

1 Introduction



► This installation manual contains important information regarding the installation of the eTactica Power Bar (models EB-303, EB-306, and EB-312), which must be followed.

- Read the entire manual before beginning the installation in order to avoid making mistakes and to reduce the chances of any danger during the installation process.
- Pay attention to the installation instructions and be prepared to look them up during the installation process.

2 Safety Information

This manual contains information which you must observe for your own personal safety and the prevention of injury or damage. Such information is highlighted by the warning triangle shown below.

2.1 Hazard Classification

DANGER

This warning indicates danger with high risk, which if not avoided, can lead to death or serious injuries.

WARNING

This warning indicates danger with medium risk, which if not avoided, can lead to serious or major injuries.

CAREFUL

This warning indicates a lower risk, which if not avoided, can lead to minor or major injuries.

ATTENTION

This warning indicates that there is important information regarding the product or its parts requiring particular attention.

2.2 Installation Information

WARNING

- **Be sure to observe all hazard statements and warnings and cautions.**
- **Read the section entitled "Safety Information" very carefully.**

2.3 Safety Notes

DANGER

Risk of lethal electric shock.

Only low voltage current is present in the connection between the sensors and the Power Bar. However, lethal voltages are present in the live conductors that run through the current sensors.

- Install the Power Bar only in approved cabinets or housings so that the connectors between the sensors and the Power Bar are appropriately covered and protected.
- To restrict access by unauthorized persons, the electrical cabinet should be locked. Turn the power off before installation or maintenance, and provide protection against unintentional power-up during work.
- Install the Power Bar in a dry environment.
- Protect the Power Bar from humidity and moisture.

WARNING

- Always install data and power cables so that they are separated (Refer to DIN EN 50174-2).

ATTENTION

- To prevent damage caused by a power surge, the Power Bar should be protected by a surge arrester (SPD Type 1) and surge protector (SPD Type 2) upstream of the power source.
- Make sure that the power source which supplies the Power Bar with voltage can be switched off easily, for example via a C2 or B6 miniature circuit breaker. This must be marked as the disconnecting device for the power source and be easily accessible.
- No maintenance on the Power Bar is required.

3 Target Group

The activities described in this document may only be carried out by a certified electrician with the following qualifications:

- Training in the installation and commissioning of electrical equipment.
- Safety regulations training in electrical hazards and safety.
- Knowledge of relevant standards and guidelines.

4 Description

The Power Bar measures AC current flow via sensors placed directly on the circuit breakers. The mains wires to be measured are fed through the circular opening of the sensors at circuit breaker terminals. When used standalone, the Power Bar measures AC current per channel, as well as device temperature. When used with an eTactica power sync network, Active energy import/export, Reactive energy import/export and Phase angle are also calculated per channel. All variables are available via a standard Modbus/RTU interface.


Three versions of the Power Bar are provided, three (EB-303), six (EB-306) and 12 (EB-312) channels wide.

5 Intended Use

The Power Bar must only be used when installed in an appropriately protected cabinet, in a dry indoor space. Install the Power Bar according to the instructions in this manual. Other uses or installation methods may lead to personal injury or damage to property. This includes any modifications to the Power Bar, unless specifically authorized by eTactica ehf. Any other use of the product aside from its intended use, as described in this manual, is deemed to be improper. Unauthorized alterations, modifications, repairs, or opening of the product casing will void warranty and are prohibited. This manual is a part of the product and must be read, followed, and kept accessible at all times.

6 Disposal

The Power Bar and sensors must not be placed in regular waste disposal.

-  ► Dispose of the Power Bar and sensors in accordance with your local regulations on electronic waste.

