

User Manual

Ring Main Unit Replacement Instruction

RMU



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1 About This Manual

This manual gives step-by-step instructions on how to replace an RMU.

1.1 Validity

This manual applies to the following product:

- RMU (indoor-type)

1.2 How to Use This Manual

Read through this manual and other related documents carefully before performing any operation on the RMU. This manual should be properly kept and available at all times.

This manual may be updated and revised from time to time, however, there still might be slight deviations from the real product or errors. In such cases, the actual product you have purchased should take precedence.

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1.3 Symbols in the Manual

Symbols that may appear in this manual are listed below. Please read carefully for better use of this manual.

DANGER

"DANGER" indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

NOTICE

"NOTICE" indicates a potential hazard which, if not avoided, will result in device malfunction or property damage.



NOTE indicates supplementary information, emphasis on specific points, or tips related to the use of the product that might help to solve your problems or save your time.

2 Remove RMU

If the RMU (Ring Main Unit) needs to be replaced during the operation of the substation, you may disassemble and remove it by following the instructions specified in this section.



RMU pictures presented in this manual are for reference only. As the exterior and internal structure may vary by brand and model, the RMU actually used on the site may differ.

2.1 Preparation Before Disassembly

Before disassembling the RMU, record the relay protection parameters of the RMU to be removed, so as to keep the relay protection parameters of the new RMU consistent with those of the old one.

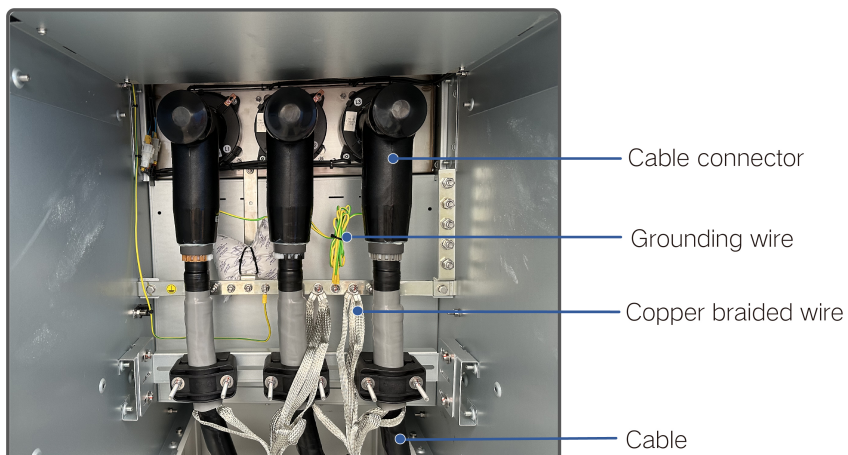
2.2 Remove Cables Inside RMU

DANGER

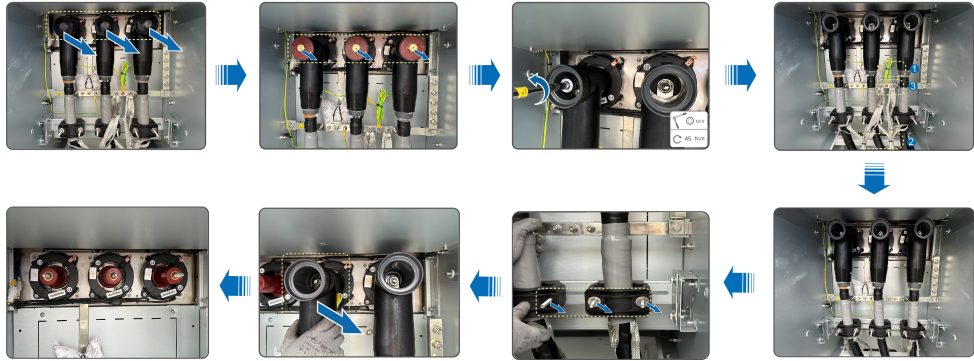
- Before the operation, make sure the upstream and downstream switches are all in the open state, and the indicator on the voltage presence indicating display is off, that is, no voltage is present at the connection points of RMU. Otherwise, it may cause electric shocks!
- The product must only be installed, operated, and maintained by qualified technical persons.

