eDSB

Installation manual
Technical guidance

CONTENTS

1. INTRODUCTION

This manual is a technical guidance 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.

2. PRODUCT OVERVIEW

2.1 Overview
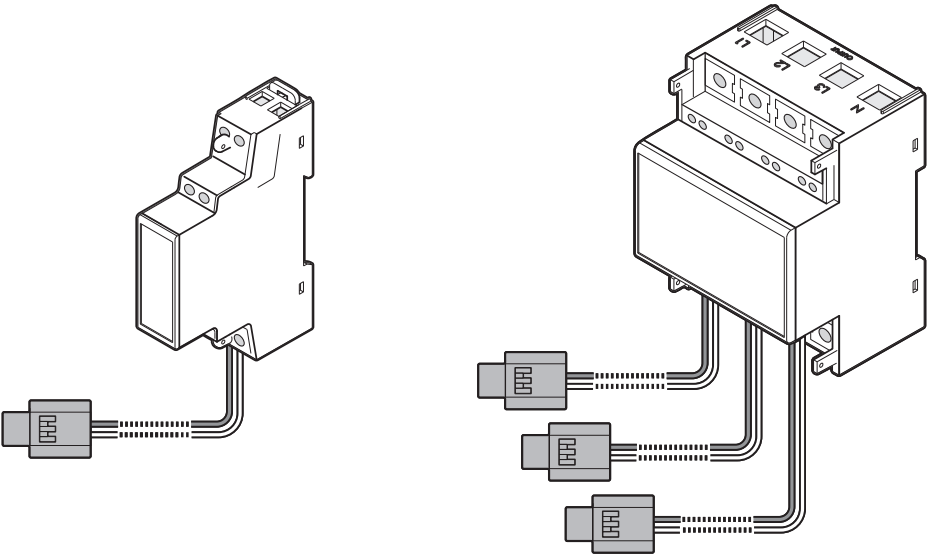
eDSBI

eDSBIII

3. TECHNICAL SPECIFICATIONS

3.1 Measuring instrument – eDSBI and eDSBIII

Power supply	
Input voltage	10-13V
Min current	100mA
Wire diameter	0,2mm²-1,5mm²

Communication	
Protocol	Modbus
Bus type	2 wire RS485
Input type	Screw terminals (next to power supply input)
Wire diameter	0,2mm²-1,5mm²
Baud-rate	9600
Cable length	Recommended < 100m

Voltage measurement	
L-N	230V ± 20%
Accuracy	±5V
Terminals	screw
Max wire diameter	16mm² solid or 10mm² 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

4. INSTALLATION PROCEDURE

4.1 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)!

4.2 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.
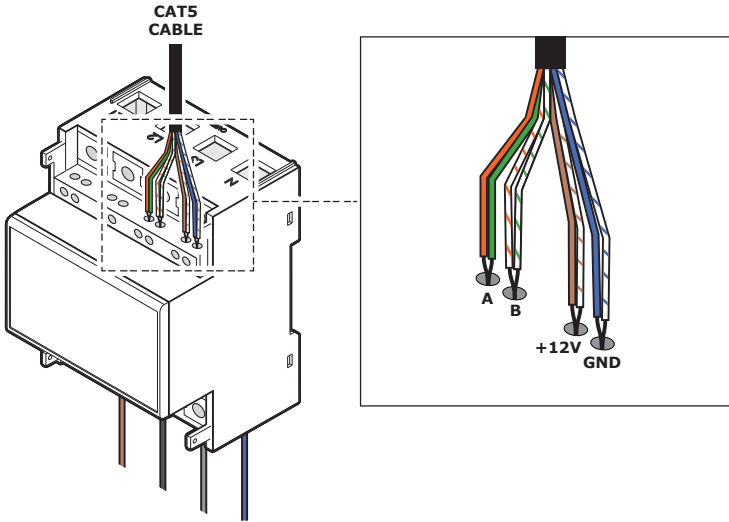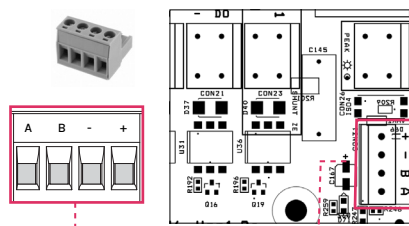

