



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

ILB CP20 HE AELR HV

“A” MOUNTING STYLE

BLUETOOTH-ENABLED EMERGENCY
LIGHTING EQUIPMENT FOR LED

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. Components are not replaceable. Replace the entire unit when necessary.
4. **CAUTION** – Installation and servicing should be performed by qualified personnel only. De-energize before opening.
5. The **ILB CP20 HE AELR HV** is for use with grounded LED luminaires listed to UL standards. Not for use in heated air outlets or hazardous locations.
6. The **ILB CP20 HE AELR HV** requires an unswitched A.C. power source of 120 to 277 volts AC, 50/60Hz.
7. The **ILB CP20 HE AELR HV** and A.C. driver must be on the same branch circuit.
8. Do not mount near gas or electric heaters.
9. The **ILB CP20 HE AELR HV** should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
10. The **ILB CP20 HE AELR HV** will supply 50-200 VDC output at the individual rated specification for 90 minutes. See individual units for output specifications.
11. The **ILB CP20 HE AELR HV** is certified in the CA Title 20 Modernized Appliance Efficiency Database System (MAEDBS) as a small battery charger.
12. Suitable for use in damp locations and plenum spaces.
13. Suitable for luminaires, recessed Type IC (intended for insulation contact).
14. For use in 0° C minimum, 55° 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. Lighting fixture manufacturers, electricians, and end-users need to ensure product system compatibility before final installation. See addendum for compatibility and covered luminaire requirements.

SAVE THESE INSTRUCTIONS



EMERGENCY LED DRIVER FOR USE
WITH LED LUMINAIRES IDENTIFIED
IN THE MANUFACTURER'S
INSTALLATION INSTRUCTIONS
E99113



HIGH EFFICIENCY PERFORMANCE
MEETS CA T20 BATTERY CHARGER
EFFICIENCY STANDARDS



THIS UNIT CONTAINS A
RECHARGEABLE NICKEL-CADMIUM BATTERY.
PLEASE RECYCLE OR DISPOSE OF PROPERLY.

APPLICATION

The **ILB CP20 HE AELR HV** can be used with most LED loads that operate at 50-200 VDC. See the **ILB Model Specification Chart** for output specifications of the unit being installed.

1. The **ILB CP20 HE AELR HV** series has been evaluated to and found compliant to UL standard 924. The as-installed performance of system must meet or exceed all Federal, State, and Local code requirements.
2. Refer to Addendum 11042014 for detailed specifications and methods to calculate emergency light levels.

ILB MODEL SPECIFICATION CHART

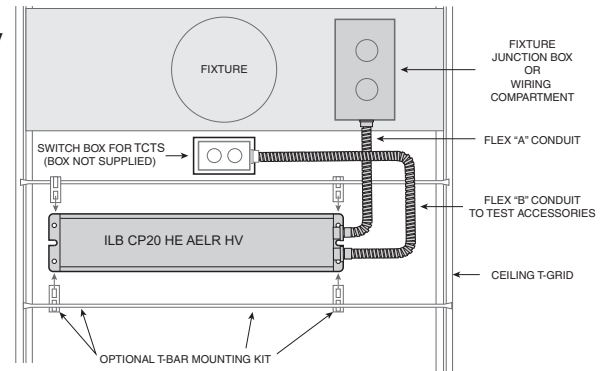
MODEL #	OUTPUT POWER (CONSTANT)
ILB CP20 HE AELR HV	20 WATTS

INSTALLATION INSTRUCTIONS

CAUTION: Before installing, make certain A.C. power is off and the unit connector is disconnected.

