



ROLECEV | Sinexcel

ULTRACHARGE 160

Intelligent ultra-rapid EV charging station



Stocked in
the UK by
ROLECEV

Amendments

Amendment Number	Details	Date
Ver 1, Rev 0	New Document.	Jan 2023
Ver 1, Rev 1	Update of wording throughout manual	Oct 2023

Product:	UltraCharge 160 DC Charger		
Models:	EVDC2010 – 60kW	EVDC2030 – 120kW	
	EVDC2020 – 80kW	EVDC2040 – 160kW	
Document Type:	Maintenance Manual		
Document Code:	EVUCMM-V01R1		
Language:	UK English (Original)		
Date Published:	October 2023		
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<p>Rolec Services Ltd, Ralphs Lane, Boston, Lincolnshire PE20 1QU. United Kingdom. +44 (0) 1205 724754 enquiries@rolecserv.co.uk</p>			

Product Support

Updates to this manual will be made available on the Rolec website at <https://www.rolecserv.com/downloads-ev-charging>

Check the document date, and the **V**ersion and **R**evision number shown at the end of the Document Code (V01-R0, V01-R2, V02-R0, etc).

For installation assistance and advice, contact your preferred electrical installer.



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Safety

This manual is specifically applicable to the **UltraCharge 160 DC Charger** and is provided as a guide to its maintenance.



IMPORTANT: Engineers must read and understand the content of this manual before installation and/or use of the product.

Engineers must be properly qualified and competent to do work on the equipment in accordance with the current legislation applicable in the geographical region of the installation.

- Rolec Services Ltd cannot accept any responsibility for improper actions performed by engineers or end users.
- The information provided in this manual must **ONLY** be used with the model(s) listed on page 1 of this manual.
- The information provided in this manual must **NOT** be used with any other product.
- The content of this manual may be updated by the manufacturer as required.
- Do **NOT** use the equipment for anything other than its intended purpose.
- Do **NOT** modify the equipment unless specifically instructed to do so by the manufacturer.
- Do **NOT** attempt to repair the equipment unless specifically instructed to do so by the manufacturer.
- To maintain electrical safety, the body enclosure of the product (access covers) must be secured in their correct location using the supplied fasteners and the seal must be sufficient to maintain the IP rating of the enclosure.
- Fasteners used to mount the product in its working location must be sufficient for the task and the specific mounting point.
- Damage to the product may render it unsafe. The product must be electrically isolated and **NOT** used until appropriate remedial action has been performed.
- Rolec does **NOT** recommend the use of charging extension cables or adapters and their use may invalidate the charge point warranty.

Safety Advice Within this Manual

Rolec manuals use a system of warnings, cautions and notes.

- **WARNINGS** concern the safety of installers/end user and will be given before the detail/instructions in the manual.
- **CAUTIONS** concern the potential for damage to the equipment and will be given before the detail/instructions in the manual.
- **NOTES** are given to provide additional information and/or to highlight information of importance. They will be given either before or after the detail/instructions as appropriate and may use different wording (such as **IMPORTANT**) where emphasis is required.

Warnings, Cautions and Notes may be repeated several times as appropriate and may be preceded by a hazard symbol where appropriate.

Disclaimer










Rolec shall not be liable for personal injury, product damage, failure or defects in scenarios such as but not limited to:

- Installation and/or maintenance performed by unlicensed/unqualified personnel.
- Lack of appropriate maintenance in accordance with the maintenance manual.
- Lack of appropriate maintenance in accordance with local specifications and standards.
- Failure to adequately record maintenance activities.
- Unauthorised changes to the design and/or functionality of the product.
- Product damage or failure caused intentionally or by negligence.
- Product damage or failure caused by improper/negligent actions performed by Installation and/or maintenance personnel.
- Product damage or failure caused by 'force majeure' (such as a bad weather, natural disasters, etc.).
- Maintenance personnel not wearing appropriate protective equipment.
- The failure (when requested) to return failed components to the manufacturer/supplier for analysis.

WARNING: Personal Injury and Equipment Damage

- Before maintenance, make sure the power supply to the charger has been switched OFF.
- Make sure any faults have been eliminated and the electric circuit has been connected properly before initiating a power on test.
- Personnel who maintain the equipment, including operators, trained personnel and professional must, where required, possess the local national qualifications to work with high-voltages, work at heights, and to work in operations of special equipment.