Step 1 Open the door of the cable cabinet.

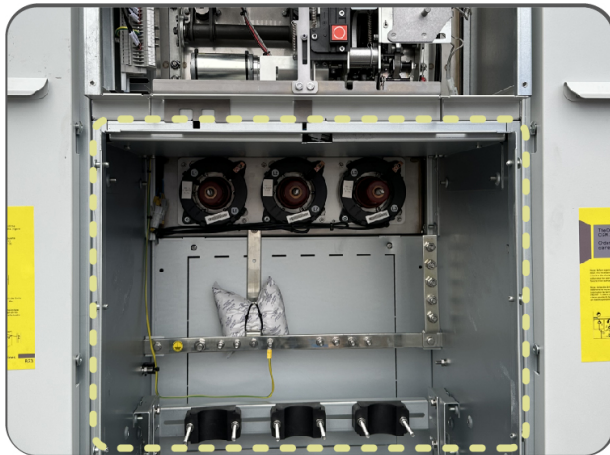
The internal structure is shown in the picture below:



Step 2 Remove the cables, copper braided wires, and grounding wire inside the RMU (Instructions are given with cables connecting the RMU to the transformer taken as an example; the removal of other cables is similar).



Here is a picture of the cabinet after the cables and wires inside are removed:



NOTICE

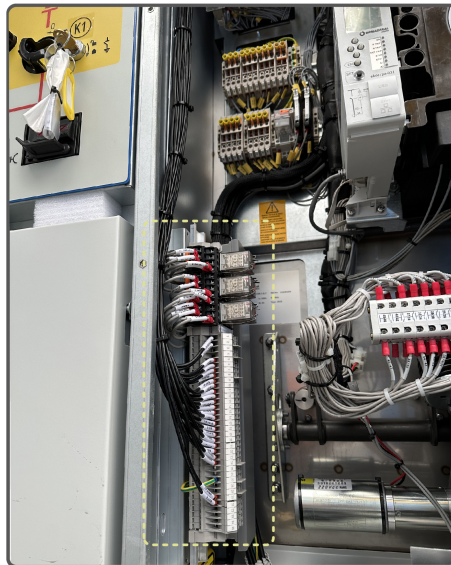
Take good care of the removed cables and cable connectors to prevent them from getting damaged.

Step 3 Dig into the ground beneath the RMU along the cable route, until the cable laid under the RMU can be seen, as shown in the picture below. Then, pull the cable out of the RMU.



* The picture of the RMU is for reference only. As the RMU may vary by brand, the one actually used on site may differ.

Step 4 Remove the wires connected to the terminal block inside the RMU.



The location of the terminal block may differ by RMU brand, and might be different for the RMU used on site.

Step 5 Move all the removed cables and wires out of the RMU.



Remove all cables and wires that are connected to the RMU, and move them out of the RMU.

