

# DELITE®

**DELITE Models  
EDC-104 - EDC-204**

## **SELF CONTAINED EMERGENCY LIGHTING CYLINDERS**

### **Instructions for INSTALLATION • OPERATION • SERVICE**

#### **■ SPECIFICATIONS**

<b>AC supply voltage:</b>	277/120 volts + 10%
<b>Power consumption:</b>	15 watts
<b>Battery type:</b>	4 volt maintenance-free storage battery
<b>Battery float voltage:</b>	See unit model label
<b>Discharge duty cycle:</b>	Rated load per cylinder for 1½ hours to 87½% battery voltage.
<b>Recharge duty cycle:</b>	24 hours for full recharge from 87½% battery voltage. Continuous automatic float-charge operation after full-charge voltage restored.
<b>Lighting head position adjustment:</b>	Universal swivel, 325° rotation, 115° tilt, single locking screw.
<b>Charger type:</b>	Solid state: full-wave silicon diode rectification, silicon controlled rectifier output control, Zener diode voltage regulation.
<b>Transfer means:</b>	Transfer circuit energizes lamp(s) on loss of AC.
<b>Status indication:</b>	Pilot light shows AC is available and reflects charge rate: bright high-charge indication fades to dim glow when battery fully charged and floating.
<b>Test means:</b>	Pushbutton switch simulates AC failure to test transfer function, battery and lamp readiness, and charger response to battery discharge.

Battery and charger module concealed behind emergency lamp in lighting head cylinder. In twin cylinder model, lamps of both cylinders parallel-connected to single charger module in left-hand cylinder. Units are shipped with battery leads disconnected.

**DUAL LITE**

## ■ INSTALLATION INSTRUCTIONS

# READ AND FOLLOW ALL SAFETY INSTRUCTIONS

- 1 Not for outdoor use
- 2 Equipment should be mounted in locations and heights where it will not readily be subjected to tampering by unauthorized personnel
- 3 Do not use this equipment for other than intended use
- 4 The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition
- 5 Do not mount near gas or electric heaters

## SAVE THESE INSTRUCTIONS

Prolonged exposure to temperatures over 95°F may reduce battery life

### ROUGH WIRING

Provide each DeLite unit with a single unswitched supply (No. 14 AWG) from a 120VAC or 277VAC branch circuit used for normal lighting in the area to be protected \*

Unit mounting plates are intended for surface wall mounting over concealed wiring, and fit 3¼ and 4 inch round and 4 inch square outlet boxes, as well as standard plaster rings and switch boxes. Openings for direct attachment to wall surfaces are also included and should be used to strengthen attachment to the wall by additional lag screws, etc.

For exposed conduit connections, use a drill and knockout punch to cut the necessary opening(s) in one or both ends of the mounting plate

Do not mount units where they will be exposed to direct sunlight, radiators, or other heat sources. Prolonged exposure to temperatures exceeding 95° F. may reduce battery life.

Mount units high enough to minimize glare under anticipated condition of use, but to ensure ample clearance for aiming lighting heads, keep the center of each unit at least 7 inches below ceiling height and 12 inches from inside corners.

In concealed wiring installations, do not install the mounting plate until the wall surface is finished, ready for complete unit installation. If surface wired, take whatever precautions may be necessary to protect the ends of the mounting plate during other construction operations prior to final unit installation.

### MOUNTING THE UNIT

1. Remove the mounting screw from the bottom of the canopy. Slide the mounting plate about ¼-inch toward the left-hand end of the canopy, and lift it straight back away from the canopy.
2. Attach the mounting plate to the outlet box, and secure it to the wall with lags, toggle bolts, etc., as necessary.

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\*To meet National Electrical Code requirements for emergency lighting service, the AC connection to a DeLite unit must be a permanent wiring installation.

