

INSTALLATION MANUAL

30kW DC CHARGER

Product# TP-EVPD-30kW



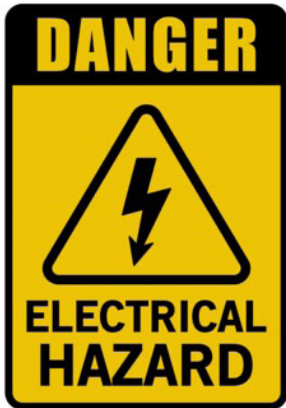
This manual covers the electrical and mechanical installation procedure for the Tellus TP-EVPD-30kW charger. The operations and programming manual are separate. The model hosts different voltage and connector configurations. Below are different product numbers.

TP5-30-480-1	Max Voltage: 1000VDC; Connectors: CCS1
TP5-30-480-2	Max Voltage: 1000VDC; Connectors: CCS1 and CHAdeMO
TP5-30-480-2	Max Voltage: 1000VDC; Connectors: CCS1 and CCS1

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1. CRITICAL SAFETY



READ THE ENTIRE MANUAL BEFORE DESIGNING OR INSTALLING EQUIPMENT

This unit is a high-powered electrical device and can be hazardous if improperly installed, serviced, or operated. Failure to follow procedures in this manual could result in extreme hazard to personnel and/or damage to the equipment and related infrastructure. In addition, the installation, service, and maintenance need to comply with local codes and the Authority Having Jurisdiction (AHJ).

IMPORTANT SAFETY INSTRUCTIONS

The symbols used are international icons used to depict various levels of caution when installation, servicing or maintaining the equipment. Same symbols will also appear on the equipment for identifying caution levels required when access certain areas of the charger.



DANGER High voltage danger label to keep people safe from electrical discharge, which could result in injury or potential death.



WARNING Warning icon represents hazard, that could result in severe injury or possibly death.



GENERAL CAUTION Caution icon represents a potential hazard or unsafe practice that could result in injury



SERVICE WARNING

There are no serviceable items inside the equipment. There is high voltage inside the equipment which could cause severe injury or death. Do not attempt to repair the charge station yourself. This can only be performed by factory qualified personnel.



CHARGING CABLE DAMAGE

Do not operate the charger if the charging cable is damaged or if there are exposed wires in the charging cord assembly. Shut off power at the electrical disconnect or at the breaker. Then immediately contact Tellus service. If there are any questions, please contact customer service.

2. INSTALLATION

SAFETY INSTRUCTIONS

Read the entire installation instructions before designing the installation and prior to installation.

This equipment should be installed by a journeyman level electrician. Local building codes need to be complied with. In most jurisdictions the installation of this equipment requires plan check, building and electrical permits. Verify with the local Authority Having Jurisdiction prior to starting construction.

The charging station relies on the grounding system for safety. All grounding instructions should be strictly adhered to as prescribed in this manual and any applicable electrical safety requirements, all local electrical safety codes, and NEC.



HIGH VOLTAGE EQUIPMENT:

This charging system contains both AC and DC high voltage circuitry and devices and should only be installed by a qualified electrician trained to work on high voltage, high current AC and DC systems.

ADA Consideration

This equipment has been designed to meet ADA requirements when installed as prescribed in this manual and in accordance to the STANDARDS FOR ACCESSIBLE DESIGN for Americans with Disabilities document, 2010 ADA Standards for Accessible Design: http://www.ada.gov/2010ADAstandards_index.htm

Parking space, allowances for wheelchair movement, charger, bollards, and parking stops are defined in several publicly available EV charger installation recommended practices documents incorporating the ADA requirements. <http://www.ada.gov> *For information about the ADA, including the revised 2010 ADA regulations, please visit the Department's website www.ADA.gov; or, for answers to specific questions, call the toll-free ADA Information Line at 800- 514-0301 (Voice) or 800-514-0383 (TTY).

ADDITIONAL CAUTIONARY NOTES



WARNING

Do not have power on while any of the maintenance doors are open unless proper personnel protection equipment is worn.

Only trained personnel should be working in this equipment while the doors are open, and the unit is powered on.



WARNING

There are high voltage and high-capacity energy storage components on this system. There are components and circuits that remain charged for some time (1 to 2 minutes) with high voltage power, even after main power is disconnected. Always test with a voltmeter before any maintenance or service is performed.

This manual covers the electrical and mechanical installation procedure for the Tellus TP-EVPD-30kW charger.

