ACE LEDS

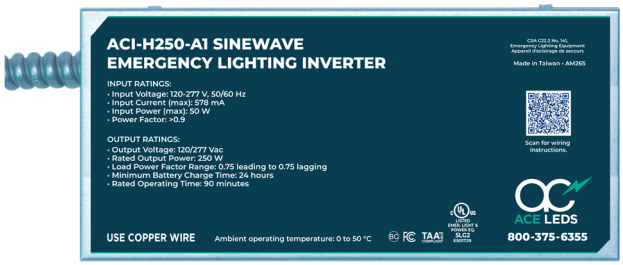
Output Power 250 Watts (Pure Sine Wave)

ACI-H250-A1 Emergency Lighting Inverter

Primary Specifications:

Input Voltage	Input Current Max	Input Power Max	Output Voltage	Output Power Max	Emergency Operating Time	Ambient Operating Temperature	UL Listed for US and Canada
120-277 Vac 50/60Hz	578 mA	50 W	120/277 Vac	250 W (PF: 0.75 leading to 0.75 lagging)	90 minutes minimum	0 ˚C through 50 ˚C	UL and cUL (UL924) Emergency Lighting Power Supply

Note: All specifications valid over ambient operating temperature range unless otherwise noted.



Description:

The ***ACI-H250-A1*** from ACE LEDs is an emergency lighting inverter with a pure sine wave output. The ***ACI-H250-A1*** contains a high-performance, emergency power grade, long-life lithium iron phosphate ($LiFePO_4$) battery, a high-efficiency smart battery charger and battery safety management system, control circuitry, and a high-efficiency pure sine wave power inverter. The ***ACI-H250-A1*** includes a 0-10 Vdc Automatic Dimming control feature, which expands its compatibility and operational capabilities. The ***ACI-H250-A1*** is compatible with LED, fluorescent, and incandescent fixtures. The ***ACI-H250-A1*** comes in a single metal enclosure with flexible metal conduit and hardware. The ***ACI-H250-A1*** is suitable for mounting either in the plenum space in close proximity to the fixture or remote from the fixture. In the event of a normal power failure, the ***ACI-H250-A1*** automatically switches to emergency-mode delivering emergency power to the connected load for a minimum of 90 minutes. When normal power returns, the ***ACI-H250-A1*** returns to normal-mode. The ***ACI-H250-A1*** can be used in switched or unswitched or emergency-only fixture applications. The ***ACI-H250-A1*** features the capability to meet high load inrush current (I^2t) demands, as well as high start-up power demands. The small physical size, wide ambient temperature operating range, and robust power delivery capability allows the ***ACI-H250-A1*** to be used with existing fixtures for both normal-mode operation and emergency-mode operation, while maintaining the aesthetic design of the fixture and lighting space.

Additional Specifications:

Input Voltage: ..... 120 – 277 Vac, 50/60 Hz, (Universal Input)
Input Power Factor: ..... > 0.9
Inrush current: ..... < 20 Apk.
Surge Immunity: ..... 6 kV Ring wave and Combination wave (Per ANSI/IEEE C62.41.2-2002)
Output voltage: ..... 120/277 Vac (+/- 5%), (auto select), 60 Hz (+/- 3 Hz)
VA max: ..... 333.3 VA
Inverter overload capability: ..... 366.7 VA for 100 minutes
Output voltage waveform: ..... Pure sinewave (resistive load)
Output current THD: ..... Less than 3% (resistive load)
Compatible lighting loads: ..... LED, Fluorescent, Incandescent
Output Short Circuit Protection: ..... Auto Recovery (10 Seconds)
Operating ambient temperature: ..... 0 °C to 50 °C
Humidity: ..... 10% to 90%
Maximum case temperature Tc: ..... 70 °C
Nominal battery voltage: ..... 25.6 V
Battery charge current: ..... 1300 mA
Battery charge time: ..... 24 hours
Metal enclosure IP rating: IP30
Remote distance: ..... 300 ft. using 14 AWG wire, and 150 ft. if using 18 AWG wire (Remote distance from inverter to load is limited by the losses in the wire.)
Emergency operating time: ..... 90 minutes minimum
Transfer time: ..... 2.0 sec. (transfer from normal to emergency mode)
Configurations: ..... Switched, unswitched (always on), or emergency-only (normally off)
Weight: ..... 11.02 lbs. (5 kg)
MTBF: ..... 100,000 hours @25 °C Ta
Lifetime: ..... 75,000 hours (under normal use @50 °C Ta)
Storage time (max) and Storage Temperature : ..... 12 months (-20 °C to 55 °C)
Power Cycle endurance capability: ..... 10,000 on/off cycles, 1 s on, 1 s off, @25 °C Ta
Over temperature protection: ..... Automatic shut down

