ETREL

ETREL INCH FAMILY

PHYSICAL INSTALLATION

Document version: 1.0

1 PARTS LIST

In order to properly and securely install the charging station the standard equipment that comes together with the charging station for you to use during the installation is:

- 1x Charging station (with type 2 cable or with type 2 plug),
- 1x wall mounting holding bracket,
- 4x wall plugs for securing the mounting bracket using screws to the wall,
    - Wall plug dimensions: 8/40 mm or 10/50 mm
- 4x screws to mount the bracket to the wall,
    - Screws dimensions: 60 mm
- 1x screw to mount charging station to the bracket,
- 4x Wall spacers (optional use when input cable is connected from top of the station),
- 2x keys to open charging station maintenance door,
- 1x How to guide for mounting the charging station to the wall,
- 1x How to guide for installation of charging station, and
- 1x warranty card.

Apart from the meantioned equipment additional material can be packed with the charging station, depending on the model of charger and type of loction and physical installation that you specified. Optional equipment, that can be ordered is:

- RFID cards,
- Mounting pole,
- Underground anchoring structure,
- Bolts to secure the underground anchoring structure,
- Protective railing

2 EQUIPMENT

To execute the installation of charging station multiple tools are needed:

- Screwdriver,
- Hex screwdriver (if charging station without key lock on maintenance doors),
- Utility knife,
- Self adjusting Crimping pliers for cables' end sleeves,
- Wire trippers and
- Cable rippers.

Figure 1: Equipment used for the installation of charging station

3 INSTALLATION LOCATION

Charging station should be installed in the vicinity of the parking spot that will be used to park and charge EVs. Cars can have EVSE located in various positions. Consequently cable length to connect EV and charging station is important. The sufficient cable length to easily connect car regardless of where the EVSE is located with the charging station should be between 3 and 7 m and depends on the charging station location in comparison to parking spot. Shorter length cables are recommended as they are easier to handle. Make sure that in a typical connection scenario there are no obstructions in the way of the charging cable. When in use, the charging cable should be laid so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.

Charging station should be mounted so that the plug of the charging station is located approximately 120 cm above the ground. This height enables averagely high user the easiest operation of charging station and connection of charging cable. It also provides best view and operation of the LCD screen.

Etrel INCH charging station and its components (cable, casing, LCD screen…) are developed to be installed in the outside area meaning that charging station is resilient to the external actors (UV rays, rain, snow, cold etc.…). Installing it in the closed up area for example in garages will prolong the lifespan of the charging station and keep it in a pristine condition for longer.

4 INSTALLATION OF UNDERGROUND ANCHORING STRUCTURE

The self-standing charging station set contains an underground anchoring structure which has a double function:

- it supports the weight of the charging station, and
- it prevents any vertical incline of the charging station.

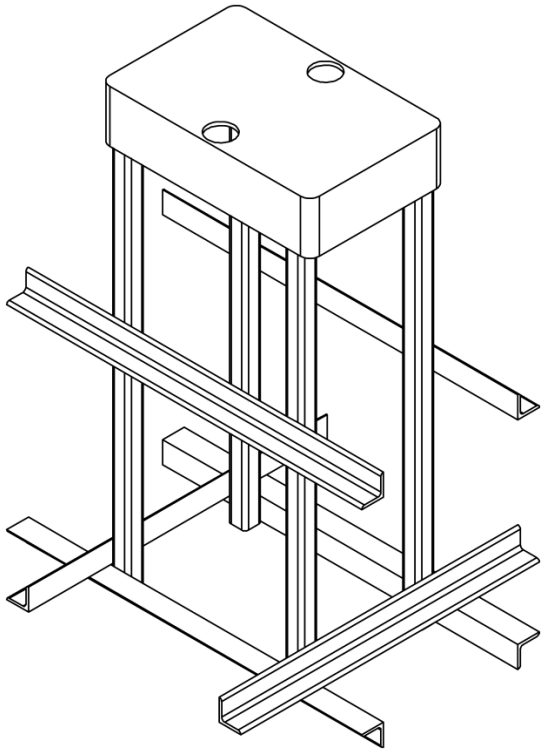


Figure 2: Underground anchoring structure

The underground anchoring structure is built into concrete foundation and is made of stainless steel. The preparation of the foundation depends on the structure of the ground on the designated location. The underground anchoring structure can be combined with reinforcing steel.

Dimensions of the underground anchoring system:

- Width: 345 mm,
- Length: 410 mm,
- Basic depth without the reinforcing steel: 504 mm.

The frame enables concreting of the foundation to its final height and placement of finishing tiles or paving stones on the surface surrounding the charging station. The upper plate of the foundation has an opening for the insertion of supply cables. During installation, a pipe with a sufficient bending radius is placed into the foundation. The pipe is later used for the insertion and connection of supply cables. The installation pole designed for two units allow the connection with two separate pipes.

EXCAVATION

The first step of the construction work is to prepare an excavation with the minimum basic dimensions of 42 cm x 50 cm and the depth of 60 cm, these dimensions need to be bigger if the protective railings are used. 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.

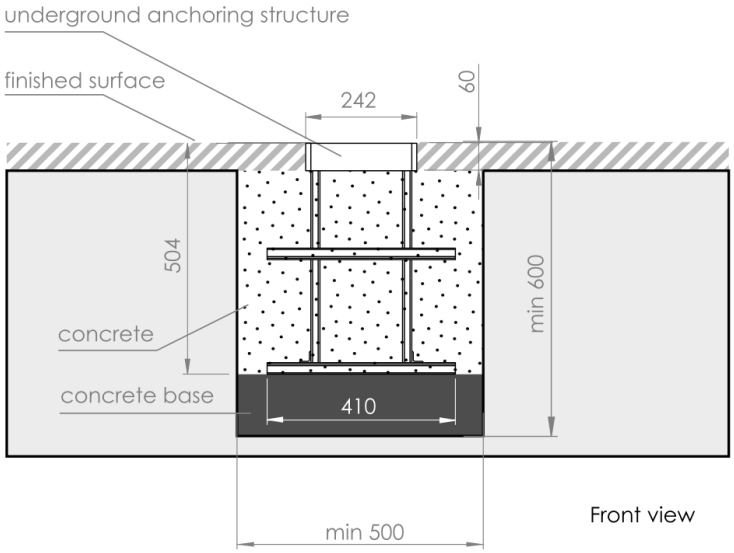


Figure 3: Basic excavation - longitudinal section

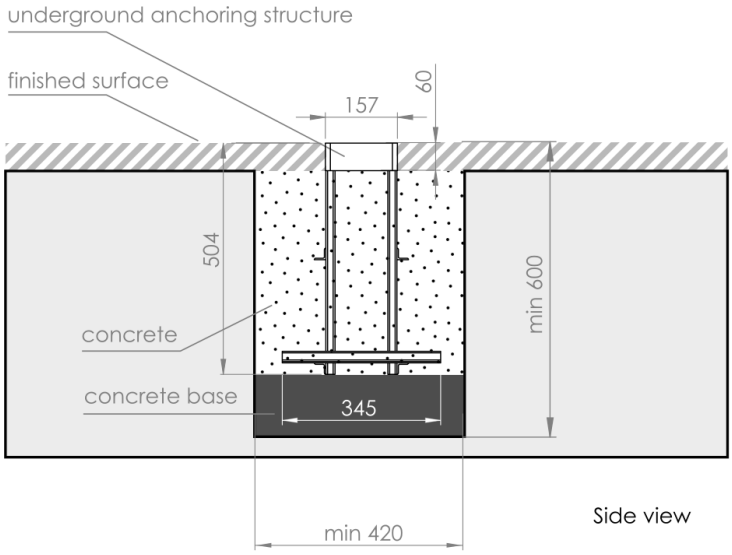


Figure 4: Basic excavation - traversal section

For construction of foundation and placement of anchoring structure into concrete follow these steps:

Important: Make sure that the anchoring structure is inserted into the whole in horizontal position with the the part with holes oriented towards the sky.

1. According to the alignment of the power cable, the location of the installation pipe is determined. The pipe is placed into the foundation and used to connect the charging station to the network. It is recommended that the installation pipe ends on the lateral side of the foundation and not beneath the foundation. The bending radius of the power cables must be taken into account when placing the installation pipe. The dimension of the pipe depends on the number and diameter of power cables which will be inserted into the pipe. In the case of clustering of charging stations in the same area, it must be taken into account that two power cables will be inserted into the installation pipe. The size of the opening at the top of foundation enables the installation of two installation pipes when the clustering of charging stations is executed in the opposite direction to the location of the current connection,

Important: When inserting the anchoring structure be sure that the orientation is appropriate depending on how you want your charging station turned.