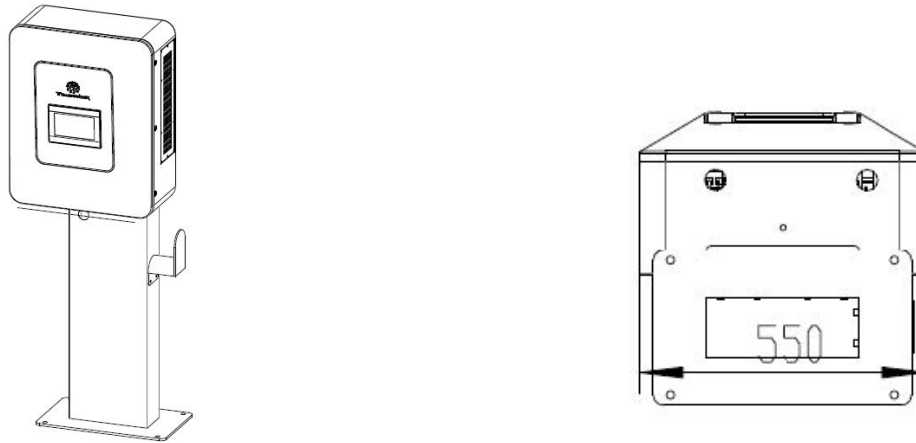
SPECIFICATIONS

Product #	TP5-30-480
Input	480VAC (3P+N+PE), 60Hz
FLA Breaker	40A 63A
Output Voltage	150 to 1000VDC
Output Current	0 to 100A
Connector(s)	CCS1 Dual CCS1
Efficiency	≥94% at nominal output power
Power Factor	> 0.98
Operating Temperature	22°F to 131°F (-30°C to 55°C)
Working Storage humidity	≤ 95% RH ≤ 99% RH (Non-condensing)
Altitude	< 6600ft (2000m)
Display	7" LCD with touch screen
RFID System	ISO IEC 14443A/B
Dimensions (l x d x h)	21" x 12" x 27" 25" x 12" x 27" (Dual)
Protective Class	NEMA 3S, IK 10
Cooling System	Air cooled
Weight	176 lbs (80kg) 220 lbs(100kg) - Dual
Charging Protocol	Mode 4, IEC-61851, ISO-15118, DIN SPEC 70121
Length of charging cable	16ft (5m)
Interface protocol	OCPP 1.6J
Communication	Ethernet / 4G Wi-Fi
Electrical Safety: GFCI	RCD 20 mA Type A (UL)
Electrical Safety: Surge Protection	20 kA
Electrical Safety General	Over Voltage, Under Voltage, Over Current, Missing Ground
Electrical Safety: Output Short	Output power disabled when output is short circuited
Electrical Safety Temperature	Temperature Sensors @ Charge Coupler and Power Electronics
Emergency Stop	Emergency Stop Button Disables Output Power
Regulatory Compliance	UL-2202 EMC: EN 61000-6-1:2007, EN 61000-6-3:2007/A1:2011/AC:2012