Equipment Warnings

Symbol	Meaning	Description
	DANGER	Parts of the system are at High Power during operation. Direct or indirect contact with these components can be fatal.
	DANGER	High voltage area may cause fire or electric shock. The construction of the area and conduits for cables must comply with national legislation. Only staff authorised to work with high AC and DC voltages can work in these areas.
	DANGER	It is forbidden to do maintenance work in bad weather.
	DANGER	It is forbidden to do maintenance work when the equipment is live.
	WARNING	Special tools must be used when working with high AC and DC voltages.
	WARNING	Wear the appropriate personal protective equipment (PPE).
	CAUTION	Read and understand the manual.
	CAUTION	Protective equipment and tools must be used. Make sure all protective items are removed from the equipment before applying power.
	CAUTION	Always follow national legislation.

- This product is high-power and high-voltage equipment. Construction and maintenance personnel must have the appropriate certification for their region to work with the equipment.
- All personnel must abide by the construction standards and safety regulations applicable in their region.
- The equipment has been developed, manufactured, checked and certified in accordance with the relevant safety standards. Therefore, if the instructions for the specified use and technical instructions for safety are followed, under normal circumstances the product will not cause property damage or endanger human health.
- The instructions contained in this manual must be strictly observed or safety may be compromised. Although this manual explains the relevant safety instructions, personnel must be aware of the type of hazards associated with their work and must take the appropriate precautions to prevent accidents and injury.
- In the event of problems and/or failures in the use of the equipment, the user shall directly consult the supplier/manufacturer.

- Any work performed by third parties without the approval of the supplier/manufacture is done at their own risk to health and to the serviceability of the equipment. The supplier/manufacture cannot be held responsible.
- Maintenance periods and tasks must be observed.
- A comprehensive record of maintenance must be available to support warranty claims.
- Maintenance personnel must use the appropriate protective equipment/clothing when engaging in work.
- All electrical power to the charge point must be OFF before engaging in any work.
- Even when all the switches of the charger have been disconnected, the copper bar of the charging line may still hold a dangerous voltage. During maintenance:
 - Turn off the upper switch of the charger.
 - Display a warning sign that maintenance is in progress.
 - Check whether there is a dangerous voltage with an instrument to ensure that the charger is completely disconnected from the power grid.
- It is strictly forbidden to do the maintenance work in a bad weather such as thunderstorms.
- It is strictly forbidden to do the power-on test before troubleshooting.
- After work, all doors, panels, etc must be securely closed.

Safety Instructions for Use

- The UltraCharge 160 is an integrated charger to supply electricity to an EV either outdoor or indoor.
- The UltraCharge 160 is a high-power and high voltage electric power equipment. Installation and maintenance must only be done by appropriately qualified professionals.
- Follow local laws and regulations when installing, operating, or maintaining the equipment.
- Follow the procedures of installation, operation, and maintenance and make sure this document and accessories are available.
- Pay attention to the safety symbols on the equipment and all the safety instructions in this document.
- When operating equipment has encountered any problems or faults, please contact Rolec Technical Support directly.
- Unauthorized third-party maintenance will invalidate the warranty,
- Makes sure the unit is not installed near to potentially dangerous equipment or other hazards.
- Make sure that the space around the equipment cannot be blocked.

Safety Instructions for Operation

- Before using for the first time, you must read this document carefully. Make sure the equipment is installed and commissioned according to the instructions in the installation manual.
- Do not perform unauthorized modifications to the product. The manufacturer will not be liable for any consequence caused by the violation of the safety operation regulations and design, production, and usage standards.
- Do not touch the EV charging connector or vehicle inlet, keep it dry and clean.
- Do not use this product if the power cord or connector shows any signs of damage.
- In case of any abnormal operation or conditions, press the emergency button immediately to turn off all electrical input and output.
- If the emergency button is pressed, the system operator should be informed. The charging station must not be restarted until the system operation technician resets the system.
- Make sure there is no debris or fluids in the EV charging connector or vehicle inlet.
- Do not attempt to connect or disconnect power cables when power is on.
- When performing maintenance, turn off the power switch, ensure that electrical connections are correct, and display warning notices in the area.
- Pay attention to the copper wire carries dangerous voltage of equipment, even when all circuit breakers of the charger are disconnected.
- Connect protective earth wire (PE) before connecting neutral line and phase line.
- After installation or maintenance, make sure that all doors are correctly secured.
- Adaptors or conversion adaptors are not allowed be used.
- Extension cords are not allowed be used.

