

TOPDON

PulseQ

AC Lite



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Section 1 - Precautions

1.1 IMPORTANT SAFETY PRECAUTIONS



WARNING - When using electric products, the tool's safety precautions should always be followed. Follow the instructions below closely.

1. Read all the instructions before using this product. This manual contains important instructions for the PulseQ AC Lite charger which shall be followed during the installation, operation, and maintenance of the charger.
2. Children should be supervised if they are in the vicinity of the PulseQ AC Lite while the PulseQ AC Lite is in use. Children should not use this device.
3. Do not put any of your or another person's body, clothing, or accessories into the tool's electric vehicle connector.
4. Do not use this product if the charging cable is frayed, has broken insulation, or has any other signs of damage.
5. Do not use this product if the enclosure or the charging plug is broken, cracked, open, or shows any other indication of damage.
6. Note the the operating temperature rating (-30°C to +50°C).

Certified AC Surge Protection Device (SPD) should be installed upstream close to the charging station. SPDs shall comply with standard IEC/EN 61643-11, with specification $U_p \leq 2.5kV$.

Certified Circuit Breakers should be installed upstream close to the charging station, or build in RCD. Circuit breaker, if any, shall comply with standard with IEC 60898-1 or IEC 60947-2 or IEC 61009-1.

| Model | Breaker Current Rating |
|--------------------------|------------------------|
| PulseQ AC Lite_7K_C5_EU | 40A 1-Phase |
| PulseQ AC Lite_11K_C7_EU | 20A 3-Phase |
| PulseQ AC Lite_22K_C5_EU | 40A 3-Phase |

All these protection devices shall be chosen with appropriated technical specification, ie working voltage \geq charging station working voltage, working current \geq charging station working current, Ingress Protection (IP) \geq IP54 or installed inside IP54 protection box for outdoor use.

1.2 SAFETY NOTES

1.2.1 Safety Signs Used

The following types of signs are used in this manual and on the charger. They must be adhered to.



CAUTION: Warns of electrical hazards.

This sign is intended to alert the user that severe personal injury or substantial property damage can result if the device is not operated as requested.



ATTENTION: Warns of a dangerous spot or dangerous situation.

This sign is intended to alert the user that minor personal injury or material damage can result if the device is not operated as requested.



CAUTION: Do not touch in case of Electrostatic Discharge (ESD).

Indicates possible consequences of touching electrostatically sensitive components.



No access for unauthorized persons.



Wear safety gloves



Use protective footwear.



Must wear a safety helmet.



Indicates important texts, notes, or tips.

1.2.2 Safety Precautions for Installation



Safety gear (helmet, gloves & protective footwear) must be worn when installing the EV charger.



Installation must be performed carefully due to the risk of electric shock. The charger must be installed vertically to allow for ventilation. Do not install on surfaces that vibrate or where the device could be at risk of impact. Install in noncombustible areas due to risk of fire. Do not drop any foreign objects, especially metal objects, inside the charger due to a risk of fire.

1.2.3 Safety Precautions for Operation



It is strictly forbidden for minors or persons of restricted capacity to be near the charger while in operation. This is to avoid injury. Forced charging is strictly forbidden when the electric vehicle or charger fails.



The electric vehicles can only be charged when the engine is off and the vehicle is stationary. Do not charge in rainy and thunderous weather. Do not use the charger if the charging plug or charging cable is defective, cracked, worn, broken or the charging cable is exposed.

1.2.4 Safety Precautions for Maintenance



Personnel must always wear protective gloves and footwear when performing maintenance work.



It is recommended that charger is routinely inspected at least once a week. Do not put flammable, explosive, or combustible materials, chemicals, combustible vapors, or other dangerous goods near the charger, due to risk of fire.



Keep the charging plug clean and dry. Wipe with a clean, dry cloth if soiled.

Section 2 - Standards Compliance

2.1 Safety Standard(s)

Conforms to IEC 61851-1: 2017, IEC 62196-2

2.2 Charging Mode and Connection

According to IEC 61851-1, the Charging mode of PulseQ AC Lite is Mode 3, and charging connection is Case C.

Mode 3:

A method for the connection of an EV to an AC EV supply equipment permanently connected to an AC supply network, with a control pilot function that extends from the AC EV supply equipment to the EV.



Case C:

Connection of an EV to a supply network utilizing a cable and vehicle connector permanently attached to the EV charger.

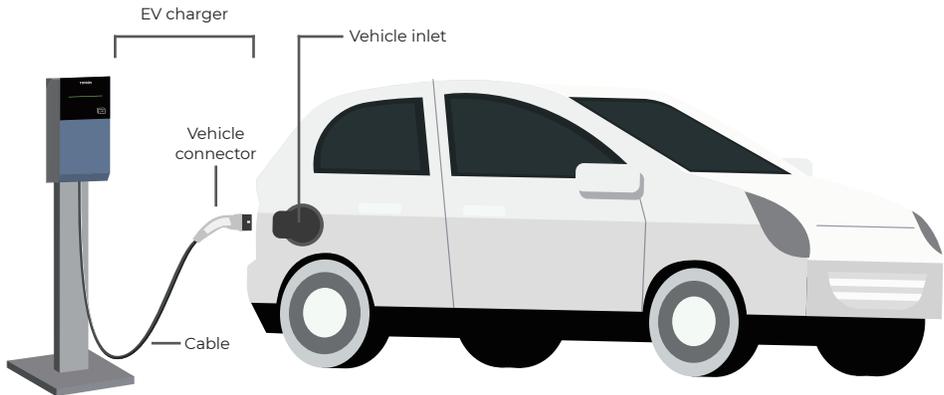


Fig. 2-1

2.3 Charging Interface

The charging plug of the PulseQ AC Lite meets IEC 62196-2, Type 2.

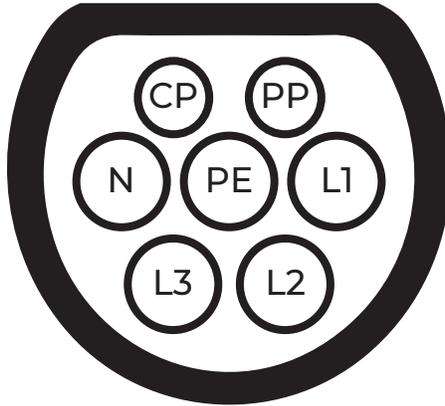


Fig. 2-2 Schematic Diagram of Type 2 Interface

The PulseQ AC Lite provides a Type 2 female plug with charging cable, which only charges EVs with a Type 2 charging socket (vehicle inlet).

