



TCHARGE® UDC 360 DCFC Charger

Installation Manual



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Important

Before operating or maintaining this unit, please read this manual carefully and pay extra attention to the safety warnings and precautions.

For Service and Support:

Web: <http://www.blueview-usa.com/>

Email: support@blueviewelectricity.com

Safety Information

For your own safety and the safety of others as well as to prevent damage to the device and vehicles upon which the device is used, it is important that the safety instructions presented throughout this manual be read and understood by all persons operating or coming into contact with the device.

Safety Instructions

The safety messages herein cover situations BLUEVIEW is aware of. BLUEVIEW cannot know, evaluate, or advise you as to all the possible hazards. You must be certain that any condition or service procedure encountered does not jeopardize anyone's personal safety.



SAFETY WARNINGS

- Read all the instructions before you use this device.
- Do not install or use the device near materials, chemicals, or vapors that are flammable, explosive, harsh, or combustible.
- Turn off the power at the circuit breaker before installing or cleaning the device.
- Children around this device should be supervised when the device is in use.
- This device must be grounded through a permanent wiring system or an equipment-grounding conductor.
- Use the device only within the specified operating parameters.
- Do not use the device if it is defective, appears cracked, frayed, broken or otherwise damaged, or fails to operate.
- Do not use the device if the flexible power cord or EV cable is frayed, broken, or otherwise damaged, or if it fails to operate.
- Do not attempt to disassemble, repair, tamper with or modify the device.
- Handle the device with care during transportation. In order to prevent damage to it and to any of its components, do not subject it to strong force or impacts, pulls, twists, tangles, or drags. Do not step on the device.
- Do not insert fingers or foreign objects into any part of the device.



CAUTION

- Do not use private power generators as a power source for charging electric vehicles (EVs) with this device.
- Do not operate the device in temperatures outside its working temperature range.
- Incorrect installation, operation, or testing of the device could potentially damage the battery or other components of an EV as well as the charger device itself.

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1. Using This Manual

1.1 Purpose

The purpose of this manual is to offer guidance regarding on-site installation and use of **TCHARGE®** UDC 360 DCFC charger.

1.2 Applicable Products

This document applies to **TCHARGE®** UDC 360 DCFC charger.

Caution: Death, injury, and/or property damage may occur if you use this equipment in a manner other than as described in this manual or other related documents.

1.3 Definition of Warning Symbols




Symbol	Meaning
	<p>WARNING signs indicate significant dangers.</p> <p>This sign indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or to bystanders.</p> <p>Operations after the WARNING sign can only be performed once the indicated conditions are fully understood and met.</p>
	<p>CAUTION signs indicate potential risks.</p> <p>This sign indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or to bystanders.</p> <p>Operations following the CAUTION sign should only be performed once the indicated conditions are fully understood and met.</p>
	<p>HINT signs indicate tips or useful information.</p> <p>This sign marks tips and useful information worthy of notice.</p> <p>Contents following HINT signs will not contain information that warns of hazardous or harmful functions.</p>

Table 1.1 Definition of Related Warning Symbols

2. General Introduction

TCHARGE® DCFC charger is designed to charge an electric vehicle (EV). Our chargers provide you with safe, reliable, fast, and smart EV charging solutions.

This manual will instruct users and installation technicians on how to install this charger.

2.1 Intended Uses

TCHARGE® UDC 360 DCFC charger is suitable for charging EVs with 3-phase AC power input and DC power output in both indoor and outdoor settings such as:

- Commercial fleets
- Highway roadside charging (especially long-distance driving oriented)
- Public agencies
- Shopping centers

Please note that our EV charger product does not serve purposes other than charging EVs!

Caution: Dangers



- If you use the equipment in any way other than described in this manual or other related documents, possible deaths, injuries, and damage to property can occur.
- Use this EV charging equipment only as intended.

2.2 Product Overview

2.2.1 TCHARGE® UDC 360 DCFC Charger Product Dimensions

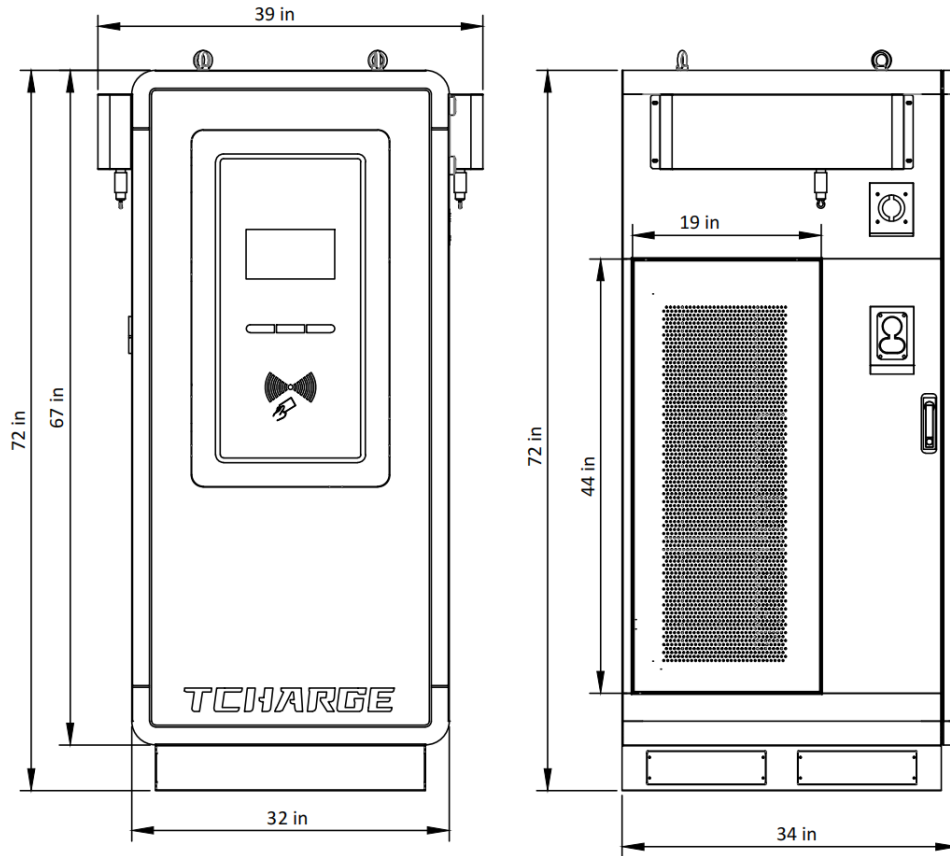


Figure 2.1 TCHARGE® UDC 360 DCFC Charger Dimensions Overview

2.2.2 TCHARGE® UDC 360 DCFC Charger Block Diagrams

Below is a structural diagram of TCHARGE® UDC 360 DCFC charger. The 360kW configuration with 12 power modules is shown. Models with lower power output have less pairs of power modules. Please refer to **Table 2.2** below for a list of module pair numbers and module numbers.

Legends for **Figure 2.2** are found in **Table 2.1**.