3. For temporary hands-free support of the unit while making up wiring connections, with the left-hand end of the canopy toward the mounting plate, hold the canopy perpendicular to the wall. Insert the pin in the upper canopy flange into the slot at the upper left of the mounting plate, as far as the first transverse slot. Then slide the canopy pin to the left, to the end of the transverse slot, where it will act as a temporary hinge-like support for the unit. (It may be necessary to loosen the swivel locking screw and swing the lighting head out of the way to let the canopy be brought perpendicularly against the wall.) See Fig. 1.

4. For 120VAC operation, connect black and white cylinder leads to building leads using standard wire nuts. Tape end of red wire.

For 277VAC operation, connect red and white cylinder leads to building leads using standard wire nuts. Tape end of black wire.

5. Remove the canopy from the mounting plate. Holding the canopy parallel to the wall, align both canopy pins with the slots in the top of the mounting plate. Press the canopy back over the mounting plate all the way to the wall. Slide the canopy to the left to center it over the mounting plate and replace the mounting screw(s) in the bottom of the canopy.

Do not connect the battery lead to the charger module inside the cylinder until all other wiring is completed and the branch circuit to which the unit is connected can be energized.

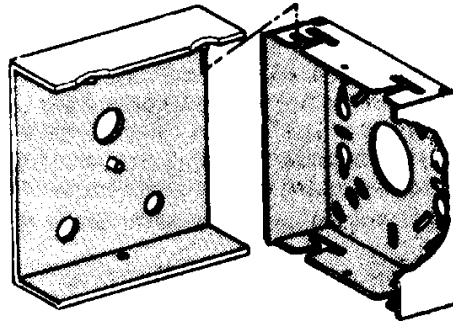


Fig. 1 Temporary support of canopy for wiring ease

### PLACING THE UNIT IN SERVICE

Immediately before energizing the AC circuit to which the unit is connected, install the disconnected battery lead as follows:

1. Loosen the swivel locking screw and swing the head out to gain free access to the cylinder shell retaining screw.
2. Remove the cylinder shell retaining screw and slide the cylinder shell off the lighting head.
3. Connect battery leads red (+), yellow (-). See Fig. 2.