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ACE LEDS ACI-H250-A1 Emergency Lighting Inverter

Safety and Regulatory Compliance:

- UL and cUL listed (UL924), USA and Canada, for both field and factory installation.
- cUL listed to CSA C22 No.141
- CEC Title 20 compliant: Certified in CA Title 20 Appliance Efficiency Database – Battery Charger
- EMI: Complies to FCC Part 15 class A

Features, Benefits, and Applications:

- Maintains output voltage regulation over the full 90-minute runtime.
- Includes input over voltage surge protection, output short circuit protection, and over-temperature protection for improved reliability
- Two-wire universal input: Reduces wiring errors and reduces installation time and complexity
- Automatically selects the appropriate output voltage
- Pure Sine Wave output waveform: Provides improved reliability of connected driven loads, reduces heat, improves efficiency, and provides optimum compatibility across all lighting load types.
- Capable of sourcing high crest factor loads..
- High load inrush current (I^2t) capability.
- High start-up power delivery capability: Provides robust and smooth start-up for the most demanding luminaire loads.
- Wide load power factor range.
- Includes a miniature illuminated test switch status indicator.
- Suitable for indoor and damp locations.
- Compatible with LED, Fluorescent, and Incandescent lighting fixtures
- Compatible with AC line voltage driven TLEDs
- Small size and versatile mounting: Suitable for plenum space mounting in close proximity to the luminaire or for remote mounting up to 300 ft. using 14 AWG wire, and 150 ft. using 18 AWG wire. Further distances are possible with larger gage wire.
- High efficiency: No fans required.
- Versatile output wiring configuration options: Normally On, Normally Off (Emergency only), or Switched.
- Test switch wiring can be extended up to 50'.
- RoHS compliant.

Operation:

Under normal-mode conditions, the ***ACI-H250-A1*** allows normal operation of the connected Normal AC lighting fixture. Also, under normal-mode conditions, the ***ACI-H250-A1*** charges and maintains the internal $LiFePO_4$ battery. In the event of a normal power failure, the ***ACI-H250-A1*** automatically switches to emergency-mode and delivers emergency power to the connected Normal AC lighting fixture(s) for up to 90 minutes or until normal power returns, whichever comes first. When normal power returns, the ***ACI-H250-A1*** returns to normal-mode.

The smart controls and battery management system prevents the battery from being deep discharged during prolonged power outages.

Automatic Dimming:

The ***ACI-H250-A1*** features an automatic dimming control (0-10 Vdc) circuit that greatly expands the utilization of this Emergency Lighting Inverter. When the inverter's 0-10 Vdc dimming circuit is connected to the 0-10 Vdc dimming control input of a 0-10 Vdc dimmable LED driver, and the inverter is in emergency-mode, the inverter's 0-10 Vdc dimming circuit controls the dimmable LED driver's power level so that the total load on the inverter does not exceed 250 Watts. This feature allows the ***ACI-H250-A1*** to be connected to a single fixture or multiple parallel connected fixtures where the total power in normal-mode could exceed 250 Watts. For example, with the ***ACI-H250-A1*** connected to multiple parallel connected fixtures, such as five 100 Watt fixtures, then in emergency-mode, the ***ACI-H250-A1*** will automatically adjust the 0-10 Vdc dimming circuit voltage level of each fixture so that the total load on the inverter does not exceed 250 Watts. In this way, each of the fixtures will be operated at 50 Watts in emergency-mode. Note that, in normal-mode operation, the normal lighting functionality and the normal-mode dimming circuits are unaffected by the ***ACI-H250-A1*** and operate as normal.

