

BAL650C-2

FLUORESCENT EMERGENCY BALLAST

650 Lumens

Economic alternative for one 2-pin compact fluorescent lamp
(with integral starter)



APPLICATION

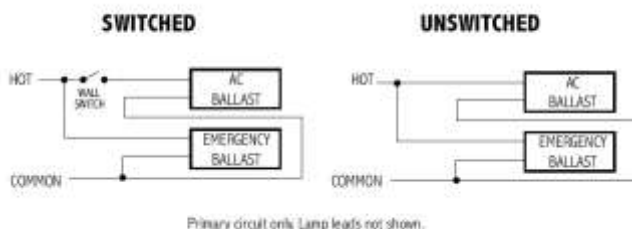
The BAL 650C-2 fluorescent emergency ballast works in conjunction with the AC ballast to convert new or existing compact fluorescent fixtures into emergency lighting. The emergency ballast consists of a high-temperature nickel cadmium battery, charger and electronic circuitry in one compact red case. This ballast can be used with most 10W through 26W compact fluorescent lamps with integral starters, including (2-pin) quad or triple twin-tube compacts. It is also compatible with most electronic, standard, and energy-saving AC ballasts. If used in an emergency-only fixture, no AC ballast is necessary. The BAL650C-2 is not suitable for use in air handling heated air outlet fixtures, and wet or hazardous location fixtures. For information about specific lamps and ballast compatibility, please call the factory.

OPERATION

When AC power fails, the BAL 650C-2 immediately switches to the emergency mode operating one lamp at full light output for the first few seconds to start the lamp, then at reduced lumen output for a minimum of 90 minutes. When AC power is restored, the BAL 650C-2 automatically returns to the charging mode.

INSTALLATION

The BAL650C-2 does not affect normal fixture operation and may be used with either a switched or unswitched fixture. If a switched fixture is used, an unswitched hot lead must be connected to the emergency ballast. The emergency ballast must be fed from the same branch circuit as the AC ballast. The BAL650C-2 may be easily installed with a variety of compact fluorescent fixtures; however, some fixtures may not accommodate emergency equipment. In these situations, the BAL650C-2 may be remote-installed up to half the distance the AC ballast manufacturer recommends removing the AC ballast from the lamp, or up to 50 feet, whichever is less. For installation on top of the fixture, model BAL650C-2 provides two feet of flexible conduit at each end of the ballast. Installation is not recommended with fixtures where the ambient temperature may fall below 0°C for extended periods. For simple visual inspection of the charging indicator light and operational testing, the test switch/monitor plate may be installed in the ceiling near the fixture or remote-installed by the fixture's wall switch.



UL AND CODE COMPLIANCE

The BAL650C-2 has been tested by Underwriters Laboratories in accordance with the standards set forth in UL 924, "Emergency Lighting and Power Equipment," and is UL Listed for factory or field installation. Emergency illumination time exceeds the National Electrical Code (NEC), Life Safety Code (NFPA-LSC) and UL 90-minute requirements.

BATTERY

Since high temperatures exist in fluorescent fixtures, the BAL650C-2 uses a specially constructed, high-temperature nickel cadmium battery. This battery requires no maintenance, and has a life expectancy of 7 to 10 years.

EMERGENCY ILLUMINATION

Depending on the wattage and type of lamps selected, the BAL650C-2 produces 300 to 650 lumens of emergency initial light output. During emergency illumination, one lamp is illuminated, even if installed with a multilamp AC ballast.

Specifications subject to change without notice

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SPECIFICATION

Emergency lighting shall be provided by using a quad or triple twin-tube compact fluorescent fixture equipped with a BAL650C-2 emergency ballast. This emergency ballast shall consist of a high-temperature, maintenance-free nickel cadmium battery, charger and electronic circuitry contained in one 9 3/8" x 2 3/8" x 1 1/2" white metal case with two feet of flexible conduit at each end of the ballast. A test switch/monitor plate with test switch and charging indicator light shall be provided to monitor the charger and battery. The emergency ballast shall be capable of operating one 10W – 26W Quad or Triple tube 2-pin compact fluorescent lamp (with no Integral starter) in the emergency mode for a minimum of 90 minutes. The BAL650C-2 shall have 3.5 Watts of input power, a 14.4 Watt-hour battery capacity, and comply with emergency standards set forth by the current NEC. The emergency ballast shall be UL Listed for installation inside, on top of, or remote from the fixture, warranted for a full five years from date of purchase.

