



Ford Pro AC Charging Station 80A Generation 2

Installation Manual v1.0 / Manuel d'utilisation v1.0



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IMPORTANT SAFETY INSTRUCTIONS

This document contains instructions and warnings that must be followed when installing and using the Electric Vehicle Supply Equipment (EVSE). Before installing or using the EVSE, read this entire document as well as WARNING and CAUTION markings in this document.

Safety Instructions

The symbols used have the following meaning:



WARNING: RISK OF PERSONAL INJURY



WARNING: RISK OF ELECTRIC SHOCK



WARNING: RISK OF FIRE OR EXPLOSION



CAUTION: RISK OF DAMAGE TO THE EQUIPMENT

- The information provided in this manual in no way exempts the user of responsibility to follow all applicable codes or safety standards.
- This document provides instructions for the Electric Vehicle Supply Equipment (EVSE) and should not be used for any other product.

Repair and Maintenance Clause

- Only licensed electricians can repair or maintain the charge point. It is forbidden for general users to install, repair or maintain it.
- Turn off input power and verify absence of voltage before installation, repair &/or maintenance of the charge point.

Federal Communication Commission Interference Statement

This equipment complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This equipment may not cause harmful interference, and (2) this equipment must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not covered in this guide must be approved in writing by the manufacturer's Regulatory Engineering Department. Changes or modifications made without written approval may void the user's authority to operate this equipment.

Industry Canada statement:

This equipment complies with ISED's license-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this equipment must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.



Radiation Exposure Statement:

This equipment complies with FCC / ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with greater than 20 cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements FCC / ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à plus de 20 cm entre le radiateur et votre corps.



WARNING: RISK OF PERSONAL INJURY

This equipment is intended only for charging vehicles that do not require ventilation during charging. Please refer to your vehicle's owner's manual to determine ventilation requirements.



WARNING: RISK OF PERSONAL INJURY

Do not use extender cables to increase the length of the charging cable. Maximum length is limited to 25 feet by the National Fire Protection Agency.



WARNING: RISK OF PERSONAL INJURY

Do not drag this equipment by input power cord.



WARNING: RISK OF ELECTRIC SHOCK

Basic precautions should always be followed when using electrical products, including the following:

- Read all the instructions before using this equipment.
- This equipment should be supervised when used around children.
- Do not put fingers into the EV connector.
- Do not use this equipment if the flexible power cord or EV cable is frayed, has broken insulation, or any other signs of damage.
- Do not use this equipment if the enclosure or the EV connector is broken, cracked, open, or shows any other indication of damage.



WARNING: RISK OF ELECTRIC SHOCK

Improper connection of the equipment grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded.

**WARNING: RISK OF ELECTRIC SHOCK**

Do not touch live electrical parts. Incorrect connections may cause electric shock.

**WARNING: RISK OF ELECTRIC SHOCK**

Do not remove cover or attempt to open the enclosure. No user serviceable parts inside. Refer servicing to qualified service personnel.

**WARNING: RISK OF FIRE OR EXPLOSION**

To reduce the risk of fire, replace only with same type and rating of fuse.

**WARNING: RISK OF FIRE OR EXPLOSION**

This equipment has internal arcing or sparking parts which should not be exposed to flammable vapors. It should not locate in a recessed area or below floor level. Automatic reset feature provided.

**WARNING: RISK OF FIRE OR EXPLOSION**

Do not use this device with an extension cord.

**CAUTION: RISK OF DAMAGE TO THE EQUIPMENT**

Do not operate this equipment in temperatures outside its operating range of -40°C to +50°C (-40°F to +122°F).

**CAUTION: RISK OF DAMAGE TO THE EQUIPMENT**

Store this equipment in a clean dry place in temperatures between -40°C and +80°C (-40°F to +176°F).

SAVE THIS INSTRUCTION

1 Introduction

This user manual applies to “80A Level 2 AC Charger for Plug-in Electric Vehicles (PEVs) and Battery Electric Vehicles (BEVs)”.

Any unauthorized modifications will void the product warranty.

1.1 Product View



Figure 1-1 Front view

Box Contents

Inside the box, you will find the following accessories.