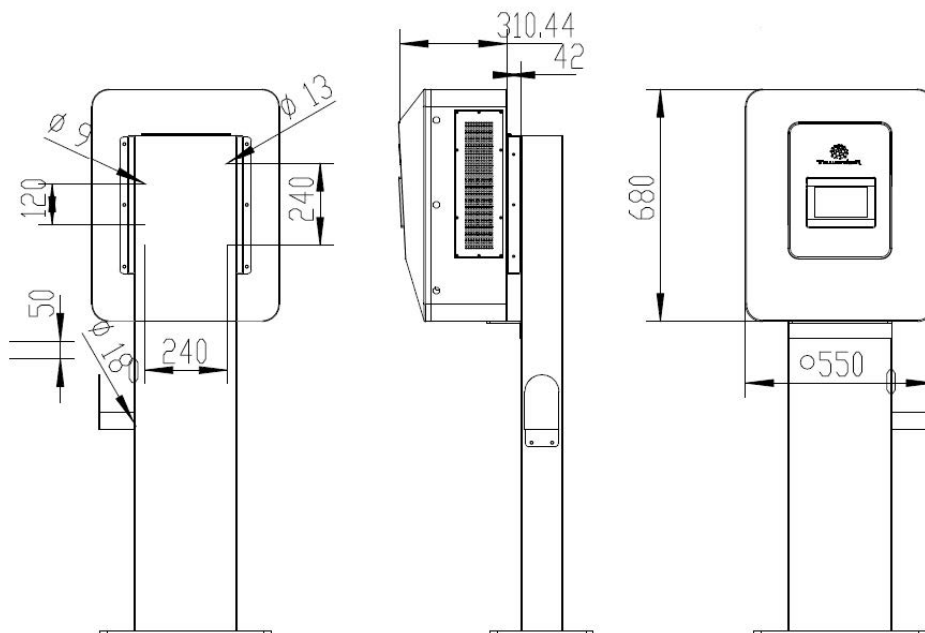
3. INSTALLATION OVERVIEW

Electrical Input Requirements	Input voltage: 480 VAC (3 Phase + Neutral + Earth), 60Hz
	Full Load Amperage: 40 Amps (At Rated power)
	Breaker Capacity: 63 Amps
Location	The charger can be installed on any stable wall or any pole structure with appropriate brackets. The input cable provision is provided from the bottom the charger. The height of the charger should be in above 4 ft from the ground.
	Charger Dimensions (L x D x H): 21" x 12" x 27" 24" x 12" x 27"
Mounting	Wall Mount
Cables	Input Cables must be Copper (3P+N+PE). Flexible copper is preferred.
	Depending on the situation and cable type, the cables must be embedded in the ground with proper cable duct.
Grounding	Reliable protective grounding must be provided. It is recommended to have separate dedicated ground exclusively for the charger considering the safety aspects. The ground resistance should be less than or equal to 4Ω. Copper cable of in accordance with NEC shall be used to connect charger housing to external ground.
Breaker	Breaker (3P+N) with suitable current capacity depending up on the charger rating to be provided. This shall be in accordance with NEC, typically 1.25 X Full Load Amperage.
Miscellaneous	Copper lugs (Flat type) for input cable and earth cable should be provided based on size of cable.
Additional notes	Do not let the flammable, explosive or flammable materials, chemicals, flammable vapors, and other dangerous goods close to charging station
	In the areas of floods, heavy rains, storms, snow, or similar harsh weather conditions, Tellus recommends a canopy for the charger for protection. The charger is IP54.
	Confirm that your installation site has a load capacity sufficient to support this equipment. Charge cable length depending on options will be between 13 ft & 16 ft

4. OUTLINE OF DRAWING TP-30-480 DCFC



Charger Depicted to be mounted on a stand. The dimension of the bracket remains the same from wall mount and stand mount (units of measure in mm).



5. STATION ANATOMY



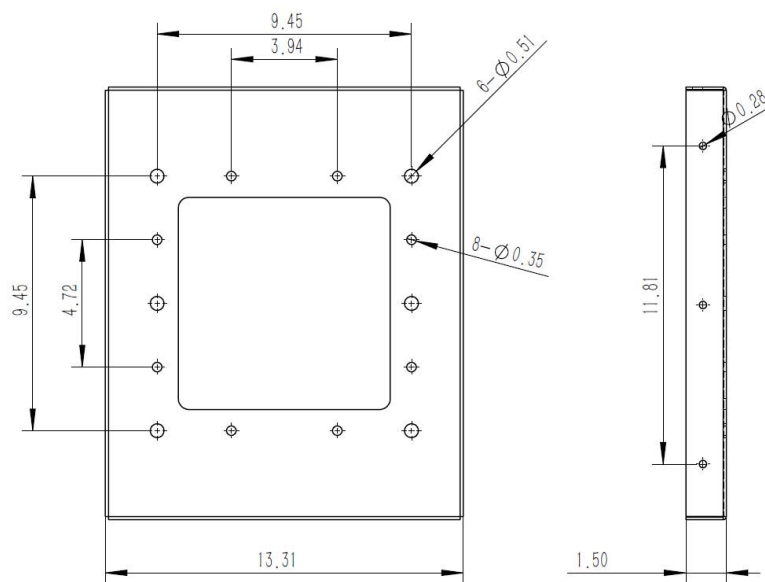
6. CHARGER INSTALLATION

PLACING CHARGER ON THE WALL

A forklift will be required to move the charger into position. The charger with the crate will weigh around 240lbs. The charger without the crate weighs around 175 lbs. To lift the charger, use the forklift cut-outs in the lower frame of the charger.

The charger will be provided with a mounting bracket on the rear. The mounting bracket comes with holes that are to be used for placement of the station.

The mounting screws are included in the delivery package and should be used on a brick or concrete wall for appropriate support.



