User Manual

EVduty

EVC30 SERIES

ELECTRICAL VEHICLE
CHARGING STATION
LEVEL 2

ELM-1013
V17042-230217

ELMEC INC

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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This manual contains important instructions for the EVduty EVC30 EV Charging Station that shall be followed during installation, operation and maintenance of the unit.

DEFINITIONS

This symbol represents a risk of electric shock

This symbol represents a warning

CAUTION

To reduce the risk of fire, connect only to a circuit provided with 40 amperes maximum branch circuit overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA 70 and C.E.C Part 1 C22.1-12.

GROUNDING AND AC POWER CORD CONNECTION INSTRUCTIONS

This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

WARNING

Improper connection of the equipment-grounding conductor is able to result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product—if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

When using electric products, basic precautions should always be followed, including the following:

1. Read all the instructions before using this product.
2. This device should be supervised when used around children.
3. Do not put fingers into the electric vehicle connector.
4. Do not use this product if the flexible power cord or EV cable is frayed, has broken insulation, or any other signs of damage.
5. Do not use this product if the enclosure or the EV connector is broken, cracked, open, or shows any other indication of damage.
6. Do not use the product if the Main LED is lighting or flashing in RED or if the Main LED isn't working at all.
7. Servicing or maintenance shall be done while unit is de-energized.

Product

The EVduty EVC30 series is a Level 2 Electric Vehicle Charging Station. Its primary function is to send electrical power to an Electrical Vehicle that is equipped with the SAE J1772 Electric Vehicle connector. Here are the main parts of the product

Figure 1: EV Charging station

A SAE J1772 Connector's Release Button

B SAE J1772 Electric Vehicle Connector

C Main LED

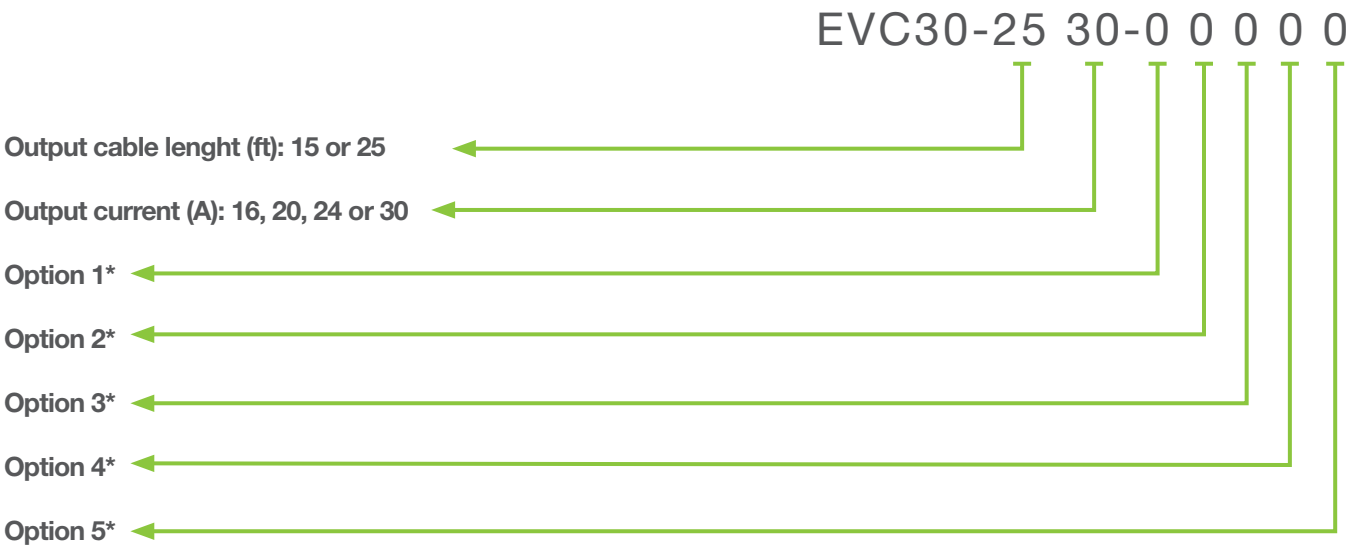
D Enclosure

E 240V input connector

F Electric Vehicle Charging Cable

Model

This charging station is offered in a variety of different models. The base options choices include length of the output cable and output current. There are also some other options: NEMA 14-50P input connector. The part number of the unit is built as shown below:



Option 1: N/A (reserved for future, default as “0”)

Option 2: N/A (reserved for future, default as “0”)

Option 3: N/A (reserved for future, default as “0”)

Option 4: N/A (reserved for future, default as “0”)

Option 5: Input Plug Type: 0 = NEMA 6-50P

1 = NEMA 14-50P

* Please contact the manufacturer for more details concerning these options.