2. The concrete base is placed into the construction pit to the level that enables the top of the underground anchoring structure to reach the desired final height. The final height in this case is the level of surface finish after completed works (for example the top level of paving stones, tiles or curb). The concrete base is leveled so that the anchoring structure can be vertically aligned. It is of utmost importance that the anchoring structure is aligned very precisely. Lean concrete mix should be used for the concrete base,
3. The installation pipe is inserted through the opening of the underground foundation anchor and attached with a wire to prevent it from slipping into the foundation during concrete works. The installation pipe, which has been cut to its final length, must be clogged on both ends with paper or similar material, so that the concrete cannot enter the pipe,
4. The concrete works can be started at this point. First the area around the installation pipe is concreted, where the pipe must remain accessible after the concrete works are finished.
5. Once the concrete reaches the level of the frame, the concrete works continue through the upper opening of the underground anchoring structure, where the installation pipe is placed. The entire space inside the frame must be filled with concrete. In the case of low temperatures, the concrete must contain anti-icing additives,
6. The next step is precise leveling of the foundation and the concrete around the frame, where the finishing tiles will be placed. Precise leveling of the underground anchoring structure is important for later installation of the charging

station. After the construction of the foundation is finished, the charging station can be aligned only with the use of washers, placed on the bolts of the underground anchoring structure,

7. The concrete must be left to dry for at least two days before the cables are inserted into the foundation and the charging station is installed on the foundation.

Instalation of protective railings (optional)

Protective raillings prevent mechanical damage to the charging station which may result from collision with vehicles and they enable bikes nad scooters to be chained to the railings while charging. The railings are set up in the form of a safety arch. The manufacturer normally supplies 1 set of protective railings (2 pieces), which are installed at both sides of the charging station.

Excavation and foundation construction for protective railings

When protective railings are installed together with the charging station, the contractor must prepare the foundation accordingly. Both arches of the protective railings are placed in the same foundation with the charging station.

If safety arches are added to the charging station, the foundation needs to be enlarged accordingly (with the minimum dimensions of W: 75 cm x D: 50 cm x H: 60 cm).

There are several guidelines that need to be observed when installing safety railings:

- The railings protect the front side of the charging station, therefore the arch must be aligned with the rear side of the installation pole with the station(s) (underground anchoring structure),
- The safety arches on the left and right side of the charging station must be placed at a distance at least 10 cm from the station,

1. The height of the installed arches is 70 cm above the final level of the foundation.
2. If the charging station is located on the pavement, the two front ends of the safety arches on one side must be installed at the edge of the roadside curb and the charging station must be placed away from the roadside curb so that its rear end is aligned with the two rear ends of the safety arches.

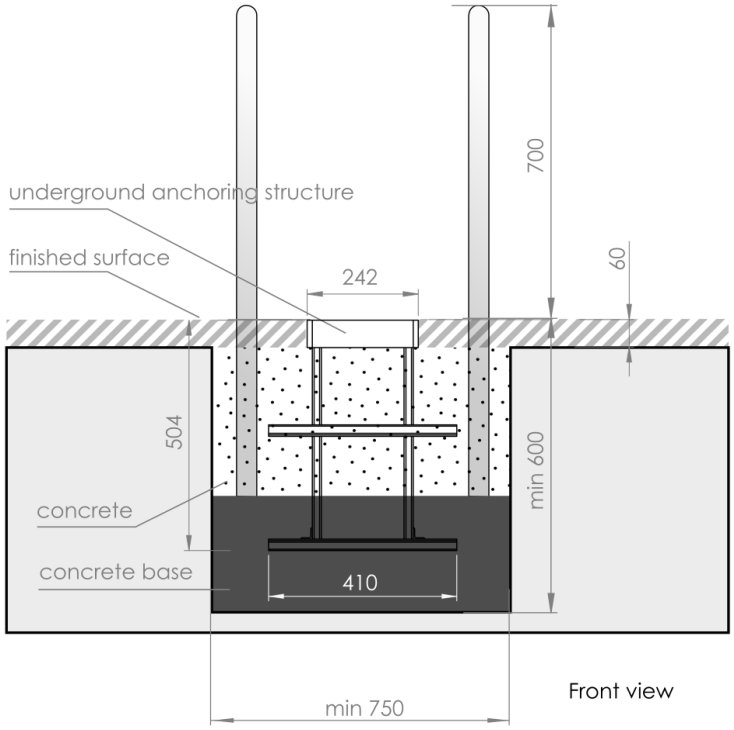


Figure 5: Longitudinal section of the excavation with safety railings

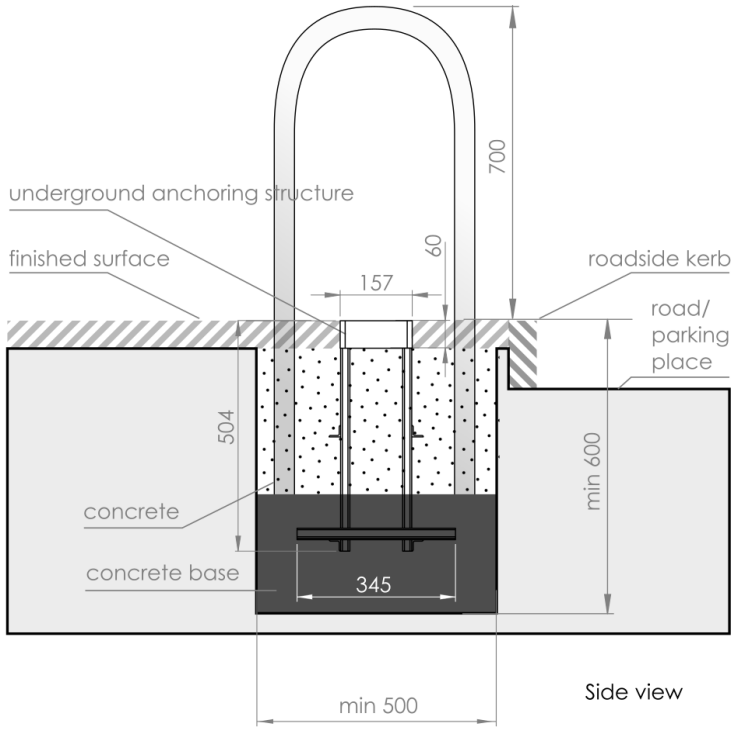


Figure 6: Trasversal section of the excavation and safety railings on the curb

Insertion of cable through the installation pipe

After the installation pipe is built into the concrete foundation, it is used for cabling and connection of the charging station. The concrete foundation must be left to dry for at least two days before the cables can be inserted in the installation pipe.

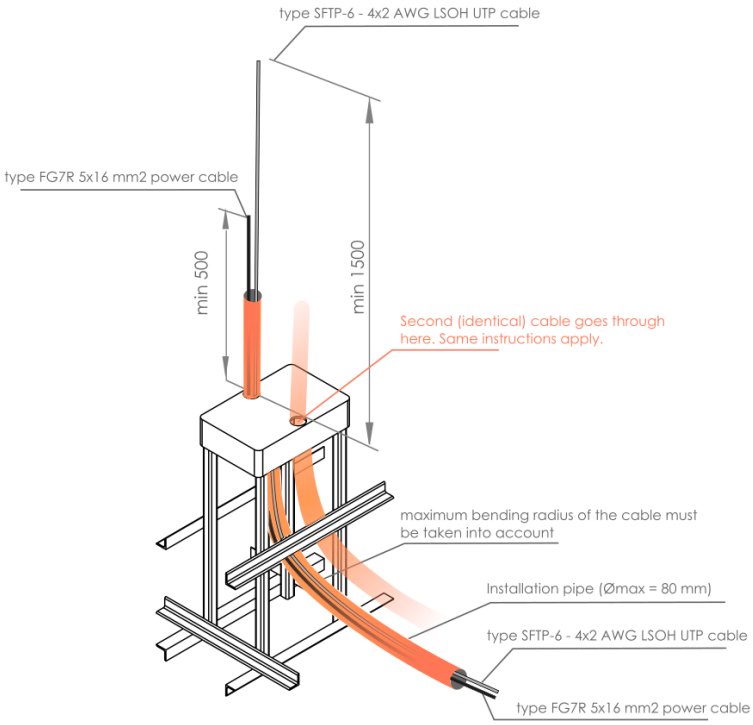


Figure 7: Placing of installation pipe and insertion of calbesSupply cables are routed through the underground anchoring structure with the use of the installation pipe as shown in the figure above. The exact way of routing the cables depends on the type of the cables used and their diameter(which is determined in the Electrical installation documentation). When dealing with cables with larger diameters, their bending radius must be taken into account. Appropriate length of cables must reach through the upper opening for later connection of the charging station.

