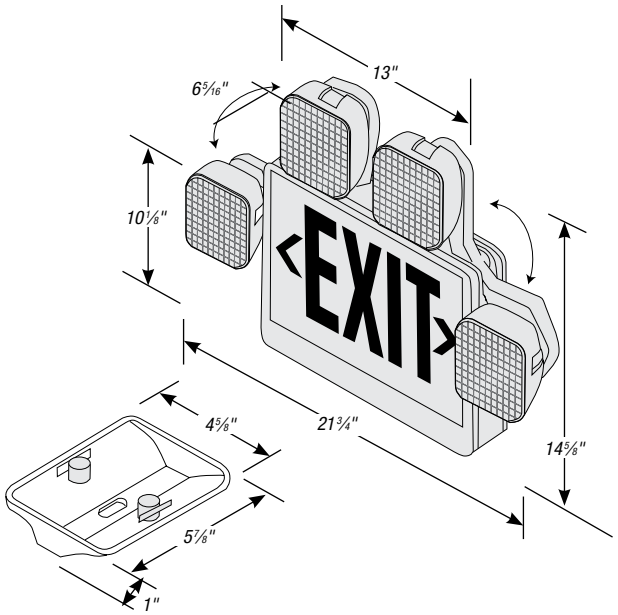
** Do not exceed rated unit capacity.*

Accessories (Order as a separate item)

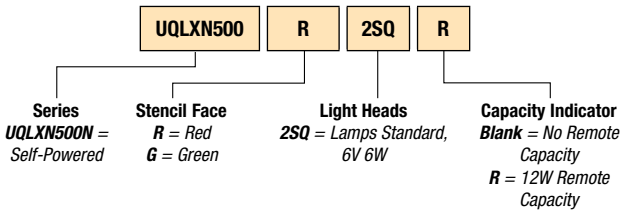
Wire Guard (heads in any position)	WG10-L
Replacement Battery	860.0004-L
Replacement Lamp (standard)	570.0012-L

Dimensions

Dimensions are approximate and subject to change.



Catalog Numbering System



Exit Signs

NEMA 4X rated self-powered LED exit sign with diagnostic/self-test feature and sealed maintenance-free nickel-cadmium battery.

Severe XV Series

The Severe XV Series exit sign is housed in an industrial-grade polyvinyl chloride enclosure. This sign was designed specifically for harsh environments that would strain standard exit signage, such as schools, transit platforms, parking garages, wet and cold locations as well as any location prone to vandalism.

Reliability

The Severe XV Series exit has a five-year full warranty.

Unit Data

The housing is fabricated of a polyvinyl chloride enclosure, which is fully gasketed around the lens and canopy to prevent water infiltration. The sealed faceplate is constructed of a heavy-duty, vandal-resistant polycarbonate and features an evenly illuminated legend. This faceplate is fastened with stainless steel tamper-resistant screws, and the Severe XV Series comes standard with a magnetically operated test switch. Diagnostic/self-test circuitry is standard on all self-powered models.

The light source of the exit sign is red LED technology, which provides uniform illumination on the legend. Models can be wall, end or ceiling mounted. Legend and chevron complies with UL® requirements. Sealed, maintenance-free nickel-cadmium batteries offer superior performance, long life and 90 minutes of emergency operation. AC-only signs come wired as AC/DC signs, which operate off a remote DC power source when AC power fails. DC input is a 2-wire, 6–48VDC universal input.

Applications

- High-abuse areas
- Vandal-prone areas
- Damp and wet locations
- Hosedown areas
- Cold temperatures and temperatures from 50° F to 104° F (10° C to 40° C)
- Food processing/preparation

High-Performance Circuitry

- Self-contained batteries and circuitry located inside the housing
- Continuous self-diagnostic monitoring and monthly self testing
- Fully automatic charger is solid state
- Sealed, maintenance-free nickel-cadmium batteries provide 90 minutes of emergency operation
- Batteries recharge per UL 924 requirements

Power Requirements

Universal, 2-wire input, 120–277VAC, 50/60 Hz

Diagnostic/Self-Test Feature

Diagnostic/Self-test circuitry is standard on all self-powered models. This circuitry is programmed to ensure the sign's readiness and reliability by continuously monitoring every critical function of the unit. If a problem occurs, a single Service Required indicator illuminates immediately. A detailed diagnostic display is located on the inside of the exit sign, out of sight from the general public. The detailed diagnostic display inside the exit sign will further indicate the nature of the fault. The self test will test the unit for a minimum 30 seconds every 30 days, 30 minutes every 60 days and 90 minutes annually.

Options

(Add Suffix to Model No.)	Suffix
Dual AC Circuit Operation	-2*
Fire Alarm-Activated Flasher	-FAF
Flasher/Buzzer (self-powered only)	-FB
Flasher	-1
AC/DC Remote (6 to 24VDC)	-DC
Cold weather unit: -40° C/-40° F AC, -4° F to 20° C AC/DC (self-powered only)	-CW
Nexus® Wired	-NEX
Nexus® Wireless	-NEXRF
Open Face/Special Wording	-Y

** AC only units.*

Accessories (Order as a separate item)

Convert Single Face To Double Face, Red (in the field)	DFKR-*
Convert Single Face To Double Face, Green (in the field)	DFKG-*
Canopy Pendant Mount	CM
Tamper-Proof Bit (extra)	690.0454-L

** Specify white (WT) or black (BK) housing.*

Power Consumption

MODEL	AC SPECS		DC SPECS	
AC-ONLY	120 to 277VAC	1.2W	—	—
AC/DC	120 to 277VAC	1.2W	6 to 48VDC	Less than 1.5W
SELF-POWERED	120 to 277VAC	3.7W	Nickel-Cadmium	Min. 90 Minutes

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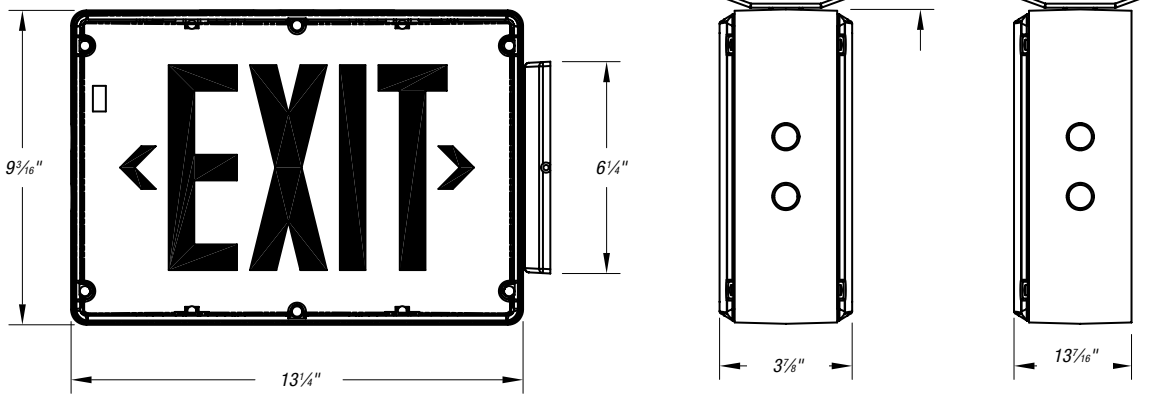
Exit Signs

Dimensions

Dimensions are approximate and subject to change.



Double Face

Single Face

Catalog Numbering System

BA	XV	-	1	-	R	-	D	-	4X	-	2

Color Option Housing/Face
Blank *= Black/Black*
BW *= Black/White*
BA *= Black/Aluminum*
GB *= Gray/Black*
GW *= Gray/White*
GA *= Gray/Aluminum*
WB *= White/Black*
WW = White/White
WA *= White/Aluminum*

Series
XV *= AC Only*
XVE *= Self-Powered Nickel-Cadmium Battery*

Faces
1 *= Single Face*
2 *= Double Face*

Legend Color
R *= Red*
G *= Green*

Diagnostics
Blank *= AC-Only Models*
D *= Standard on All Self-Powered Models*
NEX *= Nexus® Interface*

Housing
4X *= Standard NEMA 4X Housing*

Options
Blank *= AC-Only*
2* *= Dual Circuit (AC only)*
CW *= Cold Weather Self-Powered -20° C*
1* *= Flasher Only DC*= 6 to 48VDC*
DC* *= 6 to 48VDC*
F* *= Fire Alarm Activated Flasher*
FB* *= Flasher/Buzzer (self-powered only)*
Y *= Open Face/Special Wording*
** Not available with Nexus option.*

Severe NEMA 4X Rated Family

The Severe XV Series exit sign is a part of the Severe family of NEMA 4X rated emergency lighting products. A complete emergency lighting solution for commercial and industrial environments where humidity, dust, water infiltration and the risk of vandalism are specification criteria, these products deliver state-of-the-art illumination in a visually appealing package.

Severe XV Combo Series
page I-146

Severe V Series Battery Unit
pages I-112–I-113

Severe ELF650 Remote Series
page I-159

Exit Signs

6- or 12-volt weather and corrosion-resistant emergency unit with maintenance-free nickel-cadmium battery.

Severe XV Combo Series

The Severe XV Combo Series sets new standards for emergency lighting in today's toughest environments. It is suitable for industrial and commercial applications as well as all public facilities.

Reliability
The Severe XV Combo Series has a five-year full warranty (excluding lamps and fuses).

Unit Data
The Severe XV Series combo NEMA 4X-rated housing can withstand moisture, dust and corrosion. The faceplates are molded of heavy-duty, vandal-resistant polycarbonate, and the rugged UV-stabilized thermoplastic body will not dent, peel or corrode. The combo unit is equipped with stainless steel tamper-proof screws. A special bit is provided with every unit. The unit comes in a choice of three colors: mist-white, black or gray. The Severe XV combo comes standard with a universal-mount canopy kit, allowing the unit to be end, ceiling or wall mounted.

Light Source
An innovative, fully field-adjustable lamp head assembly offers the choice of MR16 halogen lamps up to 12V, 12W or high-efficiency, 4W, MR16 LED lamps. A long-life, energy-efficient illuminated red LED EXIT legend is ENERGY STAR® compliant.

Charger
The Severe XV Series Combo unit is equipped with the fully automatic Lightalarms® Improved Diagnostic micro controller board. The micro controller tests, detects and indicates battery, charger circuitry, lamps or LED strip failures. An external LED signals a general service alarm while an internal diagnostic LED display indicates the nature of failure. The unit performs periodic self-tests a minimum 30 seconds every 30 days, 30 minutes every six months and 90 minutes annually. The board is factory preset to non-audible diagnostic and a 15-minute time delay. These functions can be enabled or disabled during installation. The equipment comes standard with a dual-voltage input of 120/277VAC.

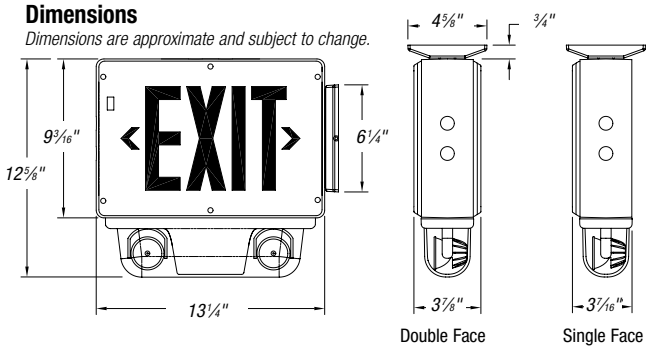
Options

(Add Suffix to Model No.)	**Suffix**
Cold Weather Location -40° C to 25° C/-40° F to 77° F	**-CW4***
Fire Alarm-Activated Flasher	**-FAF**
Flasher/Buzzer (AC power failure)	**-FB****
Flasher (AC power failure)	**-FL**
Canopy Pendant Mount	**-CM**
Nexus® Wired	**-NEX**
Nexus® Wireless	**-NEXRF**

** Available in 12E1 version only ** Not available with "DA" Audible Diagnostics.*

UL® Listed standard wet and damp locations (10° C to 40° C/50° F to 104° F)
UL® Listed for cold weather (-40° C to 25° C/-40° F to 77°F) — see options below

Dimensions
Dimensions are approximate and subject to change.



Accessories (Order as a separate item)
Additional Special Bit for Tamper-Proof Screw ..... **TPB**

Power Consumption

MODEL	AC SPECS		
XV12E	120 to 277VAC, 60 Hz	0.12/0.06A	Less than 13W
XV24E	120 to 277VAC, 60 Hz	0.18/0.08A	Less than 20W
COLD WEATHER OPTION	120 to 277VAC, 60 Hz	0.20/0.09A	Less than 24W

Unit Ratings

SEALED MAINTENANCE-FREE BATTERY TYPE	INPUT POWER	OUTPUT VOLTAGE	TOTAL OUTPUT POWER FOR EMERGENCY HEADS
Nickel-Cadmium	120/277V, 60 Hz, 0.12/0.06A, 13/13W	6VDC	12W
	120/277V, 60 Hz, 0.17/0.08A, 19/19W	12VDC	24W

Catalog Numbering System

WW	XV	12E	1	R	D	4X	/	2	M6	CW4

Color Option Housing/Face
Blank *= Black/Black*
BW *= Black/White*
BA *= Black/Aluminum*
GB *= Gray/Black*
GW *= Gray/White*
GA *= Gray/Aluminum*
WB *= White/Black*
WW *= White/White*
WA *= White/Aluminum*

Series
XV

Capacity
12E *= 6V 12W*
24E *= 12V 24W*

Faces
1 *= Single Face*
2 *= Double Face*

Letter Colors
R *= Red*
G *= Green*

Diagnostics
D *= Standard on All Self-Powered Models*
DA* *= Improved Diagnostics Audible*
NEX *= Nexus® Wired*
NEXRF *= Nexus® Wireless*
** Must specify.*

Housing
4X *= NEMA 4X*

No. of Heads
0 *= 0 Heads**
2 *= 2 Heads*
** Remote lamp(s) must be connected.*

Lamp/Wattage
MR6 *= MR16, 6V 6W*
M12 *= MR16, 12V 12W*
L5 *= LED, 12V 4W*

Options
Blank *= No Options*
CW4* *= Cold Weather*
** Available in 12E1 version only.*

Thomas&Betts
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354
Technical Services
Tel: 888.862.3289
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Exit Signs

Non-electric self-luminous exit sign — no wiring or energy required.

XT Series

XT Series signs are not dependent upon the use of electrical power, either internally or externally.

Reliability

XT Series exit signs are spark free and suitable for use in humid, corrosive or explosive environments. Thomas & Betts will replace, free of charge, any product in which the luminosity is found to be defective during its specified luminous life or which falls below specified luminous life.

Unit Data

The XT Series self-luminous exit sign frame, backplate and canopy are constructed of ABS molding in a tamper-proof assembly with no removable fasteners. Frame finishes are white or black. The signs can be mounted flush to wall or ceiling without a canopy. The faceplate is constructed of acrylic (optional polycarbonate) 0.13" thick. The legend is constructed of non-glare polycarbonate, 0.015"-thick, open letters, field-programmable arrows and background colors include red or green. Contrast ratio for both conditions exceeds 0.5 and meets requirements of UL® 924 and NFPA. These exit signs do not require batteries, lamps or electricity for illumination. Electrical wiring, power, lamp replacement and maintenance are not required.

Illumination is provided by phosphor-coated borosilicate tubes filled with tritium gas. Tritium gas energizes the phosphor-coated tubes in the sign. The low-energy beta emission of tritium striking the phosphor coating inside the Pyrex® glass tubes causes illumination to be generated.

Harsh and/or Hazardous Environments

- Mines
- Refineries
- Paper Mills
- Food Processing Plants
- Spray Booth Areas
- Offshore Rigs
- Chemical Plants
- Grain Elevators

Licenses and Codes

- UL – Underwriters Laboratories
- OSHA – Occupational Safety and Health Administration
- BOCA, ICBO, SBCCI – American Building Officials
- MSHA – Mine Safety and Health Administration
- NRC – Nuclear Regulatory Commission
- Uniform, Basic and Standard Building Codes

Meets full test specifications of ANSI (American National Standards Institute) for use in harsh or dangerous environments. Meets requirements of National Electrical Code®, Class I and II.

Options

(Add Suffix to Model No.)	Suffix
Aluminum Frame	-AF
Fully Recessed Frame	-FR
Aluminum Frame and Polycarbonate Shield	-AFPC

Accessories (Order as a separate item)

White Pendant	PW-*
Black Pendant	PB-*

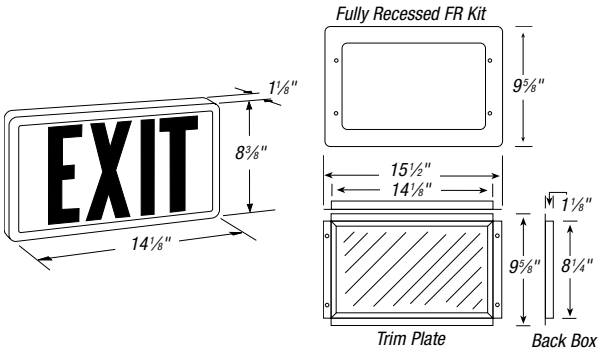
** Specify length of pendant (12", 24", 36", etc.).*

Pyrex is a registered trademark of Corning Incorporated.

National Electrical Code is a registered trademark of the National Fire Protection Association, Inc.

Dimensions

Dimensions are approximate and subject to change.



