ETREL

a Landis+Gyr company

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EN

Etrel INCH DUO
QUICK START GUIDE

SAFETY INSTRUCTIONS

WARNING SIGNS

This manual uses the following warning signs:

Danger! Immediate risk of injury or death.

Caution! Possible danger to the product or environment.

Note. Useful information

Please follow all the safety precautions in these installations at all times. Failure to do so might result in damage to the product and injuries or death. Any unauthorised modification or tampering with the product may void the product warranty.

SAFETY INFORMATION

Etrel INCH DUO charging station has been designed and tested in accordance with current and past versions of international standards. The charging station is compliant with IEC 61851 (Part 1, Part 21-2, Part 22) international standard which defines conductive AC electric vehicle charging and supports Mode 3 charging for safe recharging of standard electric vehicle.

Requirements of LVD and EMCD are fulfilled, however because radio equipment is installed in the station, the EU Declaration should state only compliancy with RED.

SIMPLIFIED EU DECLARATION OF CONFORMITY

Hereby, Etrel d.o.o. declares that the radio equipment type INCH DUO is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address:

https://etrel.com/charging-solutions/inch-duo/

Select "Access documentation" and then "Certificates".

INTENDED USE

- Etrel INCH DUO charging station is intended only for charging of electric vehicles and should not be used to charge other appliances or for any other purpose.
- The manufacturer accepts no responsibility for damage or injuries resulting from incorrect installation or inappropriate use.

INSTALLATION AND MAINTENANCE

- Do not install charging station near flammable, explosive, or combustive materials.
- Charging station installation must be performed in dry weather conditions.
- Electrical installation, wiring, and connections must be carried out by qualified electrician or technician in accordance with all local electrical codes, legislation, and ordinances.

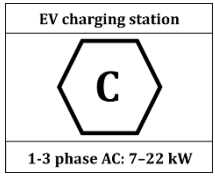
- **Warning! Before installing and wiring the charging station, make sure that the power supply is disconnected: remove fuses or deactivate the circuit breaker to protect from unintentional powering of the device.**
- Charging station can be installed, maintained, and repaired by qualified personnel only.
- Charging station's power supply should always be switched off during the maintenance and repair.
- Avoid hazardous risks. Only the manufacturer, an authorized service technician, or technically qualified personnel may replace damaged charging station or its components.

OPERATION

- Do not operate your charging station if there is visible damage to the unit or charging cable. Call manufacturers or reseller's support department for advice how to proceed.
- Do not put fingers into the charging connector.
- Do not operate the charging station with wet hands.
- The charging station manufacturer cannot be made liable for damage or injury caused by improper handling, installation, or use of the product.

- Any usage of the product not covered in this document is not allowed and could cause injury or death.

BASE SPECIFICATIONS



- **Electrical interface identifier:**
- **Input:** 2x230/400 V~; 3W+N+PE; 50/60 Hz; 32 A_{max}
- **Output:** 2x230/400 V~; 3W+N+PE; 50/60 Hz; 32 A_{max}
- **Maximum charging power:** 7.4 kW (1P), 22 kW (3P)
- **Device power consumption:** From 10 W to 18 W (highest measured value of full configuration 17,21 W measured with Payment terminal, router, ethernet switch)

Specification of frequency bands and transmitting power (it is possible that not all modules are part of an actual device).

LTE module Frequency bands: LTE-FDD: B1 (2100 MHz), B3 (1800 MHz), B5 (850 MHz), B7 (2600 MHz), B8 (900 MHz), B20 (800 MHz) LTE-TDD: B38 (2600 MHz), B40 (2300 MHz), B41 (2500 MHz) WCDMA: B1 (2100 MHz), B5 (850 MHz), B8 (900 MHz) GSM/EDGE: B3 (1800 MHz), B8 (900 MHz) Transmitting power: 33dBm±2dB for GSM 24dBm+1/-3dB for WCDMA 23dBm±2dB for LTE-FDD 23dBm±2dB for LTE-TDD	**LTE Router** Frequency bands: 4G (LTE-FDD): B1 (2100 MHz), B3 (1800 MHz), B5 (850 MHz), B7 (2600 MHz), B8 (900 MHz), B20 (800 MHz) 4G (LTE-TDD): B38 (2600 MHz), B40 (2300 MHz), B41 (2500 MHz) 3G: B1 (2100 MHz), B5 (850 MHz), B8 (900 MHz) 2G: B3 (1800 MHz), B8 (900 MHz) Transmitting power: 21.9 dB
Wi-Fi module Frequency band: 2.4 - 2.4835 GHz Transmitting power: up to 15 dBm	**RFID module** Frequency band: 13.56 MHz (HF) Transmitting power: up to 8 dBm

GROUNDING INSTRUCTIONS

Etrel INCH DUO charging station needs to be properly grounded to allow safe use. In the case of malfunction or breakdown, grounding provides protective measure to reduce the risk of electric shock. Multiple grounding system are supported: TN-S, TN-C, TN-C-S, and TT.

