AcuDC 300 Series
Quick Setup Guide

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Meter Model
AcuDC-301-1000-650-P2

Safety Notice

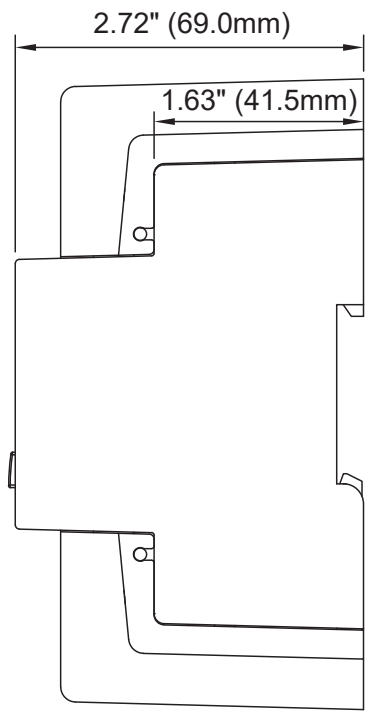
Read this document and following symbols carefully before the installation, operation and maintenance of the AcuDC 300 meter.

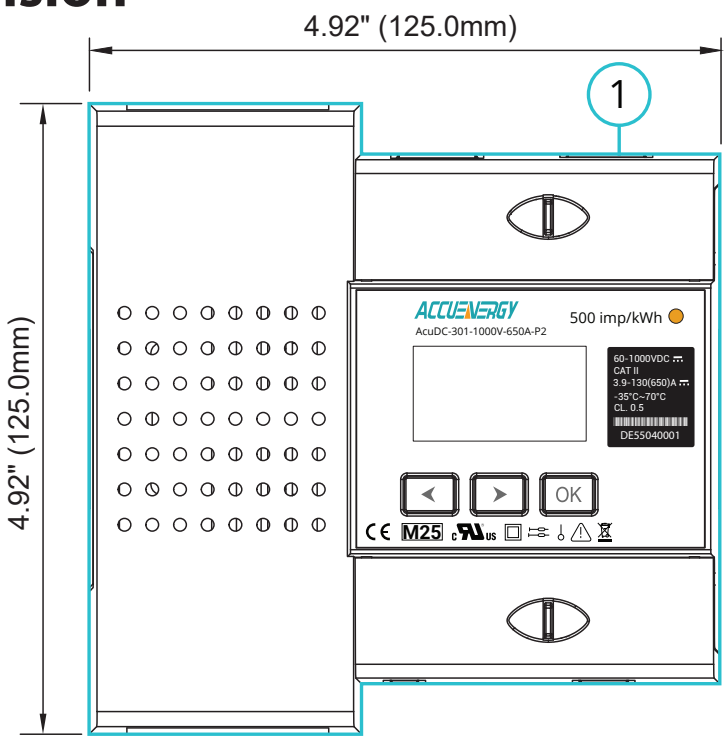
Accuenergy is not responsible or liable for any damages or injuries caused by improper meter installation and/or operation.