Maintenance

Maintenance of Inactive Charging Stations

- When the charger is not in use, the charger should be in a power-off state.
- To maintain the service life of the charger, unnecessary load should be reduced,

Charger Checks and Maintenance Cycle

Item	Period	Details	Action
Front-end distribution box	Every 3 months	Each item is checked in accordance with the maintenance manual of the distribution box. (Note: The maintenance manual of the distribution box is provided by the supplier of distribution box.)	Maintenance and repairing
Appearance	Every 12 months	Check the appearance of the cabinet for any stains. Check whether the cabinet shell has any rust, scratches, deformation, paint damage or other defects.	Cleaning and paint repair
Interior	Every 12 months	Make sure the interior of the cabinet is clean and tidy. Make sure the air inlet and outlet of the power module are not blocked with debris or dust. <ul style="list-style-type: none"> • Clean air ways allow more effective cooling and prevent premature failure of the power module. 	Cleaning
Lightning protector	Every 12 months	Check whether the module is securely connected, and the status indicator is normal. If the status indicator changes to red, the dry contact NC-COM of alarm becomes open or the NC-COM becomes short-circuited, the surge protector has failed.	Replacement
Fan	Every 6 months	Make sure the fan is working correctly.	Maintenance and repairing
Signal lamp	Every 6 months	Make sure the signal lamp is working correctly. Make sure it is fixed tightly and in a normal state.	Maintenance and repairing
Components	Every 6 months	Check whether components of the electric circuit have discoloration, deformation, overheating, or other defects, and make sure all accessible components are secure. If any abnormality is found, parts must be replaced in a timely manner.	Maintenance and repairing
Charging connector	Every 6 months	Make sure the fixing clasp is not damaged. the needle of the charging connector is oxidized and discoloured or obviously worn and deformed, whether any foreign body has entered the hole on the head of the connector, and whether the charging connector cable is damaged.	Cleaning and repairing
Power module	Every 6 months	Check that the power module is normal and there is a trouble-free display on the module screen.	Maintenance and repairing
Human	Every 6 months	Check the display screen to see if it is cracked or not	Maintenance

Item	Period	Details	Action
machine interface		functioning properly.	and repairing
Emergency stop function	Every 6 months	Press the emergency stop button to check that charge point functionality is stopped. Reset the emergency stop button to check that charge point functionality is restored.	Maintenance and repairing
Equipment grounding	Every 6 months	Check whether the ground wire of the equipment housing is tightened and connected.	Maintenance and repairing
System grounding	Every 6 months	Check whether the grounding cable inside the cabinet is loose or detached. And check if the grounding sign is complete and obvious.	Maintenance and repairing
Slot	Every 12 months	Check whether the slot is fixed firmly, whether the cover plate is complete and tight.	Maintenance and repairing
Breaker	Monthly	Press the TEST button of the circuit breaker to see whether the circuit breaker can trip properly.	Maintenance and repairing
Electric cable	Every 12 months	Check whether the cable and switch are connected closely, whether the grounding is reliable, whether the power cable is normal, and whether the sealing measures at the incoming cable of the cabinet are intact.	Repairing and replacement of cables
Force majeure factor	Immediately	In case of flood, earthquake, impact, switch trip and other events, the whole machine should be checked immediately.	Maintenance and repairing

Replacement of Common Devices

Danger: Personal Injury

Do not perform maintenance when the charger is on!

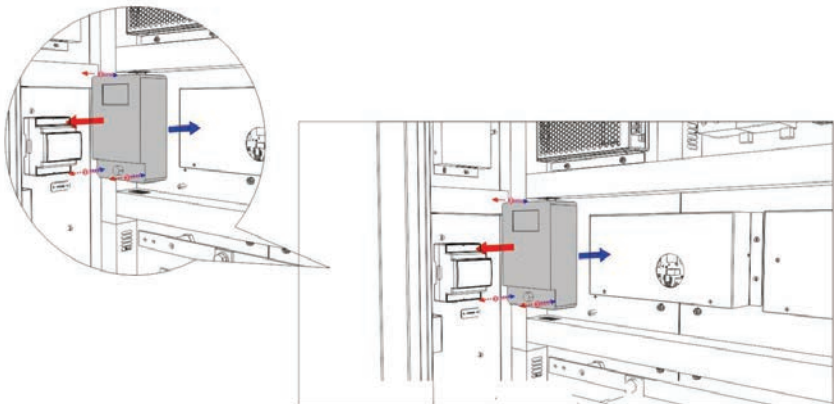
Electric Meter

Items required:

- Screwdriver.
- New electric meter.

Replacement steps:

1. Remove the screw on the protective cover at the lower end of the electric meter,
2. Open the protective cover and remove the connecting cable of the electric meter.
3. Remove the fixing screws at both ends of the connection area of the electric meter and the screws at the upper end of the electric meter.
4. Remove the electric meter.
5. Replace with a new meter in an opposite sequence of disassembly.
6. Refit the screw on the protective cover at the lower end of the electric meter.



