



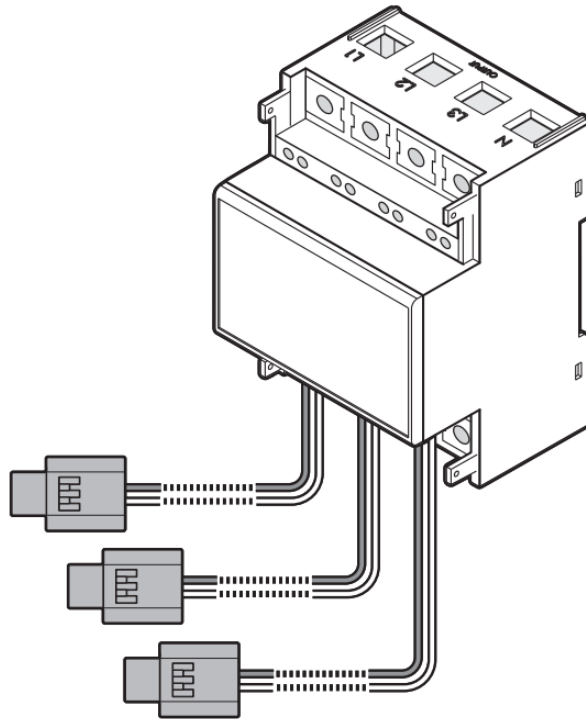
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ENOVATES

Enovates eDSB Active Load Balancing



Specifications

- **Input voltage:** AC
- **Min current:** 80A
- **Protocol:** Modbus
- **Bus type:** RS485
- **Input type:** Screw terminals
- **Cable length:** Recommended < 100m
- **Terminals:** Screw terminals
- **Type of CT:** Split core
- **Max primary current:** 80A
- **Terminals:** Screw terminals
- **Power supply:** +12V GND

Product Usage Instructions

Installation Procedure

- Install current transformers and measuring devices only when the power supply is disconnected.
- Installation and service should be done by a qualified electrician.
- Do not install damaged products.

Connection Data

- **Connection method:** 2-wire (RS485)
- **Recommended cable:** Cat5e or Cat6. Shielding is recommended for polluted environments.

Installation of the Coils

- An indicator on the coil shows the direction of the current flow. Ensure the coil is mounted correctly around the conductor in the installation cabin.
- The arrow direction should point from the grid side towards the house side.
- The coil is a split-core coil; it can be unlocked and mounted around the conductor.

Operating Instructions

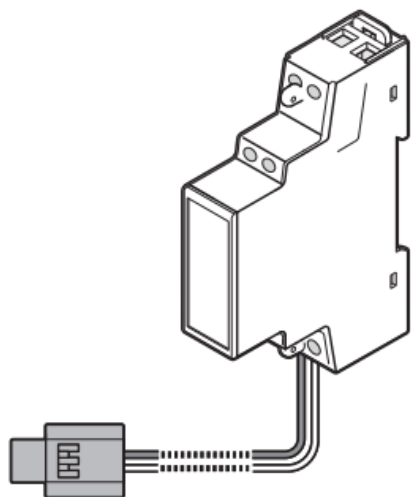
- Refer to the specific configuration settings available at <https://www.enovates.com/download/edsb-installation-manual/> for detailed operating instructions.

INTRODUCTION

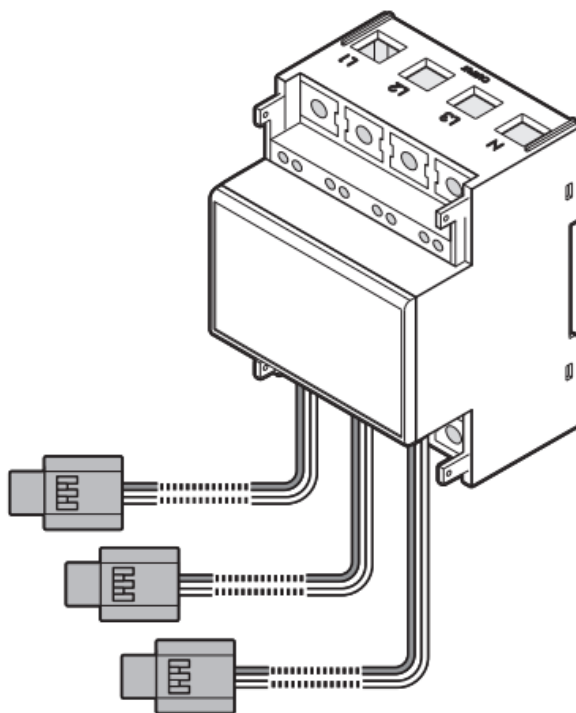
- This manual is a technical guide for installing an eDSBI or eDSBIII, a device for active load balancing. The eDSBI is meant for single-phase installations, and the eDSBIII is meant for 3-phase, 4-wire installations.
- The most recent version of this manual and specific configuration settings can be found on <https://www.enovates.com/download/edsb-installation-manual/>
- **WARNING:** The eDSBIII is meant for 3-phase, 4-wire connections but can also be used for 3-phase, 3-wire installations.
- DO NOT USE an eDSBI in a 3-phase, 3-wire installation; an unbalanced load can cause the unmeasured line to be pushed past the current limit.

