Version

1.1

VOLT-E PORTABLE DC FAST CHARGER

Model TW30Port/TW45Port/TW60Port

INSTALLATION AND USER MANUAL

PORTABLE DC FAST CHARGER TW30PORT/TW45PORT/TW60PORT

INSTALLATION AND USER MANUAL

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CONTENT

Legal Disclaimer

COTTON CONSTELLATION LDA reserves the right to make unannounced changes to the equipment or the equipment specifications set forth in this manual.

COTTON CONSTELLATION LDA make available to its customers the latest versions of equipment specifications and the most up-to-date manuals on its official website www.volt-e.pt.

Important Message

This manual contains general descriptions and technical characteristics of the performance of the products contained herein. This document is not intended as a substitute for and is not to be used for determining suitability or reliability of the appliance for specific user applications.

The purpose of this manual is to provide necessary information for a safe installation, operation and maintenance of this equipment. Read this manual thoroughly and make sure you understand all the procedures before attempting to install or operate this equipment.

VOLT-E recommends all products of the portable DC fast charger series be installed by a qualified electrician, and the installation must be in accordance with all applicable local and national electrical codes and standards. Failure to observe this precaution could result in death or severe personal injury.

For reasons of safety and to help guarantee compliance with documented system data, only the manufacturer and its certified technicians should perform repairs to components.

VOLT-E has taken every precaution to produce an accurate, comprehensive and user-friendly manual and will therefore assume no responsibility nor liability for direct, indirect or accidental personal and/or material damage due to any misunderstanding or undesired mistakes in this manual.

1. Important Safety Instructions

SAVE THIS INSTRUCTIONS!

This manual contains important instructions for the Portable DC Fast Charger series products TW 30 Port/TW 45 Port/TW 60 Port that shall be followed during the installation, operation and maintenance of each unit.

This manual is exclusively intended for the Portable DC Fast Charger series products TW 30 Port/TW 45 Port/TW 60 Port. The pictures used in this manual are only visual examples. The figures and explanations contained in this manual refer to only a typical product design. The equipment that you purchased may differ in their appearance.

1.1. Symbol Usage

DANGER!

Indicates extremely important information about safety instructions which, if not followed, will result in death or serious injury.

ATTENTION!

Indicates important information about safety observations which, if not followed, could result in personal injury or cause fire or equipment overheating.

USEFUL INFORMATION

Indicates reference information for installation, operation and maintenance which does not contain personal injury or equipment safety related information.

1.2. Safety Instructions

The Portable DC Fast Charge is designed only for indoor use and installations. The device must be installed securely and with appropriate safety precautions.

Please read all instructions described in this manual carefully before beginning the installation process. Pay special attention to the following precautions:

- Installation, commissioning, maintenance or retrofitting of the portable fast charger must be performed by well trained and qualified electricians who are fully responsible for the compliance with existing standards and installation regulations.

- Incorrect installation and testing of the Fast Charger could potentially damage either the vehicle's Battery and/or the Fast Charger itself Any resulting damage is excluded of the warranty for the Fast Charger.

- The Fast Charger must be grounded through a permanent wiring system or an equipment grounding conductor.

- Do not install or use the Fast Charger near flammable, explosive, harsh, or combustible materials, chemicals, or vapors.

- To avoid a risk of fire or electric shock, do not use the Fast Charger with an extension cord.

- Do not remove the cover or attempt to open the enclosure of the charging unit.

- This Fast Charger should not be modified in any way. This will void the warranty, compromise protection and could result in a possible shock or fire hazard.

- Turn off input power at the circuit breaker equipped on the fast charger before installing and cleaning.

- The Fast Charger may only be operated in perfect condition. Do not use the Fast Charger if it is defective, appears cracked, frayed, broken or otherwise damaged, or fails to operate.

- Do not use the Fast Charger when either you, the vehicle, or the Fast Charger is exposed to severe rain, snow, electrical storm or other severe weather conditions.

- The Fast Charger is designed only for vehicles that are compatible with the CHAdeMO and CCS (optional) charging standards.

- Use the fast charger only within the specified operating parameters.

- Do not attempt to open, disassemble, repair, tamper with, or modify the Fast Charger, because the Fast Charger is not user serviceable. Please contact VOLT-E for any repairs.

- Charging with a worn or damaged DC connecter may cause burns or start a fire.

- If the DC output connecter feels hot while charging, turn off the equipment and replace the DC connector.

- Children should be supervised when this product is used around them.

- The principal difference between these three models is the number of charging power modules applied in each one of them; the TW30Port includes two charging modules of 15 kw, the TW45Port three and the TW60Port four.

2. Dimension

Study carefully all drawings and make sure you have sufficient knowledge of each functional component. Charger appearance details may vary slightly depending on production date and model.