Mounting

Single Face Signs

Wall Mount (flush wall or end) | *Ceiling Mount (flush ceiling)* | *Pendant Mount*

Double Face Signs

Wall Mount (flush end) | *Ceiling Mount (flush ceiling)* | *Pendant Mount*

Catalog Numbering System

XT	10	B	R	-	FR

Series	Sign Life	Housing Color	Legend Color	Options
XT = Single Face ***2XT*** = Double Face	***10*** = 10 Years ***15*** = 15 Years ***20*** = 20 Years	***W*** = White ***B*** = Black	***R*** = Red ***G*** = Green	***FR*** = Fully Recessed Frame

Exit Signs

A wide range of sign body options and color choices are available to suit any application.

Special Wording

- Custom wording — any style of lettering, any language, any alphabet, any special characters
- The same sturdy construction and electrical design used in Lightalarms® exit signs is used with this signage
- Choose from steel, extruded and die-cast aluminum, weatherproof, flame-retardant polycarbonate, high-impact thermoplastic and recessed housing sign bodies
- Combination units also available
- Graphics include logos, standard symbols, custom art
- Color choices for sign bodies, message, faceplate panel
- LED and other light sources available for illumination
- Contact Customer Service to discuss your specific requirements

More panel designs are available.
Contact customer service for the complete list.

Thomas&Betts

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Fax: 901.252.1354

Technical Services
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Exit Signs

Triad LED Replacement Lamps LED Retrofit Kit

- Convert high-consumption incandescent and fluorescent lamps to energy-efficient LED lamps
- Reduce energy consumption by up to 90%
- Improve visibility and reliability
- Reduce maintenance costs

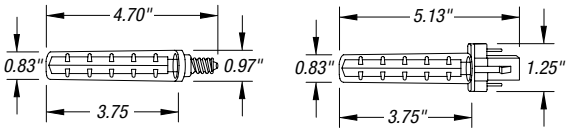
Features

- Quick and easy to install
- Available with wide range of lamp bases for quick lamp-to-lamp replacement
- Available in ultra-high brightness red LEDs
- 120VAC only

Red Illumination only

Dimensions

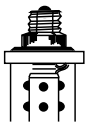
Dimensions are approximate and subject to change.



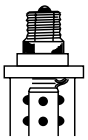
Power Consumption

MODEL	AC SPECS	
LRB	120VAC	0.90W
LRB-F	120VAC	1.6W

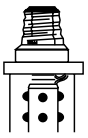
LRB-C
Candelabra Base



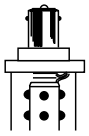
LRB-I
Intermediate Screw Base



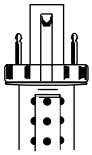
LRB-M
Medium Screw Base



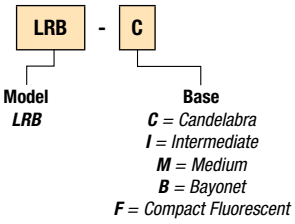
LRB-B
D.C. Bayonet Base



LRB-F
PL 5-, 7- or 9-Watt Base



Catalog Numbering System

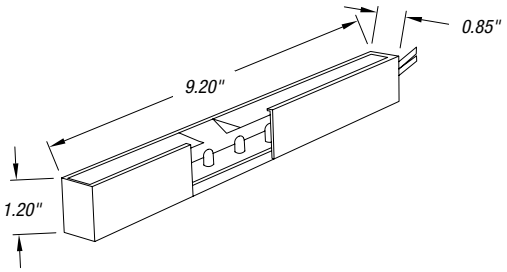


LED Retrofit Kit

- Easiest to install in its class
- Compact size makes it ideal for virtually all exit signs
- Can be retrofitted directly on fluorescent ballast
- Long-life, energy-efficient red (only) LED technology
- Available with AC adapter for various types of lamp sockets
- 120VAC only

Dimensions

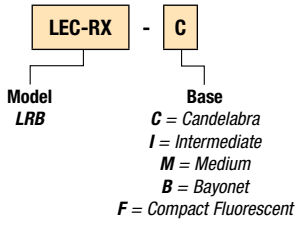
Dimensions are approximate and subject to change.



Power Consumption

MODEL	AC SPECS	
LEC-RX	120VAC	1.70W

Catalog Numbering System



Fluorescent Emergency Lighting Ballasts

Ballast Reference

MODEL NO.	AM7	AM11	AM12	AM18	AM20	AM23	AM28	AM30	AM32	AM80-D	AM54	AM540
LUMENS	700	650	1300	650	650	1400	500	3000	500	1300	825	1300
Linear Lamps												
Lamp Type (No. of Lamps)												
2'-4' RAPID, INSTANT, ENERGY SAVING, T8 THRU T12 (1)	✔		✔				✔	✔	✔	✔	✔	✔
2'-4' RAPID, INSTANT, ENERGY SAVING, T8 THRU T12, HO & VHO (2)	✔		✔			✔		✔		✔		
2'-8'W RAPID, INSTANT, ENERGY SAVING, T8 THRU T12, HO & VHO (1)	✔		✔					✔		✔		
F17 T8 (1)	✔		✔				✔		✔	✔	✔	✔
F17 T8 (2)	✔		✔			✔				✷		
F25 T8 (1)			✔				✔	✔		✔	✔	✔
F25 T8 (2)			✔					✔		✔		
F32 T8 (1)	✔		✔				✔	✔	✔	✔	✔	✔
F32 T8 (2)	✔		✔			✔		✔		✔		
F40 T8 (1)											✔	✔
F096 T8 (1)	✔		✔					✔		✔		
14W T5 (1)			✔				✔				✔	✔
21W T5 (1)			✔				✔				✔	✔
24W T5 (1)			✔				✔				✔	✔
28W T5 (1)			✔				✔	✔	✔	✔	✔	✔
39W T5 (1)			✔							✔	✔	✔
54W T5 HO (1)			✔					✔		✔	✔	✔
F20 T12 (1)	✔		✔						✔	✔		
F20 T12 (2)	✔					✔						
F40 T12 (1)	✔		✔					✔	✔	✔		
F40 T12 (2)	✔					✔		✔				
F48 T12 (1)			✔							✔		
F96 T12 (1)	✔		✔					✔		✔		
Compact Lamps												
18W LONG COMPACT (1)												
24W LONG COMPACT (1)					✔							
36W LONG COMPACT (1)			✔		✔	✔				✔	✔	✔
40W LONG COMPACT (1)	✔		✔		✔	✔		✔	✔	✔	✔	✔
40W LONG COMPACT (2)								✔				
50W LONG COMPACT (1)	✔		✔			✔		✔		✔	✔	✔
55W LONG COMPACT (1)	✔		✔			✔		✔		✔	✔	✔
5W PL CF 2-PIN (1)		✔										
7W PL CF 2-PIN (1)		✔										
9W PL CF 2-PIN (1)		✔										
13W PL CF 2-PIN (1)		✔										
18W PL CF 2-PIN (1)				✔								
26W PL CF 2-PIN (1)				✔								
10W PL CF 4-PIN (1 OR 2)								✔				
13W PL CF 4-PIN (1 OR 2)					✔			✔				
18W PL CF 4-PIN (1 OR 2)								✔				
26W PL CF 4-PIN (1 OR 2)								✔				
32W PL CF 4-PIN (1 OR 2)								✔				
42W PL CF 4-PIN (1)								✔				
42W PL CF 4-PIN (2)								✔				
57W PL CF 4-PIN (1)			✔					✔		✔		
57W PL CF 4-PIN (2)								✔				
70W PL CF 4-PIN (1)			✔					✔		✔		
20W CIRCLINE (1)	✔		✔					✔	✔	✔	✔	✔
20W CIRCLINE (2)	✔		✔					✔		✔		
40W CIRCLINE (1)	✔		✔					✔	✔	✔	✔	✔
40W CIRCLINE (2)	✔		✔					✔		✔		
55W CIRCLINE T5 (1)	✔							✔				

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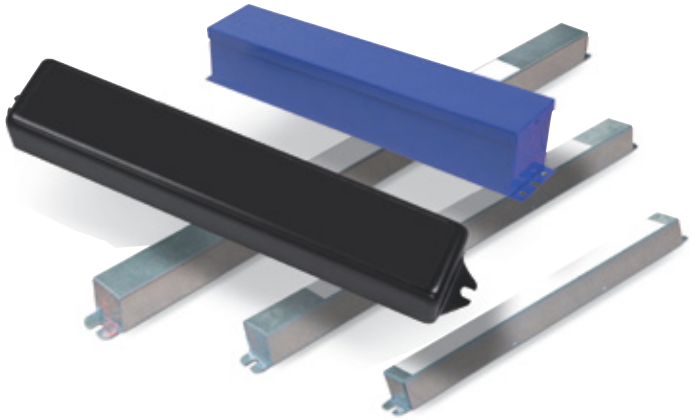
Fluorescent Emergency Lighting Ballasts

Fluorescent power packs with sealed maintenance-free nickel-cadmium battery.

AM Series



nexus® NEW YORK CITY APPROVED UL

AM Series fluorescent power packs are cost-efficient solutions for conversion of new or existing fluorescent fixtures into emergency lighting units. This series is ideally suited for commercial applications.

Reliability

The AM Series has a three- to five-year full warranty. (Please see chart below.)

Unit Data

The AM Series components are housed in a compact ballast-size case. Installation is simple and cost efficient. The unit mounts easily inside or on top of a fixture using wire end caps (if necessary). It can be wired to operate with switched, unswitched or normally off fixtures without affecting normal operation. Use with Circline, U-shaped and energy-saving lamps. For VHO, SHO and Power Groove® lamps, use the AM7 or AM12 models. Compatible with standard, energy-saving, dimming and electronic AC ballasts.

Charger

- Fully automatic solid-state charger
- Automatic transfer relay energizes lamp instantaneously upon failure of normal AC supply
- Low-voltage disconnect prevents overdischarge of battery
- External test switch and pilot light

Power Requirements

Dual Voltage 120/277VAC, 60 Hz, 0.3/0.15A

Options

(Add Suffix to Model No.) ..... **Suffix**

Damp Location Listing ..... **-D**

Accessories (Order as a separate item)

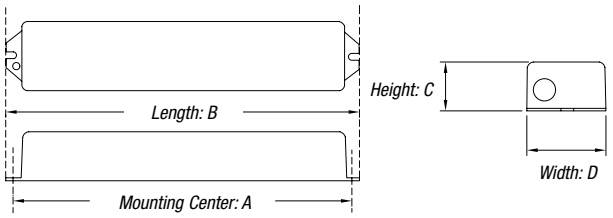
Remote Test Switch (metal faceplate) ..... **PSW**

Remote Test Switch (plastic faceplate) **PSW1**

Wire End Caps for AM32 ..... **EC6**

Dimensions

Dimensions are approximate and subject to change.



MODEL NO.	DIMENSIONS A	B	C	D
AM7	9"	9⅝"	1½"	2⅜"
AM11	8⅞"	9½"	1½"	2⅜"
AM12	12½"	13⅛"	1½"	2¼"
AM18	11½"	12"	1½"	2¾"
AM20	9"	9½"	1½"	2⅜"
AM23	12¾"	13⅛"	1½"	2⅜"
AM32-L	9"	9⅝"	1½"	2⅜"
AM80-D	12¾"	13⅛"	1½"	2⅜"
AM540	21"	21½"	1³⁄₁₆"	1³⁄₁₆"

Unit Selection

MODEL NO.	LAMP OPERATED IN EMERGENCY MODE (SEE NEW BALLAST REFERENCE CHART, PAGE I-156)	EMERGENCY ILLUMINATION TIME	LUMENS	WIRE END CAPS	WARRANTY
AM7	1 lamp 2'–8' (20W–215W) or 2 lamps 2'–4' (20W–40W)	90 Min.	700	Included	3-Year Full
AM11	1 Compact Fluorescent Lamp (7, 9 or 13W)	90 Min.	650	Not Required	3-Year Full
AM12	1 Lamp 2'–8' (20W–215W) or 2 lamps 2'–4' (20W–40W)	90 Min.	1300	Included	5-Year Full
AM18	1 Compact Fluorescent Lamp (18W & 26W)	90 Min.	650	Not Required	3-Year Full
AM20	1 Compact Fluorescent Lamp or 2 Compact Fluorescent Lamps (10W–42W)	90 Min.	650	Not Required	3-Year Full
AM23	2 Lamps 2'–4'	90 Min.	1400	Included	3-Year Full
AM32-L	1 Lamp 2'–4' (20W–40W)	90 Min.	550	Optional Order #EC6	3-Year Full
AM80-D	Most 2'–8' Single, Bi-Pin T8 + T12, Long Compact, HO + HVO Fluorescent Lamps	90 Min.	1300	Not Required	5-Year Full
AM540	1 Lamp 2'–4' (40W–50W), Most 2'–4' T5 or T8 and 4-Pin Compact Fluorescent Lamps (40–55W)	90 Min.	1300	Optional Order #EC54	3-Year Full

** Power Groove is a registered trademark of General Electric.*

Fluorescent Emergency Lighting Ballasts

Emergency power packs for T8 or T12 fluorescent lamps with sealed maintenance-free nickel-cadmium battery.

AM30 Series

The AM30 Series units are designed for use with most T8 or T12 fluorescent lamps. They are ideal for use in linear lighting fixtures where ballast space is limited.

Reliability

The AM Series has a three- to five-year full warranty. (Please see chart below.)

Unit Data

The housing of the AM30 consists of a single, sealed housing compartment containing the battery, battery charger, transfer circuit and high-frequency inverter. A pilot light and test switch are included. The AM30 comes standard with a 24" flex conduit on one end of the housing. The AM30 can cold start and operate most 2'–8', single bi-pin T8 and T12 HO lamps or VHO linear, 42-watt 4-pin lamps and long compact lamps. Emergency capabilities of the AM30 are one 2'–8' lamp or two 2'–4' lamps for a minimum of 90 minutes. Only one long compact fluorescent lamp may be operated in the emergency mode.

The AM30 is designated for installation on top of the fixture or can be remote from the fixture.

Charger

- Fully automatic solid-state charger
- Automatic transfer relay energizes lamp instantaneously upon failure of normal AC supply
- Low-voltage disconnect prevents overdischarge of battery
- External test switch and pilot light

Power Requirements

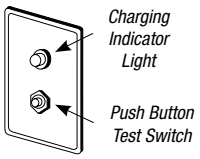
Dual-Voltage 120/277VAC, 60 Hz, 3.5W

Accessories (Order as a separate item)

Remote Test Switch (metal faceplate).....**PSW**

Remote Test Switch (plastic faceplate).....**PSW1**

Recommended for inaccessible locations. Test switch and charging indicator on a single chrome mounting plate.

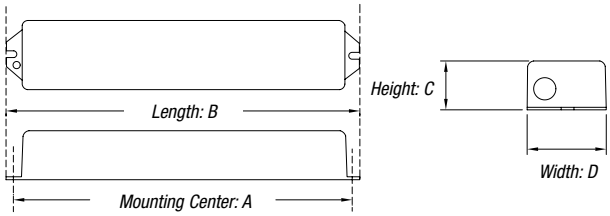


Unit Selection

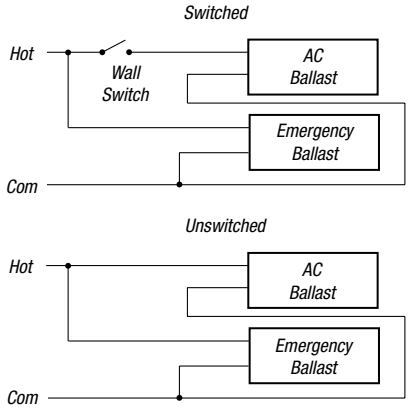
LUMEN OUTPUT	LAMPS OPERATED	EMERGENCY OPERATION
(1) Lamp — 3000 Lumens	Most 2'–8' Single, Bi-Pin, T8 & T12, HO or VHO Linear, 42W 4-Pin and Long Compact Fluorescent Lamps	90 Minutes
(2) Lamps — 1500 Lumens per Lamp		(1) 2'–8' or (2) 2'–4'

Dimensions

Dimensions are approximate and subject to change.



	DIMENSIONS			
MODEL NO.	A	B	C	D
AM30	15⅞"	16⅜"	3"	3"



Primary circuit only. Lamp leads not shown.

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Fluorescent Emergency Lighting Ballasts

Emergency power packs with sealed maintenance-free nickel-cadmium battery — ideal for factory installation or retrofit applications.

AM28 and AM54 Series

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The AM28 and AM54 are self-contained emergency ballasts designed for use with most T5 or T8 fluorescent lamps. They are ideal for use in linear lighting fixtures where ballast space is limited.

Reliability

The AM28 and AM54 Series have a five-year full warranty. They are also UL® Listed for use in damp locations.

Unit Data

The housing of the AM28 and AM54 consists of a single, sealed housing compartment containing the battery, battery charger, transfer circuit and high-frequency inverter. A pilot light and test switch are included.

The AM28 can cold start and operate most 2'-4', 28-watt T5 and T8 fluorescent lamps.

The AM54 can cold start and operate most 2'–4', 54-watt T5 and T8 fluorescent lamps, including HO and 40–55-watt 4-pin, long compact fluorescent lamps. Emergency operation is for a minimum of 90 minutes.

Charger

- Fully automatic solid-state charger
- Automatic transfer relay energizes lamp instantaneously upon failure of normal AC supply
- Low-voltage disconnect prevents overdischarge of battery

Power Requirements

Dual-Voltage 120/277VAC, 60 Hz, 3.5W

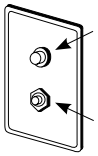
Options

(Add Suffix to Model No.) ..... **Suffix**
Damp Location Listing ..... **-DL**

Accessories (Order as a separate item)

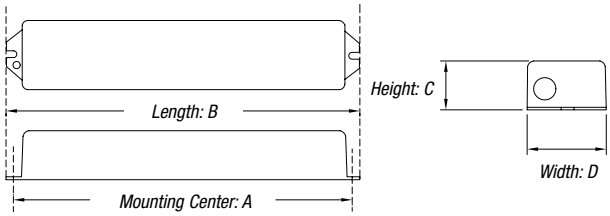
Remote Test Switch (metal faceplate).....**PSW**
Remote Test Switch (plastic faceplate).....**PSW1**

Recommended for inaccessible locations. Test switch and charging indicator on a single chrome mounting plate.