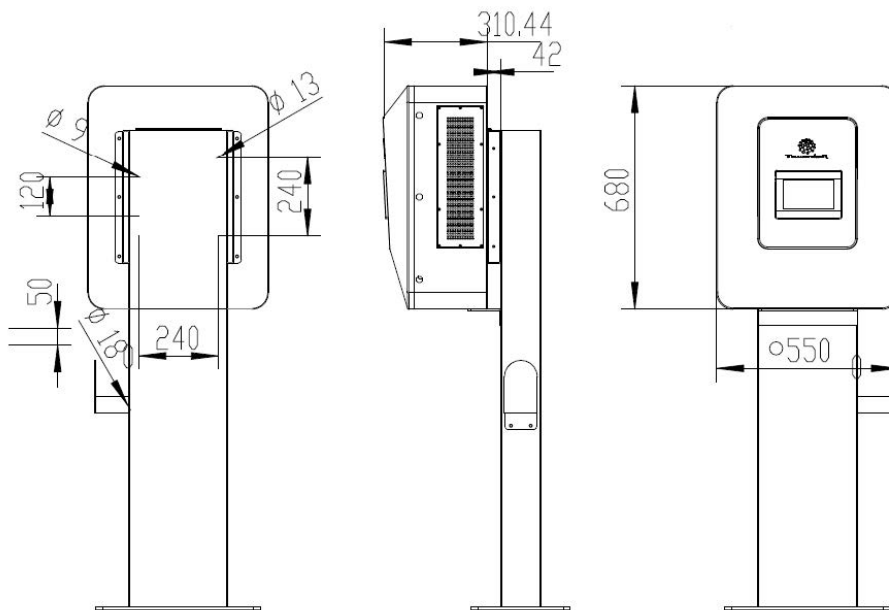
Mounting Bracket Dimensions (in inches)



Mounting Bracket 3D

CHARGER MOUNTING

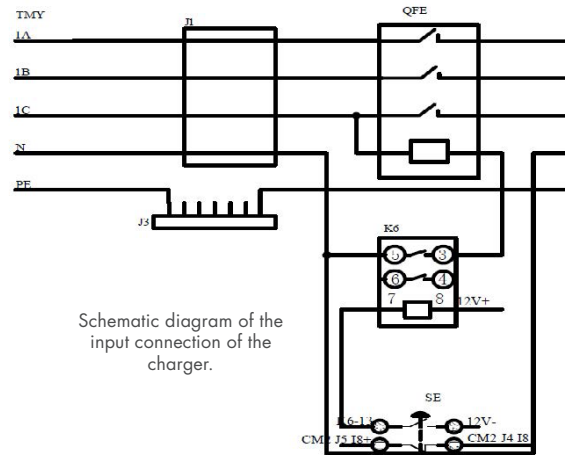
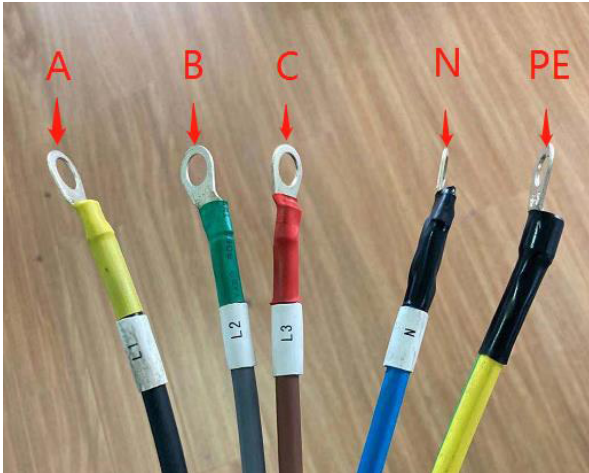
1. Hold the installation bracket against the wall.
2. Make sure that the bracket is levelled. Use the spirit level to ensure.
3. Mark the location for the mounting holes.
4. Drill the mounting holes as per the template provided.
5. Insert the mounting bolts in the holes.
6. Fix the charger on the mounting bracket and fix it with the screws.



AC INPUT POWER WIRING

INPUT VOLTAGE

The Charger requires an Input voltage of 480 VAC (3 Phase + Neutral + Earth), 60Hz and current of 40 Amps.



AC INPUT TERMINATION

MAIN BREAKER

ABC are the 3 Phase Lines

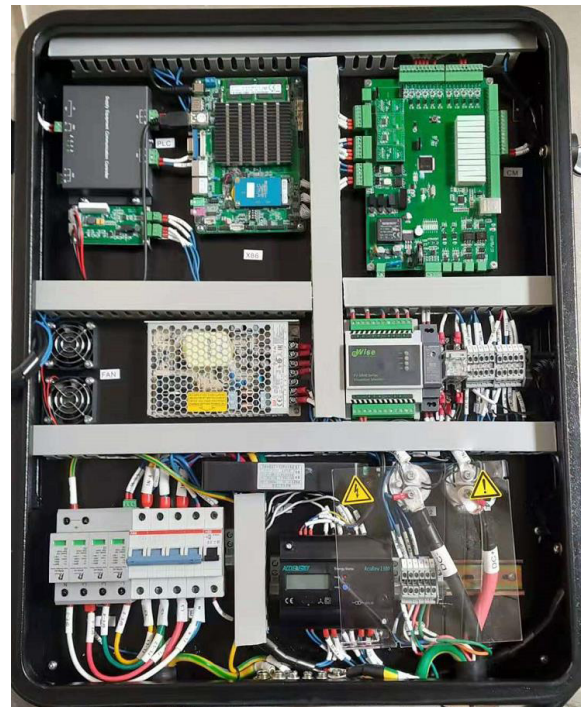
N is the Neutral.