PRODUCT OVERVIEW

Overview



eDSBI



eDSBIII

TECHNICAL SPECIFICATIONS

Measuring instrument – eDSBI and eDSBIII

Power supply	
Input voltage	10-13V
Min current	100mA
Wire diameter	0,2mm ² -1,5mm ²

Communication	
Protocol	Modbus
Bus type	2-wire RS-485
Input type	Screw terminals (next to power supply input)
Wire diameter	0,2mm ² -1,5mm ²

Baud-rate	9600
Cable length	Recommended < 100m

Voltage measurement	
L-N	230V ± 20%
Accuracy	±5V
Terminals	Screw
Max wire diameter	16mm ² solid or 10mm ² stranded with ferrule

Current measurement	
Type	CT measurement 80A/40mA output
Type of CT	Split core
Max primary current	80A
Terminals	Screw terminals

HMI	
Display	no
Power led	yes
Communication led	yes

INSTALLATION PROCEDURE

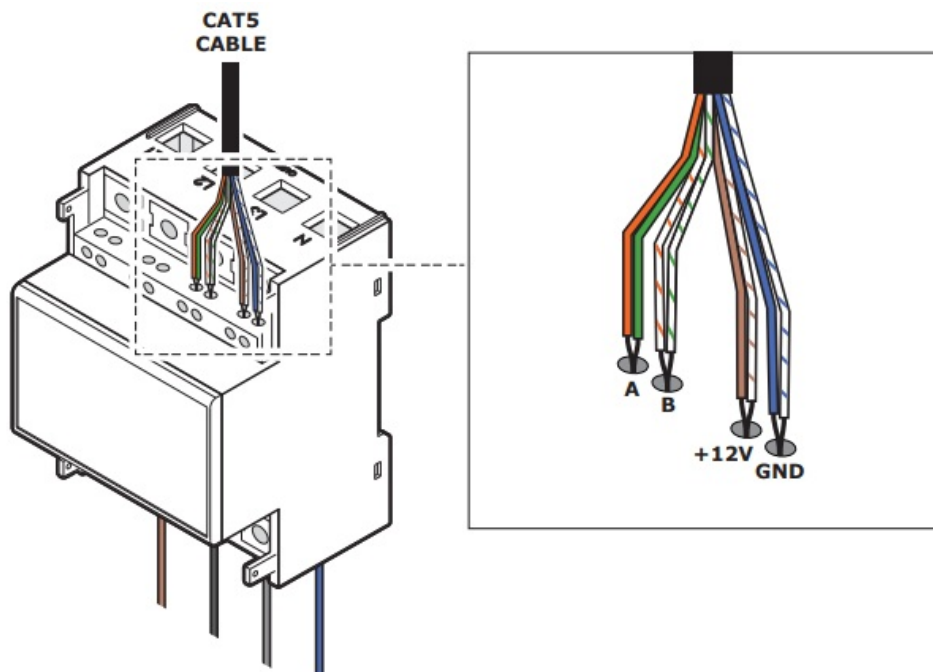
General safety information



- Install current transformers and corresponding measuring devices only when the power supply of the system is disconnected.
- Installation and service should be performed by a qualified licensed electrician. The installer is responsible for all (regional-specific) electrical requirements.
- Do not install damaged product(s)!