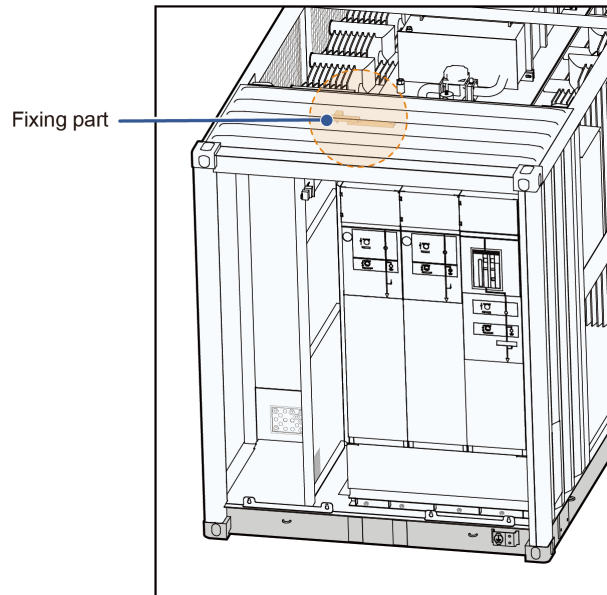
-- End

2.3 Remove RMU

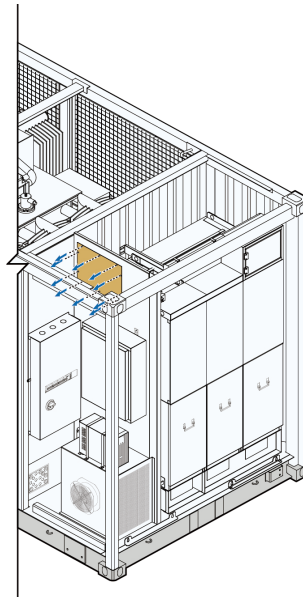


The following work is not needed for the outdoor-type RMU.

Step 1 Open the door, remove the screws used to fit the fixing piece to the RMU, and then take down the fixing piece.



* For some products, before removing the fixing piece, it is needed to remove the side baffle plate at the upper left of the RMU. The location of the plate is shown in the figure below.



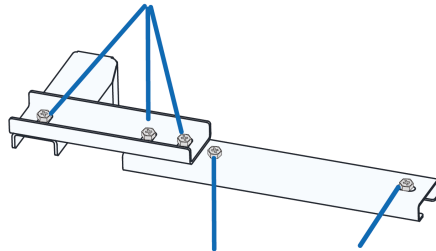
* The figure is for reference only and the actual product may deviate.

Unscrew these bolt assemblies when removing the RMU:

- M8×25 hexagon bolt assembly;
- M8×35 hexagon bolt assembly.

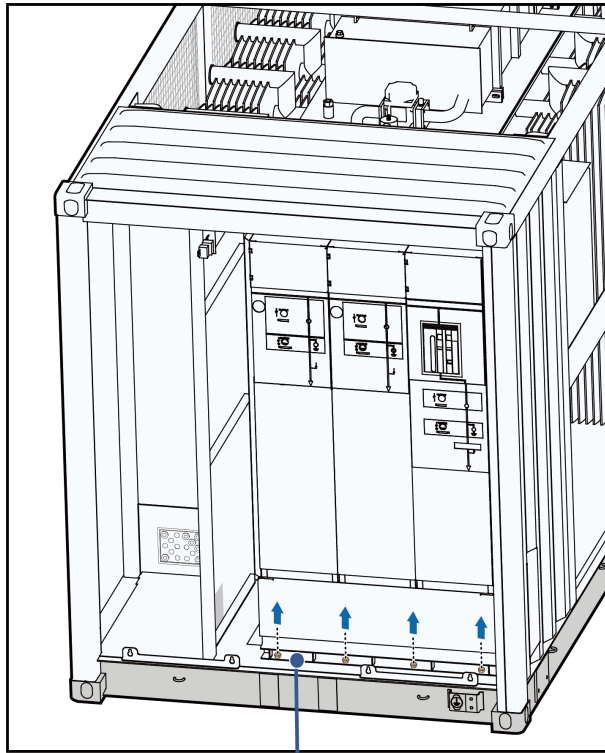
The fixing piece is shown in the figure below:

M8 × 25 hexagon bolt assembly



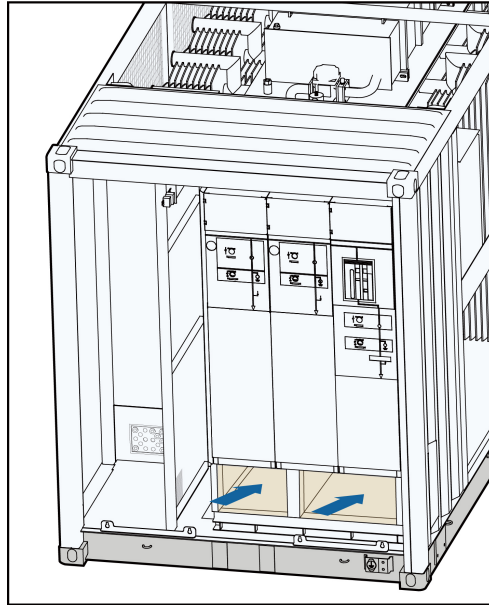
M8 × 35 hexagon bolt assembly

Step 2 Remove the M12×35 bolt assemblies used to fix the RMU base to the RMU room.

