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# ICE-80

COLD-WEATHER SERIES D  
EMERGENCY  
LIGHTING EQUIPMENT

## INSTRUCTION MANUAL

# IMPORTANT SAFEGUARDS

When using electrical equipment, basic safety precautions should always be followed, including the following:

### READ AND FOLLOW ALL SAFETY INSTRUCTIONS

1. **CAUTION** – To prevent electrical shock, do not mate unit connector until installation is complete and A.C. power is supplied to the unit.
2. **CAUTION** – This fixture provides more than one power supply output source. To reduce the risk of electrical shock, disconnect both normal and emergency sources by turning off the A.C. branch circuit and by disconnecting the unit connector.
3. **CAUTION** – This is a sealed unit. The integral, high temperature Ni-Cad battery is not replaceable. Replace the entire unit when necessary and recycle or dispose of the nickel-cadmium battery properly.
4. The **ICE-80** is for use with grounded, UL Listed, damp location rated and enclosed and gasketed fixtures. Not for use in heated air outlets or hazardous locations.
5. The **ICE-80** requires an unswitched A.C. power source of either 120 or 277 volts. Properly cap the unused A.C. lead.
6. Do not mount near gas or electric heaters.
7. The **ICE-80** should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
8. **When used in conjunction with enclosed and gasketed fixtures, the ICE-80 is suitable for mounting in the ballast compartment only.**
9. The **ICE-80** will cold strike and operate *one* 28W or 54W T5 or 2'-8' T8-T12 or *two* 2'-4' T8-T12 instant start, rapid start, U shape or circline fluorescent lamps, including energy saving and long 4 pin compact lamps for 90 minutes.
10. The **ICE-80** is compatible with most A.C. ballasts (including multiple lamp) as follows:  
Magnetic ballasts – either one or two lamp emergency operation.  
Electronic ballasts – one lamp emergency operation, consult Customer Service for two lamp emergency operation wiring diagrams.
11. Suitable for use in damp locations and in enclosed and gasketed fixtures.
12. For use in -18° C minimum, 50° C maximum ambient temperatures.
13. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
14. Do not use this equipment for other than intended use.
15. Install in accordance with the National Electrical Code and local regulations.
16. Installation and servicing should be performed by qualified personnel.
17. Lighting fixture manufacturers, electricians, and end-users need to ensure product system compatibility before final installation.

## SAVE THESE INSTRUCTIONS



THIS UNIT CONTAINS A  
RECHARGEABLE NICKEL-CADMIUM BATTERY.  
PLEASE RECYCLE OR DISPOSE OF PROPERLY.

# INSTALLATION INSTRUCTIONS

**CAUTION:** Before installing, make certain the A.C. power is off and the ICE-80 unit connector is disconnected.

## 1. LAMPS OPERATED

The **ICE-80** can be used with most 2'-8' lamps. Refer to the chart below for the type of lamp(s) operated and the number of lamps to be operated in emergency mode.

OPTION	LAMP TYPE	EMERGENCY OPERATION	*VIOLET LEADS	WIRING DIAGRAMS
1	2'-4' T8/T12 Single & Bipin Pin	One Lamp	Connected	1, 2, 3, 4, 5, 6, 7, 8
2	5'-8' T8/T12 Single & Bipin Pin	One Lamp	Disconnected	1, 2, 3, 5, 6
3	2'-4' T8/T12 Single & Bipin Pin	Two Lamp	Disconnected	
4	2'-4' 28W-39W T5	One Lamp	Connected	1, 2, 3, 4, 5, 6, 7, 8
5	2'-4' 54W T5	One Lamp	Disconnected	1, 2, 3, 4, 5, 6, 7, 8
6	18W-55W Long Compact	One Lamp	Disconnected	1, 2, 3, 4, 5, 6, 7, 8

\*The 6" violet leads provide the lamp selection option. The unit is shipped from the factory with the leads disconnected and capped. When used with particular lamp types, violet leads should be connected to one another. Refer to chart for lamp selection options.

## 2. MOUNTING THE ICE-80

Remove the ballast channel cover. Mount the **ICE-80** in the ballast channel at least 1/2" away from the A.C. ballast(s).