Installation of the pole on the foundation

After the foundation with the built-in anchoring structure and installation pipe is constructed, the charging station installation pole can be installed on the foundation.

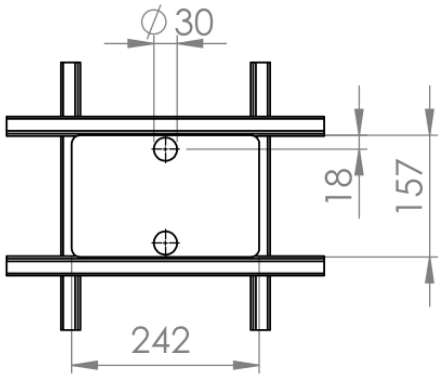


Figure 8: Upper plate of the anchoring structure

The figure above shows the upper plate of the underground anchoring structure, together with its dimensions. The installation pole for Etrel INCH charging station(s) is fixed to the bolts on the underground anchoring structure. A ring spanner is used to fix the station to the foundation. The pole has at the strategically located height weakened structure. This allows pole to break at that specific point in case a car hits it.

A pole already has drilled holes where mounting bracket can be attached and secured with bolts.

Figure 9: Charging station standing pole

Figure 10: Standing pole with the hole on the horizontal plate where charging cable goes. This kind of pole is used for charging station with installed charging cable.

5 INSTALLATION OF MOUNTING BRACKET

Users have two possibilities how to mount the charging station. In the first option charging station is mounted straight to the wall using wall mounting bracket. In the second mounting solution mounting pole is used that comes with already attached bracket.

Installation of mounting bracket can be possible on many type of walls:

- Wooden,
- Knauf and
- Concrete.

Wall used for mounting the charging station must be able to support 12 kg of extra weight. When installing the charging station on the wall serviceman must take into account measurements of the station that are 45x27x13.5 cm, additionally to that dimensions extra space around the station must be available for installation purposes and later for maintenance. At the top, on the left side and at the bottom of the station at least 10 cm of space needs to be kept free to simplify later maintenance. On the right side where the maintenance door is located at least 40 cm of room needs to be available to allow serviceman to open the door and access the charging station insides to conduct maintenance.

1. Measure and mark the final mounting height on the selected location of the installation. Height of the wall mounting bracket should be around 120 cm from the ground.
    a. When considering the height and location of the charging station keep in mind if the cables come from the other side of the wall into the charging station, hole needs to be drilled where cable will be routed in to the charging station. Hole should be located on the right bottom side of the mounting bracket. Area for hole is drawn on the picture with the red square. Hole should be big enough so that you can put the cables through it and that you can easily manage them.

Figure 11: Location of the hole when the cable comes from the other side of the wall

2. Press the mounting bracket against the wall and mark the places where holes need to be drilled to insert the anchors and screws. If cables are routed through the wall, make sure that the electrical box has been installed at the right location before installing the mounting bracket. On the picture below screws location is shown with the red circles.

Important: In some cases for example when the mounting bracket is secured to the soft insulation e.g. Styrofoam special wall plugs are needed.

Figure 12: Location of screw holes where hole in the wall need to be drilled and anchors inserted

3. Drill 9 holes and insert the anchor screws in each hole.
4. Align the bracket with the drilled holes and insert the screws to attach the mounting bracket to the wall in its final position.
5. Before you fasten the screws attach the charging station holder. It is very hard to attach it later when the bracket is already secured to the wall with screws. Removing it after the installation is easy due to the design of the holder.

Figure 13: Frontside view of the holder

6. Fasten the screws so that the bracket is secured to the wall.

Figure 14: Bracket fasten on to the wall with the charging station holder in its place

6 SUPPLY CABLE CONNECTION TO THE STATION

Before the mounting bracket is secured to the wall or the pole it is vital to consider from which direction cables will be routed into the charging station as every option need some sort of a variation with the installation of the mounting bracket. If the charging station is mounted on the pole cables are routed to the bottom of the station but in the case when mounting bracket is attached to the wall 3 options exist:

- Cables are routed to the back of the station though the wall,
- Cables are routed to the bottom of the station in a wall cable raceway, and
- Cables are routed to the back of the station from the top.

CABLES ROUTED TO THE BACK OF THE STATION THROUGH THE WALL

When installing the wall mounting bracket cable location behind the wall needs to be known and hole drilled where cable will be routed in to the charging station. Hole should be located on the right bottom side of the mounting bracket as seen above in the figure 14. Measurements of the hole should be sufficient to allow manipulation with cables and their installation inside the charging station.

CABLES ROUTED TO THE BACK OF THE STATION FROM ABOVE

When the cables are connected from the top before the mounting bracket is installed four wall spacers need to be attached to the

mountain bracket. Wall spacers will allow the cable to come from the top and behind the mounting bracket from where they will be inserted into the charging station.

Figure 15: Mounting bracket installed on the wall spacers

CABLES ROUTED TO THE BACK OF THE STATION FROM THE GROUND (APPLIED WHEN MOUNTING BRACKET IS ON THE WALL AND ON THE POLE)

Cables are routed to the bottom of the station through a cable raceway. The cable raceway must be positioned so that it leads directly to the black round rubber seal at the bottom edge in the middle of the station. In order to correctly position the cable raceway, it should be fixed only after the mounting bracket is installed and the station is attached to the hooks. Max dimensions of cable raceway should be: height: 6 cm and width: 2.5 cm. This will allow cable raceway to fit at the back of the charging station.

When you are using the pole for the installation of charging station cables can be put through the hole inside the mounting pole.

Cables can be pulled through the hole in the bottom of the stand from the cable raceway built into the anchoring structure.

Figure 16: Column hole on the base of standing pole where cables can be inserted from anchoring structure

Figure 17: Exit cable hole located behind the position where the charging station will be attached to the standing pole

Figure 18: Cables pulled from the top of achoring structure and through the column hole in the bottom

When pulling the cables through the column you can help yourself using the cable and duck tape to lead the power supply and utp cables. Once the cable is through the hole you can start managing the cable (removing cable jack, insulation, adding the ferrules...) like it is described in the procedure below.

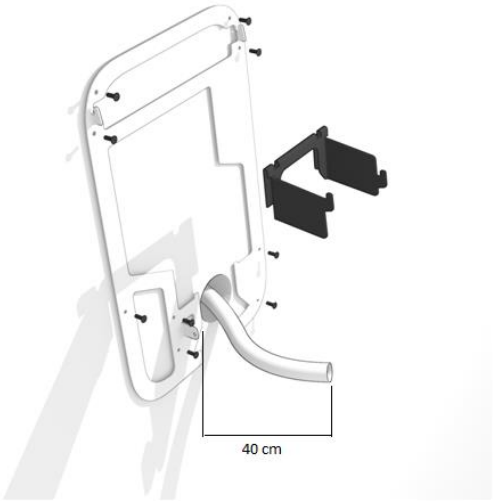
Figure 19: Pulling the cable through the column with leading cable and ductape

Figure 20: Procedure of pulling the cables through the hole

7 CABLE MANAGEMENT

Connection of cables can be done once the mounting bracket is securely fastened either on the wall or on the pole and the charging station holder is attached to the bracket.

1. Pull the power supply cable through the drill hole in the wall if the cables are located on the other side of the wall. If cables are connected to the charging station from above or below just make sure that they are long enough.
    - Main cable length available for the installation should be around 40 cm.



