

# Plug and Play Kit Installation and Wiring (Relay Base Load Management unit)

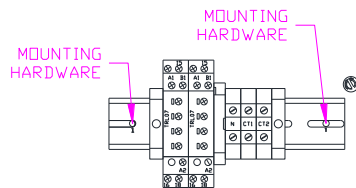
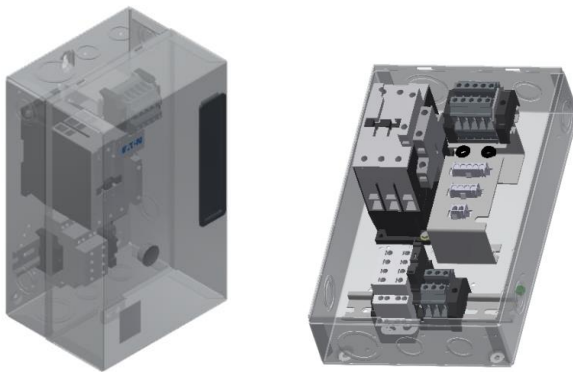
Instruction Leaflet IL410-00190E

Effective Jan. 2024

## General Information

This publication is for use with the Eaton enclosures Plug and Play assembly in a load management application with a focus for your home EV charging. The Eaton load management system is specifically designed manage your EV charger loading to you home panel that is at full capacity versus the need for a service upgrade.

Recharging at home has become as simple as it is convenient. Just plug in the EV and let the charger do its job, while you sleep, complete household chores, or enjoy family time. Eaton offers a simple relay base kits in combination with the Plug and Play for your load management needs. The timer base unit is design to monitor the panel load and remove a specific load from the circuit for a period of 15 min. This load management controls prevent any unwanted tripping on the main panel circuit breaker.



Relay base unit

**For installation of the Units:** Locate the mounting holes in the enclosure base and install the load management kit. The

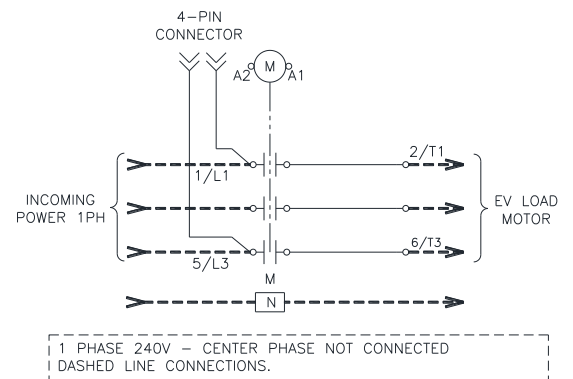
kit come with installation instructions, the hardware and CTs.

Wire in the CTs from and plugs from the kit to complete the installation. Warning the CTs from the Relay base unit comes pre-calibrate for the panel rating and any adjustment to them will void the warranty.

Discard the IL that comes in the Plug and Play unit as this set of instruction is for its replacement.

## Power Wiring Diagrams: IEC contactor

### Diagram #1



### Typical Control Wiring diagrams:

Enclosed contactor assemblies supplied from factory are pre-wired as per figure A

### CAUTION:

**READ AND FOLLOW INSTRUCTIONS PRIOR TO WIRING OR CONNECTING POWER. THIS PRODUCT CAN BE FACTORY OR FIELD CONFIGURED FOR MULTIPLE CONTROL MODES OR CONTROL VOLTAGES. CHECK THE COVER CONTROLS AND TRANSFORMER OR THE SEPARATE SUPPLY KITS FOR PROPER VOLTAGE BEFORE APPLYING POWER.**

**A LICENSED/QUALIFIED ELECTRICIAN MUST COMPLETE ALL INSTRUCTIONS IN THIS MANUAL IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC), CANADIAN ELECTRICAL CODE (CEC), STATE, AND LOCAL CODES, OR OTHER APPLICABLE COUNTRY CODES. ALL APPLICABLE LOCAL ELECTRICAL CODES SUPERSEDE THESE INSTRUCTIONS.**