2.1. Charger drawing

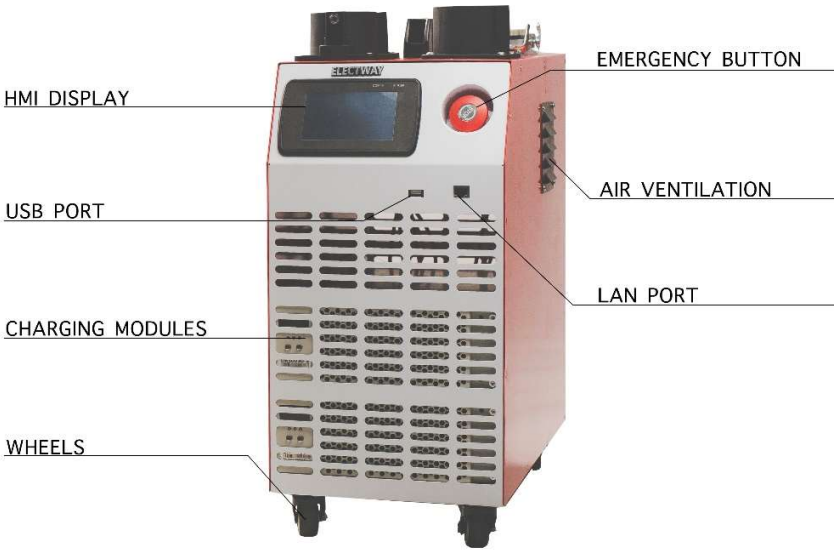


Figure 1 VOLT-E Portable Fast DC Charger Front View

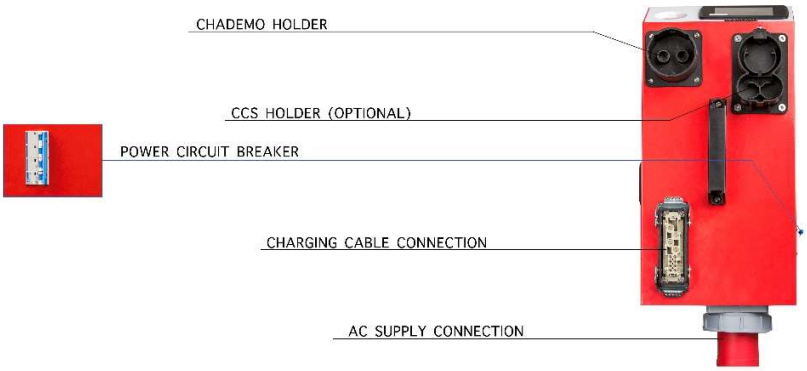


Figure 2 VOLT-E Portable Fast DC Charger Top View

2.2. Nameplate

The nameplate is located on the back of the charger. The attached illustration provides all the information included on the nameplate. Actual nameplate size may vary depending on equipment variant.

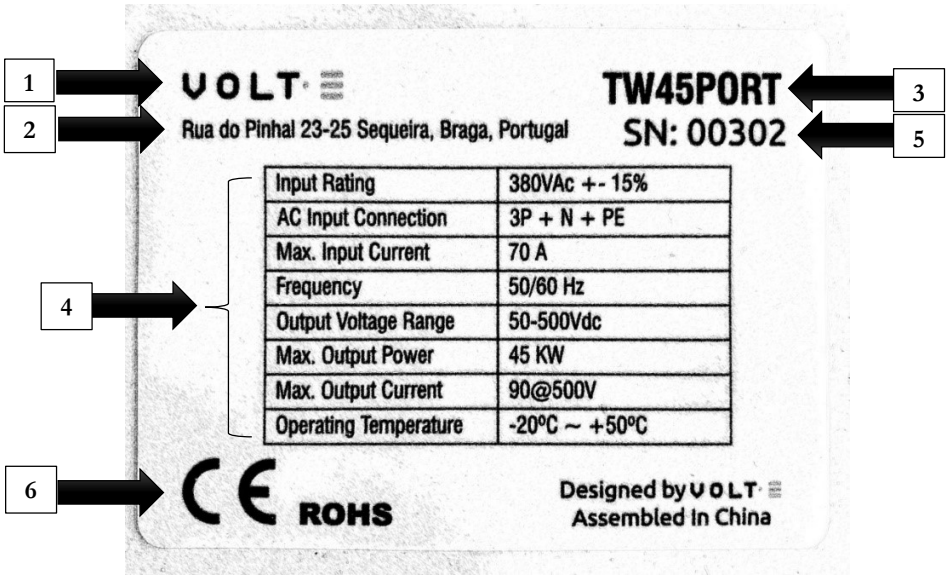


Figure 3 Nameplate

1	Manufacturer name
2	Manufacturer adress
3	Product designation (may vary between: TW30Port or TW45Port or TW60Port)
4	Technical Data
5	Serial number
6	CE mark

2.3. Product Apresentation

The VOLT-E Portable DC Fast Charger series is intended for fast charging all electric vehicles with CHAdeMO and CCS compliance.

With a compact and portable design, the TW 30Port/TW 45Port/TW 60Port can be easily installed and transported for EV charging in a variety of situations with minimal effort. Depending on the model of your EV, this fast charging equipment can charge all compatible batteries up to 80 in less than 30 minutes.

The latest technology of module power charging unit applied in this fast charger makes it possible to configurate the output power from 3.7 kW to 60 kW in accordance with the local power supply available.

The illustrative and intuitive interface demonstrates all necessary information related to the charging status, namely the running time, the energy consumption calculated by kWh usage and the present battery level of your EV. The default and user configurated charging program finishes by itself or can be terminated by a user command.

Unlike an EV charging station, only minimal personnel or financial outlay are required for installation, making it an affordable solution for all kinds of budget.

2.4. Specifications

The principal technical data of the VOLT-E Portable DC Fast Charger line products are indicated in the following tables These units are intended to have at least one DC output connection (CHAdeMO and/or CCS).