Dimensions

Dimensions are approximate and subject to change.

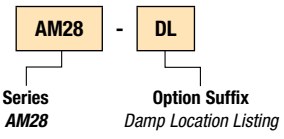


	DIMENSIONS			
MODEL NO.	A	B	C	D
AM28	13¾"	14¼"	1 13/16"	1 13/16"

Unit Selection

MODEL NO.	LAMPS OPERATED IN EMERGENCY MODE	EMERGENCY	LUMENS	WIRE END CAPS	WARRANTY
AM28	1 Lamp 2'–4'	90 Min.	500	Optional Order #EC54	3-Year Full
AM54	1 Lamp 2'–4'	90 Min.	825		

Catalog Numbering System



Fluorescent Emergency Lighting Ballasts

Self-powered fluorescent fixture with sealed maintenance-free nickel-cadmium battery is tamper proof and vandal proof.

FF-AM Series

The FF-AM Series is a tamper- and vandal-resistant fluorescent fixture that combines the functions of normal area lighting and emergency lighting in one fixture.

Reliability
The FF-AM Series has a three-year full warranty (excluding lamps and pilot lights).

Unit Data
The housing of the FF-Am Series is constructed of steel and secured with tamper-proof screws. A tamper-proof screw driver bit is furnished standard with each unit. This series is completely self-contained and maintenance-free. The diffuser consists of an injection molded .125" UV-stabilized, unbreakable polycarbonate lens. The lens features a prismatic pattern on the bottom and linear refractive sides for brightness control and 180° uniform light distribution.

The FF-AM unit is for surface mounting only.

Lamp
Available with sockets for one 20-watt, one 34-watt, two 20-watt or two 34-watt T12 lamps, or one or two 32-watt T8 lamps supplied by other manufacturers.

Charger
- Fully automatic solid-state charger
- Low-voltage disconnect prevents overdischarge of battery

Controls
- Pilot light and test switch

Power Requirements
Dual-voltage 120/277VAC, 60 Hz, 3.5W

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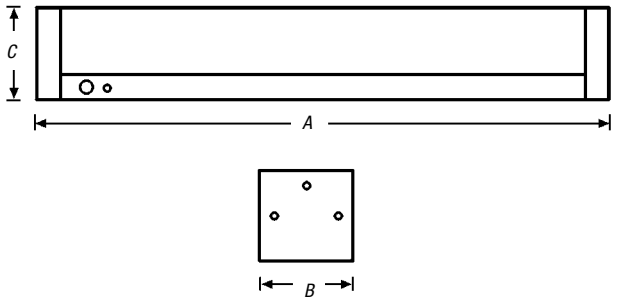
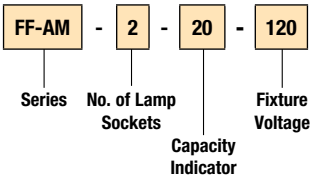
Dimensions
Dimensions are approximate and subject to change.



Unit Ratings

CAT. NO.	A	B	C	LAMP TYPE
FF-AM-1-20-120 FF-AM-1-20-277 FF-AM-2-20-120 FF-AM-2-20-277	24¼"	4½"	4⅜"	F20T12
FF-AM-1-34-120 FF-AM-1-34-277 FF-AM-2-34-120 FF-AM-2-34-277	48¼"	4½"	4⅜"	F34T12
FF-AM-1-32-120 FF-AM-1-32-277 FF-AM-2-32-120 FF-AM-2-32-277	48¼"	4½"	4⅜"	F32T8

Catalog Numbering System
For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.



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Fluorescent Emergency Lighting Ballasts

Fluorescent T-bar power pack with sealed maintenance-free nickel-cadmium battery.

AM-L/AM-L-2 Series

The AM-L and AM-L-2 Series Fluorescent T-Bar power packs are cost-efficient solutions for conversion of new or existing fluorescent fixtures into emergency lighting units. This series is ideally suited for commercial applications.

Reliability

The AM-L and AM-L-2 Series have a three-year full warranty.

Unit Data

This Series consists of an AM7 fluorescent pack secured to the upper surface (interior) of a metal panel. AM-L units will light one lamp in any 2-, 4-, 6- or 8-ft. fluorescent fixture. The AM-L-2 units will light two lamps in any four-lamp 2-, 4-, 6-, or 8-ft. fluorescent fixture. The panel is installed into a dropped ceiling, adjoining fluorescent fixture. Location of the fluorescent pack outside of a fixture eliminates heat problems and the need to fit the pack into fixture channel. Test switch and pilot light are located on the lower surface (exterior) of the panel for easy access. Units can be easily wired to the fluorescent fixture according to the wiring diagrams.

PulseType Charger

The inverter circuit is of solid-state design of the ferroresonant type. It operates all standard 2-, 4-, 6- or 8-ft. lamps.

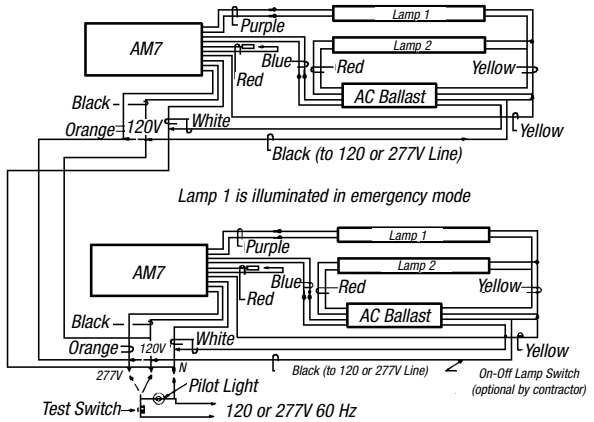
Charging is fully automatic by a solid-state constant-potential type charger. It is temperature compensated to ensure optimum battery life.

The transfer circuit connects the lamp to the battery when there is a failure of the normal power supply and returns it to the utility source when normal power returns. A solid-state line-latched low-voltage disconnect circuit disconnects the lamp from the battery when the battery voltage drops to about 80% of nominal to protect the battery from a deep discharge.

Power Requirements

Input requirement 120/277VAC, 60 Hz: 10W for inverter-charger (wattage of lamp to be added to this)

AM-L-2 Wiring Diagram

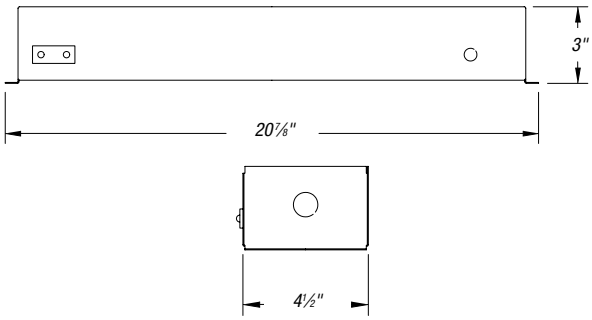


Typical wiring diagram for rapid-start lamp

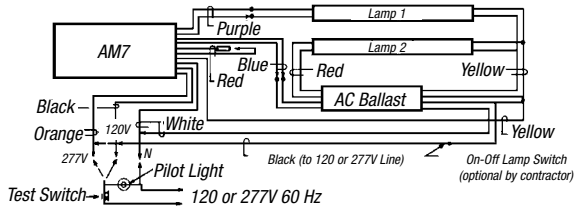
Dimensions

Dimensions are approximate and subject to change.

Remote (FPS-R)



AM-L Wiring Diagram



Lamp 1 is illuminated in emergency mode

Typical wiring diagram for rapid-start lamp

Catalog Numbering System

For standard units without options, only order Heads, Series, Battery, Capacity and Lamps.

AM-L

Series

Central Systems

Lightalarms® central systems are battery-based power systems designed to operate loads in the event of a utility failure or brownout condition. All systems are self-contained and fully automatic.

AC Central Systems

Batteries offered with central systems:

- Sealed, maintenance-free lead-calcium (AC and DC systems)
- Refillable nickel-cadmium (AC systems)

Single-Phase Fast Transfer IPS

Single-phase power systems for incandescent and fluorescent emergency lighting systems.

- 98% efficient — 2mS transfer time
- PWM/IGBT technology
- Microprocessor control
- User programmable with password protection
- Tested to UL® 924
- Automatic event and alarm log
- RS-232 communications port
- Input circuit breaker
- Modular design
- Low audible noise
- Normally off output
- From 1.25kVA to 6.25kVA

Single-Phase UPS

Single-phase power systems for HID, incandescent and fluorescent emergency lighting systems.

- 98% efficient — 2mS transfer time
- PWM/IGBT technology
- Microprocessor control
- User programmable with password protection
- Tested to UL® 924
- Automatic event and alarm log
- RS-232 communications port
- Input circuit breaker
- Modular design
- Low audible noise
- Normally on output
- From 1.25kVA to 6.25kVA

Three-Phase UPS

On-line AC power systems for HID, incandescent and fluorescent emergency lighting systems.

- 98% efficient — 2mS transfer time
- PWM/IGBT technology
- Microprocessor control
- User programmable with password protection
- Tested to UL® 924
- Automatic event and alarm log
- RS-232 communications port
- Input circuit breaker
- Modular design
- Low audible noise
- Internal battery circuit breaker/fuse
- From 1.25kVA to 6.25kVA

For more information on Lightalarms® Central Systems, please contact your Thomas & Betts representative.

All information and specifications contained on this page are subject to change without notice.

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Remote Fixtures

Camray Remote Series

The Camray Series combines photometrical performance with a visually appealing design. An efficient reflector combined with two Xenon lamps delivers an incredible center-to-center spacing. The die-cast aluminum housing is offered in a wide range of colors to complement any interior. With its fully gasketed housing, the Camray Series is also ideal for extreme outdoor environments. Designed to meet aesthetic needs without sacrificing safety, this fixture is available in a wide range of colors to complement any interior.

CAM Remote Head: UL® Listed for damp, wet and cold locations.
Operating Temperature: -40° C to 60° C (-40° F to 140° F)

Catalog Numbering System

CAM / LX6 - OW [ ]

Series
CAM *= Remote Fixture (-40° C to 60° C)*

Lamp Wattage
LX6 *= 6W, Xenon Lamps*
LX10 *= 10W, Xenon Lamps*

Color*
OW *= Off White*
B *= Black*
DB *= Dark Bronze*
PG *= Platinum Gray*
** Other colors available.*

Options
6 *= 6V*
12 *= 12V*

Phantom Remote Series

The new Phantom Series goes virtually undetected, blending into any environment. When AC power fails and lights go out, that is when the Phantom emerges to illuminate the path to safety. This new unit is architecturally designed for unobtrusive use in walls with cavity or T-bar structures. In normal conditions (stand-by), the unit is completely concealed in the wall or ceiling. In case of power failure, the door of the unit rotates open 180° and exposes the emergency lights (two high-efficiency MR16 lamps) to illuminate the path of egress. Once AC power returns or the discharge period ends, the lights turn off and the door rotates closed automatically, driven by an energy-storage circuit.

The DC remote unit comes as a compact, one-piece module and does not require the large galvanized steel back box.

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Catalog Numbering System

12 / PHR2 - 50 [ ]

Remote Voltage
12 *= 12VDC*
24 *= 12VDC*

Series
PHR2 *= Remote Fixture*

Lamp Wattage
12 *= 12W MR16*
20 *= 20W MR16*
35 *= 35W MR16*
50 *= 50W MR16*
20H *= 20W MR16, High Lumen Output*
35H *= 35W MR16, High Lumen Output*
50H *= 50W MR16, High Lumen Output*
Note: *High lumen output available with 12V only.*

Options
DL *= Damp Location*

Remote Fixtures

Saf-T-Ray Series

Housing

The premium die-cast aluminum housing is designed to withstand extreme weather conditions and offer aesthetically pleasing looks with a compact footprint. Ideal for damp, wet and cold location specifications, Saf-T-Ray provides a fully gasketed cover with the option of vandal-resistant screws. This unique wall sconce is available in three textured powder-coat paint finishes; white, black and dark gray (optional finishes available for custom projects — consult Customer Service).

Diffuser

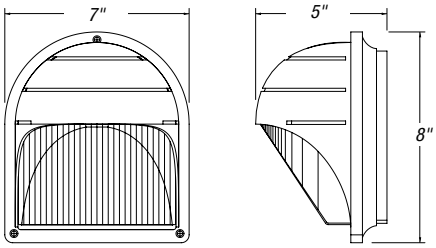
This specially manufactured polycarbonate diffuser maximizes light output and completes the wall sconce decorative lines. Saf-T-Ray's robust polycarbonate lens is the ideal choice for applications where impact- and tamper-resistant emergency lighting is specified.

Lamps

Precise beam control is provided with two fully adjustable MR16 halogen lamps secured in an attractive molded swivel assembly for maximum light output. Saf-T-Ray will provide an average of one-foot candle along the path of egress. Saf-T-Ray can also be used with the premium option of the high-efficiency 4-watt MR16 white LED lamp. IES photometric data files are available on request.

Dimensions

Dimensions are approximate and subject to change.



Catalog Numbering System

SAF	-	2	/	M6	-	M	6	-	

Series
SAF = *Exterior Remote*

No. of Lamps
2 = *2 Lamps Standard*

Lamp Type/Wattage
L5 = *LED, 4W (12V only)*
M6 = *MR16, 6W (6V only)*
M10 = *MR16, 10W (6V only)*
M12 = *MR16, 12W (12V or 24V only)*
M20 = *MR16, 20W (12V or 24V only)*

Color
M = *White*
B = *Black*
DG = *Dark Gray*
DB = *Dark Bronze*

Voltage
6 = *6V*
12 = *12V*
24 = *24V*

Options
VR = *Vandal-Resistant Screws*
C = *Clear Lens*

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Remote Fixtures

Severe ELF650 Series

NEMA 4X-rated remote fixtures have a fully gasketed cast-aluminum back plate with a clear UV- and impact-resistant cover. The unit delivers unsurpassed path of egress illumination. It is available in single- or double-head models with the option of highly efficient MR16 lamps or the 4-watt MR16 white LED. Easy lamp replacement, tool-less lamp aiming and easy installation on a 4" octagonal box all make this remote fixture the perfect choice for any environment. It comes standard with tamper-proof screws and bit and is NSF Certified for food processing plants. Choose from three colors: white, black or gray. Also available as a battery unit; refer to Severe V Series.

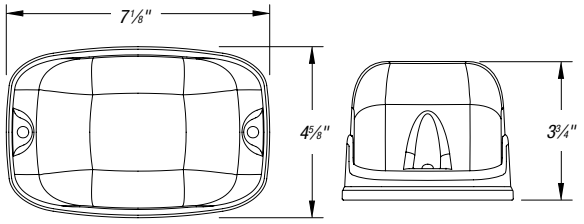
Catalog Numbering System

ELF650 / M12 - M 12

Series	Lamp Type/Wattage	Color	Voltage
ELF650 = Single NEMA 4X	***L5*** = LED, 4W (12V only)	***M*** = White	***6*** = 6V
EF650D = Double NEMA 4X	***M6*** = MR16, 6W (6V only)	***B*** = Black	***12*** = 12V
	M10 = MR16, 10W (6V only)	***G*** = Gray	***24*** = 24V
	M12 = MR16, 12W (12V or 24V only)		
	M20 = MR16, 20W (12V or 24V only)		

Dimensions

Dimensions are approximate and subject to change.



Class I, Division 2 compliant remote fixtures for hazardous locations.

Severe ELF651 Series

The ELF651 Series of remote fixtures has been designed specifically for installation in hazardous locations and other high-abuse industrial environments. It can withstand weather, impacts, vibrations and temperature variations. The ELF651 Series is ideally suited for areas with the possible presence of flammable gases, vapors or liquids that can create an explosive gas atmosphere.

Power and Temperature Ratings

LAMP TYPE	INPUT VOLTAGE	POWER (EACH OF 2 LAMPS)	TEMPERATURE CODE
MR16	6V	10W	T3B (max. 165° C)
MR16	12V, 24V	12W	T3B (max. 165° C)
MR16	12V, 24V, 120V	20W	T2C (max. 230° C)

NOTE: Use qualified replacement lamps to avoid risk of overheating.

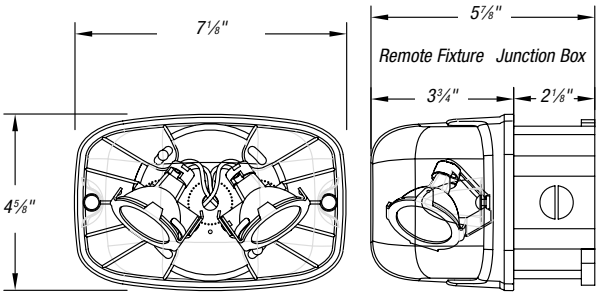
Catalog Numbering System

ELF651 / M12 - M 12

Series	Lamp Type/Wattage	Color	Voltage
ELF651 = Single	***L5*** = LED, 4W (12V only)	***G*** = Gray	***6*** = 6V
EF651D = Double	***M6*** = MR16, 6W (6V only)		***12*** = 12V
	M10 = MR16, 10W (6V only)		***24*** = 24V
	M12 = MR16, 12W (12V or 24V only)		***120*** = 120VAC/VDC
	M20 = MR16, 20W (12V or 24V only)		

Dimensions

Dimensions are approximate and subject to change.