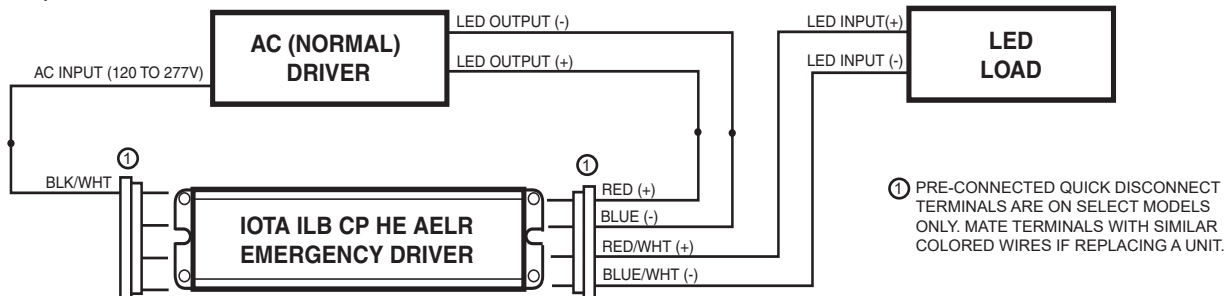
STEP 1 - MOUNTING THE ILB CP20 HE AELR HV

The **ILB CP20 HE AELR HV** should be mounted on or nearby the fixture above the ceiling. The flex conduit marked "A" should be wired into the driver/lamp compartment or to an electrical junction box on the fixture which allows access to the fixture connections.

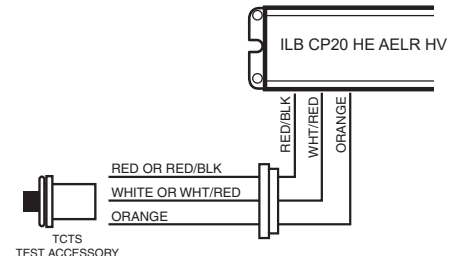
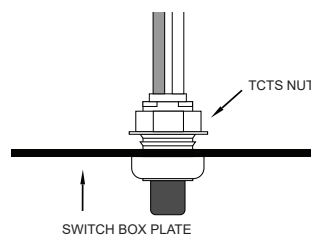
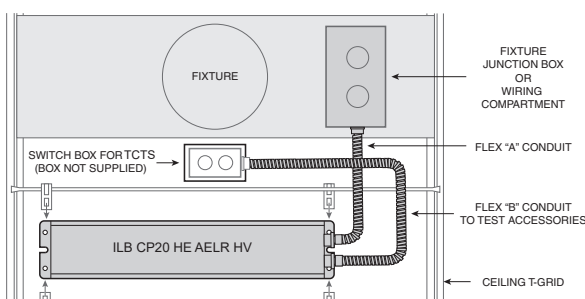


STEP 2 - WIRING TO THE LED LOAD AND NORMAL DRIVER

Refer to the appropriate wiring diagram below. Make sure all connections are in accordance with NEC and any other local requirements.



STEP 3 - INSTALLING THE THREE-COLOR TEST SWITCH (TCTS)



- A. Cut a single gang switch box into the ceiling tile adjacent to the fixture within reach of the **ILB CP20 HE AELR HV** flex conduit marked "B". After mounting the switch box, connect flex to the box and route all leads inside the box.

- B. Attach the switch box plate into the switch box. Insert the TCTS into the switch box plate hole so that it is facing outside the switch box. Secure the TCTS against the plate by screwing on the TCTS nut.

- C. Connect the TCTS wires to the **ILB CP20 HE AELR HV** per the diagram above, matching similar colored wire terminals if quick disconnect terminal is present. Attach the appropriate labels adjacent to the TCTS. Annotate the Replacement Label with identical manufacturer part number(s).