Specifications:

Emergency lighting shall be provided by using the ***ACI-H250-A1 emergency lighting inverter***. The ***ACI-H250-A1*** shall contain a lithium iron phosphate ($LiFePO_4$) battery, a high-efficiency battery charger, control circuitry, a high-efficiency two-wire universal input converter (120 through 277 Vac), and a high-efficiency pure sine wave power inverter, all contained in a single metal enclosure with dimensions 18.31 in L x 5.77 in W x 3.06 in H. The ***ACI-H250-A1*** shall have a maximum of 50 Watts input power. A miniature illuminated test switch status indicator shall be provided for the purposes of performing periodic testing and indicate status change of the battery and battery-charger. The ***ACI-H250-A1*** shall be capable of delivering 250 Watts at an output voltage of 120 Vac or 277 Vac, over a load PF range from 0.75 leading to 0.75 lagging, for a minimum of 90 minutes. The output voltage is automatically determined and automatically selected. The ***ACI-H250-A1*** shall be UL and cUL listed (UL 924) and shall meet or exceed the requirements of NFPA 101 Life Safety Code, NFPA 70 National Electrical Code, OSHA, and State and local codes. The ***ACI-H250-A1*** shall be CEC Title 20 compliant and listed in the California Energy Commission Title 20 Appliance Efficiency Database. The ***ACI-H250-A1*** shall comply with part 15 of the FCC Rules. The ***ACI-H250-A1*** is suitable for indoor and damp locations. The ***ACI-H250-A1*** shall be capable of operating in an ambient temperature of 0 °C to 50 °C.

5-Year USA-Backed Warranty*

See complete AC Warranty information for details

Warranty:

The ***ACI-H250-A1*** warranty is 5 years based on a maximum case temperature of ≤ 60 °C, or 3 years warranty based on a maximum case temperature of ≤ 70 °C.

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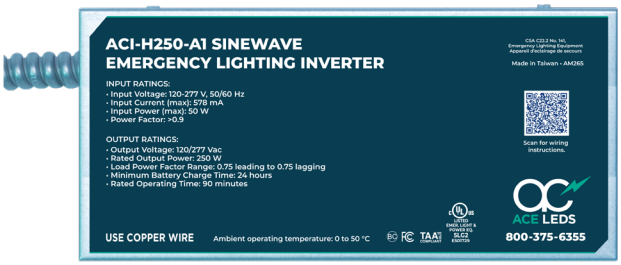
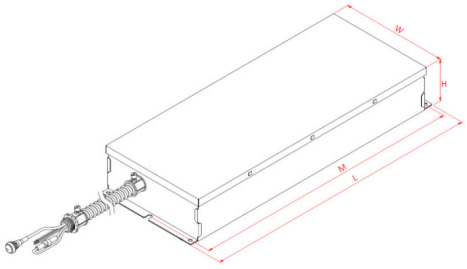