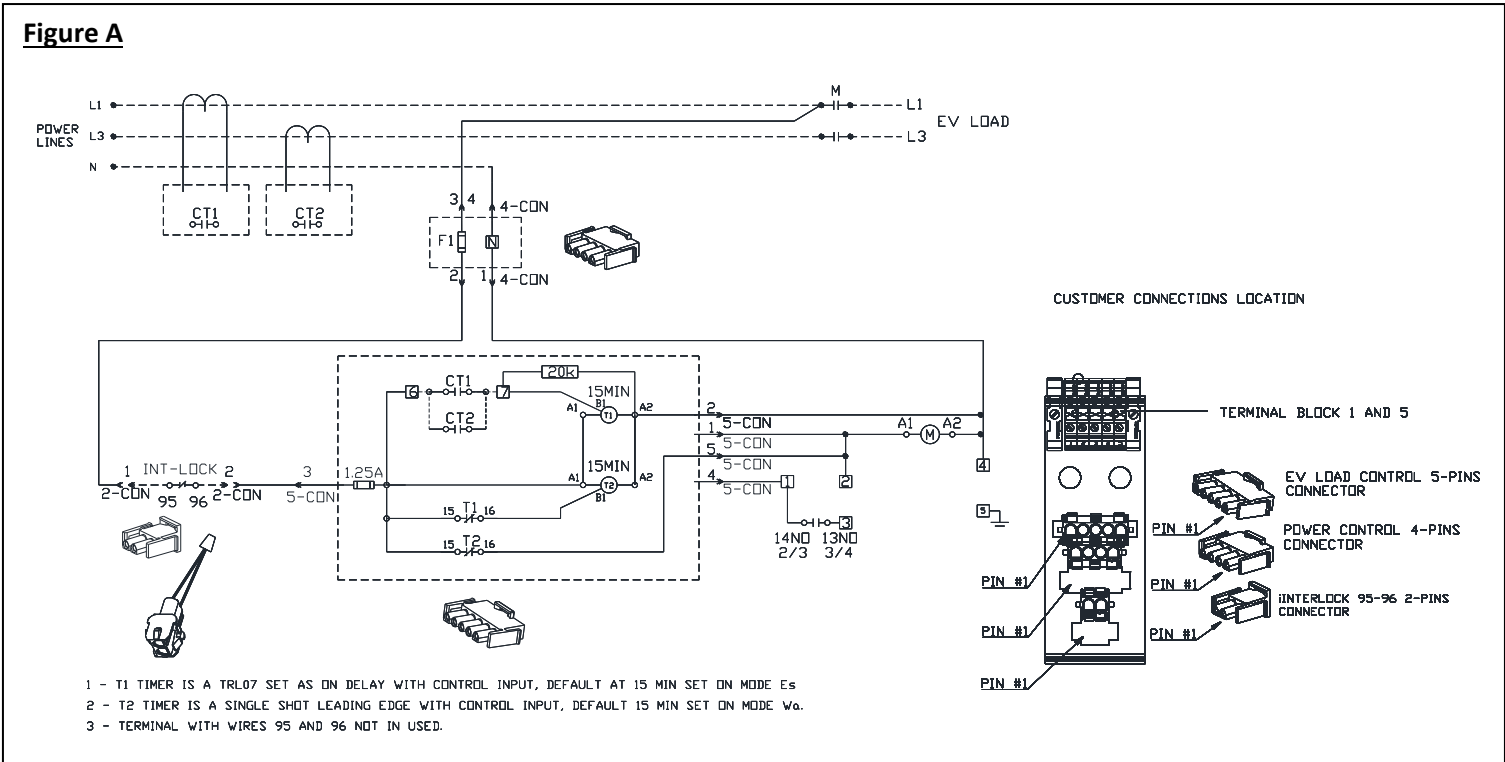
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## Wiring Instructions:

**Figure A**



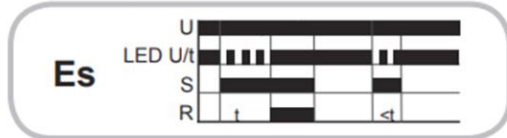
### BASIC RELAY LOAD MANAGEMENT SYSTEM

#### Timer 1 setting pre-adjusted to 15 min.

##### **ON delay with control input (Es)**

The supply voltage U must be constantly applied to the device (green LED U/t illuminated).

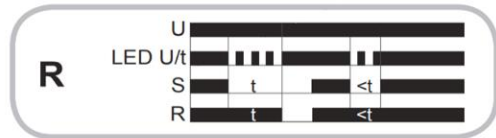
When the control contact S is closed, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.



#### Timer 2 setting pre-adjusted to 15 min.

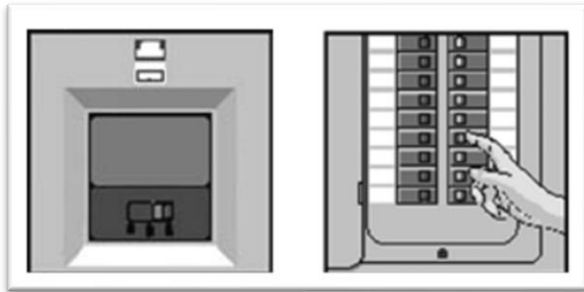
##### **OFF delay (R)**

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted.



