Installation manual

Rev. 2
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Table of contents

Table of contents **3**

1. About the document **5**

1.1. Purpose of the document 5
1.2. Destination 5
1.3. Contact details 5
1.4. Language 5
1.5. Used symbols 6
1.6. General indications 6
1.7. Abbreviations 6
1.8. Orientation agreements 7

2. Description **8**

2.1. Description of the product 8
2.2. Intended use 8
2.3. Technical specifications 8
2.3.1. Features 8
2.3.2. Electrical specifications 9
2.3.3. Mechanical specifications 9
2.4. Labels 10
2.4.1. Label with product data 10
2.4.2. Label with access data 10
2.4.3. Labels on the packaging 10
2.5. Appearance and components 11
2.6. Device versions 11
2.7. Optional accessories 12
2.8. Material supplied in the packaging 12
2.8.1. Infinergi packaging 12
2.8.2. Pedestal packaging (optional) 13

3. Security **14**

4. Installation **15**

4.1. Place of installation 15
4.2. Wiring specifications 15
4.3. Device opening 16
4.4. Electrical system setup 17
4.5. Tools needed for installation 18
4.6. Grid connection 18
4.7. CT connection 19
4.8. MID-certified Modbus meter connection 22
4.9. GPRS and RS485 expansion module installation 24
4.10. Ethernet and RS485 expansion module installation 26
4.11. Mounting the device 28
4.11.1. Wall mount 29
4.11.2. Pedestal mount 32

5. First configuration **36**

5.1. Using the mobile App 36
5.1.1. Accesso installatore ..... **Errore. Il segnalibro non è definito.**
5.1.2. Accesso utente ..... **Errore. Il segnalibro non è definito.**
5.2. Using the display 40

6. Technical support **41**

6.1. Errors and recovery 41

6.2. Troubleshooting 42
7. Maintenance 44
7.1. Cleaning 44
7.2. Disposal 44

1. About the document

1.1. Purpose of the document

This document is only valid for the Infinergi device (hereinafter Infinergi). Refer to section 2.6 for supported models).

The document contains the information needed to perform the following tasks:

- Installation
- Setting up
- Technical support
- Maintenance

Read this document carefully before use.

The information in this manual is subject to change over time. It's recommended to always have the latest version of the manual available at

https://support.semar.com

or scan the following QR code.

For information on the features and how to use the device, refer to the "User Guide" document available at the link above.

1.2. Destination

This document is intended for qualified installation technicians of the infinergi device.

1.3. Contact details

Manufacturer

SEMAR Srl

Via Sardegna 5

60022 Castelfidardo

Ancona, Italia

For technical assistance, please refer to section 6.

1.4. Language

The original version of the document is in the Italian language. All other versions are translations of the original document.

1.5. Used symbols

SYMBOLS	DESCRIPTION
	Dangerous voltage with risk of electrocution.
	General risk.
	Electrostatic discharge sensible parts.
	Indicates an operation that can only be performed by qualified personnel.
	Indicates information on the completion of a procedure.

1.6. General indications

⚠ DANGER
Indicates a hazard with a high level of risk that, if not considered, will lead to death or serious injury.

⚠ WARNING
Indicates a hazard with a medium level of risk that, if not addressed, could result in death or serious injury.

⚠ ATTENTION
Indicates a hazard with a low level of risk that, if not considered, could lead to minor or moderate injury.