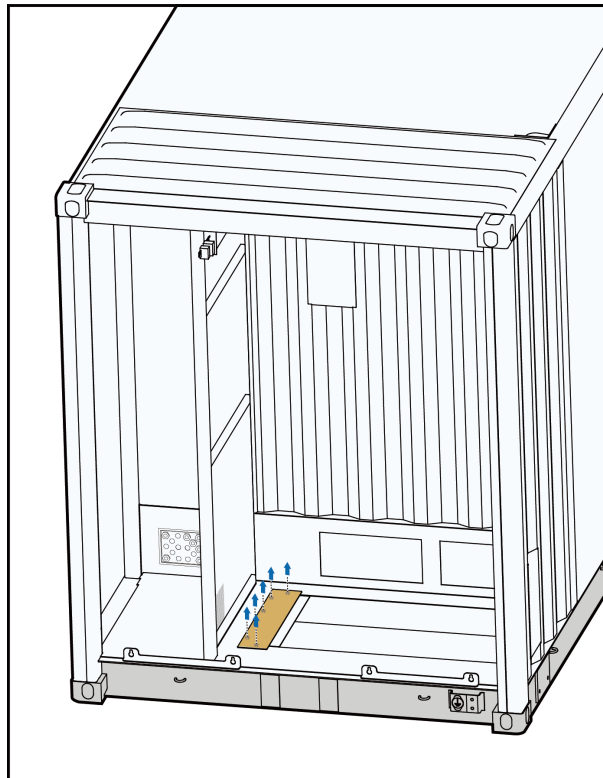


RMU base

Step 3 Remove the baffle plates at the bottom of the RMU so that the forklift's forks can be inserted under its base. Pick up the RMU with the forklift, and move it out of the RMU room.



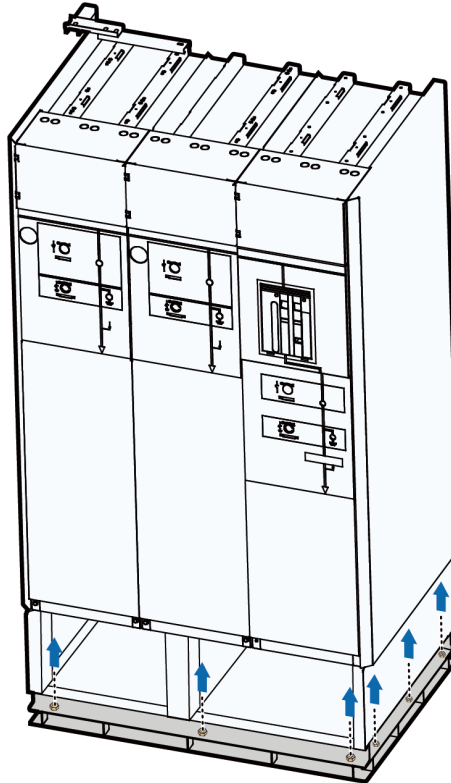
Step 4 Unscrew the M5×16 cross-recessed hexagon bolt assemblies to remove the bottom sealing plate of the RMU.



-- End

2.4 Remove RMU Base

Unscrew the M10×35 bolt assembly to separate the RMU from the RMU base. Use a forklift to move the RMU out with a forklift.