Figure 1-2 Box contents

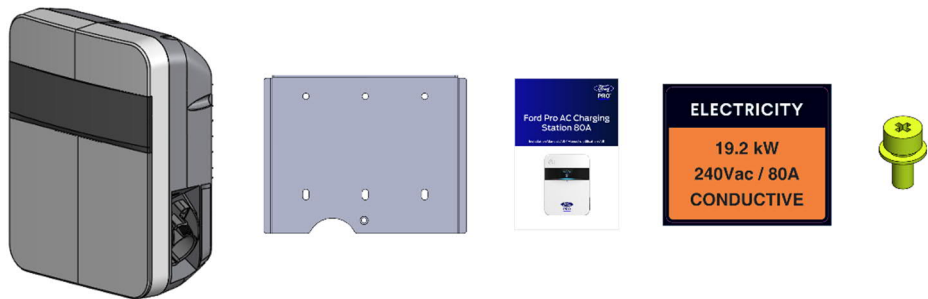


Table 1-1 Accessories in the box

Item	Description	QTY	Remark
1	Basic/Smart/Intelligent Charger-80A	1	Depending on your order content
2	Mounting Bracket	1	Attached to the back of the charge point
3	Installation guide	1	
4	Electricity label	1	
5	Accessory Bag	1	M6 machine screw x1

Carton Opening Process

1. Open the carton and remove the upper plate

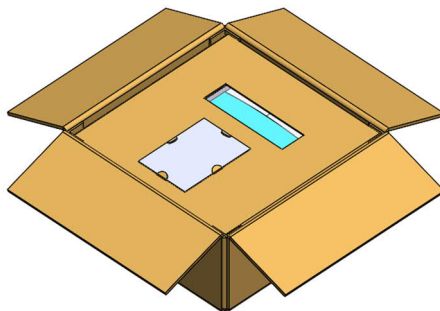


Figure 1-3 Opening the carton

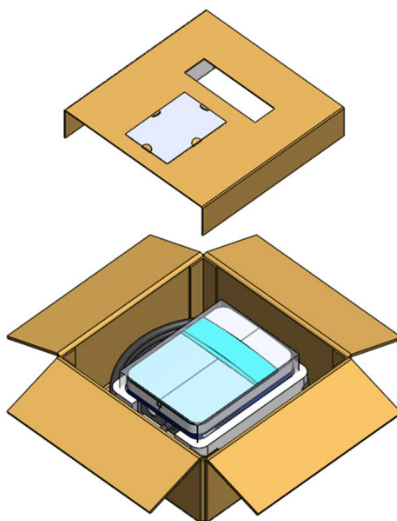


Figure 1-4 Charge point device

2. Take out the charge point and then remove the mounting bracket before installing it.

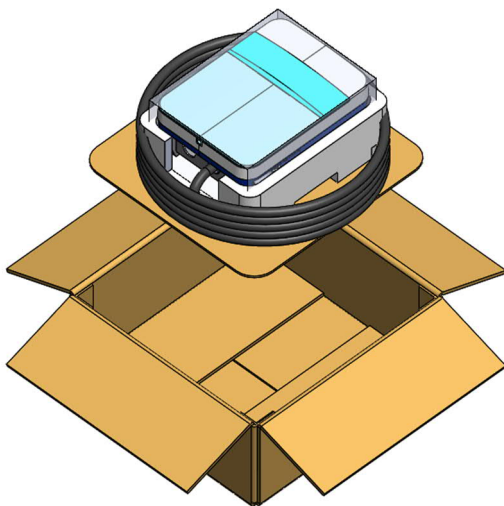


Figure 1-5 Take out the charge point



Figure 1-6 Remove the mounting bracket

2 Specification

2.1 Product specifications

Table 2-1 Product specifications

Item	80A Charger
Application	Commercial
Voltage (Vac)	208/240VAC (-20% ~ + 15%), Single Phase
Line to Ground Voltage	120V +/- 10%
Frequency (Hz)	60Hz
Rated Current (Amp)	Max. 80 A
Charging Connector	SAE J1772 Type 1
LED Indications	• Green Steady: Ready • Green Flashing (Fast): Authorized, wait for EV Connect • Green Flashing (Slow): Suspend (Occupying) • Blue Flashing (Slow): Charging • Red Steady: Unrecoverable Fault • Red Flashing (Slow): Recoverable Fault • Yellow Flashing (Slow): Booting / Firmware Upgrading / Out of Service <u>Remark</u> • Fast Flash: On Time 300ms, Off Time 200ms, 2Hz • Slow Flash: On Time 1200ms, Off Time 800ms, 0.5Hz
Wi-Fi	802.11 b/g/n
Ethernet	YES (RJ45, 1GbE CAT 5e)
Cellular	M2M connection (4G Cat M1/ Cat NB2/ EGPRS/ GNSS)
RFID	ISO 14443 A/B, ISO 15693
Display	103.52(W) x 65.35(H) mm, 130.000 pixel, 16.7 million colors, IPS panel Brightness 600 cd/m2 LED backlight life min. 50.000 hours
Data Protocol	OCPP 1.6J (OCPP 2.0.1 hardware ready) ISO15118 capable
Operation Temp.	-40 ~ 50 °C (-40 to 122°F)
Storage Temp.	-40 ~ 80 °C (-40 to 176°F)