2. On the backside from the charging station screw off the back maintenance door.

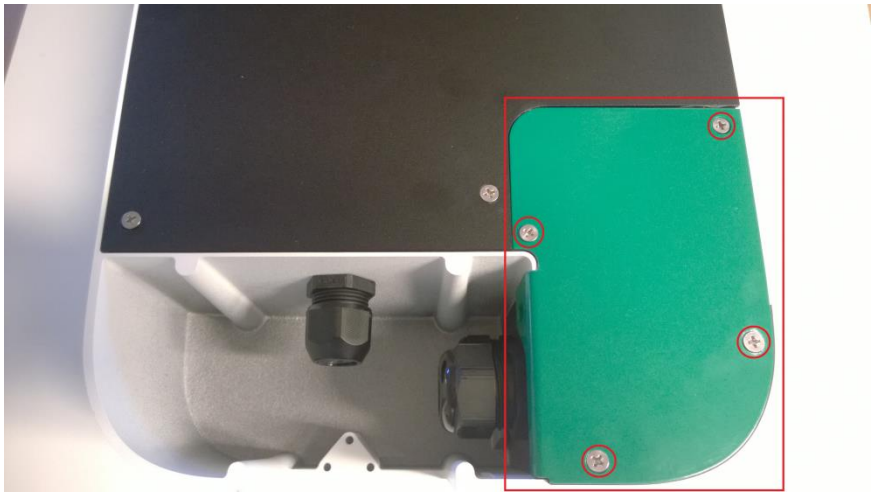


Figure 21: Screws located on the green back maintenance door

3. Remove the maintenance doors on the side either using hex key or regular key, if the enclosure came with the keyhole.

Important: Key to unlock the key-lock should come with the charging station.

Figure 22: Side maintenance doors with hex screw

Figure 23: Side maintenance doors with regular key lock

4. After the removal of the back maintenance door un-tighten the screws on the plate with cable glands and remove the plate.

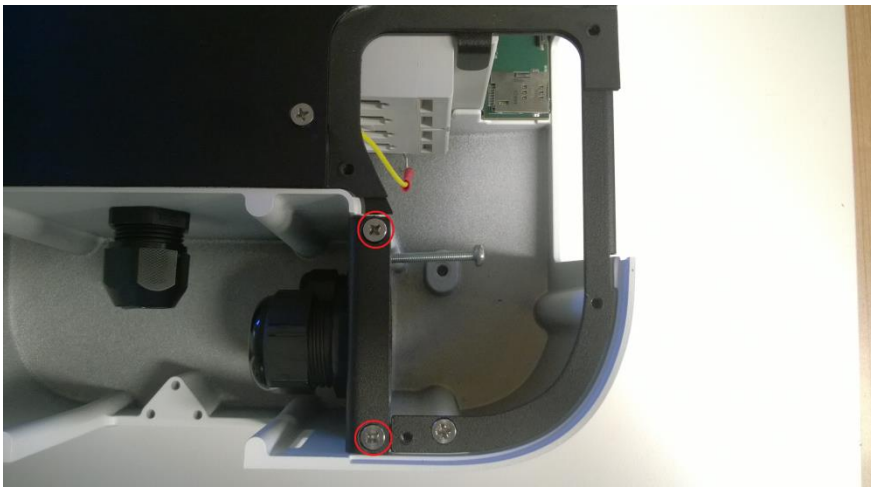


Figure 24: Screws on the cable gland plate

Figure 25: Cable gland plate

Bigger cable gland is meant for power supply cables and smaller for the ethernet cable. As is seen from the picture above smaller gland has a plug inside and should be removed if the ethernet utp cable is used to connect to LAN. Plug is used so that incase when ethernet utp cable is not used the gland remains closed and prevents water to trickle inside the charging station. Inside each gland there is a rubber that makes sure cables are tightly secured inside the gland, that they can't be removed and that any liquid or small dust particles can't enter the charging station interior.

5. In the bigger gland you should make sure that the rubber inside the gland is of correct size. For the cables dimensions up to 5x6mm^2 use the tighter rubber which should be already inside the gland by default. For the cables with the 5x10 and 5x16 mm^2 use looser rubber.
    - Diameters of gland rubbers are: 1.5 cm for the tighter and 2.1 cm for the looser one

Important: Diameter of gland rubbers are 1.5 cm for the tighter of the rubbers and 2.1 cm for the looser one.

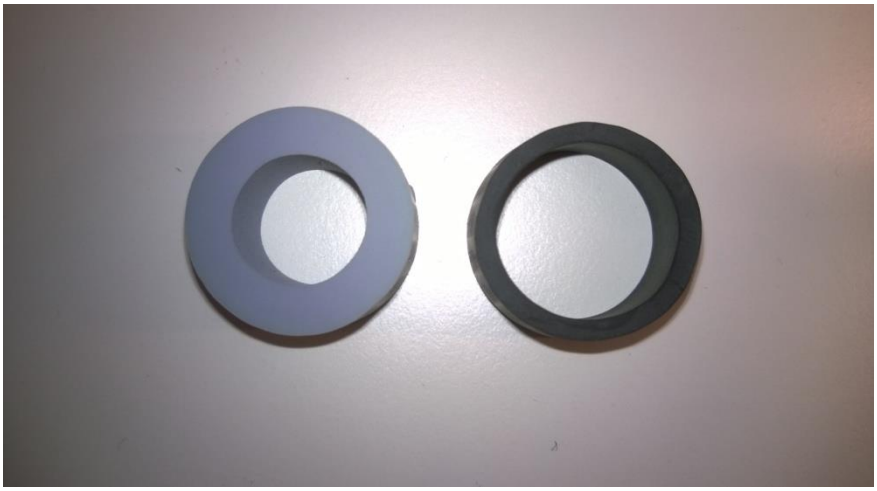


Figure 26: Rubbers in cable gland

6. You can change the rubber with removal of the gland plastic top (unscrew it) and by simply pushing the rubber out of the gland. After the new rubber is inserted into the gland simply screw the plastic gland top back on.
7. Proceed with the preparation of cables. First you will have to manage the power supply cables from which you will have to remove cable jacket. Around 15 cm should be removed so that the wires lengths are sufficient to connect them to the elements inside the charging station.
8. You can now pull the power supply cable through the gland. About 15 cm of power supply cable should be pulled to the other side of the gland. About 2 cm of cable jackets should be put through the cable gland as well. This will make cable manipulations inside the charging station easier. Make sure that the cable is fastened securely with the gland so that it can't be pulled out. You can tighten the gland by turning the plastic gland top in clockwise direction.
9. Length of the skinned cable through the gland should be:
    - Phase cables 12 cm
    - Ethernet cable 17 cm
    - Ground cable 9 cm

Important: If you have a hard time inserting cables through the gland you can make it easier by loosening the gland screw cap by turning it counter-clockwise.

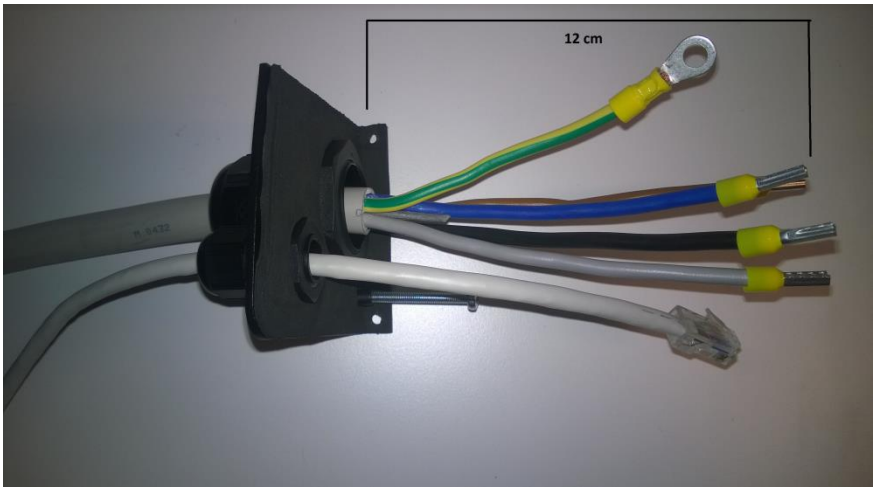


Figure 27: Power supply cable pulled through the plastic gland – side view

Figure 28: Power supply cable pulled through the gland – front view

10. Grounding wire should be around 5 cm shorter in comparison to other wires. So make sure you shorten it and after that remove the wire insulation from all of the wires using special insulation stripping pliers.