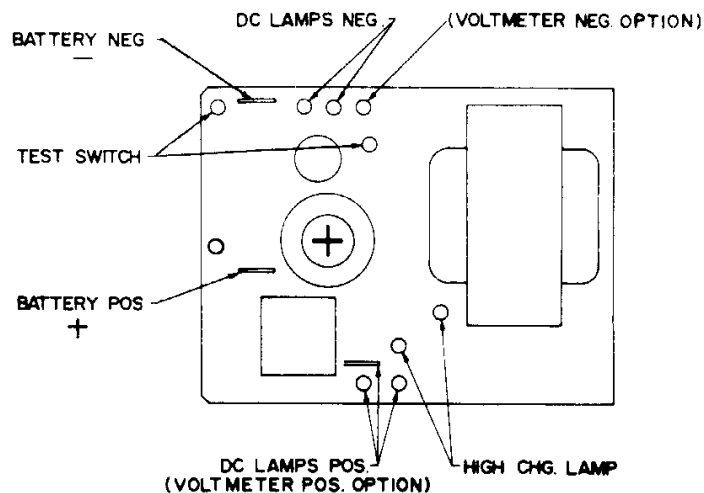


Fig. 2

## TROUBLE SHOOTING CHART

SYMPTOM	POSSIBLE CAUSE	PROCEDURE
Unit blows AC supply fuse/breaker.	Unit connected to 277 VAC circuit with transformer connected for 120 VAC operation.  Short in unit wiring or charger module.	Check transformer input connections (Red is 277V, Black 120V, White common.) If wrong, correct connections and try unit again, but red light and charger module will also probably have to be replaced.  Check wiring. If wiring OK but disconnecting unit input leads clears short, replace charger module.
No red pilot light indication when AC on.	Unit connected to 120 VAC circuit with transformer connected for 277 VAC.  Loose connection, broken wire or defective pilot lamp.  Defective charger module.	Check transformer input lead connections and correct if wrong. (See above.)  Check wiring and pilot lamp and repair or replace as necessary. If lamp is defective, be sure transformer connections are correct before replacing lamp.  If lamp and wiring test OK and proper transformer input voltage connection is made, replace charger module.
With AC on, emergency lights remain on; pilot light bright.	Relay contacts not opening.	Check for 5 to 8 VDC at relay coil terminals; if not present, check AC input for voltage. If DC present across coil, replace charger module.
Prior pilot light indications OK, but emergency lights remain off when AC off or test switch pressed. Pilot light does not brighten when test switch released.	Relay contacts not closing.  Emergency lamps defective or lamp wiring open.	Replace charger module.  If relay works properly, check lamps and wiring. Repair wiring or replace lamp(s) as necessary.
Status light remains bright continuously with AC on. When AC is off or test switch pressed, emergency lights remain off.	Battery open circuited or battery leads broken or disconnected.	Check battery and battery leads. Replace battery or repair leads.
Prior pilot light indications OK, but unit provides less than 1½ hours of lighting during AC power failure.	Float charge voltage too low.  Original emergency lamps replaced by higher wattage type.  Battery sulfated from prior discharge condition.  Battery defective.	Check float charge voltage. If low, replace charger module.  Check lamps against parts list. If wrong type, replace with correct type lamps.  Perform conditions cycle(s) per instructions under Routine Care until short apparent recharge time symptom of sulfation no longer occurs.  If battery connections, float charge voltage, and lamps are all OK and conditioning cycles do not increase battery capacity, replace battery.
Full apparent recharge occurs too rapidly; within 4 hours after full 1½ hour discharge.	Same as 1st, 3rd or 4th causes of preceding symptom.	Same as procedures for 1st, 3rd or 4th causes of preceding symptom.
Full recharge takes too long (over 16 hours) or does not occur at all.	Float charge voltage too high.  Battery defective.	Check float charge voltage. If high, replace charger module.  If float charge voltage check reveals defective battery, replace.

## ■ CHECKING FLOAT CHARGE VOLTAGE

First be sure that AC supply voltage is within 10% of rated volts and that the unit has operated for 24 hours with the pilot light stable in its dim condition. Then, with AC still on, remove the cylinder shell (from the left-hand head only in a twin cylinder unit) and connect an accurate DC voltmeter to charger module terminals. The reading obtained should be as specified. Reading may differ slightly if temperature is not close to 72° F.

If the voltmeter reading is not within specifications, the charger module is defective and must be replaced.

## ■ REPLACING A BATTERY

A battery has reached the end of its useful life if it cannot light the load for a full 1½ hours despite normal charger conditioning cycles.

A battery should also be replaced if it shows any sign of electrolyte leakage, indicating failure of a pressure seal. In such a case, check float charge voltage after the first 24 hours of charger operation with the new battery to be sure that high float voltage was not the cause of the original seal failure. If float voltage is found to be high, replace the charger module as well.

To replace a battery, first de-energize AC to the unit, then remove the cylinder shell, disconnect the battery leads from charger module terminals, cut and remove the tape holding the battery, and remove the battery from the head casting. Tape the new battery firmly in place with 3M brand strapping tape or similar reinforced, nonstretch tape. Keep the tape within the groove in the casting so that it will not interfere with the cylinder shell fit.

When connecting the battery leads, double-check for correct polarity. See Fig. 2.

Initial charger indications after installation of a new battery should be as described under Placing the Unit in Service.

## ■ REPLACING AN EMERGENCY LAMP

Remove the cylinder shell. To prevent accidental shorts, de-energize the AC circuit and also disconnect the red (+) battery lead from charger module terminal. Insulate the battery lead connector with tape. Disconnect the lamp leads from charger module terminals.

On the underside of the lamp trim ring, remove the screw that holds the ring to the main casting. The trim ring snaps on the casting so a slight twist is necessary to remove it. At the same time, hold the lamp to prevent its dropping out while removing the ring. Cock the bottom of the ring out so that the tab at its top will clear the lamp while removing the ring. Remove the lamp with its leads attached.