Table nº 1 VOLT-E Portable 30 kW DC Fast Charger Technical Characteristics

TECHNICAL DATA	30KW

AC NOMINAL INPUT	
PHASES / LINES	3P+N+PE
VOLTAGE & FREQUENCY	380Vac ±15%; 50/60 Hz
NOMINAL INPUT CURRENT	45 A
EFFICIENCY	＞93.5%
POWER FACTOR	0.99
DC OUTPUT	
VOLTAGE RANGE	50 Vdc to 500 Vdc
CURRENT RANGE	Up to 75 A
NOMINAL POWER	30kW
GENERAL SPECIFICATIONS	
CHARGING MODE	IEC 61851-1 (Mode 4)
COMMUNICATION WITH EV	CAN, PLC
DC PLUGS	JEVS G105 (CHAdeMO) Combo T2 (CCS / Combo2)
Human machine interface -Display -Button	4.3 inch Emergency button
Place of installation	Indoor
Altitude	≤1000 m
Operating temperature	-45ºC to +45ºC
Cooling System	Fan Cooling
Humidity	5~95%

Measures (W x D x H)	250X500X450mm
Weight	40kg

Table nº 2 VOLT-E Portable 45 kW DC Fast Charger Technical Characteristics

TECHNICAL DATA	45KW
AC NOMINAL INPUT	
PHASES / LINES	3P+N+PE
VOLTAGE & FREQUENCY	380Vac ±15%; 50/60 Hz
NOMINAL INPUT CURRENT	63 A
EFFICIENCY	＞93.5%
POWER FACTOR	0.99
DC OUTPUT	
VOLTAGE RANGE	50 Vdc to 500 Vdc
CURRENT RANGE	Up to 110 A
NOMINAL POWER	45kW
GENERAL SPECIFICATIONS	
CHARGING MODE	IEC 61851-1 (Mode 4)
COMMUNICATION WITH EV	CAN, PLC
DC PLUGS	JEVS G105 (CHAdeMO) Combo T2 (CCS / Combo2)
Human machine interface -Display -Button	4.3 inch Emergency button

Place of installation	Indoor
Altitude	≤1000 m
Operating temperature	-45ºC to +45ºC
Cooling System	Fan Cooling
Humidity	5~95%
Measures (W x D x H)	250X500X450mm
Weight	60kg

Table nº 3 VOLT-E Portable 60 kW DC Fast Charger Technical Characteristics

TECHNICAL DATA	60KW
AC NOMINAL INPUT	
PHASES / LINES	3P+N+PE
VOLTAGE & FREQUENCY	380Vac ±15%; 50/60 Hz
NOMINAL INPUT CURRENT	83 A
EFFICIENCY	＞93.5%
POWER FACTOR	0.99
DC OUTPUT	
VOLTAGE RANGE	50 Vdc to 500 Vdc
CURRENT RANGE	Up to 150 A
NOMINAL POWER	60kW
GENERAL SPECIFICATIONS	
CHARGING MODE	IEC 61851-1 (Mode 4)
COMMUNICATION WITH EV	CAN, PLC

DC PLUGS	JEVS G105 (CHAdeMO) Combo T2 (CCS / Combo2)
Human machine interface -Display -Button	4.3 inch Emergency button
Place of installation	Indoor
Altitude	≤1000 m
Operating temperature	-45ºC to +45ºC
Cooling System	Fan Cooling
Humidity	5~95%
Measures (W x D x H)	250X500X600mm
Weight	80kg

2.5. Standards

The VOLT-E Portable DC Fast Charger series products comply with the following standards:

Technical Data	CE
Applicable Standards	Universal
	IEC 60950-1 IEC 61851-1
	Connectors
	IEC 62196-1 IEC 62196-3
	Emission
	IEC 61000-6-3 IEC 61000-3-3
	Immunity
	IEC 61000-6-1
	IEC 61000-4-3
	IEC 61000-4-4

	IEC 61000-4-5
	IEC 61000-4-6
	IEC 61000-4-8
	IEC 61000-4-11

IEC 60950-1: Safety of information technology equipment - Part 1: General requirements
IEC 61851-1: Electric vehicle conductive charging system - Part 1: General requirements
IEC 62196-1: Plugs, socket outlets, vehicle connectors and vehicle inlets
Conductive charging of electric vehicles - Part 1: General requirements
IEC 62196-3: Plugs, socket outlets, vehicle connectors and vehicle inlets
Conductive charging of electric vehicles - Part 3: Dimensional compatibility
and interchangeability requirements for d.c. and a.c/d.c pin and contact-tube
vehicle couplers
IEC 61000-6: 3 Electromagnetic compatibility (EMC) - Part 6-3: Generic
standards - Emission standard for residential, commercial and light-industrial
environments
IEC 61000-3: 2 Electromagnetic compatibility (EMC)- Part 3-2: Limits - Limits
for harmonic current emissions (equipment input current ≤16 A per phase)
IEC 61000-3: 3 Electromagnetic compatibility (EMC) Part 3-3: Limits
Limitation of voltage changes, voltage fluctuations and flicker in public low- voltage supply
systems, for equipment with rated current ≤16 A per phase and
not subject to conditional connection
IEC61000-6-1: Electromagnetic compatibility (EMC)-Part6-1: Generic Standards-Immunity for
residential, commercial and light-industrial environments
IEC61000-4-2: Electromagnetic compatibility (EMC)-Part4 2: Testing and measurement
techniques-Electrostatic discharge immunity test
IEC61000-4-3: Electromagnetic compatibility (EMC)-Part4 3: Testing and measurement
techniques-Radiated, radiofrequency, electromagnetic field immunity test
IEC61000-4-4: Electromagnetic compatibility (EMC)-Part4 4: Testing and measurement
techniques- Electrical fast transient/burst immunity test
IEC61000-4-5: Electromagnetic compatibility (EMC)-Part4 5: Testing and measurement
techniques-Surge immunity test
IEC61000-4-6: Electromagnetic compatibility (EMC)-Part4 6: Testing and measurement
techniques-Immunity to conducted disturbances, induced by radiofrequency fields
IEC61000-4-8: Electromagnetic compatibility (EMC)-Part4 8: Testing and measurement
techniques-Power frequency
IEC61000-4-11: Electromagnetic compatibility (EMC)-Part4 11: Testing and measurement
techniques -Voltage dips, short interruptions and voltage variations immunity tests