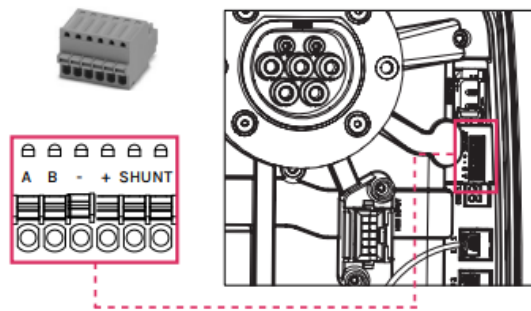
Installation of the measuring device

- The meter is mounted on a DIN rail.
- Use the blue and blue-white wires together to connect the ground and use the brown and brown-white wires together to connect the +12V.
- The Modbus communication between the eDSB and the charger is connected by combining the green and orange wire for the A connection and combining the green-white and the orange-white wires for the B connection.

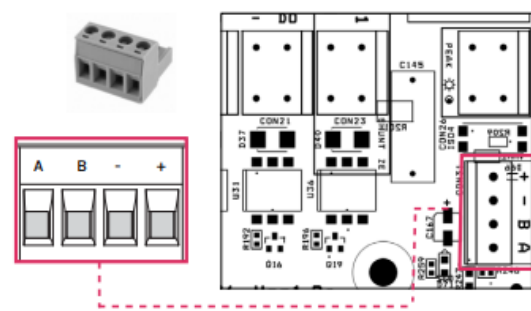


- L1 (brown), L2 (black), L3 (grey) and N (blue) are connected as seen above. Connecting L1, L2, L3, and N is advised but not mandatory.
- When these wires are not connected, the direction of the power cannot be determined, and therefore, the device is not advised for use in combination with solar panels or other devices that put power back to the grid.

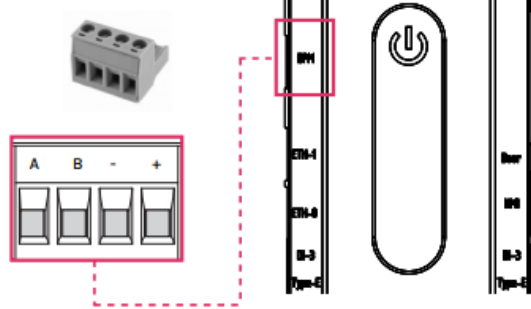
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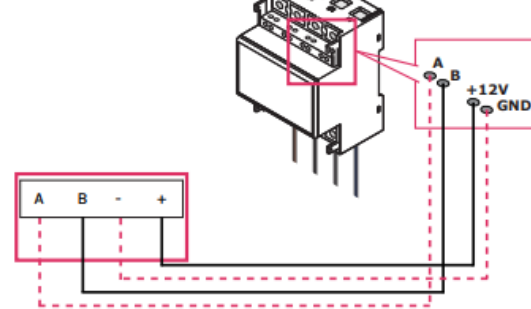
ERTU6



ERTU7



eDSB

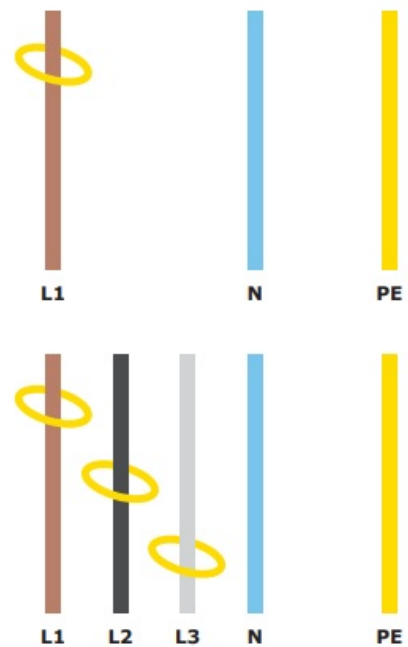
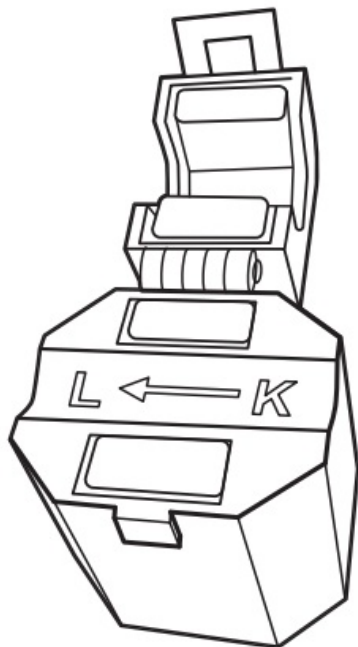


Connection data

Communication	
Connection method	2-wire (RS485)
Recommended cable	Cat5e or Cat6
	Shielding is recommended for polluted environments