WARRANTY

Model BAL650C-2 is warranted for five (5) full years from date of purchase. This warranty covers only properly installed Howard emergency ballasts used under normal conditions. For the warranty period Howard will, at its option, repair or replace without charge a defective emergency ballast, provided it is returned to the factory transportation prepaid, and our inspection determines it to be defective under terms of the warranty. Repair or replacement, as stated above, shall constitute the purchaser's exclusive warranty, which does not extend to transportation, installation, labor or any other charges; nor does it apply to any equipment of another manufacturer used in conjunction with the emergency ballast.

PRODUCT SUMMARY

UL LISTED Factory or Field Installation	DUAL VOLTAGE INPUT 120/277VAC 60 Hz	BATTERY High Temperature Maintenance-Free Nickel-Cadmium Battery 7-10 Year Life Expectancy	TEMPERATURE RATING (AMBIENT) 0°C TO 50°C (32°F TO 112°F)
ILLUMINATION 90 Minutes	AC INPUT CURRENT 280mA	BATTERY CHARGING CURRENT 270mA	DIMENSIONS 9.4" X 2.4" X 1.5" (238mm x 60mm x 38mm) 2' (610mm) Flexible conduit Mounting center 8.9" (226mm)
INITIAL LIGHT OUTPUT 300-650 Lumens	AC INPUT POWER RATING 3.5 Watts	RECHARGE TIME 24 Hours	WEIGHT 2.1lbs (1kg)
FULL WARRANTY 5 Years (NOT pro-rata)	TEST SWITCH Single pole	CHARGING INDICATOR LIGHT LED	



CAUTION :Contains nickel-cadmium rechargeable battery. Must be recycled or disposed of properly.



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Page 2 of 7

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Installation Instructions

When using this lighting device the safety precautions should be followed at all times.

PLEASE READ CAREFULLY AND FOLLOW ALL INSTRUCTIONS FOR YOUR OWN SAFETY

1. This device is designed for indoor use. Do not use outdoors.
2. Prior to installation, battery connector must be open to prevent high voltage from being present on our put leads (red & yellow).
3. This device is designed for use with One double twin-tube (quad) or one triple twin-tube compact fluorescent lamp shown in the Lamp Rating Chart as follows:

Lamp Rating Chart (Operates 1 lamp)				
1	Wattage	10,13,18,26	Base	G24d
2	Wattage	13,18,26	Base	GX24d

4. Please ensure the electrical connections conform to the National Electrical Code and local regulations if applicable.
5. To avoid electric shock, please disconnect normal and emergency power supplies and battery connector of the emergency ballast before servicing.
6. This device is designed for factory or field installation in either the ballast channel or on top of the indoor fixtures. Do not install this device near gas or electric heaters.
7. AC power source of 120VAC or 277VAC is required.
8. The battery is sealed, non-maintenance, and is not replaceable in the field. Please contact manufacturer for information on service. Do not attempt to service the battery please.
9. Do not use accessory equipment that is not recommended by manufacturer. Failure to do so may cause unsafe conditions. Servicing should only be performed by qualified service personnel.
10. Do not use the product for other purpose that the product is NOT designed for.



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Page 3 of 7

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NOTE: All the branch circuit wiring has to be ready as well as an unswitched source of power before the fixture is installed. Confirm that the same branch circuit runs the emergency ballast and the AC ballast.

CAUTION: Inverter connector has to be opened for preventing high voltage on output leads (red & yellow). Wait until all the installation process is completed and AC is supplying power to the emergency ballast then join the inverter connector.