Remote Fixtures

Decorative Surface Remote Series

Decorative Surface Remote Series emergency fixtures have been specially built to meet the needs of contemporary decor professionals. Constructed of a highly resistant powder-coated die-cast aluminum, these fixtures are available in 1-, 2- and 3-head configurations, as well as a complete selection of attractive styles and shades. Safety and security have never looked so good.

DR1130

DR3130

DR2130

DR1130

Single compact adjustable decorative lighting head

Dimensions: 5" diameter base, 4⅛" height

DR2130

Double compact adjustable decorative lighting heads

Dimensions: 5" diameter base, 4⅛" height

DR3130

Triple compact adjustable decorative lighting heads

Dimensions: 9⅝" diameter base, 4" height

Catalog Numbering System

DR1130 / **M6** - **WH** **6**

Series
DR1130

Lamp Type/Wattage
L5 *= LED, 4W (12V only)*
M6 *= MR16, 6W (6V only)*
M10 *= MR16, 10W (6V only)*
M12 *= MR16, 12W (12V or 24V only)*
M20 *= MR16, 20W (12V or 24V only)*

Color
M *= White*
B *= Black*
DG *= Dark Gray*
DB *= Dark Bronze*

Voltage
6 *= 6V*
12 *= 12V*
24 *= 24V*

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Decorative Recessed Remote Series

The Decorative Recessed Remote Series will create an entirely new design vocabulary of emergency lighting function and form. Constructed of a highly resistant, powder-coated die cast aluminum, these fixtures are available in a selection of attractive styles and finishes. The contemporary, enduring designs along with the ultra energy-efficient and light-intensive MR16 quartz halogen lamps make this remote collection a sleek, refreshing new take on emergency lighting solutions.

RSTH24

Decorative lighting head

Dimensions: 4.0" diameter base

Color Suffix: -WH = White,
-BK = Black,
-CH = Chrome,
-PB = Polished Brass,
-BN = Brushed Nickel

RSTH18

Decorative lighting head

Dimensions: 4.0" diameter base

Color Suffix: -WH = White or
-BN = Brushed Nickel

RSTH18R

Decorative lighting head

Dimensions: 4.0" diameter base

Color Suffix: -WH = White or
-BN = Brushed Nickel

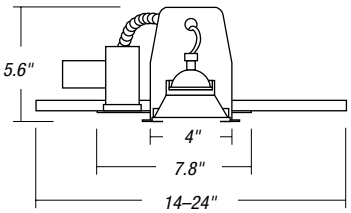
RSTH19

Decorative lighting head

Dimensions: 4.0" diameter base

Color Suffix: -WH = White

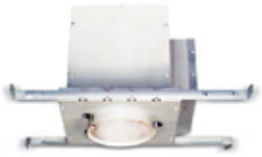
Recessed Type*

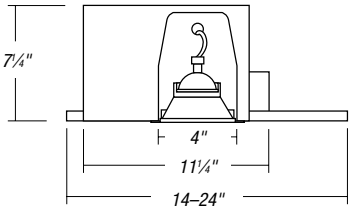


LU-GRHR03

New construction housing

Dimensions: 5.6" x 14.24"





LU-GRHR06

Insulated ceilings housing

Dimensions: 7.25" x 14.24"

Catalog Numbering System

RSHT18	/	M6	-	WH	6

Series
RSHT18

Lamp Type/Wattage
M6 *= 6W (6V only)*
M10 *= 10W (6V only)*
M12 *= 12W (12V or 24V)*
M20 *= 20W (12V or 24V)*
M35 *= 35W (12V or 24V)*
M50 *= 50W (12V or 24V)*

Color
WH *= White*
BK *= Black*
CH *= Chrome*
BN *= Brushed Nickel*
PB *= Polished Brass*

Voltage
6 *= 6V*
12 *= 12V*
24 *= 24V*

Remote Fixtures

Surface-Mounted Remote Series

ELF2/ELF2D

Description: Single or double PAR18 size indoor lighting heads with fully adjustable swivel; all thermoplastic construction

Finish: Mist-White (-M), Black (-B)

Mounting: Surface (wall or ceiling) direct 4" octagonal or single-gang box

Dimensions: 5" diameter base, 5⁹⁄₁₆" height (single head)

Lamps: Wedge base incandescent, bi-pin halogen

Volts: 6, 12 or 24 volts

Maximum Watts: 18 watts

ELF2	/		-		
Remote Fixture Model No. Single Head		Lamp Suffix		Color	Voltage

ELF2

ELF2D	/		-		
Remote Fixture Model No. Double Head		Lamp Suffix		Color	Voltage

ELF2D

Wattage doubles for "D" 2-lamp version.

ELF3/ELF3D

Description: Single or double MR16 size indoor lighting heads with fully adjustable swivel; all thermoplastic construction

Finish: Mist White (-M), Black (-B)

Mounting: Direct to 4" octagonal electrical box

Dimensions: 5" diameter base, 5⅛" height (single head)

Lamps: MR16

Volts: 6 or 12 volts

Maximum Watts: 20 watts

ELF3	/		-		
Remote Fixture Model No. Single Head		Lamp Suffix		Color	Voltage

ELF3D	/		-		
Remote Fixture Model No. Double Head		Lamp Suffix		Color	Voltage

ELF3 *ELF3D*

Wattage doubles for "D" 2-lamp version.

ELF603

Description: Surface rectangular fixture with diffusion lens and welded steel housing

Finish: White baked enamel

Mounting: Surface (wall or ceiling); knockouts provided on two sides and back

Dimensions: Trim ring: 8¼" x 4½" x 3"; Back box: 6½" x 3" x 2⅝"

Lamps: Double contact bayonet base

Volts: 6, 12, 24, 36 or 120 volts

Maximum Watts: 18 watts

ELF603	/		-	
Remote Fixture Model No. Single Head		Lamp Suffix		Voltage

ELF603

ELF622/ELF622D

Description: Single or double PAR36 size indoor lighting heads with fully adjustable swivel to 358°; all aluminum construction.

Finish: Satin Aluminum (Blank), Mist-White (-M), Black (-B) or Chrome (-CH)

Mounting: Direct to 4" octagonal electrical box

Dimensions: Single head: 5⅛" diameter base, 8½" height; Double head: 5" diameter base, 6½" height; ELF622: 2½" x 4¼" mounting plate; ELF622D: 6⁷⁄₁₆" x 4½" mounting plate

Lamps: Double contact bayonet base, wedge base incandescent, bi-pin halogen, PAR36 sealed beam

Volts: 6, 12, 24, 36 or 120 volts

Maximum Watts: 25 watts (10 watts for 120V)

ELF622	/		-		
Remote Fixture Model No. Single Head		Lamp Suffix		Color	Voltage

ELF622

ELF622D	/		-		
Remote Fixture Model No. Double Head		Lamp Suffix		Color	Voltage

ELF622D

Wattage doubles for "D" 2-lamp version.

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Remote Fixtures

ELF623/ELF623D

Description: Single adjustable decorative lighting head; all thermoplastic construction

Finish: Mist-White (-M), Black (-B)

Mounting: Direct to 4" octagonal or single-gang box round mounting canopy standard

Lamps: Wedge base incandescent, bi-pin halogen

Volts: 6 or 12 volts

Maximum Watts: 18 watts per head

ELF623	/		-		
Remote Fixture Model No. Single Head		Lamp Suffix		Color	Voltage

ELF623

ELF623D	/		-		
Remote Fixture Model No. Double Head		Lamp Suffix		Color	Voltage

ELF623D

Wattage doubles for "D" 2-lamp version.

ELF644/ELF644D

Description: Remote SQ SQUARE-LITE to match SQ, SQ-D Series shown on **page I-92**; constructed from high-impact, mar-resistant thermoplastic with plated steel reflector and prismatic acrylic lens

Finish: Back box: Black satin; Front case: White

Mounting: Available for surface, semi-recessed (order SQR kit) or fully recessed (order FSQR kit) mounting; fully recesses into T-bar or exposed Z-spline ceilings; supporting bars or rods supplied by others

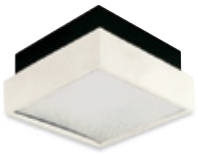
Dimensions: 9" x 9" x 4"

Lamps: Wedge base incandescent, bi-pin halogen

Volts: 6 or 12 volts

Maximum Watts: 14 watts per lamp

ELF644	/		-	
Remote Fixture Model No. Single Head		Lamp Suffix		Voltage



ELF644

ELF644D	/		-	
Remote Fixture Model No. Double Head		Lamp Suffix		Voltage

ELF644D

Wattage doubles for "D" 2-lamp version.

ELF645/ELF645D/ELF645T

Description: Single, double or triple PAR36 size lighting heads with fully adjustable swivel all thermoplastic construction

Finish: Mist-White (-M), Gray (-G) or Black (-B)

Mounting: Standard with round plate for mounting directly to 4" outlet box (4-gang plate for ELF645D optional)

Lamps: Double contact bayonet base, wedge base incandescent, bi-pin halogen, PAR36 sealed beam

Volts: 6, 12, 24, 36 or 120 volts

Maximum Watts: 25 watts per head

ELF645	/		-	
Remote Fixture Model No. Single Head		Lamp Suffix		Voltage

ELF645

ELF645D	/		-	
Remote Fixture Model No. Double Head		Lamp Suffix		Voltage

ELF645D

ELF645T	/		-	
Remote Fixture Model No. Triple Head		Lamp Suffix		Voltage

Wattage doubles for "D" 2-lamp version and triples for "T" 3-lamp version.

ELF648/ELF648D

Description: Single or double miniature cylinder with satin aluminum housing and mounting plate and fully adjustable chrome swivel; mirror finished reflector with prismatic lens ensures a wide-beam with even light distribution

Finish: White (-M), Black (-B)

Mounting: Direct to 4" octagonal electrical box

Lamps: Bi-pin halogen

Volts: 6 or 12 volts

Maximum Watts: 20 watts per head

ELF648	/		-		
Remote Fixture Model No. Single Head		Lamp Suffix		Color	Voltage

ELF648

ELF648D	/		-		
Remote Fixture Model No. Double Head		Lamp Suffix		Color	Voltage

ELF648D

Wattage doubles for "D" 2-lamp version.

Remote Fixtures

Recessed Mounted Remote Series

ELF603

Description: Recessed rectangular fixture with diffusion lens and welded steel housing

Finish: White baked enamel

Mounting: Recessed (wall or ceiling); knockouts provided on two sides and back; adjustable mounting clips provided

Dimensions: Trim ring: 8¼" x 4½";
Back box: 6½" x 3" x 2⅝"

Lamps: Double contact bayonet base

Volts: 6, 12, 24, 32 or 120 volts

ELF604

ELF604	/		-	
Remote Fixture Model No. Single Head		Lamp Suffix		Voltage

ELF605M/ELF605P

Description: Recessed round gimbal fixture with welded steel housing and plastic (ELF605P) or metal (ELF605M) trim; lamp has a horizontal rotation of 358° and vertical angle adjustable to 42°

Finish: Metal Trim: White (standard), Chrome (-CH) or Black (-B);
Plastic Trim: White (standard)

Mounting: Recessed (wall or ceiling); plaster frame and standard 4" outlet box provided

Dimensions: Trim ring: 8" diameter; Back box: 5¼" x 4½";
Plaster ring: 9" square (furnished standard)

Lamps: Wedge base incandescent, bi-pin halogen, PAR36 sealed beam

Volts: 6, 12, 24 or 120 volts

Maximum Watts: 25 watts; 6 watts (120V) low voltage

ELF605P

ELF605M

ELF605P	/		-		
Remote Fixture Model No. Metal Trim		Lamp Suffix		Color	Voltage

ELF605M	/		-		
Remote Fixture Model No. Plastic Trim		Lamp Suffix		Color	Voltage

ELF644-FR/ELF644D-FR

Description: Fully recessed metal decorator square with prismatic diffusing lens and metal reflector

Finish: Off-white baked enamel

Mounting: Recessed (wall or ceiling)

Dimensions: Trim plate: 10⅝" x 10⅝";
Back Box: 8¾" x 8¾" x 3¼"

Lamps: Wedge base incandescent, bi-pin halogen

Volts: 6 or 12 volts

Maximum Watts: 6 volts = 10 watts;
12 volts = 8 watts

ELF644-FR, ELF644D-FR
Wattage doubles for "D" 2-lamp version.

ELF644D-FR	/		-	
Remote Fixture Model No. Double Lamp		Lamp Suffix	Color	Voltage

ELF644-FR	/		-	
Remote Fixture Model No. Single Lamp		Lamp Suffix	Color	Voltage

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Remote Fixtures

Weatherproof and Class 1 Division 2 Remote Series

Weatherproof

ELF647/ELF647D

ELF647

ELF647D

Description: NEMA classified single or double PAR36 size lighting heads with fully adjustable swivel, all thermoplastic construction and stainless steel screws; standard with round aluminum plate for mounting directly to 4" outlet box; fixtures are rain and dust-tight as well as corrosion resistant

Finish: Mist-White (-M), Gray (-G), Black (-B)

Mounting: Standard with round plate for mounting directly to 4" outlet box

Dimensions: Trim ring: 8" diameter; Back box: 5¼" x 4½"; Plaster ring: 9" square (furnished standard)

Lamps: Double contact bayonet base, wedge base incandescent, bi-pin halogen, PAR36 sealed beam

Volts: 6 or 12 volts DC

Maximum Watts: 25 watts per head

ELF647	/		-		
Remote Fixture Model No. Single Lamp		Lamp Suffix		Color	Voltage

ELF647D	/		-		
Remote Fixture Model No. Double Lamp		Lamp Suffix		Color	Voltage

Class I Division 2, Groups A, B, C and D

ELF644-FR/ELF644D-FR

ELF647C

ELF647DC

Description: Single or double lighting heads with fully adjustable swivel, with gasketed aluminum canopy and junction box.

Finish: Black (-B), Gray (standard)

Mounting: Standard with round plate for mounting directly to 4" outlet box

Lamps: Wedge base incandescent, bi-pin halogen, PAR36 sealed beam

Volts: 6 or 12 volts

Maximum Watts: 12 watts per head

ELF647C	/		-		
Remote Fixture Model No. Single Lamp		Lamp Suffix		Color	Voltage

ELF647CD	/		-		
Remote Fixture Model No. Double Lamp		Lamp Suffix		Color	Voltage

Accessories

Lamp Data

How to use this chart

Use it when ordering remote lighting fixtures, non-standard lamps or replacement lamps. When ordering non-standard lamps or lamps for remote fixtures, select lamps from those listed under the battery voltage of the unit or system powering the lamp.

Example:

For a remote fixture powered by a 12-volt unit, only those lamps listed under 12 volts in the lamp chart may be used.

BE SURE TOTAL LOAD DOES NOT EXCEED THE 90-MINUTE WATTAGE CAPACITY OF THE BATTERY.

For unit equipment

Replace standard lamp suffix with non-standard lamp suffix.

Example:

Model 2SN2/L25 comes standard with 6-volt, 25-watt incandescent lamps. To order with 6-volt, 20-watt halogen lamps, the appropriate model number would be 2SN2/LH8.

For replacement lamps

Order by replacement number.

For remote fixtures

Include complete lamp suffix as suffix to model number.

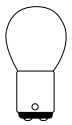
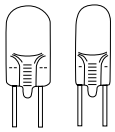
Example:

ELF645 / **L9 6**

Remote Fixture Model No. — **Lamp Suffix**

Complete Lamp Suffix must be stated *(which includes voltage designation).*

Incandescent and Halogen Lamps

LAMP TYPE	VOLTAGE	WATTS	LAMP SUFFIX FOR UNITS	LAMP SUFFIX ADD VOLTS FOR REMOTE FIXTURE	REPLACEMENT NO.	LAMP NO.	BULB TYPE	LUMEN RATING	CENTER-BEAM CANDLE POWER (CBCP)
Double Contact Bayonet Base Incandescent  S-8	6	13	L13	6	**570.0020**	**88**	S-8	188	15
	12	6	L6	12	**570.0068**	**90**	S-8	75	6
		9	L9		**570.0011**	**138**		126	10
		13	L13		**570.0022**	**94**		188	15
		25	L25		**570.0031**	**1076**		402	32
	24	12	L14	24	**570.0059**	**306**	S-8	189	15
		25	L28		**570.0061**	**1638**		402	32
	32	6	L6	32	**570.0069**	**1224**	C-6	48	4
		23.7	L25		**570.0084**	**1054**	C-DCB	403	32
	120	6	L6	120	**570.0062**	**6S6**	S-6	41	3
		10	L10		**570.0063**	**10C7**	C-7	40	3
Bi-Pin Halogen Lamps  T-2¾" T-2¼"	6	6	LH4	6	**580.0012**	**784**	T-2¼	113	9
		8	LH5		**580.0013**	**785**		163	13
		10	LH7		**580.0017**	**787**		201	16
		12	LH6		**580.0011**	**786**		239	19
		20	LH8		**580.0022**	**788**		402	32
	12	8	LH8	12	**580.0014**	**774**	T-2¼	163	13
		12	LH3		**580.0015**	**783**		276	22
		14	LH9		**580.0016**	**789**	T-2¾	302	24
		20	LH2		**580.0027**	**782**		314	25
Wedge Base Incandescent  T-5	6	5.4	L5	6	**570.0012**	**939**	T-5	68	5.4
		7.2	L7		**570.0026**	**927**		100	8
		9	L9		**570.0016**	**908**		150	12
	12	9	L9	12	**570.0025**	**915**	T-5	138	11
		12	L12		**570.0028**	**912**		150	12
		18	L18		**570.0029**	**921**		264	21
	24	9	L9	24	**570.0045**	**EMS2209W**	T-5	113	9
		18	L18		**570.0046**	**EMS2218W**		239	19

Exit Lamps

LAMP TYPE	VOLTAGE	WATTS	LAMP SUFFIX	REPLACEMENT NO.	LAMP NO.	BULB TYPE	LUMEN RATING	CENTER-BEAM CANDLE POWER (CBCP)
Incandescent Lamps for Exit Signs (hazardous location applications)	6	15	XX6	**580.0086**	**JC6V-15W2KG4**	Bi-Pin G4	210	17
	12	25	XX12	**570.0071**	**13769**	A19	375	30
	24	25	XX24	**570.0118**	**24227-1**	A19	345	27
	120	25	AC	**570.0136**	**97478**	A19	215	17

LAMP TYPE	VOLTAGE	WATTS	REPLACEMENT NO.	LAMP NO.	BASE TYPE	LUMEN RATING	CENTER-BEAM CANDLE POWER (CBCP)
Exit Signs, 120VAC Incandescent	145	15	**570.0013**	**15T6145**	Candelabra Screw Base	150	12
Exit Signs, 120VAC Incandescent	120	20	**570.0024**	**20T61/2**	Intermediate Screw Base	90	7
Exit Signs, 120VAC Incandescent	145	15	**570.0035**	**15T6**	Intermediate Screw E17	150	12
Exit Signs, 120VAC Fluorescent	120	7	**595.0010**	**PL7-T4**	G23	330	26

Lumen rating and candle power values are only for general reference. The data was obtained from the manufacturer's catalogs, calculations or third-party laboratory measurements. Actual performance in the field may vary.