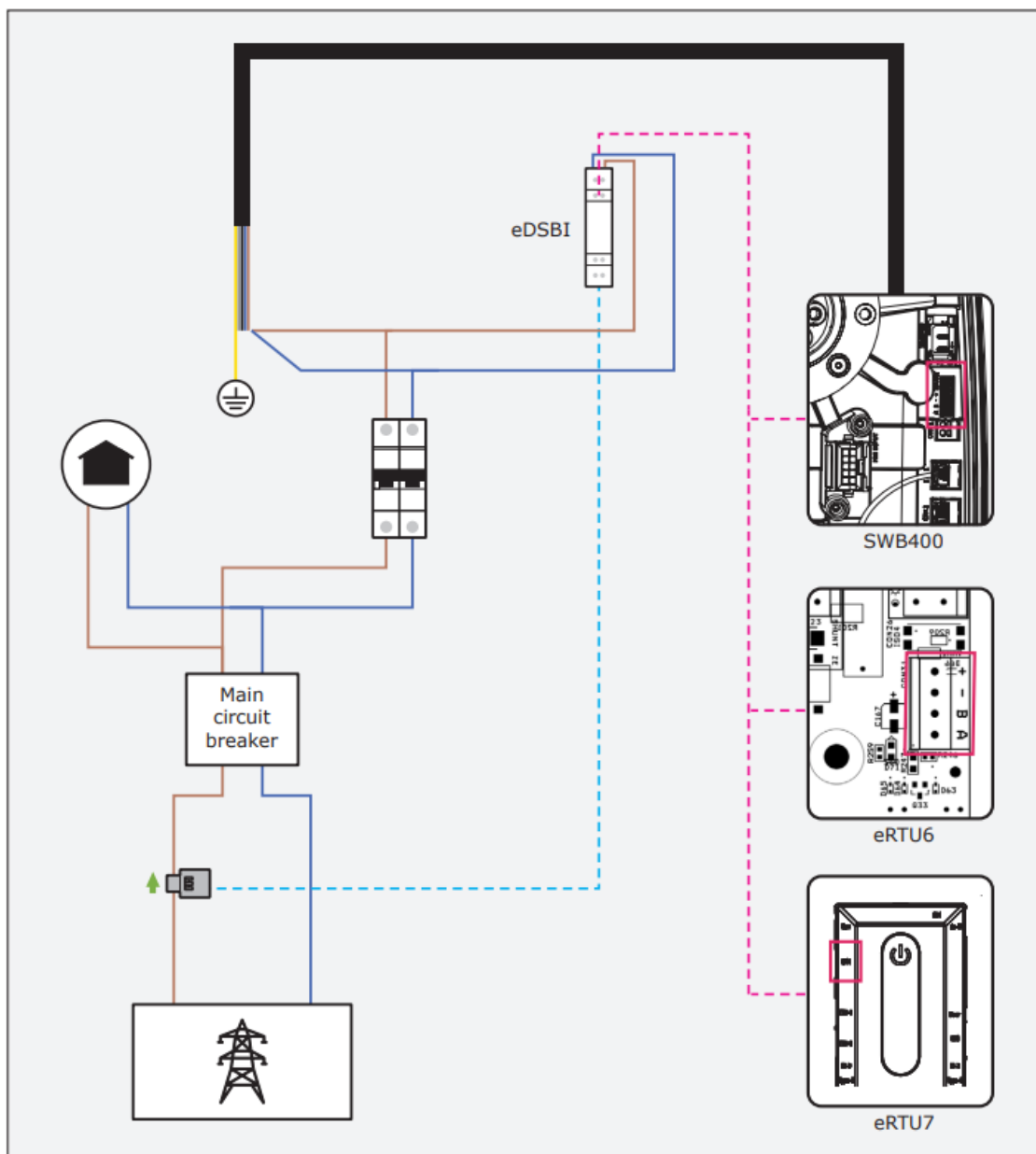
Installation of the coils

- An indicator on the coil shows the direction of the current flow.
- Make sure that the coil is mounted correctly around the conductor in the installation cabin.
- The arrow direction should point from the grid side towards the house side.
- The coil is a split-core coil; it can be unlocked and mounted around the conductor.

