

User Manual



EVduty

EVCCS

SMART CURRENT SENSOR

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Product

The EVduty EVCCS is a smart current sensor that measures an electrical panel's current consumption in real time. The sensor sends the measured current's information to one or more EVduty EVC30 charging stations electrically connected to this panel. The EVC30 charging station(s) can then adjust their maximum charging current to ensure that the electrical panel's total current consumption does not exceed the limit of the main circuit breaker protecting this electrical panel. Figure 1 illustrates the system operation.

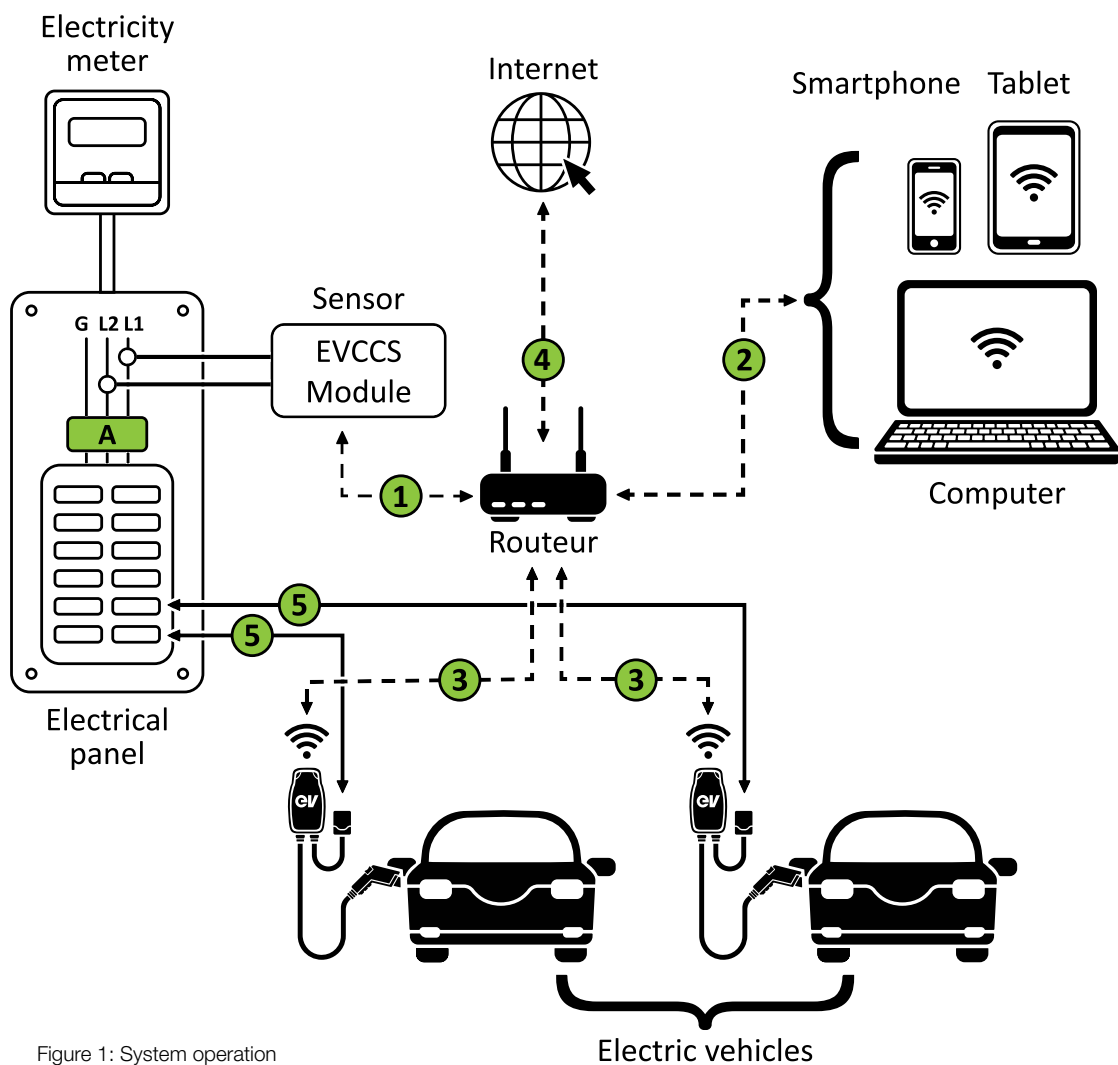


Figure 1: System operation

- A** Main circuit breaker.
- 1** Connection of the EVCCS module to the local network via WiFi or Ethernet cable.
- 2** Configuration from a computer, tablet or smartphone.
- 3** Communication with the EVduty EVC30 charging station(s)¹.
- 4** Diagnostic information and software update.
- 5** Electrical connection between the charging stations and the electrical panel

1: "Smart-Home" and "Smart-Pro" versions only

Product

Here is a description of the main parts of this equipment:



Figure 2: Parts description

- 1 Current sensors terminal blocks
- 2 RJ45 Ethernet socket
- 3 Power port
- 4 Internal WiFi antenna
- 5 Power LED
- 6 Network communication LED
- 7 Error LED

Technical specifications

POWER

Input voltage: 100 – 240 VAC 50/60Hz

Cable length: 1.5 m (5')

CURRENT SENSORS

Clamp-on current transformer

Opening diameter: 24.2 mm (0.95")

Dimensions: 70 mm x 44 mm (2.75" x 1.73")

Cable length: 3.05 m (10')

CURRENT READING RANGE

0-200A

OPERATING TEMPERATURE

-15°C to 40°C (5°F to 104°F)

WEIGHT AND DIMENSIONS