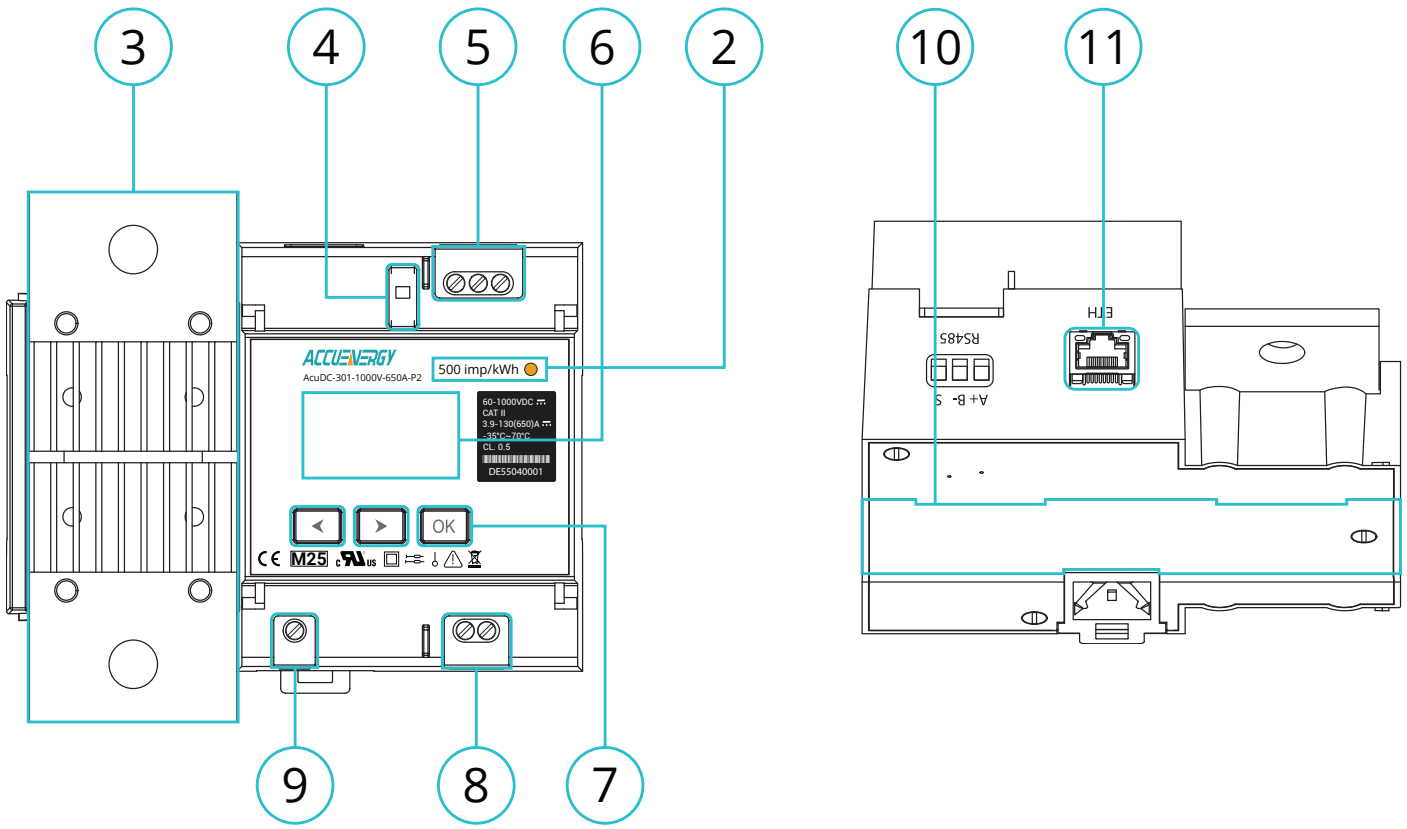
- Prior to maintenance and repair, the equipment must be de-energized and grounded.
- A switch or circuit breaker must be included in close proximity to the equipment and operator.
- All maintenance work must be performed by qualified professionals with formal training and experienced in high voltage/current.
- Meter must be installed in an NRTL certified enclosure to provide suitable protection.

Electrical Shock Hazard: Contains information about procedures which must be followed to prevent the risk of electric shock and danger that can result in personal injury or death.

Appearance and Dimension







Part	Description
1) Front Casing	Transparent front meter casing with accessible display and controls.
2) Pulse LED Indicator	LED light to indicate energy pulse signal.
3) Current Input Terminal	Built-in shunt used in direct connection.
4) Seal Switch	Enable and disable the seal status.
5) RS485 Terminal	Modbus RS485 communication port.
6) LCD screen	Backlight screen.
7) Navigation Key	Three keys to navigate through the screen and configure settings.
8) Power Supply Terminal	Control power Input.
9) Voltage Input Terminal	Used for voltage input.
10) DIN Rail	Used on a 35mm DIN rail mount.
11) Ethernet Port	Single RJ45 Ethernet Connector.

Environment

Ensure the following specifications are met. Failure to do so may affect accuracy, impair system function, damage hardware, or pose safety risks.

Transient Voltage	Overvoltage Category II
Altitude	0 to 2000m
Pollution	Degree 2
Operating & Storage Temperature Range	–35°C to 70°C (–31°F to 158°F)
Relative Humidity Range	0% to 95%

Do not exceed the maximum rated input voltage of the meter or to any other connected devices.
Do not perform high-voltage insulation resistance testing to any terminal.