Improper connection of the equipment (grounding conductor) may result in risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the product is properly grounded. Service doors, mounting bracket and mounting pole must be grounded.

ELECTRICITY PROTECTION ELEMENTS

Overvoltage protection: The device is a Class 2 appliance and must be protected with an upstream overvoltage protection if not already built in the charger.

Overcurrent protection: Should be installed upstream to protect power supply cable and the charging device if not already built in the charger.

Differential protection: Should be installed separately if not already built in the charger. A dedicated residual current device (RCD) device must be used according to applicable regulations.

ENVIRONMENT OPERATING RANGE

The device achieves at least IP 54 level of protection. It can be used outdoors and indoors if environment meets following constraints:

- Elevation < 2000 m above sea level.
- Operation temperature from -25 °C to +65 °C (Measured at the power supply component, some parts could heat up over 95 °C without impacting safety).
- Ambient temperature from -25 °C to 50 °C.
- Non-condensing max. humidity 95%.

GEOGRAPHICAL RESTRICTIONS

Charging station can be used in area of European Union without possibility of the breach of radio spectrum. For devices installed outside of European Union, this must be specified before the order.

COUNTRY SPECIFICS

Requirements of legislation of German Measurement and Calibration Law (Mess und Eichgesetz) are not supported in charging stations of Etrel yet. This means that they cannot be used for purposes of billing the charged energy.

United Kingdom does not recognize the CE marking of the European Union and implemented the UKCA mark. Specific of UK are also The Electric Vehicles (Smart Charge Points) Regulations 2021. Etrel can provide correct configurations of charging stations to cover all the requirements of the UK, however this must be specified with the order.

Some countries of EU require use of sockets with shutters. This option is currently only supported in INCH DUO charging stations. Some countries accept alternative option to sockets with shutters, to provide additional means of disconnection - to have a backup device in case that the first disconnection device fails. This option is only supported in charging stations with internal RCD.

EQUIPMENT NEEDED

- Phillips screwdriver,
- hex screwdriver,
- utility knife,
- crimping pliers for cable end sleeves,
- wire strippers and cable rippers.

INSTALLATION PROCEDURE

The following descriptions are intended to be read together with appropriate image at the beginning of the document. The bold number at the left side of the description represents the image number.

1

Foundation Excavation

1-a

The first step of the construction works is to prepare an excavation with the minimum basic dimensions of 42 cm x 55 cm and at least 60 cm in depth.

If the charging station is combined with safety arches, a

larger excavation is needed.

If necessary, the dimensions of the foundation can be enlarged by adding reinforcing steel to the concrete foundation to enable construction of a larger foundation.

1-b The foundation anchor must be assembled before installation:

- Tighten the two nuts to each end of each rod (6 times).
- Insert the rods into the anchor frame and tighten the nuts on the other side to secure them to the frame.
- Attach the metal L profile to the three bars and fasten it using nuts. Repeat the process for the other three bars.

2 Foundation Building

1. For the installation of power cables, an installation pipe shall be used, which shall extend beyond the upper edge of the finished foundations.

   2-a The radius of curvature of the cables must be considered when installing the installation pipe. The width of the pipe is determined by the type and cross section of the power cables. If the station will be part of a cluster of stations, the installation pipe must be wide enough to allow the insertion of two sets of power cables or use two installation pipes.

2. When inserting the foundation anchor, care must be taken to ensure that the anchor is aligned, which ensures that the charging station will stand straight.

   It is also necessary to pay attention to the height of the foundation. Anchor must be inserted so that the upper surface is aligned with the final height of the foundation (e.g., the top level of paving stones, tiles, or curb).

3. The inserted installation pipe must be secured with wire so that it does not sink into the concrete. In addition, it needs to be temporarily clogged with paper or similar material at both ends so that the concrete cannot enter the pipe.

4. **2-b** When pouring concrete, it is first poured into the vicinity of the installation pipe to secure the position. After the concrete has been poured, the installation pipe must be accessible.