300 g (0.66 lb)

108mm x 852mm x 31.8mm (4.25" x 3.35" x 1.25")

COMMUNICATION

WiFi, Ethernet

Installation

1. Locate the ideal place to install the EVCCS module. This place must meet the following requirements:
 - Be in a dry and temperate environment.
 - Be at a reasonable distance from the electrical panel, where the current sensors will be installed.
 - Be within a reasonable distance of a 120VAC power outlet.
 - Allow access to the local network on which the charging station(s) is(are) connected, either by WiFi or Ethernet.
2. Secure the EVCCS module on a flat surface. (screws not included)
3. Install the two (2) current sensors on the wires/cables at the point where the current measurement is to be made.
CAUTION: This operation may require opening the main electrical panel security plate. Only qualified personnel should perform this operation.
4. Connect the current sensors' wires as shown in Figure 3:



Figure 3: Connections for the current sensors to the EVCCS module

5. Connect the AC/DC power supply to the EVCCS module 5V power port. Plug the AC/DC power supply into a 120VAC power outlet.
6. (Optional): Plug the network cable into the EVCCS module's RJ45 Ethernet socket.

Current sensing type

Two different types of current sensing are possible.

Upstream

With this configuration, current sensors measure the total current consumed by all electrical equipment powered by the main electrical panel.

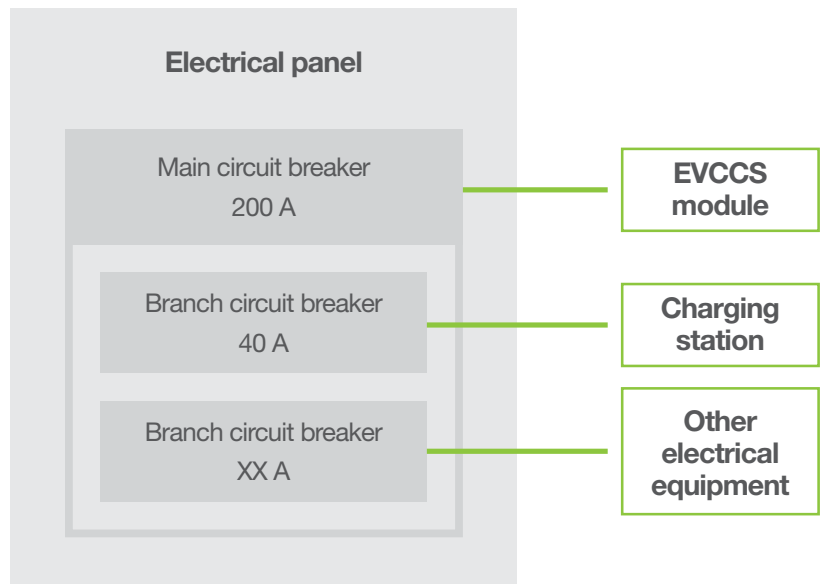


Figure 4: Example of an "Upstream" current sensing type

Parallel

With this configuration, current sensors measure the current consumed by an equivalent electrical equipment (whose branch circuit breaker has the same value as the breaker protecting the charging station).

