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# ISD-80

SERIES AC  
UNIVERSAL VOLTAGE  
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. **DO NOT USE OUTDOORS.** The **ISD-80** is for use with grounded, UL Listed, damp location rated, indoor fixtures. Not for use in heated air outlets or hazardous locations.
5. The **ISD-80** requires an unswitched A.C. power source of 110-277V 50/60Hz.
6. Do not mount near gas or electric heaters.
7. The **ISD-80** should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
8. The **ISD-80** is suitable for mounting in the ballast compartment or on top of the fixture. For top mount, order optional mounting kit TMK-80.
9. The **ISD-80** will cold strike and operate *one* 14W to 54W T5 or 2'–4' instant start, rapid start, U shape or circline, T8 through T12 fluorescent lamps, including energy saving and 4-pin long compact lamps for 90 minutes.  
**Not for use with single-pin lamps.**
10. The **ISD-80** is compatible with most A.C. ballasts (including multiple lamp) as follows:  
Magnetic ballasts – one lamp emergency operation.  
Electronic ballasts – one lamp emergency operation.
11. **ATTENTION** - The **ISD-80** utilizes filament heaters and an AC output circuit for wider compatibility of lamp types, therefore **rapid start sockets only** must be used for the emergency lamp application. The emergency lamp pins must be wired independently to avoid shorting on the output circuit. Instant start sockets should not be used.
12. Suitable for use in damp locations and in enclosed and gasketed fixtures.
13. When used in conjunction with enclosed and gasketed fixtures, the **ISD-80** is suitable for mounting in the ballast compartment only.
14. For use in 0° C minimum, 50° C maximum ambient temperatures.
15. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition, void warranty, and result in non-compliance with UL specifications.
16. Do not use this equipment for other than intended use.
17. Install in accordance with the National Electrical Code and local regulations.
18. Installation and servicing should be performed by qualified personnel.
19. 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 ISD-80 unit connector is disconnected.

## 1. LAMPS OPERATED

The **ISD-80** can be used with most 2'-4' lamps 2-pin lamps. The **ISD-80** is not for use with single-pin lamps. Refer to the chart below for the type of lamp to be operated in emergency mode.

OPTION	LAMP TYPE	EMERGENCY OPERATION	*VIOLET LEADS
1	2'-4' T8/T12 Bipin	One Lamp	Connected
2	2'-4' 14W-24W T5	One Lamp	Connected
3	2'-4' 28W-54W T5	One Lamp	Disconnected
4	22W T9, 9W T5 Circline	One Lamp	Connected
5	12W, 55W T5 Circline	One Lamp	Disconnected
6	18W-36W Long Compact	One Lamp	Connected
7	40W-55W Long Compact	One Lamp	Disconnected

\*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 ISD-80

Remove the ballast channel cover. Mount the **ISD-80** in the ballast channel at least 1/2" away from the A.C. ballast. The **ISD-80** may also be mounted on top of the fixture. The optional top mounting kit (Catalog No. TMK-80) may be ordered separately from Customer Service.

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

## 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.

**ATTENTION** - The **ISD-80** utilizes filament heaters and an AC output circuit for wider compatibility of lamp types, therefore **rapid start sockets only** must be used for the emergency lamp application. The emergency lamp pins must be wired independently to avoid shorting on the output circuit. Instant start sockets should not be used.

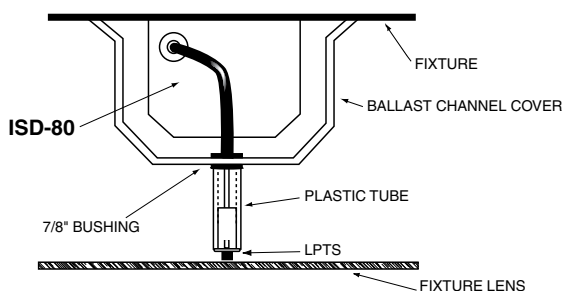
## 4. INSTALLING THE LIGHTED PUSH BUTTON TEST SWITCH (LPTS)

**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 **LPTS** 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 (+) tab. The positive terminal will be indicated by the red mark on the side of the **LPTS** switch). 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 **LPTS** is within 1/4" of the fixture lens. The **LPTS** must be visible after installation. Refer to *Illustration 1*.