3 Install RMU

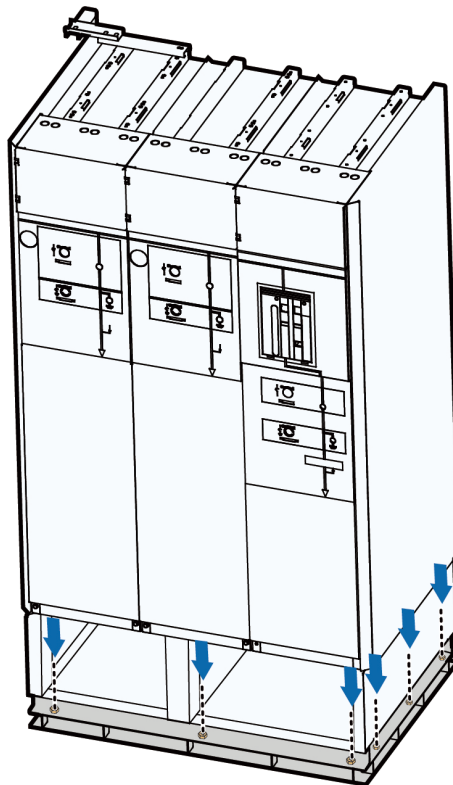
After the RMU is removed, follow the instructions in this section to install a new one.



Before installing the RMU, ensure that the ambient humidity on the installation site does not exceed 70%.

3.1 Fix RMU Base

Place a new RMU on the base with a forklift, and fix it to the base with M10×35 bolt assemblies.

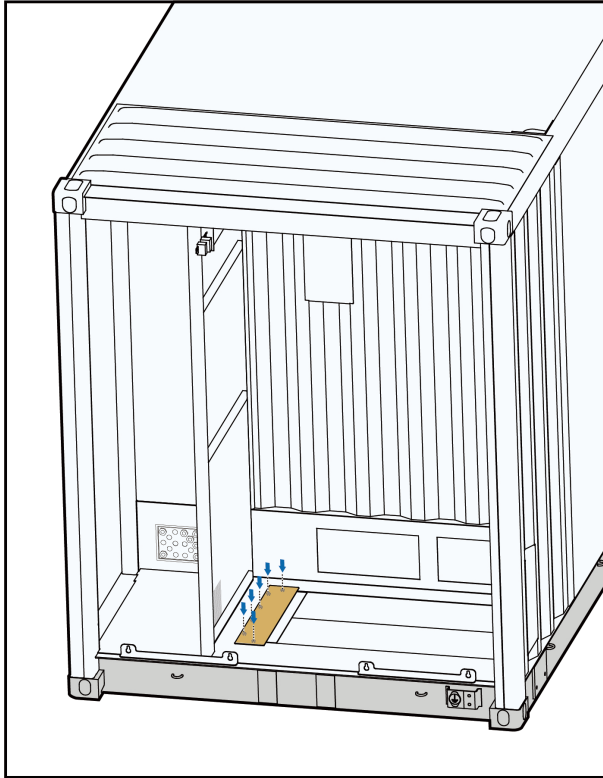


3.2 Install RMU

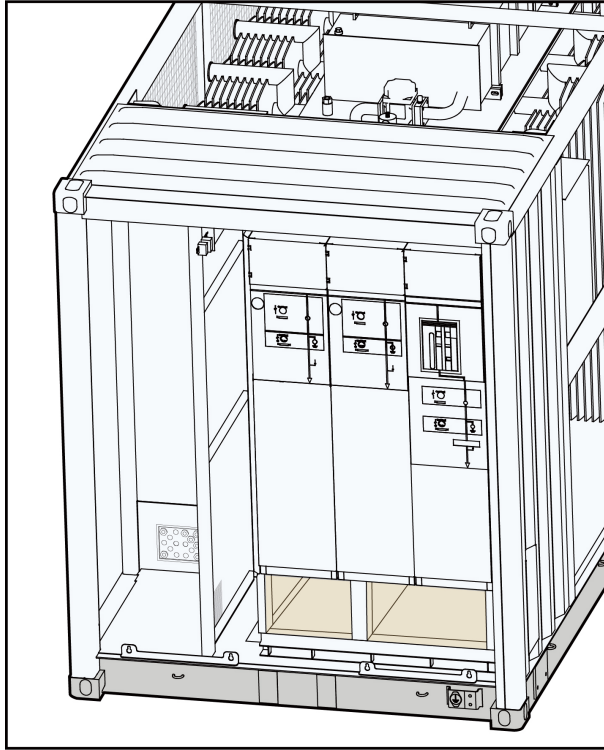


The following work is not needed for the outdoor-type RMU.