Section 3 - Product Overview & Info

3.1 Shape & Dimensions

The shape & dimensions of the PulseQ AC Lite charger are shown in Fig. 3-1

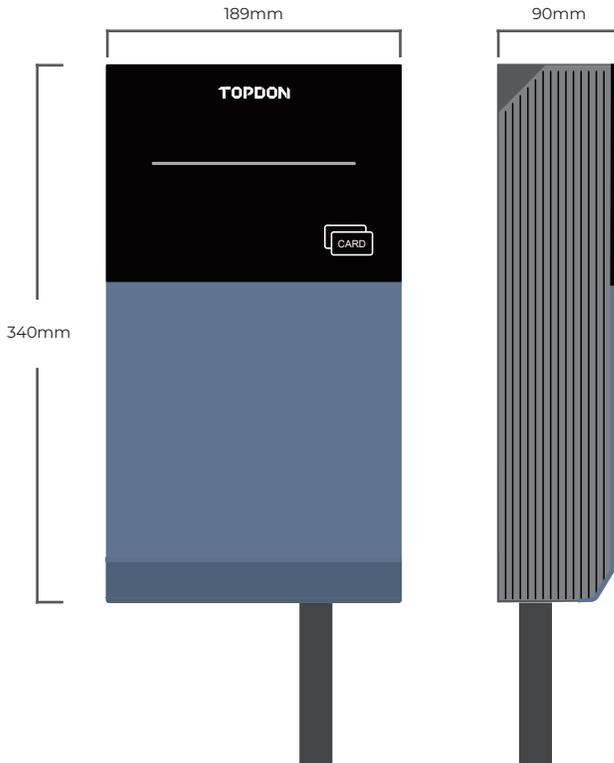


Fig. 3-1 Shape & Dimensions of PulseQ AC Lite

3.2 Block Diagram

The block diagram of the PulseQ AC Lite charger is shown as Fig. 3-2

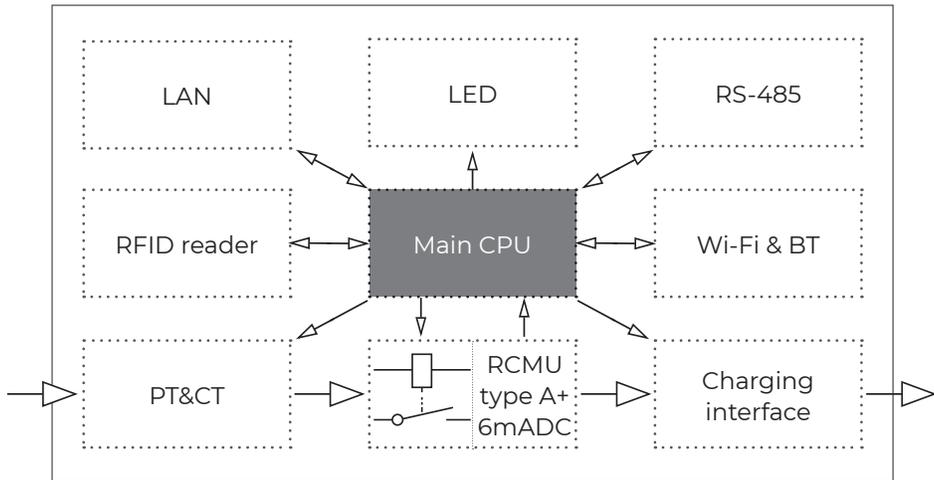


Fig. 3-2 Block Diagram

It is widely used in various European households for electric vehicle charging, as well as various chargers, parking lots, community garages and public electric vehicle charging areas.

3.3 Specifications

3.3.1 Electrical Specifications

| Model Number | PulseQ AC Lite | | |
|--------------------|--|-------------------|-------------|
| Rated Voltage | 230±10% Vac, 50Hz | 400±10% Vac, 50Hz | |
| Rated Current | 32A 1-Phase | 16A 3-Phase | 32A 3-Phase |
| Rated Power | 7kW | 11kW | 22kW |
| Charging Interface | IEC 62196-2, Type 2 plug with 5m cable / IEC 62196-2, Type 2 plug with 7.5m cable | | |
| | Note: Extension cords are not used. | | |

Radio parameters

| Item | Operating Frequency Range | Maximum Transmitting power | Antenna Gain |
|-----------|---------------------------|----------------------------|--------------|
| WIFI | 2400-2483.5MHz | <18dBm | +3dBi |
| Bluetooth | 2400-2483.5MHz | <2dBm | +2dBi |

| Item | Operating Frequency Range | Transmitting Field Strength | Antenna Gain |
|------|---------------------------|-----------------------------|--------------|
| RFID | 13.56MHz | < 5 dBμA/m @ 3m | +0dBi |

3.3.2 Functional Descriptions

| | |
|------------------------------------|---|
| Charging Mode | Mode 3 |
| Charging Control | Local: Plug and play |
| | RFID reader mode |
| Indicator Lights | Charging status indicator |
| Communication Interface | Ethernet (RJ45 interface) |
| | Supports OCPP 1.6J Protocol (Optional) |
| Communication Interface (Optional) | RS-485 with special communication protocols |
| Safety Protection | Surge protection, over temperature, over / under voltage, over current, LN reverse polarity, leakage, ground protection |
| RCD Built-in | RAMU, Type A $I\Delta n=30mA + I\Delta dc=6mA$ (Conforms to IEC 62955, IEC 61008) |



Note: To toggle between the Plug and Play and RFID reader charging modes, touch the supplied charging card on the charger for more than 5 seconds (until a beep sound is heard). After the RFID reader mode is enabled, touch the card on the charger to start / stop charging (charging plug should be connected before you can start charging).