COMPLETING INSTALLATION

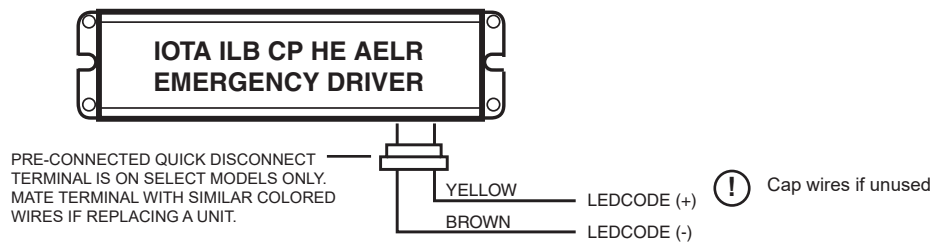
STEP 4 - WIRING THE AC INPUT

The **ILB CP20 HE AELR HV** requires an **unswitched AC input** of 120-277 volts. Connect the **BLACK/ORANGE** wire to an **unswitched 120-277 Line**, and the **WHITE** wire to the **Neutral**. The remaining **BLACK/WHITE** wire must be connected to either an unswitched line, or a switched line input.



STEP 5 - LEDCODE CONNECTIONS

The **ILB CP20 HE AELR HV** is equipped with LEDCode wires that are used to interface with a Connected/LEDCode-enabled normal driver. **Cap the Yellow and Brown wires separately if LEDcode wires are not present on the normal driver.**



STEP 6 - APPLY AC POWER AND MATE UNIT CONNECTOR

- Apply continuous AC power to the unit and mate the ILB CP20 HE AELR HV unit connector. Allow the unit to charge for at least 1 hour before performing a functional test.**
- Verify that the TCTS light is on. The TCTS LED will blink flashing Amber providing a visual indication that the battery is being charged, or will be lit solid Green if the battery is fully charged.
- Press and hold the TCTS button. The LED Module should be operating at a reduced light output. To complete the test, release the TCTS button. If the LED Module in the fixture returns to normal operation, the unit is ready for normal and emergency service. If not, contact Customer Service.

OPERATION

Normal Mode

A.C. power is present. The A.C. Driver operates the LED Module as intended. The **ILB CP20 HE AELR HV** is in the standby charging mode. The **TCTS** will be lit providing a visual indication that the battery is being charged.

Emergency Mode

The A.C. power fails. The **ILB CP20 HE AELR HV** senses the A.C. power failure and automatically switches to the *Emergency Mode*. The LED Module is illuminated, at reduced output, for a minimum of 90 minutes. When the A.C. power is restored, the **ILB CP20 HE AELR HV** switches the system back to the *Normal Mode* and resumes battery charging.



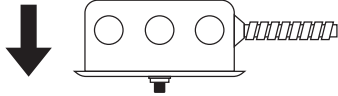
Addendum: Finalizing Installation with Bluetooth Junction Box Models

ILB CP HE AELR models come equipped with a Bluetooth Module Junction Box to be used to pair with a connected emergency lighting management platform. **Note: The Bluetooth Module Components have been pre-installed by the factory; nothing needs to be connected by the end user.**