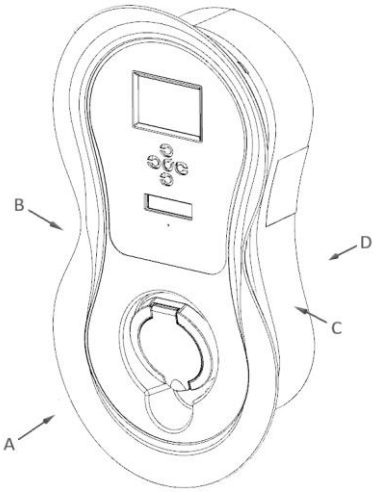
1.7. Abbreviations

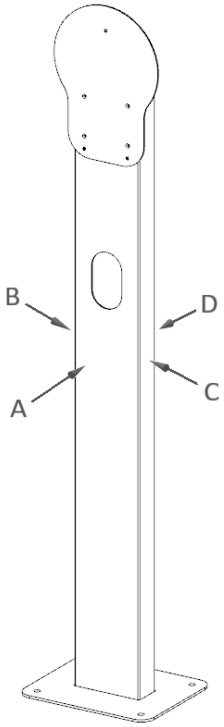
ABBREVIATION	DEFINITION
AC	Alternating Current
AP	Access Point
CT	Current Transformer (amperometric clamp)
DC	Direct Current
DLM	Dynamic Load Management
EMC	Electromagnetic Compatibility
EV	Electric Vehicle
GND	Ground
GPRS	General Packet Radio Service
ISM	Industrial, Scientific, and Medical
LCD	Liquid Crystal Display
LVD	Low Voltage Directive
MCB	Miniature Circuit Breaker
MID	Measuring Instruments Directive

OCPP	Open Charge Point Protocol
PC	Polycarbonates
PE	Protective Earth
RCBO	Residual Current circuit Breaker with Overcurrent protection
RCD	Residual Current Device
RDC-DD	Residual Direct Current – Detecting Device
RED	Radio Equipment Directive
RFID	Radiofrequency identification
RoHS	Restriction of Hazardous Substances Directive
RTU	Remote Terminal Unit
SIM	Subscriber Identity Module
UTP	Unshielded Twisted Pair
WEEE	Waste of Electric and Electronic Equipment

Not all symbols or signal words may be present in this document.

1.8. Orientation agreements





A. Front side
B. Left side
C. Right side
D. Rear side

2. Description

2.1. Description of the product

Infinergi is an AC-type charging station to supply energy to an electric vehicle.

Charging is performed using specific connectors between the electric vehicle and the device, as per mode 3 defined in IEC 61851-1.

Infinergi can be equipped with optional accessories as described in section 2.7.

Infinergi does not support the room ventilation requested by the vehicle.
If the vehicle requests ventilation, the device detects it and charging is paused.

2.2. Intended use

Infinergi is only intended for AC charging of electric vehicles.

Infinergi supports every electric and hybrid vehicle with a type 2 charging socket according to IEC 62196-2 and with an AC charging system on board that complies with IEC 61851.

Infinergi can be used in private or semi-public areas.
The enclosure and pedestal (optional) are certified according to IEC 61439-7.

⚠ WARNING
Tampering and improper use are strictly prohibited and may cause serious damage to property, people, and the environment. The manufacturer is not responsible for such damage caused by improper use of the device.

2.3. Technical specifications

2.3.1. Features

Mounting	Indoor and outdoor wall or floor with pedestal (optional)
Charging modes	Mode 3 (as specified in IEC 61851-1 standard)
Type of connection	With built-in cable (tethered, case C) or with charging socket (untethered, case B)
Vehicle connection type	Type 2 (IEC 62196 standard): 5m cable (tethered versions) or socket with locking system (untethered versions)
Display (optional)	3.5" color LCD
Buttons	Up to five (depending on the device version)
LED	Multicolor on the front panel (backlit "infinergi" logo)
RFID (optional)	ISO/IEC 14443
Protections	Protection against DC leakage currents ≥ 6mA Overvoltage protection category III (4kV) Overcurrent protection Protection against earth fault (TN/TT systems) Over temperature protection Hardware failure protection

Protection class	Class I
Compliance	CE certification IEC 61851-1 IEC 61439-7 IEC 62196 IEC 62955
European Directives	2014/30/EU (EMC) 2014/35/EU (LVD) 2014/53/EU (RED) 2011/65/EU (RoHS)
Warranty	2 years

2.3.2. Electrical specifications

Maximum output power	7 kW (single-phase) / 22 kW (three-phase)
Supply voltage	230V AC (single-phase) / 400V AC (three-phase) ± 10%
Network frequency	50Hz
Maximum charging current	32A per phase
Standby consumption	Minimum approx. 2W Maximum approx. 3.6W (depending on the equipment and settings of the device)
Earthing systems	TT / TN-C / TN-S / TN-CS / IT
Connectivity	WiFi 802.11 b/g/n 2.4 GHz GPRS with internal SIM slot (optional) Ethernet 10/100Mbps (optional) RS485 Modbus RTU serial interface (optional)
Current sensor	Up to three wired CTs for dynamic power management (optional)

