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(520) 294-3292 • FAX (520) 741-2837
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IIS 550 HE

HIGH EFFICIENCY
550W 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 550 HE** 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, will void the warranty and result in non-compliance with UL specifications.
6. The AC voltage rating of this equipment is specified on the product label. Do not connect the **IIS 550 HE** equipment to any other voltage.
7. Use only the battery part number specified for use with the **IIS 550 HE**. Failure to do so may cause an unsafe condition, will void warranty, and result in non-compliance with UL specifications.
8. The **IIS 550 HE** 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. The **IIS 550 HE** is certified in the CA Title 20 Modernized Appliance Efficiency Database System (MAEDBS) as a small battery charger.
10. Install in accordance with the National Electrical Code and local regulations.
11. Installation and servicing should be performed by qualified personnel.
12. Electricians and end-users need to ensure product system compatibility before final installation.

SAVE THESE INSTRUCTIONS

UL® 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.

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 universal input and output voltage unit. It can be connected to a 120 - 277 volt supply. **The input and output voltages must match**.

Mounting the IIS 550 HE

1) Remove the front cover of the **IIS 550 HE** by removing the two (2) screws located at the top of cover.

2) Knock out the keyhole slots in the rear of the unit and use for mounting the **IIS 550 HE** securely to the wall. After removing the keyholes, hang the unit on two 1/4"-20 screws (Grade 2 or better) attached to the wall studs. An additional pair of 1/4"-20 screw holes are provided underneath the electronics shelf. Code requires that additional screws be used through these holes to prevent the unit from being inadvertently lifted up off the keyhole slots. **Do not drill any holes in this unit**.

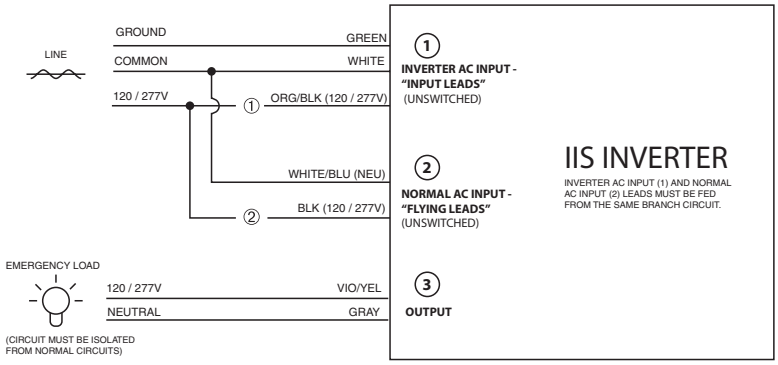
3) Extend an unswitched AC supply, switched AC supply (if used), and the load wires to the unit. 1/2″ conduit knockouts are provided in the top, back and sides of the unit for wires to pass through. NOTE: Input and output wires must be run in separate conduits. **CAUTION**: Do not drill holes into the cabinet; drill filings may damage the unit and keep it from operating.

CAUTION: The IIS 550 HE must be mounted securely. Do not rely on the junction box for supporting the weight of the unit. Mount the IIS 550 HE securely to the wall using the keyhole slots provided, or mount it on a secure platform.

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

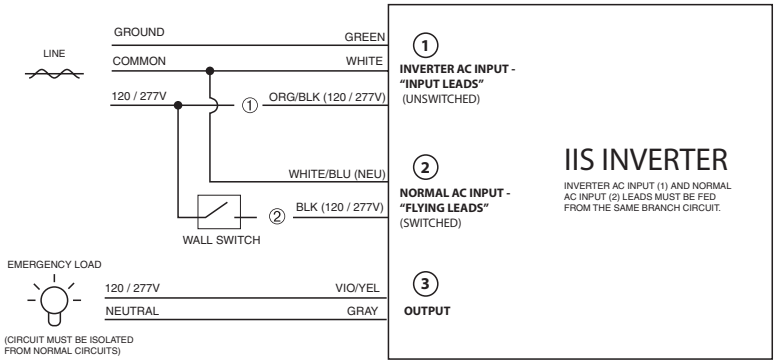
Wiring

FIGURE 1 - IIS 550 HE WIRING CONNECTIONS



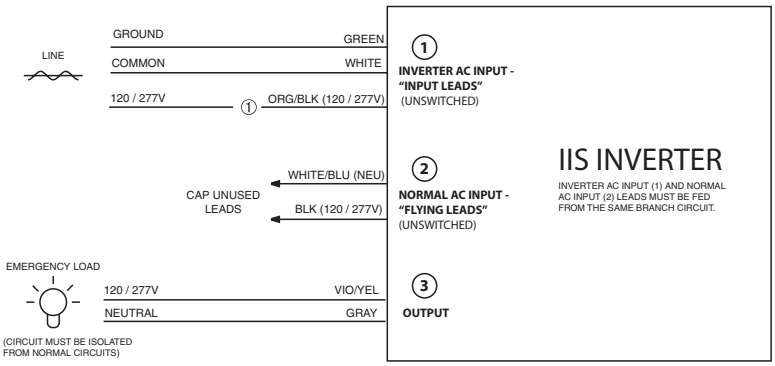
- <u>ALWAYS ON FIXTURES</u>

Fixtures are used for both normal and emergency power conditions. During a loss of normal AC power, the IIS automatically senses the drop in line voltage, and powers the fixtures with its internal battery.