When battery packs are remote mounted, consult Customer Service for the maximum allowable distance between the battery pack and lamp(s).

## 3. WIRING

Refer to the wiring diagrams on the back page for the appropriate wiring of lamp(s) and ballast. Install in accordance with the National Electrical Code and local regulations. For additional wiring diagrams consult Customer Service.

## 4. INSTALLING THE CHARGE INDICATOR

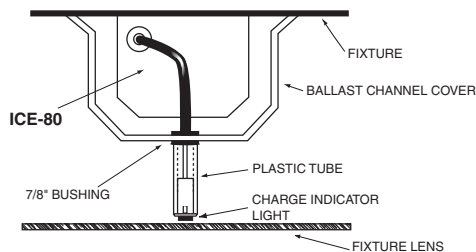
**Recessed Troffer Fixture** – Select a convenient location with proper clearance in the ballast cover and drill or punch a 7/8" hole (1/2" knockout). Insert the 7/8" bushing into the hole. Push the plastic tube through the bushing. Disconnect the leads from the **LED** housing and route the leads down the plastic tube. Reconnect the leads to the housing, observing the proper polarity (Red/Black or Red lead w/connector to positive (+) red tab). Push the entire assembly back into the tube until the lens collar rests against the plastic tube. The plastic tube should be adjusted so that the **Charge Indicator** is within 1/4" of the fixture lens. The **Charge Indicator** must be visible after installation. Refer to *Illustration 1*.

**Strip Fixture** – Select a convenient location on the side of the fixture so the **Charge Indicator** can be seen after installation. Allow for proper clearance inside the fixture and drill or punch a 1/2" hole. Disconnect the leads from the **LED** housing. Push the **LED** housing into the 1/2" hole until it is firmly locked in place. Reconnect the leads, observing the proper polarity (Red/Black or Red lead w/connector to positive (+) red tab). Refer to *Illustration 2*.

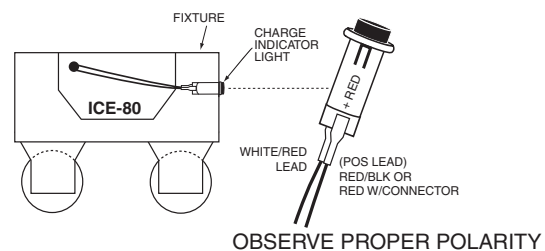
## 5. INSTALLING THE TEST SWITCH

The test switch should be mounted on the ballast channel cover of a recessed troffer, or on the side of a strip fixture, preferably adjacent to the charge indicator. Drill or punch a 1/2" mounting hole.

**Illustration 1 Recessed Troffer Fixture**



**Illustration 2 Strip Fixture**

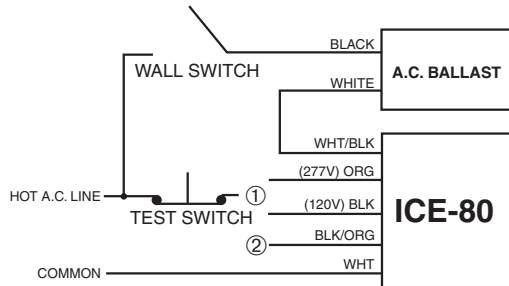


## 6. WIRING THE A.C. INPUT

- A. The **ICE-80** and A.C. ballast **must** be on the same branch circuit.
- B. The **ICE-80** requires an **unswitched** A.C. power source of either 120 or 277 volts. Select the proper voltage lead and cap the unused lead.
- C. When the **ICE-80** is used with a switched fixture, the A.C. input to the **ICE-80** must be connected ahead of the fixture switch. Refer to *Illustration 3* for switched and unswitched fixture wiring diagrams.

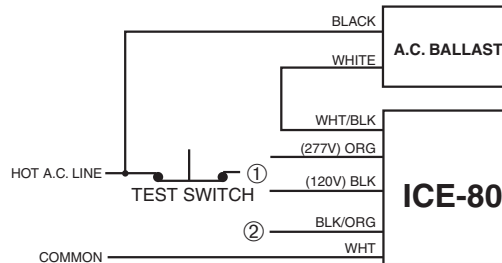
NOTE: The **ICE-80** will require a maximum power input of 100 watts when the internal heating element is active.