7 Contact Information

In case of any technical problems with this product, please contact eTactica ehf at:

eTactica ehf
Borgartun 27
105 Reykjavik
Iceland

Tel.: +354 535 3000
Internet: <http://www.etactica.com>
Email: support@etactica.com

8 What is in the box

Designation	Article no.	Quantity
Power Bar by type:		1
EB-303 (3 sensors)	5060474160582	
EB-306 (6 sensors)	5060474160599	
EB-312 (12 sensors)	5060474160605	
Current Sensor EC-63:	5060474160209	3 (EB-303) 6 (EB-306) 12 (EB-312)
Device bus connector	822350424318	1
Installation manual		1

9 Product Diagram

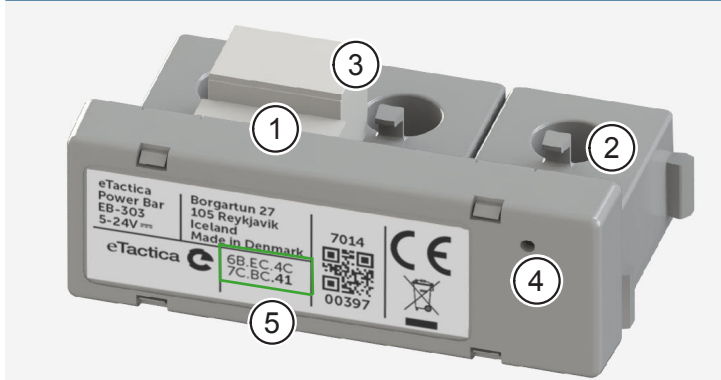


Fig. 1: Power Bar and sensors (example: EB-303).

1	Power Bar, EB-303
2	Current sensor EC-63
3	Device bus connector
4	Status LED
5	Serial number

10 Technical Data

Electrical Connections	
Supply voltage	5-24 V DC
Supply current	Max. 20 mA
Measurement category	CAT III 300 V
Rated working voltage	250 V AC
Rated working current	63 A
Maximum current	70 A
Rated impulse withstand voltage.	4000 V
Accuracy	Class 2 IEC-61557-12
Operating frequency	50 and 60 Hz ±2%
Device Bus	
RS485-unit loads	1
Interface protocol	Modbus/RTU- 19200, 8, E, 1 (default settings) (9600-115200 available)
Modbus address range	01 to F7 hex (1 to 247 decimal), the default one is the last byte of the serial number, see pos. 5 in Fig. 1.
Modbus cable	2/3 wire half duplex 0,25 mm ² to 1,5 mm ²
Housing Protection	
Protection rating	IP2X
Environmental Conditions	
Temperature	
— Storage	-25 °C to 70 °C
— Operating	-5 °C to 55 °C
Relative humidity	50 % to 90 %
Altitude	<2000m
Pollution degree	2

11 Installation

⚠ DANGER

Risk of lethal electrical shock

- ▶ Turn power off before commencing the installation or maintenance work and provide protection against unintentional power-up during work.
- ▶ Ensure that all conductors are without voltage.

11.1 Installation Information

To install the Power Bar you will need the following:

- ▶ An insulated screwdriver.
- ▶ Device cable, premade cables are available from eTactica, otherwise make it on site.
- ▶ Cable ties.

11.2 Linking Current Sensors

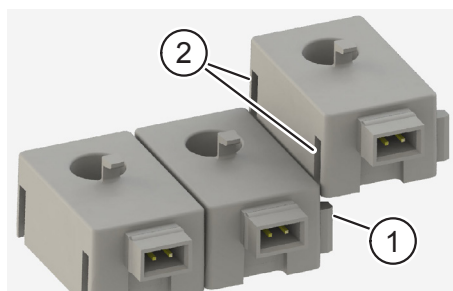


Fig. 2: Linking current sensors

- ▶ Attach the current sensors to each other by sliding the grooves (pos. 2 in Fig. 2) on the lefthand side of one sensor into the locking mechanism (pos. 1 in Fig. 2) on the righthand side of the other sensor.