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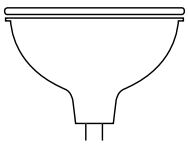
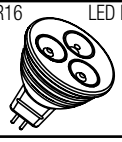
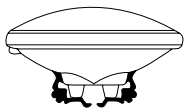
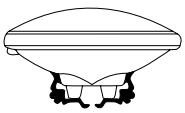
Accessories

MR16 Lamps

LAMP TYPE	VOLTAGE	WATTS	LAMP SUFFIX FOR UNITS	LAMP SUFFIX ADD VOLT FOR REMOTE FIXTURE	REPLACEMENT NO.	BULB TYPE	LUMEN RATING	CENTER-BEAM CANDLE POWER (CBCP)	BEAM ANGLE (DEGREES)
MR16 Halogen Lamps 	6	5	M 5	6	**580.0072**	MR16	34	60	36
		6	M 6		**580.0074**		40	140	24
		10	M 10		**580.0079**		74	160	36
	12	10	M10	12	**580.0099**	MR16	84	190	36
		12	M 12		**580.0080**		80	300	36
		20	M 20		**580.0064**		150	600	36
		20-A	M 20		**580.0075**		225	800	24
		20-H	MH 20		**580.0068**		400	1000	36
		35	M 35		**580.0083**		430	3700	24
		35-H	MH 35		**580.0090**		830	2200	36
		37-H	MH31		**580.0088**		900	2000	40
		50	M 50		**580.0076**		700	1300	38
		50-H	MH 50		**580.0089**		1460	2600	40
	24	12	M 12	24	**580.0070**	MR16	82	550	36
		20	M 20		**580.0077**		240	700	24
		20-A	MH20		**580.0094**		220	600	28
		35	M 35		**580.0084**		235	1100	24
		50	M 50		**580.0078**		670	1400	38
	120	20	M20	120	**580.0065**	MR16	100	230	36
		35	M35		**580.0066**		230	500	36
		50	M50		**580.0067**		460	1000	36
MR16 LED Lamps 	12	5	L5	12	**580.0063***	MR16	42	260	24
		4	L4		**580.0093**	MR16	173	380	36

** Discontinued; replaced by 580.0093.*

PAR36 Sealed Beam Lamps

LAMP TYPE	VOLTAGE	WATTS	LAMP SUFFIX	REPLACEMENT NO.	LAMP NO.	BULB TYPE	LUMEN RATING	CENTER-BEAM CANDLE POWER (CBCP)
Sealed Beam Halogen  PAR36	6	6	H7556	**550.0022**	**H7556**	PAR36	107	400
		8	H7551	**550.0036**	**H7551**	PAR36	155	550
		10	H7552	**550.0037**	**H7552**	PAR36	190	650
		12	H7553	**550.0019**	**H7553**	PAR36	225	850
		20	H7554	**550.0021**	**H7554**	PAR36	380	1,400
	12	8	H7555	**550.0024**	**H7555**	PAR36	160	550
		12	H7557	**550.0025**	**H7557**	PAR36	230	850
		37	H7616	**550.0047**	**H7616**	PAR36	700	70,000
		50	H7614	**550.0012**	**H7614**	PAR36	950	2,000
Sealed Beam Incandescent  PAR36	6	8	7613	**550.0018**	**7613**	PAR36	130	400
		12	4042	**550.0030**	**4042**	PAR36	170	1,100
		18	4014	**550.0016**	**4014**	PAR36	250	1,500
		25	4510	**550.0017**	**4510**	PAR36	350	800
		30	4515	**550.0035**	**4515**	PAR36	420	5,500
	12	12	4044	**550.0026**	**4044**	PAR36	190	1,110
		18	4414	**550.0027**	**4414**	PAR36	210	1,500
		25	4446	**550.0023**	**4446**	PAR36	395	400
		30	4416	**550.0034**	**4416**	PAR36	430	35,000
		25	25 WFL	**550.0028**	**25WFL**	PAR36	360	360
		25	25 VWFL	**550.0050**	**25VWFL**	PAR36	160	160
		50	50 NSP	**550.0043**	**50NSP**	PAR36	11,000	11,000
		50	50 WFL	**550.0029**	**50WFL**	PAR36	900	900

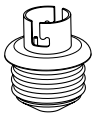
MSA Incandescent Lamp Adapter

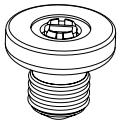
for HIT, DCBB or bi-pin halogen lamps

DC lamp plus adapter for medium Edison screw base socket. This device converts any incandescent fixture into an emergency fixture.

Note: *Lumen figures based on information supplied by lamp manufacturers, Lamp drawings shown are for shape comparison only, not actual size.*


MSA Bi-Pin


MSA Double Contact


MSA Wedge Base

Catalog Numbering System

MSA	-	LH5
Product Code		Lamp Symbol

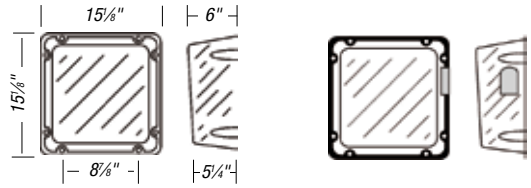
Accessories

Unit Accessories

Catalog Number VRC or VRC-4X (NEMA 4X)

Application

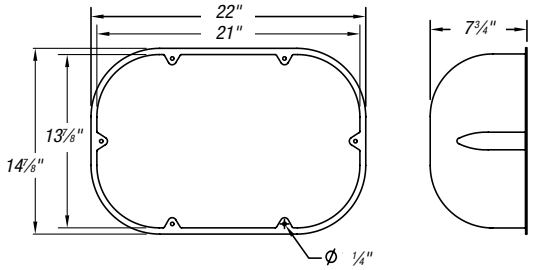
- DM3, DM6, DM7 Series with top-mounted heads
- SQ, SQ-D Series, all mountings
- X4, X2 or X3 Series LED, incandescent (wall mounted) AC and AC/DC or self-powered exit signs with no mounted heads
- XQ Series LED (wall mounted) AC and AC/DC or self-powered
- XLD, XLED Series LED (wall mounted)



Catalog Number CPS or CPS-4X (NEMA 4X)

Application

- MG Series (small cabinet) top- or front-mounted heads
- LCA-2MRS, LCA-2SQ, CA-2
- DM3, DM6, DM7 Series with top- or side-mounted heads



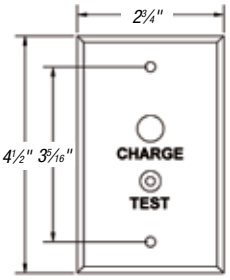
Remote Test Switch

Make testing your ceiling-mounted equipment easier with the remote test switch. Compatible with 120 or 277VAC circuits, the remote test switch will interrupt the line voltage to your equipment by means of a momentary push-button switch. AC On/Charge status indicator lamp ensures that power is going to your emergency lighting.

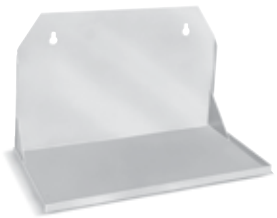
How To Order

Remote Test Switch (chrome).....**PSW**

Remote Test Switch (plastic).....**PSW1**



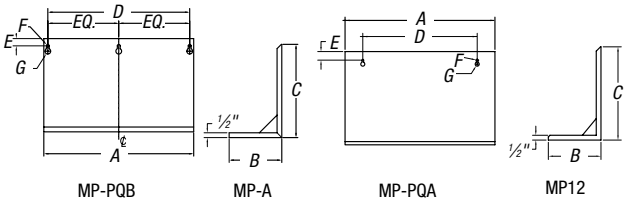
Mounting Platforms



- 14-gauge steel
- Corrosion-resistant undercoat
- Oven-baked finish
- ½" retaining lip on three sides
- Keyhole slots for easy mounting

MODEL	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
MP-PQB (MIST)	17	7¾	12¼	16	¾	5⁄16	⅝
MP-A (GRAY)	17	7¾	12¼	16	¾	5⁄16	⅝
MP-PQA (MIST)	16⅜	5¾	10¼	12½	⅞	3⁄16	7⁄16
MP12	27½	7¾	12¼	16	1⅝	5⁄32	5⁄16

Dimensions are approximate and subject to change.



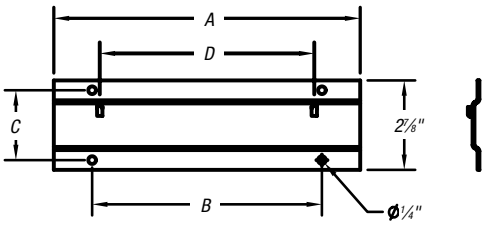
MP-PQB MP-A MP-PQA MP12

Mounting Brackets

- 16-gauge steel
- Corrosion-resistant undercoat
- Oven-baked finish
- Supplied with rubber stand-offs for unit and machine screws to secure unit to bracket

MODEL	DIMENSIONS (INCHES)			
	A	B	C	D
MB-A	10	7¾	2³⁄₁₆	7
MB-B	14¼	11¾	2³⁄₁₆	12⅝

Dimensions are approximate and subject to change.



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Mounting Plate Series

Specify mounting plate designation as a suffix to fixture-type model number.
Plates ordered separately; specify plate designation and fixture type.

230.1238 and 230.1239

- Single, double or triple round
- Thermoplastic construction
- Mounting plates shipped with two hole plugs
- Mist-white or black finish only
- Mounts directly to 4" octagonal box

Dimensions: 5" diameter, slotted mounting holes;
3 to 3 3/16" mounting center

*Mist-White — **230.1238***
*Mist-White Hole Plug — **230.1204***

*Black — **230.1239***
*Black Hole Plug — **230.1205***

430.0765 and 430.0766

- Single or double round
- Aluminum construction
- Mist-white or off-white finish
- Black finish optional
- Mounts directly to 4" octagonal box

Dimensions: 5 1/4", diameter 3 7/16" mounting center

Standard: ELF648, ELF648D

*Mist-White Single — **430.0765***

*Off-White Double — **430.0766***

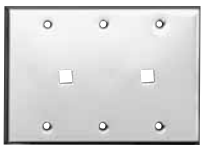
450.0129, 450.0397, 450.0398 and 450.0398

- Single, double or triple rectangular
- Single-, triple or 4-gang steel construction
- Chrome-plated finish only
- Mounts directly to standard outlet box

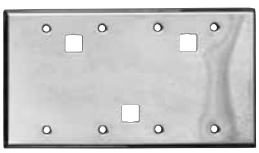
Dimensions: Single: 2 3/4" x 4 1/2" (for 1 fixtures)
3-gang: 6 7/16" x 4 1/2" (for 2 fixtures)
4-gang: 8 3/8" x 4 1/2" (for 2 or 3 fixtures)
3 5/16" mounting centers, all types

Standard: ELF622, ELF622D, ELF622T, ELF645T

***450.0129** — No Square Hole*
***450.1151** — 7/16" Square Hole*
***450.0194** — 1/2" Square Hole*



***450.0397** — No Square Hole*
***450.1152** — 7/16" Square Hole*
***450.1153** — 1/2" Square Hole*



***450.0398** — No Square Hole*
***450.1154** — 7/16" Square Hole*
***450.1155** — 1/2" Square Hole*

330.7583, 33.7577, 330.7584 and 330.7578

- Single or double round
- Die-cast aluminum construction
- Gasketed weatherproof
- Mist-white or black
- Satin enamel finish
- Mounts directly to 4" octagonal box

Dimensions: 4 1/8" diameter, 3 9/16" mounting center

Standard: ELF647, ELF647D

*Off-White Single — **330.7583***

*Black Single — **330.7577***

*Off-White Double — **330.7584***

*Black Double — **330.7578***

*Gasket — **245.0100***

12804

- Single rectangular
- Die-cast aluminum construction
- Gasketed weatherproof
- Silver gray enamel finish only
- Mounts directly to standard outlet box

Dimensions: 4 5/8" x 2 7/8", 3 1/4" mounting center

12804

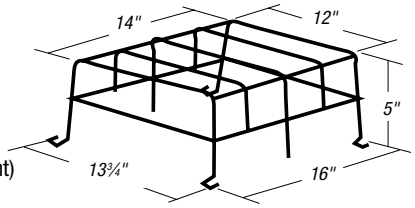
Accessories

Wire Guards

Catalog Number WG1-L

Application

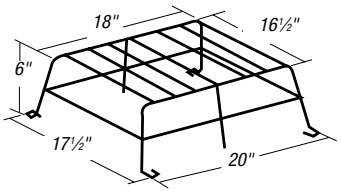
- Series DM and DS (top-mounted heads), SQ and SQ-D (semi recessed) and ELF644 (surface mount)
- MG Series



Catalog Number WG2-L

Application

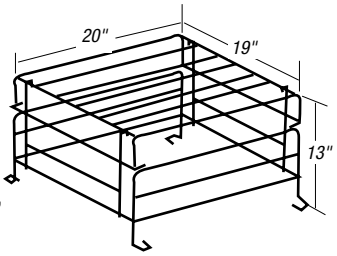
- Series PG and P12G, PN and P12N (A cabinet), MG, X2 and X3 (wall mount, self-powered, no mounted head) and XLD (wall mount)



Catalog Number WG3-L

Application

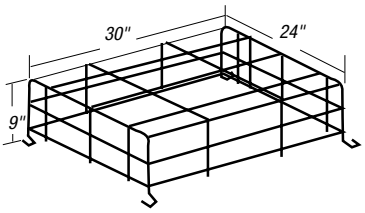
- Series PQ, P12Q, P12N2 (B cabinet)
- Series SL, SN, S12E4 (C cabinet)
- Series EL, E12L, ECN, E12CN, ENN and E12NN
- Series FG and F12G



Catalog Number WG4-L

Application

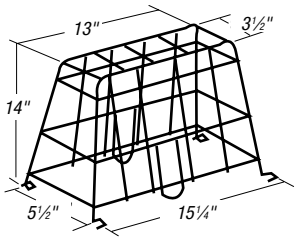
- Series DM and DS (side-mounted heads PAR36)
- Series S12E5, S12E6, S12L, S12N, S24E and S24N
- Series WP



Catalog Number WG5-L

Application

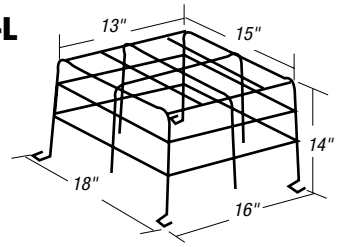
- Series XLD (AC-only ceiling and end mount)
- Series XQ (ceiling mount), X2, X3 (ceiling and end-mount) XT (ceiling mount) and X4 (ceiling or end mount)
- Series QLXN500 (exit only-ceiling or end mount)
- Series GRAN (ceiling mount) and GX (ceiling mount)



Catalog Number WG6-L

Application

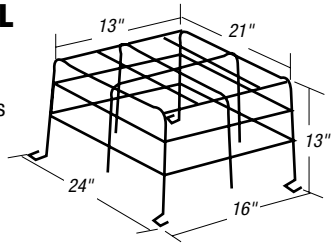
- Series X2 and X3 (wall mount, self powered with front-mounted heads)
- Series QLXN500R-2MR (combo wall mount)



Catalog Number WG7-L

Application

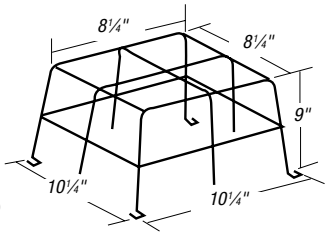
- Series ELF648D Remote Fixtures (double heads only)



Catalog Number WG8-L

Application

- Series ELF2, 2D and 2T (single head)
- Series ELF606, 622, 622D and 622T
- Series 645, 645D, 645T, 647, 647D and 648 (single head only)



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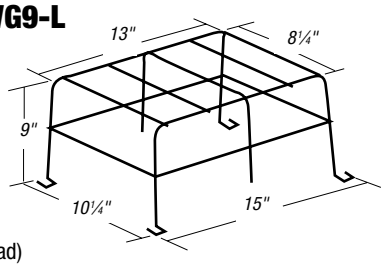
Accessories