Note that these diagrams refer to chargers without flexible output power distribution feature only. For more details on your charger's working principles, you may contact the TCHARGE® team directly for inquiries.

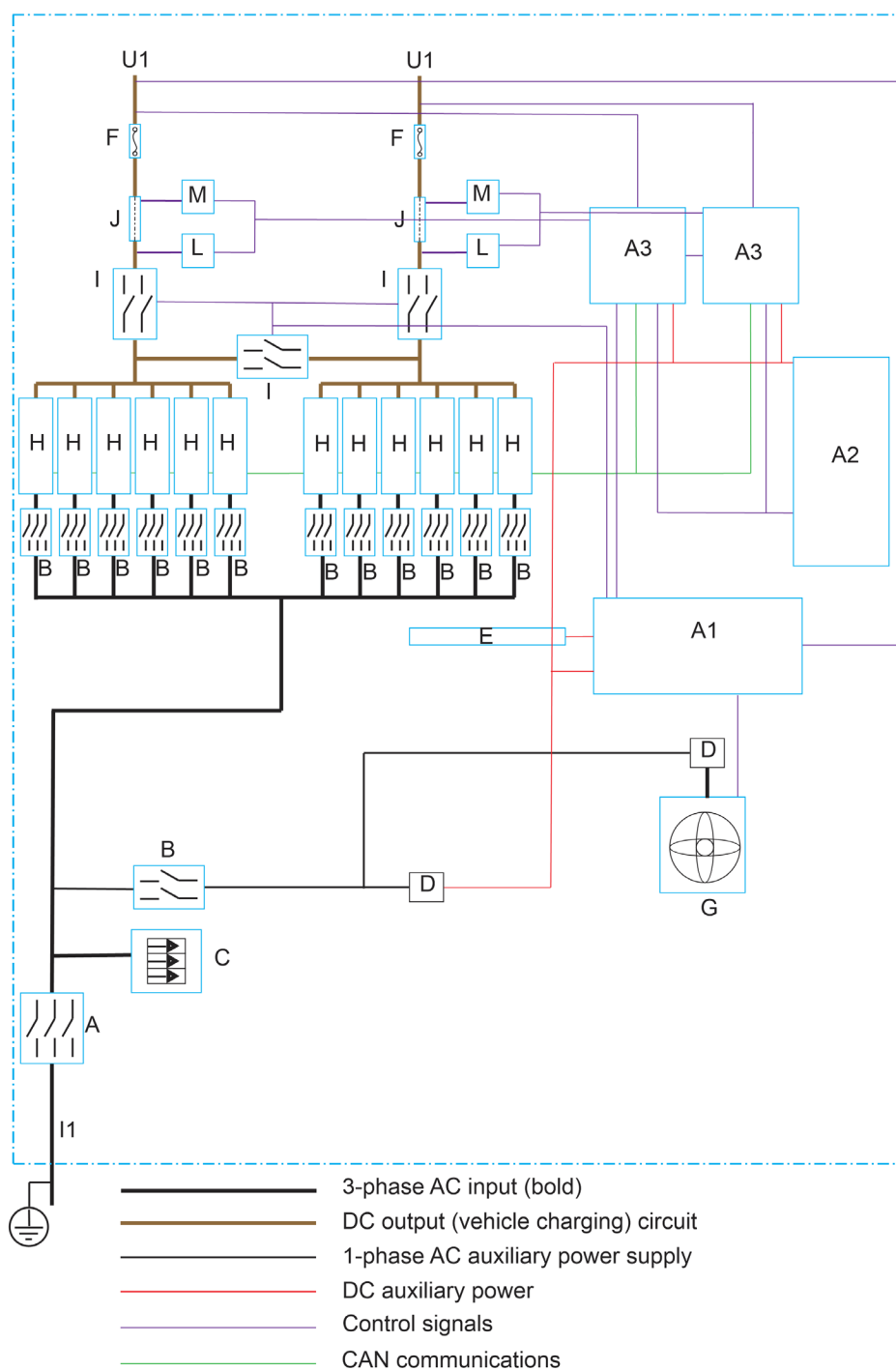


Figure 2.2 TCHARGE® UDC 360 DCFC Charger 360kW Block Diagram

Code	Component	Code	Component
A	Molded case circuit breaker	J	Shunt current
B	Micro circuit breaker	K	Charge protocol interface
C	AC surge-protection device	L	Insulation monitor interface
D	Auxiliary power supply (AC to DC)	M	DC Meter
E	LED strip	A1	Charger controller board
F	DC fuse	A2	Touchscreen
G	Cooling fan	A3	IO controller board
H	Power module	I1	AC grid connection
I	DC contactor	U1	Charge cable (DC output to vehicle)

Table 2.1 Legends for Block Diagram **Figure 2.2**

Models Power Output	No. of Power Module Pairs	No. of Power Modules
360kW	6	12 (6 on each side)
300kW	5	10 (5 on each side)
240kW	4	8 (4 on each side)
180kW	3	6 (3 on each side)
120kW	2	4 (2 on each side)
60kW	1	2 (1 on each side)

Table 2.2 Different Numbers of Power Modules in Different **TCHARGE®** UDC 360 DCFC Charger Models

2.3 Key Technical Parameters

General Design	
Dimension (H*W*D)	71" H * 32" W * 33" D (1800mm * 800mm * 850mm)
Weight	1,058 lb. (480kg) (max., lighter for models with less than 360kW output)
Output Rating & Current	360kW / 400A (max.); 200kW / 200A max. output for each charging port when using default charging cable
Input	3-phases 5-wires 480VAC $\pm 15\%$, 50Hz / 60Hz
Connectors	Double outlet, CCS1 or NACS (*2, can be different ports); default 16.4 ft cable
Installation	Floor stand
Safety Features	
Protections (against)	Over/under voltage, overcurrent, residual current, earth leakage, surges, communication interruptions and resets, ultra-violet exposures
Enclosure Rating	IP54 (NEMA Type 3R); IK10 equivalent impact protection
Key Certifications	UL2202, UL2231-2
Connectivity and User Interaction	
Internet Connectivity	Ethernet, WIFI, 4G
Charging Authorization	Mobile APP or RFID card; payment service as an optional feature (please contact your payment service provider for integrating terminal)
User Interface	10" LCD touch screen, LED indicators
System Protocol	OCPP 1.6-J+
Working Environment	
Altitude	$\leq 6,562$ ft (2000m)
Operating Temperature	-31°F to +122°F (-35°C to +50°C)
Working Humidity	5% to 95% relative humidity without condensation

Table 2.3 Key Technical Parameters of TCHARGE® UDC 360 DCFC Charger

3. Before Installation

3.1 Receiving the Charger

Upon receiving the charger, please unpack and examine the charger with following procedures:

- Check the charger's nameplate and packing list; crosscheck with your purchase orders to verify that you receive the **correct numbers and models** of equipment. If there are any discrepancies, please contact both **TCHARGE®** and the shipping carrier(s) to follow the problem.
- Inspect for potential shipping damages on the charger. If you spot any damage, please notify **TCHARGE®** and contact with shipping company(ies) immediately. Please **also check further for possible additional damages** inside and outside of the charger in this case.