COMPLETING INSTALLATION - MATE THE UNIT CONNECTOR

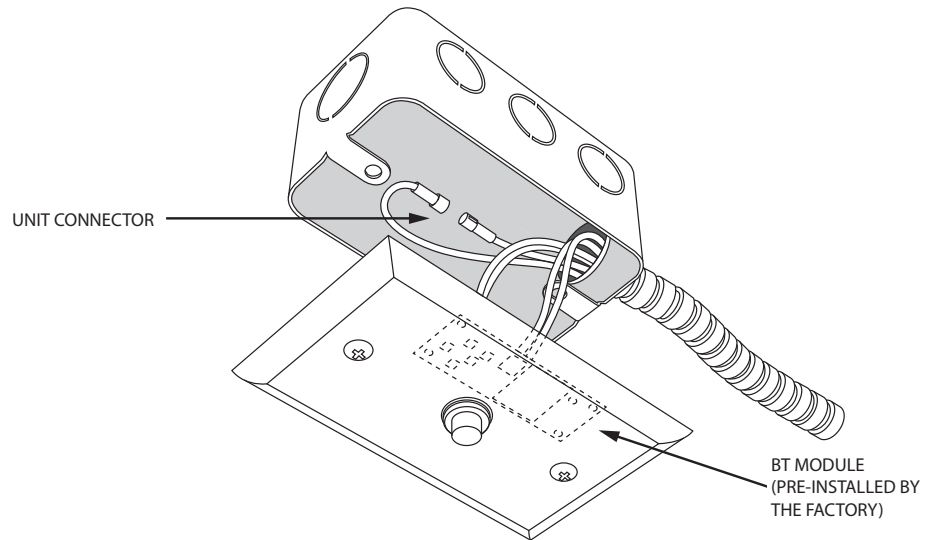


This step must be completed after the ILB CP HE AELR has been installed in the mounting location and connected to the luminaire. **DO NOT** attempt to complete this step first. See the ILB CP HE AELR instruction manual for full installation instructions.

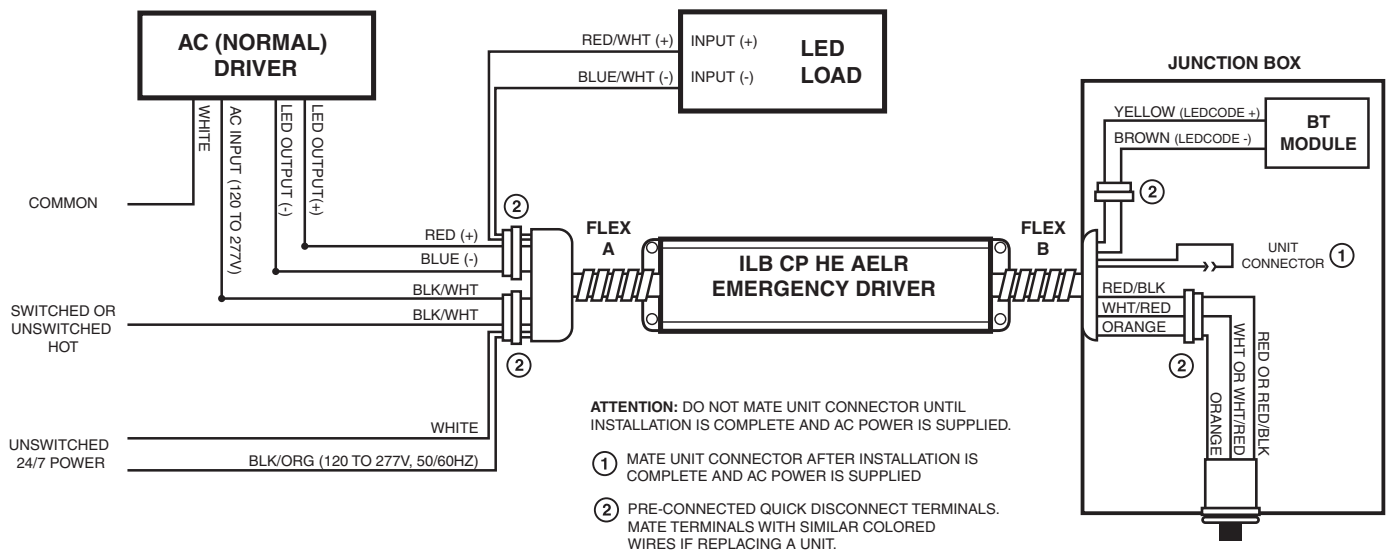


To ensure proper Bluetooth operation, the Junction Box must be installed with the test switch facing down.

- 1) Install the junction box in a suitable location where the test switch is visible. Ensure the test switch is facing down.
- 2) Remove the screws from the test switch faceplate to lift it from the junction box.
- 3) Mate the unit connector inside the junction box after continuous AC power has been applied to the unit.



COMPLETE WIRING DIAGRAM - WITH BLUETOOTH JUNCTION BOX



TESTING AND MAINTENANCE

Automatic Testing

The **ILB CP20 HE AELR HV** is designed to automatically test its emergency function for **60 seconds monthly** and **90 minutes annually**. Automatic testing will begin within 28 days after the unit is connected to A.C. Power and the batteries have been installed.