Catalog Number WG9-L

Application

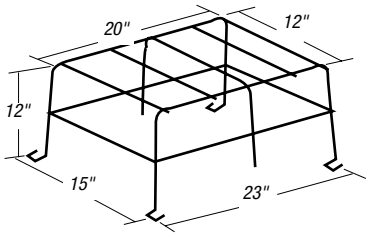
- Series ELF2 and 2D (double head)
- Series ELF622, 622D and 622T
- Series 645, 645D, 645T, 648 and 648D (double head)



Catalog Number WG10-L

Application

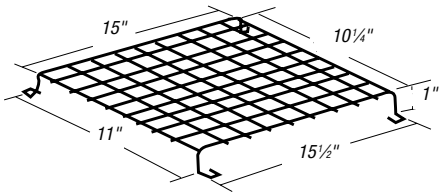
- Series DM and DS (side-mounted heads, PAR18)
- Series LCA-SQ, MG and QLXN500R-SQ (heads in any position)



Catalog Number WG11-L

Application

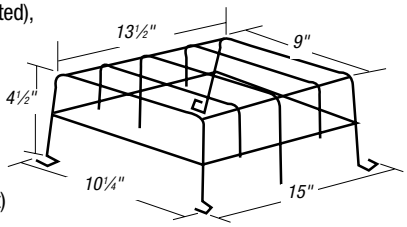
- Series 605P1
- Series SQ and SQ-D (fully recessed)
- Series ELF605 and ELF644FR



Catalog Number WG12-L

Application

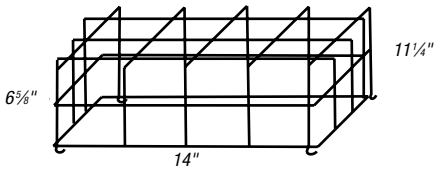
- Series XLD (AC only, wall mounted), XQ (wall mounted), X2, X3 (AC only, wall mount), XT (wall mount), X4 (LED or incandescent wall mount)
- Series ELF604, ELF603
- Series GRAN (wall mount)
- Series GX (wall mount)
- Series QLX500 (wall mount)



Catalog Number WG13-L

Application

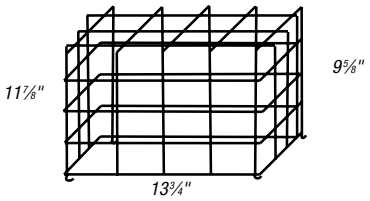
- Series IC-2, ICR-2 (remote)
- Series XLD (self powered, wall mount)
- Series LCA-2MR



Catalog Number WG14-L

Application

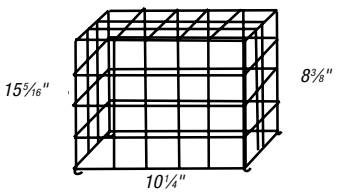
- Series XLD (self powered, ceiling mount)



Catalog Number WG15-L

Application

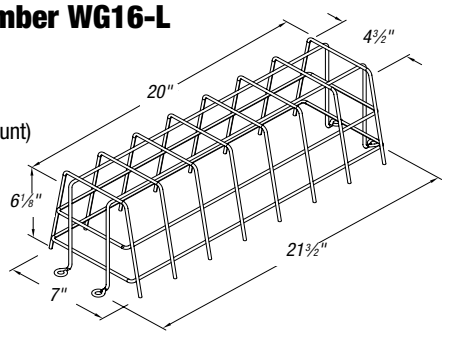
- Series XT (end mount), XLD (self-powered, end mount), XQ (end mount)
- Series GRAN (end mount)
- Series GX (end mount)
- Series QLX500 (end mount)



Catalog Number WG16-L

Application

- Series Cavalier (CA-2, CA-3 mount)



Wire Size Guide

Determining Wire Size

The following information is provided to assist in designing proper emergency lighting systems effectively and economically by using the smallest permissible wire size for load circuits. When remote lighting fixtures and/or exit signs are connected to emergency lighting units, circuit runs must be of sufficient size to maintain a proper operating voltage to all lamps. The National Electrical Code® limits voltage to drop to a maximum of 5% of nominal. The table below gives the maximum length or wire run based onsystem voltage, wire gauge and total wattage on the run. To determine the maximum length of a wire run not listed, divide the value of the load in watts into the constant listed at the bottom of each row. Example, the maximum wire run for #10 wire on a 12-volt system, with a 54-watt load, is 3397 ÷ 54, or 62 feet.

Conversely, to determine the maximum load on a run of known length, divide the length into the constant.

Example, a 36-foot run of #12 wire on a 6-volt system can be loaded to 534 ÷ 36, or 14 watts; on #10 wire, 23 watts.

Wiring Distance in Feet (Maximum Voltage Drop 5%)

TOTAL WATTS ON WIRE RUN	6-VOLT WIRE SIZE				12-VOLT WIRE SIZE					24-VOLT WIRE SIZE			
	#12	#10	#8	#6	#12	#10	#8	#6	#4	#12	#10	#8	#6
6	89	141	225	357	356	566	900	1431	+	1425	+	+	+
8	66	106	168	268	267	424	675	1073	1707	1068	1698	+	+
9	59	94	150	238	237	377	600	954	1517	949	1509	+	+
10	53	84	135	214	213	339	540	859	1366	854	1358	+	+
12	44	70	112	178	178	283	450	715	1138	712	1132	1801	+
16	33	53	84	134	133	212	337	536	853	534	849	1350	+
18	29	47	75	119	118	188	300	477	758	474	754	1200	1909
24	22	35	56	89	89	141	225	357	569	356	566	900	1431
25	21	33	54	85	85	135	216	343	546	341	543	864	1374
27	19	31	50	79	79	125	200	318	505	316	503	800	1272
30	17	28	45	71	71	113	180	286	455	284	452	720	1145
36	14	23	37	59	59	94	150	238	379	237	377	600	954
42	12	20	32	51	50	80	128	204	325	203	323	514	818
45	11	18	30	47	47	75	120	190	303	189	301	480	763
48	11	17	28	44	44	70	112	178	284	178	283	450	715
50	10	16	27	42	42	67	108	171	273	170	271	432	687
75	7	11	18	28	28	45	72	114	182	113	181	288	458
100	5	8	13	21	21	33	54	85	136	85	135	216	343
150	-	5	9	14	14	22	36	57	91	56	90	144	229
200	-	-	6	10	10	16	27	42	68	42	67	108	171
250	-	-	5	8	8	13	21	34	54	34	54	86	137
300	-	-	-	7	7	11	18	28	45	28	45	72	114
400	-	-	-	5	5	8	13	21	34	21	33	54	85
500	-	-	-	-	-	6	10	17	27	17	27	43	68
Constant	534	849	1350	2148	2137	3397	5403	8590	13,660	8548	13,588	21,613	34,363

Longer Wire Runs

The wiring distances give the maximum length of a battery circuit, assuming that the entire load is concentrated at the end of the circuit. If loads are uniformly spaced along the circuit path (equal watts, equal distances), the lengths in the table may be increased, based on number of fixtures on a given circuit, by means of the chart and formula below.

NUMBER OF FIXTURES	2	3	4	5	6	N
MULTIPLY BY FEET	1.33	1.5	1.6	1.67	1.71	2N/(N+1)

For example, a 36-foot long, 6-volt circuit has (three) 9-watt heads spaced 12 feet apart. According to the wire run table, #8 wire must be used (at 50 feet for a 5% voltage drop) but, by multiplying the 31 feet for #10 wire by 1.5, a 46½ foot wire run is acceptable, so #10 wire may be used and still meet the 5% voltage drop limitation.

Note: *According to the National Electrical Code®, Article 720-Y, the smallest permissible wire size for systems under 50 volts is the #12AWG wire gauge.*

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Article 700 — Emergency Systems

A. General

700-1. Scope. The provisions of this article apply to the electrical safety of the installation, operation and maintenance of emergency systems consisting of circuits and equipment intended to supply, distribute and control electricity for illumination or power, or both, to required facilities when the normal electrical supply or system is interrupted. Emergency systems are those systems legally required and classed as emergency by municipal, state, federal or other codes, or by any governmental agency having jurisdiction. These systems are intended to automatically supply illumination or power, or both, to designated areas and equipment in the event of failure of the normal supply or in the event of accident to elements of a system intended to supply, distribute and control power and illumination essential for safety to human life.
(FPN No. 1): For further information regarding wiring and installation of emergency systems in health care facilities, see Article 517.
(FPN No. 2): For further information regarding performance and maintenance of emergency systems in health care facilities, see Standard for Health Care Facilities, NFPA 99-2005.
(FPN No. 3): Emergency systems are generally installed in places of assembly where artificial illumination is required for safe exiting and for panic control in buildings subject to occupancy by large numbers of persons, such as hotels, theaters, sports arenas, health care facilities and similar institutions. Emergency systems may also provide power for such functions as ventilation where essential to maintain life, fire detection and alarm systems, elevators, fire pumps, public safety communications systems, industrial processes where current interruption would produce serious life safety or health hazards and similar functions.
(FPN No. 4): For specification of locations where emergency lighting is considered essential to life safety, see Life Safety Code, NFPA 101®-2006.
(FPN No. 5): For further information regarding performance of emergency and standby power systems, see Standard for Emergency and Standby Power Systems, NFPA 110-2005.

700-2. Application of Other Articles. Except as modified by this article, all applicable articles of this Code shall apply.

700-3. Equipment Approval. All equipment shall be approved for use on emergency systems.

700-4. Tests and Maintenance.

(a) Conduct or Witness Test. The authority having jurisdiction shall conduct or witness a test of the complete system upon installation and periodically afterward.

(b) Tested Periodically. Systems shall be tested periodically on a schedule acceptable to the authority having jurisdiction to ensure the systems are maintained in proper operating condition.

(c) Battery Systems Maintenance. Where battery systems or unit equipment are involved, including batteries used for starting, control or ignition in auxiliary engines, the authority having jurisdiction shall require periodic maintenance.

(d) Written Record. A written record shall be kept of such tests and maintenance.

(e) Testing under Load. Means for testing all emergency lighting and power systems during maximum anticipated load conditions shall be provided. FPN: For testing and maintenance procedures of emergency power supply systems (EPSSs), see NFPA 110-2005, Standard for Emergency and Standby Power Systems.

700-5. Capacity.

(a) Capacity and Rating. An emergency system shall have adequate capacity and rating for all loads to be operated simultaneously. The emergency system equipment shall be suitable for the maximum available fault current at its terminals.

(b) Selective Load Pickup, Load Shedding and Peak Load Shaving. The alternate power source shall be permitted to supply emergency, legally required standby and optional standby system loads where the source has adequate capacity or where automatic selective load pickup and load shedding is provided as needed to ensure adequate power to (1) the emergency circuits; (2) the legally required standby circuits; and (3) the optional standby circuits, in that order of priority. The alternate power source shall be permitted to be used for peak load shaving, provided the above conditions are met. Peak load-shaving operation shall be permitted for satisfying the test requirement of Section 700-4(b), provided all other conditions of Section 700-4 are met. A portable or temporary alternate source shall be available whenever the emergency generator is out of service for major maintenance or repair.

700-6. Transfer Equipment.

(a) General. Transfer equipment, including automatic transfer switches, shall be automatic and identified for emergency use and approved by the authority having jurisdiction. Transfer equipment shall be designed and installed to prevent the inadvertent interconnection of normal and emergency sources of supply in any operation of the transfer equipment. Transfer equipment and electric power production systems installed to permit operation in parallel with the normal source shall meet the requirements of Article 705.

(b) Bypass Isolation Switches. Means shall be permitted to bypass and isolate the transfer equipment. Where bypass isolation switches are used, inadvertent parallel operation shall be avoided.

(c) Automatic Transfer Switches shall be electrically operated and mechanically held. Automatic transfer switches, rated 600VAC and below, shall be listed for emergency system use.

(d) Use. Transfer equipment shall supply only emergency loads.

700-7. Signals.

Audible and visual signal devices shall be provided, where practicable, for the following purposes described in 700.7(A) through (D).

(a) Derangement. To indicate derangement of the emergency source.

(b) Carrying Load. To indicate that the battery is carrying load.

(c) Not Functioning. To indicate that the battery charger is not functioning.

(d) Ground Fault. To indicate a ground fault in solidly grounded wye emergency systems of more than 150 volts to ground and circuit protective devices rated 1000 amperes or more.

National Electrical Code® *(continued)*

The sensor for the ground-fault signal devices shall be located at, or ahead of, the main system disconnecting means for the emergency source, and the maximum setting of the signal devices shall be for a ground-fault current of 1200 amperes. Instructions on the course of action to be taken in event of indicated ground fault shall be located at or near the sensor location.

(FPN): For signals for generator sets, see Standard for Emergency and Standby Power Systems, NFPA 110-2005.

700-8. Signs.

(a) Emergency Sources. A sign shall be placed at the service entrance equipment indicating type and location of on-site emergency power sources. Exception: A sign shall not be required for individual unit equipment as specified in Section 700-12(f).

(b) Grounding. Where the grounded circuit conductor connected to the emergency source is connected to a grounding electrode conductor at a location remote from the emergency source, there shall be a sign at the grounding location that shall identify all emergency and normal sources connected at that location.

B. Circuit Wiring

700-9. Wiring, Emergency System.

(a) Identification. All boxes and enclosures (including transfer switches, generators, and power panels) for emergency circuits shall be permanently marked so they will be readily identified as a component of an emergency circuit or system.

(b) Wiring. Unless otherwise permitted in (1) through (5), wiring from emergency source or emergency source distribution overcurrent protection to emergency loads shall be kept entirely independent of all other wiring and equipment. Wiring of two or more emergency circuits supplied from the same source shall be permitted in the same raceway, cable, box or cabinet.

(1) Wiring from the normal power source located in transfer equipment enclosures.

(2) Wiring supplied from two sources in exit or emergency luminaires

(3) Wiring from two sources in a common junction box, attached to exit or emergency luminaires.

(4) Wiring within a common junction box attached to unit equipment, containing only the branch circuit supplying the unit equipment and the emergency circuit supplied by the unit equipment.

(5) Wiring from an emergency source to supply any combination of emergency, legally required or optional loads in accordance with (a), (b), and (c):

(a) From separate vertical switchboard sections, with or without a common bus, or from individual disconnects mounted in separate enclosures.

(b) The common bus or separate sections of the switchboard or the individual enclosures shall be permitted to be supplied by single or multiple feeders without overcurrent protection at the source.

Exception to (5)(b): Overcurrent protection shall be permitted at the source or for the equipment, provided the overcurrent protection is selectively coordinated with the downstream overcurrent protection.

(c) Legally required and optional standby circuits shall not originate from the same vertical switchboard section, panelboard enclosure, or individual disconnect enclosure as emergency circuits.

(c) Wiring Design and Location. Emergency wiring circuits shall be designed and located to minimize the hazards that might cause failure due to flooding, fire, icing, vandalism and other adverse conditions.

(d) Fire Protection. Emergency systems shall meet the following additional requirements in 700.9 (D)(1) and (D)(2) in assembly occupancies for not less than 1000 persons or in buildings above 75 ft. (23 m) in height with any of the following occupancy classes: assembly, educational, residential, detention and correctional, business and mercantile.

(1) Feeder-circuit wiring shall meet one of the following conditions:

(1) Be installed in spaces or areas that are fully protected by an approved automatic fire-suppression system.

(2) Be a listed electrical circuit protective system with a minimum 1-hour fire rating. FPN: UL® guide information for electrical circuit protection systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

(3) Be protected by a listed thermal barrier system for electrical system components.

(4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 1 hour and contains only emergency wiring circuits.

(5) Be embedded in not less than 2 in. (50 mm) of concrete.

(6) Be a cable listed to maintain circuit integrity for not less than 1 hour when installed in accordance with the listing requirements.

(2) Feeder-Circuit Equipment. Equipment for feeder circuits (transfer switches, transformers, panel boards) shall be either located in spaces fully protected by approved automatic fire suppression systems (sprinklers, carbon dioxide systems, etc.) or in spaces with a 1-hour fire resistance rating. FPN: For the definition of occupancy class, see Section 6.1 of Life Safety Code, NFPA 101-2006.

(3) Generator Control Wiring. Control conductors installed between the transfer equipment and the emergency generator shall be kept entirely independent of all other wiring and shall meet the conditions of 700.9(D)(1).

C. Sources of Power

700-12. General Requirements.

Current supply shall be such that, in the event of failure of the normal supply to, or within, the building or group of buildings concerned, emergency lighting, emergency power or both shall be available within the time required for the application but not to exceed 10 seconds. The supply system for emergency purposes, in addition to the normal services to the building and meeting the general requirements of this section, shall be one or more of the types of systems described in 700.12(a) through (e) below. Unit equipment in accordance with Section 700.12(f) shall satisfy the applicable requirements of this article. In selecting an emergency source of power, consideration shall be given to the occupancy and the type of service to be rendered, whether of minimum duration, as for evacuation of a theater, or longer duration, as for supplying emergency power and lighting due to an indefinite period of current failure from trouble either inside or outside the building. Equipment shall be designed and located to minimize the hazards that might cause complete failure due to flooding, fires, icing and vandalism. Equipment for sources of power as described in Sections 700.12(a) through (e) where located within assembly occupancies for greater than 1000 persons or in buildings above 75 ft. (23 m) in height with any of the following occupancy classes: assembly, educational, residential, detention and correctional, business and mercantile, shall be installed either in spaces fully protected by approved automatic fire suppression systems (sprinklers, carbon dioxide systems and so forth), or in spaces with a 1-hour fire rating.