1. AC power has to be off before installation.
2. Choose the right wiring diagram to connect the emergency ballast to AC ballast and lamp.
3. Follow diagram 1 to connect the emergency ballast and test plate. Please ensure the electricity connections conform to the National Electrical Code and local regulations if applicable. The emergency ballast install u to half distance the AC ballast manufacturer recommends install the AC ballast from the lamp or install within 50 feet is recommended. Please choose the one in less distance. The emergency ballast could be mounted within 50 feet if there isn't AC ballast.
4. Cut the wire between the lamp holder and AC ballast and then connect the blue and blue/white wire from emergency ballast to AC ballast and the yellow and yellow/black wires to the lamp holder.
5. The emergency ballast has to be connecting to an unswitched 120VAC or 277VAC power source with no exception. Other voltages are not accepted!! Do not join the inverter connector until the fixture is completely installed and supply AC power to the emergency ballast.
6. An additional unswitched hot wire (120VAC or 277VAC) has to be run to the junction box and connected to the emergency ballast if there is in ON SWITCHED FIXTURES.
7. The battery needs to be charged for one hour in order to have short-term testing on the emergency function. Before having a long-term emergency function testing, the battery in emergency ballast has to be charged for 24 hours.
8. Please search in readily visible location and stock the label with "CAUTION: This Unit Has More Than One Power Supply Connection Point. To Reduce The Risk Of Electric Shock, Disconnect Both The Branch Circuit-Breakers Or Fuses And Emergency Power Supplies Before Servicing."
9. See Diagrams 2 and 3 showing basic switched and unswitched fixture connections. See back page for more detailed wiring schematics. The emergency ballast can be used with one- or two- multi-lamp fixtures; however, it only operates one lamp in the emergency mode.

NOTE: SWITCH BOX IS NOT SUPPLIED

OPERATION:

THE CHARGING INDICATOR LIGHT WOULD BE ON TO INDICATE THE BATTERY IS BEING CHARGED WHEN AC POWER IS APPLIED.

THIS EMERGENCY BALLAST WOULD FUNCTION AND OPERATE ONE (OR TWO LAMPS AT REDUCED ILLUMINATION) WHEN THE AC POWER IS FAILED

THE DEVICE OF THIS EMERGENCY BALLAST WILL OPERATE 10 WATT TO 26 WATT LAMPS AT LEAST 90 MINUTES.



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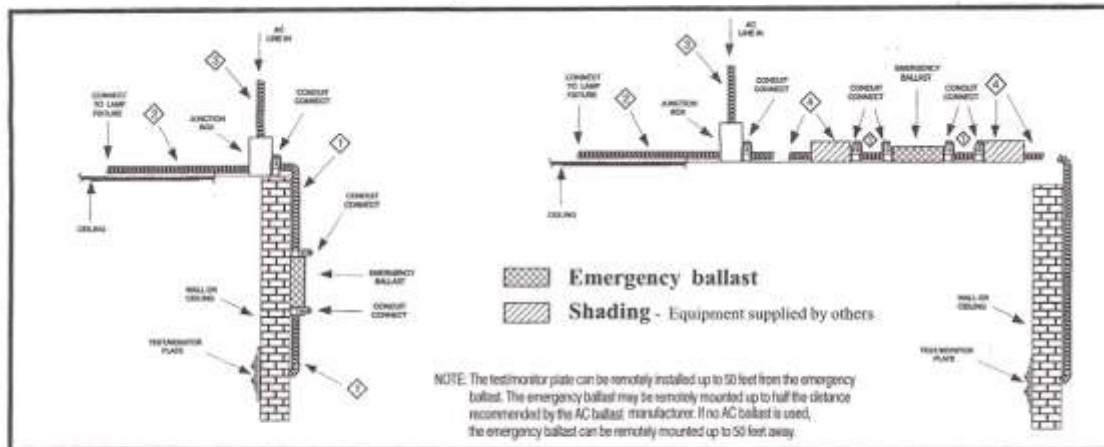
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Page 4 of 7

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DIAGRAM 1



- ① - Flexible conduit (supplied) to connect ballast wire.
- ② - Existing conduit to run existing wire to lamp holder (AC ballast on junction box). If AC ballast is on reflector, run yellow, yellow/black, blue/white and blue wires from emergency ballast through this conduit.
- ③ - AC line in.
- ④ - Conduit and junction box (not supplied), necessary for remote installation.