Technical specifications

INPUT VOLTAGE
208-240VAC single phase, 30A

INPUT CONNECTOR
NEMA 6-50P
NEMA 14-50P (optional)

ENCLOSURE ENVIRONMENT RATING
UL/CSA NEMA types 3R.

PERSONAL PROTECTIONS
Ground Monitoring; Charge Circuit Interrupting Device with 20mA threshold (CCID20)

DIMENSIONS (LENGTH X WIDTH X DEPTH)
330 mm x 165 mm x 60 mm (13,00” x 6,50” x 2,50”)

OUTPUT CONNECTOR
SAE J1772, choice of 2 different output cable length: 4.6 m (15’), 7.5 m (25’)

OPERATING TEMPERATURE
-40 °C to 40 °C

STORAGE TEMPERATURE
-40 °C to 80 °C

WEIGHT
4.5 kg (10 lbs)

PHYSICAL INSTALLATION

This Electrical Vehicle Charging Station is a portable-type charger. Its design allow it to be installed in a non-permanent way on a wall by using the included wall mount bracket. Figure 2 illustrates the mounting of the unit to a wall.

The wall mount bracket must be installed on a wall and fixed on a vertical stud that can support at least 4 times the weight of the unit (so, able to support at least 18kg “40 lbs”).

This device shall be mounted at a sufficient height from grade such that the height of the storage means for the coupling device is located between 600 mm (24 inches) and 1.2 m (4 feet) from grade.