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FPN No. 1: For definition of occupancy class, see Section 4.1 of Life Safety Code, NFPA 101-2006.

FPN No. 2: Assignment of degree of reliability of the recognized emergency supply system depends on the careful evaluation of the variables at each particular installation.

(a) Storage Battery. Storage batteries used as source of power for emergency systems shall be of suitable rating and capacity to supply and maintain the total load for a period of 1.5 hours minimum, without the voltage applied to the load falling below 87.5 percent of normal. Batteries, whether of the acid or alkali type, shall be designed and constructed to meet the requirements of emergency service and shall be compatible with the charger for that particular installation. For a sealed battery, the container shall not be required to be transparent. However, for the lead acid battery that requires water additions, transparent or translucent jars shall be furnished. Automotive-type batteries shall not be used. An automatic battery charging means shall be provided.

(b) Generator Set.

(1) Prime Mover-Driven. For a generator set driven by a prime mover acceptable to the authority having jurisdiction and sized in accordance with Section 700-5. Means shall be provided for automatically starting the prime mover on failure of the normal service and for automatic transfer and operation of all required electrical circuits. A time-delay feature permitting a 15-minute setting shall be provided to avoid retransfer in case of short-time reestablishment of the normal source.

(2) Internal Combustion as Prime Movers. Where internal combustion engines are used as the prime mover, an on-site fuel supply shall be provided with an on-premise fuel supply sufficient for not less than 2 hours full-demand operation of the system. Where power is needed for the operation of the fuel transfer pumps to deliver fuel to a generator set dry tank, this pump shall be connected to the emergency power system.

(3) Dual Supplies. Prime movers shall not be solely dependent upon a public utility gas system for their fuel supply or municipal water supply for their cooling systems. Means shall be provided for automatically transferring from one fuel supply to another where dual fuel supplies are used. Exception: Where acceptable to the authority having jurisdiction, the use of other than on-site fuels shall be permitted where there is a low probability of a simultaneous failure of both the off-site fuel delivery system and power from the outside electrical utility company.

(4) Battery Power and Dampers. Where a storage battery is used for control or signal power, or as the means of starting the prime mover, it shall be suitable for the purpose and shall be equipped with an automatic charging means independent of the generator set. Where the battery charger is required for the operation of the generator set, it shall be connected to the emergency system. Where power is required for the operation of dampers used to ventilate the generator set, the dampers shall be connected to the emergency system.

(5) Auxiliary Power Supply. Generator sets that require more than 10 seconds to develop power shall be permitted as an auxiliary power supply to energize the emergency system until the generator can pick up the load.

(6) Outdoor Generator Sets. Where an outdoor housed generator set is equipped with a readily accessible disconnecting means located within sight of the building or structure supplied, an additional disconnecting means shall not be required where ungrounded conductors serve or pass through the building or structure.

(c) Uninterruptible Power Supplies. Uninterruptible power supplies used to provide power for emergency systems shall comply with the applicable provisions of Sections 700-12(a) and (b).

(d) Separate Service. Where approved by the authority having jurisdiction as suitable for use as an emergency source of power, an additional service shall be permitted. This service shall be in accordance with the applicable provisions of Article 230 and following additional requirements.
(1) Separate service drop or service lateral.
(2) Service conductors sufficiently remote electrically and physically from any other service conductors to minimize the possibility of simultaneous interruption of supply.

(e) Fuel Cell System. Fuel cell systems used as a source of power for emergency systems shall be of suitable rating and capacity to supply and maintain the total load for not less than 2 hours of full-demand operation. Installation of a fuel cell system shall meet the requirements of Parts II through VIII of Article 692. Where a single fuel cell system serves as the normal supply for the building or group of buildings concerned, it shall not serve as the sole source of power for the emergency standby system.

(f) Unit Equipment. Individual unit equipment for emergency illumination shall consist of (1) a rechargeable battery; (2) a battery charging means; (3) provisions for one or more lamps mounted on the equipment, or shall be permitted to have terminals for remote lamps, or both; and (4) a relaying device arranged to energize the lamps automatically upon failure of the supply to the unit equipment. The batteries shall be of suitable rating and capacity to supply and maintain at not less than 87½ percent of the nominal battery voltage for the total lamp load associated with the unit for a period of at least 1½ hours, or the unit equipment shall supply and maintain not less than 60 percent of the initial emergency illumination for a period of at least 1½ hours. Storage batteries, whether of the acid or alkali type, shall be designed and constructed to meet the requirements of emergency service. Unit equipment shall be permanently fixed in place (i.e., not portable) and shall have all wiring to each unit installed in accordance with the requirements of any of the wiring methods in Chapter 3. Flexible cord and plug connection shall be permitted, provided that the cord does not exceed 3 ft. (900mm) in length. The branch circuit feeding the unit equipment shall be the same branch circuit as that serving the normal lighting in the area and connected ahead of any local switches. The branch circuit that feeds unit equipment shall be clearly identified at the distribution panel. Emergency luminaires that obtain power from a unit equipment and are not part of the unit equipment shall be wired to the unit equipment as required by Section 700-9 and by one of the wiring methods of Chapter 3. Exception: In a separate and uninterrupted area supplied by a minimum of three normal lighting circuits, a separate branch circuit for unit equipment shall be permitted if it originates from the same panelboard as that of the normal lighting circuits and is provided with a lock-on feature.

National Electrical Code® *(continued)*

D. Emergency System Circuits for Lighting and Power

700-15. Loads on Emergency Branch Circuits. No appliances and no lamps, other than those specified as required for emergency use, shall be supplied by emergency lighting circuits.

700-16. Emergency Illumination. Emergency illumination shall include all required means of egress lighting, illuminated exit signs and all other lights specified as necessary to provide required illumination. Emergency lighting systems shall be designed and installed so that the failure of any individual lighting element, such as the burning out of a lamp, cannot leave in total darkness any space that requires emergency illumination. Where high-intensity discharge lighting such as high- and low-pressure sodium mercury vapor and metal halide is used as the sole source of normal illumination, the emergency lighting system shall be required to operate until normal illumination has been restored. Exception: Where alterative means that ensure the emergency lighting illumination level is maintained shall be permitted.

700-17. Circuits for Emergency Lighting. Branch circuits that supply emergency lighting shall be installed to provide service from a source complying with Section 700-12 when the normal supply for lighting is interrupted. Such installations shall provide either one of the following: (1) an emergency lighting supply, independent of the general lighting supply, with provisions for automatically transferring the emergency lights upon the event of failure of the general lighting system supply, or (2) two or more separate and complete systems with independent power supply, each system providing sufficient current for emergency lighting purposes. Unless both systems are used for regular lighting purposes and are both kept lighted, means shall be provided for automatically energizing either system upon failure of the other. Either or both systems shall be permitted to be a part of the general lighting system of the protected occupancy if circuits supplying lights for emergency illumination are installed in accordance with other sections of this article.

700-18. Circuits for Emergency Power. For branch circuits that supply equipment classed as emergency, there shall be an emergency supply source to which the load will be transferred automatically upon the failure of the normal supply.

E. Control—Emergency Lighting Circuits

700-20. Switch Requirements. The switch or switches installed in emergency lighting circuits shall be arranged so that only authorized persons will have control of emergency lighting. Exception No. 1: Where two or more single-throw switches are connected in parallel to control a single circuit, at least one of these switches shall be accessible only to authorized persons. Exception No. 2: Additional switches that act only to put emergency lights into operation but not disconnect them shall be permissible. Switches connected in series or 3- and 4-way switches shall not be used.

700-21. Switch Location. All manual switches for controlling emergency circuits shall be in locations convenient to authorized persons responsible for their actuation. In facilities covered by Articles 518 and 520, a switch for controlling emergency lighting systems shall be located in the lobby or at a place conveniently accessible thereto. In no case shall a control switch for emergency lighting be placed in a motion-picture projection booth or on a stage or platform. Exception: Where multiple switches are provided, one such switch shall be permitted in such locations where arranged so that it can energize the circuit only, but cannot de-energize the circuit.

700-22. Exterior Lights. Those lights on the exterior of a building that are not required for illumination when there is sufficient daylight shall be permitted to be controlled by an automatic light-actuated device.

700-23. Dimmer Systems. A dimmer system containing more than one dimmer and listed for use in emergency systems shall be permitted to be used as a control device for energizing emergency lighting circuits. Upon failure of normal power, the dimmer system shall be permitted to selectively energize only those branch circuits required to provide minimum emergency illumination. All branch circuits supplied by the dimmer system cabinet shall comply with the wiring methods of Article 700.

F. Overcurrent Protection

700-25. Accessibility. The branch-circuit overcurrent devices in emergency circuits shall be accessible to authorized persons only.

700-26. Ground-Fault Protection of Equipment. The alternate source for emergency systems shall not be required to have ground-fault protection of equipment with automatic disconnecting means. Ground-fault indication of the emergency source shall be provided per Section 700-7(d).

700-27. Coordination. Emergency system(s) overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices. Exception: Selective coordination shall not be required in (1) or (2): (1) Between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective device exits on the transformer secondary. (2) Between overcurrent protective device of the same size (ampere rating) in series.

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7.8 Illumination of Means of Egress.

7.8.1 General.

7.8.1.1 Illumination of means of egress shall be provided in accordance with Section 7.8 for every building and structure where required in Chapter 11 through Chapter 43. For the purposes of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators and passageways leading to an exit. For the purposes of this requirement, exit discharge shall include only designated stairs, aisles, corridors, ramps, escalators, walkways and exit passageways leading to a public way.

7.8.1.2 Illumination of means of egress shall be continuous during the time that the conditions of occupancy require that the means of egress be available for use, unless otherwise provided in 7.8.1.2.2.

7.8.1.2.1 Artificial lighting shall be employed at such locations and for such periods of time as are necessary to maintain the illumination to the minimum criteria values herein specified.

7.8.1.2.2 Automatic, motion sensor-type lighting switches shall be permitted within the means of egress. Provided that the switch controllers are equipped for fail-safe operation, the illumination timers are set for a minimum 15-minute duration, and the motion sensor is activated by any occupant movement in the area served by the lighting units.

7.8.1.3 The floors and other walking surfaces within an exit and within the portions of the exit access and exit discharge designated by 7.8.1.1 shall be illuminated as follows:
(1) During conditions of stair use, the minimum illumination for new stairs shall be at least 10 ft.-candle (108 lux), measured at the walking surfaces.
(2) The minimum illumination for floors and walking surfaces, other than new stairs during conditions of stair use, shall be to values of at least 1 ft-candle (10.8 lux), measured at the floor.
(3) In assembly occupancies, the illumination of the floors of exit access shall be at least 0.2 ft. candle (2.2 lux) during periods of performances or projections involving directed light.
(4) The minimum illumination requirements shall not apply where operations or processes require low lighting levels.

7.8.1.4 Required illumination shall be arranged so that the failure of any single lighting unit does not result in an illumination level of less than 0.2 ft-candle (2.2 lux) in any designated area.

7.8.1.5 The equipment or units installed to meet the requirements of Section 7.10 also shall be permitted to serve the function of illumination of means of egress, provided that all requirements of section 7.8 for such illumination are met.

7.8.2 Sources of Illumination.

7.8.2.1 Illumination of means of egress shall be from a source of considered reliable by the authority having jurisdiction.

7.8.2.2 Battery-operated electric lights and other types of portable lamps or lanterns shall not be used for primary illumination of means of egress. Battery-operated electric lights shall be permitted to be used as an emergency source to the extent permitted under Section 7.9.

7.9 Emergency Lighting.

7.9.1 General.

7.9.1.1 Emergency lighting facilities for means of egress shall be provided in accordance with Section 7.9 for the following:
(1) Buildings or structures where required in Chapter 11 through Chapter 43.
(2) Underground and limited access structures as addressed in Section 11.7.
(3) High-rise buildings as required by other sections of this Code.
(4) Doors equipped with delayed-egress locks.
(5) Stair shaft and vestibule of smokeproof enclosures, for which the following also apply:
(a) The stair shaft and vestibule shall be permitted to include a standby generator that is installed for the smokeproof enclosure mechanical ventilation equipment.
(b) The standby generator shall be permitted to be used for the stair shaft and vestibule emergency lighting power supply.
(c) New access-controlled egress doors in accordance with 7.2.1.6.2.

7.9.1.2 For the purposes of 7.9.1.1, exit access shall include only designated stairs, aisles, corridors, ramps, escalators and passageways leading to an exit. For the purposes of 7.9.1.1, exit discharge shall include only designated stairs, ramps, aisles, walkways and escalators leading to a public way.

7.9.1.3 Where maintenance of illumination depends on changing from one energy source to another, a delay of not more than 10 seconds shall be permitted.

7.9.2 Performance of System.

7.9.2.1* Emergency illumination shall be provided for not less than 1½ hours in the event of failure of normal lighting. Emergency lighting facilities shall be arranged to provide initial illumination that is not less than an average of 1 ft-candle (10.8 lux) and, at any point, not less than 0.1 ft.-candle (1.1 lux) measured along the path of egress at floor level. Illumination levels shall be permitted to decline to not less than an average of 0.6 ft.-candle (6.5 lux) and, at any point, not less than of 0.06 ft.-candle (0.65 lux) at the end of the 1½ hours. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.

7.9.2.2 New emergency power systems for emergency lighting shall be at least Type 10, Class 1.5, Level 1, in accordance with NFPA 110, Standard for Emergency and Standby Power Systems.

7.9.2.3 The emergency lighting system shall be arranged to provide the required illumination automatically in the event of any of the following:
(1) Failure of public utility or other outside electrical power supply.
(2) Opening of a circuit breaker or fuse.
(3) Manual act(s), including accidental opening of a switch controlling normal lighting facilities.

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7.9.2.4 Emergency generators providing power to emergency lighting systems shall be installed, tested and maintained in accordance with NFPA 110, Standard for Emergency and Standby Power Systems. Stored electrical energy systems where required in this Code, other than battery systems for emergency luminaires in accordance with 7.9.2.5, shall be installed and tested in accordance with NFPA 111, Standard on Stored Electrical Energy Emergency and Standby Power Systems.

7.9.2.5 Unit equipment and battery systems for emergency luminaires shall be listed to ANSI/UL® 924, Standard for Emergency Lighting and Power Equipment.

7.9.2.6 Existing battery-operated emergency lights shall use only reliable types of rechargeable batteries provided with suitable facilities for maintaining them in properly charged condition. Batteries used in such lights or units shall be approved for their intended use and shall comply with NFPA 70, National Electrical Code®.

7.9.2.7 The emergency lighting system shall be either continuously in operation or shall be capable of repeated automatic operation without manual intervention.

7.9.3 Periodic Testing of Emergency Lighting Equipment.

7.9.3.1 Required emergency lighting systems shall be tested in accordance with one of the three options offered by 7.9.3.1.1, 7.9.3.1.2 or 7.9.3.1.3.

7.9.3.1.1 Testing of required emergency lighting systems shall be permitted to be conducted as follows:
(1) Functional testing shall be conducted monthly with a minimum of 3 weeks and a maximum of 5 weeks between tests, for not less than 30 seconds, except as otherwise permitted by 7.9.3.1.1(2).
(2) The test interval shall be permitted to be extended beyond 30 days with the approval of the authority having jurisdiction.
(3) Functional testing shall be conducted annually for a minimum of 1½ hours if the emergency lighting system is battery powered.
(4) The emergency lighting equipment shall be fully operational for the duration of the tests required by 7.9.3.1.1 (1) and 7.9.3.1.1 (3).
(5) Written records of visual inspections and tests shall be kept by the owner for inspection by the authority having jurisdiction.

7.9.3.1.2 Testing of required emergency lighting systems shall be permitted to be conducted as follows:
(1) Self-testing/self-diagnostic battery-operated emergency lighting equipment shall be provided.
(2) Self-testing/self-diagnostic, battery-operated emergency lighting equipment shall automatically perform not less than once every 30 days a test for not less than 30 seconds and a diagnostic routine.
(3) Self-testing/self-diagnostic battery-operated emergency lighting equipment shall indicate failures by a status indicator.
(4) A visual inspection shall be performed at intervals not exceeding 30 days.
(5) Functional testing shall be conducted annually for not less than 1½ hours.
(6) Self-testing/self-diagnostic battery-operated emergency lighting equipment shall be fully operational for the duration of the 1½ hour test.
(7) Written records of visual inspections and tests shall be kept by the owner for inspection by the authority having jurisdiction.

7.9.3.1.3 Testing of required emergency lighting systems shall be permitted to be conducted as follows:
(1) Computer-based, self-testing/self-diagnostic battery-operated emergency lighting equipment shall be provided.
(2) Not less than once every 30 days, emergency lighting equipment shall automatically perform a test with a duration of a minimum 30 seconds and a diagnostic routine.
(3) The emergency lighting equipment shall automatically perform annually a test for not less than 1½ hours.
(4) The emergency lighting equipment shall be fully operational for the duration of the tests required by 7.9.3.1.3(2) and 7.9.3.1.3(3).
(5) The computer-based system shall be capable of providing a report of the history of tests and failures at all times.

7.10 Marking of Means of Egress.

7.10.1 General.

7.10.1.1 Where required. Means of egress shall be marked in accordance with section 7.10 where required in Chapter 11 through Chapter 43.

7.10.1.2 Exits.

7.10.1.2.1 Exits, other than main exterior exit doors that obviously and clearly are identifiable as exits, shall be marked by an approved sign that is readily visible from any direction of exit access.

7.10.1.2.2 Horizontal components of the egress path within an exit enclosure shall be marked by approved exit or directional exit signs where the continuation of the egress path is not obvious.