PE is the Protective Earth or Ground

Line Side Single input option: 25 sq mm Please follow local codes

Ampere Rating per Pole: 63

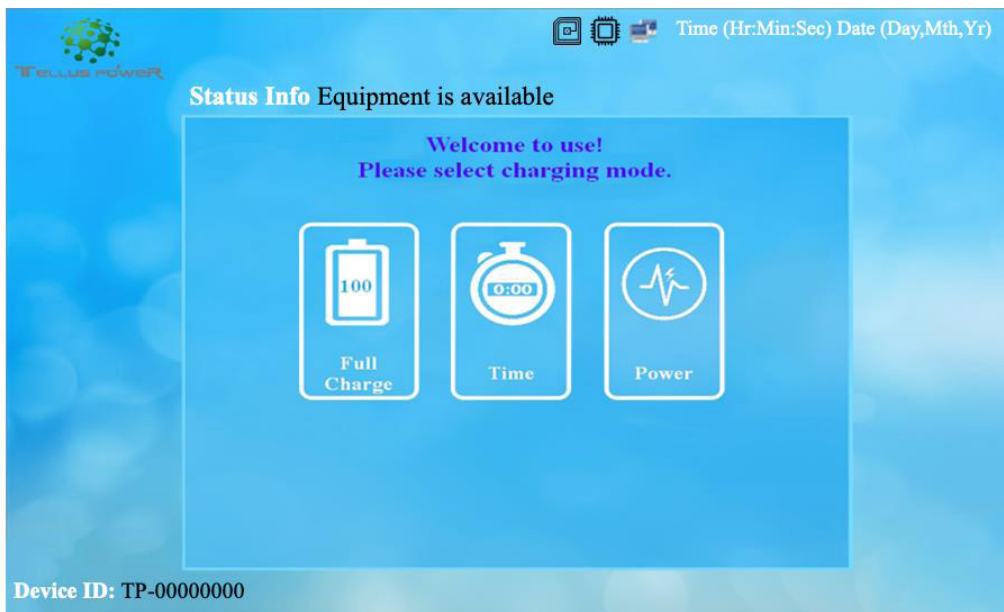
Component Description: 4 Pole MCB



7. OPERATING INSTRUCTIONS

The Tellus Power Green charger provides multiple options to operate and charge the EV. All the Tellus chargers come with a standard RFID card reader, Smart charging facility and optional Credit Card reader. Below is the screen giving various options displayed.

- Make sure the Emergency Button is turned off.
- Switch ON the Charger from Main panel.
- Switch the Main MCCB and MCB(s) within the charger
- Wait for 1 to 2 minutes to Boot the machine and check 3 icons at top corner of Charger display should appear.



This icon indicates the charger is not connected to a server network or loss of internet connectivity. If no network is connected, the station works as a stand-alone device with Tellus Power RFID cards.



This icon indicates the charger is connected to a server network; it can be authorized with registered RFID cards or mobile app.



The stable icon indicates working condition of the charger. If the icon flashes or not visible on the screen, the controller is inactive.



RFID card reader is active. If the icon is not visible on the screen, the RFID reader is inactive.

8. HOW TO START A CHARGING SESSION

RFID CARD

1. Please select the connector compatible to your EV
2. Plugin the connector, and for CHAdeMO press the "Please to Connect CHAdeMO".
3. Charger display will show "Please swipe the card".
4. Swipe the registered RFID card.
5. Charging session will begin within 60 seconds.
6. To stop the charging – Swipe the same RFID card again or use STOP button on screen.

QR CODE / MOBILE APP

1. Please select the Gun compatible to your EV.
2. Plugin the connector, and for CHAdeMO press the "Please to Connect CHAdeMO".
3. Charger display will show "Please swipe the card / Scan QR".
4. Scan the QR code or start the charging from Mobile App.
5. Charging session will begin within 60 seconds.
6. To stop the charging – Stop from the Mobile App or use STOP button on screen

CREDIT CARD

1. Please select the Gun compatible to your EV.
2. Plugin the connector, and for CHAdeMO press the "Please to Connect CHAdeMO".
3. Charger display will show "Please swipe the card / Scan QR".
4. Authorize your credit card. Make sure you have enough balance on the card to charge.
5. Charging session will begin within 60 seconds.
6. Charging will automatically stop after the 100% charge or use STOP button on screen.

During the charging process, a real-time data output of the charging process on the screen appears. At any point of time, charging session can be stopped using Stop button on the screen or Emergency Stop button.

9. CHARGER SETTINGS

SETTING PARAMETERS

During the initial installation, the setting parameters must be set by the manufacturer or the operating partner, or the service partner. Changes may only be made by trained specialist personnel.