- <u>SWITCHED FIXTURES</u>

Fixtures are used for both normal and emergency power conditions, and are controlled by a local switching device. During a loss of normal AC power, the IIS automatically senses the drop in line voltage, and powers the fixtures with its internal battery, regardless of the position of the switching device.



- <u>NORMALLY OFF FIXTURES</u>

Fixtures on the emergency circuit are used in emergency mode only, and are not energized during normal power conditions (Note: Normal AC Input leads are not connected).

BEFORE WIRING - Ensure that AC power has been turned off to your circuit.

1. CONNECTING THE INVERTER AC INPUT (FIGURE 1)

Inverter AC Input leads (designated "Input Leads") serve as your normal power sense and charging input for the battery. They require **unswitched** AC input of 120 - 277 VAC. If a local switch is present on the designated emergency circuit, the battery charger input leads must be wired ahead of the switch.

A. **For 120V - 277V** supply, connect the **unswitched** AC line wire to the ORANGE/BLK lead coming from the inverter housing labeled INPUT WIRES.

B. Connect the **unswitched** Neutral wire to the WHITE lead labeled INPUT WIRES.

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

2. CONNECTING THE NORMAL AC INPUT (FIGURE 1)

Normal AC Input leads (designated "Flying Leads") allow for your fixture(s) to operate in normal power situations while maintaining emergency capabilities. Before connecting the Normal AC Input leads, see **Figure 1** to determine which normal power situation best fits your application. In all applications:

Note: The Normal AC Input must be the same phase/power as the Inverter AC Input..

A. **For 120V - 277V** supply, connect the AC line input to the BACK Normal AC Input "flying lead."

B. Connect the AC line Neutral to the WHITE/BLUE Normal AC Input "flying lead."

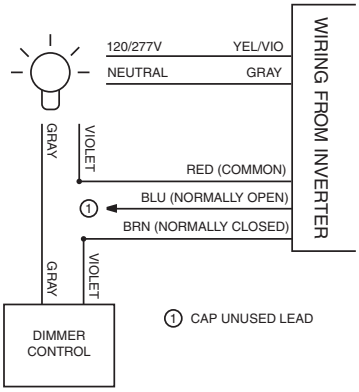
3. CONNECTING EMERGENCY FIXTURES (FIGURE 1)

A. Connect emergency fixtures to the output leads VIOLET/YELLOW for 120/277V and GRAY for NEUTRAL. 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 550 HE**. **When making connections to the IIS 550 HE, DO NOT connect the Input Neutral (WHITE or WHITE/BLUE) to the Output Neutral (GRAY).**

B Connect the Fixture Supply Ground to the **IIS 550 HE** Ground.

C. **Dimming Relay (Figure 2)** - The **IIS 550 HE** 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.

FIGURE 2 - IIS 550 HE DIMMING RELAY CONNECTIONS (SEE FIGURE 1 FOR COMPLETE WIRING INSTRUCTIONS)



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.

Consult the **IIS 550 HE Application Notes** for connecting the unit to specific lighting loads. Application Notes are available on the internet or through Customer Service.

4. INSTALLING THE TEST SWITCH/LED INDICATOR

A. Push the Test Switch/LED Indicator through the opening labeled 'charge indicator' until it snaps firmly into place. Fasten the RED (+) wire to the Test Switch connector labeled with a Red dot and the White wire to the adjacent connector.

5. INSTALLING THE BATTERY

Before installing the battery, energize the AC Supply.

ATTENTION: Use only battery part number **IIS 550 HE BAT** 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 torque should be 65 in/lbs for an **L Flag** terminal.

B. Install the battery into the **IIS 550 HE** with the terminal posts facing toward the front of the unit. NOTE: The **IIS 550 HE** battery is heavy. To avoid injury, exercise caution when handling the battery.

C. Plug the battery connector together. The Test Switch/ LED Indicator will illuminate Red at this time.

Note: 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.

6. COMPLETING INSTALLATION

B. Operate the Test Switch for approximately 10 seconds. Observe that any emergency fixtures do not go out, and that any normally off fixtures come on.

C. Release the Test Switch. Normally Off fixtures 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 550 HE**.

Operation

Normal Mode - AC power is present and operates the fixtures as intended. The **IIS 550 HE** is in the standby charging mode. The Test Switch/LED Indicator will be lit RED providing a visual indication that the unit is in Standby Mode.

Emergency Mode - The AC power fails. The **IIS 550 HE** 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 550 HE** will be illuminated for a minimum of 90 minutes. When the AC power is restored, the **IIS 550 HE** 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 and the load side of the inverter is isolated from all other power sources. Verify that the load does not exceed the rated capacity of the inverter.

Testing

1) To test the equipment, depress the Test Switch/LED Indicator. The designated fixtures will either illuminate if they were off or will stay on if they were normally illuminated.

2) Release the Test Switch. The Test Switch/LED Indicator will illuminate RED. Normally Off emergency fixtures will extinguish.

The equipment is supplied with an automatic solid state charger designed to fully recharge the battery within 24 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 24 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.

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 specification for **L Flag** terminals is 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.

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 4 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.