3. Before Installation

Before any installation work is performed, study all drawings furnished by the supplier for the installation, including arrangement drawings (front and top view) of each functional component.

Please read this section carefully before handling charger wiring. All instructions below must be strictly followed.

3.1. Electrical Proteccions

To ensure full protection of the charger installation and operation against any electrical risk, it is mandatory to install a main circuit breaker (MCB) and a residual current device (RCD) upstream of the charger.

These electrical protections and the rest of the installation must be in accordance with local and national rules. Selectivity of protections must be ensured throughout the installation process.

ELECTRICAL RISK!

Take precautions to make the electrical connection inside the charger. This device must be completely disconnected from any power source during commissioning.

ATTENTION!

Inappropriate Operations may cause serious property damage and avoid warranty!

3.2. Safety Requirements

- Eye protection with appropriate glasses (especially when using the electrical drill)
- During the installation, make sure to avoid direct connections with power distribution network cables without additional protection;

- Always ensure that no power is connected during the installation procedure;
- Use appropriate tools for each function.

3.3. Power Supply

The Portable DC Fast Charger is suggested to be connected directly to the customer power distribution board for the best performance and safety precaution. The Portable Fast charger requires a three-phase connection. A normal domestic or small business power connection is NOT sufficient. Contact your electricity distributor and/or grid owner for more information.

The size of the charger input power line must be checked by a qualified electrician. It is important to note that various factors, such as the cable length between the distribution board and the charging device, the maximum output current of the charging device may affect the selected cable. In such cases the cross section may be required to adapt the temperature resistance of the power supply line.

The technical data section provides nominal settings taken at the factory with the supply of the maximum charger output current. If the power supply current is less than the maximum output current, you may need to adjust the nominal current to a lower value. For more information, refer to the detailed instructions provided in the operation section.

Depending on the model, the recommended value may differ. Please check the respective recommendation for the purchased model.

3.4. Packing List

Before you begin the installation process of this charger, carefully check the package you received according to the packing list provided below. If any components described below are not properly packaged, contact the customer service center for replacement.

Portable DC Fast Charger x1
Installation and User Manual x1
DC Cable x1
AC Supply Connection x1

3.5. Place of Installation

For the best operating conditions and longest operating life, please take care in selecting an installation site. Operating life and performance will be influenced by the selected charger location.

The charger is designed for indoor use. Therefore, you must ensure the correct configuration requirements and device protection at the place of installation.

The following criteria should be considered regarding local selection:

- ✓ It is important to study the local wiring regulations, fire prevention measures and accident prevention regulations, as well as the escape routes from the installation site.
- ✓ The charger may NOT be installed in potentially explosive environments.
- ✓ Install the charger so that it is not in direct pedestrian flow and so that no one can trip over the charging cables and that the cables do not cover or cross pedestrian and motorized traffic.
- ✓ Do not install the charger where it is exposed to ammonia or ammonia gas (for example: stables).
- ✓ The mounting surface must be stable enough to withstand mechanical forces.
- ✓ Do not install the charger where falling objects could damage the device (for example, ladders or suspended car tires).
- ✓ The equipment should not be exposed to direct spray water (for example: adjacent hand wash installation, high pressure cleaner, garden hose).
- ✓ The equipment should be protected from direct rain as much as possible to prevent freezing, hail or similar damage.
- ✓ Observe the permissible environmental conditions;
- ✓ It is recommended not to expose this equipment to high temperatures, dust, corrosive fumes, combustible materials, or explosive gases;
- ✓ Select a dry and well-ventilated location;
- ✓ To reduce the risk of fire, install the charger on a non-combustible surface such as concrete, stone, brick, or steel;

3.6. Necessary Space

When installing or loading, certain minimum distances must be observed for maintenance and safety reasons. When installing several loaders adjacent to each other, a distance of at least 150 cm between the equipment must be observed.

Do not cover the air ventilation grille on the front, back, left and right side of the charger. Must be respected the following security measures in order to portable charger remain unobstructed for use and serviceability.

- **Front of the charger: 60 cm**
- **Back of the charger: 60 cm**
- **Left and Right side of the charger: 30 cm**

Figure 4 Distance for air ventilation

4. Installation

The Portable Fast charger is designed to allow an easy installation. As shown below, there are two options for connecting the charger, choose as you may wish.

➲ Option 1

Plug the charger directly into a 5-pole female outlet.