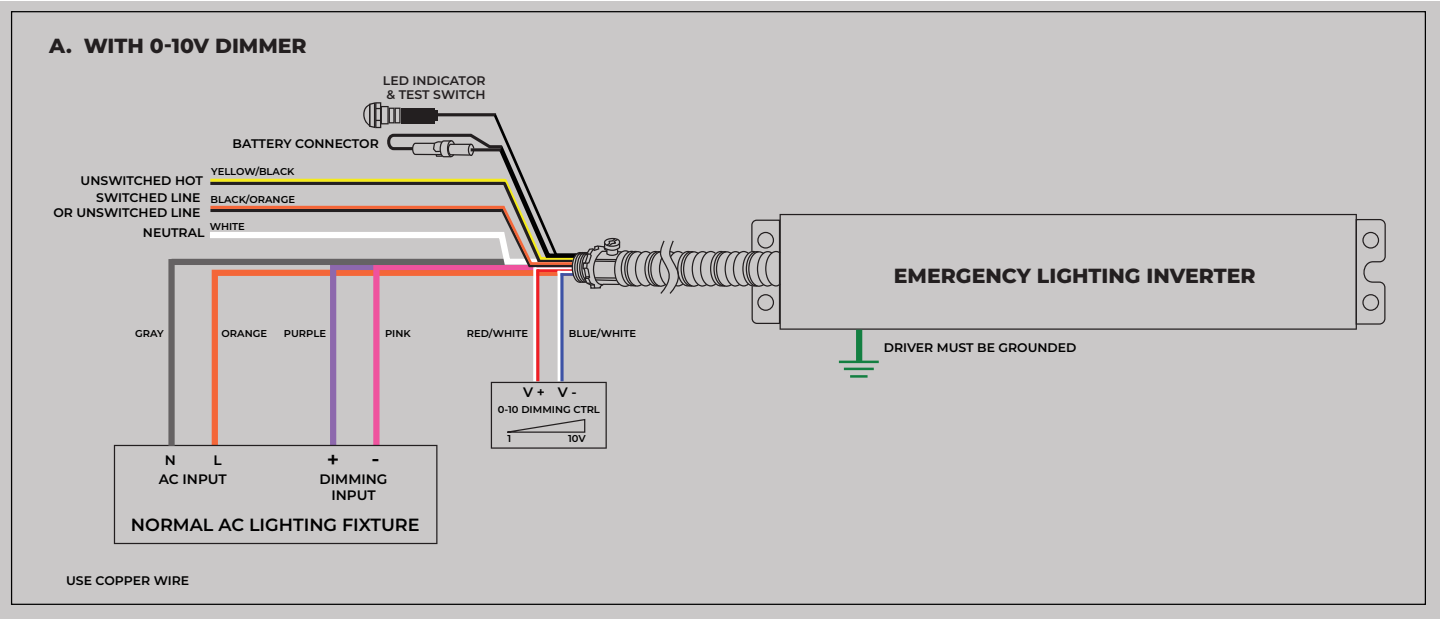
NOTE: Test switch wiring can be extended up to 50'.

Enclosure:

Lead Lengths			
White	30.71"	Orange	30.71"
Yellow/Black	30.71"	Orange/White	30.71"
Black	30.71"	Battery Connector	30.71"
Purple	30.71"	Test Switch	30.71"
Pink/White	30.71"	LED Indicator	23.62"
Purple/White	30.71"	Conduit	24"

Dimensions			
Length (L)	18.31"	Height (H)	3.06"
Width (W)	5.77"	Mounting (M)	17.83"