The setting window can be accessed by following steps.

- 1) Touch the Tellus Power Logo
- 2) Provide the Password. Password will be shared to the authorized representative
- 3) Select System Settings

PARAMETER	VALUE
TIME ZONE	UTC+HH:MM
PSM QUANTITY	1
POWER OUT MODE	0
OCCUPIED PLUG	1
PSM MAX VOLTAGE	1000
PSM MAX CURRENT	100
PSM MID VOLTAGE	300
PSM MID CURRENT	20
PSM MIN VOLTAGE	50
PSM MIN CURRENT	0
PMAX	30000
CCS NETWORK 1	ETH1
INSYS PLC MAC 1	00:00:00:00
TIME	2020-08-20 T20:46:25

S.NO	PARAMETERS	VALUE	REMARKS
1	NETWORK	ETH	Ethernet-DO NOT CHANGE
2	NETCFGFILE	/etc/network/interfaces	Path- DO NOT CHANGE
3	WLAN CONF	/home/guest/wpa_supplicant.conf	Path- DO NOT CHANGE
4	DEVICE IP	192.168.0.3	IP Adress of Device
5	DEVICE GATEWAY	192.168.0.1	IP Adress of Gateway
6	DEVICE NET MASK	255.255.255.0	IP Adress of Mask
7	SERVICE URL	<<Provide Portal Details>>	OCCP Server URL
8	DEVICE ID	<<Provide ID>>	Device ID
9	CHARGE POINT VENDOR	Tellus power	Charger OEM- DO NOT CHANGE
10	CHARGE POINT MODEL	DC	Charger Type- DO NOT CHANGE
11	ADPATH	./pic	Path - DO NOT CHANGE
12	QRCODE NAME		NA
13	LANG	en	Path - DO NOT CHANGE
14	MODE	offline/record/upload/debug	Path - DO NOT CHANGE
15	CHARGING PIC	/img/charging_tata.jpg	Path - DO NOT CHANGE
16	IDLE PIC	/img/standby.jpg	Path - DO NOT CHANGE

17	LCM	/dev/ttyS4	Path - DO NOT CHANGE
18	LCM ENCODE TYPE	UNICODE	Encode - DO NOT CHANGE
19	LCM PASSWORD	123456	Password for access
20	RFID	RFID0=/dev/ttyS1	Path - DO NOT CHANGE
21	PLUG1	GBTDC1:2=/dev/ttyS0	Path - DO NOT CHANGE
22	PLUG2	GBTDC2:2=/dev/ttyS0	Path - DO NOT CHANGE
23	DC1QRCODE NAME		NA
24	RFID ORIGINAL NUMBER	1	NA

10. MAINTENANCE AND SERVICE



DANGER

READ AND FOLLOW THE "SAFETY CONCERNS" AT THE BEGINNING OF THIS MANUAL BEFORE USING THIS DEVICE

EV Charging Stations require regular maintenance beyond installation to ensure the quality of the vehicle's charge, and the continued value of your electric vehicle. Whether you're installing a personal EV charger, or a public one for use, eventually you will require repair or maintenance services to keep your system working without flaws.

MAINTENANCE PRECAUTIONS

Each of the capacitors in this device have a high voltage for a time after shutting off the input power supply. Allow 1 minute after powering down before servicing internal components.

MAINTENANCE ITEMS

Perform periodic checks every 3 to 6 months based on the site conditions and the usage of the charging station.

1. Check the input voltage and ensure it is within the acceptable limits.
2. Check the Ground / Earth resistance and ensure it is within the acceptable limits
3. Clean the Air Filter periodically
4. Make sure that Power Module lights are blinks green
5. Ensure the charging cables are not worn out and gun pins are clean.
6. Make sure all the air-cooling fans are working normally.

VISUAL CHECK ITEMS

1. Check for abnormal sound from running fans and power units. If there is abnormal sound, please contact Tellus 949-534-3000 for further assistance.
2. Check for abnormal odor, changes of inner materials, corrosion, anomaly in appearance, etc., in this device. If there are any anomalies, please contact a Tellus service representative for further assistance.
3. Check for dust and dirt in this device regularly. The air filters on the doors can be removed and cleaned

using a vacuum cleaner or air blower. The cabinet can be cleaned using a vacuum cleaner. The dust on the components can be cleaned using a soft cloth. Please pay extra attention while using the vacuum cleaner, it should not apply pressure on the control boards or any components.

REPLACEMENT OF FIXED-LIFE COMPONENTS

To prevent the device from failure due to worn out components, it is necessary to replace the components before they reach the end of their lifespan. Use the following replacement intervals as a guideline for the estimate of the total running time. Please contact a Tellus service representative for further assistance when you replace the parts.