Notice that when you choose this option, you will need to purchase that outlet separately. You can order the plug in the same purchase order as the portable charger.

➲ Option 2

The Portable Fast charger is equipped with a ready to connect AC input cable. Before and during the wiring connection procedure, all the following prerequisites shall be strictly followed:

- Make sure the wiring breaker for the AC power supply is OFF;
- Make sure the input AC voltage is 0V;
- Make sure the main power circuit breaker of the charging equipment and the power circuit breaker of the distribution board are both OFF;
- Make sure this charging device is correctly connected to a grounded, metal, permanent wiring system, or an equipment grounding conductor.

Connect AC input supply cable to the power circuit breaker with electric leakage protection function on the distribution board.

New Cable Colour Code
European (IEC)

Function	label	Color Cable
Phase 1	L1	
Phase 2	L2	
Phase 3	L3	
Neutral	N	
Protective earth	TE	

Figure 5 Wiring indications

L1	Phase 1 (brown)	N	Natural (blue)
L2	Phase 2 (black)	PE	Ground
L3	Phase 3 (gray)		(yellow & green)

Rotate to the right to unlock and open the safety cover equipped on the AC power supply cable.

Figure 6

VOLT-E Portable Fast Charger AC Power Supply Connector with Safety Cover Closet

VOLT-E recommends the Fast Charger be installed to the customer distribution board only by a qualified electrician.

Figure 7

VOLT-E Portable Fast Charger AC Power Supply Connector with Safety Cover Open

After unlocking and opening the cover, plug the AC input cable to the connection terminal on the back side of the charger, rotate the safety lock furnished on the same terminal and make sure the connector is properly fastened to the Fast Charger.

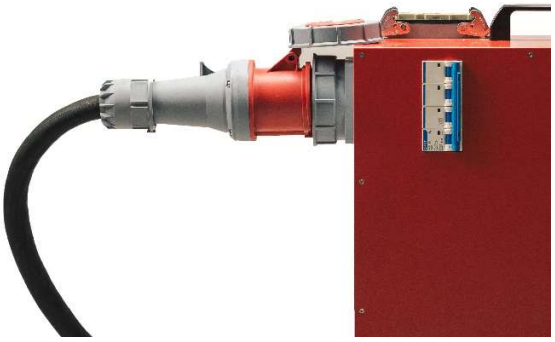


Figure 8

VOLT-E Portable Fast Charger Power Supply Connection Terminal with AC Input Cable Attached

Plug and fasten the DC charging cable (CHAdeMO or CCS) to the output cable connection terminal on the top side of the charger.

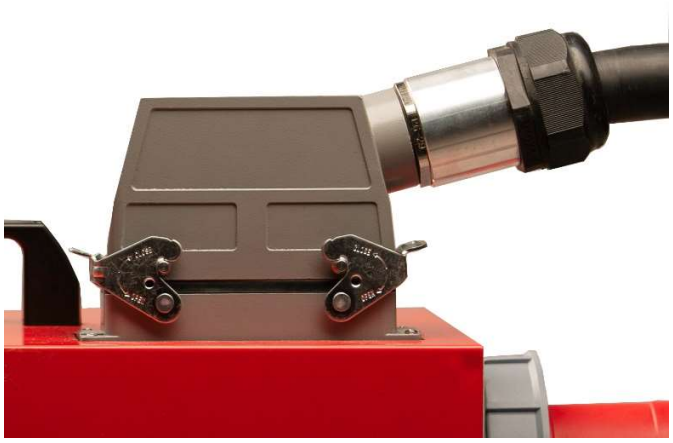


Figure 9

VOLT-E Portable Fast Charger DC Output Connection Terminal with DC Charging Cable Attached

4.1. Grounding Instructions

This Electric Vehicle Supply Equipment (EVSE) must be connected to a grounded, metal, permanent wiring system, or an equipment grounding conductor. This Fast

charger should be inspected by a qualified installer before the first use. Connections to the EVSE shall comply with all local codes and ordinances. Under no circumstances will compliance with the information in this manual relieve the user of his/her responsibility to comply with all applicable codes or safety standards.

WARNING:

IMPROPER CONNECTION OF THE GROUNDING CONDUCTOR CAN RESULT IN A RISK OF ELECTRIC SHOCK.

NOTE:

- The AC input cable should be properly connected to the customer's distribution board with a disconnecting switch;
- The AC input cable should be correctly connected to the Fast charger's end terminal and properly locked through the rotary joint.

4.2. Start-up

4.2.1. Verification and Inspection

After installation, ensure to make a complete inspection before operation, including the following aspects:

- Check if the bolts of the AC and protective ground cables of the Fast charger are correctly tightened to the specified torque;
- Check if the Emergency Button is OFF;
- Check the resistance between the Portable DC Charger protective ground and the low voltage distribution board ground connection. The value must be according to local codes;
- Before switching ON the circuit breaker, check the supply voltage between lines: it must be 380V 15% 50/60Hz for all VOLT-E DC Fast Charger.

WARNING:

MAKE SURE THE CHARGER HAS BEEN INSTALLED ACCORDING TO THE DIRECTIONS IN THIS MANUAL.

FAILURE TO DO SO COULD RESULT IN PERSONAL INJURY AND DAMAGE TO THE EQUIPMENT.