If the **ILB CP20 HE AELR HV** detects a failure it will flash a status code through the TCTS. See *Table 1: TCTS Self Diagnostic Status Codes* to identify the fault state of the **ILB CP20 HE AELR HV**. Test results will also be accessible in the connected emergency lighting system software application (if connected).

Table 1: TCTS Self Diagnostic Status Codes

TCTS Color	Status
Flashing Amber	Battery is charging
Green	Battery is fully charged
Off	Emergency mode
Flashing Green	Unit is performing a test
Flashing Red (Continuous)	Electronics failure
Flashing Red (Slow)	Battery Failure
Double Flashing Red	Load Failure

In case of multiple failures only the highest priority failure will be indicated. Charge Failure is the highest priority failure, followed by Battery Failure, followed by Load Failure.

Manual Testing

Manual Testing can be performed on the **ILB CP20 HE AELR HV**, provided the unit is fully charged, by pressing and releasing the TCTS. Manual Testing cannot be initiated until the unit has received a full 24 hour charge. Manual Testing will not interfere with the automatic testing schedule of the **ILB CP20 HE AELR HV** and will display the same diagnosis indicators as automatic testing.

Manual test sequences can be started by pressing the TCTS according to the patterns listed in *Table 2: Manual Test Sequences*. A record of this manual test will be accessible in the connected emergency lighting system software application (if connected).

Table 2: TCTS Manual Test Sequences

Test Type	TCTS Button Sequence
Quick Test	Press and Hold
60-Second Test	2 X Press and Release
90-Minute Test	3 X Press and Release
Cancel 90-Minute Test	1 X Press and Release
Load Calibration	4 X Press and Release

Load Calibration

48 hours after the unit connector is joined, the **ILB CP20 HE AELR HV** will conduct a Load Calibration. Note: after the Load Calibration is complete, any changes to the LED load that will affect its nominal input voltage will necessitate a new Load Calibration. See *Table 2* for the sequence of button presses to conduct a manual Load Calibration.

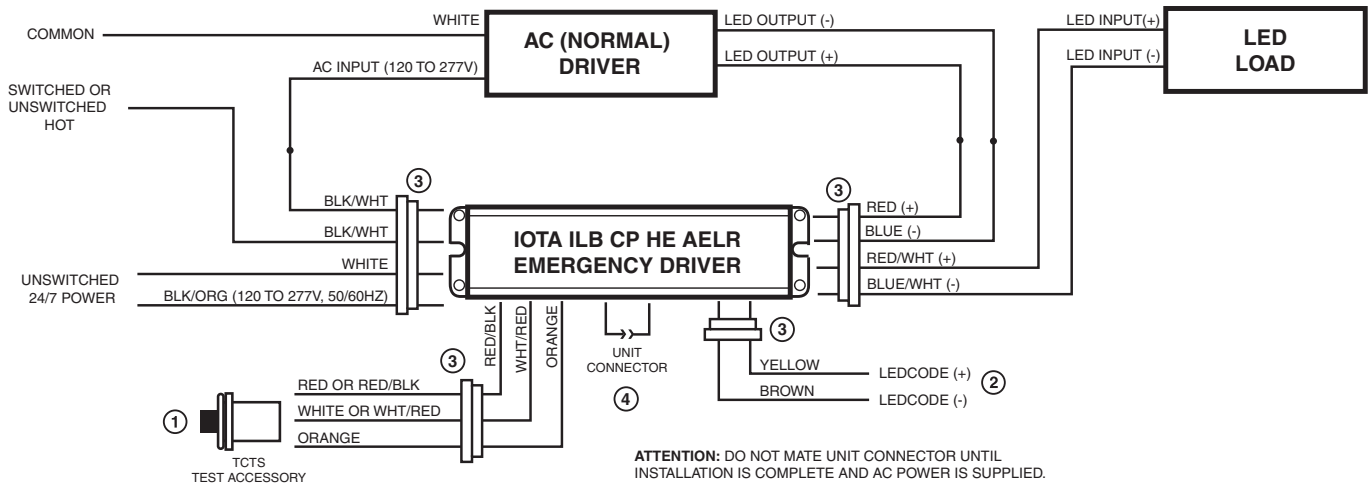
Replacement

Disconnect the unit connector and ensure that AC power is off before replacing an **ILB CP20 HE AELR**. If the model features quick disconnect terminals, mate similar colored wire terminals to install replacement.