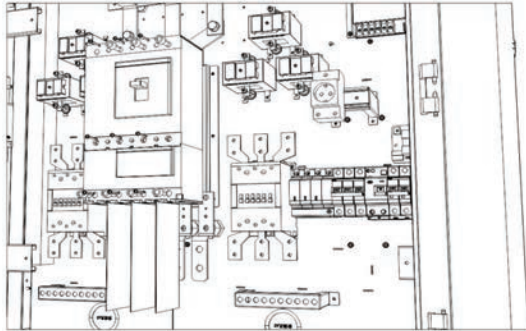
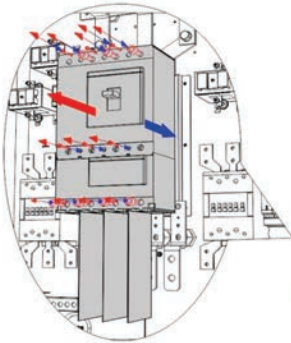
Main circuit breaker

Items required:

- Hex wrench.
- Screwdriver.
- Socket wrench.

Replacement steps:

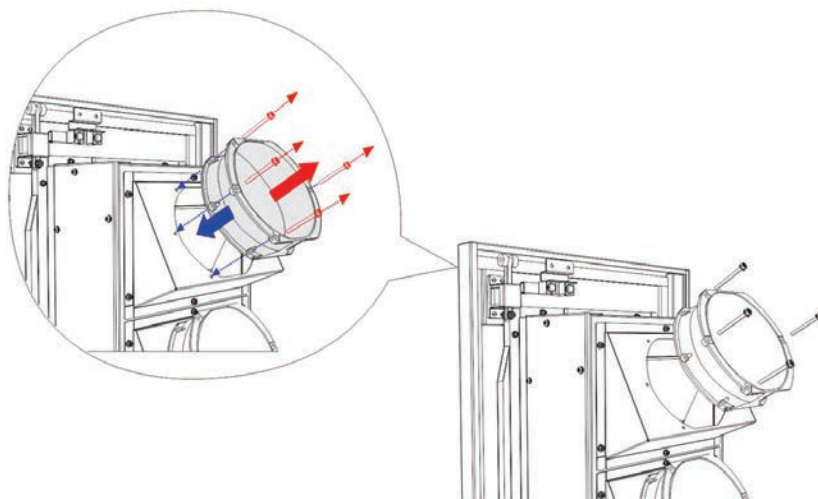
1. Remove the screws in the fixed bus bar of the circuit breaker by using a hex wrench.
2. Remove the input and output bus bar with a socket wrench.
3. Remove the main circuit breaker by removing the fixing screw at the upper, middle, and lower ends of the main circuit breaker with a screwdriver.
4. Replace with a new main circuit breaker in an opposite sequence of disassembly.



Cooling fan

Items required: Screwdriver.

- Replacement steps:**
1. Remove the connecting terminals of the cooling fan.
 2. Use a screwdriver to remove the four fixing screws of the fan. And then the fan can be removed.
 3. Replace with a new cooling fan in an opposite sequence of disassembly.

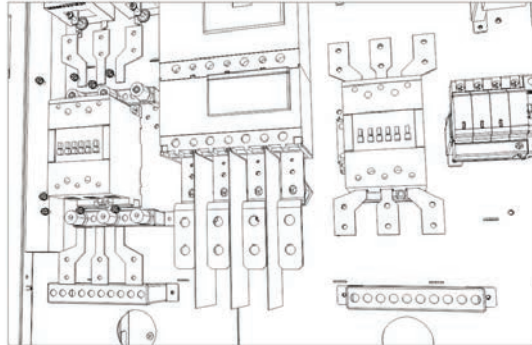
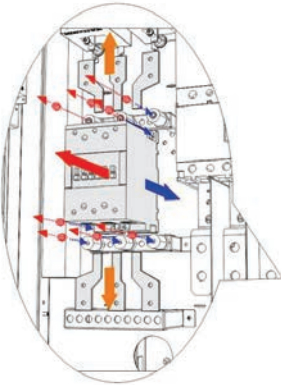


AC contactor

Items required: Screwdriver.

Replacement step:

1. Use a screwdriver to unscrew the six screws fixing the bus bar in the AC contactor. Note that these screws cannot be taken out and can only be unscrewed.
2. Use a screwdriver to remove the fixing screw between the bus bar and the insulation column.
3. Remove the bus bar from the AC contactor.
4. Use a screwdriver to remove the fixing screws in the upper right and lower left corners of the AC contactor.
5. Remove the AC contactor.
6. Replace with a new AC contactor in an opposite sequence of disassembly.