3.3.3 Mechanical Parameters

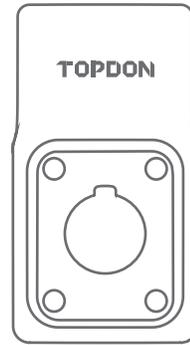
| | |
|--------------------|--|
| Mounting | Wall-mounted |
| Net Weight | ≤5.9kg (5m cable), ≤7.1kg (7.5m cable) |
| Dimensions (H×W×D) | 340mm × 189mm × 90mm |
| IP Code | IP65 |
| IK Code | IK10 |

3.3.4 Ambient Conditions

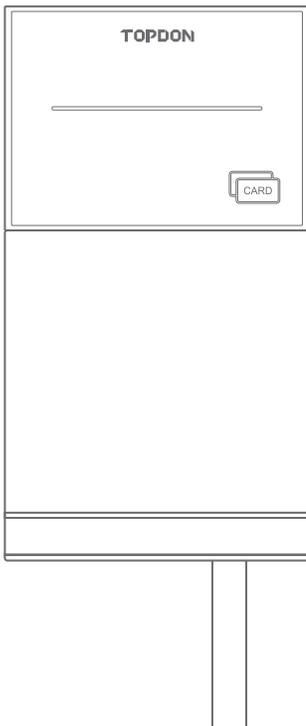
| | |
|-----------------------|--|
| Altitude | ≤ 2000m |
| Storage Temperature | -40 ~ +80°C |
| Operating Temperature | -30 ~ +50°C |
| Relative Humidity | ≤ 95%RH, no water droplet condensation |
| Vibration | < 0.5G, no acute vibration and impact |
| Installation Location | Can be installed indoors or outdoors. Should be installed in an area with good ventilation, and not near flammable or explosive gases. |

Section 4 - What's in the Box?

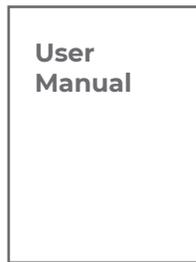
- a. AC EV Charger 1
- b. Charging Dock 1
- c. Wall-mounting Accessories 1
- d. User Manual 1
- e. Quick User Guide 1
- f. Quality Certificate 1
- g. Wall Installation Template 1
- h. Charging Dock Installation Template 1
- i. M5×40mm Expansion Bolt 7
- j. Charging Card 2
- k. Hex Screwdriver 1



b



a



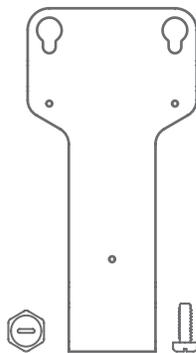
d



e



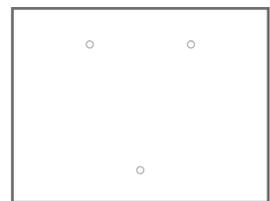
f



c



h



g



i



k



j

Section 5 - Installation

5.1 Pre-Installation Inspection

When unpacking, please carefully check the following:

- Whether the accessories are missing according to the packing list.
- Whether there is any damage to the product that occurred during transportation.
- Whether the model and specification of the machine's nameplate are consistent with the order requirements.



- ▷ If any damage or missing parts are found, please do not start the installation, and contact your vendor as soon as possible.



- ▷ Please keep the packing box and packing materials for 1 month for future handling.
- ▷ The paper packaging is recyclable.

5.2 Pre-work Preparation

- When transporting or moving the EV charger, pay attention to the following points to ensure product safety:



- ▷ This product is electrical equipment. It should be handled with care, avoiding violent vibration and impact.
 - ▷ The charger shall not be transported by dragging the charging connector or the charging cable.
-
- In order to ensure the long-term stable operation of the product, it is recommended to avoid installing chargers in extreme weather, especially as low or high ambient temperatures may affect the installation effect due to expansions and contractions from temperature changes.
 - Space requirement: When the charger is fixed on the wall, the minimum space requirements are shown in Fig. 5-1.
 - It is suggested that the charger should be installed in a place with good ventilation, no direct sunlight and sheltered from wind and rain. In order to ensure good ventilation, mount the charger vertically with at least the minimum space around all sides.

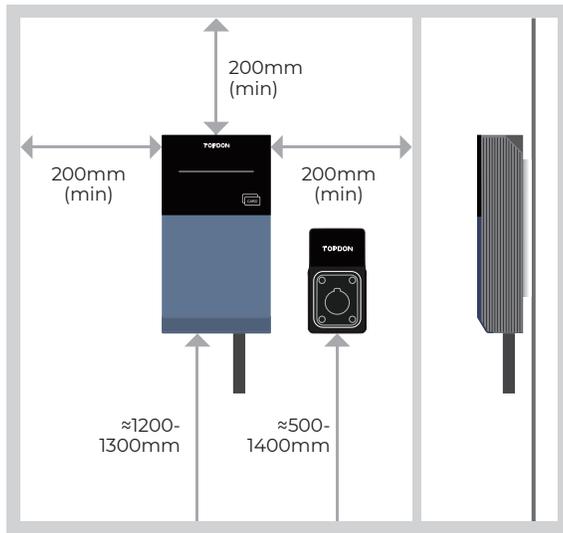
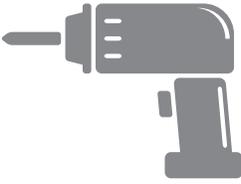


Fig. 5-1 Minimum Space Requirements for Wall Mounting

5.3 Tools for Installation

Please have the following tools prepared before installing

| No. | Tool Name | Schematic Picture | Main Uses |
|-----|-----------------------|---|--|
| 1 | Multimeter |  | Checking the electrical connection and measuring the voltage |
| 2 | Electric impact drill |  | Drilling mounting holes in the wall |

3

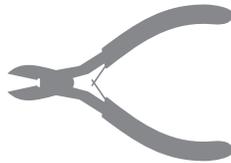
Wrench



Fastening bolts

4

Diagonal pliers



Cutting cables

5

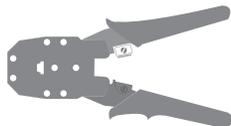
Wire stripper



Peeling cables

6

Crimping pliers



Pressing cable terminal

7

Phillips
screwdriver



Fastening screws

8

Hex screwdriver
(included)



Fastening screws

9 Torque
screwdriver



Fastening screws to a specified torque

10 Level tool



Ensuring a level installation

11 Tape measure



Measuring distance

12 Pencil



Marking mounting holes

13 Hammer



Driving expansion anchors into the mounting holes

5.4 Wall Bracket Installation

Before installation, ensure the homeowner has chosen an installation location that allows the charging cable to reach the car's charging port while still providing slack (See Fig. 5-2).