Note

TCHARGE® promises careful inspection on all EV charger products leaving our factory. If you find damage on the charger upon receiving it, it is possible that issues occurred during transportation. You should consider protecting your right of making a claim to the shipping company(ies) in such scenario.

3.2 Storage of the Charger

If you need to store your **TCHARGE®** charger prior to installation, it should be stored in a **clean, dry** indoor environment with **temperature falling in the range of -40 °F to 158 °F (-40 °C to 70 °C)**.

The charger should be stored **standing upright** on its shipping pallet, ideally with the shipping box being restored as an additional layer of protection. The area should also **contain few risks that can cause damages** to the charger.

During the storage period, please **do not stack anything on top of the charger!**

3.3 Moving and Transportation before Installation

In most of the conditions, both the **steel pedestal part of TCHARGE® UDC 360 charger** and the **shipping pallet** that the charger is shipped on have **forklifting holes** structures. The holes in the charger's pedestal are normally covered by steel plates, and can be revealed by removing those plates. The **lifting loops** used for hoisting the charger are also **shipped in position on top of the charger for most of the cases**. (See also **Figure 4.6** on **Page 14** below) Both of these structures can be used to move your UDC 360 charger around (including transporting to the project site) before installation.

Care should be taken when lifting and forklifting UDC 360 DFDC charger. **We would recommend using professional transportation services for lifting and/or forklifting of the charger.**

3.4 Planning Installation Site

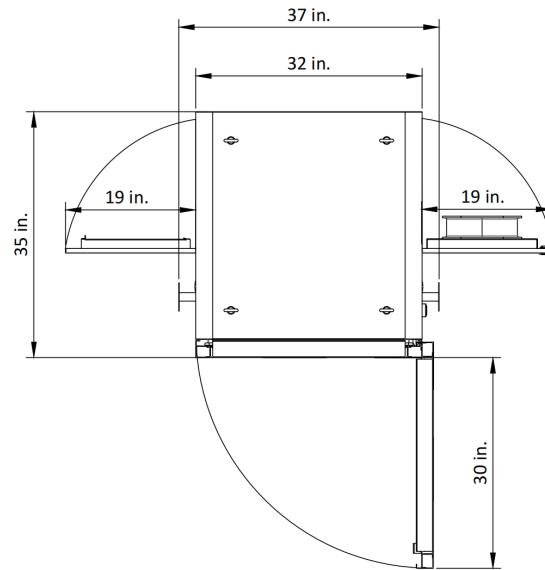


Figure 3.1 Dimensions and Space Requirement Around **TCHARGE®** UDC 360 DCFC Charger

Before installation of **TCHARGE®** UDC 360 DCFC charger, please consider the following factors for spaces on the projected installation site:

- The **front door** of the cabinet requires at least **30 inches** of empty space in the front of the charger to be fully opened.
- The **left-side and right-side doors** require at least **19 inches** of empty space on both sides of the charger to be fully opened.

Refer to **Figure 3.1** for the dimensions of the cabinet and minimum space required to open the doors on all sides of the charger. **Please ensure that no door is blocked after installation, as all of them are required to be opened for routine maintenance on the charger.**

In fact, **TCHARGE®** would recommend **at least 4 feet** of space to be reserved on **all sides** of the charger for **maximizing the air-cooling charger's ventilation efficiency.**

4. Install the Charger

4.1 Prepare the Foundation

4.1.1 Prepare the Foundation Pit

At the site where the charger is intended to be installed, make a pit in the ground to hold the concrete foundation for the charger. Leave tunnel(s) on at least 1 side of the foundation as an inlet for cables.

Dimension of the pit should be:

- At least **32 inches** wide (for the **front and back side of the charger**)
- At least **35 inches** long (for the **left and right side of the charger**)
- At least **16 inches** deep.

See **Figure 4.1** below for recommended shape and dimensions of the pit.



Note

Please note that **dimension noted here for the foundation pit are merely minimum recommendations from the manufacturer**. Please feel free to adjust (increase) the dimensions of foundation pit for your UDC 360 charger according to conditions on your project site as well as in compliance with your local electricity and construction regulations.

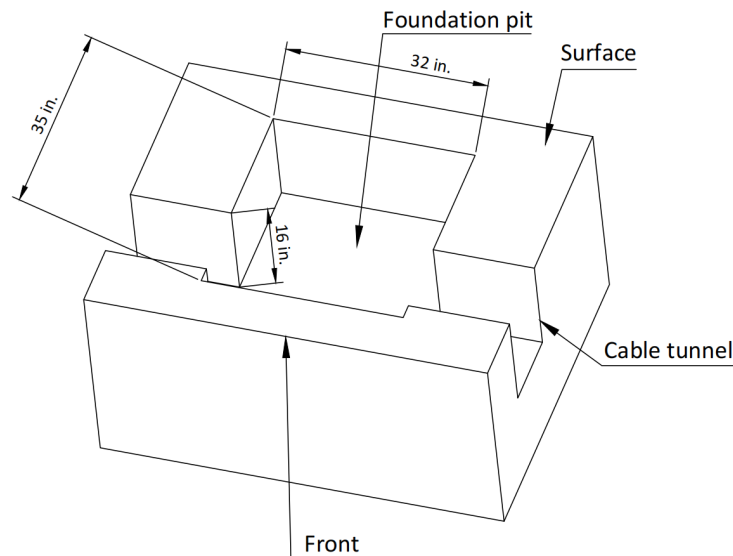


Figure 4.1 Diagram for Minimum Dimensions of Foundation Pit for UDC 360 DCFC Charger

4.1.2 Form the Foundation

- 1) Before forming the foundation, place the **cable conduit** for incoming cables (including power cables and ethernet cable) to go through the foundation pit via the cable tunnel.

Choice and placement of the cable duct should follow the dimensions depicted in **Figure 4.2**:

- The inlet for the duct at the bottom of the charger is **round shaped** with a **maximum 5.9 inches** diameter to fit 5-inch conduit (also see **Figure 4.3** on page 22). **Additional smaller diameter rings are available** at **TCHARGE®** for adjusting the inlet diameter. Please **contact TCHARGE®** (including that **contact in advance to add the request into your purchase order**) for ordering the cable inlet size that best fits your conduit.
 - The ingoing (horizontal) part of the conduit should be buried **at least 6 inches** below the ground surface. (This is the manufacturer's recommendation; **please design your site according to on-site situations and relevant local laws and regulations.**)
 - The top of the conduit should stand **sufficiently tall above the ground** so that **the top of the conduit will be able to reach and enter the cabinet box** once the charger is placed on top of the foundation.
 - The cable inlet at the bottom of the charger cabinet is centered at **around 8-½ inches (220 mm)** from the **front** and **about 9-½ inches (240 mm)** from the **left side (when viewing from the front)** of the charger.
 - A **drilling template** will be delivered together with the charger to help you determine the position of cable inlet and expansion screws.
- 2) After the cable conduit is correctly placed, pour concrete into the pit to form the foundation for **TCHARGE®** UDC 360 DCFC charger. Make sure that the top of the foundation stands **6 inches** above the ground surface. The top surface of the foundation **must be leveled**.
 - 3) Pull the cables through the conduit after the foundation is formed.