Wiring Diagram for Operating a Single Fixture



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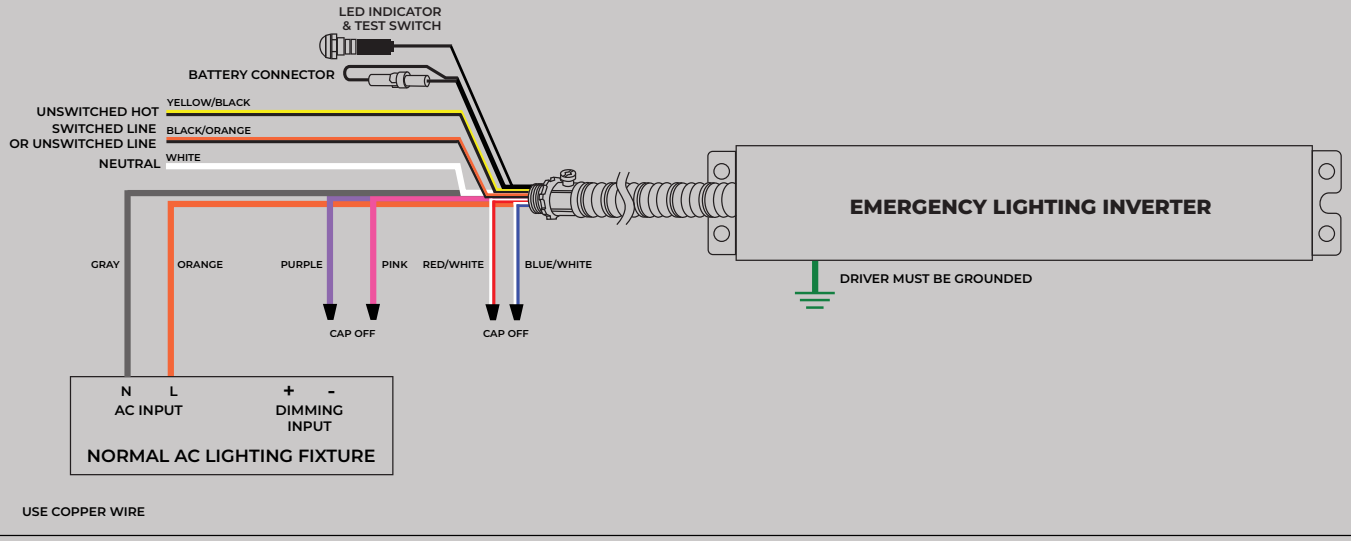
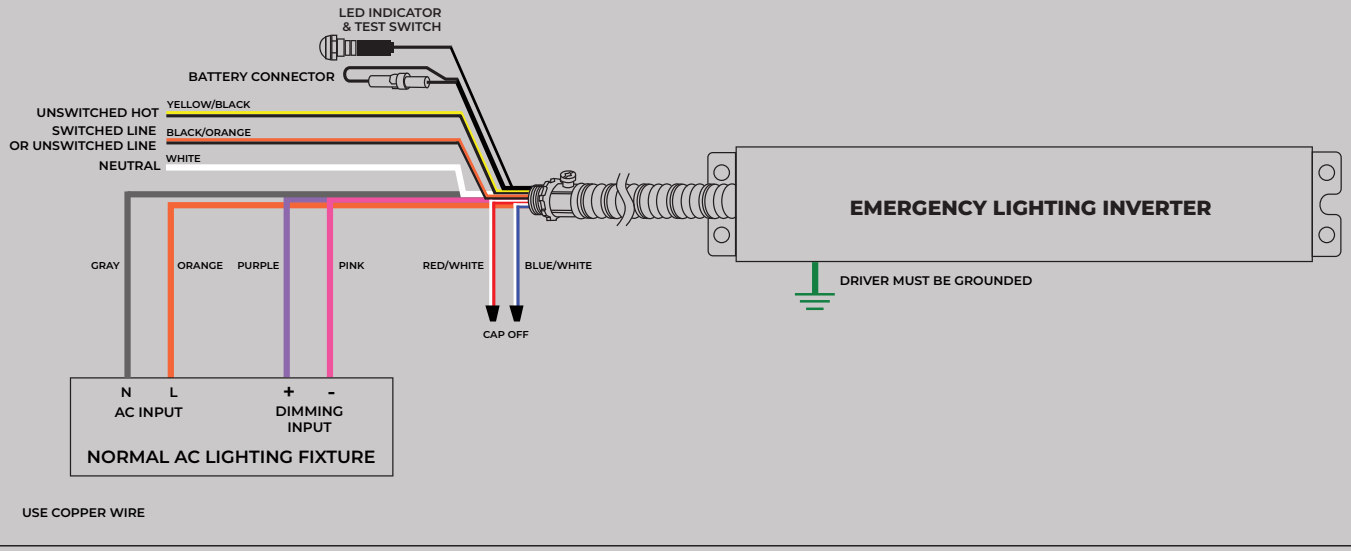
Wiring Diagram for Operating a Single Fixture Continued

B WITHOUT 0-10V DIMMER



C. IF THE 0 - 10 V AUTO DIMMING FEATURE IS USED, BUT EXTERNAL 0 - 10 V DIMMING CTRL IS NOT USED, THEN ONLY CAP OFF THE RED/WHITE AND BLUE/WHITE WIRES.