11.3 Installing Current Sensors

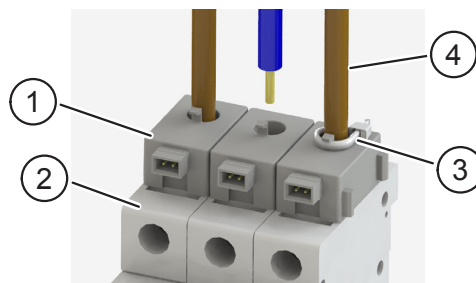


Fig. 3: Installing current sensors

- ▶ Place the linked current sensors (pos. 1 in Fig. 3) onto the top of the circuit breakers (pos. 2 in Fig 3) so that the holes in the sensors are in line with the terminals on the circuit breakers.
- ▶ Maneuver the conductors (pos. 4 in Fig. 3) through the current sensors and attach them to the terminals on the circuit breakers. The direction of energy in Fig 3 is up, that is, the breakers are connected to a bus bar (not shown) at the bottom and the wires shown go to the load.
- ▶ Fasten the conductors to the tabs on the current sensors with cable ties (pos. 3 in Fig. 3).

10.4 Connecting the Power Bar with the Modbus Master

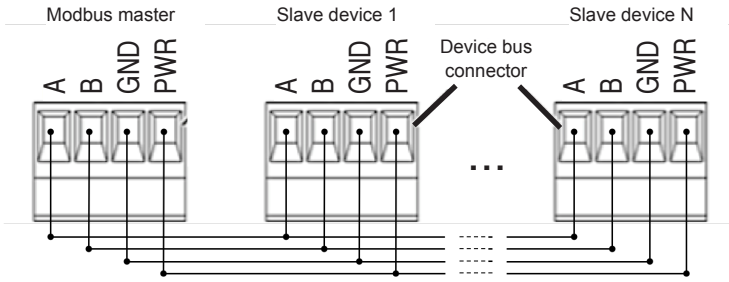


Fig. 4: Wiring the Power Bar to the Modbus Master

- ▶ As a standard RS-485 network, all devices should be daisy chained (no branches, no loops) with the Gateway at one end. Modular premade cables comprising a “head” piece for the Gateway, multiple “Y” pieces for intermediate devices and a “tail” piece with built in 120 Ohm termination are available separately from eTactica which can make this process plug and play.
- ▶ Alternatively, refer to figure 4 for terminal assignments.
- ▶ While connecting devices, record the serial of each device, and the names/purpose of each measured channel. This will enable you to assign a useful cabinet model and share this information with your chosen software platforms.

10.5 Attaching the Linked Current Sensors to the Power Bar

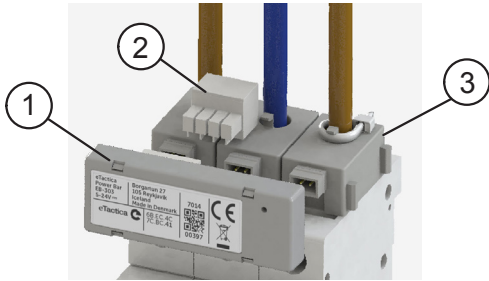


Fig. 5: Attaching the Linked Current Sensors to the Power Bar

- ▶ Attach the Power Bar (pos. 1 in Fig. 5) to the linked current sensors (pos. 3 in Fig 5) and the Molex connector (pos. 2 in Fig. 5).

10.6 LED Status Indication

A LED light (pos.5 in Fig. 1) indicates the status according to the following:

LED Pattern	Description
Fast blinking, 7 Hz	Bootloader running, should go to normal operation in about 5 seconds.
Blinking - 1 Hz	The Power Bar is working as expected and is collecting and sending data.
No blinking - always on	The Power Bar is powered, but not receiving modbus requests. Possible causes: 1) RS485 is not wired correctly. 2) The Modbus Master has not sent a request for at least 30 sec.
No light - LED is off	The Power Bar is not powered. Check the wiring.
Periodic fast blinking, 15 Hz	Device identification, when setting up the cabinet model on the gateway, you can see what device you are working on.
Fast blinking, 15 Hz	Firmware update in progress.