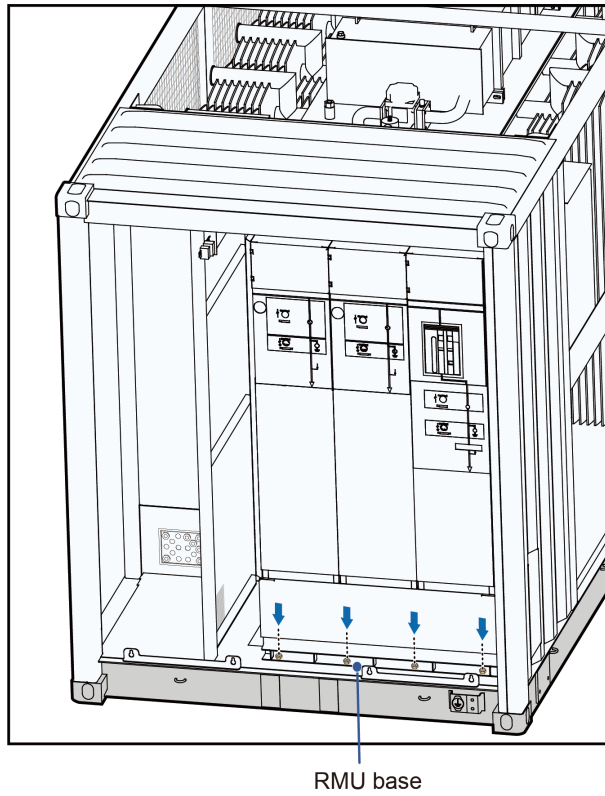
Step 1 Use M5×16 bolt assemblies to fit the bottom sealing plate of the RMU, and put the new RMU into the RMU room with a forklift.



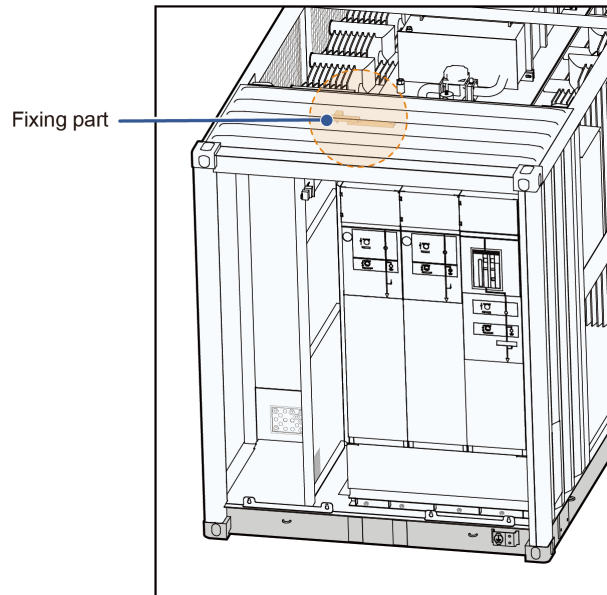
Step 2 Mount the bottom baffle plates of the RMU.



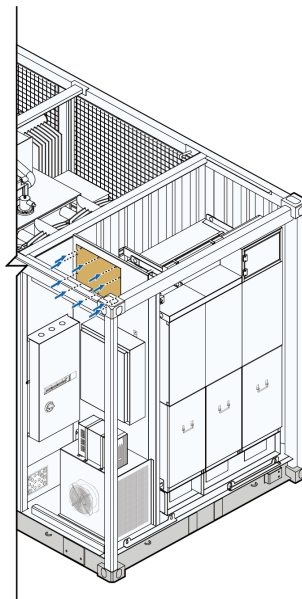
Step 3 Fit the RMU base to the RMU room with M12×35 hex bolt assemblies.