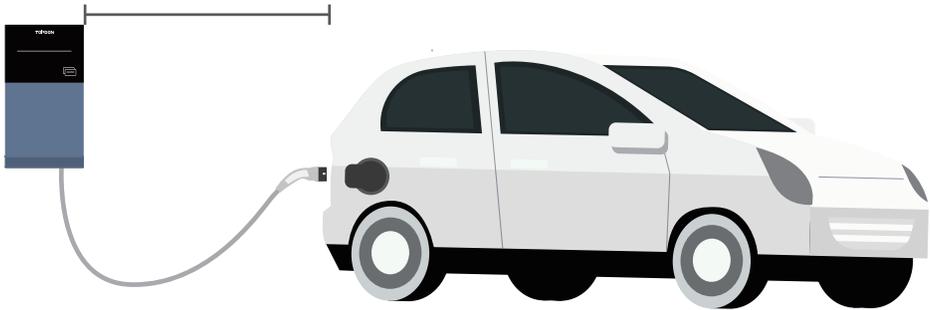


Fig. 5-2



WARNING: In areas with frequent thunderstorms, add surge protection at the service panel for all circuits. Ensure all power and ground connections, especially those at the breaker and bus bar, are clean and tight. Remove all oxide from all conductors and terminals before connecting any wiring.

1. Refer to the Fig. 5-3 to understand the dimensions of the wall bracket. Please make sure the space on the wall is at least 3.43" × 4.21" (87mm × 107mm).

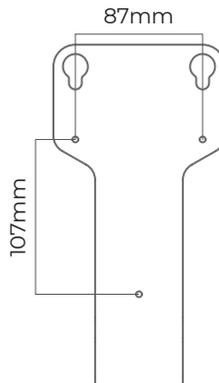


Fig. 5-3

2. Mark the mounting holes on the wall with the installation template. (See Fig. 5-4)

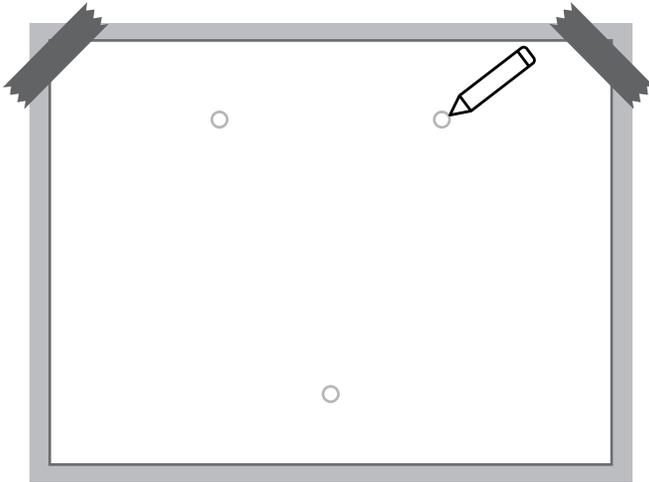


Fig. 5-4

3. Drill the mounting holes into the wall with a depth of at least 1.57" (40 mm). (See Fig. 5-5)

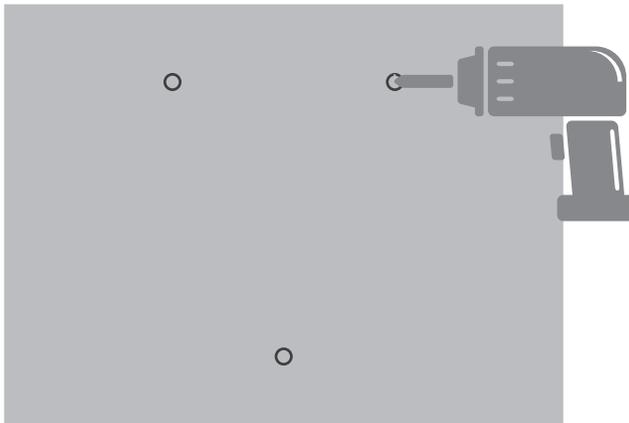


Fig. 5-5

4. Hammer the plastic expansion anchors into the holes. (See Fig. 5-6)

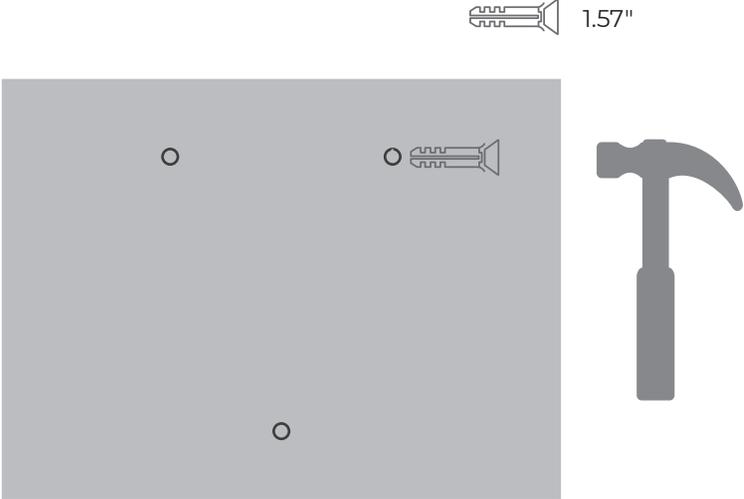


Fig. 5-6

5. Fix the bracket to the wall with the expansion screws (See Fig. 5-7) included in the package.

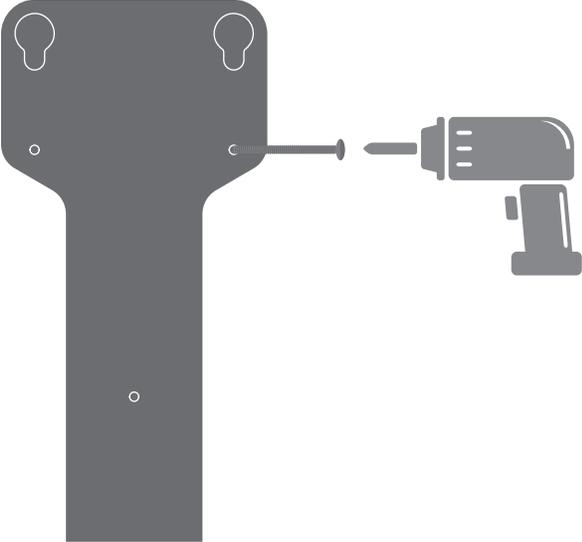


Fig. 5-7

6. Attach the charger to the bracket. (See Fig. 5-8)



Fig. 5-8

7. Fix the charger to the bracket with the hexagon socket head screw included in the package, using the provided hex screwdriver. (See Fig. 5-9)