Caution

To avoid repeated efforts on forming the foundation or hoisting the charger (see **Section 4.2** below), please select and place the cable conduit carefully and ensure that all relevant dimensions are considered.

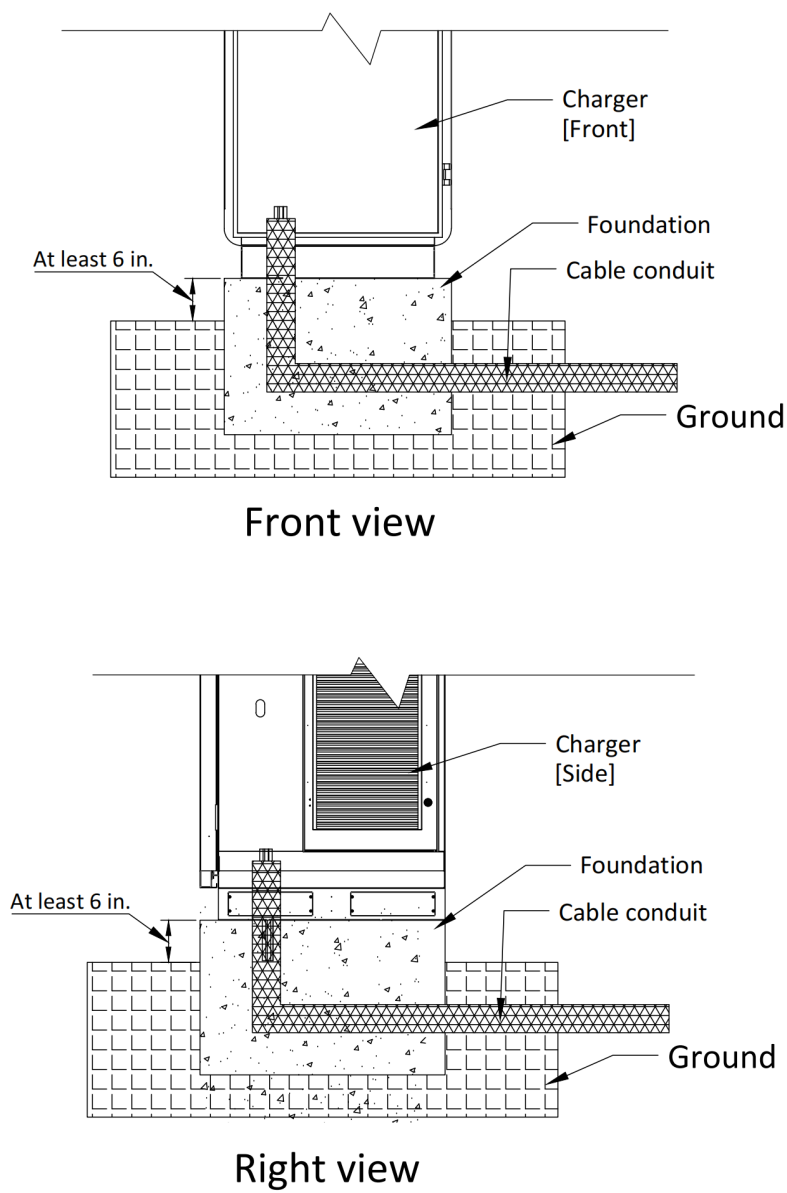


Figure 4.2 Placing Incoming Cable Conduit and Forming Foundation (Front and Right Views)

4.2 Installing the Cabinet



Caution

Professional hoisting equipment and personnel are required for conducting hoisting operations on the charger.

- 1) On the top surface of the concrete foundation (prepared in **Part 4.1**), drill holes for the **M-12 expansion bolts** that would be used to fix the charger to the foundation. Refer to **Figure 4.3** below for relative positions of the holes (red circles):
 - The bolt at the left front corner (also the closest to the cable inlet hole, marked as **A**) is located at **about 6 inches (148 mm)** to the front, **about 3-½ inches (90 mm)** to the left of the center of the cable inlet hole (unmarked in the figure below).
 - Distances between the expansion bolts are **about 20 inches (500 mm)** from the left to the right and **about 30 inches (740 mm)** from the front to the back.



Note

TCHARGE® will provide **drilling template** together with UDC 360 DCFC charger for easy positioning of the cable conduit and expansion bolt screw holes. See **Figure 4.4** as demonstration.