Item	80A Charger
Maximum Operating Altitude	3500m above sea level
Meter accuracy	±1%
Mounting Type	Wall mount / Pole mount (optional)
Wiring Type	Hard-wired
Enclosure Level	TYPE 4
Impact Resistance	IK10
Dimension(H x W x D)	14.2"x10.6"x5.8"
Web Portal Management	Yes
Console Management	Yes
Certification	UL 1998/2231/2594 FCC Part 15B
	FCC Part 15.247 (WLAN 2.4GHz)
	Energy Star
	FCC Part 22/24/27

3 Installation

3.1 Before Installation

3.1.1 Safety Check

- Check for transport damages.
- Before connecting the product to the power supply, check that the power supply voltage and current rating corresponds with the power supply details shown on the product rating label.



CAUTION: Disconnect the power supply before installing or repairing the charge point. Fail to do so may result in physical injury or damage to the power supply system and the charge point.



CAUTION: Avoid touching or pressing the LCD screen all times, as this may result in damage to the LCD screen.

DANGER: RISK OF SUFFOCATION

Keep any packing materials away from children – these materials are potential source of danger, e.g. suffocation.



CAUTION: Cord extension sets are not allowed to be used.

The charge point must be installed only by a licensed electrician in accordance with the provisions of the local electrical industry construction and should comply with National Electrical Codes and standards.

Before installing the charge point, make sure you have read all of these instructions in this manual and fully understand its contents.

Appropriate protection is required when connecting to a main switchboard. The tools and parts used as outlined in the section "Tools & parts required for installation".

3.1.2 Grounding instructions

The charge point must have equipment grounding through a permanent wiring system or an equipment grounding conductor. Use a wire with a dedicated grounding wire and a ring terminal and connect to the equipment ground terminal block for grounding.

3.2 Tools & parts required for installation

Table 3-1 Tools & parts required for installation

Tool	Qty	Model	Size	Incl.	Remark
Mounting Bracket	1	All	222x173x9 mm	Yes	Fasten charge point to mounting surface
Screw	4	All	Tapping: #12	No	Fasten Mounting Bracket
	1	All	Mechanical: M6	Yes	Fasten charge point & Mount Bracket
Wire, Copper	3	All	2 AWG x 2, 8AWG x 1 (for ground wire)	No	
Conduit	1	All	1 inch	No	Protect power cable
Philips Screwdriver	1	All	PH3	No	
Torx Screwdriver	1	All	Security Bit T20	No	
Hexagon screwdriver	1	All	5/16	No	Tighten #12 Tapping screws
Torque Wrench	1	All	40 kgf-cm min	No	

3.3 Charge Point Installation

3.3.1 Disassemble top cover

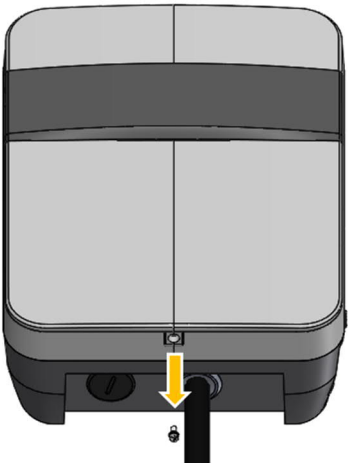


Figure 3-1 Loosen 1 pc M4 screw.