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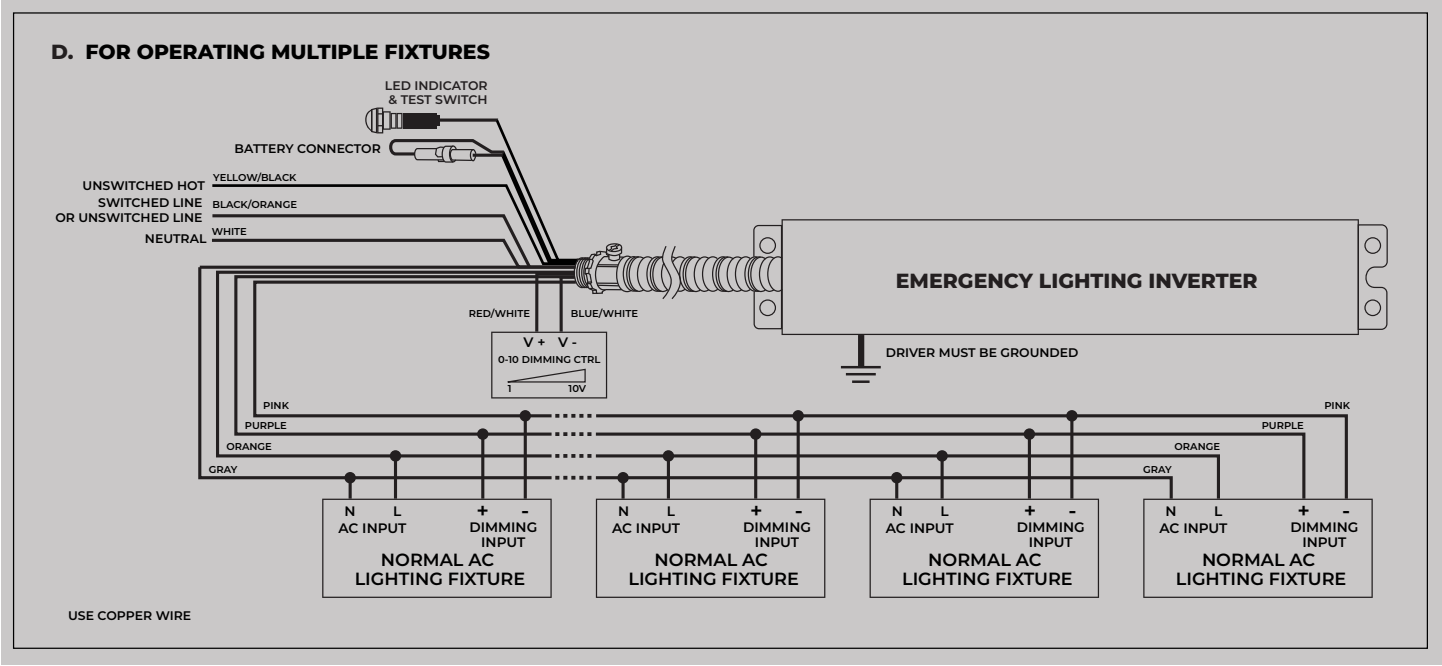
Wiring Diagram for Operating Multiple Fixtures



A.) The wiring diagrams shown depict full functionality utilizing the 0 - 10 V Auto Dimming feature.
B.) If the 0 - 10 V Auto Dimming feature is not used, cap off the RED/WHITE, BLUE/WHITE, PINK, and PURPLE wires.
C.) If the 0 - 10 V Auto Dimming feature is used, but external 0 - 10 V Dimming CTRL is not used, then only cap off the RED/WHITE and BLUE/WHITE wires.

Fixture Load Configuration Type	Wiring Instructions
Switched: The Normal AC Lighting Fixture is utilized in both Normal-Mode and Emergency-Mode.	Connect the YELLOW/BLACK wire to the Unswitched Line, and connect the BLACK/ORANGE wire to the Switched Line
Normally On/always On/Unswitched	Connect the BLACK/ORANGE wire to the YELLOW/BLACK wire
Normally Off/Emergency-mode only	Cap off the BLACK/ORANGE wire

Inverter model, maximum inverter output power in emergency-mode, and maximum total load power in normal-mode:

Model	Maximum Inverter Output Power* (W) (Emergency-Mode)	Maximum Total Load Power** (W) (Normal-Mode)
ACI-H250-A1	**250**	**1000** (Note: The maximum total load power must not exceed 1000 Watts. **The inverter will only deliver a maximum of 250 Watts in emergency-mode.**)

*** Note:** The maximum inverter output power (emergency-mode) is defined as the maximum output power that the inverter can deliver in emergency-mode.

**** Note:** The maximum total load power (normal-mode) is defined as the maximum total normal-mode steady-state long-term load power of all connected loads, while in normal-mode.

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