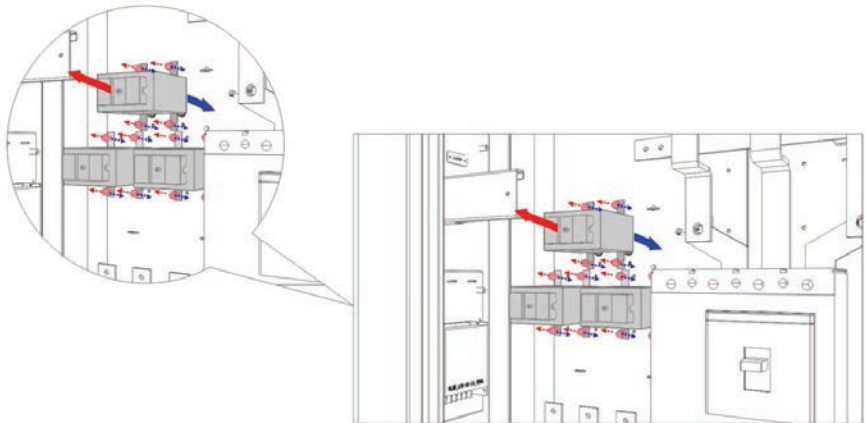


Current transformer

Items required: Screwdriver.

Replacement step:

1. Use a screwdriver to remove the protective cover on the transformer then remove the connecting cable.
2. Use the screwdriver to remove the four screws of the fixed plate at the bottom of the current transformer. Then the current transformer can be removed
3. Remove the cable crossing through the current transformer from the bus bar. Then pass the transformer through the cable to take out.
4. Replace with the new transformer in an opposite sequence of disassembling it.



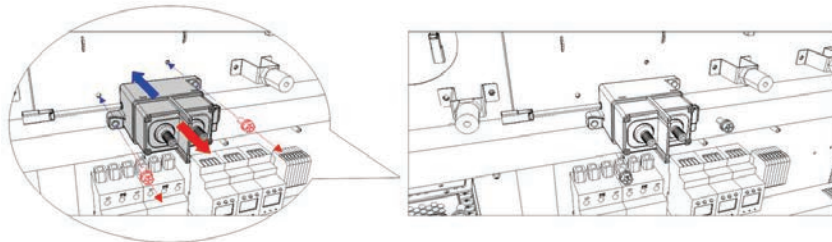
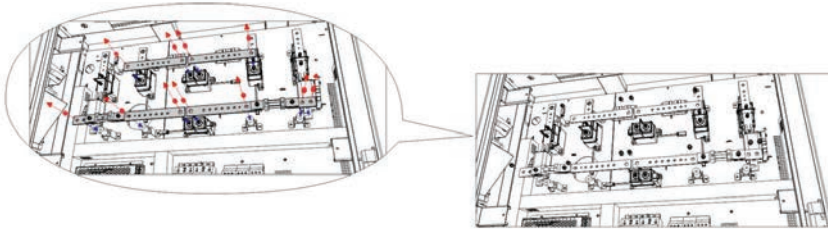
DC contactor

Items required:

- Screwdriver.
- Socket wrench.

Replacement steps:

1. Use a socket wrench to remove the bus bar on the DC contactor.
2. Remove the white signal line terminal on the side of the DC contactor.
3. Use the screwdriver to remove the fixing screw in the upper right corner and lower left corner of the DC contactor. The DC contactor can now be removed.
4. Replace with a new DC contactor in an opposite sequence of disassembling it.

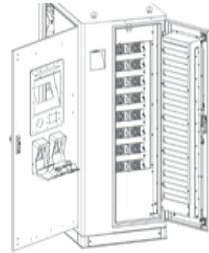
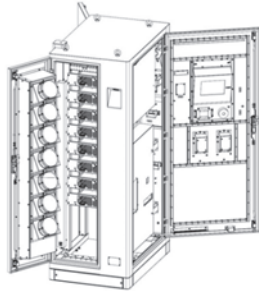


Replacement of Dust Screen (Guidance)

- Items required:**
- Screwdriver.
 - New dust screen.

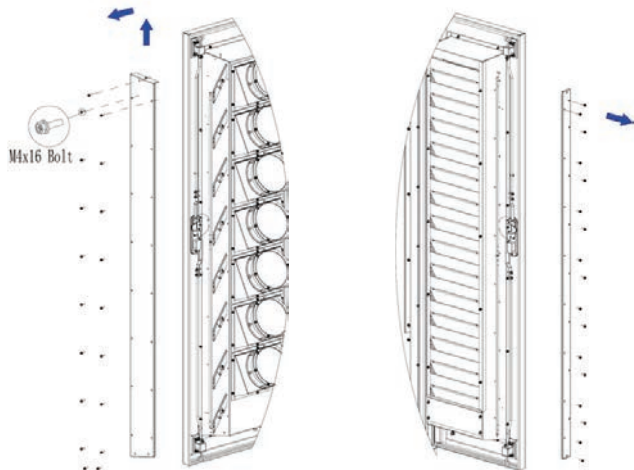
Replacement steps:

1. Turn off the power supply, then open the left and right doors of the cabinet.

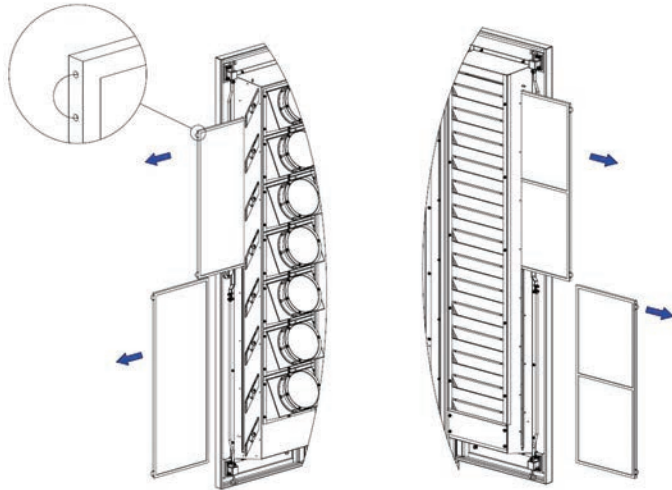


2. Remove the left and right cover plates and their installation screws (M4×16) with an electric screwdriver.

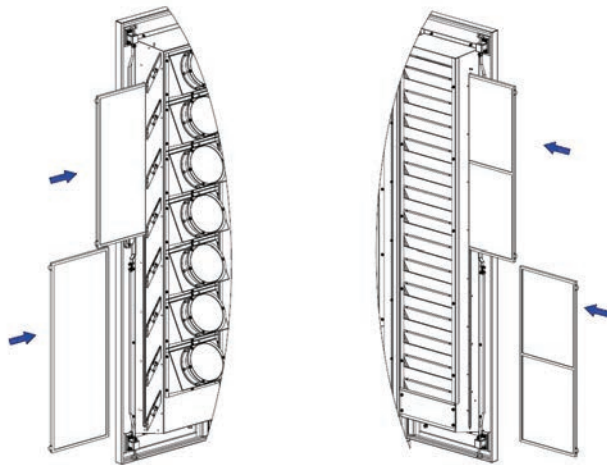
NOTE: The left cover plate must be lifted up for about 20mm, and then taken out. Do not lose the cover plate and installation screw. They will be used in the installation later.



3. Use the pull ring of dust screen to remove the old dust screen (which can now be scrapped).



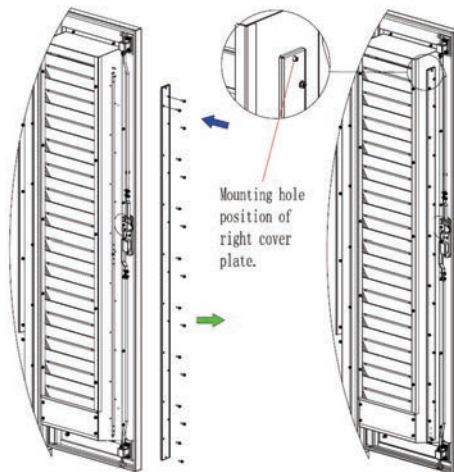
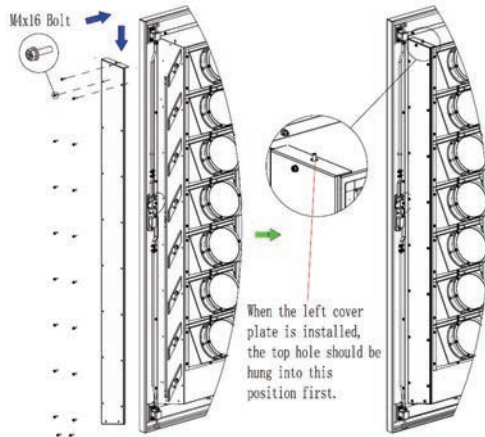
4. Insert the new dust screen with the same technical parameters into the left and right-side door respectively;



Note: One end of the pull ring shall be kept outside for the next change.

5. Install the side cover plate and secure the (M4×16) screw to a torque of 16kgf. Cm (1.6 Nm).

NOTE: The top of the cover plate should be hung first for installation of the left cover plate, as shown in the figure, after which the screws are tightened.