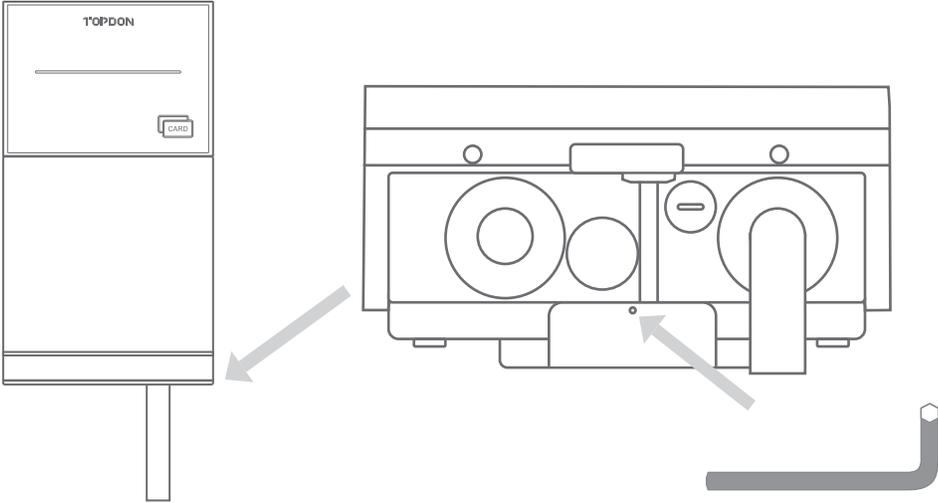


Fig. 5-9

5.5 Hardwire Installation



▷ Hardwire installation needs to be done by professional electricians. Please adhere to all safety precautions.

1. Unscrew the two screws on the bottom of the front cover with a Phillips screwdriver, and slide the cover down to remove it. (See Fig. 5-10)

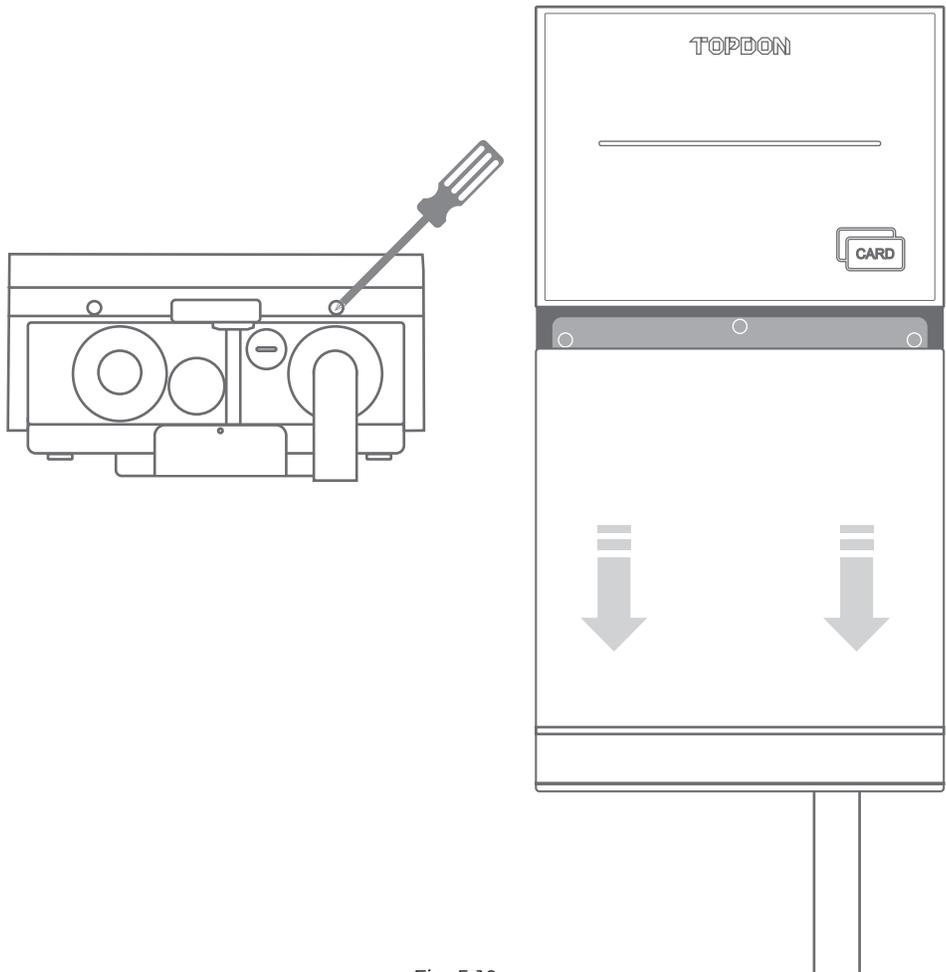


Fig. 5-10

2. Unscrew the eight screws to remove the inner cover. (See Fig. 5-11)

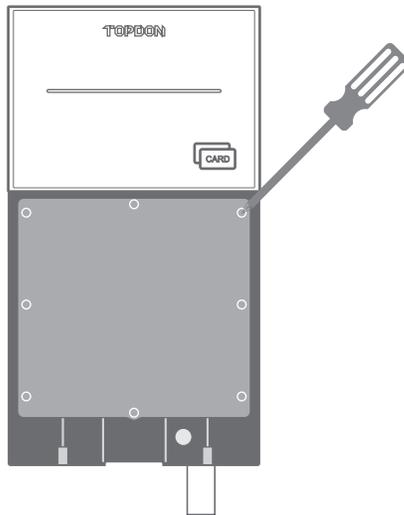


Fig. 5-11

3. Remove the gland at the bottom right of the charger. You can use a large wrench if needed. (See Fig. 5-12)

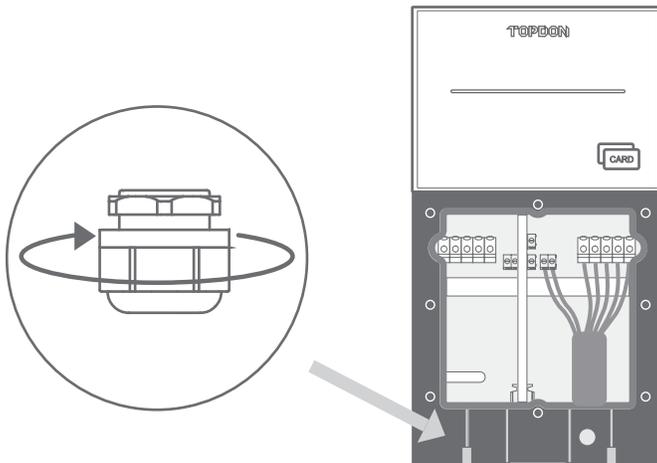


Fig. 5-12

4. Use a wire stripper to remove 10~12 mm of insulation from the prepared power wires, and crimp the exposed wire conductors with the crimping pliers. (See Fig. 5-13)