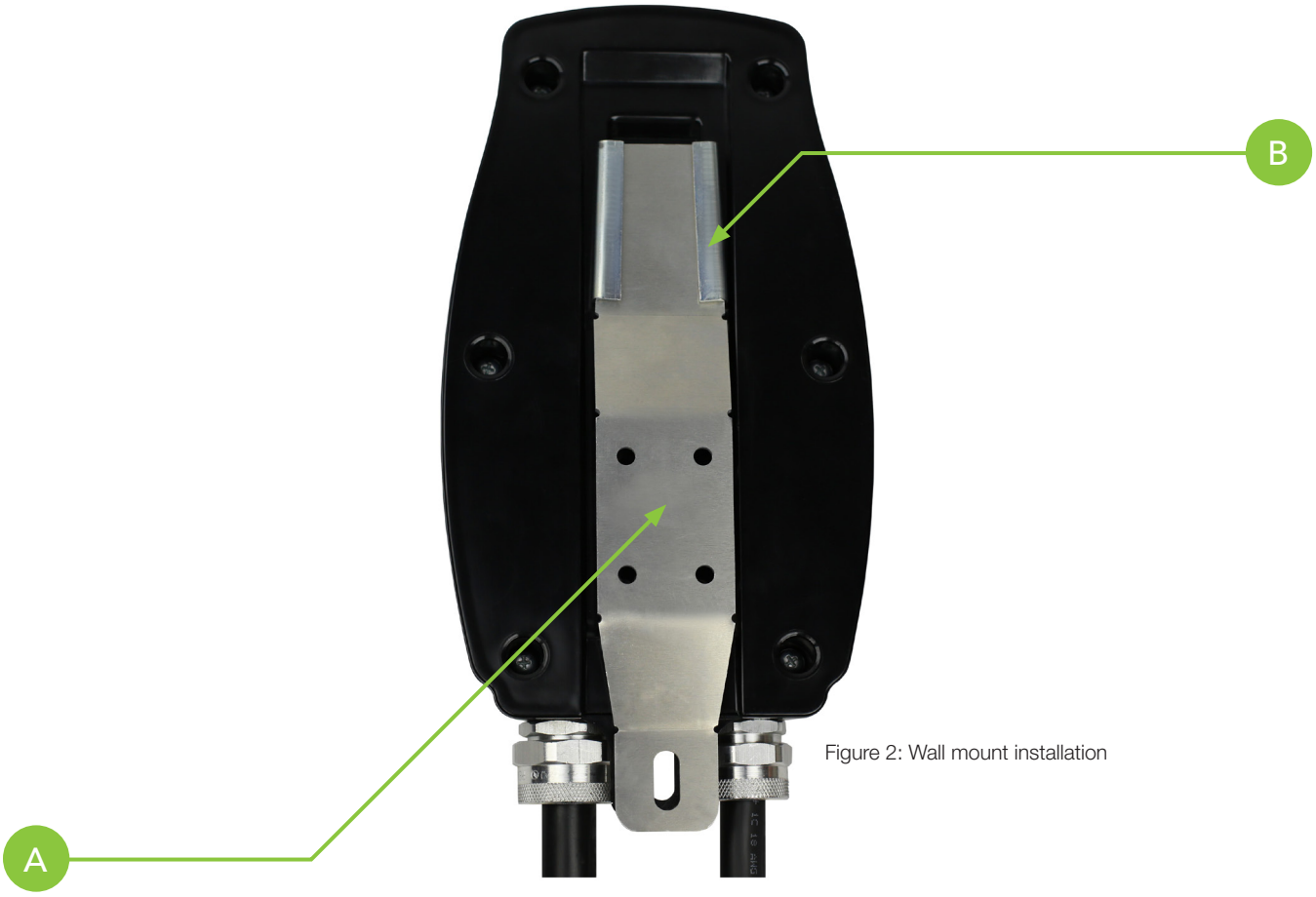


Figure 2: Wall mount installation

A Wall mount bracket B Insert the unit on the wall mount bracket

Installation

Because the input power cable is quite short, the input power receptacle must be located correctly vs the position of the charging unit station. Figure 3 illustrates where the unit should be mounted for the input power cable to line up properly with the input power receptacle.