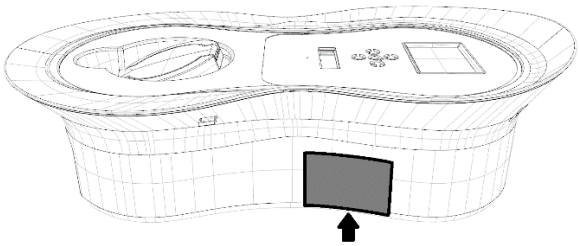
2.3.3. Mechanical specifications

Dimensions	Without pedestal: 266 (W) x 498 (H) x 158 (D) With pedestal: 300 (W) x 1460 (H) x 315 (D)
Protection degree	IP66
Degree of impact resistance	IK08
Material	Case: PC, RAL 9006 Front panel: PC, RAL 7035 Cover: PC, RAL 7016 (standard) / RAL 9006 - RAL 9010 (optional) Pedestal (option): galvanized and painted steel, RAL 9005
Weight	Infinergi single-phase tethered (case C): 5 kg Infinergi three-phase tethered (case C): 6 kg Infinergi single-phase untethered (case B): 4 kg Infinergi three-phase untethered (case B): 4 kg Pedestal: 15kg
Operating temperature	From -25°C to +40°C (without power limitation)

2.4. Labels

2.4.1. Label with product data

Infinergi identification label is located on the right side of the enclosure, as illustrated.

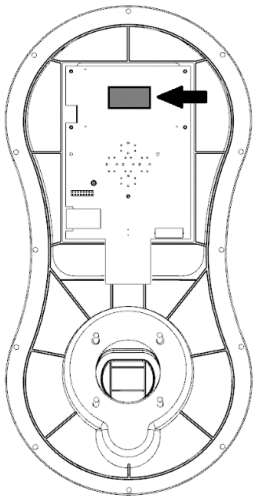


As in the example label, the printed data are:

- Charging station classification according to IEC 61851-1
- Device branding
- Product model
- Part number
- Production batch
- Supply voltage
- Input/output current
- Protection degrees from atmospheric agents and impacts
- Operating temperature range
- Logo and references of the manufacturer or distributor
- CE mark
- WEEE logo
- QR code with product identification data

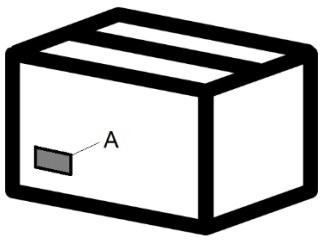
2.4.2. Label with access data

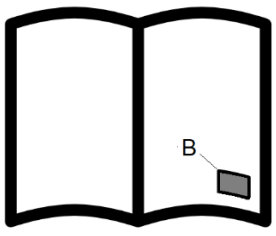
Inside Infinergi, on the back side of the removable front panel, there is a label showing the QR code necessary for association with the App.



2.4.3. Labels on the packaging

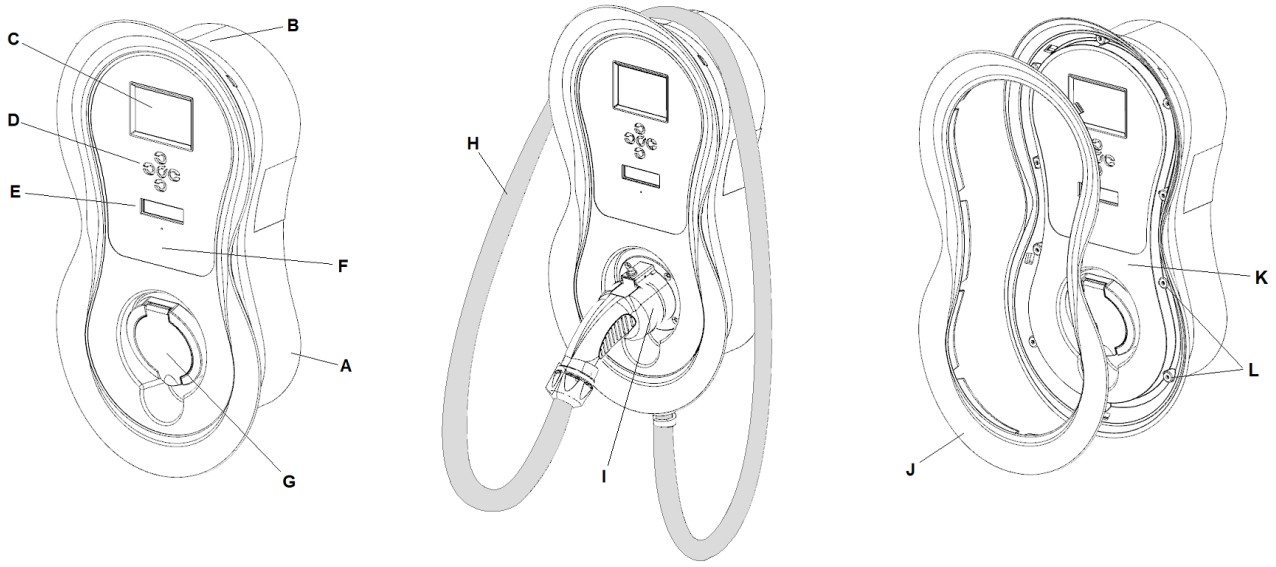
The device packaging has the following labels.