**Illustration 3**      **Switched Fixture**



- ① Select proper voltage lead. Cap unused lead.
- ② For 120V installation, connect BLK/ORG to BLK.  
For 277V installation, cap BLK/ORG and BLK separately.

**Unswitched Fixture**



- ① Select proper voltage lead. Cap unused lead.
- ② For 120V installation, connect BLK/ORG to BLK.  
For 277V installation, cap BLK/ORG and BLK separately.

## 7. LABELS

Attach the appropriate labels adjacent to the **Test Switch** and **Charge Indicator**. Annotate Re-lamping label for lamp type and wattage. The Caution and the Re-lamping labels must be on the fixture in a readily visible location to anyone attempting to service the fixture.

## 8. COMPLETING INSTALLATION

When the installation is complete, switch the A.C. power on and join the **ICE-80** unit connector.

## OPERATION

**Normal Mode** – A.C. power is present. The A.C. ballast operates the fluorescent lamp(s) as intended. The **ICE-80** is in the standby charging mode. The **Charge Indicator** will be lit providing a visual indication that the battery is being charged.

**Emergency Mode** – The A.C. power fails. The **ICE-80** senses the A.C. power failure and automatically switches to the *Emergency Mode*. One or two lamps are illuminated, at reduced output, for a minimum of 90 minutes. When the A.C. power is restored, the **ICE-80** switches the system back to the *Normal Mode* and resumes battery charging. See page 1 of the Instruction Manual.

## TESTING & MAINTENANCE

Pressing the **Test Switch** turns off the light on the **Charge Indicator** and forces the unit into emergency mode, interrupting power to the designated A.C. ballast. The emergency lamp is now being lit by the **ICE-80** unit. After releasing the **Test Switch**, the fixture returns to normal operation after a momentary delay. To simulate a “BLACK OUT” use the circuit breaker to turn off A.C. power.

**Initial Testing** – Allow the unit to charge approximately 1 hour, then conduct a short discharge test. Allow a 24 hour charge before conducting a one hour test.

The **ICE-80** is a maintenance free unit, however, periodic inspection and testing is required. NFPA 101, Life Safety Code, outlines the following schedule:

**Monthly** – Insure that the **Charge Indicator** light is illuminated. Conduct a 30 second discharge test by depressing the **Test Switch**. One lamp should operate at reduced output.

**Annually** – Insure that the **Charge Indicator** light is illuminated. Conduct a full 1½ hour discharge test. The unit should operate as intended for the duration of the test.

“Written records of testing shall be kept by the owner for inspection by the authority having jurisdiction.”

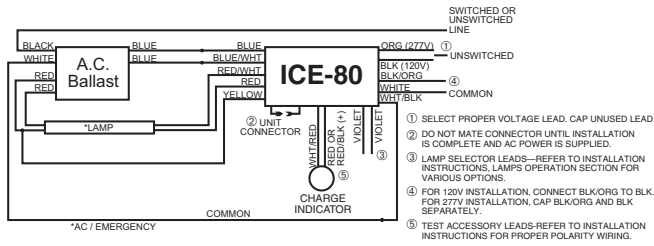
**SERVICING SHOULD BE PERFORMED BY QUALIFIED PERSONNEL.**

**Consult Customer Service or visit [www.iotaengineering.com](http://www.iotaengineering.com) for current warranty information.**

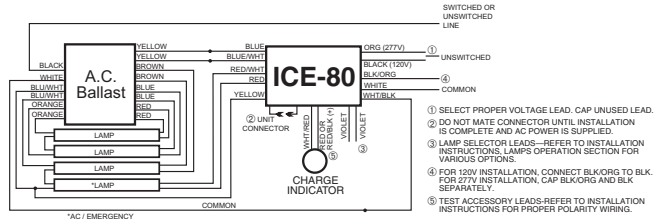
# TYPICAL WIRING DIAGRAMS

For wiring diagrams of ballasts not shown, consult our Customer Service.