L1 (brown), L2 (black), L3 (gray) and N (blue) are connected as seen above.
Connecting L1, L2, L3 and N is advised but not mandatory. When these wires are not connected, the direction of the power cannot be determined and therefore the device is not advised for use in combination with solar panels or other devices that put power back to the grid.
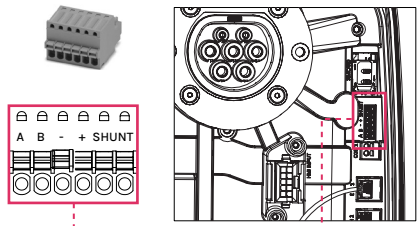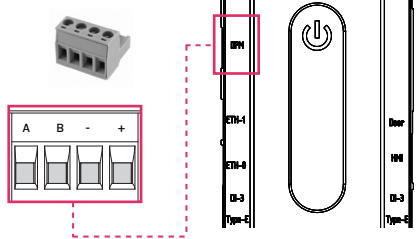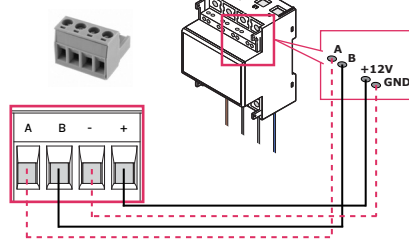
| SWB400 | ERTU6 |
| ERTU7 | eDSB |

Connection data

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

4.3 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.
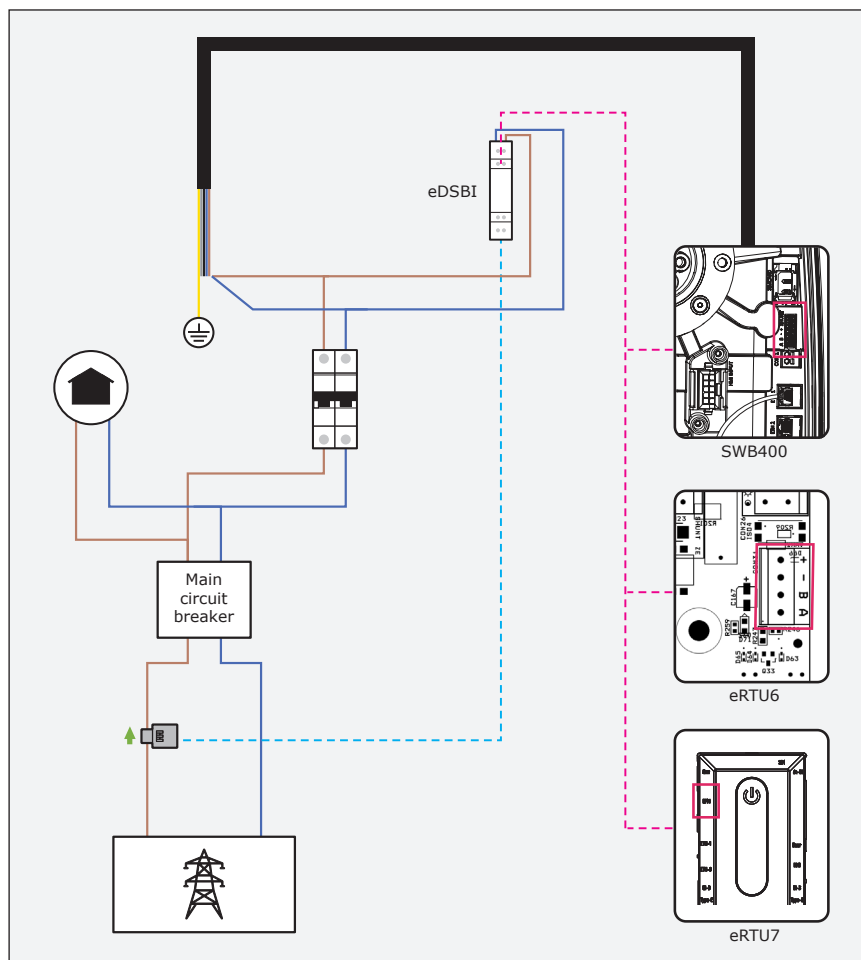The arrow direction should point from the grid side towards the house side.