A. Label with product code and serial number
B. Label with access code (on quick installation guide)

2.5. Appearance and components



A. Enclosure
B. Cable winding seat (tethered models)
C. LCD (optional)
D. Multi-function key or navigation keys (optional)
E. Multicolor status LED area
F. RFID reading zone (optional)
G. Charging socket (untethered models)
H. Charging cable (tethered models)
I. Idle plug location (tethered models)
J. Cover
K. Front panel
L. Front panel screws

2.6. Device versions

MODEL	NOMINAL POWER	OUTPUT
INFINERGI-1T	7.4 kW	Integrated cable (5m) with type 2 plug
INFINERGI-1U	7.4 kW	Type 2 socket for external cable
INFINERGI-1T-DR	7.4 kW	Integrated cable (5m) with type 2 plug
INFINERGI-1U-DR	7.4 kW	Type 2 socket for external cable
INFINERGI-3T	22 kW	Integrated cable (5m) with type 2 plug
INFINERGI-3U	22 kW	Type 2 socket for external cable
INFINERGI-3T-DR	22 kW	Integrated cable (5m) with type 2 plug
INFINERGI-3U-DR	22 kW	Type 2 socket for external cable

Models with -DR suffix are equipped with:

- 3.5" LCD color display + 5 navigation keys
- RFID reader
- RS485 terminal block for MID-certified Modbus RTU meters

The device can be ordered with one of the following colors of the front cover:

- Anthracite grey (RAL 7016)
- White (RAL 9010)
- Grey (RAL 9006)

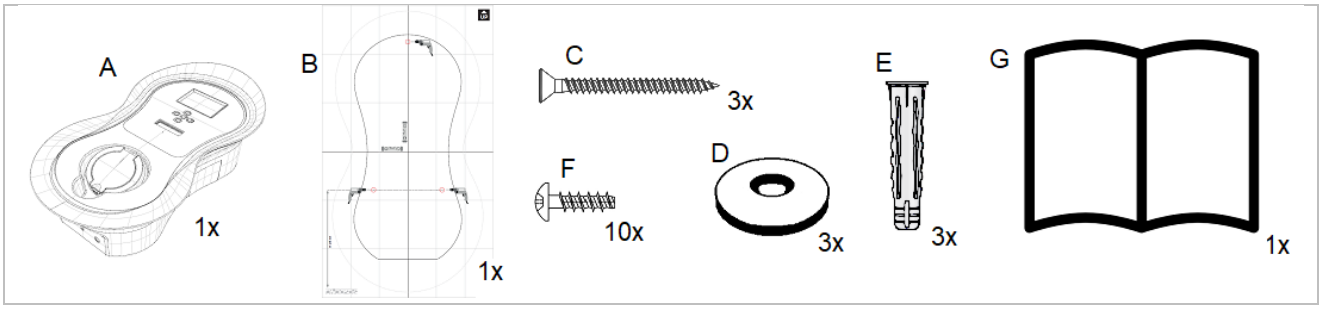
2.7. Optional accessories

Infinergi can be ordered with the following optional accessories:

PRODUCT CODE	DESCRIPTION
28630062	GPRS and RS485 expansion module with Nano SIM holder
28630066	Ethernet and RS485 expansion module
08200015	CT for DLM function and/or for green energy production monitor (photovoltaic / wind power plant)[1]
07063120	Single mounting pedestal for one charging station floor installation
07063121	Double mounting pedestal for two charging stations floor installation
06058636	Single-phase male to female cable. 5m, type 2 (IEC 62196)
06058637	Three-phase male to female cable. 5m, type 2 (IEC 62196)
09100005	Single-phase MID certified meter, DIN rail mounting
09100006	Three-phase MID certified meter, DIN rail mounting
09300001	RFID card for charge authentication

2.8. Material supplied in the packaging

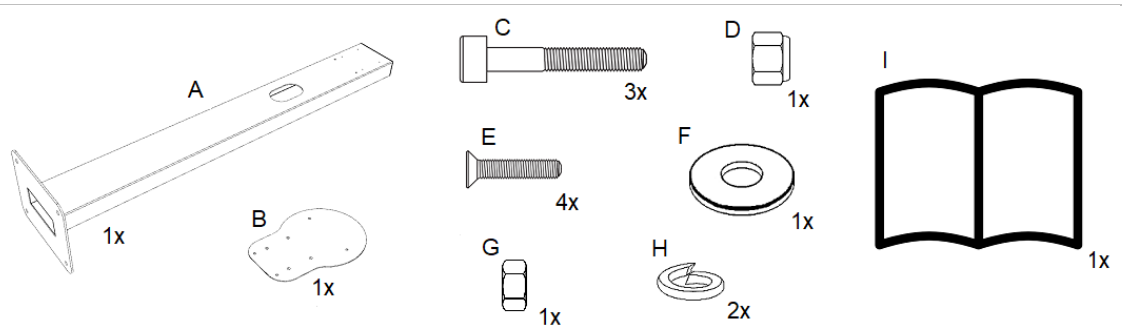
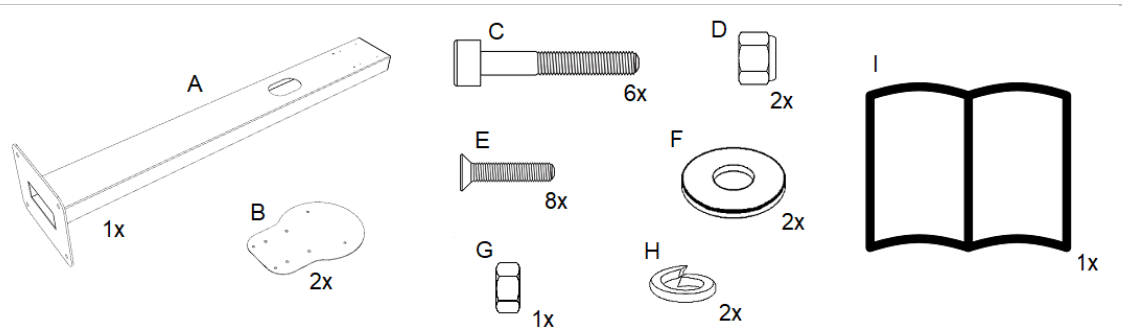
2.8.1. Infinergi packaging



A. Infinergi
B. Wall mounting template
C. Phillips type screws for wall mounting Ø 5.5 x 50 mm
D. Sealing washers Ø 16 mm
E. Wall plugs Ø 8 x 40 mm
F. Pozi type screws for front panel Ø 3.5 x 10 mm
G. Quick installation guide

[1] On three-pase devices, it's necessary to use three CTs

2.8.2. Pedestal packaging (optional)

Option 1 (Single version – code 07063120)	
Option 2 (Double version – code 07063121)	

A. Pedestal for one or two units
B. Mounting plate
C. M5 x 20 mm cylinder head screws with hexagonal insert
D. Self-locking nut M5
E. M4 x 10mm countersunk head screws with Phillips insert
F. M5 washer Ø 10 mm
G. M6 nut
H. M6 grower washers Ø 11.8 mm
I. Quick installation guide

3. Security

⚠ DANGER

Do not use Infinergi if at least one of the following conditions occurs:

- The enclosure is damaged
- The charging cable or socket is damaged
- A fire has occurred near the device
- There is water inside the device
- A malfunction is detected and reported by the device itself

⚠ PERICOLO

Shock hazard. Do never operate on a powered device until it is properly closed inside its enclosure.