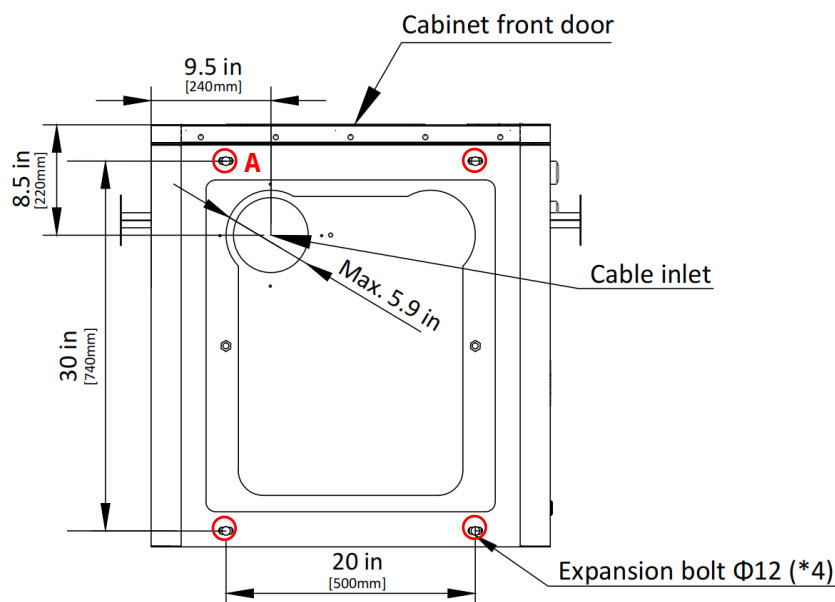


Figure 4.3 Drill Screw Holes for Expansion Bolts Fixing the Charger

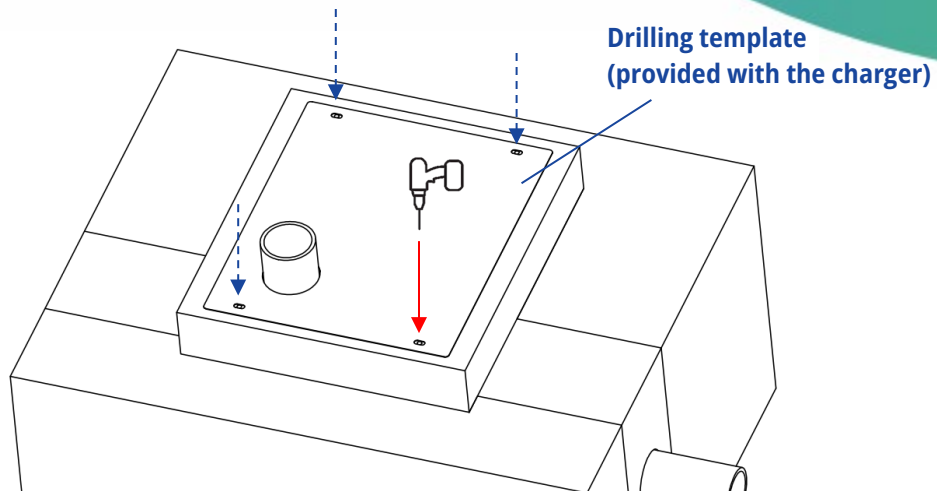


Figure 4.4 Drill Screw Holes with Drilling Template

- 2) After transporting the **TCHARGE®** UDC 360 DCFC charger to the installation site (see [Section 3.3](#) for more information on transporting the charger), open the covers on the sides of the pedestal (bottom section) of the charger for access installation positions of expansion bolts.
 - In some cases, the charger may be shipped with **screws attaching the pedestal of the charger to the shipping pallet** (see [Figure 4.5](#)). In preparation for the hoisting operation of the charger, unscrew these screws to make sure that the charger is unhinged from the shipping pallet.

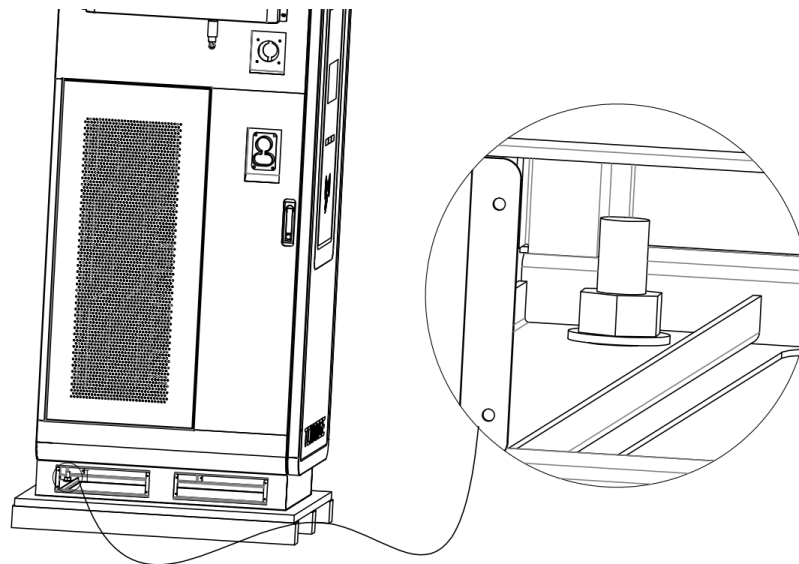


Figure 4.5 Detaching the Charger from the Shipping Pallet (If Needed)

- 3) Check if the **4 eyebolts** are already installed on the top of the charger to form the lifting loops (marked as **B** in **Figure 4.6**). If the eyebolts are shipped separately, install them in the holes on top of the charger first.
Connect the hoisting equipment to these lifting loops and hoist the charger to remove it from the shipping pallet (**Figure 4.6** left).



Note

The 4 M12 bolts, expansion tubes, and eyebolts mentioned in this section are **all provided by TCHARGE®**, normally shipped together with the charger in separate clear plastic bags. You do not need to prepare these accessories yourself.

- 4) By hoisting, relocate the charger to the top of concrete foundation. **Please ensure that positions of the cable conduit and screw holes match with positions of cable inlet and screw holes at the bottom of the charger** (**Figure 4.6** right).

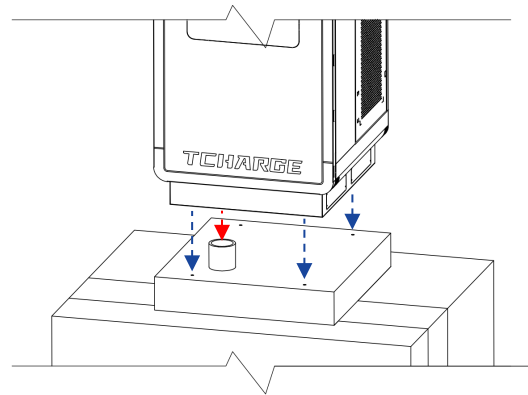
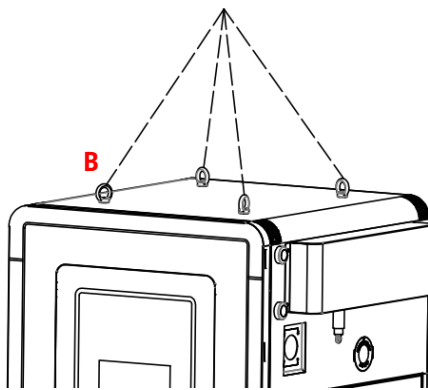


Figure 4.6 Hoisting the Charger Using the Lifting Loops

- 5) Put the **4 M12 expansion bolts** through holes on the side of the charger's pedestal into the screw holes, then fasten them to fix the charger to the top of the foundation (**Figure 4.7**).
 - Note that the screws normally do not have space to be lifted, like shown in **Figure 4.7** above. The graph is showing merely the bolts' relative position to the screw holes).