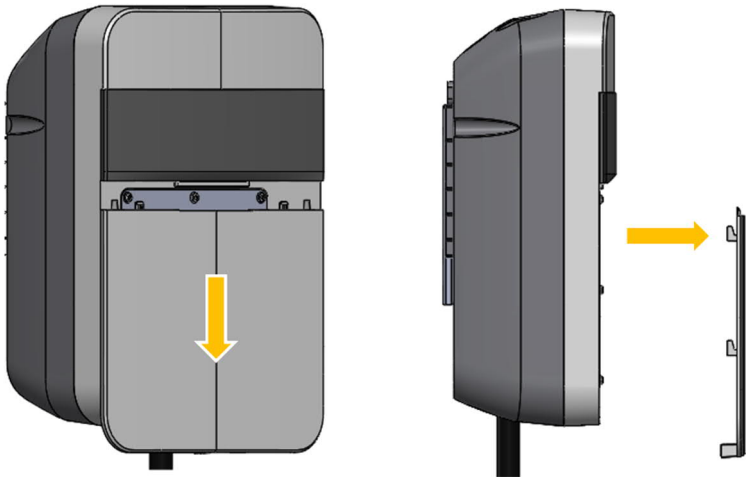


Figure 3-2 Push the front cover down, and then pull it partially off of the charger.

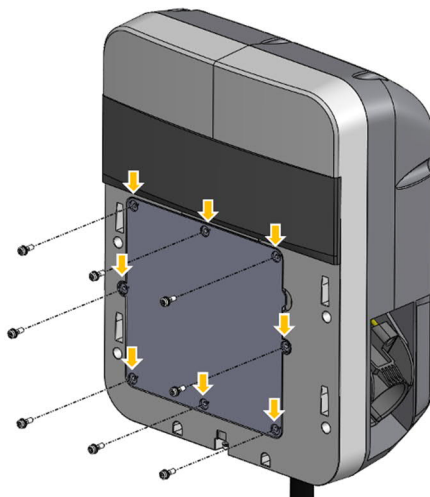


Figure 3-3 Loosen 8 pcs M4 screw then open install cover.

3.3.2 Secure the main body mounting bracket to the wall with appropriate screw.

Follow applicable accessibility requirements for the mounting position. The unit shall be stored or located at a sufficient height. For indoor site, it should not be lower than 18 inches (450 mm) and not higher than 4 feet (1.2m). For outdoor site, it should not be lower than 24 inches (600 mm) and not higher than 4 feet (1.2m). Refer to Article 625, NEC.

The mounting bracket has ten screw holes. If only two screws be used to fasten the mounting bracket, the screws should pass through the middle two screw holes of the mounting bracket. The other screw holes are reserved for the user.

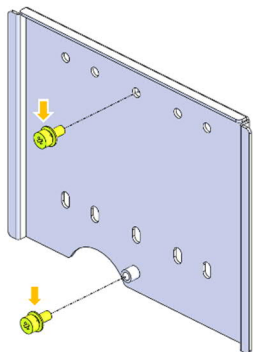


Figure 3-4 Fasten mounting bracket

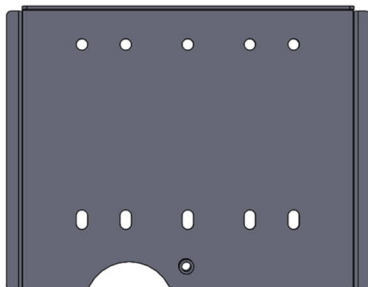


Figure 3-5 Screw holes of mounting bracket

Screw sizing suggestion:

- A. For masonry walls, use M6 mechanical screws. (Commercially Available)
- B. For finished walls supported by wood studs, use #12 tapping screws.
- C. Please refer to the following torque. The actual torque is according to the wall material.

Screw	Torque	
M6	25 kgf.cm min	21.7 lbf-in min
#12	25 kgf.cm min	21.7 lbf-in min

3.3.3 Fasten charge point onto mounting bracket.

1. Put the charge point on the mounting bracket.
2. Fasten charge point on mounting bracket by tightening M6 screw.
3. Please refer to the following torque.