5. The entire foundation space must be filled with concrete. In the case of low temperatures, it is necessary to add to the concrete mix agents to improve frost resistance.
6. Carefully level the foundations and concrete around the foundations using a spirit level. This is very important because once the concrete has hardened, the position of the filling station can only be adjusted by using washers.
7. The concrete foundation should be allowed to dry for at least two days (48 hours) before the power cables can be introduced into the installation pipe

3 Preparation for the Installation

Once the foundation is dry and the power cables are introduced into the installation pipe, the installation of the charging station can begin.

- Clean the foundation, its surroundings and anchor bolts.
- Cut the installation pipe containing the power cables.
- Shorten the earthing strip to the appropriate length and drill a hole in it.

4 Preparation of Supply Cables

4-a Shorten the power cord and remove the cable sheath - make sure there is no voltage in it beforehand. Shorten the cables to the appropriate length (40 cm) so that you can connect them to the terminals in the charging station.

4-b Remove 20 mm of insulation from all cables and attach and compress the appropriate crimp tubes on all cables. To prevent cables from getting in the way of mounting the charging station, twist them into an installation pipe.

Length of cables on the other side of the gland should be:

a) Power supply cables (L1, L2, L3, N): 15 cm with insulation and stripped cable jacket + 2 cm without insulation
b) Grounding cable: 10 cm with insulation
c) Ethernet UTP cable: 17 cm with insulation

5 Mounting the Charging Station

Grab the charging station for both sockets, tilt it towards you and lift it slightly. Place the charging station on the foundation. In the event of strong winds, make sure that the

charging station does not tip over.

Unlock and open the door with the key located in one of the sockets. Take the five nuts and tighten them firmly on the anchor bolts.

6 **Removing the Power Supply Cover**

The safety cover protects against accidental direct contact with live parts. Turn off the main power before removing the cover. Unscrew the screws and then remove the cover.

7 **Earthing**

Attach earthing cable to the screw of the foundation and tighten it tightly with a sixth nut. Attach the other end of the cable to the PE clamp. Connect the earthing strip to the PE clamp as well. Protective cover that is positioned over the 80 A MCB must be grounded.

8 **Connecting Power Supply Cables**

Remove the sticker with designation of conductors.

8-a Slightly loosen the screws on the underside of the circuit breaker terminal and on the earthing clamp, located right.

Insert all three phase conductors and the neutral (N) conductor into the circuit breaker terminals and tighten them firmly. Attach the supply ground (PE) cable to the earthing clamp.

8-b When charging station is part of a cluster of charging stations, configuration with additional clamps should be ordered. In this case connect all three phase conductors (ingoing and outgoing) to the cluster clamps first to be able to connect other charging stations.

9 **Closing the Power Supply Cover**

Place the power supply cover in the appropriate place and tighten it with screws.

10 **Preparation of Communication Cable**

In the case of a LAN connection, cut the cable to the appropriate length so that it can be connected to the Ethernet port. It is recommended to use an UTP Cat 6 shielded cable that is resistant to interference from nearby power cords.

Remove approximately 2.5 cm of insulation from the cable. Insert the twisted pairs into the RJ45 connector in the correct order and crimp the connector firmly.

11 Connecting the Communication Cable

Plug the cable into the router socket. If the network router is not part of the charging station equipment, connect the cable directly to the main controller located at the top of the charging station port.

12 Finishing Work

To ensure a longer life of the device and its operation, at the end of the installation, be sure to seal the inlet pipe for the power cable and the opening in the lower inner part of the station.

Fill the inlet pipe and the opening with a polyurethane foam filler (or similar material).

The test voltage for measuring of insulation resistance must be set to 250 V DC as specified in IEC 60364-6. The varistors in charging station may affect the measurement results or be damaged if tested with higher voltage.

12-a Before closing the station, check the condition of the over-current protection elements and the residual current devices. The charging station has built-in overcurrent protection with miniature circuit breakers (MCBs) and leakage circuit breakers (RCD). Check that all circuit breakers are on:

- There is a main circuit breaker and an electronics power circuit breaker at the bottom of the station. Check the condition of both.
- Each of the baskets with component's contains a branch circuit breaker and a residual current protection switch. Check the condition of all four elements.

Close the charging station door and lock it.

Connect the charging station to the power supply in the electrical cabinet. Turn on the power supply where the station is connected.

12-b The first start-up can take up to 10 minutes. Follow the instructions on the LCD screen to start charging.

Please consult with local regulations and guidance for requirements for installation of possible special signs and other designations in the charging station vicinity.

For more documentation, warranty certificate or for troubleshooting, please look at:

https://etrel.com/charging-solutions/inch-duo/

www.etrel.com

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WEEE: Dispose of the device only at the recycling centre.