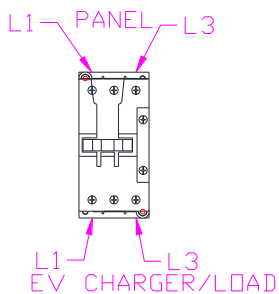
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## Panel circuit breaker

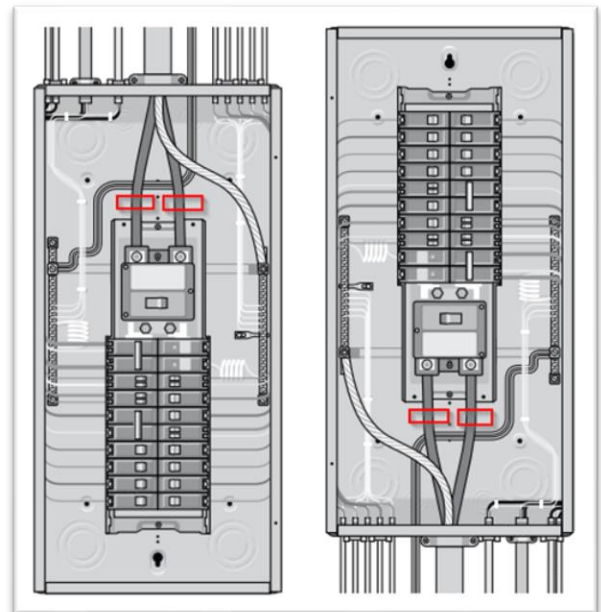


Install the panel circuit breaker and run the line power to L1 and L3 of the Plug and Play unit. Label the circuit breaker.

## Power/Load connections and panel mounting.

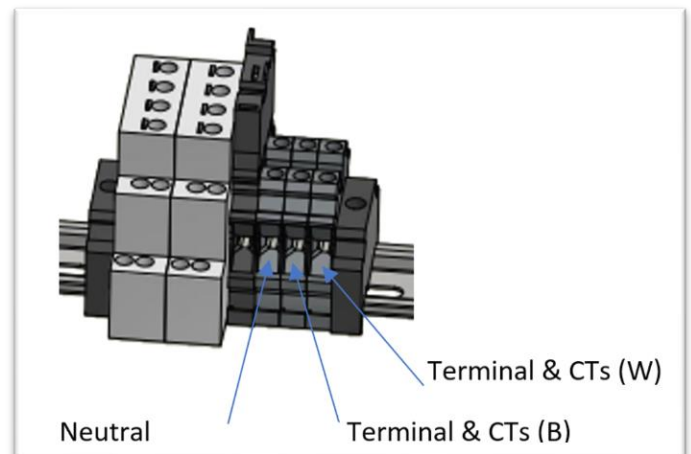


## CTs installation



Install the split core CTs on the incoming power lines of the Panel, L1 and L2. The CTs can be bolted down or cable tie in place. Run the sensing wires from the CTs to the Plug and Play load management panel. For long distance applications use twisted pair of wires or shielded wires.

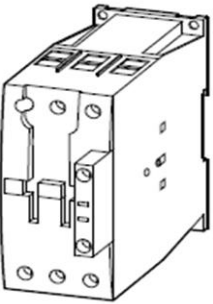
## CTs connections.



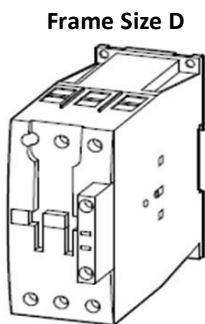
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## Application specific ratings for the Plug and Play load management system.

**Level 2 chargers (L2)** operate at 208-240 V (1-ph) and output anywhere from 3 kW to 19.2 kW of AC power. All Level 2 chargers use 240V but charging speed will differ based on a charger’s amperage, or electrical current. Your need for speed will vary based on your EV’s range, your commute and driving style: a car with less range, a long commute or always driving at top speed may mean you could benefit from a faster charge at home. Most EVs can take in about 32 amps, adding around 25 miles of Range Per Hour of charging, so a 32-amp charging station is a good choice for many vehicles. You may also want to increase your speed or get ready for your next vehicle with a faster 50-amp charger that can add about 37 miles of range in an hour.

	UL General Purpose Ampsre Rating single Phase			
	Contactor Size (Amps)	Circuit Breaker	Charger Amperage	Unit Max Amps
	50 (per CSA files & non-combination ass'y)	20	16	50
		30	24	
		40	32	
		50	40	
		60	48	
		70/80	50	

## Termination Torque specifications



Contactor Line and Load Terminal	
AWG (Use 75 Deg C. CU)	Torque in lb/NM
14-2	29 (3.16)