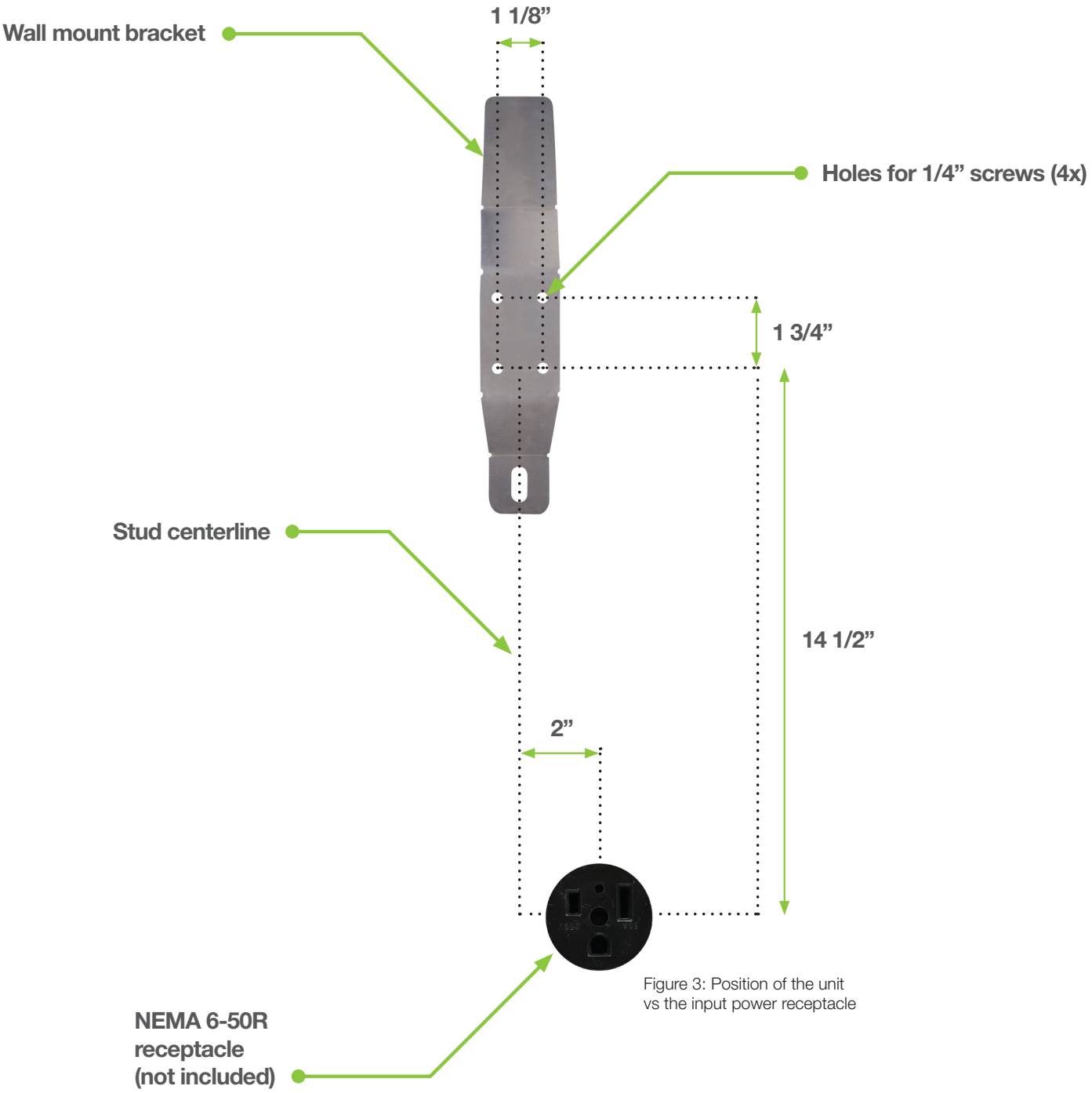


Figure 3: Position of the unit vs the input power receptacle

ELECTRICAL INSTALLATION

This equipment should be installed, adjusted, and serviced by qualified electrical personnel familiar with the construction and operation of this type of equipment and the hazards involved. Failure to observe this precaution could result in death or severe injury.

This Electrical Vehicle Charging Station requires a dedicated 20A to 40A circuit breaker (depending on the output current adjustment) in the main electrical panel.

IMPORTANT: **The circuit breaker must be non-GFCI.**

1. Simply connect the input connector (NEMA 6-50P or NEMA 14-50P) into a suitable 240V/40A receptacle. (If the receptacle has to be installed, consult qualified electrical personnel.)
2. Once the unit is receiving power, the unit will do a self-test. During this test, the Main LED will light up RED (for a few seconds only). Once the test is complete and everything is in good shape, the Main LED will light up **GREEN**.

Operation sequence

Never operate the unit if the enclosure isn't sealed.

The Main LED located in the front of the unit (as seen in Figure 1) monitors the state of the unit. All models offer an immediate charging mode.

IMMEDIATE CHARGING MODE

1. Make sure that the unit has power (Main LED should be **GREEN**).
2. Using the Electrical Vehicle Charging Cable, connect the unit to the Electric Vehicle suitable SAE J1772 inlet connector.
3. Once connected, the Main LED should light up briefly **YELLOW** before going to **BLUE**.
4. The Main LED will stay lit in the **BLUE** color during the charging sequence.
5. For most vehicles, the Main LED will light up **YELLOW** once the charge is completed, for the others, the Main LED will stay **BLUE**.
6. When the charge is finished (or when the user wants to terminate the charge), simply disconnect the SAE J1772 connector from the Electric Vehicle by pressing the release button on the SAE J1772 connector.
7. Replace the Electric Vehicle Charging Cable on the supplied wall hook while making sure that the cable is coiled with a large enough radius to not damage the cable.

Table 1 explains all the states of the unit depending on the color of the Main LED.

Table 1: Charging station state based on Main LED color

MAIN LED COLOR	CHARGING STATION ACTUAL STATE
Green	Unit is powered on and ready to charge a vehicle.
Yellow	A vehicle is connected to the unit, but the charge is not allowed right now. Waiting for the vehicle to accept the charge.
	A vehicle is connected to the unit and the battery is fully charged.
Blue	A vehicle is connected and charging.
Red	Unit is in fault, please consult the Troubleshooting table.
Flashing Red	

Output current adjustement

The EVduty EVC30 Series charging station has the possibility to adjust the maximum output current. If you ever want to modify the current output adjustment, please contact the manufacturer customer support service.

Maintenance and cleaning

MAINTENANCE

This charging station does not require any major maintenance except a regular verification to be sure that there are no damages or excessive wear to the charging station itself or to any of the power cords/plugs/connectors.

CLEANING

The charging station and the power cords should be cleaned regularly. The cleaning process can be done using a wet rag. **Do not use water jet, high pressure washer, chemicals agents or solvents during the cleaning process. Do not splash water on the power cords or on the plugs/connectors.**

Moving and storage

The portables models of the charging station must be stored in a clean and dry location and it must be located away from any high heat sources.

Avoid oily or corrosive substances to contact the charging station or the power cords and plugs/connectors between uses.

Avoid any fall or drop that can lead to impacts between a hard surface and the charging station. Keep any sharp object to be in contact with the charging station or the power cords or plugs/connectors.

To move the unit, unplug it from the wall outlet, then lift it vertically from its wall-mounted bracket (see page 7).
Do not lift or carry the unit by either the flexible input cord or the EV cable.