- Intake and exhaust air filters (if present): Approximately three (3) years. The period depends upon the site conditions.
- Please keep in mind that the replacement interval of each part can vary depending on, for example, the usage environment of the device.

11. TROUBLESHOOTING

ERROR CODES

If an error occurs, check the nature of the error by referring to following "Error Code List" and take appropriate actions according to instructions by the manufacturer.

ERROR	DESCRIPTION	POSSIBLE SOLUTION
ERROR FLAG 0	Lightning protection device failure	Check the SPD and GFCI circuit
ERROR FLAG 1	Insulation detection abnormal	The insulation check on the EV has failed. Please try to charge different EV.
ERROR FLAG 2	Abnormal communication between Insulation Monitor and Main Control Board (CM)	Please check the connection between the IM and CM boards. Check the LED lights on the CM and IM
ERROR FLAG 3	Abnormal communication between TR board and CM board	Please check the connection between the tr and cm boards. Check the LED lights on the CM and TR
ERROR FLAG 4	Electronic lock failure	Possible failure of the gun to lock on the EV or the 24v supply voltage
ERROR FLAG 5	Internal use	Reserved
ERROR FLAG 6	Abnormal communication between DC meter and Main Control Board (CM)	Please check the connection between the DC and CM boards. Check the LED lights on the CM and communication lines of DC meter.

FAULT TYPE	SOLUTION
IP address communication failure or Server Communication Failure	Check the SPD and GFCI circuit
AC input over voltage / under voltage	The insulation check on the EV has failed. Please try to charge different EV.
DC output over voltage / over current	Please check the connection between the IM and CM boards. Check the LED lights on the CM and IM
Card reader failure	Please check the connection between the tr and cm boards. Check the LED lights on the CM and TR
Insulation fault	Possible failure of the gun to lock on the EV or the 24v supply voltage
Monitoring board communication failure	Reserved
Charging gun connection failure	Please check the connection between the DC and CM boards. Check the LED lights on the CM and communication lines of DC meter.
The emergency stop button is pressed	Check whether the emergency stop button is pressed, if it is, inspect the charger and if everything is normal, release the emergency button and restore the main breaker
Charging Session shutdown is not successful	MCU board and power module communication failure. Please press emergency stop button to stop the charging. Check the MCU board and power module CAN communication bus.

12. CUSTOMER RESPONSIBILITIES

1. To operate the charge station with the required protective devices such as MCBs and switches and proper cables installed.
2. The operator/owner/customer is cautioned that any changes or modifications not approved by Tellus shall void Tellus warranty policy
3. To write an emergency plan that instructs people what to do in case of emergency.
4. To locate and prepare the site as per the instructions laid out in this document.
5. To make sure that there is sufficient space around the charger to carry out any regular maintenance work.
6. To appoint a trained person(s) responsible for the safe maintenance/service of the charge station.
7. Neither Tellus nor any of its affiliates shall be liable to the operator/owner/customer of this product or third parties for damages, losses, costs, or expenses incurred by as a result of: an accident, misuse or abuse of this product or unauthorized modifications, repairs or alterations to this product, or failure to strictly comply Tellus operating and maintenance instructions.

13. WARRANTY

Warranty and Service Plan

Tellus DC chargers comes with the 2 years parts only standard warranty. However, we offer service plans which covers parts and labor as well for an additional add-on fee. We can train your operators or engineers and equip with basic understanding of the troubleshooting and part replacement to make sure the equipment downtime as well as total cost of ownership is minimized.

Warranty Terms

LIMITED WARRANTY: Subject to the exclusions from warranty coverage set forth below, Tellus warrants that the Product will be free from any defects in materials and/or workmanship (the “Limited Warranty”) for a period of two year after 30 days from the date of shipment or from date of the initial installation whichever is earlier (the “Warranty Period”). If the Product becomes defective in breach of the Limited Warranty, Tellus Power will, upon written notice of the defect received during the Warranty Period, either repair or replace, at Tellus Power’s choice, the Product if it proves to be defective. Tellus Power will also pay for shipping charges for the failed part. If the returned part has not failed the customer will pay for shipping charges for the replacement part and the associated returned part. Under this guarantee, Tellus liability is limited to repair or replacement of the product with the same or equivalent, or reconditioned product warranted for the original warranty period. The warranty will not include removal costs, re-installation costs, loss of charging station revenue, nor loss or damage of any kind whatsoever, whether incidental, consequential, or otherwise.