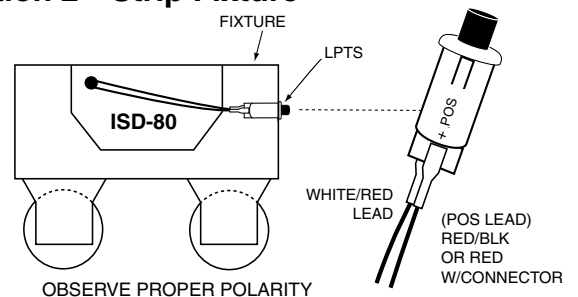
**Strip Fixture** – Select a convenient location on the side of the fixture so the **LPTS** can be seen after installation. Allow for proper clearance inside the fixture and drill or punch a 1/2" hole. Disconnect the leads from the **LPTS** housing. Push the **LPTS** housing into the 1/2" hole until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

NOTE: For proper operation, use only the test accessories provided with the unit. See *Page 1 of the Instruction Manual*.

**Illustration 1 Recessed Troffer Fixture**



**Illustration 2 Strip Fixture**

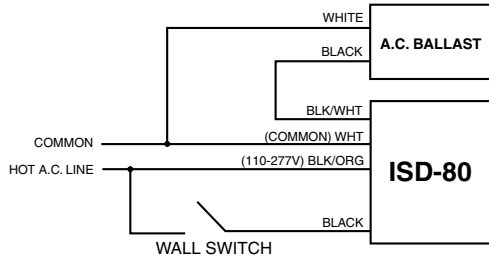


## 5. WIRING THE A.C. INPUT

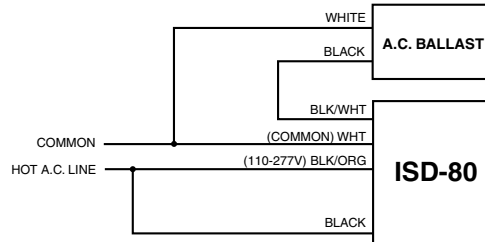
- The **ISD-80** and A.C. ballast **must** be on the same branch circuit.
- The **ISD-80** requires an **unswitched** A.C. power source of 110-277V 50/60HZ.
- When the **ISD-80** is used with a switched fixture, the A.C. input to the **ISD-80** must be connected ahead of the fixture switch. Refer to *Illustration 3* for switched and unswitched fixture wiring diagrams.

For 208VAC applications, consult Customer Service.

**Illustration 3 Switched Fixture**



**Unswitched Fixture**



## 6. LABELS

Attach the appropriate labels adjacent to the **LPTS**. 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.

## 7. COMPLETING INSTALLATION

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

# OPERATION

**Normal Mode** – A.C. power is present. The A.C. ballast operates the fluorescent lamp(s) as intended. The **ISD-80** is in the standby charging mode. The **LPTS** will be lit (green) providing a visual indication that the battery is fully charged or (red) indicating that the battery is currently charging.

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

# TESTING & MAINTENANCE

Pressing and releasing the **LPTS** initiates a 30-second test by interrupting power to the designated A.C. ballast and causing the unit to run in emergency mode. The designated emergency lamp is now being lit by the **ISD-80** unit for a 30-second test. After the 30-second test has completed, the fixture returns to normal operation. To simulate a “BLACK OUT” use the circuit breaker to turn off A.C. power to the fixture.

**Initial Testing** – Allow the unit to charge approximately 1 hour, then conduct a short discharge test. Allow a 72 hour charge before conducting a one hour test.

The **ISD-80** is designed to automatically conduct both 30-second and 90 minute tests at regular intervals every 26 to 28 days. Automatic Testing is outlined in the following schedule:

**Automatic Monthly Testing** – The **ISD-80** will automatically conduct a 30 second test once. If the **ISD-80** encounters a problem, the **LPTS** will flash. See the Table below for diagnosis.

**Automatic Annual Testing** – The **ISD-80** will automatically conduct a 90 minute test every twelve months. If the **ISD-80** encounters a problem, the **LPTS** will flash. See the Table below for diagnosis.

To insure accurate testing, the **ISD-80** will not conduct any scheduled automatic tests for a period of 72 hours after the unit has discharged, regardless of reason, for more than five minutes.