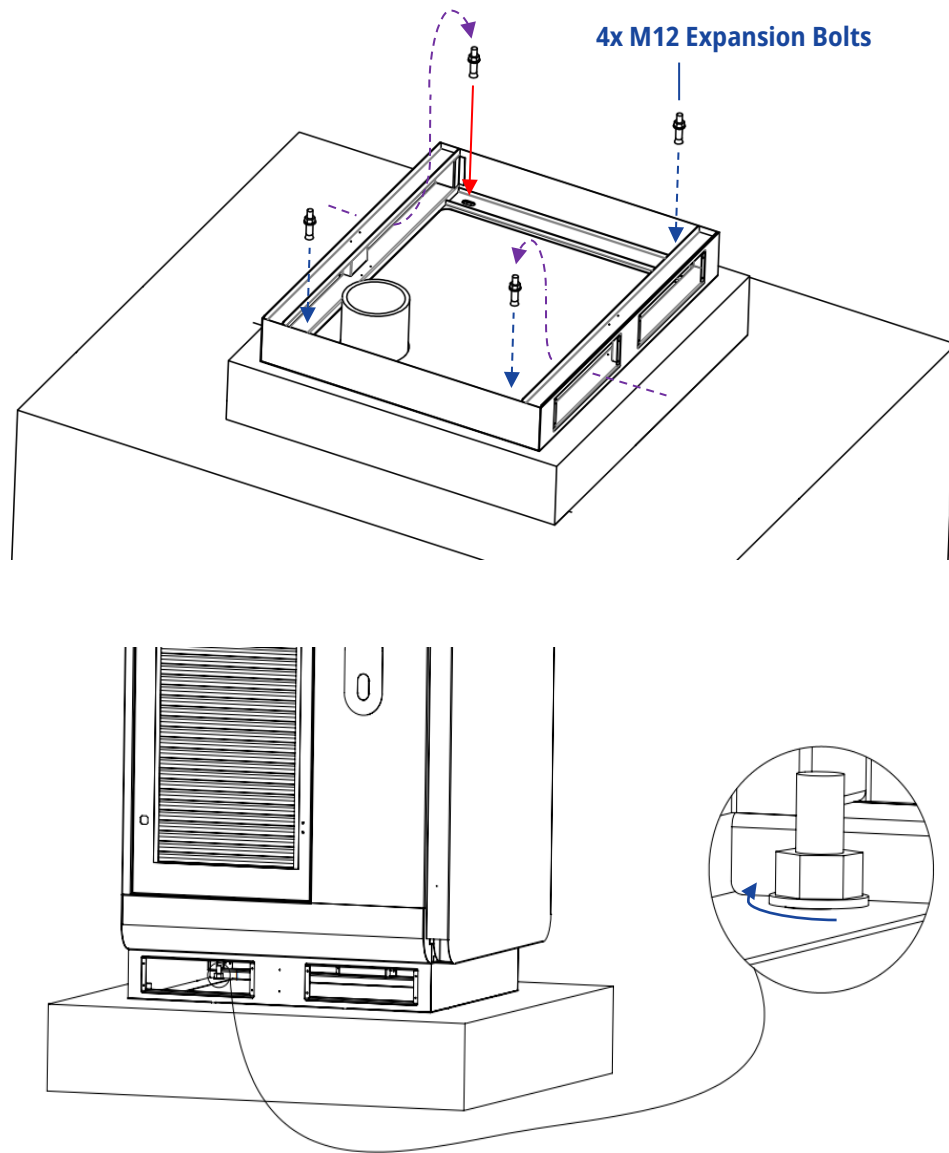


Figure 4.7 Fix the Charger on Top of the Concrete Foundation

- 6) Side covers of pedestal can be restored **once all following conditions are met:**
- All the M12 expansion bolts are duly fastened.
 - Charger is standing steadily upright.
 - Incoming cables go into the charger's cabinet box through the inlet at the bottom.

4.3 Wiring

4.3.1 Install Adapter Ring

TCHARGE® UDC 360 series DCFC charger has an “adapter ring” design at the cable inlet of the charger. A circle shaped steel pad can be installed on the inlet with 4 screws. **The inner diameter of the circle pad can be customized, allowing the size of the cable inlet to always match the actual size of cable conduit, leaving minimum gap between the edge of inlet and outer surface of conduit.**

The adapter ring is sometimes shipped installed on the charger. If you need to install the ring yourself, or if you want to take off the ring for installation purposes, please see **Figure 4.8** below for the principle of this adapter ring design.

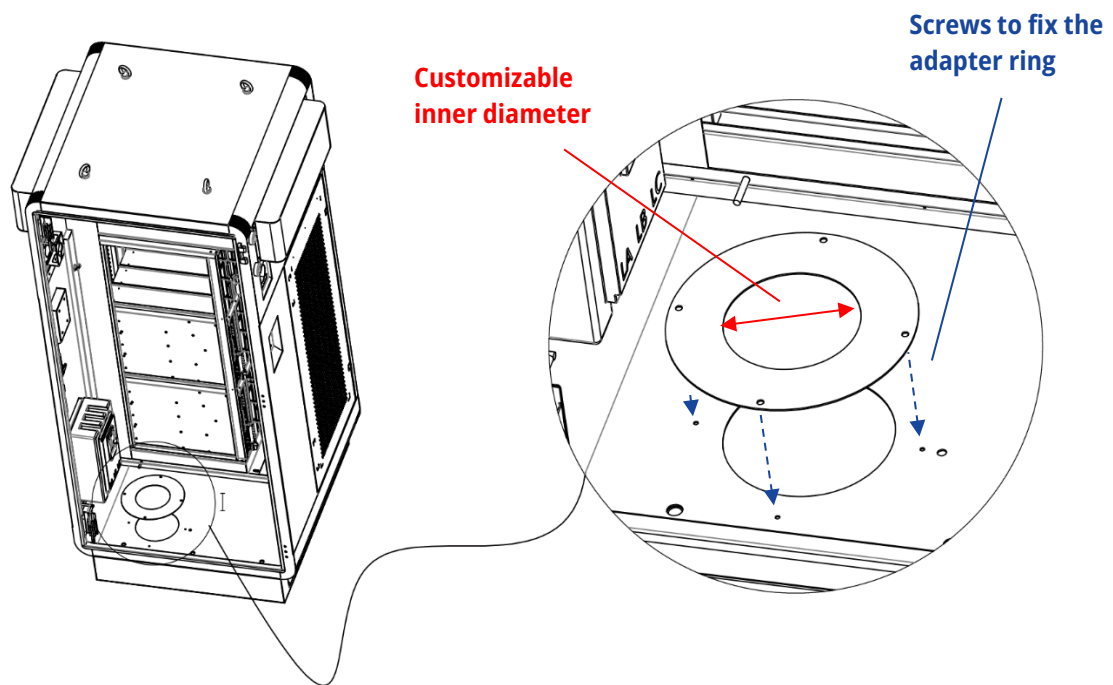


Figure 4.8 “Adapter Ring” Design of **TCHARGE®** UDC 360 Series Charger



Important Note

In order to have the size of adapter ring match with your cable conduit best, we recommend contacting **TCHARGE®** team to provide the outer diameter of conduit as soon as possible when you decide the size of conduit to be used.

4.3.2 Wiring



Warning!

Electricity is dangerous and electrical procedures can be fatal. Operations in this section **should only be carried out by qualified professional electricians who fully understand the procedures and can ensure on-site safety.**

- 1) After directing wires to enter **TCHARGE®** UDC 360 DCFC charger's cabinet box from the cable inlet, locate the ground bar and the neutral wire terminal inside the cabinet on the **right side (viewed from the front, marked as "GND", see Figure 4.9)**. Cut the GND wire and neutral wires to optimal lengths respectively.
- 2) Connect the processed GND wire to a terminal on the ground bar, and the neutral wire to the neutral wire terminal.
- 3) Locate the connectors for 3-phase AC current input hotwires (marked as "**LA**", "**LB**", and "**LC**") at **the bottom of the main circuit breaker** (the molded-case breaker) on the **left side** (see **Figure 4.10**).
- 4) Process and cut the hotwires to optimal lengths and install ring terminals on them. Connect each of the wires to the corresponding connector.

Wire terminal (lugs) recommendations for all wires (LA, LB, LC, N & GND) are **ring terminal**.

- For hot wires (LA, LB& LC), recommended lug size is **M12 or M14**.
- For neutral wire (N), recommended lug size is **M10**.
- For ground wire (GND), recommended lug size is **M8**.