Common Troubleshooting

No.	Failure	Cause	Correction
1	Abnormal communication of control panel.	<ol style="list-style-type: none"> The CAN bus wiring between the MCU and the charging station is loose. Error of CCU address setting. The anti-interference ability of CAN bus is not good, or the bus resistance has a problem. 	<ol style="list-style-type: none"> Use a multi-meter to check whether the CAN communication line between MCU and the charging controller is connected correctly, whether the build-out resistance is connected reliably, and whether the shield layer of the communication line is effectively grounded. Check CCU address, dial No. 4 for No. 1 CCU, and dial No. 3 for No. 2 CCU. Testing with a replaced component. Change if MCU is damaged.
2	Electric meter communication failure.	<ol style="list-style-type: none"> The connection between CCU and electric meter is loose. The electric meter address, baud rate, check bit, stop bit and other settings are incorrect. Electric meter failure. 	<ol style="list-style-type: none"> Check whether the connection between CCU and electric meter is loose. Check whether the electric meter address, baud rate, check bit and stop bit are set correctly. Testing with a replaced component. If it has a failure, the electric meter shall be replaced.
3	Action failure of emergency stop button.	<ol style="list-style-type: none"> The emergency stop button of the charging station is pressed in the normal state, and the button does not restore after being pressed. 	<ol style="list-style-type: none"> Turn the emergency stop button clockwise to return to normal. Testing with a replaced component. The damaged emergency stop button shall be replaced.
4	Lightning protector failure.	<ol style="list-style-type: none"> The lightning protector is damaged. 	<ol style="list-style-type: none"> Testing with a replaced component. The damaged lightning protector shall be replaced.
5	DC lightning protector failure.	<ol style="list-style-type: none"> The lightning protector is damaged. 	<ol style="list-style-type: none"> Testing with a replaced component. The damaged lightning protector shall be replaced.
6	Access control failure.	<ol style="list-style-type: none"> The door is not closed. The wire to the micro switch is wrongly connected or damaged. 	<ol style="list-style-type: none"> Close and lock the door again. Check whether the wire to the micro switch is connected correctly and the spring status is normal.
7	Off-line.	<ol style="list-style-type: none"> Check whether the router has network, or the signal of the station is weak. Check whether the MCU network setting is correct (local IP, subnet mask, gateway, pile number, domain name address). Network back-end is abnormal. 	<ol style="list-style-type: none"> Check whether there is a network with a router directly connected to a laptop. Contact the local operator if not. Re-set the correct parameters if the MCU network settings are wrong. Check the back-end status in back-end.

No.	Failure	Cause	Correction
8	Black screen.	<ol style="list-style-type: none"> Whether the power supply of MCU is lower than 12V. The power supply wire between the MCU and the display screen is loose. The display screen is damaged. 	<ol style="list-style-type: none"> The auxiliary power supply is damaged, or the connection is wrong. Check the wiring. If the wiring is correct, replace the auxiliary power supply with a new one.. Tighten the power supply wire between the MCU and the display screen. If it is damaged, replace the display screen.
9	Over-temperature failure of charging station.	<ol style="list-style-type: none"> There is dust accumulation on the dust screen at the air outlet. The internal temperature of the charging station is too high. 	<ol style="list-style-type: none"> Remove the dust on the dust screen. Check whether the fan at the air outlet fails and whether there is dust accumulation at the air inlet.
10	DC contactor failure.	<ol style="list-style-type: none"> DC contactor is sticking. The DC contactor do not react or react incorrectly. 	<ol style="list-style-type: none"> Replace the DC contactor.
11	Output fuse failure.	<ol style="list-style-type: none"> The fuse is damaged. 	<ol style="list-style-type: none"> Replace the fuse.
12	Incoming circuit breaker status failure/ Electric leakage failure of incoming circuit breaker.	<ol style="list-style-type: none"> The circuit breaker leakage protection device trips. 	<ol style="list-style-type: none"> Check whether the leakage current of the charging station exceeds the threshold of the circuit breaker. If so, contact the manufacturer.
13	Input overvoltage failure.	<ol style="list-style-type: none"> The grid voltage fluctuates, and the input voltage exceeds the protection threshold of input voltage of the charging station. Sampling error of charging pile. 	<ol style="list-style-type: none"> Use a multi-meter to measure whether the input three-phase voltage exceeds the protection threshold of input voltage of the charging pile. If so, contact the local power grid or temporarily raise the input voltage protection threshold of the charging pile. Contact the manufacturer for handling.
14	Input undervoltage failure.	<ol style="list-style-type: none"> The grid voltage fluctuates, and the input voltage is lower than the input voltage protection threshold of the charging pile. Sampling error of the charging pile. 	<ol style="list-style-type: none"> Use a multi-meter to measure whether the three-phase voltage input is lower than the protection threshold of input voltage of the charging station. If so, contact the local power grid or temporarily reduce the input voltage protection threshold of the charging station. Contact the manufacturer for handling.

Emergency Unlock

How to detach the vehicle connector when it cannot be removed in the normal manner. Follow the step below in the event of a malfunction of the electric lock in the cable connector.