**Manual Testing** - Manual Testing can be performed on the **ISD-80** at any time, provided the unit is fully charged, by pressing and releasing the **LPTS** (see above). Manual Testing will not interfere with the automatic testing schedule of the **ISD-80** and will display the same diagnosis indicators as automatic testing.

LED IS RED WHEN CHARGING, GREEN WHEN READY		
CHARGE FAILURE	1 FLASH	FAILURE CODES OCCUR ONCE EVERY 15 SECONDS WITH 1 SECOND DELAY BETWEEN CODES IN INSTANCES OF MULTIPLE FAILURE
BATTERY FAILURE	2 FLASHES	
LAMP FAILURE*	3 FLASHES	
INVERTER FAILURE*	4 FLASHES	

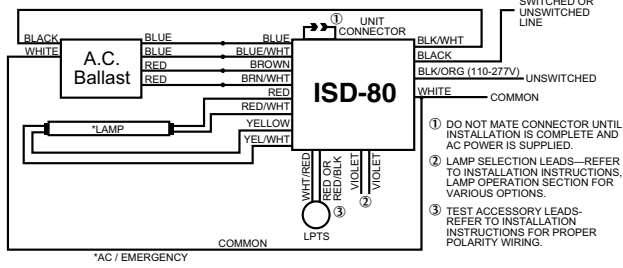
\*IF FAILURE, REPLACE LAMP AND RESET UNIT BY DEPRESSING THE TEST SWITCH FOR 3 SECONDS, THEN RETEST.

**SERVICING SHOULD BE PERFORMED BY QUALIFIED PERSONNEL.**  
 Consult Customer Service or visit [www.iotaengineering.com](http://www.iotaengineering.com) for current warranty information.

