



P.O. BOX 11846 TUCSON, AZ 85734
(520) 294-3292 • FAX (520) 741-2837
www.iotaengineering.com

IIS-375-LED-DR

375W UNIT INVERTER EQUIPMENT
WITH DIMMING RELAY

INSTRUCTION MANUAL

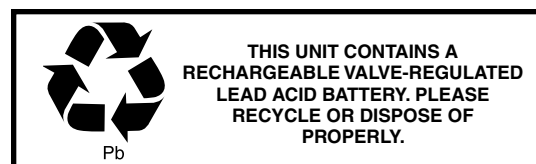
IMPORTANT SAFEGUARDS

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

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

1. **DO NOT USE OUTDOORS.**
2. Do not mount near gas or electric heaters.
3. Do not use this equipment for other than its intended use.
4. The **IIS-375-LED-DR** should be mounted securely and in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
5. The use of accessory equipment and replacement parts not recommended by IOTA Engineering, LLC may cause an unsafe condition and void the warranty.
6. The AC voltage rating of this equipment is specified on the product label. Do not connect the **IIS-375-LED-DR** equipment to any other voltage.
7. Use only the battery part number specified for use with the **IIS-375-LED-DR**. Failure to do so may cause an unsafe condition, will void warranty, and result in non-compliance with UL specifications.
8. The **IIS-375-LED-DR** uses a sealed valve regulated lead acid battery. Batteries can be punctured if not handled properly, therefore use caution when servicing batteries. In the event battery acid comes in contact with eyes or skin, flush with fresh water and consult a physician immediately.
9. Install in accordance with the National Electrical Code and local regulations.
10. Installation and servicing should be performed by qualified personnel.
11. Electricians and end-users need to ensure product system compatibility before final installation.

SAVE THESE INSTRUCTIONS



INSTALLATION INSTRUCTIONS

CAUTION: Before installing, make certain the A.C. power is off.

NOTE: The battery is shipped in separate packaging for ease of handling. Store the battery in a cool, dry and safe location until ready for installation. The battery may be kept in storage for up to 3 months without recharging.

CAUTION: This is a dual input and output voltage unit. It can be connected to either a 120 or 277 volt supply. **The input and output voltages must match.**

Not for use with HID Lighting.

1. MOUNTING THE IIS-375-LED-DR

- 1) Remove the front cover of the **IIS-375-LED-DR** by removing the two (2) screws located at the top of cover.
- 2) Knock out the keyhole slots at the rear of the unit and use for mounting the **IIS-375-LED-DR** securely to the wall. There is an additional round hole for a #10 screw in the cabinet. Code requires that an additional screw be used through this hole to prevent the unit from being inadvertently lifted up off the keyhole slots. **Do not drill any holes in this unit.** If a recessed junction box is to be mounted in the wall behind the unit, make sure an unswitched AC supply of proper rated voltage is extended to the box, and that the remote wiring to the emergency fixtures is also extended to the box prior to mounting the unit. A 1/2" conduit knockout is provided in the back of the unit for wires to pass through. Sixteen inches of wire should be routed into the unit from the recessed junction box. **NOTE:** Input and output wires must be run in separate conduits. **CAUTION:** Do not drill holes into the cabinet; drill filings may damage the unit and keep it from operating. If larger knockouts are required, use a chassis-punch through the appropriate knockout to punch out a larger knockout.
- 3) If the wiring is to be external to the wall, extend both the unswitched supply, the normally-on lamp supply (if used), and the load wires to the unit at this time.

CAUTION: The IIS-375-LED-DR must be mounted securely. Do not rely on the junction box for supporting the weight of the unit. Mount the IIS-375-LED-DR securely to the wall using the keyhole slots provided.

ALWAYS CONSULT LOCAL CODES FOR STRUCTURAL REQUIREMENTS WHEN MOUNTING THE UNIT.

2. WIRING

1. CONNECTING THE NORMAL AC INPUT (FIGURE 1)

- A. **For 120V** supply, connect the AC line wire to the BLACK lead coming from the inverter housing labeled INPUT WIRES. **For 277V** supply, connect the AC line wire to the ORANGE lead coming from the inverter housing labeled INPUT WIRES. **CAUTION: Cap the unused BLACK or ORANGE input wire. Failure to do so may result in equipment failure and void the warranty.**
- B. Connect the Neutral wire to the WHITE lead labeled INPUT.
- C. Connect the ground wire in accordance with local and national codes. A GREEN wire is provided for this purpose.