If both the lamp that is being replaced and the replacement lamp have terminals, change directly. If either lamp has wireleads attached, the following must be done:

1. Cut leadwires on the lamp being replaced as close to the lamp as possible.
2. If replacement lamp has wireleads, cut them to approximately three inches and wirenut (supplied) to leadwires from unit.
3. If replacement lamp has terminals, crimp female insulated terminals (supplied) to unit leadwires and then connect to replacement lamp.

Hold the lamp in place and replace the trim ring. Reconnect the lamp and battery leads, replace the cylinder shell, and energize the AC circuit.

To replace the lamp in the right-hand head of a twin cylinder unit, remove the cylinder shell and the lamp trim ring and withdraw the lamp just enough to gain access to its terminals. Disconnect the old lamp, connect the new one, and reassemble.

## ■ ROUTINE CARE

The batteries used in DeLite units require no maintenance, but will benefit from certain operating procedures. During routine standby operation, charger output fluctuates only slightly in floating the battery at its full-charge voltage. But after an AC failure and subsequent battery discharge, charger output increases greatly to recharge the battery as quickly as cell temperature-rise and gas-cycling considerations permit. This vigorous charging action also agitates the electrolyte and tends to reverse physical and chemical changes that can slowly occur in a battery that stands for long periods without cycling. It follows that if power failures are infrequent, occasional deliberate cycling may extend battery life.

### TEST CYCLING

Every three months, if there has been no power failure, press the unit test switch for at least 30 seconds. Before the switch is pressed, the pilot light should be glowing dimly. When the switch is pressed, the pilot light should become bright and remain bright when the switch is released (assuming that the emergency lights lit while the switch was depressed). The pilot light should fade back to its dim state within a few minutes.

### TAKING A UNIT OUT OF SERVICE

If a unit is to be deliberately taken out of service for an extended period, the positive battery lead must be disconnected from the charger printed circuit board and insulated so that the battery will go into storage in a fully charged condition.

If there is any chance that a unit taken out of 120 VAC service may later be used on a 277 VAC circuit, the unit should be tagged as connection (120/277 VAC).

4. Replace the cylinder shell on the lighting head and replace the shell retaining screw.
5. To aim the lighting head(s), loosen the swivel locking screw(s), rotate and/or tilt the head(s) to obtain the best illumination of the area(s) to be protected, and tighten the swivel locking screw(s).
6. Energize the AC circuit to which the unit is connected. The red status lamp on the canopy should light brightly.

Upon initial energization of the AC circuit, the status lamp will typically stay at full brilliance for several hours before fading to the dim state that means the battery has charged to its normal float level. If this "ready" indication occurs too quickly (within ½ hour), this may mean that a degree of sulfation has occurred within the battery due to self-discharge during storage. To be sure that any such condition is eliminated, perform one or more battery conditioning cycles as described under Routine Care.

## ■ REPLACING THE CHARGER MODULE

De-energize the AC circuit and remove the cylinder shell (from the left head in a twin cylinder unit). Disconnect the red (+) battery lead from charger module and insulate the lead connector with tape. Disconnect all other leads from module terminals. Clip transformer leads (black, white and red). Take out the two screws on the underside of the cylinder. Lift the charger assembly out. Replace charger assembly, insulator and retaining screw.

If AC input is 120VAC, connect black and white wires of new charger assembly to black and white wires in cylinder, insulate the red wire with tape.

If AC input voltage is 277VAC, connect red and white wires of new charger assembly to red and white wires in cylinder, insulate the black wire with tape. Make connections with standard wire nuts.

Connect remaining wires to charger assembly (Fig. 2), leaving the battery connections until last. Be sure that battery leads are connected yellow (-) to terminal and red (+) to terminal. Replace shell, energize AC input.

## REPLACEABLE PARTS LIST

PARTS DESCRIPTION	DUAL-LITE PART NUMBER
emergency lamp	11-173
solid state charger module	on module label
maintenance-free battery	See unit model label
pilot light assembly	20-56
push button test switch assembly	18-100
voltmeter (optional)	19-55
voltmeter retaining spring (optional)	36-168
mounting screw(s) for unit canopy and shells	Obtain locally