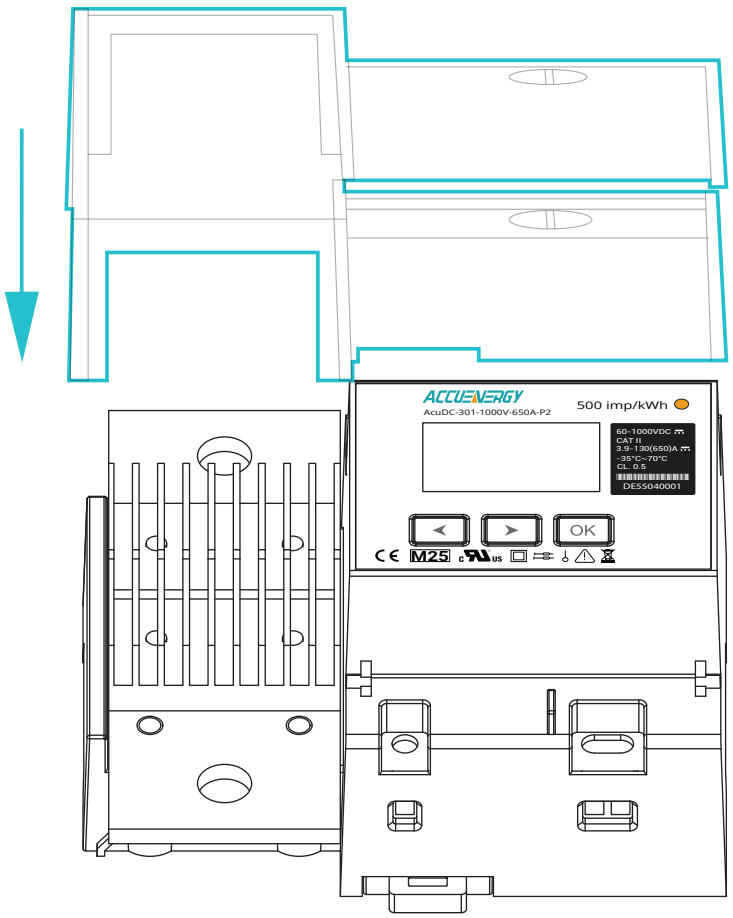
Front Case Removal & Attachment

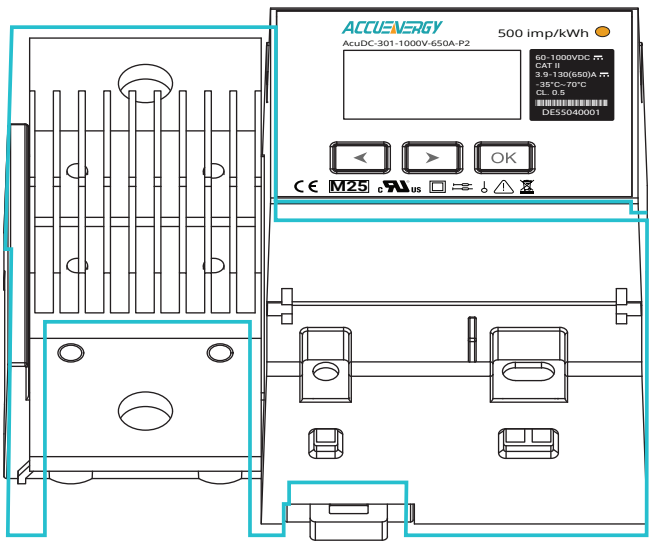
Operators can access the power supply, voltage and current input terminal blocks by removing the front casing.

1. Hold the meter in both hands, then gently lift the front casing from the right side until the clips detach.
2. Remove the front casing from the meter and place it in a safe area.

After the electrical wiring installation is complete, operators must reattach the front case.

1. Position the front case over the meter, and ensure the attachment clips are aligned correctly.
2. Gently push the front case down onto the meter clips.