Step 4 Use M8×25 hexagon head bolt assemblies and M8×35 hexagon head bolt assemblies to fit the fixing piece.



* For some products, it is needed to mount back the side baffle plate at the upper left of the RMU.



*The figure is for reference only and the actual product may deviate.

-- End

3.3 Connect Cables Inside RMU

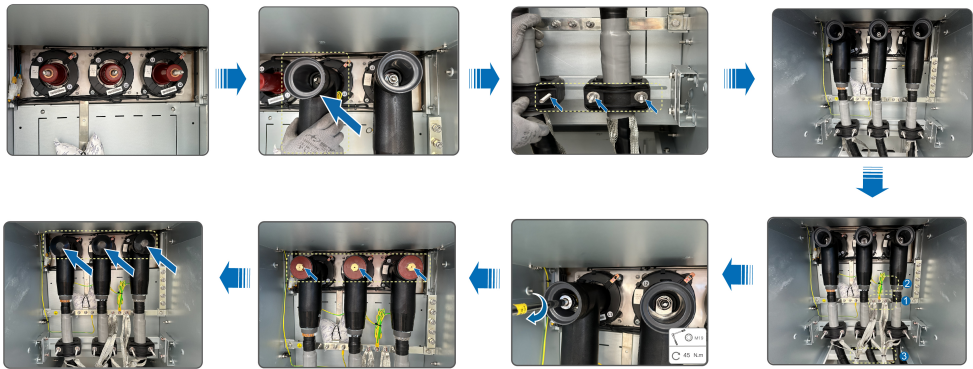
Step 1 Open the door of the RMU room.

Step 2 Before connection, use an alcohol wipe to wipe the bushings, cables, and cable connectors (and the cable connector accessories). For details, see the instructions for cable connector installation.

⚠ DANGER

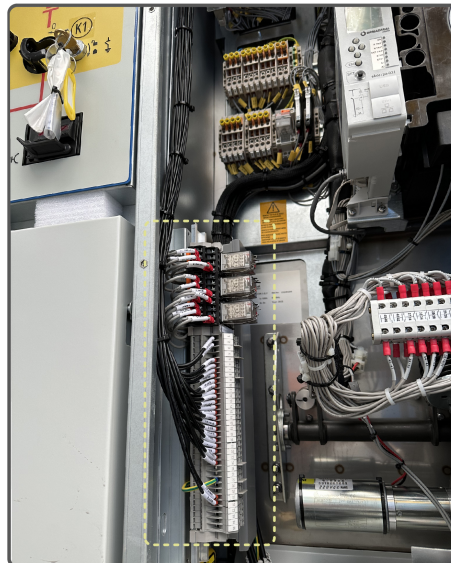
In case of any scratch inside the cable connector, be sure to use a new connector for connection instead.

Step 3 Connect the cables, copper braided wires, and grounding wire inside the RMU.



Step 4 Complete cable laying under the RMU and fill the earth back.

Step 5 Connect the wires to the terminal block inside the RMU accordingly.



If the AMPLETEK shielded front connector is used, the nut provided by the manufacturer is M12. In such a case, fasten it at a torque of 30 N.m.

Step 6 After completing the connections, check carefully to make sure all cables and wires are connected properly and securely.

Step 7 Set the relay protection parameters for the new RMU.

Step 8 Close the door of the cable cabinet.

-- End

The RMU is now replaced successfully.

4 Tightening Torques

To avoid poor contact caused by the loosening of copper cable lugs due to stress, and to prevent heat or even fire due to increased contact resistance, make sure to tighten the screws on the cable lugs at the recommended torques:

Bolt	Torque (N·m)	Bolt	Torque (N·m)
M3	0.7–1	M8	18–23
M4	1.8–2.4	M10	34–40
M5	4–4.8	M12	60–70
M6	7–8	M16	119–140

* Torque values listed in the table are intended for the bolt and nut assembly, and do not apply to riveted nuts or riveted screws, etc. The torque to be adopted should depend on the actual situation.

** Secure the cable at a proper point to reduce the stress put on the cable lug.

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