MAINTENANCE:

NOTE: SERVICES SHOULD ONLY BE PERFORMED BY QUALIFIED PERSONNEL.

THE EMERGENCY BALLAST SHOULD BE CHECKED PERIODICALLY TO CONFIRM FUNCTIONING AND THE FOLLOWING SCHEDULE IS RECOMMENDED

- 1) TO INSPECT THE CHARGING INDICATOR EVERY MONTH AND CONFIRM THAT IS ILLUMINATED.
- 2) PUSH THE TEST SWITCH FOR 30 SECONDS TO ENSURE THE EMERGENCY BALLAST IS FUNCTIONING, RECOMMENDED TO PERFORM THIS TEST EVERY 30 DAYS.
- 3) PERFORMING A LONG-TERM (90 MINUTE BATTERY DISCHARGE) IN EVERY YEAR. ONE OR TWO LAMPS SHOULD BE OPERATED FOR NO LESS THAN 90 MINUTES.

DIAGRAM 2

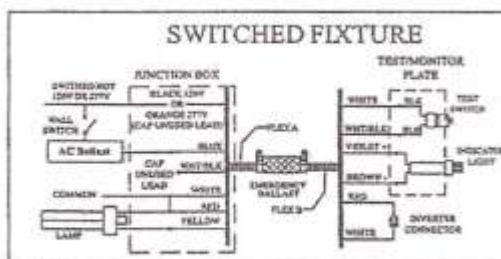
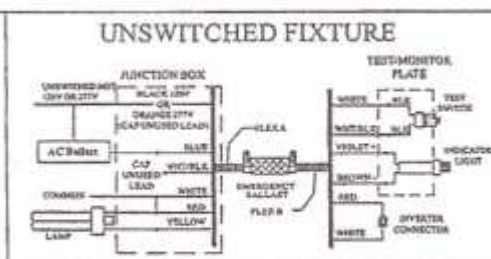


DIAGRAM 3



For 120V, connect unswitched hot to black emergency ballast lead and cap unused orange wire.
For 277V, connect unswitched hot to orange emergency ballast lead and cap unused black wire.



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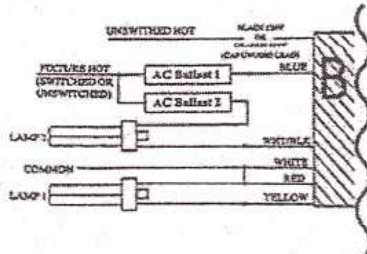
Page 5 of 7

WIRE DIAGRAMS FOR 1-LAMP EMERGENCY OPERATION EMERGENCY BALLAST AND AC BALLAST MUST BE FED FROM THE SAME BRANCH CIRCUIT

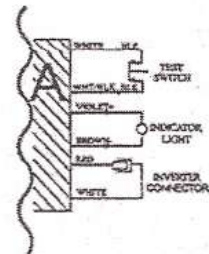
TYPICAL SCHEMATICS ONLY. MAY BE USED WITH OTHER BALLASTS. CONSULT THE FACTORY FOR OTHER WIRING DIAGRAMS.

A. TWO-LAMP FIXTURE, TWO SIMPLE REACTOR AC BALLASTS (Lamp 1 operates in emergency mode)

1.B) FLEX Conduit Wiring Diagram:

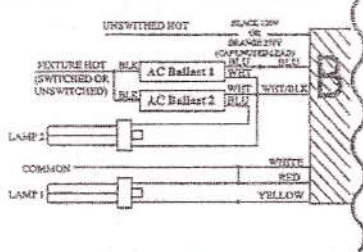


2.A) FLEX Conduit Wiring Diagram:

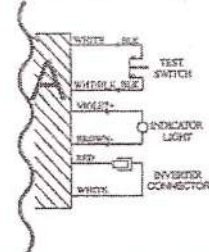


B. TWO-LAMP FIXTURE, TWO AUTOTRANSFORMER AC BALLASTS (Lamp 1 operates in emergency mode)

1.B) FLEX Conduit Wiring Diagram:

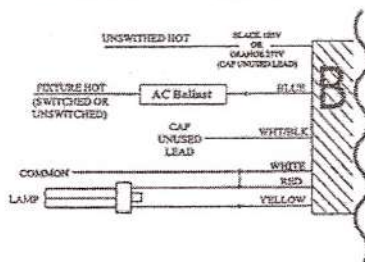


2.A) FLEX Conduit Wiring Diagram:

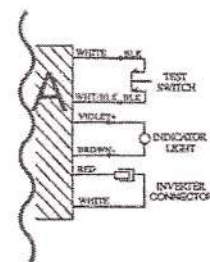


C. ONE-LAMP FIXTURE, ONE SIMPLE REACTOR AC BALLAST

1.B) FLEX Conduit Wiring Diagram:

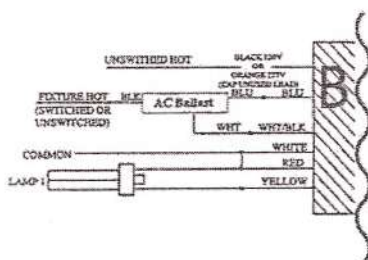


2.A) FLEX Conduit Wiring Diagram:

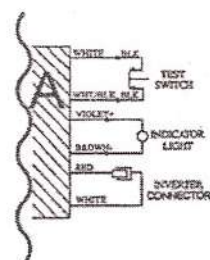


D. ONE-LAMP FIXTURE, ONE AUTOTRANSFORMER AC BALLAST

1.B) FLEX Conduit Wiring Diagram:



2.A) FLEX Conduit Wiring Diagram:



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Page 6 of 7

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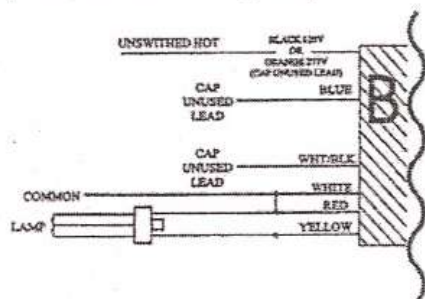
WIRE DIAGRAMS FOR 1-LAMP EMERGENCY OPERATION

EMERGENCY BALLAST AND AC BALLAST MUST BE FED FROM THE SAME BRANCH CIRCUIT

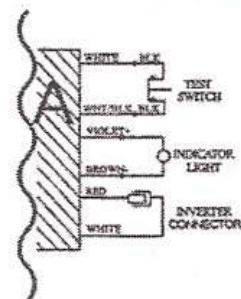
TYPICAL SCHEMATICS ONLY. MAY BE USED WITH OTHER BALLASTS. CONSULT THE FACTORY FOR OTHER WIRING DIAGRAMS.

E. ONE-LAMP FIXTURE WITHOUT AC BALLAST

1.B) FLEX Conduit Wiring Diagram:



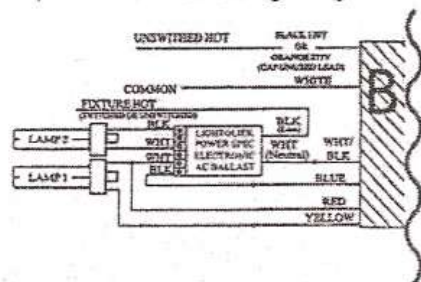
2.A) FLEX Conduit Wiring Diagram:



F. TWO-LAMP FIXTURE, TWO LAMP LIGHTOLIER POWER SPEC ELECTRONIC AC BALLAST

(Lamp 1 operates in emergency mode)

1.B) FLEX Conduit Wiring Diagram:



2.A) FLEX Conduit Wiring Diagram:

