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IIS 250 HE DR

250W HIGH EFFICIENCY
UNIT INVERTER 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. **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 250 HE 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 **IIS 250 HE DR** is not for use in air supply/air return ceilings.
6. The use of accessory equipment and replacement parts not recommended by IOTA Engineering may prevent poper performance, cause an unsafe condition, and will void the warranty.
7. The AC voltage rating of this equipment is specified on the product label. Do not connect the **IIS 250 HE DR** equipment to any other voltage.
8. The emergency load must be on a separate circuit than non-emergency fixtures. Failure to isolate the emergency circuit may result in equipment failure and will void warranty.
9. Use only the battery part number specified for use with the **IIS 250 HE DR**. Failure to do so may cause an unsafe condition, will void warranty, and result in non-compliance with UL specifications.
10. The **IIS 250 HE DR** uses sealed valve regulated lead acid batteries. 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.
11. The **IIS 250 HE DR** is certified in the CA Title 20 Modernized Appliance Efficiency Database System (MAED-BS) as a small battery charger.
12. Install in accordance with the National Electrical Code and local regulations.
13. Installation and servicing should be performed by qualified personnel.
14. Electricians and end-users need to ensure product system compatibility before final installation.

SAVE THESE INSTRUCTIONS

c UL US LISTED

BC HIGH EFFICIENCY PERFORMANCE MEETS CA T20 BATTERY CHARGER EFFICIENCY STANDARDS

Pb

THIS UNIT CONTAINS A RECHARGEABLE VALVE-REGULATED LEAD ACID BATTERY. PLEASE RECYCLE OR DISPOSE OF PROPERLY.

INSTALLATION INSTRUCTIONS

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

WARNING: Emergency Fixtures MUST be on an isolated circuit. Before making connections to the **IIS 250 HE DR**, perform a continuity test between the neutral feeding the emergency load and the neutral that will feed the emergency inverter. If continuity is present, the emergency load is **NOT** isolated and must be re-wired to not share a neutral wire with non-emergency fixtures (ie: fixtures that will not be connected to the **IIS 250 HE DR**).

NOTE: The batteries are shipped separately. Place them in a location away from the work area to avoid damage until they are to be installed.

STEP 1 - Mounting the IIS 250 HE DR

Note: the batteries may be installed prior to mounting the unit (see STEP 2), however, if the batteries are installed first, exercise extreme caution when lifting the unit with batteries to the mounting surface as the unit will be heavy. If the unit is to be installed by a single person, it is recommended to mount the unit prior to installing the batteries.

1) Remove the front cover of the **IIS 250 HE DR** by removing the two screws at the top of the cover.

2) Extend the unswitched, properly-rated voltage AC supply and remote fixture wires to the installation area. If a recessed junction box is to be mounted in the wall behind the unit, make sure that the unswitched AC supply and any remote fixture leads have been extended to the junction box prior to mounting the **IIS 250 HE DR** and that there is at least 12″ of exposed leads for wiring in the unit.

3) Knock out the (2) keyhole slots at the rear of the unit. There are additional round holes for two #10 screws in the cabinet. Code requires that additional screws be used through these holes to prevent the unit from being inadvertently lifted up off the keyhole slots. Mount the **IIS 250 HE DR** securely to the wall. The keyhole slots are spaced to allow mounting to the wall's unistrut or studs.

4) Connect the conduit containing the AC supply and remote fixture leads to the **IIS 250 HE DR**. Use the provided knock-outs on the **IIS 250 HE DR** for connecting the incoming wires.

STEP 2 - Installing the Batteries

(!) Use only battery part number **IIS 125/250 BAT** with the unit (note: replacement batteries are ordered in sets of four).

1) Remove the front cover of the **IIS 250 HE DR** by unscrewing the two screws on top of the unit. Remove the battery restraining bracket and set aside. Separate the red (+) battery wires and the black (-) battery wires and move the black battery wires aside so that they will not touch the red battery wires during installation.

2) Working with two batteries, place each battery inside the **IIS 250 HE DR** so that the positive terminals face towards the unit.

⚠ **Note: the batteries are heavy, excercise caution when lifting.**

3) Using the screws, nuts, and washers provided in the battery kit, connect the red battery wires to the positive (+) battery terminals. Torque hardware to 33 in/lbs.

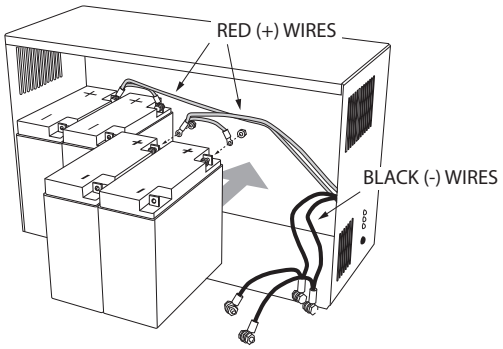
4) Repeat steps 2) and 3) for the second set of batteries.