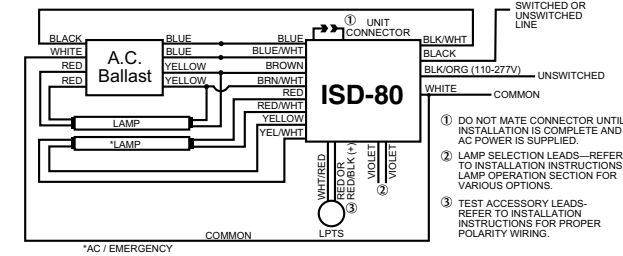
# TYPICAL WIRING DIAGRAMS

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

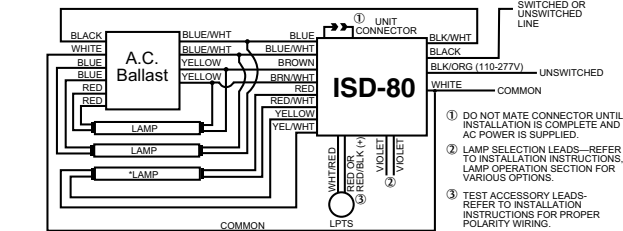
## 1. ONE LAMP RAPID START BALLAST



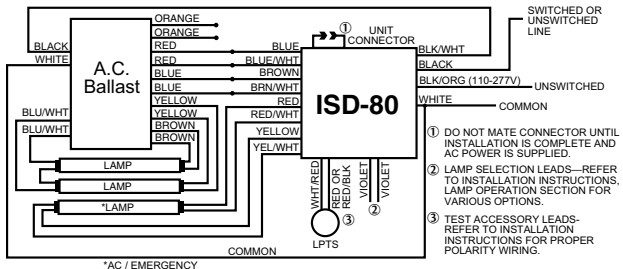
## 2. TWO LAMP RAPID START BALLAST



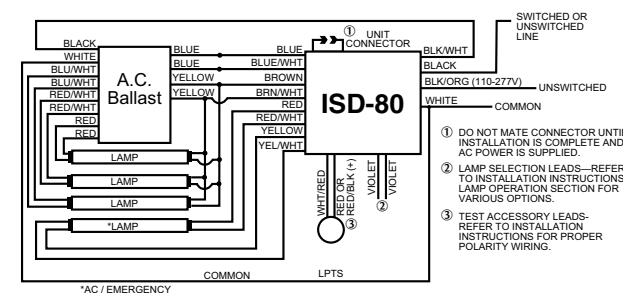
## 3. THREE LAMP RAPID START BALLAST



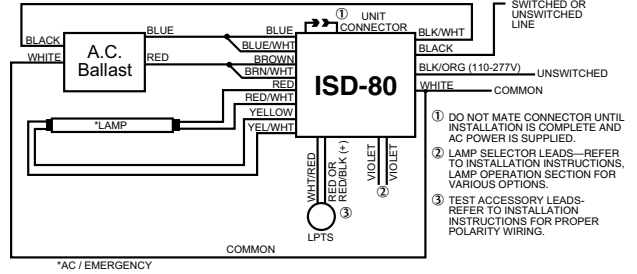
## 4. THREE LAMP RAPID START BALLAST



## 5. FOUR LAMP RAPID START BALLAST

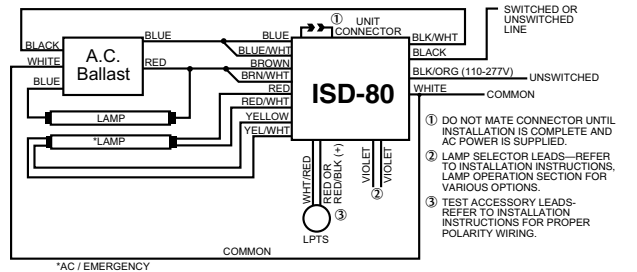


## 6. ONE LAMP INSTANT START BALLAST



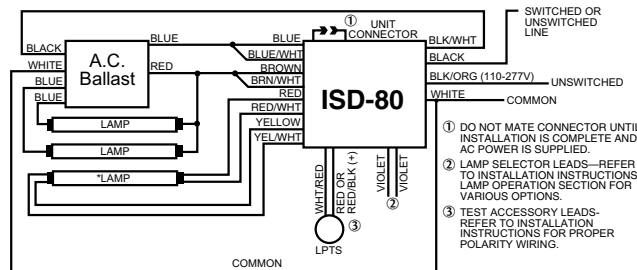
**ATTENTION:** FOR INSTANT START APPLICATIONS, EMERGENCY LAMP SOCKET PINS MUST BE WIRED INDEPENDENTLY FROM EACH OTHER TO AVOID SHORTING THE EMERGENCY OUTPUT CIRCUIT. DO NOT USE INSTANT START SOCKETS FOR THE EMERGENCY LAMP.

## 7. TWO LAMP INSTANT START BALLAST



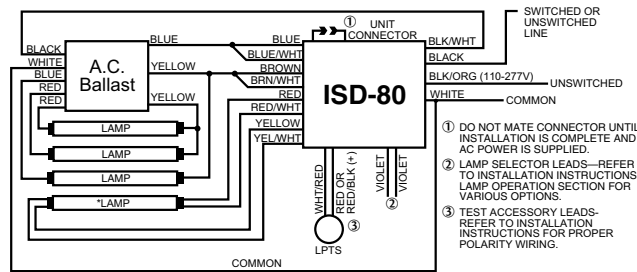
**ATTENTION:** FOR INSTANT START APPLICATIONS, EMERGENCY LAMP SOCKET PINS MUST BE WIRED INDEPENDENTLY FROM EACH OTHER TO AVOID SHORTING THE EMERGENCY OUTPUT CIRCUIT. DO NOT USE INSTANT START SOCKETS FOR THE EMERGENCY LAMP.

## 8. THREE LAMP INSTANT START BALLAST



**ATTENTION:** FOR INSTANT START APPLICATIONS, EMERGENCY LAMP SOCKET PINS MUST BE WIRED INDEPENDENTLY FROM EACH OTHER TO AVOID SHORTING THE EMERGENCY OUTPUT CIRCUIT. DO NOT USE INSTANT START SOCKETS FOR THE EMERGENCY LAMP.

## 9. FOUR LAMP INSTANT START BALLAST



**ATTENTION:** FOR INSTANT START APPLICATIONS, EMERGENCY LAMP SOCKET PINS MUST BE WIRED INDEPENDENTLY FROM EACH OTHER TO AVOID SHORTING THE EMERGENCY OUTPUT CIRCUIT. DO NOT USE INSTANT START SOCKETS FOR THE EMERGENCY LAMP.

For 208VAC applications, consult Customer Service