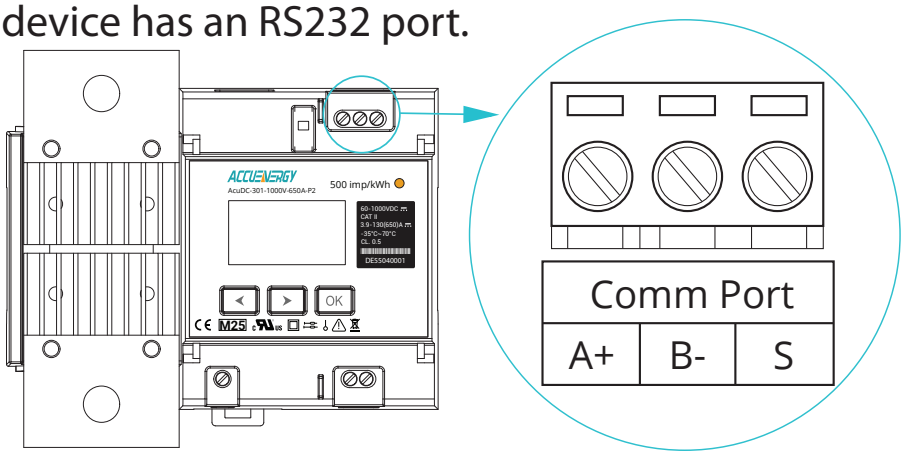




RS485 and Ethernet Ports

For Modbus-TCP/IP communication, an 10/100 Mbit/s CAT5 Ethernet cable (recommended) can be configured using IP configuration or DHCP.

For Modbus-RTU via RS485 connection, the cable distance should not exceed 1200m. Use a shorter cable when connecting multiple devices to the same network or for a higher baud rate. Use an RS232-to-RS485 converter if the master device has an RS232 port.



A+	Positive Differential
B-	Negative Differential
S	Shield Connection

To improve RS485 communication quality:

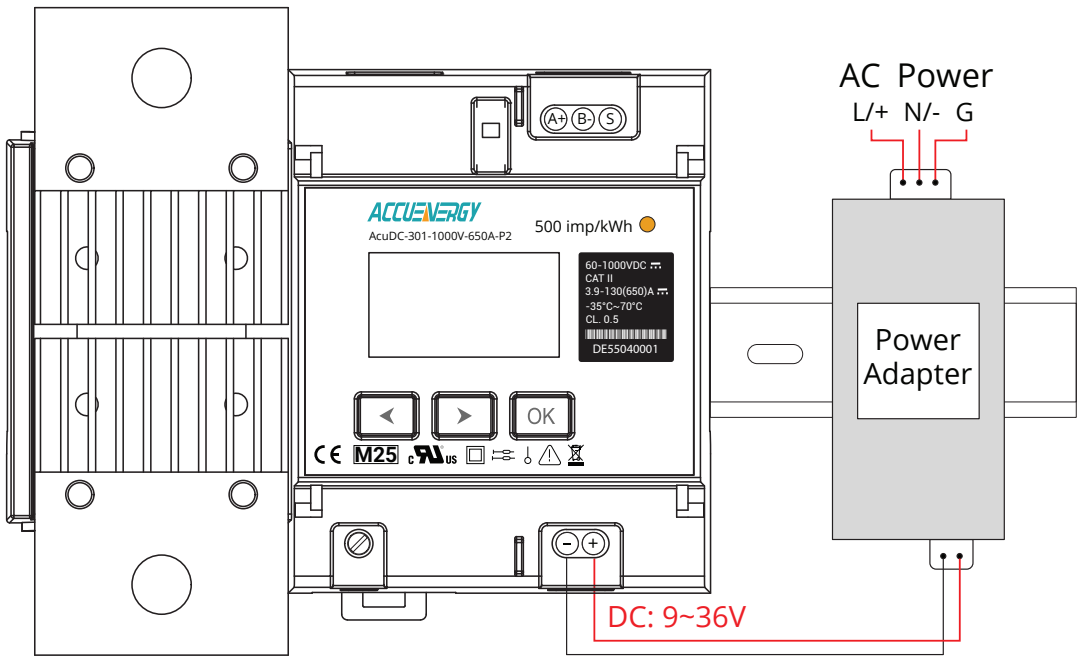
- Use a shielded 22AWG cable.
- Minimize electrical noise with single-point earthing.
- Avoid T-type connection topology.
- Keep communication cables separated from electrical noise sources.
- Use a 120-300Ω, 0.25W terminating resistor at the end of the daisy-chain.

Power Supply Terminal Wiring

To connect the auxiliary power adapter to the DC power port, ensure that a 9-36V Class 1 power adapter (sold separately) is used for the meter. The maximum current consumption is 0.3A at 9VDC.

Accuenergy recommends using the AcuLink-RIK-PSU.