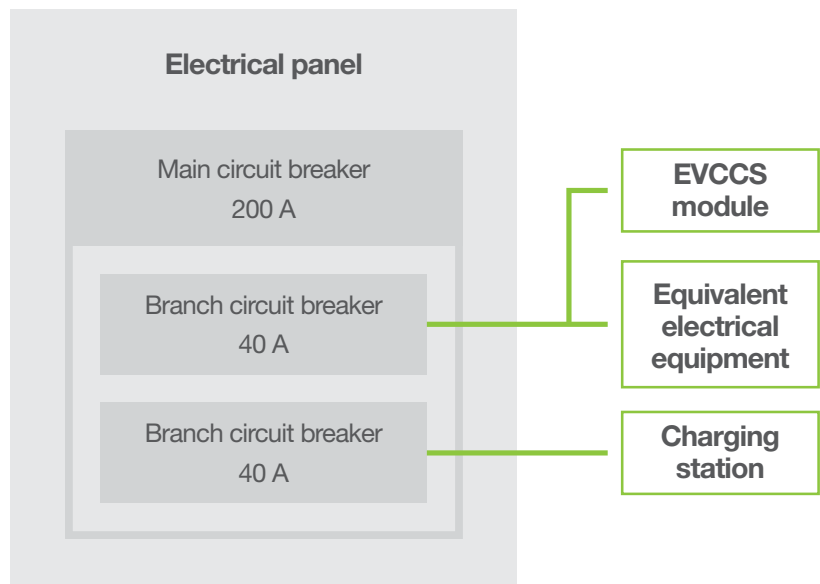


Figure 5: Example of a "Parallel" current sensing type

After completing the physical installation of the EVCCS module, you must complete the EVCCS module's initial configuration. Afterward, the EVduty EVC30 charging station(s) must also be configured so that they can correctly receive the information emitted by the EVCCS module.

A: CONFIGURATION OF THE EVCCS MODULE

1. Ensure that the EVCCS module is powered. If this is the case, the "Power" LED will be lit green and the "Network Communication" LED will flash green.
2. Using a smart device (smartphone, tablet, computer, etc.), connect to the WiFi network emitted by the EVCCS module, which will have a name similar to "EVduty-EVCCS-XXXXX" where "XXXXX" represents the EVCCS module's serial number.
3. Open a web browser (e.g. Internet Explorer, Microsoft Edge, Google Chrome, Mozilla Firefox, etc.).
4. In the address bar, enter "192.168.4.1".
5. A page will appear asking to create a password (see Figure 6). Enter a password between 8 and 32 alphanumeric characters (a-z; A-Z; 0-9). This password will be requested if a reconfiguration of the EVCCS module is required. Then, click "Submit".



The screenshot shows a web browser address bar with the IP address 192.168.4.1. Below the address bar, the page title is "EVduty EVCCS". The main heading is "Veuillez créer un mot de passe / Please create a password". There are two input fields: "Mot de passe / Password :" and "Confirmation / Confirmation :". Below the input fields, the text "(8 à 32 caractères alphanumériques) / (8 to 32 alphanumeric chars)" is displayed. At the bottom, there is a "Submit" button.