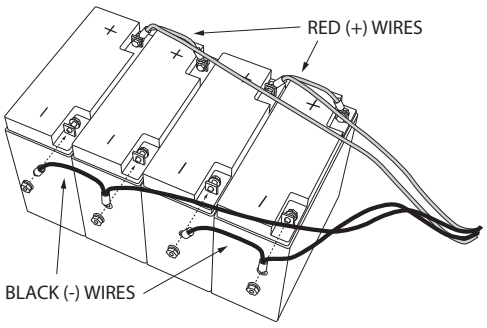
⚠ **Warning: once positive connections have been made, the battery circuit will be energized. To avoid creating an unsafe condition and damage to the batteries, connectors and unit through a battery short circuit, DO NOT touch the black (-) battery wires to the red (+) battery wires.**

5) After all four batteries have been installed and the positive connections have been made, connect the black battery wires to the negative (-) battery terminals. Torque hardware to 33 in/lbs.

6) Replace the restraining bracket.

⚠ **Failure to connect or secure the batteries properly will result in equipment failure, an unsafe condition, and will void the warranty.**





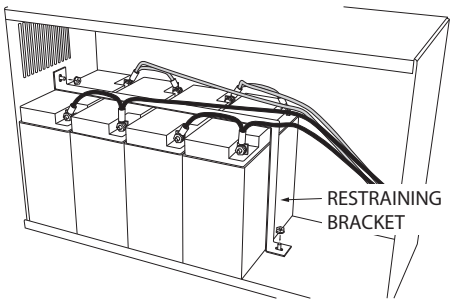
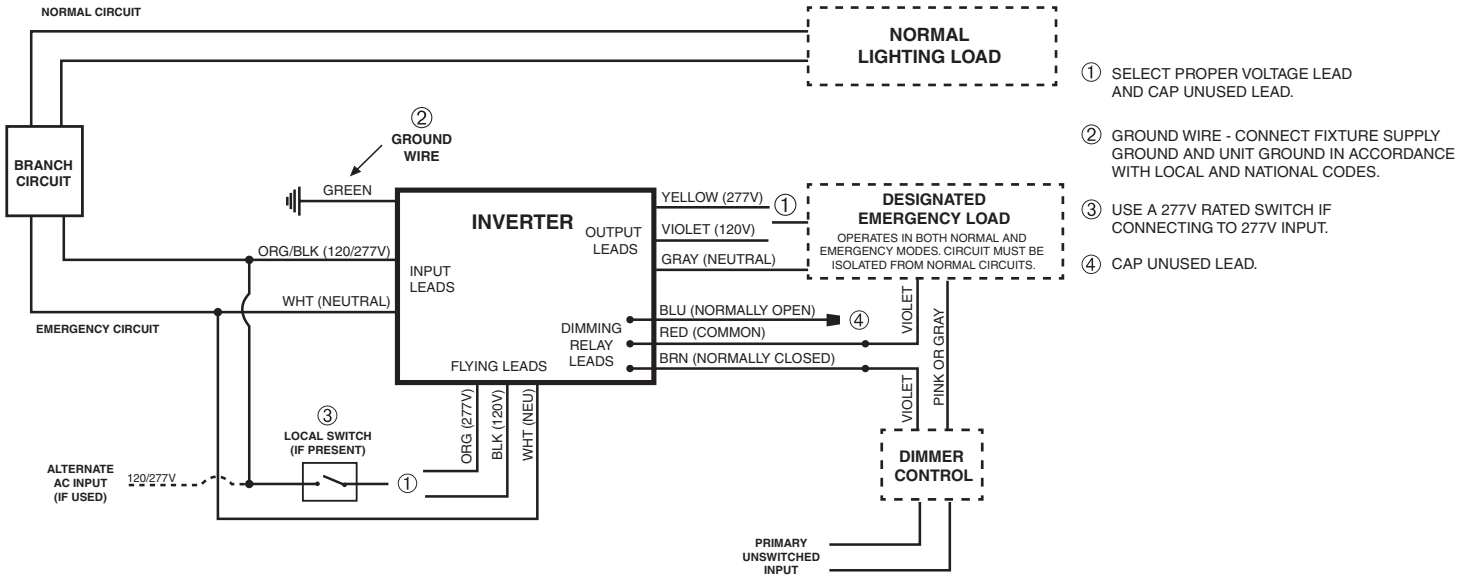


FIGURE 1 - IIS 250 HE DR WIRING CONNECTIONS



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.