1. Use a 3 x 0.5 mm (DIN 5264) screwdriver to loosen the two power supply terminal screws from the meter.
2. Insert the positive copper wire (22AWG~18AWG) into the positive power supply terminal. Fasten the screw to secure the wire.
3. Insert the negative copper wire (22AWG~18AWG) into the negative power supply terminal. Fasten the screw to secure the wire.

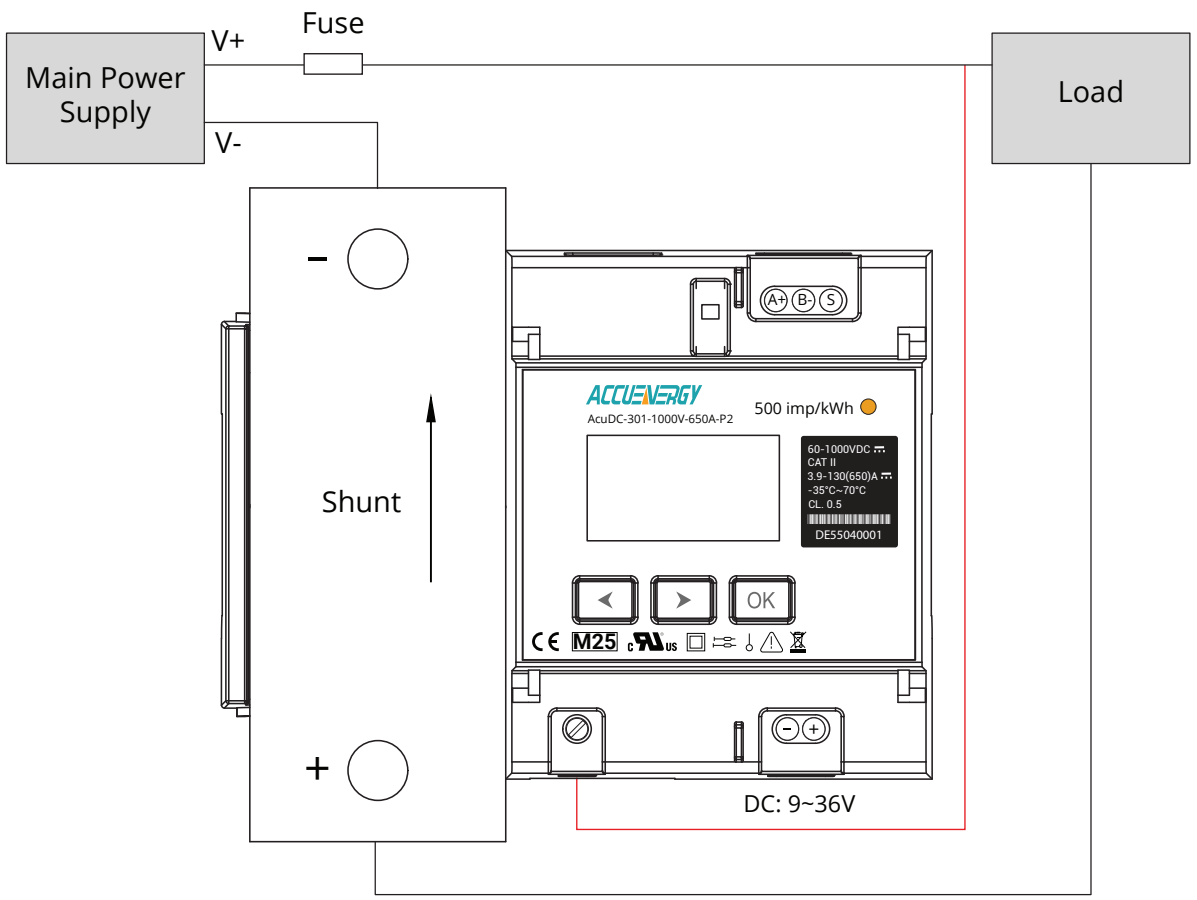


Voltage Input Terminal Wiring

To connect the voltage input terminal, ensure that the input range of 0 to 1,000VDC OVCII is used for the meter. The fuse of 1A/1500VDC is used in the voltage input loop.