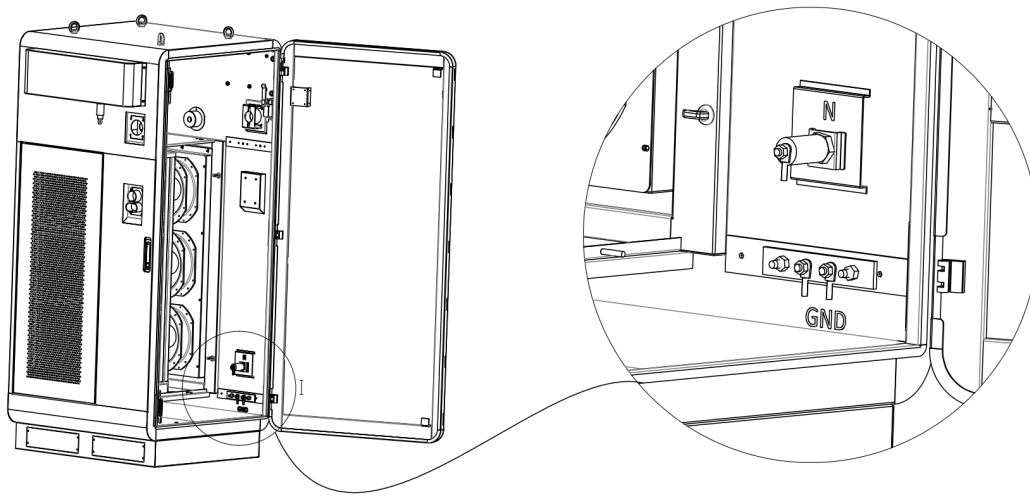


Figure 4.9 Earth Wire (GND) and Neutral Wire Terminals

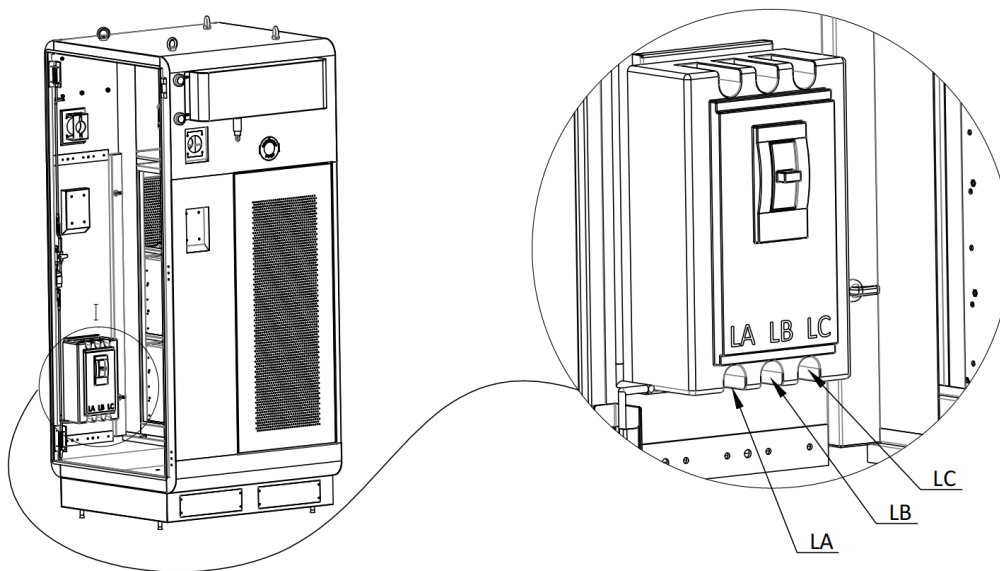


Figure 4.10 Hot Wire Terminals



Note

Based on specific requirements of project sites, **TCHARGE®** team may use different versions of design for **TCHARGE®** UDC 360 series DCFC charger's wiring terminals. If the design of terminals on your charger is different from the ones depicted in Figure 4.9 & 4.10, please look for the wire name marks on your charger to match the terminal with input AC supply wires.

4.3.3 Fireproof Mud Sealing

After all wiring processes are finished, **seal the gap between the cable inlet hole's edge and the conduit with fireproof mud**. This is to ensure that no creatures or foreign matters goes into the charger's cabinet box while the charger is put into operation, causing unwanted accidents.

For a diagram of the gap needed to be sealed, please see **Figure 4.11** below.

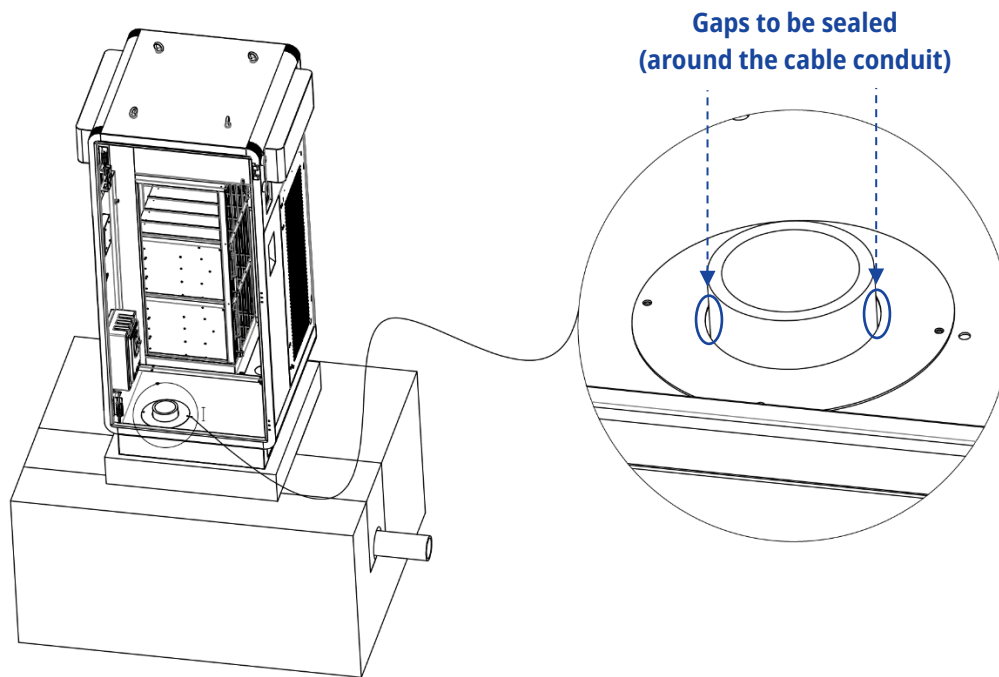


Figure 4.11 Gap to Be Sealed with Fireproof Mud after **TCHARGE®** UDC 360 Series Charger's Installation

4.4 Internet Hardware Connections

TCHARGE® UDC 360 DCFC charger supports connections to the Internet via Wi-Fi, ethernet, and 4G wireless communication.

For configuration of Wi-Fi connection, please refer to [Section 5.2](#) below.