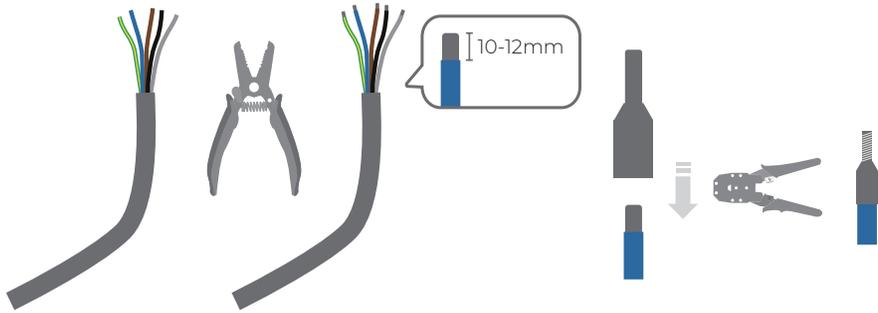


Fig. 5-13



Note: Wire ferrules are needed (not included).

5. Pass the crimped power cable through the hole. (See Fig. 5-14)

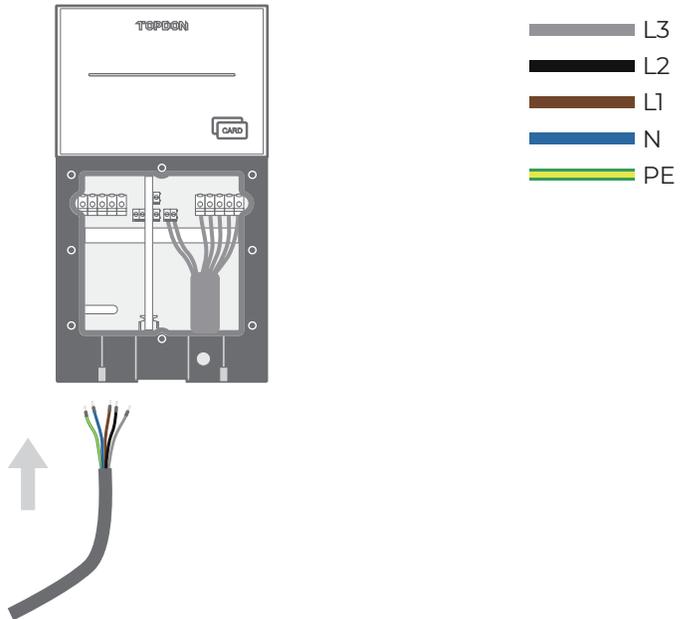


Fig. 5-14



The supported diameter of outer cable sheath ranges from 17 to 22 mm. For chargers rated at 7kW / 22kW, the minimum size of each wire is 6mm². For chargers rated at 11kW, the minimum size of each wire is 2.5mm².

6. Loosen the five terminal screws with a Phillips screwdriver and fully insert each wire connector into its correct terminal block. Use a torque screwdriver to tighten the terminal screws with a torque of 19.6 N.cm. (See Fig. 5-15)

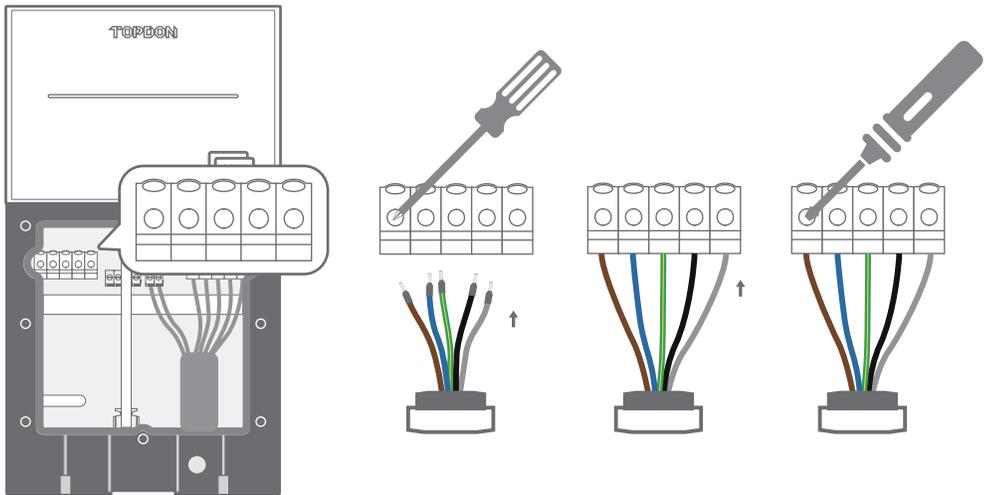


Fig. 5-15



Note:

1. For the models of PulseQ AC Lite_7K_C5_EU and PulseQ AC Lite_7K_C7_EU, only connect the corresponding wire conductors to the L1, N, PE connectors.
2. Carefully install the wires to avoid damage to the Control Pilot (CP) wire.