Screw	Torque	
M6	31 kgf.cm	26.9 lbf-in

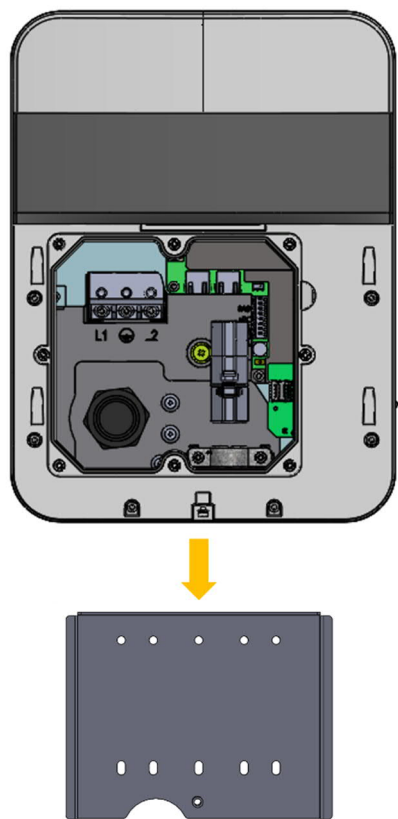


Figure 3-6 Charge point and mounting bracket

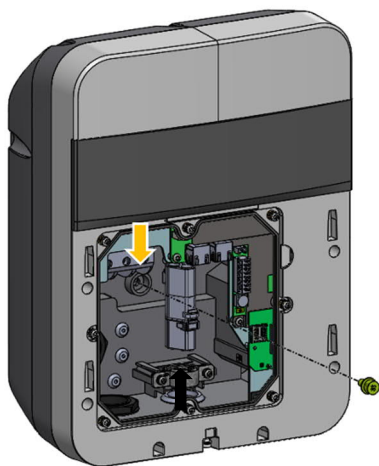


Figure 3-7 Tighten M6 screw

3.4 Input Power Cord Installation

1. Choose the appropriate conduit in accordance with all applicable state, local and National Electrical Codes and standards.

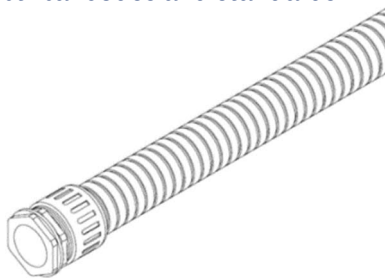


Figure 3-8 Conduit

2. Electrical wiring to the charge point.

2-1. Fold the wire end to pass through the conduit and insert them into the input hole (choose input direction 1 or 2 and open cap). Please fasten charge point onto mounting bracket if rear (2) conduit hole is used for installing.

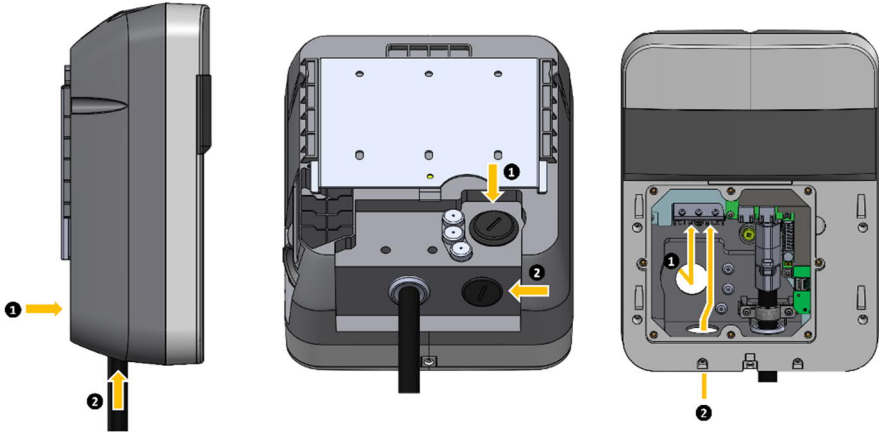


Figure 3-9 Cable input position

1. For bottom hole installation, please use 1 inch conduit to meets TYPE 4 standard.
2. For rear hole installation, please use an appropriate conduit (1 inch conduit is recommended) which meets the TYPE 4 standard.

Refer to the following wire specification. Use a conductor type other RHH, RHW and RGW-2 with outer covering. Choose the appropriate conductors in accordance with all applicable, state, local and national electric codes and standards. The stripping length of the wire is recommended to be 15mm+/-0.5mm.

Model	Terminal	Conductor	Rating
EX-1193-MFD1	L1, L2	2 AWG	90°C copper wire
	G	8 AWG	

2-3. Fasten the copper wire on the corresponding terminal block. The wiring instruction is printed in front of the terminal block (L1/L2/G).

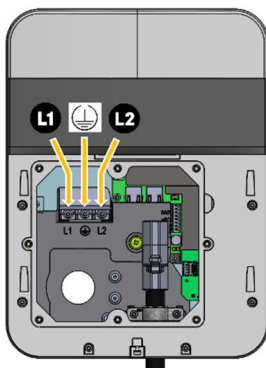


Figure 3-11 Input wiring position

2-4. Use the following torque to connect the wire to the terminal block.