“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.

FULL WIRING DIAGRAM



ATTENTION: DO NOT MATE UNIT CONNECTOR UNTIL INSTALLATION IS COMPLETE AND AC POWER IS SUPPLIED.

- 1 TEST ACCESSORY LEADS-OBSERVE PROPER POLARITY WIRING.
- 2 CAP THE LEDCODE WIRES IF NOT CONNECTED TO THE LEDCODE BUS
- 3 PRE-CONNECTED QUICK DISCONNECT TERMINALS ARE ON SELECT MODELS ONLY. MATE TERMINALS WITH SIMILAR COLORED WIRES IF REPLACING A UNIT.
- 4 MATE UNIT CONNECTOR AFTER INSTALLATION IS COMPLETE AND AC POWER IS SUPPLIED

CP Series Compatibility and Suitability of Use Guidelines Addendum (Rev.11042014)

The purpose of this addendum is to sufficiently identify electrical compatibility and predictable emergency light output of the LED luminaire when used with the IOTA ILB CP Series LED emergency drivers. Verification of these operating traits does not constitute a code-compliant, as-installed emergency egress system. It is still the responsibility of the Designer/Specifier to assure appropriate light levels are achieved during emergency operation of the luminaire in accordance with Federal, state and local municipal codes regarding path of egress illumination.

1. Determining Electrical Compatibility

- 1.1 Verify Class 2 compliant driver per driver manufacture specifications.
- 1.2 Verify that the Emergency Driver (ILB CP Series) selected does not exceed the power delivered to the LED array (voltage and current) of the normal driver.

2. Calculating Lumen Output During Emergency Operation

2.1 Assess luminaire/fixture data.

2.1.1 DESIGNLIGHTS CONSORTIUM

- Log onto the DesignLights Consortium website (www.designlights.org).
- Click on "search the DLC Qualified Product List" button on the DLC homepage.
- In the "search by keyword" text window enter: luminaire manufacturer name and part number.
- Click on "Search" tab to open the "Qualified Products List."
- Determine per "RATED DATA" efficacy shown in lumens per watt - (lm/w).
- Multiply lumens per watt by ILB-CP rated output (example: lm/w x 5 watts). Refer to table "ILB MODEL SPECIFICATION CHART" below for the wattage of the specific ILB CP model to be used in the luminaire. (lm/w) x (ILB CP Watts) = Minimum emergency lumens of fixture.
- Determine per "RATED DATA" the "wattage of the luminaire".

ILB MODEL SPECIFICATION CHART

MODEL #	OUTPUT POWER (CONSTANT)
ILB CP05	5 WATTS
ILB CP07	7 WATTS
ILB CP10	10 WATTS
ILB CP12	12 WATTS
ILB CP18	18 WATTS
ILB CP20	20 WATTS
ILB CP30	30 WATTS
ILBSL CP05	5 WATTS
ILBSL CP07	7 WATTS
ILBSL CP08	8 WATTS
ILBSL CP10	10 WATTS
ILBSL CP12	12 WATTS

3. Determining Adequacy of Means-of-Egress Lighting Levels

- 3.1 Follow industry standards by utilizing available .ies files and lighting design software for your dedicated emergency luminaires, with the above calculated emergency lumens, and validate your as-installed plans in accordance with the applicable life safety codes governing your project.

While the ILB-CP series has been found compliant with the requirements of UL Standard 924, it is ultimately the responsibility of the Designer/Specifier to assure the as-installed system delivers code-compliant path of egress illumination in accordance with Federal, State or local municipal requirements.