STEP 3 - Wiring

1) CONNECT THE INVERTER AC INPUT (FIGURE 1)

The Inverter AC Input leads (designated “Input Leads”) serve as your normal power sense and charging input for the internal batteries, therefore the IIS 250 HE DR requires an unswitched AC input of 120/277 VAC. If a local switch is present on the designated emergency circuit, the IIS 250 HE DR input must be wired ahead of the switch.

A) Connect the ORANGE/BLACK wire to the 120/277 VAC input.
B) Connect the Neutral wire to the WHITE lead labeled INPUT.

⚠ **DO NOT connect the Input Neutral (WHITE) to the Output Neutral (GRAY).**

C) Connect the ground wire in accordance with local and national codes. A GREEN wire is provided for this purpose.

DO NOT ENERGIZE THE CIRCUIT AT THIS TIME.

2. CONNECT THE NORMAL AC INPUT (FIGURE 1)

The Normal AC input leads (designated “Flying Leads”) provide normal power to the designated emergency circuit. If the designated circuit is for Normally-Off fixtures (ie. emergency operation only - come on only during power failure), the Normal AC input leads are not required and should be capped separately.

A. NORMALLY-ON FIXTURES - Select the proper voltage “flying lead” (BLACK for 120V, ORANGE for 277V) and connect to the unswitched AC input. Cap the unused lead. Connect the Neutral (WHITE) “flying lead” to the unswitched AC input neutral of the supply line feeding the input wires. Refer to Figure 1.
B. FIXTURES ON LOCAL SWITCH (fixtures may be turned on and off locally, but will come on during power failure regardless of switch position) - Connect the load side of the switch to the proper voltage “flying lead” (BLACK for 120V, ORANGE for 277V). Cap the unused lead. Ensure the Inverter AC Input (“Input Leads”) are connected ahead of the local switch. Refer to **Figure 1**.

3. CONNECT EMERGENCY FIXTURES (FIGURE 1)

A. Connect 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 250 HE DR.

⚠ **DO NOT connect the Input Neutral (WHITE) to the Output Neutral (GRAY).**

B Connect the Fixture Supply Ground to the **IIS 250 HE DR** Ground.

DO NOT ENERGIZE THE CIRCUIT AT THIS TIME.

Consult the IIS 250 HE DR Application Notes for connecting the unit to specific lighting loads. Application Notes are available on the internet or through Customer Service.

4. COMPLETING INSTALLATION

A. Energize the AC supply. Only the Ready (Yellow) Indicator and the Charging (Red) Indicator will illuminate.

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. 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.

C. Properly re-install the cover of the **IIS 250 HE DR** using all the original hardware.

D. Affix red "EMERGENCY CIRCUIT" label (provided) to the panelboard dead front cover near the circuit breaker feeding the **IIS 250 HE DR**.

3) OPERATION

Normal Mode - AC power is present and operates the fixtures as intended. The **IIS 250 HE DR** is in the standby charging mode. The Ready (Yellow) Indicator and Charging (Red) Indicator will be lit providing a visual indication that the unit is charging.

Emergency Mode - The AC power fails. The **IIS 250 HE 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 250 HE DR** will be illuminated for the duration required by national safety codes (minimum 90 minutes in US, minimum 30 minutes in Canada). When the AC power is restored, the **IIS 250 HE DR** switches the system back to the *Normal Mode* and resumes battery charging. See page 1 of the instruction manual.

4) TESTING

1) To test the equipment, depress the test switch. The Ready (Yellow) Indicator and Charge (Red) 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 and Charge (Red) 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 batteries within 48 hours after AC power is restored, and then maintain the batteries in a fully charged state. Allow the batteries to charge for a minimum of 48 hours after installation or power failure before conducting a prolonged discharge test. Monthly and annual testing should be performed in accordance with NFPA 101, local, state or municipal code requirements.

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

5) MAINTENANCE

1) **CAUTION:** Always turn off the AC supply to the equipment, and disconnect the battery before servicing. Only qualified service technicians should service this equipment. The use of parts supplied by other than IOTA Engineering may result in an unsafe condition, equipment failure and will void the warranty.
2) **BATTERY** - 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°-30° C (68°-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. Replace only with IOTA Engineering supplied parts. Dispose or recycle the lead-acid battery properly.

CONTACT CUSTOMER SERVICE FOR REPLACEMENT PARTS.

SERVICING SHOULD BE PERFORMED BY QUALIFIED PERSONNEL.
Consult Customer Service or visit www.iotaengineering.com for current warranty information.