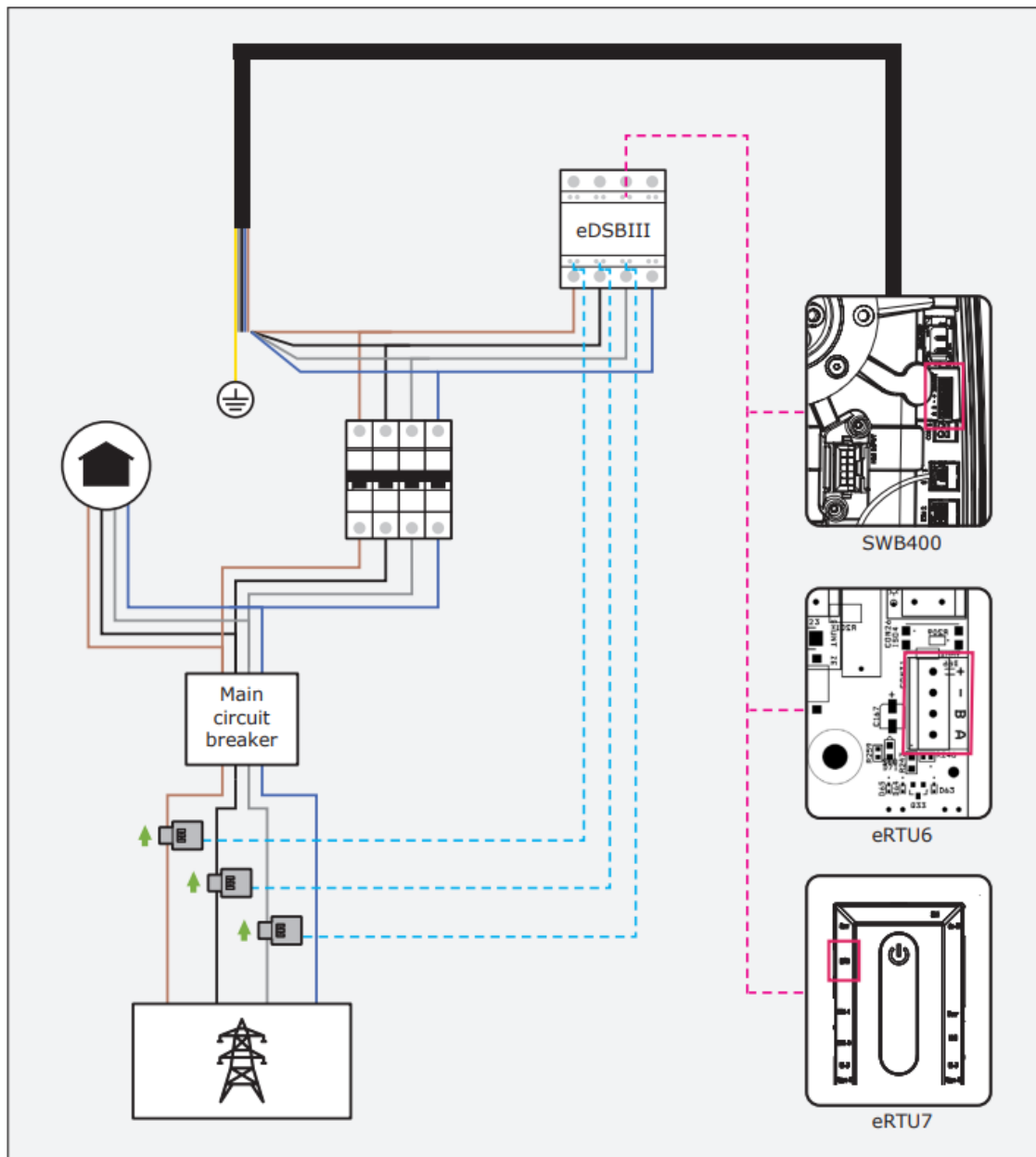


- **WARNING:** The coils are to be mounted before the main circuit breaker.

Electrical diagram eDSBI



Electrical diagram eDSBIII



NOTE: In a 3 x 230V configuration, the blue (N) wire is not utilised.