Exclusions From Limited Warranty

IMPORTANT: The Limited Warranty and on your Product shall not apply to defects, or service repairs, resulting from any of the following:

- Damages due to normal wear and tear to charging cords, connectors, LCD/LED display, Touch Screen, or any product alteration or modification, misuse, abuse, accident, vandalism, acts of nature, power surges, or use of software, parts, or supplies not supplied by Tellus, and causes other than manufacturing defects not covered by the warranty.
- Force Majeure – any occurrence or extraordinary event or circumstance beyond the control of Tellus Power that is an act of God or whether that occurrence is caused by war, riot, storm, (such as hurricane, flooding, earthquake, volcanic eruption, etc.), or other natural forces, including high input voltage from generators or lightning strikes or acts of nature or other causes.
- Any Alteration or Modification of the Product in any way not approved in writing by Tellus Power.
- Abuse, damage or otherwise being subjected to problems caused by negligence (including but not limited to physical damage from being struck by a vehicle) or misapplication, or misuse of the Products by customers or end users.
- Any damage to the EV charger cord, unless such damage is caused by a manufacturing defect in the cord or connector assembly.
- Improper site preparation or maintenance. That has been improperly installed, operated, handled, or used, including use under conditions for which the product was not designed, use in an unsuitable environment, or use in a manner contrary to the Tellus Installation and Operations Manual or applicable laws or regulations.
- Damage because of accidents, extreme power surge, extreme electromagnetic field.
- Use of the Product with software, interfacing, parts or supplies not supplied by Tellus Power Green.

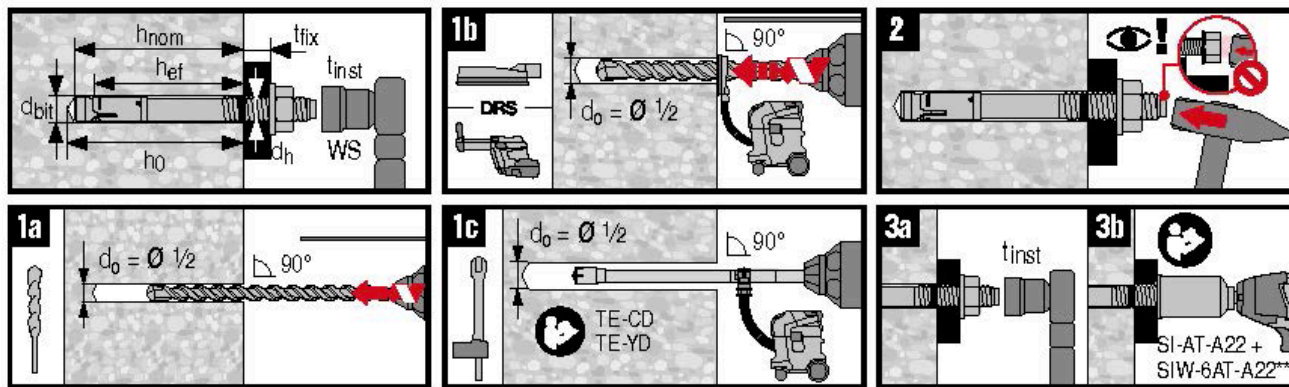
- Tellus disclaims any liability for damage to product, property, or personal injury resulting in whole or in part, from improper installation, maintenance or use that is not in accordance with Tellus installation and maintenance procedures.
- Maintenance or use that is not in accordance with Tellus installation and maintenance procedures.
- That has been subjected to incidental or consequential damage caused by defects of other components of the electrical system.

APPENDIX



1/2"
KB-TZ, KB-TZ SS 304,
KB-TZ SS 316

2143081 A4-10.2019



Anchor diameter	[inch]	1/2							
d_{bit}	[inch]	1/2							
Anchor Length	[inch]	3 3/4	4 1/2		5 1/2		7		
h_{ef}	[inch]	2	2	3 1/4	2	3 1/4	2	3 1/4	
min. h_{nom}	[inch]	2 3/8	2 3/8	3 5/8	2 3/8	3 5/8	2 3/8	3 5/8	
min. h_0 ***	[inch]	2 5/8	2 5/8	4	2 5/8	4	2 5/8	4	
T_{inst}	[ft-lb]	40		40		40		40	
T_{inst} (Masonry)	[ft-lb]	25		25		25		25	
d_h	[inch]	9/16		9/16		9/16		9/16	
WS (Wrench Size)	[inch]	3/4		3/4		3/4		3/4	
max. t_{fix}	[inch]	7/8	1 5/8	3/8	2 5/8	1 3/8	4 1/2	3 1/4	

Use only carbide-tipped masonry drill bits complying with ANSI B212.15.1994

** Adaptive torque (AT) system not applicable for installation in concrete masonry unit / grout filled block

** AT System not applicable for wood fastening applications

*** For a non-hole cleaning installation (step 1a or 1b), make sure to drill deep enough to achieve h_0 , taking into account the depth of debris remaining in the hole