1. Use a 3 x 0.5 mm (DIN 5264) screwdriver to loosen the single voltage terminal screw from the meter.

2. Insert the copper wire (16AWG~14AWG) into the voltage input terminal. Fasten the screw to secure the wire.



Current Input Terminal Wiring

To connect the shunt, ensure that the input range of -650A to +650A is used for the meter. The overcurrent is 19500A for 0.01 second. The shunt can be connected by cables or directly mounted on to a busbar.

Busbar Connection Option

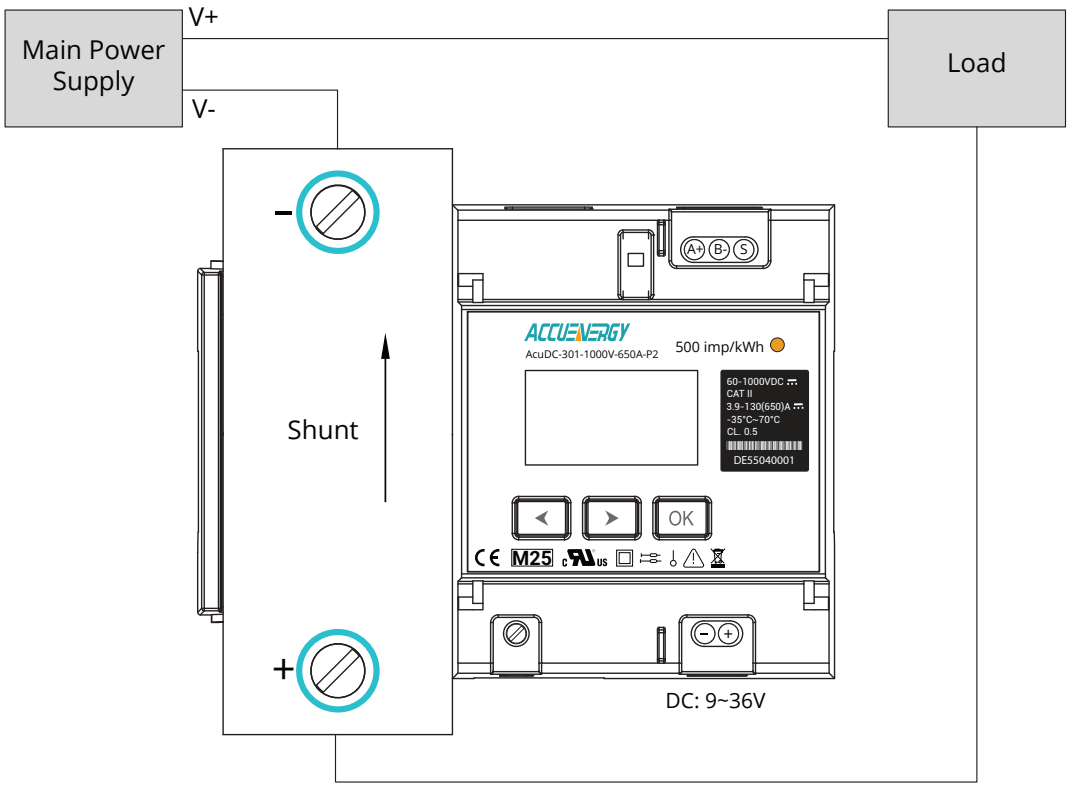
The AcuDC 300 meter can be installed on a busbar, acting as both current input and mounting support.

1. Prepare the busbar by drilling two screw openings that are 90mm apart and are properly sized to accommodate M5 screws.
2. Place the meter over the busbar, adjust its position so the prepared screw holes align with the current input terminals. Refer to the diagram.
3. Secure the installation with the M5 screws, nuts and gaskets.

Cable Connection Option

For electric cable installation,

1. Choose the correct ring lugs according to the wire gauge. The stud size should accommodate M5 screws.
2. Strip the cable insulation from the end of the cable.
3. Insert the striped cable into the barrel of the ring lug.
4. Squeeze the ring lug firmly to secure the connection.
5. Place the ring over the corresponding current terminal connection points highlighted in blue, and ensure the cables are wired correctly.
6. Secure the installation with screws, nuts and gaskets.



After the electrical wiring installation is complete, refer to **Front Case Attachment** to reinstall the front cover.