Note: If the emergency fixtures are to be NORMALLY ON or SWITCHED, you may have to connect their flying lead wires to these wires as well. Refer to **Diagrams 1 and 2** and **STEP 2** below.

DO NOT ENERGIZE THE CIRCUIT AT THIS TIME.

2. CONNECTING REMOTE EMERGENCY FIXTURES (DIAGRAMS 1 and 2)

- A. Connect remote emergency fixtures to the correct output leads. The color code is as follows: neutral is GRAY, 120V is VIOLET, and 277V is YELLOW. All remote circuitry is to be wired in accordance with Article 700 of the National Electric Code. Do not exceed the total rating of the **IIS-375-LED-DR**. **When making connections to the IIS-375-LED-DR, DO NOT connect the Input Neutral (WHITE) to the Output Neutral (GRAY).**
- B. **NORMALLY-OFF FIXTURES** (only come on during power failure) - Connect the AC line input wire of the fixtures to the appropriate output wires as above (120V or 277V). Connect the load neutral wire to the GRAY neutral wire labeled OUTPUT. Refer to **Diagrams 1 and 2**.
- C. **NORMALLY-ON FIXTURES** - Follow Step 2B above. Then select the proper voltage flying lead from heatsink assembly (BLACK for 120V, ORANGE for 277V) and connect to the unswitched AC input wires. Connect the Neutral (WHITE) flying lead coming from the heatsink assembly to the unswitched AC input neutral of the supply line feeding the input wires. Refer to **Diagrams 1 and 2**.
- D. **FIXTURES ON LOCAL SWITCH** (fixtures may be turned on and off locally, but will come on during power failure regardless of switch position) - Follow Step 2B above. Connect the line side of the Switch to the unswitched AC input wires. Connect the load side of the Switch to the proper voltage flying lead from the heat-sink assembly (BLACK for 120V, ORANGE for 277V). Refer to **Diagrams 1 and 2**.

CAUTION: If connected to 277 volt input, use a 277V rated switch. Failure to use the proper voltage switch may result in switch failure, a shock hazard, an unsafe condition and equipment failure.

IIS-375-LED-DR Wiring Connections

Diagram 1 - Dimmer Bypass

The Dimming Relay contacts provide electrical continuity during normal power conditions allowing your dimming signal to operate the luminaire in the desired, dimmed state. When the inverter transfers into the emergency mode, the dimming relay contacts electrically open the 0-10 dimming reference signal forcing the luminaire to operate at full lumen output regardless of dimmer setting.

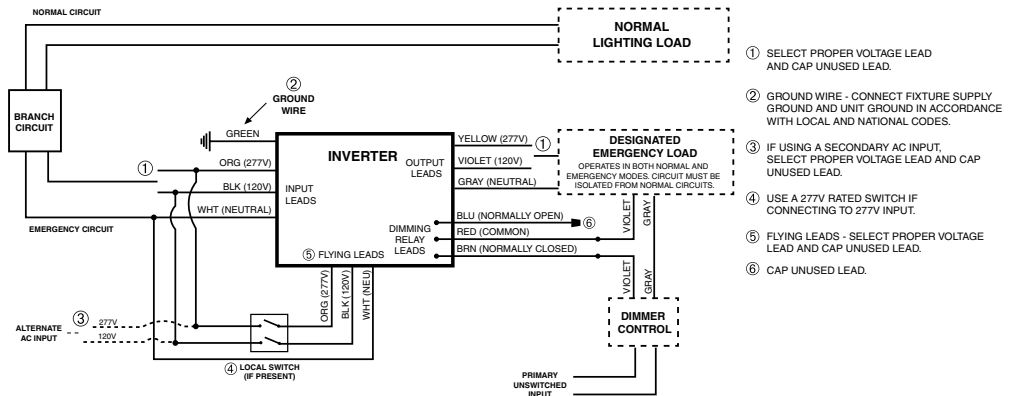
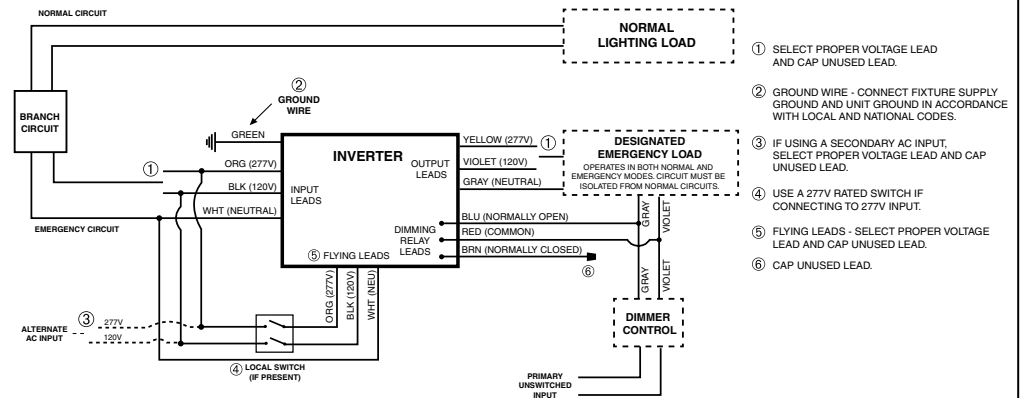


Diagram 2 - EM Dimming Signal

The Dimming Relay contacts are electrically open during normal power conditions allowing your dimming signal to operate the luminaire in the desired, dimmed state. When the inverter transfers into the emergency mode, the dimming relay contacts electrically short the 0-10 dimming reference signal forcing the luminaire to operate at a reduced lumen output setting based on the dimmable driver being used. Verify operating results of the luminaire with the 0-10 volt reference signal shorted to assure the application and mounting height produce code-compliant egress lighting.



E. **ALTERNATE FEED** (all fixtures are supplied on normal from an alternate circuit) - Follow Step 2B above. Then extend alternate AC input to the proper voltage flying leads from the heatsink assembly (BLACK for 120V, ORANGE for 277V). If a local Switch is present, connect the alternate AC input to the Switch, then connect the proper voltage flying leads from the heatsink assembly to the load side of the Switch as in Step 2D. Refer to **Diagrams 1 and 2**.

F. **DIMMING RELAY** - The **IIS-375-LED-DR** features a dimming relay for use with dimming applications. The BLUE (Normally Open), RED (Common), BROWN (Normally Closed) leads are provided for connection to the dimming circuit. Refer to the specifications of the dimming controls for proper wiring connections.

G. Connect the Fixture Supply Ground to the **IIS-375-LED-DR** Ground.

H. The **IIS-375-LED-DR** includes an internal circuit breaker. Push the circuit breaker switch to the 'closed' position so that the indicator on the circuit breaker shows RED. The circuit breaker is located near and slightly above the transformer. If no circuit breaker is present on your inverter model, then disregard.

Consult the **IIS-375 Application Notes** for connecting the unit to specific lighting loads. Application Notes are available on the internet or through Customer Service.

CAUTION: Before proceeding to Wiring Step 3, make sure that all unused wires are properly capped. Failure to do so may result in an unsafe condition and equipment failure.

DO NOT ENERGIZE THE CIRCUIT AT THIS TIME.

3. INSTALLING THE BATTERY

ATTENTION: Use only battery part number **F743750001** with the unit. See Page 1 of this instruction manual.

A. Before installing the battery, check the torque on the hardware that connects the polarized connector to the terminals as these connections may have loosened in transit and storage. The proper torques should be 70 in/lbs for a **Screw Stud** terminal, and 65 in/lbs for an **L Flag** terminal.

B. Install the battery into the **IIS-375-LED-DR** with the terminal posts facing toward the front of the unit. NOTE: The **IIS-375-LED-DR** battery is heavy. To avoid injury, exercise caution when handling the battery.

C. Plug the battery connector together.

Note: Neither the indicator lights nor the emergency fixtures will illuminate at this time. Also, please note that there are 2 battery tie down lugs in the event that it is required that the battery be held in place. Please contact IOTA Engineering Customer Service to purchase this accessory if needed.

For Screw Stud batteries, initial torque is 70 in/lbs, annual is 65 in/lbs.