7. Reinstall the gland and the covers.

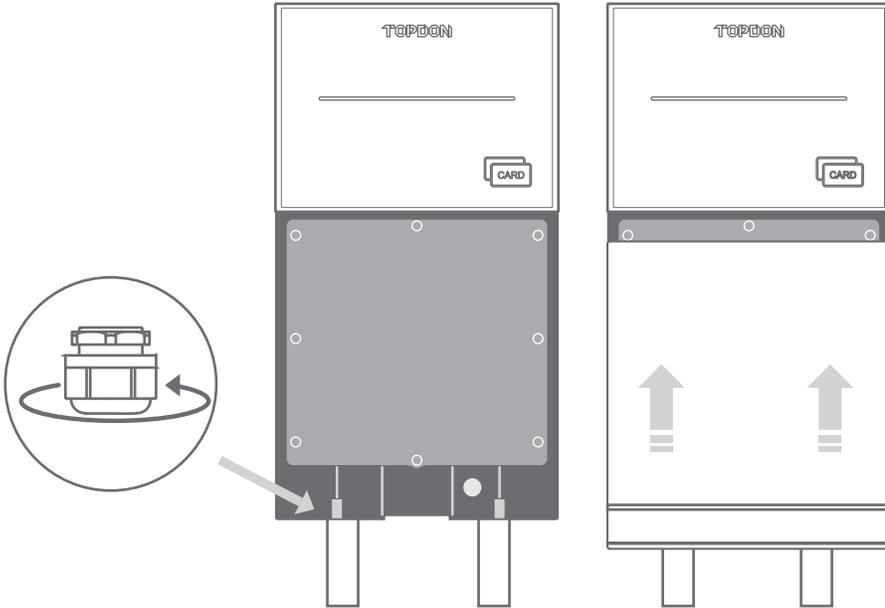


Fig. 5-16

5.6 Network Cable Installation

1. Remove the protective cap of the network port on the bottom center of the charger. (See Fig. 5-17)

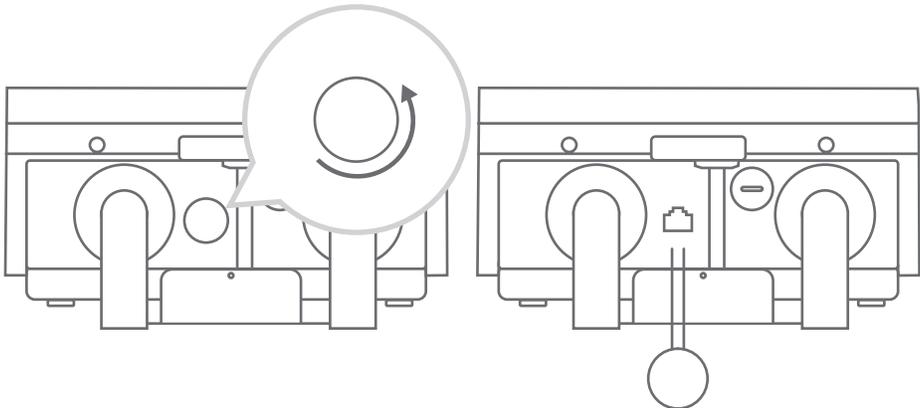


Fig. 5-17

2. Insert the RJ45 plug into the network port. (See Fig. 5-18)

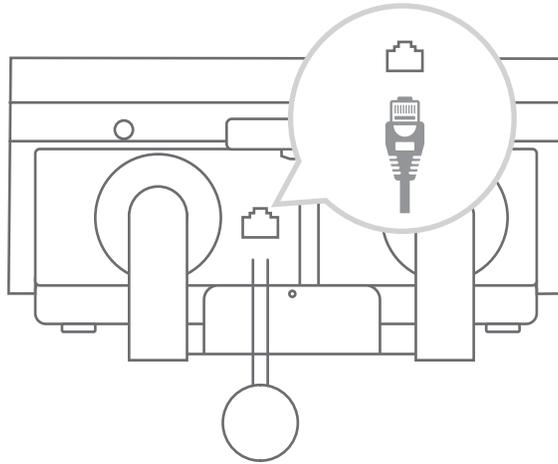


Fig. 5-18

5.7 Charging Dock Installation

1. Please make sure the space on the wall is at least 2.93" × 2.28" (74.3mm × 58mm).

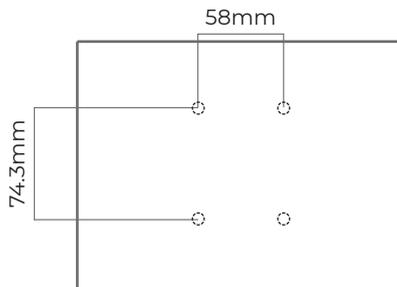


Fig. 5-19

2. Place the installation template on the wall and mark the mounting holes. (See Fig. 5-20)

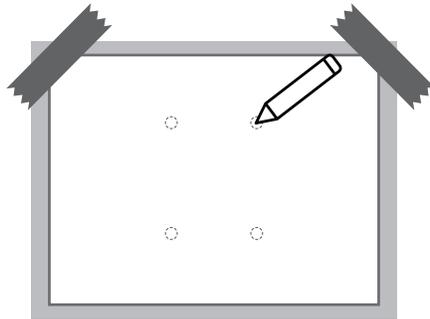


Fig. 5-20

3. Drill the mounting holes on the wall with a depth of at least 1.57" (40 mm), and hammer the plastic expansion anchors into the holes. (See Fig. 5-21)