Figure 6: EVCCS module configuration – Create password

Configuration

6. A main menu will appear (see Figure 7). Click on "*Configuration*".

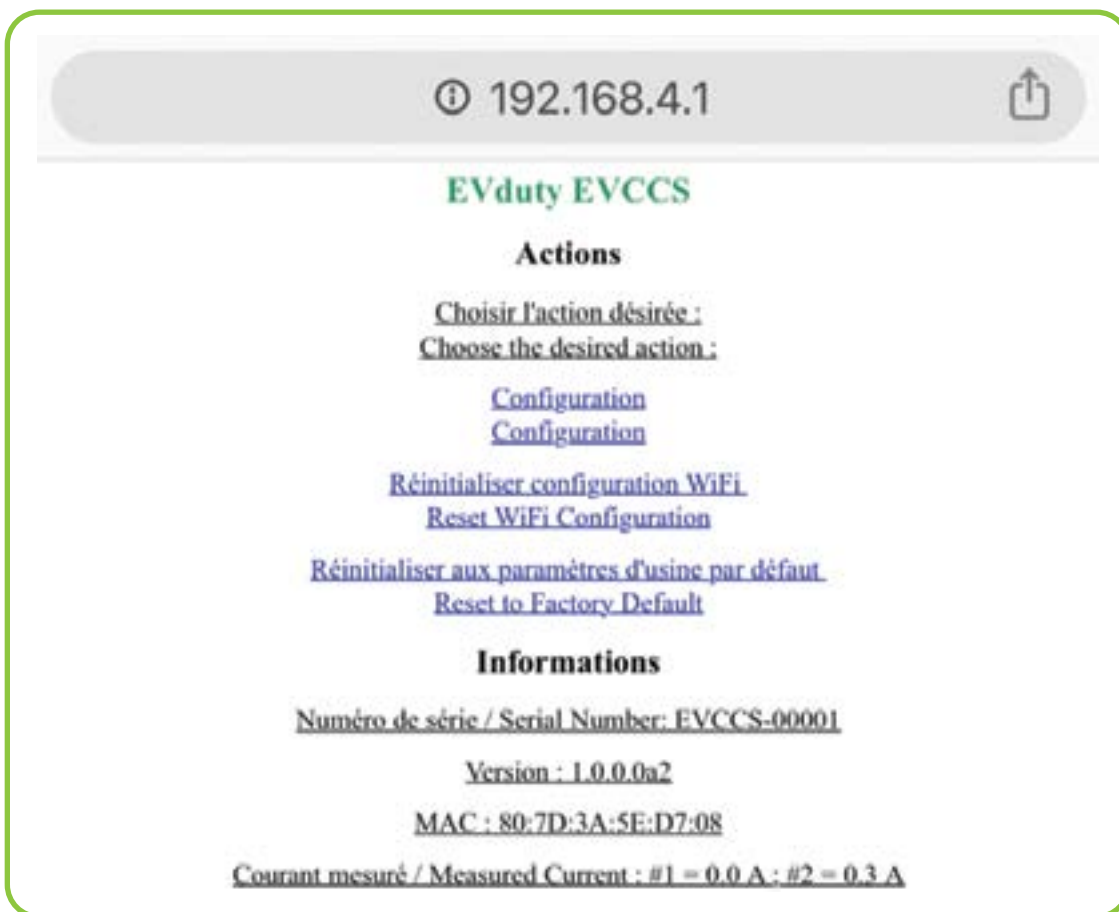


Figure 7: EVCCS module configuration – Main menu

7. A configuration form will be displayed (see Figure 8). Change values according to the desired configuration.

192.168.4.1

EVduty EVCCS

Configuration / Configuration

Canal de communication / Channel ID:

Type de mesure de courant / Current Sensing Type:

Valeur du disjoncteur (A) / Circuit Breaker Value (A):

SSID du réseau WiFi / WiFi Network SSID:

SSID du réseau WiFi / WiFi Network SSID:

Mot de passe du réseau WiFi / WiFi Network Password:

Adresse IP / IP Address: Ex: 192.168.1.100

Passerelle par défaut / Default Gateway: Ex: 192.168.1.1

Masque de sous-réseau / Subnet Mask: Ex: 255.255.255.0

Serveur DNS / DNS Server: Ex: 192.168.1.1

Figure 8: EVCCS module configuration – Configuration

a) Channel ID

Selecting the channel ID between the EVCCS module and the EVduty EVC30 charging station(s).