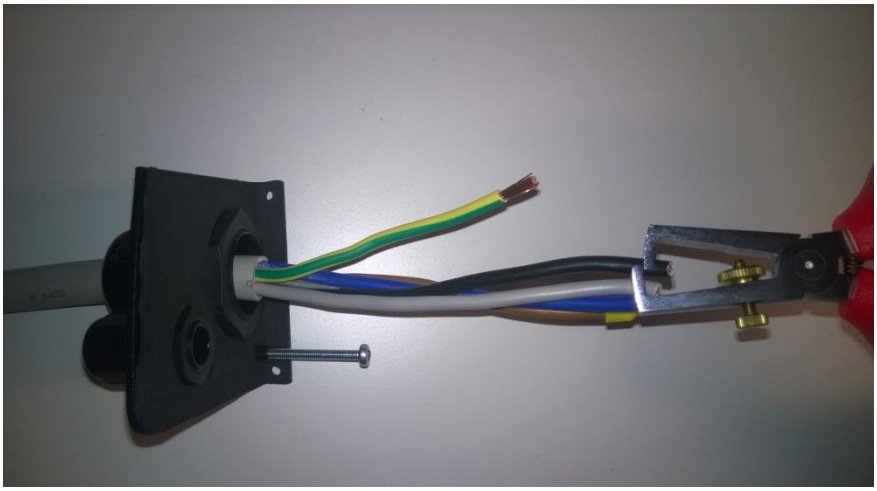


Figure 29: Removing the wire insulation

11. Once all the wires are stripped of wire insulation attach on the end of the wires cable ferrules so that wires can connect to RCD or overcurrent protection and squeeze them with the pliers.

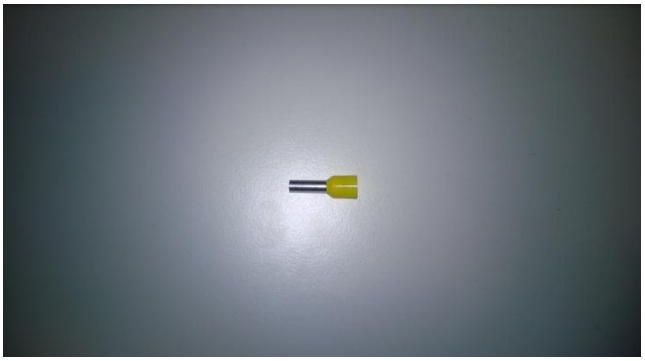


Figure 30: Cable ferrule for wires other than ground wire

Figure 31: Cable ferrule for the grounding wire

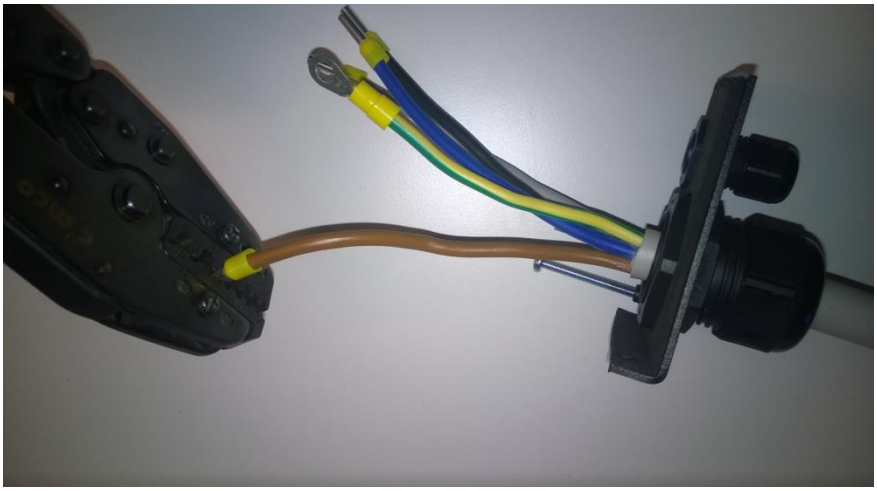


Figure 32: Squeezing the ferrules of the wiring

12. Now that the power supply wires are ready, prepare the ethernet utp cable in the same manner. Your first step should be to remove the utp gland filler. Filler is part of the gland rubber- You can simply push the filler out after you remove the gland cap by unscrewing it in counter-clockwise direction. Insert the rubber back into the gland as it will likely come out together with the filler.

Figure 33: Utp gland rubber with filler

Figure 34: Removed filler from the gland rubber

13. Insert the utp cable through the gland and remove the cable jacket from the cable. About 20 cm of utp cable should be put out of the gland.
    - You can also remove the jacket before putting the cable through the gland.

Important: UTP cabel used should be SFTP-6 – 4x2 AWG LSOH

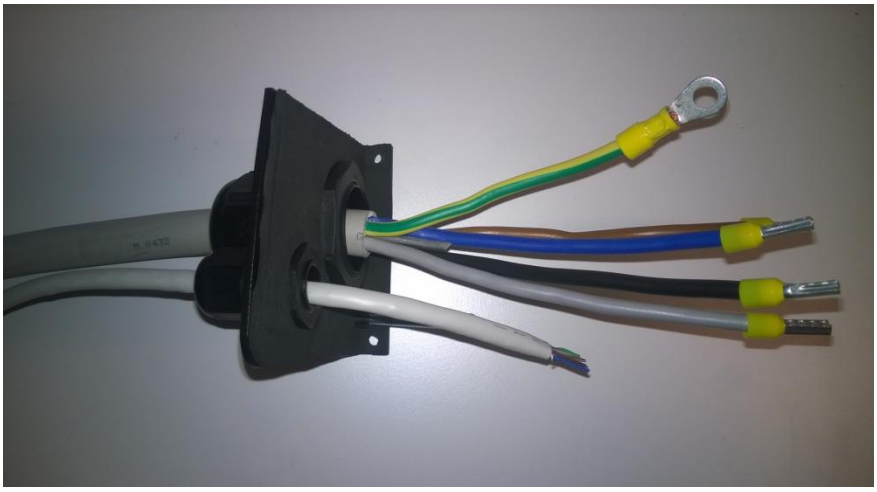


Figure 35: Ethernet cable with the removed cable jacket pulled through the utp gland

14. After the cable is through the gland put the utp plug on the utp cable without cable jacket.

Important: Make sure that each wire is in its own slot of the connector.

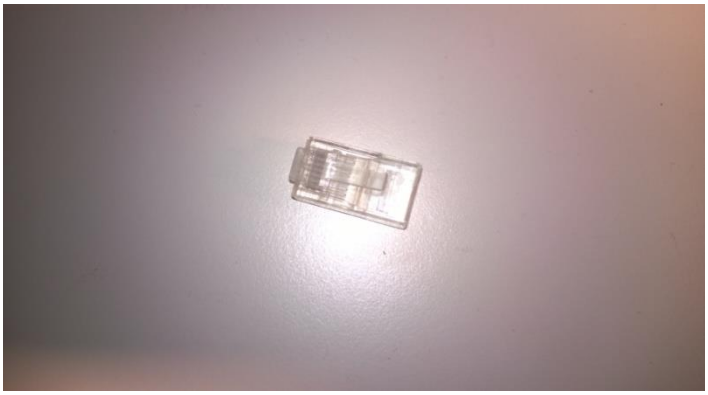


Figure 36: Utp cable plug

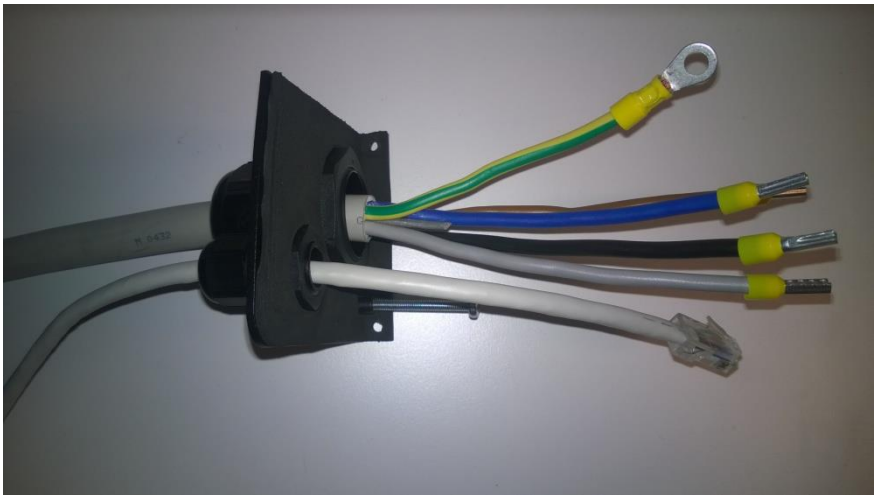


Figure 37: Utp cable with inserted connector

8 MOUNTING OF THE CHARGING STATION AND INSTALLATION OF CABLES

Once the cables had been prepared you can start with the installation of cables into the charging station.