For L-Flag batteries, initial torque is 65 in/lbs, annual is 52 in/lbs.

NOTE: The emergency indicator lights will not illuminate at this time.

4. COMPLETING INSTALLATION

- A. Energize the AC supply. The Ready (Yellow) Indicator and the Charging (Red) Indicator will illuminate. The Inverter On (Green) Indicator will not illuminate at this time.
- B. Operate the Test Switch for approximately 10 seconds. Observe that any emergency fixtures do not go out, that the Inverter On (Green) Indicator comes on, and that any normally off fixtures come on.
- C. Release the Test Switch. Normally Off fixtures and the Inverter On (Green) Indicator will extinguish. Normally On, emergency, and any switched fixtures will return to their normal operating mode.
- D. Reinstall the front cover using all the original hardware.
- E. Affix red "EMERGENCY CIRCUIT" label (provided) to the panelboard dead front cover near the circuit breaker feeding the **IIS-375-LED-DR**.

3. OPERATION

Normal Mode - AC power is present and operates the fixtures as intended. The **IIS-375-LED-DR** is in the standby charging mode. The Ready (Yellow) Indicator will be lit providing a visual indication that the unit is in Standby Mode.

Emergency Mode - The AC power fails. The **IIS-375-LED-DR** senses the AC power failure and automatically switches to the *Emergency Mode*. All fixtures, including Normally Off or switched off fixtures, connected to the **IIS-375-LED-DR** will be illuminated for a minimum of 90 minutes. When the AC power is restored, the **IIS-375-LED-DR** switches the system back to the *Normal Mode* and resumes battery charging. See page 1 of the instruction manual for important operational safeguards and requirements.

Resetting the Circuit Breaker - Should the unit experience an overload situation or a short circuit the breaker will trip. Before resetting the breaker insure that all wiring is correct, the load side of the inverter must be isolated from all other power sources. Verify that the load does not exceed the rated capacity of the inverter.

4. TESTING

- 1) To test the equipment, depress the test switch. The Ready (Yellow) Indicator will go off. The designated fixtures will either illuminate if they were off or will stay on if they were normally illuminated. The Inverter On (Green) Indicator will come on.
- 2) Release the Test Switch. The Ready (Yellow) Indicator will come on. Normally Off emergency fixtures will extinguish. The equipment is supplied with an automatic solid state charger designed to fully recharge the battery within 72 hours after AC power is restored, and then maintain the battery in a fully charged state. Allow the battery to charge for a minimum of 72 hours after installation or power failure before conducting a 90 minute discharge test. The Life Safety Code and the Authorities Having Jurisdiction require that this test be performed on an annual basis.

5. MAINTENANCE

1. **CAUTION:** Always follow proper shutdown procedure before servicing by 1) turning off the AC supply to the equipment, and 2) disconnecting the battery by unplugging the battery connector. Only qualified service technicians should service this equipment. The use of parts supplied by other than IOTA Engineering, LLC may result in an unsafe condition, equipment failure will void the warranty, and result in non-compliance with UL specifications.
2. **BATTERY** - IOTA recommends that the battery terminations be re-torqued on an annual basis. Re-torque specifications are as follows: **Screw Stud** terminals 65 in/lbs; **L Flag** terminals 52 in/lbs. The battery supplied in this equipment is a high quality maintenance-free Valve Regulated Lead Acid design. It requires no maintenance and when installed in an ambient temperature of 20° to 30° C (68° to 86° F) its life expectancy is 8 to 10 years. However, as stated above, the equipment must be tested for 90 minutes a minimum of once per year. When the battery will no longer operate the load for 90 minutes it must be replaced. Use only IOTA Engineering, LLC supplied parts. Dispose or recycle the lead-acid battery properly.

6. SHUTDOWN PROCEDURE

If a shutdown of the IIS unit becomes necessary for routine maintenance or other purposes, always follow proper shutdown procedure:

- 1) De-energize the AC supply by locking off the circuit breaker feeding the unit.
- 2) Disconnect the battery by uncoupling the battery connector between the battery and converter.

When restoring power to the IIS unit, refer to instructions beginning on Page 3, Step 3 for start-up procedures.

CONTACT CUSTOMER SERVICE FOR REPLACEMENT PARTS.

"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 for current warranty information.