The unit has a non-operational storage temperature range of -40 °C to +80 °C (-40 °F to +176 °F).

COMMON PROBLEMS

Table 2 lists some of the common problems and their possible solutions.

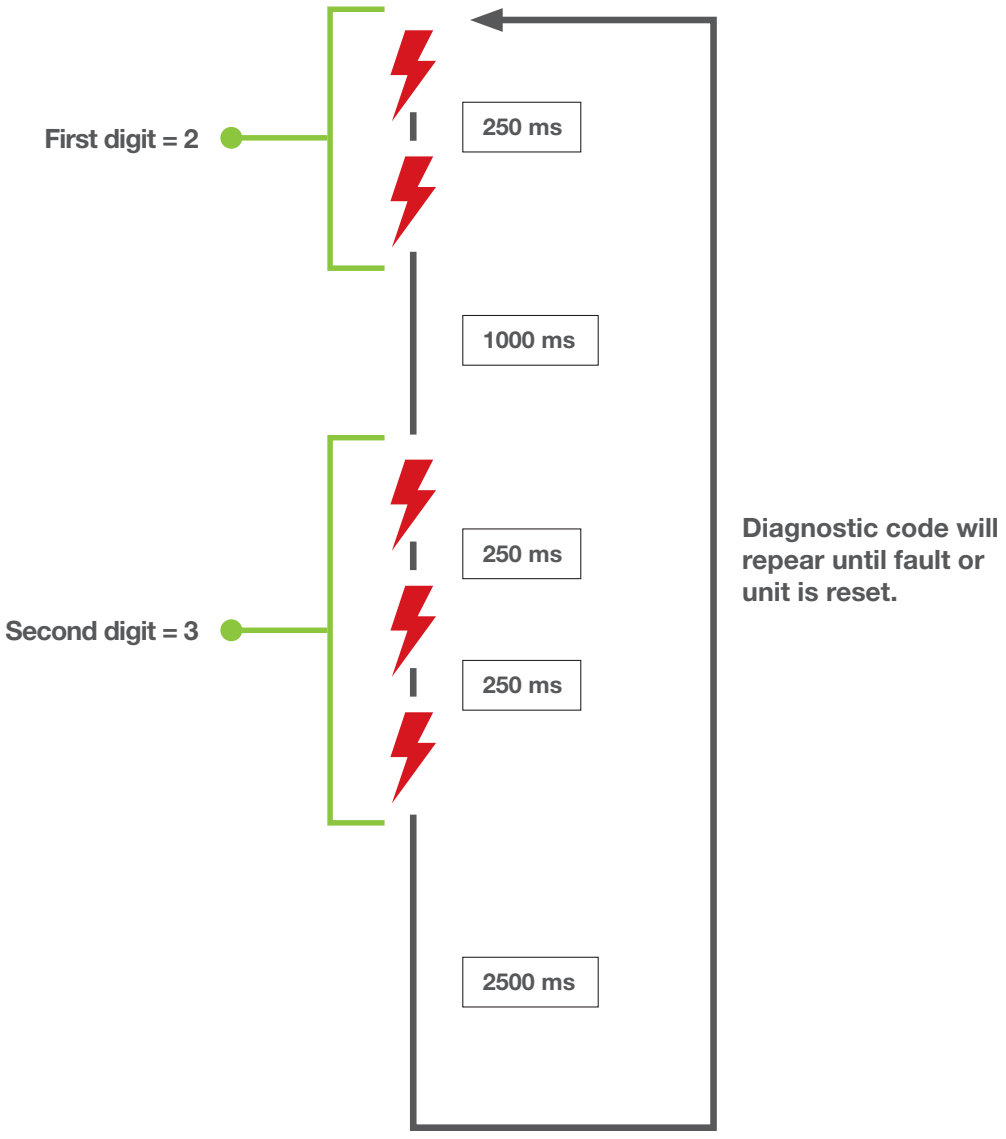
Table 2: Troubleshooting

DIAGNOSTIQUE	PROBLEM	SOLUTIONS
The Main LED don't light up when the unit is powered ON.	The power to the unit is bad or absent.	Check if the dedicated circuit breaker is at the ON position.
		Check if the input cable is correctly connected into his receptacle.
	One or more fuses on the PCB are blown.	Appelez le Service de soutien du manufacturier.
The Main LED is flashing red.	The unit is in fault.	Consult Table 3 : Diagnostic codes.
		Call the manufacturer support service.
The Main LED is going from blue to yellow rapidly.	The Electric Vehicle Charging Cable is worn, damaged or dirty.	Call the manufacturer support service.
The Main LED stays green after a connection with a vehicle.	The Electric Vehicle Charging Cable is worn, damaged or dirty.	The Electric Vehicle Charging Cable is worn, damaged or dirty.
The Main LED stays yellow after a connection with a vehicle.	The battery of the vehicle is full. No charging allowed.	N/A
	The Electric Vehicle Charging Cable is worn, damaged or dirty.	Call the manufacturer support service.