Possible value: between 1 and 20

Default value: 1

NOTE: If multiple EVCCS modules are used on the same LAN, a different channel ID must be given for each EVCCS module.

b) Current Sensing Type

Refer to the "Current sensing type" section.

Possible value: "Upstream" or "Parallel"

Default value: "Upstream"

c) Circuit Breaker Value (A)

The value of the circuit breaker protecting the circuit on which the current sensors are physically installed.

Possible value: between 10 and 200

Default value: 40

Configuration

d) WiFi Network SSID

(Optional) Select the WiFi network to which the EVCCS module is to connect.

Possible value: list of WiFi networks

Default value: disabled

e) WiFi Network SSID

(Optional) Manually enter the name of the WiFi network to which the EVCCS module is to connect.

Fill this box only if the target WiFi network does not appear for security reasons.

f) WiFi Network Password

(Optional) Password of the WiFi network to which the EVCCS module is to connect.

g) IP Address

(Optional) Local IP address of the EVCCS module. A value of 0.0.0.0 means that the EVCCS module will obtain this information by DHCP.

Possible value: IPv4 address format "aaa.bbb.ccc.ddd"

Default value: 0.0.0.0

h) Default Gateway

(Optional) Default gateway of the EVCCS module. A value of 0.0.0.0 means that the EVCCS module will obtain this information by DHCP.

Possible value: IPv4 address format "aaa.bbb.ccc.ddd"

Default value: 0.0.0.0

i) Subnet Mask

(Optional) Subnet mask of the EVCCS module. A value of 0.0.0.0 means that the EVCCS module will obtain this information by DHCP.

Possible value: IPv4 address format "aaa.bbb.ccc.ddd"

Default value: 0.0.0.0

j) DNS Server

(Optional) DNS server of the EVCCS module. A value of 0.0.0.0 means that the EVCCS module will obtain this information by DHCP.

Possible value: IPv4 address format "aaa.bbb.ccc.ddd"

Default value: 0.0.0.0

8. Once values have been correctly adjusted, click "**Submit**".

B: CONFIGURATION OF THE EVDUTY EVC30 CHARGING STATION(S)

NOTE: In order to be compatible with the EVCCS module, the EVC30 charging station's internal software version must be equal to or higher than "1.3.0.24-X.X.X.X".

1. Make sure the EVC30 charging station is not currently charging a vehicle. Disconnect from the vehicle if necessary.
2. Disable the EVC30 charging station's power supply and reactivate it. This will cause the charging station to reboot, which is necessary for the configuration.

NOTE: Following its reboot, the EVC30 charging station will emit a WiFi access point during at least 5 minutes. The user will thus have 5 minutes to configure the EVC30 charging station. After this time, the EVC30 charging station may stop emitting its WiFi access point.

3. Make sure the EVC30 charging station is powered. If it is, the main LED will be lit green.
4. Using a smart device (smart phone, tablet, laptop, etc.) connect to the WiFi network emitted by the EVC30 charging station, which will have a name similar to "EVduty-EVC30-XXXXX" where "XXXXX" represents the EVC30 charging station's serial number.
5. Open a web browser (e.g. Internet Explorer, Microsoft Edge, Google Chrome, Mozilla Firefox, etc.).
6. In the address bar, enter "192.168.4.1".
7. A page will appear asking for a username and a password (see Figure 9). Enter "admin" for the username and "evduty" for the password. Click "Submit".



The screenshot shows a web browser interface for the EVC30 charging station configuration. The address bar displays the IP address 192.168.4.1. The page content includes the title "EVduty EVC30" and the section "Accès / Login". Below this, there are two input fields: "Nom d'utilisateur / Username" and "Mot de passe / Password". A "Envoyer" button is located at the bottom of the form.