4.2.2. Switch On

Switch on firstly the circuit breaker on the distribution board and then the power circuit breaker on the rear side of the Fast Charger. After a few seconds, the following default home menu will appear on the HMI display:

Figure 10 VOLT-E Portable Charger Home Menu

At this point, the Fast Charger shall be ready to charge any electric vehicle with CHAdeMO and CCS compliance. However, it is highly recommended to test the fast charger with an EV or a simulator. See how to operate the fast charger in Section 5. Operation.

4.3. Output Connectors

The Portable DC Fast Charger should be connected to at least one DC output connector (CHAdeMO or CCS).

4.3.1. CHAdeMO connector

The CHAdeMo connector has a lock button. When plugging this connector to the CHAdeMo holder on the top side of the Fast Charger or to your EV CHAdeMO outlet, make sure you hear a "tic". To unplug this connector, push the lock button while withdrawing the connector.

Figure 11
VOLT-E Portable Fast Charger CHAdeMO Connector

4.3.2. CCS connector (optional)

The CCS Connector does not have a lock button. When connecting this cable to the EV, the car itself locks the connector. To disconnect this cable, stop the EV charging.

Figure 12
VOLT-E Portable DC Fast Charger CCS Connector

5. Operation

DANGER!

Operation or installation of this equipment may result in serious personal injury, such as mechanical damage to the equipment. Applied voltage may result in electric shock, which may cause death or serious injury to personnel.

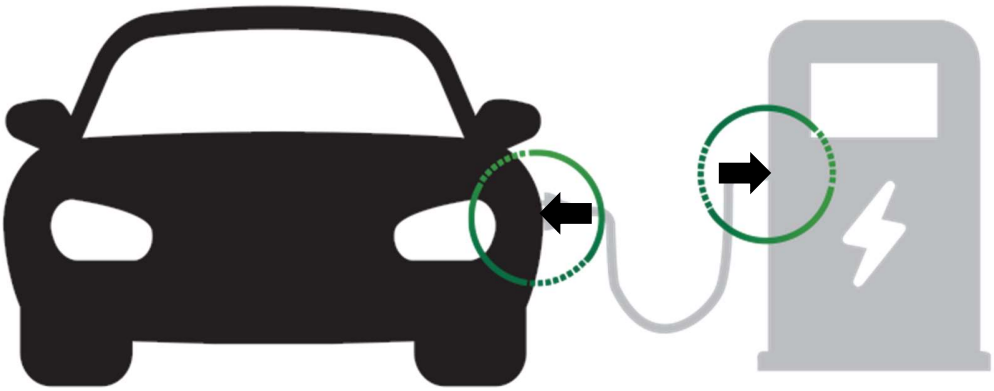
ATTENTION!

Read the manual carefully before connecting the charger. Follow all installation, operation, and maintenance instructions throughout the mechanical life of the equipment. Ensure all required compliance with local electrical codes is strictly adhered to.

5.1. How to charge?

Once the installation and verification procedures have been correctly performed, the charger is ready for use. Refer to the following information regarding the connection between your electric vehicle and the charging point.

➲ Connect the cable



Figue 13 Connect the cable

✓ Connect a qualified and compatible charging cable to your EV and connect the appropriate terminal to the portable charger. Make sure both terminals are well seated.

*The CHAdeMO connector has a lock button. When plugging this connector to the CHAdeMo holder on the top side of the Fast Charger or to your EV CHAdeMO outlet, make sure you hear a "tic". To unplug this connector, push the lock button while withdrawing the connector.

➲ Disconnect the cable

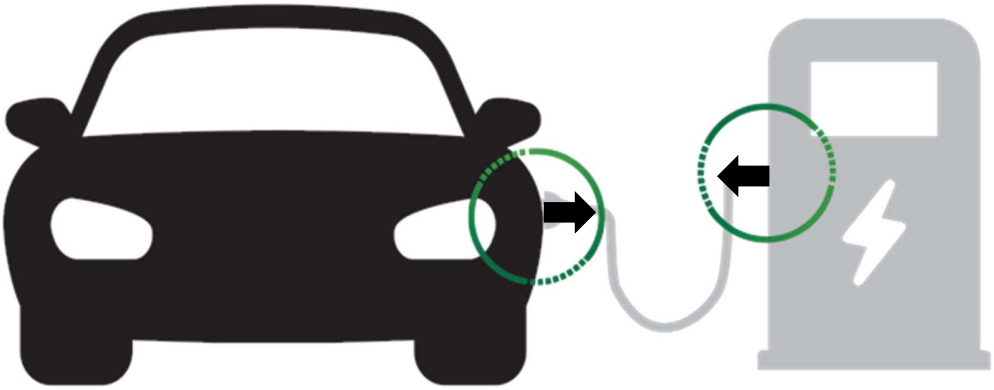


Figure 14 Disconnect the cable

✓ Once the charging cycle is complete, disconnect the cable from the home charger and your EV and store it in a suitable place.