1. Mount the station on the holder that is already attached to the bracket from when you installed the bracket to the wall. The holder is strong enough to hold the charging station during the installation of cables.

Figure 38: Charging station mounted on the holder - front view

Figure 39: Charging station mounted on the holder - side view

2. Place the gland plate in its position so that the plate holes are in line with holes of the enclosure.
    - Make sure that cables are long enough so that they could be connected with appropriate connection.

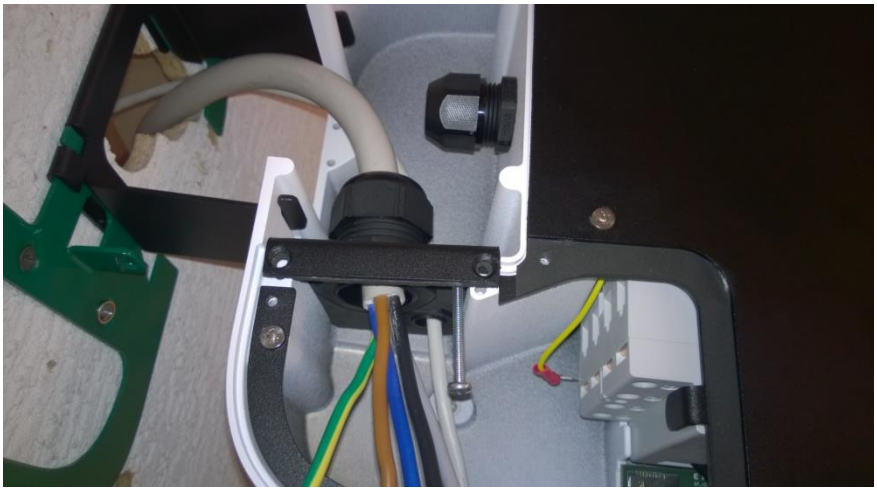


Figure 40: Cable gland plate positioned in the appropriate spot

3. Insert the screws in the cable gland plate holes and tighten them so that the cable gland plate is secured in its location. Use the regular cross screwdriver.

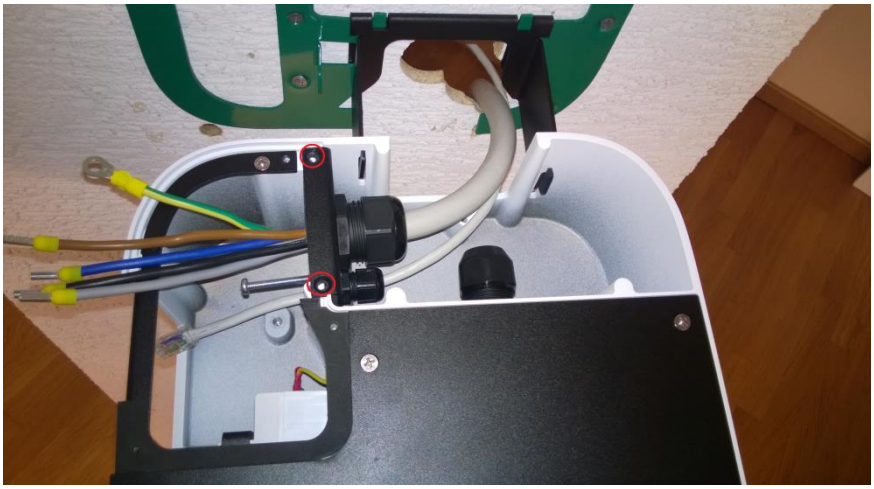


Figure 41: Red color marks the holes where screws need to be inserted

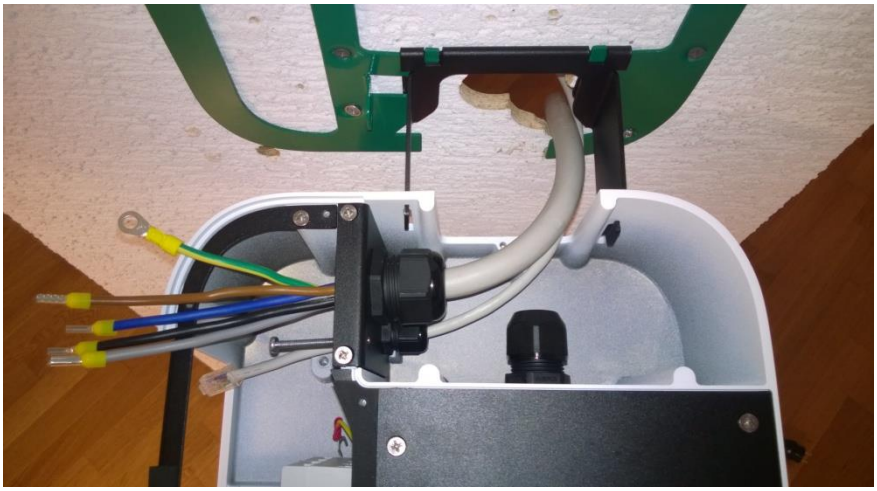


Figure 42: Screwed in screws that hold the cable gland plate in place

4. Your next action is to secure the ground wire to the enclosure in order to ground it. Ground wire (yellow and green) should be secured with the screw in the hole that is part of the enclosure.

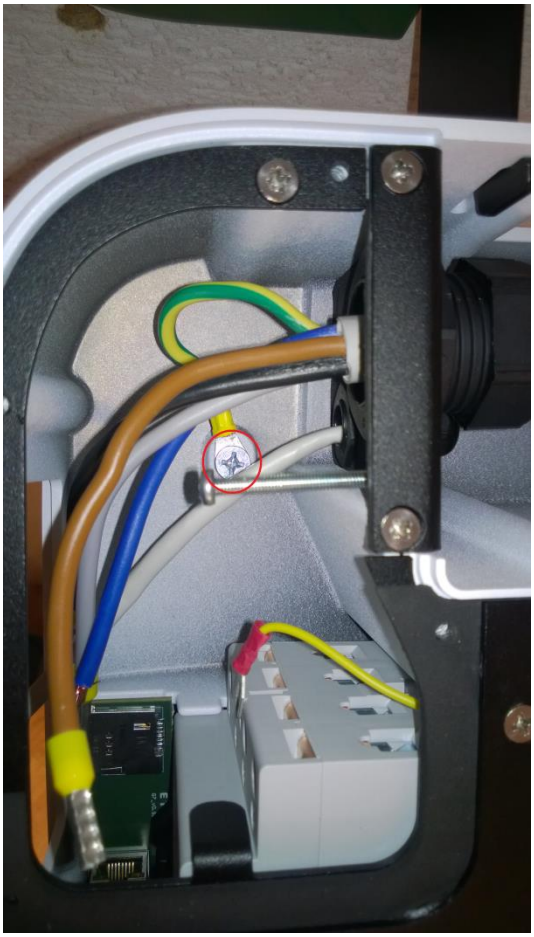


Figure 43: Ground wire secured to the enclosure using the screw

5. Next step is to connect cables to protection element or MID meter.

   Connection of all the elements is practically the same. The only difference is that the RCD element needs additional protection wire. The procedure described below will be for RCD but you can follow it also for other elements.