Figure 9: EVC30 charging station configuration – Access

Configuration

8. A main menu will be displayed (see Figure 10). Click "*Configuration*".

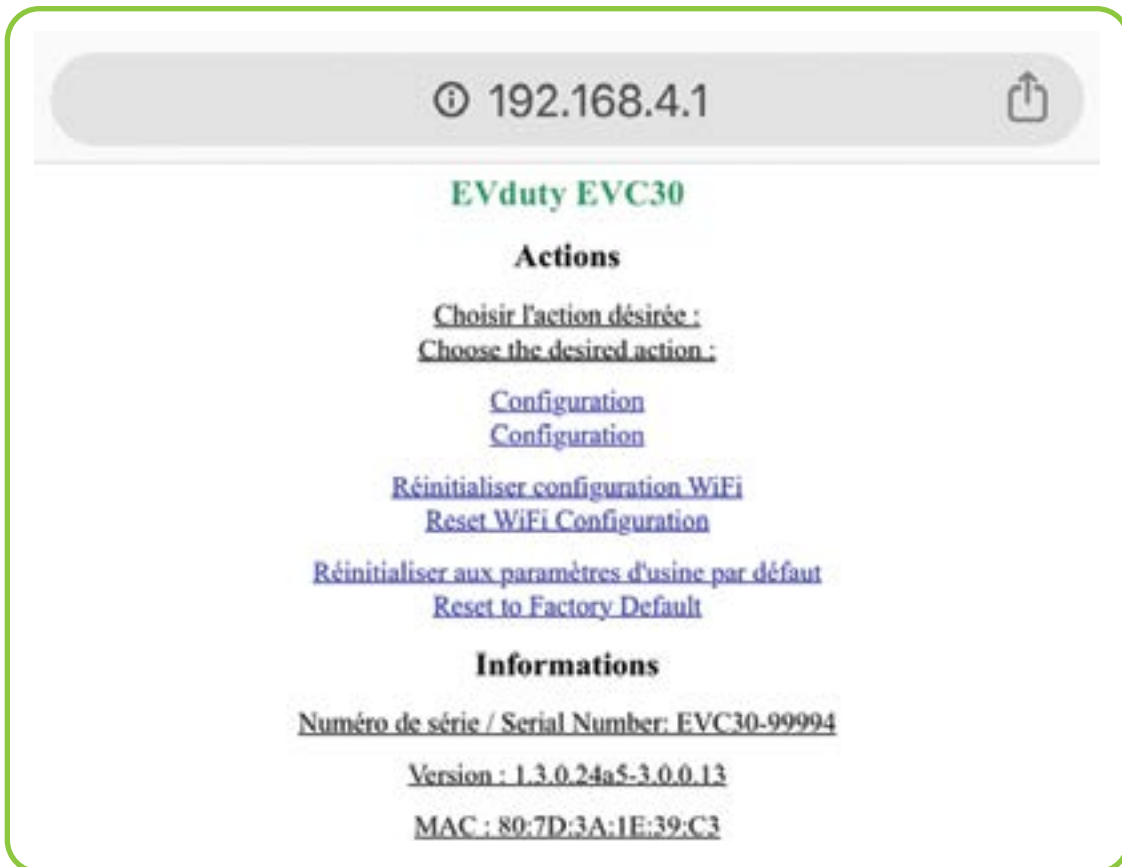


Figure 10: EVC30 charging station configuration – Main menu

9. A configuration form will appear (see Figure 11). Change values according to the desired configuration.



Figure 11: EVC30 charging station configuration – Configuration

- a) **WiFi Network SSID**
Select the WiFi network to which the EVC30 charging station is to connect.
Possible value: list of WiFi networks
Default value: N/A
- b) **WiFi network SSID**
(Optional) Manually enter the name of the WiFi network to which the EVC30 charging station is to connect. Fill this box only if the target WiFi network does not appear for security reasons.
- c) **WiFi Network Password**
Password for the WiFi network to which the EVC30 charging station is to connect. Leave this field blank if the WiFi network to which the EVC30 charging station is to connect is not secured or open.
- d) **Charging Access Mode**
Do not change this setting.
- e) **Load Shedding Function: Communication Channel ID**
Channel ID between the EVC30 charging station and the EVCCS module.
Choose the same value as used in the configuration of the EVCCS module.
Possible value: between 0 and 20
Default value: 0 = disabled
10. Once values have been correctly adjusted, click "**Submit**".
11. If more than one EVC30 charging station is to communicate with the EVCCS module, repeat steps 1 through 8 for each EVC30 charging station.