When a user starts an operation on the Portable DC Fast Charger, the HMI display will show the following default home menu:

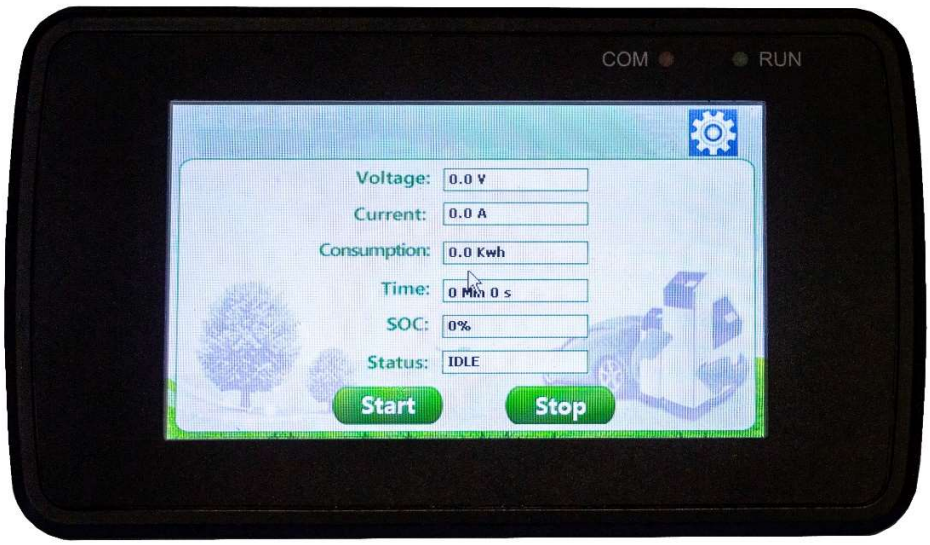


Figure 15 VOLT-E Portable Fast Charger Main Menu

There are several charging status indicators in this default home menu, including the following:

- Voltage - output voltage value
- Current - output current value
- Consumption - kwh usage
- Time - charging time
- SOC – present EV battery level
- Status - running/idle
- Start - to initiate the charging program
- Stop - terminate the charging program

➲ DC Output Setting

Double-click on the left side of the bottom of the screen. Press 123 and click "Enter" to access the menu. Click the "Setting" option. Insert the desired output charging current value and press "Enter".

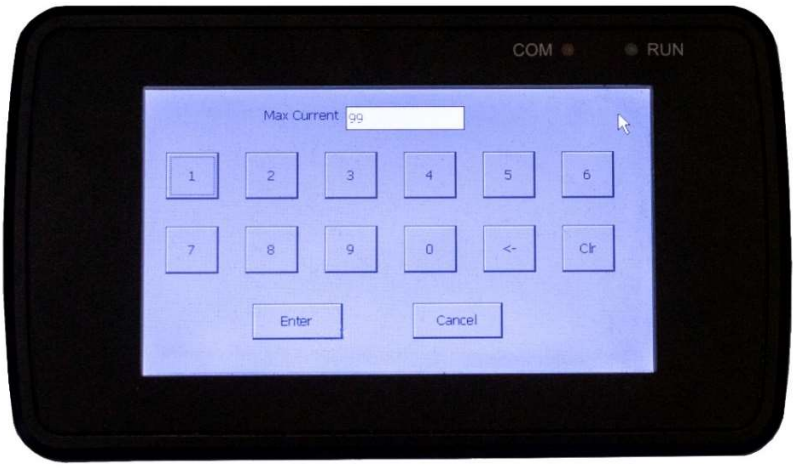


Figure 16 VOLT-E Portable Fast Charger Setting Menu

- ✓ A maximum allowed current must be observed according to the charger model

Model	Max. Suggested
Model TW 30 PORT	**67**
Model TW 45 PORT	**101**
Model TW 60 PORT	**135**

* The power has been reduced by 10% to safeguard the equipment and maintenance of the device and cannot be exceeded.

- ✓ This operation may only be performed by qualified technicians.

➲ Finish Charging

The charging program will terminate by itself when the battery is fully charged or can be interrupted by a user command. Press "STOP" on the home screen to terminate the charging program

- ✓ When the charging program has been completed, the charger must remain on for ± 2 minutes to cool the charger. Or the charger may remain plugged in as it goes into low power standby mode.
- ✓ In case of emergency, press the Emergency Button on the front side of the Fast Charger to immediately stop the charging program.
- ✓ Turn off the MCB and RCD installed on the distribution board and disconnect the charging cable from the charger.

5.2. Operation Sequence

Connect the AC input/DC output

↓

Turn on the AC input circuit breaker

Choose the connector type (optional)

↓

Click the “Start” option

↓

Select CHAdeMo or CCS

↓

Start charging

↓

Charging completed (Default stop)

↓

Click the “Stop” option (User command)

↓

Stop charging

↓

Disconnect the DC output connector and turn off the AC input circuit breaker

6. Maintenance

This section provides detailed maintenance recommendations to ensure optimum performance and longer mechanical life of the charger.

6.1. Preventive Maintenance

Compliance with the specified maintenance plans which provide cleaning procedure for the terminals, micro switches, capacitors, interface buttons and ventilation filters is advised. Cleaning should be performed every 5 (five) months and more often if the charger is installed and operated in harsh environmental conditions such as excessive dust accumulation.

Operation	Periodicy	Estimated time (min)	Tools
Visual checking of the installation	Each 5 months	15	/
Cleaning dust	Each 5 months	20	/
AC input cables: check the tightening torque of the cable connectors.	Each 5 months	45	Standard Tools Torque wrench
DC output cables: check if the connectors, cables and its connections are in proper condition.	Each 5 months	30	Standard Tools Torque wrench
Check if micro switches from the circuit breakers, fuses are working correctly.	Each 5 months	60	Multimeter
Check if the cabinet fan works correctly	Each 5 months	15	Standard tools
Check if the Emergency Stop Button works correctly	Each 5 months	3	Standard tools

6.2. Power up Errors

The following errors could appear when powering up the Portable DC charger.