6. Make sure that screws inside the RCD/overcurrent/MID in which wires will be connected are unscrewed.

Figure 44: Check that the marked screws are unscrewed so that you can insert the wires

7. Insert the additional protection wire to enable RCD trip into the first slot (phase 1) like it is shown on the figure below. (Only for RCD element)

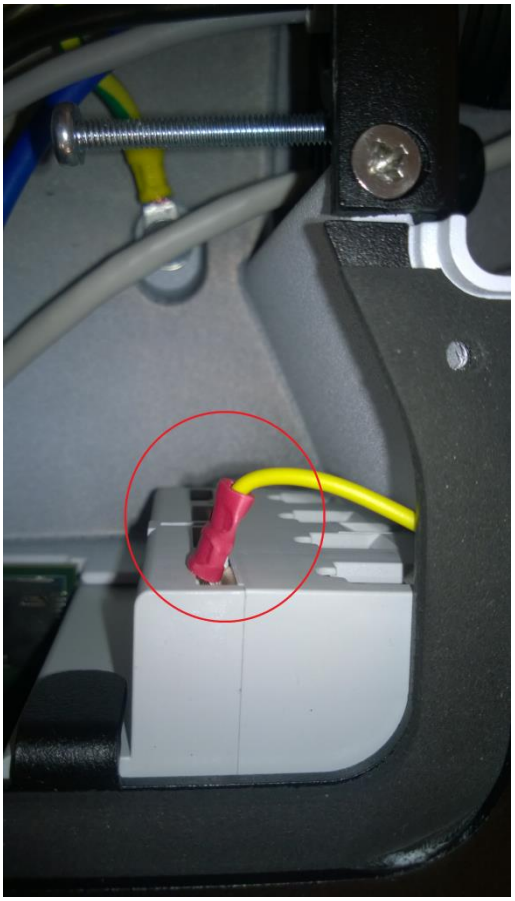


Figure 45: Protection to enable RCD trip inserted into the slot of phase 1

8. Now insert all the wires into the RCD/overcurrent/MID unit. Order of the wires and how they are connected is important. In the top connector, which is phase one (L1) of the charging station, wire that will be used to charge one phase EVs should be connected. It is advisable that least loaded phase is used. The order of second and third phase is more important when charging station is part of the cluster. Bottom connector should be used to connect neutral wire (N).
   After you connect the wires tighten the screws so that the wires can't be unplugged.

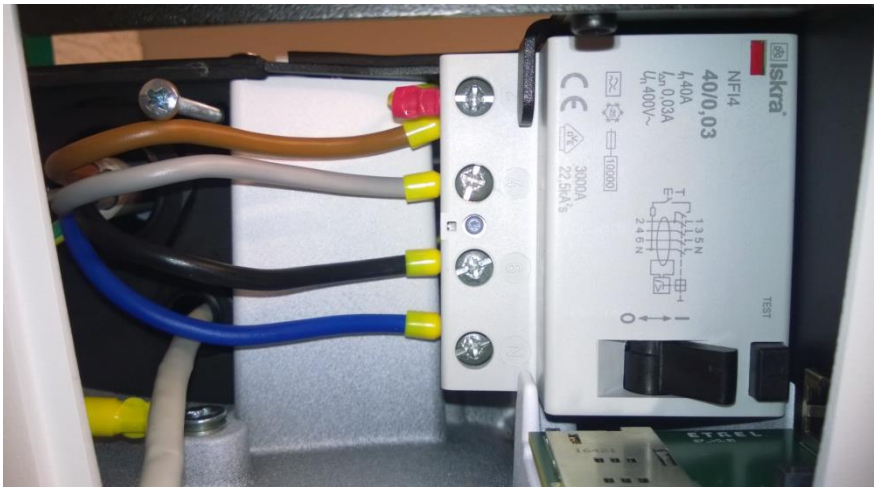


Figure 46: Front view of connected wires

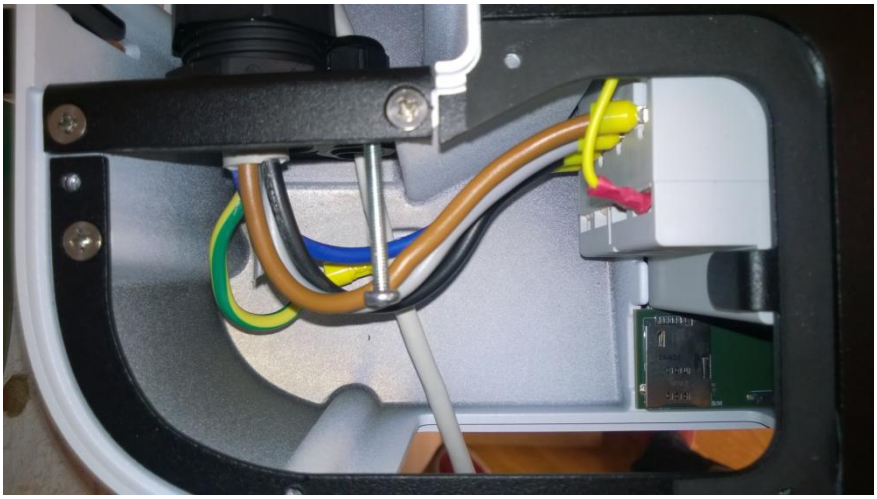


Figure 47: Top view of connected wires

9. Connect the ethernet utp cable into an ethernet connector next to the protection element.

Figure 48: Ethernet utp cable connected to the connector next to the protection element (RCD in this case)

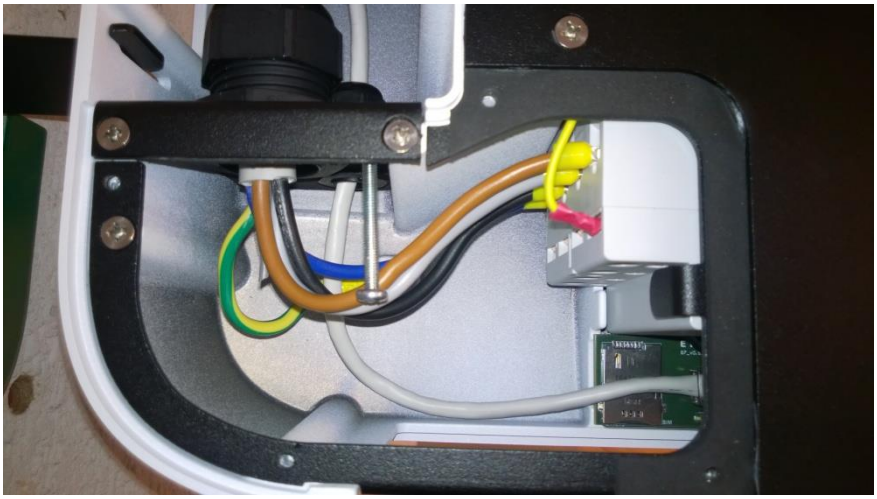


Figure 49: Figure of all cables properly connected

10. Attach the back maintenance doors back onto the enclosure and use the screw to secure it to the location.

Figure 50: Side view of the reattached back maintenance door

Figure 51: Secure the back maintenance doors with screws

11. Remove the charging station off of the holder and remove the holder from the bracket. While doing this make sure you hold the charging station as it will not be supported by the holder anymore.

Figure 52: Charging station is removed from the holder

Figure 53: Holder is removed

12. If you are using charging station with cable for charging, like the one below on the figure, you have to attach cable holder after you remove the charging station from the station holder. You probably won't have space to do it while the charging station sits on top of the holder. To attach it just align the holes on the cable holder hook with holes on the plate attached to the enclosure.

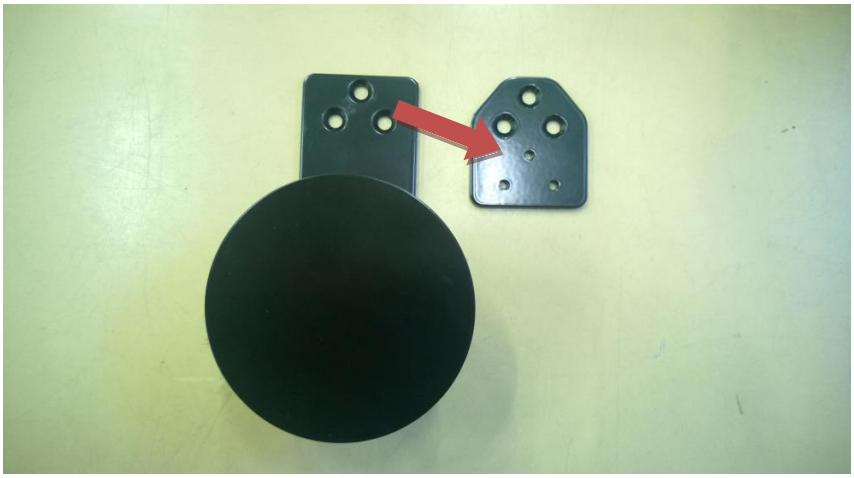


Figure 54: Cover the holes of the metal hook with the holes on the plate that is located on the enclosure as it is shown on the figure