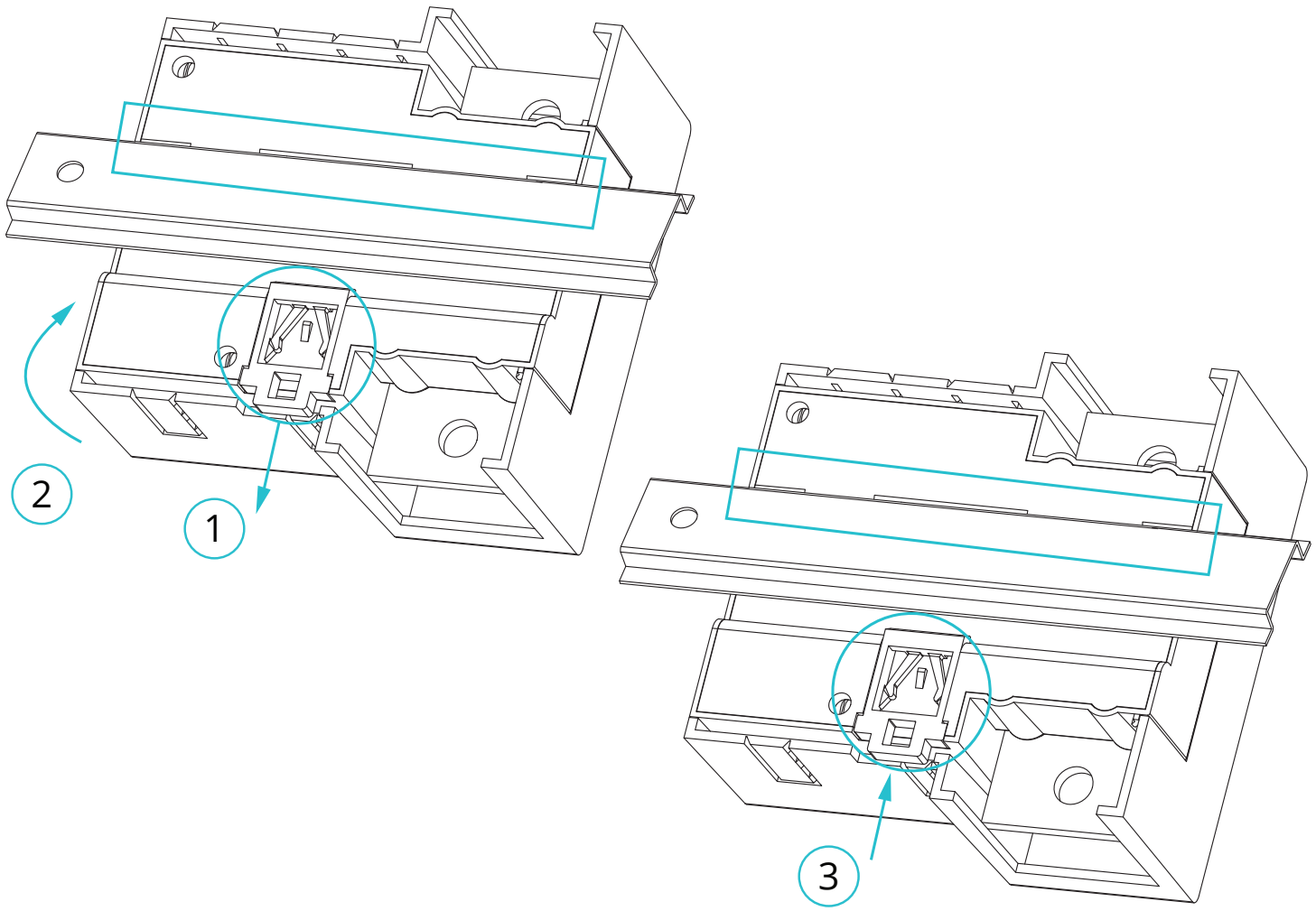
DIN Rail Mount For Cable Installation

If cables are used for current input, a DIN rail is required as mounting support. The AcuDC 300 meter can be installed on a standard 35mm DIN rail.

1. From the back of the AcuDC 300, simultaneously pull down the two clip locks as shown below in ①.

2. Position the AcuDC 300 so its back is facing the DIN rail. Place the AcuDC 300 two upper mounting brackets over the top of the DIN rail groove. Fit the AcuDC 300 onto the DIN rail as illustrated in ②.

3. Release the clip lock back up (3) to secure the AcuDC 300 onto the DIN rail, as illustrated.



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