DIAGNOSTIC CODE

This charging station unit has a feature that displays a Diagnostic Code when the unit is in a known fault state. The way it works is that the Main LED will flash **RED** in a certain manner and the numbers of flashes are related to a 2-digit number. Here's an example:

Example with a diagnostic code #23:



ms = millisecond

Troubleshooting

Table 3 lists the possible displayed Diagnostic Codes and the associated problems and solutions.

Table 3: Diagnostic codes

DIAGNOSTIC CODE	PROBLEM	SOLUTION(S)
11	At the initial self-test, the unit was missing a ground (GND) or one of the two AC lines (L1 or L2).	Check wiring from main electrical panel to the unit.
		Check if the input cable is correctly connected into his receptacle.
		Call the manufacturer support service.
12	At the initial self-test, the unit founds that the contacts of the relay are stuck or welded.	Call the manufacturer support service.
13	At the initial self-test, the unit wasn't able to correctly test the GFCI protection.	Call the manufacturer support service.
14	Problem with the internal microcontroller.	Call the manufacturer support service.
21	While charging, the unit trips on a ground fault. Unit will automatically reset after 15 mins for up to 3 retries.	Verify if output cable or connector is damaged.
22	While charging, the unit trips on a missing ground fault. Unit will automatically reset after 15 mins for up to 3 retries.	Same as Diagnostic Code #11.
23	While charging, the unit trips on a ground fault 3 consecutives times.	Same as Diagnostic Code #11.
24	While charging, the unit trips on a missing ground fault 3 consecutives times.	Same as Diagnostic Code #11.
31	Vehicle requires ventilation.	This charging station isn't compatible with this type of vehicle. Please do not attempt to charge this vehicle with this charging station.
32	Electrical problem in the vehicle charge port.	Bring the vehicle to the dealer for verification/ replacement of the vehicle charge port.
33	While initializing the charge session, the unit founds that the contacts of the relay are stuck or welded.	Call the manufacturer support service.
34	While initializing the charge session, the unit wasn't able to correctly test the GFCI protection.	Same as Diagnostic Code #13.
41	Immediately after the charge session begin, the unit trips on a ground fault.	Same as Diagnostic Code #21.
42	Immediately after the charge session begin, the unit trips on a missing ground fault.	Same as Diagnostic Code #11.
43	Invalid Pilot Signal.	Call the manufacturer support service.

Contact us

ELMEC INC

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elmec.ca

Limited Warranty

WHAT DOES THIS WARRANTY COVER?

This warranty covers any defects or malfunctions of your new EVduty EVC30 Electric Vehicle Charging Station.

HOW LONG DOES THE COVERAGE LAST?

This warranty runs for three (3) years from the purchase date for the whole unit excepting the “Electric Vehicle Charging Cable/Connector”. The “Electric Vehicle Charging Cable/Connector” is under warranty for one (1) year from the purchase date.

WHAT ELMEC WILL DO?

Elmec will repair any EVduty EVC30 Electric Vehicle Charging Station judged to have a defect or malfunction. In the event repair is not possible, Elmec will replace the EVduty EVC30 Electric Vehicle Charging Station with a new one of similar specifications and price.

WHAT DOES THIS WARRANTY NOT COVER?

Any defect caused by an abnormal use of the product.

HOW TO GET SERVICE?

To use this warranty, you must contact the Elmec Support Service and a qualified technician will verify if there is a real problem with your EVduty EVC30 Electric Vehicle Charging Station. If it’s the case, send the EVduty EVC30 Electric Vehicle Charging Station postage paid with a purchase proof to the following address:

ELMEC SERVICE SUPPORT
1441, 2nd Avenue, Shawinigan
(Québec) G9T 2X9

Elmec will inspect the EVduty EVC30 Electric Vehicle Charging Station and contact you within 72 hours following the product reception to tell you if the product will be repaired or replaced

YOUR RIGHTS UNDER THE ACTUAL APPLICABLE LAW

This warranty gives you specific legal rights, and you may also have other rights which vary from a province to another.