7.10.1.3 Exit Door Tactile Signage. Tactile signage shall be provided to meet the following criteria, unless otherwise provided in 7.10.1.4:
(1) Tactile signage shall be located at each exit door requiring an exit sign.
(2) Tactile signage shall read as follows: EXIT.
(3) Tactile signage shall comply with ICC/ANSI A117.1, American National Standard for Accessible and Usable Buildings and Facilities.

7.10.1.4 Existing Exemption. The requirements of 7.10.1.3 shall not apply to existing buildings, provided that the occupancy classification does not change.

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7.10.1.5 Exit Access.

7.10.1.5.1 Access to exits shall be marked by approved, readily visible signs in all cases where the exit or way to reach the exit is not readily apparent to the occupants.

7.10.1.5.2 New sign placement shall be such that no point in an exit access corridor is in excess of the rated viewing distance or 100 ft. (30m), which ever is less, from the nearest sign.

7.10.1.6 Floor Proximity Exit Signs. Where floor proximity exit signs are required by Chapter 11 through Chapter 43, such signs shall comply with 7.10.3. 7.10.4, 7.10.5 and 7.10.6 for externally illuminated signs and 7.10.7 for internal illuminated signs. Such signs shall be located near the floor level in additions to those signs required for doors or corridors. The bottom of the sign shall be not less than 6 in. (150mm), but not more than 18 in. (455 mm), above the floor. For exit doors, the sign shall be mounted on the door or adjacent to the door, with the nearest edge of the sign within 4 in. (100mm) of the door frame.

7.10.1.7 Floor Proximity Egress Path Marking. Where floor proximity egress path marking is required in Chapter 11 through Chapter 43, an approved floor proximity egress path marking system that is internally illuminated shall be installed within 18 in. (455mm) of the floor. Floor proximity egress path marking systems shall be listed in accordance with ANSI/UL® 1994, Standard for Luminous Egress Path Marking Systems. The system shall provide a visible delineation of the path of travel along the designated exit access and shall be essentially continuous, except as interrupted by doorways, hallways, corridors or other such architectural features.The system shall operate continuously or at any time the building fire alarm system is activated. The activation, duration and continuity of operation of the system shall be in accordance with 7.9.2. The system shall be maintained in accordance with the product manufacturing listing.

7.10.1.8* Visibility. Every sign required in Section 7.10 shall be located and of such size, distinctive color and design that it is readily visible and shall provide contrast with decorations, interior finish or other signs. No decorations, furnishings or equipment that impairs visibility of a sign shall be permitted. No brightly illuminated sign (for other than exit purposes), display or object in or near the line of vision of the required exit sign that could detract attention from the exit sign shall be permitted.

7.10.1.9 Mounting Location. The bottom of new egress markings shall be located at a vertical distance of not more than 6 ft. 8 in. (2030mm) above the top edge of the egress opening intended for designation by that marking. Egress markings shall be located at a horizontal distance of not more than the required width of the egress opening, as measured from the edge of the egress opening intended for designation by that marking to the nearest edge of the marking.

7.10.2 Directional Signs.

7.10.2.1 A sign complying with 7.10.3 with a directional indicator showing the direction of travel shall be placed in every location where the direction of travel to reach the nearest exit is not apparent.

7.10.2.2 Directional exit signs shall be provided within horizontal components of the egress path within exit enclosures as required by 7.10.1.2.2.

7.10.3 Sign Legend.

7.10.3.1 Signs required by 7.10.1 and 7.10.2 shall read as follows in plainly legible letters, or other appropriate working shall be used: EXIT.

7.10.3.2 Where approved by the authority having jurisdiction, pictograms in compliance with NFPA 170, Standard for Fire Safety and Emergency Symbols, shall be permitted.

7.10.4 Power Source. Where emergency lighting facilities are required by the applicable provisions of Chapter 11 through Chapter 43 for individual occupancies, the signs, other than approved self-luminous signs and listed photoluminescent signs in accordance with 7.10.7.2, shall be illuminated by the emergency lighting facilities. The levels of illumination of the signs shall be in accordance with 7.10.6.3 or 7.10.7 for the required emergency lighting duration as specified in 7.9.2.1. However, the level of illumination shall be permitted to decline to 60 percent at the end of the emergency lighting duration.

7.10.5 Illumination of Signs.

7.10.5.1 General. Every sign required by 7.10.1.2, 7.10.1.5 or 7.10.8.1, other than where operations or processes require low lighting levels, shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be legible in both the normal end emergency lighting mode.

7.10.5.2 Continuous Illumination.

7.10.5.2.1 Every sign required to be illuminated by 7.10.6.3, 7.10.7 and 7.10.8.1 shall be continuously illuminated as required under the provisions of Section 7.8, unless otherwise provided in 7.10.5.2.2.

7.10.5.2.2 Illumination for signs shall be permitted to flash on and off upon activation of the fire alarms system.

7.10.6 Externally Illuminated Signs.

7.10.6.1 Size of Signs.

7.10.6.1.1 Externally illuminated signs required by 7.10.1 and 7.10.2, other than approved existing signs, unless otherwise provided in 7.10.6.1.2, shall read EXIT or shall use other appropriate wording in plainly legible letters sized as follows:

(1) For new signs, the letters shall be not less than 6 in. (150mm) high, with the principal strokes of letters not less than ¾ in. (19mm) wide.

(2) For existing signs, the required wording shall be permitted to be in plainly legible letters not less that 4 in. (100mm) high.

(3) The word EXIT shall be in letters of a width not less than 2 in. (51mm), except the letter I, and the minimum spacing between letters shall be not less than ⅜ in. (9.5mm).

(4) Sign legend elements larger than the minimum established in 7.10.6.1.1(1) through 7.10.6.1.1(3) shall use letter widths, strokes and spacing in proportion to their height.

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7.10.6.1.2 The requirements of 7.10.6.1.1 shall not apply to marking required by 7.10.1.3 and 7.10.1.6.

7.10.6.2 Size and Location of Directional Indicator.

7.10.6.2.1 Directional indicators, unless otherwise provided in 7.10.6.2.2, shall comply with the following:
(1) The directional indicator shall be located outside of the EXIT legend, not less than ⅜ in. (9.5mm) from any letter.
(2) The directional indicator shall be of a chevron type, as shown in Figure 7.10.6.2.1.
(3) The directional indicator shall be identifiable as a directional indicator at a distance of 40 ft. (12m).
(4) A directional indicator larger than the minimum established for compliance with 7.10.6.2.1(3) shall be proportionately increased in height, width and stroke.
(5) The directional indicator shall be located at the end of the sign for the direction indicated.

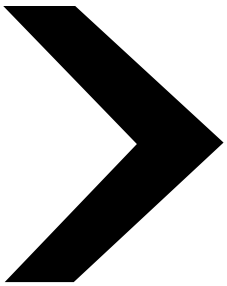

Figure 7.10.6.2.1 Chevron-Type Indicator.

7.10.6.2.2 The requirements of 7.10.6.2.1 shall not apply to approved existing signs.

7.10.6.3 Level of Illumination. Externally illuminated signs shall be illuminated by not less than 5 ft.-candles (54 lux) at the illuminated surface and shall have a contrast ratio of not less than 0.5.

7.10.7 Internally Illuminated Signs.

7.10.7.1 Listing. Internally illuminated signs shall be listed in accordance with ANSI/UL® 924, Standard for Emergency Lighting and Power Equipment, unless they meet one of the following criteria:
(1) They are approved existing signs.
(2) They are existing signs having the required wording in legible letters not less than 4 in. (100mm) high.
(3) They are signs that are in accordance with 7.10.1.3 and 7.10.1.6.

7.10.7.2* Photoluminescent Signs. The face of a photoluminescent sign shall be continually illuminated while the building is occupied. The illumination levels on the face of the photoluminescent sign shall be in accordance with its listing. The charging illumination shall be a reliable light source as determined by the authority having jurisdiction. The charging light source shall be of a type specified in the product markings.

7.10.8 Special Signs.

7.10.8.1 Sign Illumination.

7.10.8.1.1 Where required by other provisions of this Code, special signs shall be illuminated in accordance with 7.10.5, 7.10.6.3 and 7.10.7.

7.10.8.1.2 Where emergency lighting facilities are required by the applicable provisions of Chapter 12 through Chapter 42, the required illumination of special signs shall additionally be provided under emergency lighting conditions.

7.10.8.2 Characters. Special signs, where required by other provisions of this Code, shall comply with the visual character requirements of ICC/ANSI A117.1, American National Standard for Accessible and Usable Buildings and Facilities.

7.10.8.3 No Exit.

7.10.8.3.1 Any door, passage or stairway that is neither an exit nor a way of exit access and that is located or arranged so that it is likely to be mistaken for an exit shall be identified by a sign that reads as follows.

NO EXIT

7.10.8.3.2 The NO EXIT sign shall have the word NO in letters 2 in. (51mm) high, with a stroke width of ⅜ in. (9.5mm), and the word EXIT in letters 1 in. (25mm) high, with the word EXIT below the word NO, unless such sign is an approved existing sign.

Thomas&Betts

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

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7.10.8.4 Elevator Signs. Elevators that are a part of a means of egress (see 7.2.13.1) shall have the following signs with a minimum letter height of ⅝ in. (16mm) posted in every elevator lobby:
(1) Signs that indicate that elevator can be used for egress, including any restrictions on use.
(2) Signs that indicate the operational status of elevators.

7.10.8.5 Evacuation Diagram. Where a posted floor evacuation diagram is required in Chapter 11 through Chapter 43, floor evacuation diagrams reflecting the actual floor arrangement and exit locations shall be posted and oriented in a location and manner acceptable to the authority having jurisdiction.

7.10.9 Testing and Maintenance.

7.10.9.1 Inspection. Exit signs shall be visually inspected for operation of the illumination sources at intervals not to exceed 30 days or shall be periodically monitored in accordance with 7.9.3.1.3.

7.10.9.2 Testing. Exit signs connected to or provided with a battery-operated emergency illumination source, where required in 7.10.4, shall be tested and maintained in accordance with 7.9.3.

7.11 Special Provisions for Occupancies with High Hazard Contents. See Section 6.2.

7.11.1* Where the contents are classified as high hazard, exits shall be provided and arranged to allow all occupants to escape from the building or structure, or from the hazardous area thereof, to the outside or to a place of safety with a travel distance of not more than 75 ft. (23m), measured as required in 7.6.1, unless otherwise provided in 7.11.2.

7.11.2 The requirement of 7.11.1 shall not apply to storage occupancies as otherwise provided in Chapter 42.

7.11.3 Egress capacity for high hazard contents areas shall be based on 0.7 in./person (18mm/person) for stairs or 0.4 in./person (10mm/person) for level components and ramps in accordance with 7.3.3.1.

7.11.4 Not less than two means of egress shall be provided from each building or hazardous area thereof, unless all of the following criteria are met:
(1) Rooms or spaces do not exceed 200 ft.^{2} (18.6m^2).
(2) Rooms or spaces have an occupant load not exceeding three persons.
(3) Room or spaces have a travel distance to the room door not exceeding 25 ft. (7620mm)

7.11.5 Means of egress, for rooms or spaces other than those that meet the criteria of 7.11.4(1) through (3), shall be arranged so that there are no dead ends in corridors.

7.11.6 Doors serving high hazard contents areas with occupant loads in excess of five shall be permitted to be provided with a latch or lock only if the latch or lock is panic hardware or fire exit hardware complying with 7.2.1.7.

7.12 Mechanical Equipment Rooms, Boiler Rooms and Furnace Rooms.

7.12.1 Mechanical equipment rooms, boiler rooms, furnace rooms and similar spaces shall be arranged to limit common path of travel to a distance not exceeding 50 ft. (15m), unless otherwise permitted by the following:
(1) A common path of travel not exceeding 100 ft. (30m) shall be permitted in the following locations:
a) In buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 9.7.
b) In mechanical equipment rooms with no fuel-fired equipment.
c) In existing buildings.
(2) In an existing building, a common path of travel not exceeding 150 ft (46m) shall be permitted, provided that all of the following criteria are met:
a) The building is protected throughout by an approved, supervised automatic sprinkler system installed in accordance with Section 9.7.
b) No fuel-fired equipment is within the space.
c) The egress path is readily indentifiable.
(3) The requirement of 7.12.1 shall not apply to rooms or spaces in existing health care occupancies complying with the arrangement of means of egress provisions of 19.2.5 and the travel distance limits of 19.2.6.

7.12.2 Stories used exclusively for mechanical equipment, furnaces or boilers shall be permitted to have a single means of egress where the travel distance to an exit on that story is not in excess of common path of travel limitations of 7.12.1.

NFPA 101® Life Safety Code® 2009 Edition

Limited Warranty

1.0 **Lightalarms®** 6-, 12- and 24-volt Emergency Lighting Unit Equipment (excluding lamps and fuses) are fully warranted to be free of defects in material and workmanship under normal use for a period of three years from date of installation (see Paragraph 2.0).

1.1 **Lightalarms®** 6-, 12- and 24-volt Unit Equipment Batteries are warranted as follows (Warrant below includes the three-year full warranty on entire unit as called out in Paragraph 1.0).

1.2 **Lightalarms®** 4-volt Emergency Lighting Unit Equipment (excluding lamps and fuses) is fully warranted to be free of defects in material and workmanship under normal use for a period of one year from date of installation (see Paragraph 2.0).

BATTERY TYPE	LIFE EXPECTANCY	SHELF LIFE*	FULL WARRANTY	PRO RATA WARRANTY
Sealed Lead-Calcium	8 years	6 months	3 years	3 years
Sealed Nickel-Cadmium	15 years	1 year	5 years	7 years
Refillable Lead-Calcium	15 years	6 months	3 years	8 years
Refillable Nickel-Cadmium	15 years	2 years	5 years	7 years
Sealed Nickel-Metal Hydride	15 years	1 year	5 years	7 years

*** Maximum storage life. Must be recharged if not placed in service or battery warranty void.**

2.0 The full warranty period begins on the date of installation or 90 days from date of shipment, whichever date is earlier.

2.1 Should a defect appear in the equipment or batteries listed in Paragraphs 1.0, 1.1 or 1.2 above within the specified full warranty period, Lightalarms will repair or replace equipment without charge (see Paragraph 3.3). Such repair or replacement shall be the purchaser's exclusive remedy.

2.2 The Pro rata Warranty Period for batteries begins on the date the full warranty period ends.

2.3 A battery determined to be defective during the Pro Rata Warranty Period shall be repaired or replaced at a cost equal to the net price in effect at the time, reduced by the percentage obtained in multiplying 10% by the number of full years remaining in the total warranty period. Such repair or replacement at this adjusted price shall be the purchaser's exclusive remedy.

3.0 All warranties are subject to proper installation and maintenance in accordance with the instructions supplied.

3.1 Any material deemed defective must be returned, freight prepaid, to the factory for evaluation (see Paragraphs 5.0–5.3). Any changes in circuitry or components by other than authorized Lightalarms personnel or its service companies will void the warranty.

3.2 All warranties are limited to the repair and/or replacement or parts or equipment, which, upon examination at our plant, are determined to be defective and in our judgment are subject to repair or replacement under warranty. Replacement of lamps and fuses is not included in the warranty.

3.3 If new replacement parts are shipped before defective goods are received for evaluation, the replacement parts will be invoiced at the net price in effect at that time. These charges will be credited if, upon receipt and evaluation of goods, a defect is determined. Only replacement parts will be shipped under these circumstances, if field replacement is possible. **Lightalarms® Factory Only Reserves The Right To Ship New Unit Equipment For Replacement Purposes.** Units returned after installation cannot be restored to 100% saleable condition.

4.0 In no event shall Lightalarms® be liable for backcharges of any kind, including, without limitation, labor charges for field repair or late penalties.

4.1 This warranty does not cover damages caused by improper maintenance of installation or damage due to installation in areas with other than normal temperatures and environmental conditions per application specifications. Lightalarms assumes no responsibility for any damage to people, property, apparatus or otherwise resulting from improper installation or maintenance of its Emergency Lighting Unit Equipment.

4.2 This warranty does not cover damages caused by abuse, fire or Act of God.

4.3 In no event shall Lightalarms be liable for incidental or consequential damages.

4.4 The foregoing warranty is in lieu of all other warranties, expressed or implied, or merchantability, fitness for a particular purpose or any other thing. Except as stated in this warranty, Lightalarms shall not be liable for any defects in, or breach of any contract relating to, the quality of performance of Lightalarms Equipment under any theory of law including, without limitation, contract, negligence, strict liability or misrepresentation.

4.5 Lightalarms® warranty coverage shall not apply to any equipment of another manufacturer used in conjunction with Lightalarms Equipment.

4.6 Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This written warranty gives you specific legal rights and you may also have other rights which vary from state to state.

5.0 No returned defective materials will be accepted without a Returned Goods Authorization issued in writing by an authorized Lightalarms employee.

5.1 Purchaser is responsible for secure packing of returned materials to provide best possible assurance against damage in shipment.

5.2 Defective batteries of any kind must not be returned to the Lightalarms factory without strict adherence to special instructions for handling and shipping. WARNING: Never ship a refillable wet battery in any type of emergency lighting equipment. Failure to adhere to this policy will void warranty.

5.3 Defective goods returned to the factory must be shipped prepaid. COLLECT RETURNED SHIPMENT WILL BE REFUSED. Freight charges to return repaired equipment or ship replacement equipment to the purchaser to be paid by Lightalarms®. Factory will return repaired goods via same shipping method as received.

Failure to comply with any of the stipulations set forth will void the warranty. Any exceptions to the forgoing warranty must be requested and accepted in writing prior to shipment. Lightalarms® equipment not listed in paragraphs 1.0, 1.1 or 1.2 is warranted as described on its individual data sheet with the stipulations as stated in paragraphs 2.0–5.3.

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