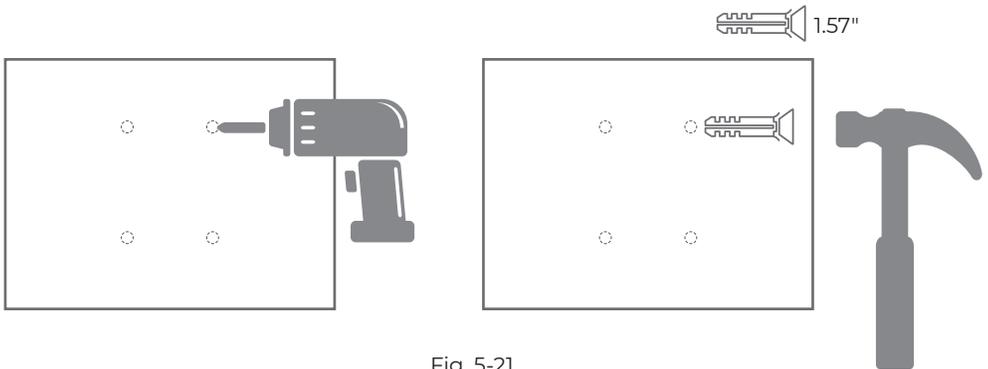


Fig. 5-21

4. Fit the charging plug socket into the charging dock. (See Fig. 5-22)

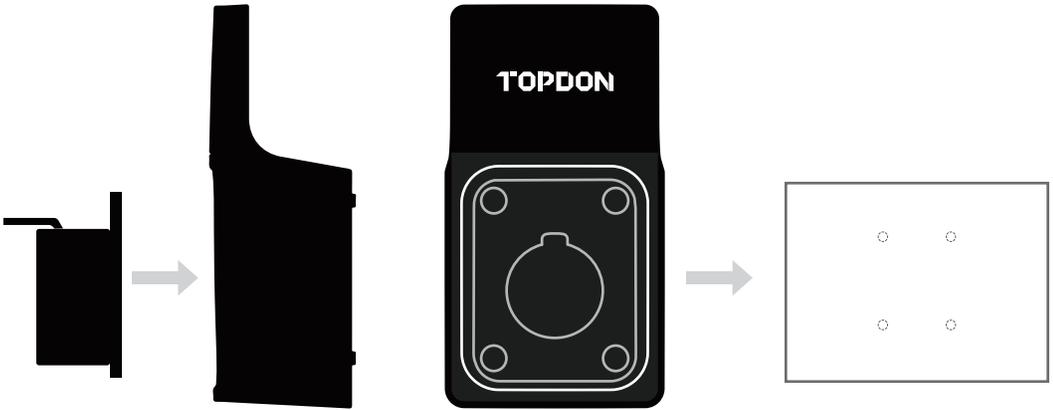


Fig. 5-22

5. Fix the charging dock on the wall with the expansion screws included in the package. (See Fig. 5-23)

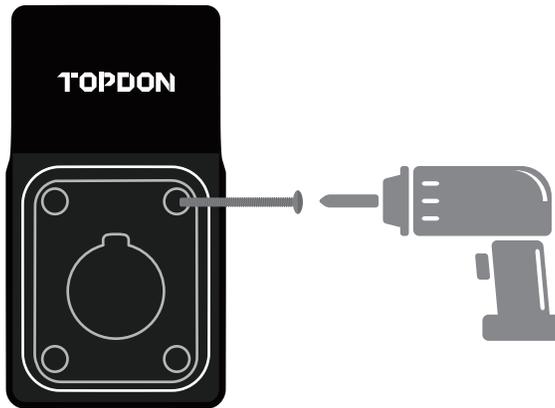


Fig. 5-23



Please put the charging plug back to the Charging Dock after each charge.

Section 6 - LED Indicators

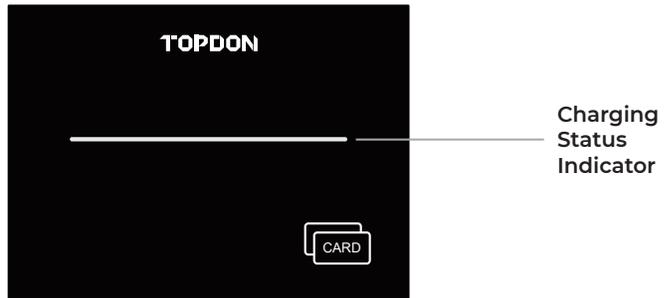


Fig. 6-1

| Name | Indicator Color | Indicator Status | Connotation |
|---------------------------|-----------------|---|---|
| Charging Status Indicator | Green | ON | Standby |
| | Blue | ON | Charging plug connected, ready to start charging / Charging complete (plug still connected) |
| | | Pulsing | Charging in progress |
| | Green & Red | Alternatively Blinking (1 green blink, 1~12 red blinks) | Fault (for more details, please see Section 7 - Fault Handling) |

Section 7 - Fault Handling

When a fault occurs, the charging status indicator will blink green (once) and blink red (1~12 times), then repeat.

| Indicator Status | Fault Code | Meanings | Handling Methods |
|------------------|------------|-------------------------------------|---|
| 1 red blink | E001 | LN reverse polarity or ground fault | Check if the input power cable is correctly connected or the ground wire is securely connected. |
| 2 red blinks | E002 | Relay sticking | Contact after-sales service (charger components may be damaged and need to be replaced) |
| 3 red blinks | E003 | Relay rejection fault | Contact after-sales service (charger components may be damaged and need to be replaced) |
| 4 red blinks | E004 | Input overvoltage | Power grid failure, wait until the input voltage is automatically recovered. |
| 5 red blinks | E005 | Output overcurrent | Contact after-sales service (This may be caused by faulty charging cable or output short circuit). |
| 6 red blinks | E006 | Overtemperature | Check if the temperature of the charger is too high. Stop charging and wait until the temperature is dropped. |
| 7 red blinks | E007 | Leakage | Contact after-sales service (charger components may be damaged and need to be replaced) |
| 8 red blinks | E008 | RCD fault | Contact after-sales service (charger components may be damaged and need to be replaced) |
| 9 red blinks | E009 | CP signal fault | Contact after-sales service (This may be caused by a faulty OBC or CP circuit fault) |

| | | | |
|---------------|------|---------------------------------|---|
| 10 red blinks | E010 | Metering unit fault | Contact after-sales service (charger components may be damaged and need to be replaced) |
| 12 red blinks | E012 | Card reader communication error | Contact after-sales service (charger components may be damaged and need to be replaced) |

Section 8 - Warranty

TOPDON's Limited Warranty

TOPDON warrants to its original purchaser that the company's products will be free from defects in material and workmanship for 24 months (for the charger) and 12 months (for the charging cable) from the date of purchase (Warranty Period).

For the defects reported during the Warranty Period, TOPDON will either repair or replace the defective part or product according to its technical support analysis and confirmation. TOPDON shall not be liable for any incidental or consequential damages arising from the device's use, misuse, or mounting.

If there is any conflict between the TOPDON warranty policy and local laws, the local laws shall prevail.

This limited warranty is void under the following conditions:

- Misused, disassembled, altered or repaired by unauthorized stores or technicians.
- Careless handling and/or improper operation.

Notice: All information in this manual is based on the latest information available at the time of publication and no warranty can be made for its accuracy or completeness.

TOPDON reserves the right to make changes at any time without notice.

Manufacturer:

TOPDON TECHNOLOGY Co., Ltd.

20/F & 32/F, Qianhai Shimao Tower, No. 3040, Xinghai Avenue, Qianhai Shenzhen-Hong Kong Cooperation Zone, Shenzhen, P.R. China

Importer:

TOPDON EUROPE SL

Regus World Trade Centre, Muelle de Barcelona, edif. Sur, 2ª Planta, Barcelona, Cataluña, 08039, Spain



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