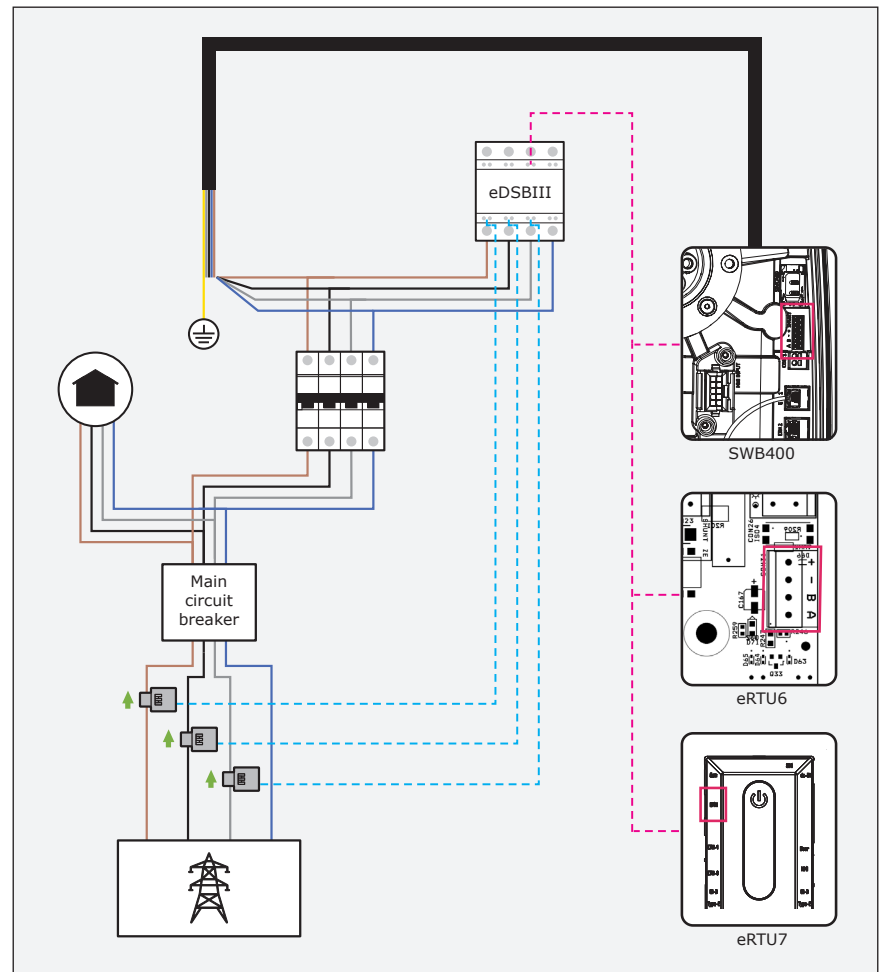The coil is a split core coil, it can be unlocked and can be mounted around the conductor.
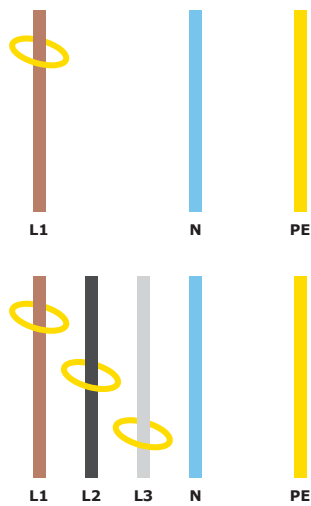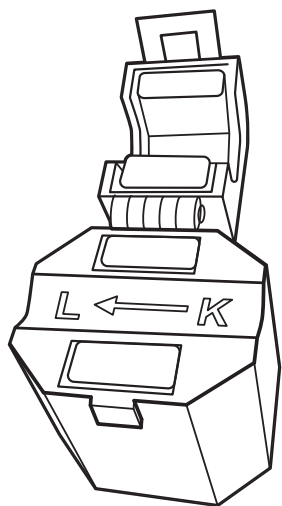
WARNING: The coils are to be mounted before the main circuit breaker.

4.4 Electrical diagram eDSBI

4.5 Electrical diagram eDSBIII

5. OPERATING INSTRUCTIONS

5.1 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 are able to 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 maximal 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 (±10%) to not always draw the maximal 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.

5.2 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.

POSITION LED