

## 1 Introduction



► This installation manual contains important information regarding the installation of the eTactica Current Bar (models EB-203, EB-206, EB-209, and EB-212), 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 Current Bar. However, lethal voltages are present in the live conductors that run through the current sensors.

- Install the Current Bar only in approved cabinets or housings so that the connectors between the sensors and the Current 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 Current Bar in a dry environment.
- Protect the Current 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 Current 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 Current 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 Current 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


Together, the Current Bar and sensors allow the measurement of current flows in AC networks. The measured data is transmitted via an RS485 bus to the Modbus Master. The Modbus Master also provides the supply voltage of 12 V DC to the Current Bar. The Current Bar is offered in four versions which vary depending upon the number of sensor-slots, either three (EB-203), six (EB-206), nine (EB-209), or twelve (EB-212). The sensors are placed directly on the circuit breakers and register the current amperage. The mains wires to be measured are fed through the circular opening in the current sensors at the terminals of the circuit breaker. Each Current Bar has a Modbus address ranging from 1 to 247.

### 5 Intended Use

The Current Bar must only be used when installed in an appropriately protected cabinet, in a dry indoor space. Install the Current 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 Current 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 Current Bar and sensors must not be placed in regular waste disposal.

-  ► Dispose of the Current 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  
Hlidasmara 14  
201 Kopavogur  
Iceland

Tel.: +354 535 3000  
Internet: <http://www.etactica.com>  
Email: [info@etactica.com](mailto:info@etactica.com)

## 8 Scope of Delivery

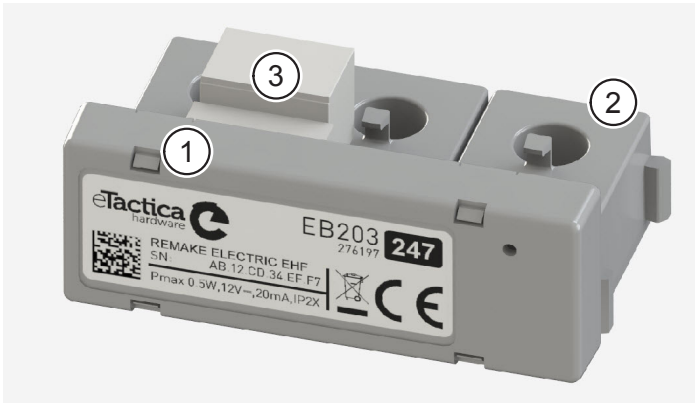


Fig. 1: Scope of delivery of the Current Bar and sensors (example: EB-203).

	Designation	Article nr.	Quantity
1	Current Bar by type: EB-203 (3 sensors) EB-206 (6 sensors) EB-209 (9 sensors) EB-212 (12 sensors)	5060474160407 5060474160414 5060474160162 5060474160155	1
2	Current Sensor EC-63:	5060474160209	3 (EB-203) 6 (EB-206) 9 (EB-209) 12 (EB-212)
3	Molex connector 39500	822350424318	1
4	Installation manual		1

## 9 Technical Data

Electrical Connections	
Supply voltage	12 V DC
Supply current	Max. 20 mA
Supply power	Max. 0,5 W
Nominal voltage/insulation	300 V RMS
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
Sensor accuracy	±1% of FS @ 25°C
Operating frequency	50Hz
Device Bus	
RS485-cable length	Max. 60 m
Interface protocol	Modbus/RTU- 19200, 8, E, 1 (default settings)
Modbus address range	1 to 247
Modbus cable	4-wire, 2 x shielded twisted pair, multi-stranded
Cable Connections	
Cross-sectional area	0,25 mm <sup>2</sup> to 1,5 mm <sup>2</sup>
Housing Protection	
Protection rating	IP2X
Environmental Conditions	
Temperature	
— Storage	-25 °C to 70 °C
— Operating	-25 °C to 55 °C
Relative humidity	50 % to 95 %
Air pressure during operation	790 hPa to 1070 hPa

## 10 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.

### 10.1 Linking Current Sensors

To install the Current Bar you will need the following:

- ▶ An insulated screwdriver.
- ▶ Cable ties.

### 10.2 Linking Current Sensors

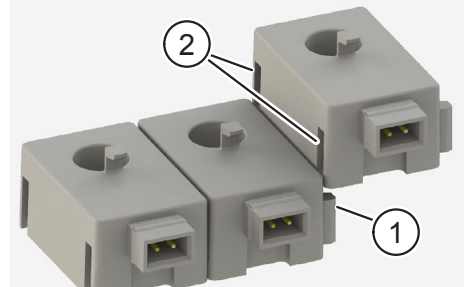


Fig. 2: Linking current sensors

- ▶ 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.

### 10.3 Installing Current Sensors

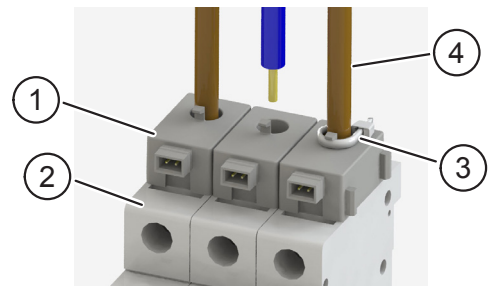


Fig. 3: Installing current sensors

- ▶ 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.
- ▶ Fasten the conductors to the tabs on the current sensors with cable ties (pos. 3 in Fig. 3).

### 10.4 Connecting the Current Bar with the Modbus Master

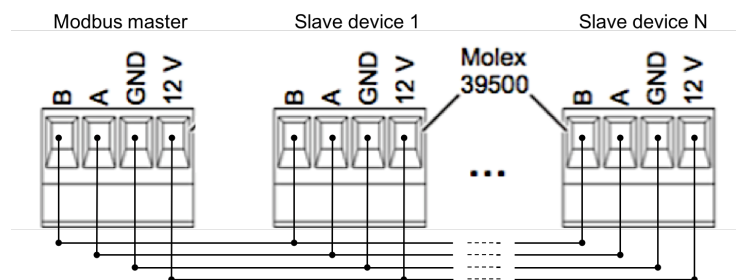


Fig. 4: Wiring the Current Bar to the Modbus Master

- ▶ Attach the connectors of the Current Bar with the connector of the Modbus Master using the AWG22-cable (Fig. 4 shows the pin assignment).

## 10.5 Attaching the Linked Current Sensors to the Current Bar

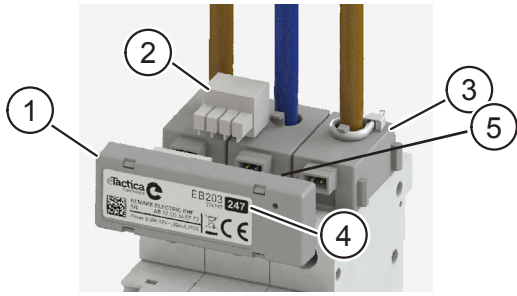


Fig. 5: Attaching the Linked Current Sensors to the Current Bar

- ▶ Attach the Current 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).

### ATTENTION

Eliminate duplicate addresses

- ▶ Note that all slave devices connected in series to a Modbus Master must have unique addresses (pos. 4 in Fig. 5).

## 10.6 LED Status Indication

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

LED Pattern	Description
Blinking - 1 sec interval	The Current Bar is working as expected and is collecting and sending data
No blinking - always on	The Current 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 Current Bar is not powered. Check the wiring.