Connectors for both the ethernet cable and 4G SIM card are located on the **touch screen control board** found on the **back side of the front cabinet door, right behind the LCD touch screen**.

If you would like to use ethernet or 4G network for your charger's internet access, we recommend you **finish the physical installation** of ethernet cable and/or 4G SIM card **before the first time powering up of the charger**.

- In the event that you would like to install the ethernet cable and/or 4G SIM card after putting the charger into use, **please remember to cut off the AC power supply before installation of these hardware!**

**Important Note**

The AC input hotwires of TCHARGE® UDC 360 series DCFC charger typically carry large currents when charging one or more vehicle(s). If the ethernet cable is enclosed in the same conduit with the AC input wires, the internet connection quality may be significantly affected, hence **you may need more than 1 group of cables to make the ethernet function properly**. In this event, please check local laws and regulations and determine whether it is a feasible engineering option for your charging station.

Refer to **Figure 4.12** for a diagram of the **touch screen control board** in general.

- To connect via an ethernet cable, plug the RJ45 plug of the ethernet cable into the **RJ45 connector** at the top right corner of the touch screen control board (see upper right part of **Figure 4.12**).
- To connect via 4G wireless network, insert the SIM card into the slot found at the upper center of the touch screen control board, located on the backside. **The contact area of the SIM card should be facing front when inserting the SIM card** (see **Figure 4.13**).

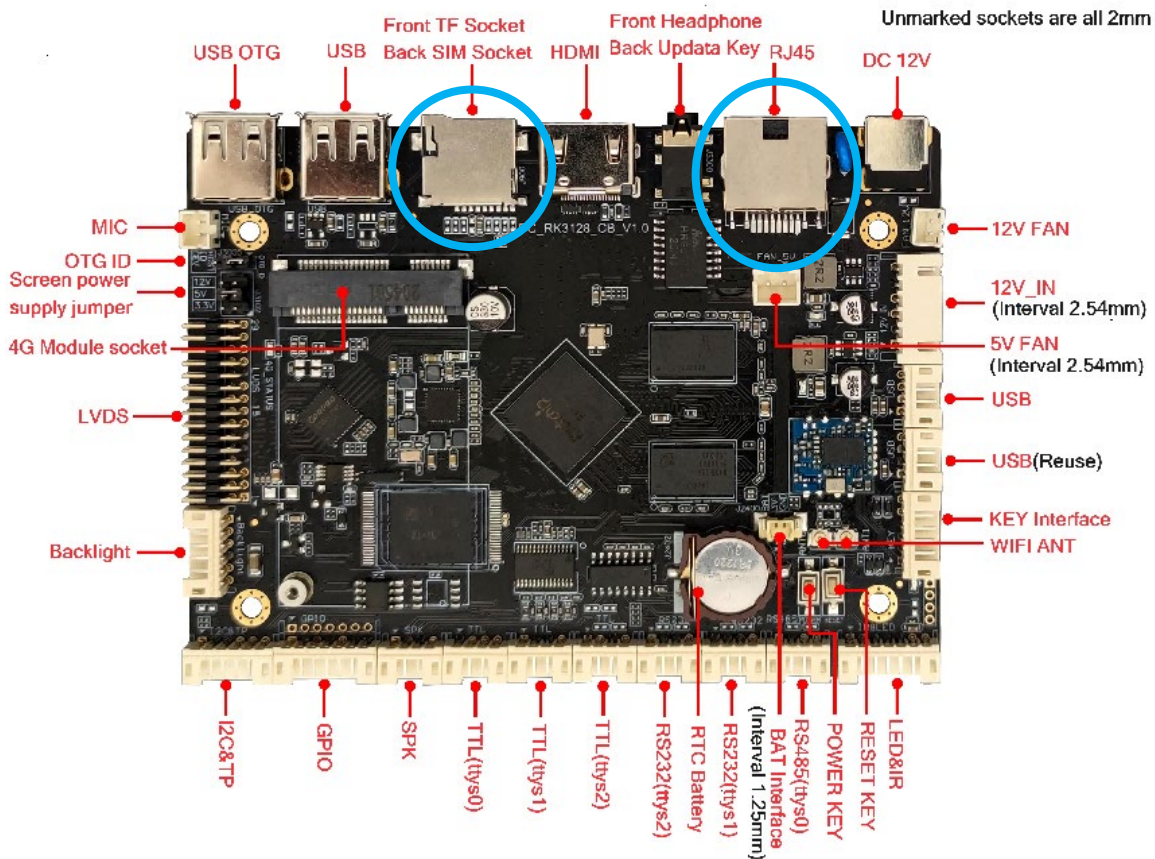


Figure 4.12 RJ45 Port, SIM Card Slot, and Other Ports on the Touch Screen Control Board

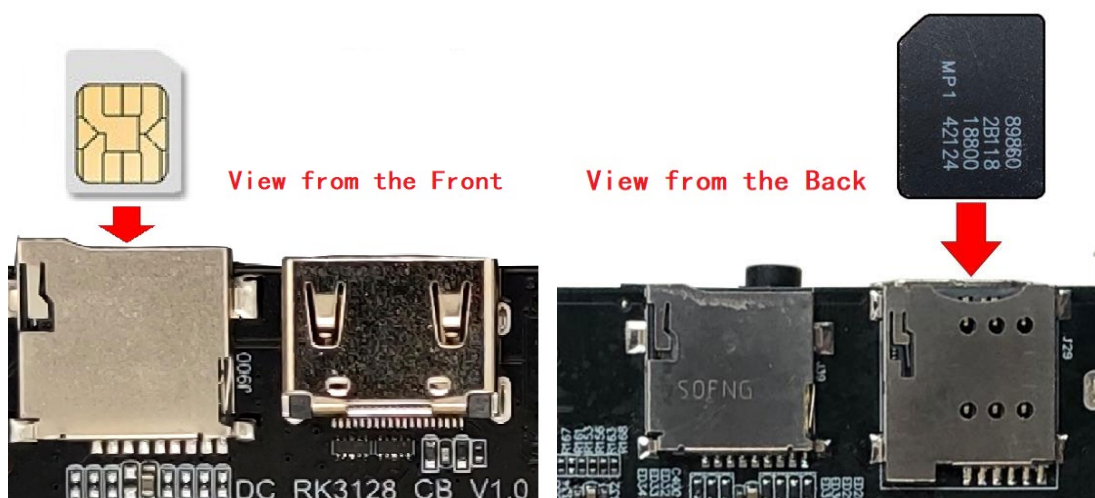


Figure 4.13 Install SIM Card in SIM Card Socket (Front View & Back View)

5. Service and Support

If you encounter any problem while installing or using the charger, please contact our technical support.

For services in U.S. or Canada, please contact **BLUEVIEW** with the following information:

Web: <http://www.blueview-usa.com/>

Email: support@blueviewelectricity.com

6. Compliance Information

The product is in conformity and certified with the following technical standards:

- UL2202
- UL2231-2

UDC 360 DCFC Charger Installation Manual

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