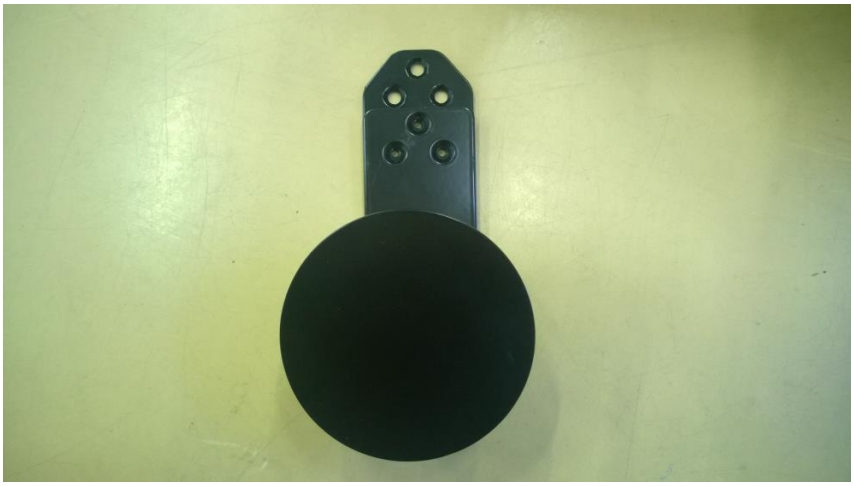


Figure 55: Hook with circle on top of the plate that you can find located on the bottom of the enclosure

Figure 56: Charging station with the installed small metal circle where magnetic cable hand can be attached to

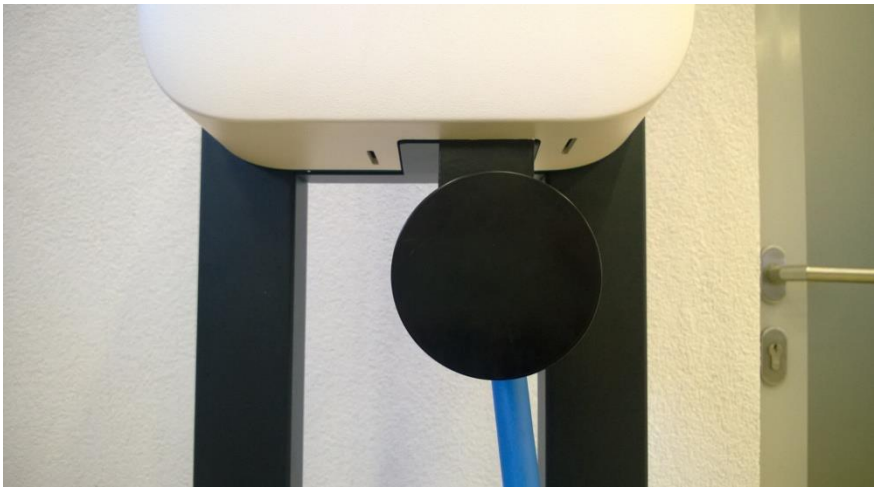


Figure 57: Charging station with installed big metal circle where magnetic cable hand can be attached to

13. Attach the charging station to the wall bracket. First attach it to the top hooks and gently push it to the wall.

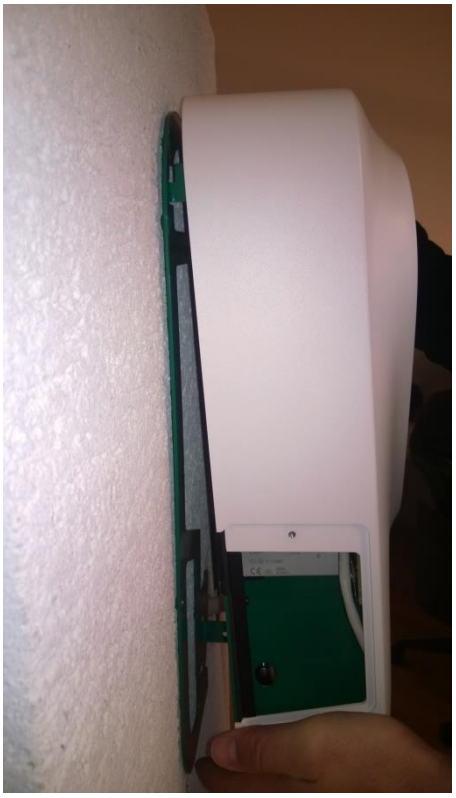


Figure 58: Attach the charging station to the top hooks

Figure 59 Push it to the wall and charging station is attached to the wall

14. Tighten the screw until it is completely fastened and charging station will be completely secured to the wall.

Figure 60: Tighten the screw shown

15. Last step is to secure the side doors using the hex key or regular key if the charging station came with it. Key should have come together with the station. While pushing the maintenance doors tighten the screw or lock the doors using the key.

Figure 61: Attach the side doors to the enclosure

Figure 62: Maintenance doors secured using hex key to screw the doors to the enclosure

Figure 63: Maintenance doors secured using the regular key to secure it to the enclosure

After the installation of the charging station on the standing column is finished no cables will be visible and the hole at the bottom of the charging station will be completely covered due to the specific design of the standing column.

Figure 64: Charging station on the self standing column after the installation

Figure 65: Completely covered hole after the installation on the column

Column option

In the case when charging station will be installed on the column, there is no need to drill any holes in order to insert the bracket as it comes already installed on the column. But you do need to prepare the underground anchoring structure. The procedure is described at the top of the document.

Figure 66: Charging station column

Figure 67: Bracket with the attached holder

Charging station types

- Before the acquisition of the charging station it is important to think about the type of charging station you want base on the charging cable used. You can either decide to use the charging station without the cable or with attached charging cable. Usually charging station without the cable is used in the public environment because it allows each user to bring with him the cable that is suitable for the EVSE of his EV. In private environment when most of the time only one EV is charged charging station with attached cable is more useful as user doesn't need to bring and attach the cable to the station. When installing the charging station with the cable it is important to know multiple options exist: Short (2.5m),
- Long (5m) and
- Coil cable (2m un-stretched and 5m when stretched).

Each type of cable is suitable for particular situation and has some positive aspects as well as some negative ones. Shorter cables are practical if you have charging station installed in such occasion that you can easily plug you EV in it using the shorter cable. They could present the problem when different EV is used with the EVSE located in different location. They are much cheaper in comparison to other. It is also easier to attach the cable to the metallic cable holder.

With the longer cable the prices increase but the position of charging station in comparison to the parking space is not as important. Problem with longer cable is its storage and the ability to handle, which is much worse in comparison to shorter cables. If you are using magnetic cable holder you should use the large one as this one also allows you to wrap the cable on it before using the magnetic handle. Otherwise the cable can get damaged when it is dragged across the floor. They are also harder to control

The third option is the coiled cable, which is the shortest one but can be extended to the length similar of the long cable. It can be easily stored on the cable holder and will not be dragging on the floor. Apart from the price, which is quite high in comparison to other types, its only limitation is its weight. The manufacturer of cable ensures that the coiled cable can be completely stretched and contracted 10 000 times before the cable losses its flexibility.

Figure 68: Charging station with short cable

Figure 69: Charging station with long cable

Figure 70: Charging station with coiled cable

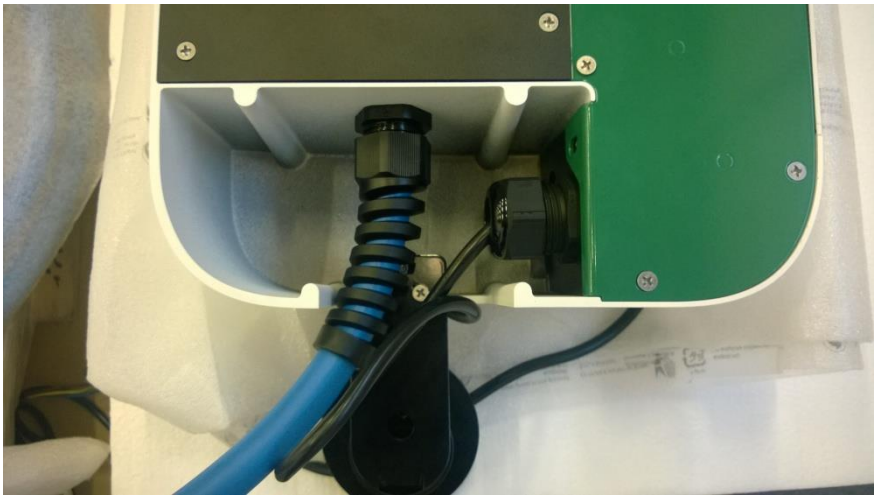


Figure 71: Installed metallic cable holder