**Warning: Electrical Hazard**

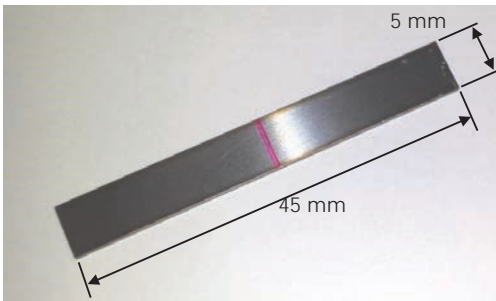
Make sure power to the charger is OFF before starting work.

Caution: Vehicle Damage

Be careful not to damage the vehicle as you work.

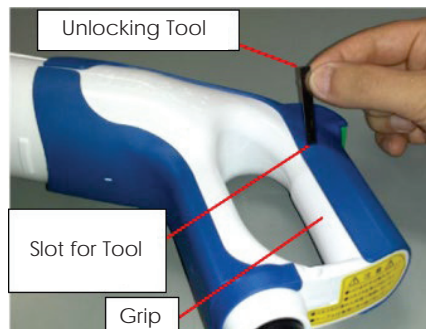
Tools

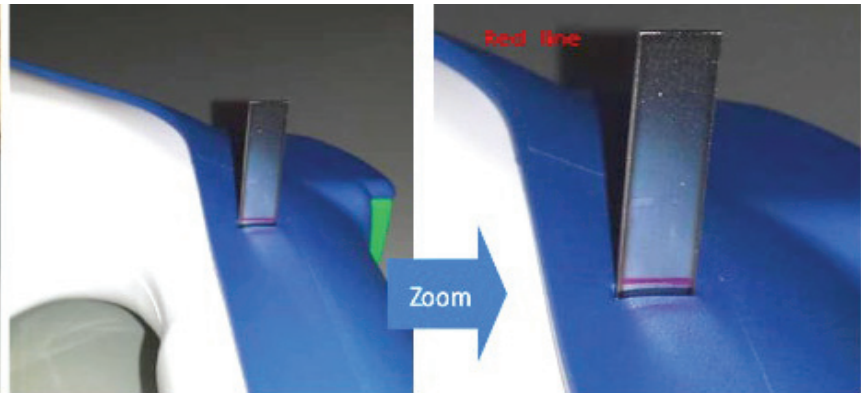
An unlocking tool will be required as shown below:



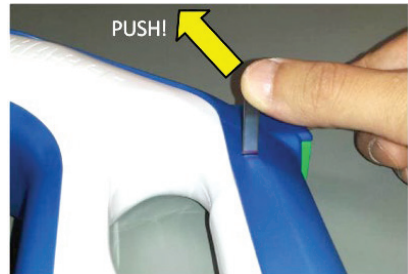
Procedure

1. Insert the Emergency unlocking tool into the hole (slot) in the handle grip of the connector.
2. Insert the so that the RED LINE on the tool aligns with the surface of the grip.

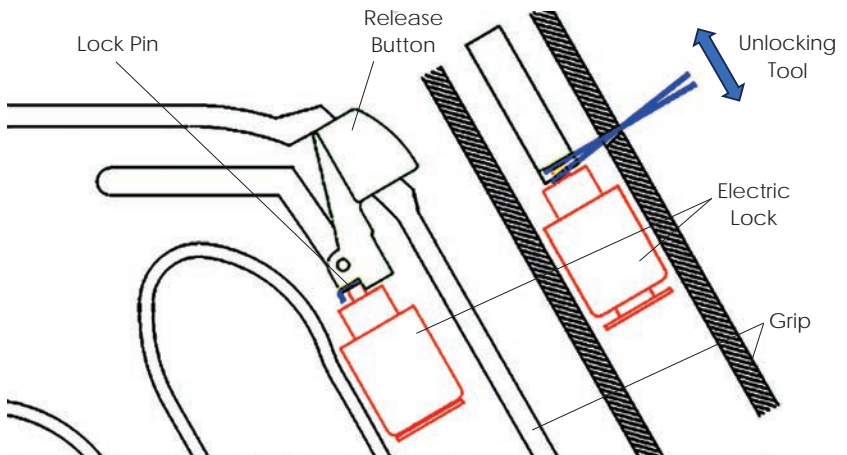




3. Push to lean the tool towards the top of the grip to depress the lock pin inside the handle.
4. Remove the tool.
5. Push the normal release button on the handle and pull the connector from the vehicle.



Detailed View





THIS DOCUMENT CONTAINS INFORMATION THAT IS SUBJECT TO CHANGE WITHOUT NOTICE.

The latest version of this publication can be downloaded at <https://www.rolecserv.com/downloads-ev-charging>

Illustrations of the product and user interface are for marketing purposes only.

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EVUCMM-V01-R1 UltraCharge 160 Maintenance Manual



Stocked in
the UK by
ROLECEV

ROLECEV

t: 01205 724754

e: enquiries@rolecserv.co.uk

www.rolecserv.com