Screw	AWG	Torque	
Hex 3/16	2~6	108.3 kgf-cm	94 lbf-in
	8	46.1 kgf-cm	40 lbf-in
	10~14	40.3 kgf-cm	35 lbf-in



CAUTION: To reduce the risk of fire, connect only to a circuit provided with the required branch circuit overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA 70, and the Canadian Electrical Code, Part I, C22.2.

Maximum Charger Current Setpoint*	80A	64A	48A	40A	32A	24A	16A	12A
Recommended (Typical) Circuit Breaker Rating	100A	80A	60A	50A	40A	30A	20A	15A

See Section 3.5 for details on charger derate settings.



CAUTION: If this unit is installed outdoors, the outlet must be rated for outdoor installation. The outlet must be installed properly to maintain the proper NEMA rating of the enclosure.

2-5. Lock the conduit on the enclosure. Please refer to the following torque.

Conduit	Torque	
1 "	35 kgf·cm	30.36 lbf·in

2-6. Reassemble cover and Front cover then Fasten M4 screw.

Screw	Torque	
M4	15 kgf·cm	13 lbf·in

3.5 Adjust Max. Output Current

Configure the rotary switch to set the Max. output current.

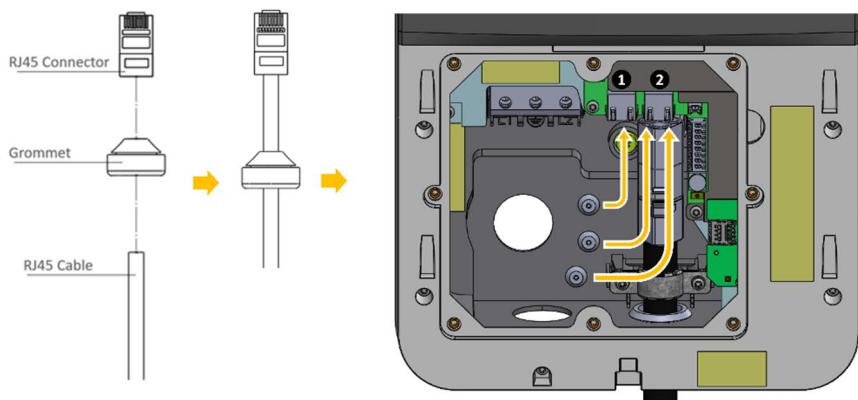
If the charge is installed on a breaker smaller than 100A, the rotary switch support de-rating the max. output current to match said breaker.

Note: Power must remain off before setting or configuring the rotary switch.

	Rotary Switch Configuration	Maximum Output current	Circuit Breaker
	0	12A	15A
	1	16A	20A
	2	24A	30A
	3	32A	40A
	4	40A	50A
	5	48A	60A
	6	64A	80A
	7	80A	100A

3.6 Ethernet cable installation

1. Connect an ethernet cable to the charge point through grommet.



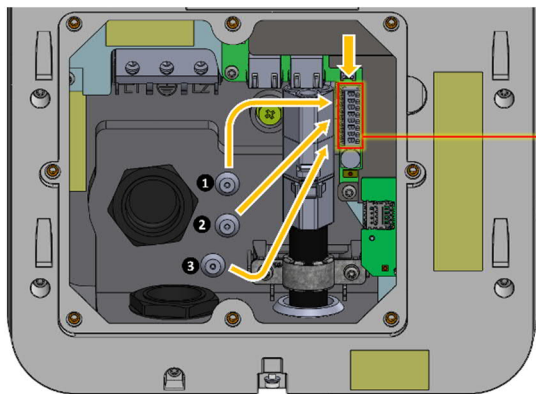
NOTE

Please do not remove the grommets. Instead, let Ethernet cable pass through them.

Use tools to combine the RJ45 connector with RJ45 cable. By this way, the IP level could be $\geq$ IP55. The Ethernet cable diameter should be 3.5mm – 5mm.