C: FUNCTION CHECK

In order to confirm that communication between the EVCCS module and the EVC30 charging station(s) is properly established, check the "Network Communication" LED's status on the EVCCS module. Refer to the "Operation" section.

The EVCCS module does not need any external action while it is in operation. However, the light indicators on the EVCCS module may give useful information about the equipment's operating status.

Here is a description of the EVCCS light indicators' possible states:

Table 1: States of light indicators

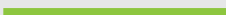
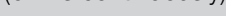
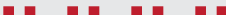
LED	COLOUR	STATE	DESCRIPTION
Power	Green	(turned off)	No electric power
		(lit continuously) 	Electric power OK
Network communication	Green	(blinks 1x) 	The EVCCS module is not connected to the local network
		(blinks 2x) 	The EVCCS module is connected to the local network
		(blinks continuously) 	The EVCCS module is connected to the local network and is correctly communicating with a EVC30 charging station
Error	Red	(turned off)	No error
		(blinks 1x) 	Problem with the #1 sensor or unbalanced AC lines
		(blinks 2x) 	Problem with the #2 sensor or unbalanced AC lines
		(blinks continuously) 	The measured current is higher than the limit allowed by the configuration

Table 2 lists some of the most common problems as well as their causes and possible solutions.

Table 2: Troubleshooting

PROBLEM	CAUSE	SOLUTION
"Power" LED is not lit	The EVCCS module is not receiving adequate power.	Check that the power outlet in which the power supply is plugged provides adequate voltage.
		Check that the power supply unit has an output voltage of +5VDC.
"Network communication" LED flashes green only once	The EVCCS module is not properly configured and cannot connect to the local network.	Check parameters in the EVCCS module configuration.
		If the EVCCS module is connected via an Ethernet network cable, check the connections at each end of the cable and check the router settings.
"Network communication" LED flashes green only twice	The EVCCS module fails to properly connect to at least one EVC30 charging station.	Check parameters in the configuration of the EVCCS module and in the EVC30 charging station, specifically the "Channel ID". This value must be configured identically for both device types.
		Check that both the EVCCS module and the EVC30 charging station are on the same local network and that this local network allows communication from one device to another.
"Error" LED flashes red	The EVCCS module detects an error.	See "Table 1: States of light indicators"
Main breaker tripped	The EVCCS module is not properly configured.	Check parameters in the EVCCS module configuration, specifically the "Circuit breaker value". This parameter must be identical to the value of the circuit breaker to be protected.
	The EVC30 charging station is not properly configured.	Check parameters in the EVC30 charging station configuration, specifically the "Channel ID". This must not be set to "0 = disabled" in the EVC30 charging station.
The EVC30 charging station is charging vehicles very slowly, at a current of about 6A	The electrical panel's power consumption is very close to the allowed limit.	None. System operating normally.
	Loss or absence of communication between the EVCCS module and the EVC30 charging station.	Check the local network to which the EVCCS module and the EVC30 charging station are connected.

Contact us



POSTAL ADDRESS

Service support Elmec
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SERVICE SUPPORT

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info@elmec.ca



WEBSITE

elmec.ca

Limited Warranty

WHAT DOES THIS WARRANTY COVER?

This warranty covers any defects or malfunctions of your EVCCS module.

HOW LONG DOES THE COVERAGE LAST?

This warranty runs for three (3) years from the purchase date.

WHAT ELMEC WILL DO?

Elmec will repair any EVCCS module judged to have a defect or malfunction by a qualified Elmec technician. In the event repair is not possible, Elmec will replace the EVCCS module 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 first contact the Elmec Support Service and a qualified technician will verify if there is a real problem with the product. If it's the case, send the EVCCS module postage paid with a purchase proof to the following address:

ELMEC SERVICE SUPPORT

1141, 2^e Avenue, Shawinigan
(Québec) G9T 2X9

Elmec will inspect the EVCCS module 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.