OPERATING INSTRUCTIONS

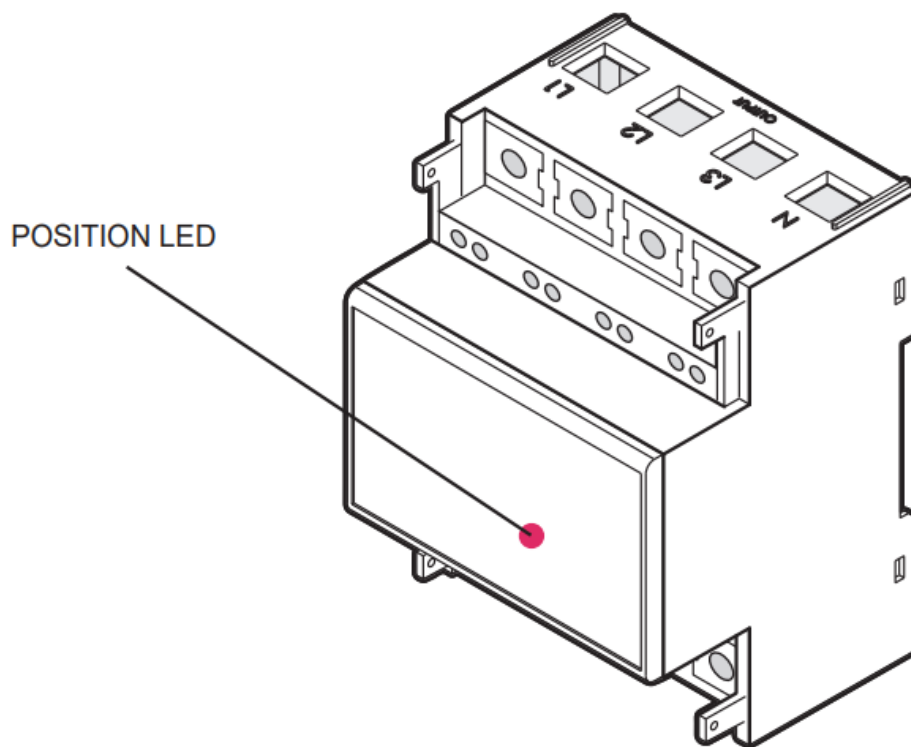
Settings of the eDSB device

- It is advised to use the charger datasheet and/or user manual of the charger while configuring the eDSB device.
- All settings described below are informative and are not guaranteed to apply to your product.
- All chargers that can use the eDSB have settings to configure the following parameters.

- Some common configuration names are shown between the brackets.
 1. When configuring the charging station via the Admin page, set `smart.external.limit.device` = eDSBI or eDSBIII.
 - When using EnoSAM, select eDSBI or eDSBIII from the 'measurement device' dropdown.
 2. The maximal current the installation should use (`installation.grid.max.current`).
- This is the maximum current taken from the grid by the building and the charger.
- **For example:** if `installation.grid.max.current` = 30 and the building draws 10A, there will be 20A left for the charger.
- **NOTE:** The charger will never draw more current than set in the fixed limit of the charger (`chargepoint.max.amp.per.phase`).
 - **WARNING:** It is advised to keep a safe margin ($\pm 10\%$) to not always drawing the maximum possible power from the grid.
- E.g. a grid connection of 32A results in an `installation.grid.max.current` of 29A.
- **WARNING:** Never use the eDSBI meter together with a 3-phase charger.

HMI

- The red LED on the front panel indicates the power flow measured by the meter. When power flows, the LED will flash. The faster the LED flashes, the more power flows.
- For this meter, the LED will flash 10.000 times per kWh. If there is no load connected to the meter or the load on the line is very low, the red consumption LED will not flash.



CUSTOMER SERVICE

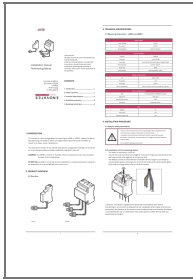
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Frequently Asked Questions

- **Q: Can I use an eDSBI in a 3-phase, 3-wire installation?**
 - **A:** No, using an eDSBI in a 3-phase, 3-wire installation can lead to unbalanced load issues.
- **Q: What is the recommended cable for communication?**
 - **A:** Cat5e or Cat6 cables are recommended for communication, with shielding suggested for polluted environments.
- **Q: What should I do if I encounter damaged products during installation?**
 - **A:** Do not install damaged products and seek replacements from authorised

suppliers before proceeding with installation.

Documents / Resources



[Enovates eDSB Active Load Balancing \[pdf\]](#) Instruction Manual
eDSBI, eDSBIII, eDSB Active Load Balancing, eDSB, Active Load Balancing, Load Balancing, Balancing

References

- [User Manual](#)

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◆ Active Load Balancing, Balancing, eDSB, eDSB Active Load Balancing, eDSBI, eDSBIII, ENOVATES, Load Balancing

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