3.7 Install the external CT / Smart Meter / LED

1. Locate the terminal block on the right side of middle cover.
2. The wire should be threaded through the grommet and inserted into the corresponding terminal according to the label instructions as shown on the right side.



pin1	pin2	Pin	Location (emplacement)
		1	CT+
		2	CT-
		3	RS485 (D-)
		4	RS485 (D+)
		5	LED+ (Blue)
		6	LED+ (Green)
		7	LED+ (Red)
		8	LED-

Suitable electric wire (Fil électrique adapté): AWG 24~20

4. Operations

4.1 Charging status indicators

Table 4-1 Charging status indicators

LED Indicator	Description	Definition
	Not illuminated	Power Off
	Green Steady	Ready
	Green Flashing	Flashing green (Fast): Authorized, wait for EV Connect Flashing green (Slow): Startup/Setup
	Blue Steady	Plugged In/Ready
	Blue Flashing	Flashing blue (Slow): Charging
	Red Steady	Unrecoverable Fault
	Red Flashing	Recoverable Fault
	Yellow Flashing	Booting / Firmware Upgrading / Out of Service

4.2 RFID Access Control Management

Please reach out to Ford Pro Charging fordpro.com to Add, Activate & De-Activate RFID cards from Account or Assign/Associate RFID cards to Charger(s).

4.3 Display Troubleshooting

LCD Display	Description
Initializing...	System booting includes self-testing.
NOT READY	Charger is NOT READY for a new charging session.
AVAILABLE	Charger is AVAILABLE for a new charging session.
PREPARING	Charger is preparing for charging, basically charger will be in PREPARING state in two cases: (1) After plugged in charging connector and waiting for authorization, (2) After authorization and waiting for plug in charging connector.
CHARGING	EV is CHARGING from charger.
SUSPENDED EV	When the EV is connected but the charger is not offering energy to the EV due to following possibilities from EV side, such as delay charging enabled from EV, error occurred in EV and lead to stop charging, and so on.
SUSPENDED EVSE	When the EV is connected but the charger is not offering energy to the EV due to following possibilities from charger, such as smart charging restriction, local supply power constraints, and so on.
FINISHING	When the charging session stopped, but the charging connector did not unplug yet. So, this charger is not available for a new user and will display FINISHING.
RESERVED	When the charger has been RESERVED through OCPP "Reserve command".
UNAVAILABLE	When charger becomes UNAVAILABLE for following possibilities: (1) Received "Change Availability to Inoperative" OCPP command and went into Inoperative State. (2) Charger is under remote firmware upgrading process.

4.4 Charging an Electric Vehicle (EV)

Choices of start charging are as below:

4.4.1 Plug and Charge

1. Insert the charging plug into the EV
2. Charging session started



Figure 4-2 Connect the charging plug to the EV

4.4.2 Authorized by RFID Card (Plug first and then authorize)

1. Insert the charging plug into the EV
2. Swipe card
3. Waiting for authorizing
4. Charging session started

4.4.3 Authorized by RFID Card (Authorize first and then plug)

1. Swipe card
2. Waiting for authorizing
3. Insert the charging plug into the EV
4. Charging session started

4.5 Stop charging

- 1. Unplug any time (disconnect the charging plug from EV to stop charging session)
- 2. Session ended (please return the connector to the holster)

4.5.1 Auto restart

When a charging session is interrupted due to a temporary error condition, the charge point will automatically restart charging when the cause of the temporary error condition returns to normal. Status indicator lights remain flashing RED until the error condition is resolved.

- Temporary error conditions included: Over Current, Over Voltage, Under Voltage, and Over Temperature.
- For Over Current conditions: The charging session will be stop while OC occurs. After recovery from OC for 30 seconds, the charge point will automatically restart charging for three times.

When charging session stopped due to CCID trip, the charge point will try to restart after 15 minutes for 3 times.

4.5.2 Power outage recovery

When power resumes after an outage, the charge point restarts automatically with a delay ranging from 120 to 720 seconds. The variable delay is to avoid impacting the utility grid when multiple charge points in the same area attempt to resume charging simultaneously.

4.6 General care

The exterior of the charge point is designed to be waterproof and dust proof. To ensure proper maintenance of the charge point, follow these guidelines:

- Despite the water resistance of the enclosure, it is preferred to not direct streams of water at the unit. when cleaning it, clean with a soft, damp cloth.
- Make sure the charging plug is put back in the holster after charging to avoid damage.
- Ensure the power cable is stored on the cable hanger after use to avoid damage.
- If the power cable or the charging plug is damaged, please contact Customer Support for replacement.

4.7 Customer support

Please visit www.fordpro.com for additional customer support.

4.8 Limited Warranty

The Limited Warranty associated with your charger is subject to certain exception and exclusions. For the terms of the limited warranty please visit FordPro.com.