Error	Possible Cause	Solution
The display does not start	Display failure	Check and replace the display unit if necessary.
Earth Leakage Fault	Current higher than expected	Disconnect and reconnect the power supply (by turning off the power supply to the charging station then back on again. If the message continues to appear, contact VOLT-E Customer Support.
The charger does not start charging	Emergency Stop Button pressed	Turn off the Emergency Button to allow the normal function of the charging program.

This is the recommended periodicity for regular use. According to the actual working frequency of the charger, the maintenance periodicity may vary to guarantee the best charging performance.
For more information about the maintenance service, please consult the homepage of VOLT-E.

6.3. Connection Inspection

Since the 60 kW Portable DC Fast charger is an Electric Vehicle Supply Equipment with an elevated nominal working current, the AC input cable connection should be regularly inspected, especially the wiring and grounding conductors connected to the distribution board and the wiring conductors connected to the charger's end terminal Make sure the bolts and cables above mentioned are properly tightened to the specified torque

6.4. Trouble Shooting

General	
0x0001	**Emergency stop button pressed**
0x0002	**DC +and GND insulation fail**
0x0003	**"DC- and GND insulation fail**
0x0004	**Insulation device fail**
0x0014	**Over maximum current**
CCS	
0x0005	**No slac message from car**
0x0006	**Slac fail**
0x0007	**Exchange IP and TCP port fail**

0x0008	**TCP connect fail**
0x0009	**Exchange protocol fail**
0x000a	**Session setup fail**
0x000b	**Service discovery fail**
0x000c	**Service payment fail**
0x000d	**Contract authentication fail**
0x000e	**Parameter discovery fail**
0x000f	**Cable check fail**
0x0010	**Pre charge fail**
0x0011	**Session stop fail**
0x0012	**TCP close abnormal**
0x0013	**Stop process over time**
0x0015	**TCP no response**
CHAdeMO	
0x0016	**No CAN message from car**
0x0018	**Wait charge permission time out 1**
0x0019	**Wait charge permission time out 2**
0x001a	**Wait charge permission time out 3**
0x001b	**CAN message interrupt 1**
0x001c	**Charge permission signal interrupt 1**
0x001d	**CAN message interrupt 2**
0x001e	**Charge permission signal interrupt 2**
0x001f	**CAN message interrupt 3**
0x0020	**CAN message interrupt 4**
0x0023	**CAN send message fail**
0x0030	**Maximum current over range**
0x0021	
Hh	

bit	0	0	0	1(4)	1(3)	1(2)	1(1)	1(0)
(0) Battery overvoltage				(0: normal, 1: fault)				
(1) Battery undervoltage				(0: normal, 1: fault)				
(2) Battery current deviation error				(0: normal, 1: fault)				
(3) High battery temperature				(0: normal, 1: fault)				
(4) Battery voltage deviation error				(0: normal, 1: fault)				

0x0121	**Battery over voltage**
0xHH22	
HH	

bit	0	0	0	1(4)	1(3)	1(2)	1(1)	1(0)
(0) Vehicle charging enabled (0: disabled, 1: enabled) (1) Vehicle shift position (0: Parking position, 1: Other position) (2) Charging system fault (0: normal, 1: fault) (3) Vehicle status (0: EV contactor closed or welding being detected, 1: EV contactor open or welding detection finished) (4) Normal stop request before charging (0: No request, 1: Stop request)								

0x1022	**Normal stop request before charging**

7. Technical Data

If you have questions about the installation, operation and maintenance of the charger, contact your service representative. Please visit our official website for more information about the extra support package and other customer support services.

8. Warranty

VOLT-E offers a limited warranty to all their products against manufacturers defects except accessories (cable plug CHAdeMO, cable plug CCS and cable AC input). The Portable DC Fast Charger series is covered by a one-year limited warranty.

8.1. Validity

The warranty is valid only when:

- ✓ The product is purchased from VOLT-E, or its authorized dealers or distributors;
- ✓ The cabinet of the Fast Charger is complete and un-opened by any non-certified third party (violation of void seal);
- ✓ The product is NOT repaired or assisted by any third party other than those appointed and/or certified by VOLT-E;
- ✓ The product is NOT transferable to any third party either in ownership or during the period of contract;
- ✓ The model and serial label should NOT be defaced or removed from the product.

8.2. Exclusion

The warranty is not applicable to:

- ✓ Damage or loss caused by modification, alteration, repair by any unauthorized third party;
- ✓ Damage or loss caused by mishandling of the customer or people that has access to this product in the customer's premise;
- ✓ Normal wear and tear;
- ✓ Damage or loss caused by disasters or any other sources beyond VOLT-E's control;
- ✓ Damage or loss caused by external third bodies;
- ✓ Damage or loss caused by another device that is connected to the product;

- ✓ Damage resulting from accidents, misuse, abuse, tampering or failure of the customer to follow the normal operating procedures described in this installation and user manual;
- ✓ Damage resulting from not respecting the ventilation distance, according to section "3.6. Necessary space";
- ✓ Damage caused by not attenting to the maintenance period (performed every five months), according to section "6.1. Preventive Maintenance";
- ✓ Damage caused by the device connected to the charger to supply the neutral wire (in some countries there is no neutral wire).