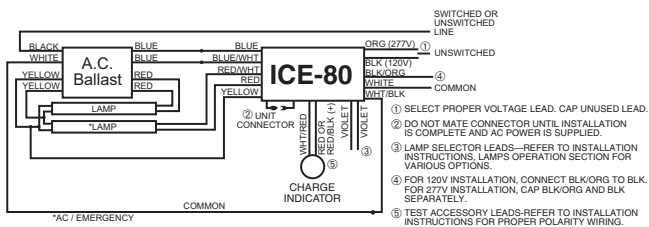
## 1. ONE LAMP RAPID START BALLAST



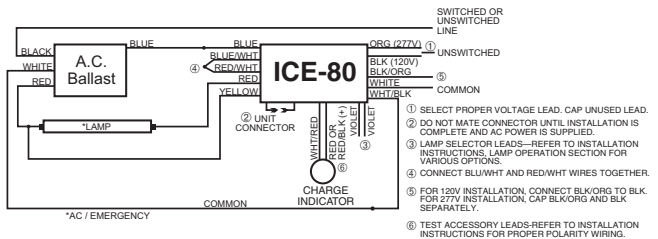
## 6. FOUR LAMP RAPID START BALLAST



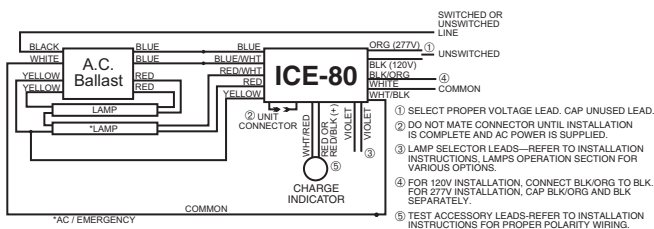
## 2. TWO LAMP RAPID START BALLAST



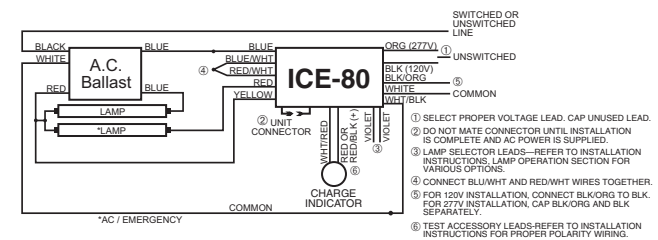
## 7. ONE LAMP INSTANT START BALLAST



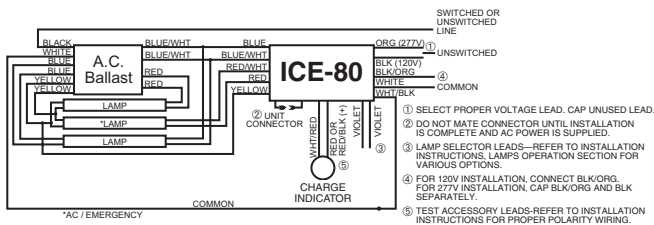
## 3. TWO LAMP RAPID START BALLAST



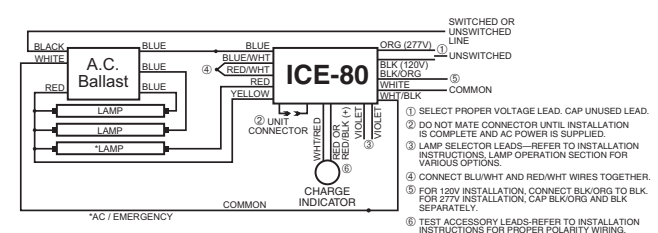
## 8. TWO LAMP INSTANT START BALLAST



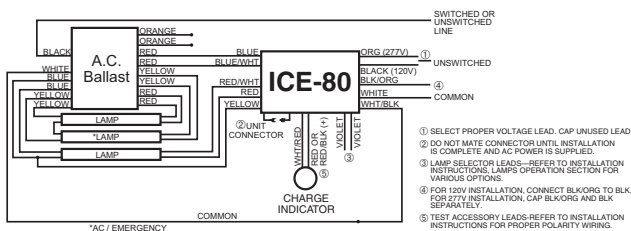
## 4. THREE LAMP RAPID START BALLAST



## 9. THREE LAMP INSTANT START BALLAST



## 5. THREE LAMP RAPID START BALLAST



## 10. FOUR LAMP INSTANT START BALLAST