⚠ WARNING

Infinergi ensures that externally accessible connector or socket contacts are never live unless an electrical vehicle is connected, according to standards. In the event of damage to the equipment, this protection may be lost.

It is always recommended that you carry out a visual inspection and check your equipment for any signs of damage before using it (see section 6).

⚠ WARNING

Do not use non-certified cables, extensions, or adapters that alter the design of the charging connector.

Keep out of reach of children.

⚠ ATTENTION

It is the responsibility of the owner or user to use the device according to common sense:

- Follow the instructions in this document
- Do not use the charging station incorrectly or excessively.
- Do not make any changes to the device
- Identify the appropriate technical personnel to carry out the installation and maintenance of the device

Infinergi can be connected to a local network using a WiFi connection or wired Ethernet (optional).

It is the responsibility of the owner to ensure a secure connection to protect against unwanted access (e.g. password security, encryption, firewall, antivirus, or other).

4. Installation

Infinergi can be installed either on the wall or on a specific pedestal. The pedestal is an optional accessory made in two versions to hold either one or two devices (section 2.7).

⚠ DANGER

The device must be connected to the mains.
To avoid the risk of electric shock, follow the procedures described in the current section.

⚠ WARNING

The installation of the device must be carried out by qualified technical personnel only.
A correct installation guarantees the safe use of the device.
The manufacturer is not responsible for things or people damage caused by incorrect installation.

4.1. Place of installation

⚠ DANGER

Infinergi must not be installed:

- in explosion risk places
- in places where flammable material is present
- near crosswalk places or escape paths
- in places where collisions can damage the device due to the object's movement

Find a suitable place where Infinergi can be installed, considering the following tips.

- Choose ventilated places for indoor installation.
- The outdoor installation must only be done in good weather conditions. Do not install the device in places exposed directly to sunlight and bad weather to reduce the device's deterioration. If it is not possible to install the device in protected environments, consider the use of a canopy or a cover.
- The device is designed to be installed on a vertical surface.
- The pedestal installation (optional) requires a level and horizontal solid surface where the base plate can be fixed.

Infinergi can be connected to the Internet through WiFi, mobile (optional) or Ethernet (optional) interfaces. In the first case, choose a place with a good radio signal level.
If one or more CT and/or RS485 devices must be wired, choose a place where cable wiring is easy.

4.2. Wiring specifications

Infinergi must be installed in TT, TN-C, TN-S, TN-CS, or IT earthing systems.
Use a power cable with the following features:

Cable type	Multipolar 3G6 (single-phase) o 5G6 (three-phase)
Wires nominal section	L1, (L2, L3), N, PE: 6mm^2
Wires fastening	Screw terminal block
Stripping length	About 10mm

At the discretion of the installer, it is possible to use smaller section cables when the power to be delivered is lower than the rated one, configuring the device during the first installation procedure (see section 5).

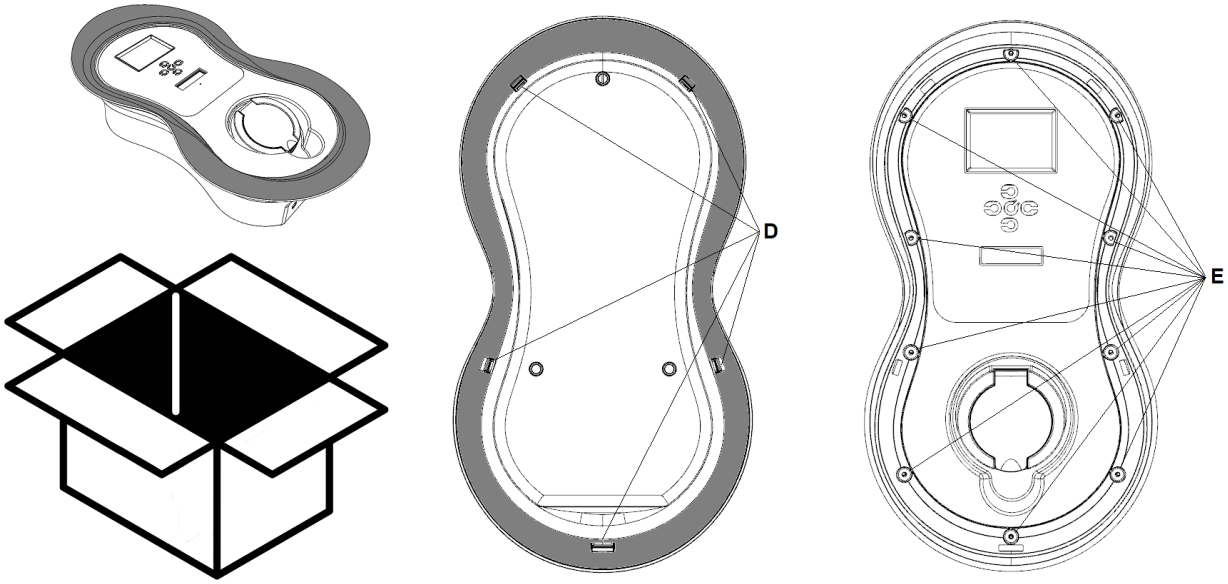
Depending on the device version, the output terminal block is connected:

- To the charging cable terminals (case C) – “INFINERGI-xTxx” models
- To the front panel socket terminals (case B) – “INFINERGI-xUxx” models

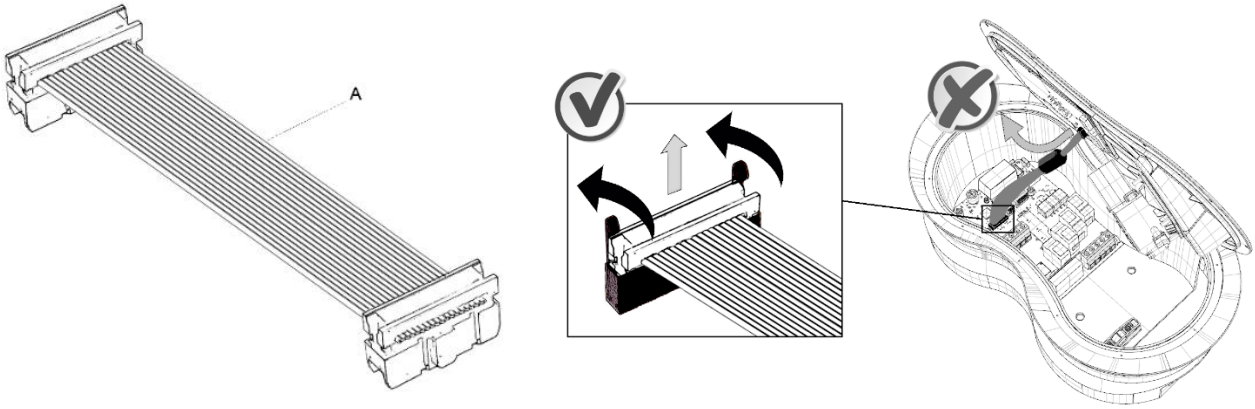
⚠ AVVERTIMENTO
Do not make changes to the wired cables inside the box. Tampering can cause serious damage to things or people.

4.3. Device opening

To install it, the device must be opened. To access the 10 front panel screws (E), the cover must be removed acting on the 5 clips (D), showed in back view.



Behind the front panel there is an electronic board which must be connected to the main electronic board using the flat data cable (A) supplied with the device.
Every time the device is opened, the data cable must be disconnected opening the locking levers on the main board, as indicated below.



⚠ WARNING

Do never connect or disconnect the data cable (A) when Infinergi is turned on to avoid damaging the electronic boards.

Disconnect the data cable connector during open panel operations. Do not leave the panel hanging by the data cable.

In the case of B versions, the front panel remains hung through the cables connected to the socket and the locking device. Do not disconnect or damage cables during assembly.

4.4. Electrical system setup

Infinergi charging station integrates a 6mA DC leakage current detection device (RDC-DD). This is constantly monitored during a charge to break the power delivery if a fault occurs, as required by the IEC 62955 standard.

For each appliance installed, the following devices must be used:

1. A type A 30mA RCD for AC leakage current protection. The nominal RCD current must be at least 125% of the charger's rated current.
2. An upstream type C MCB for short circuit protection. The rated current of the circuit breaker must be a maximum of 125% of the charger's rated current. For IT system installations, use insulation monitoring devices and protection devices according to IEC 60364-4-41 standard.

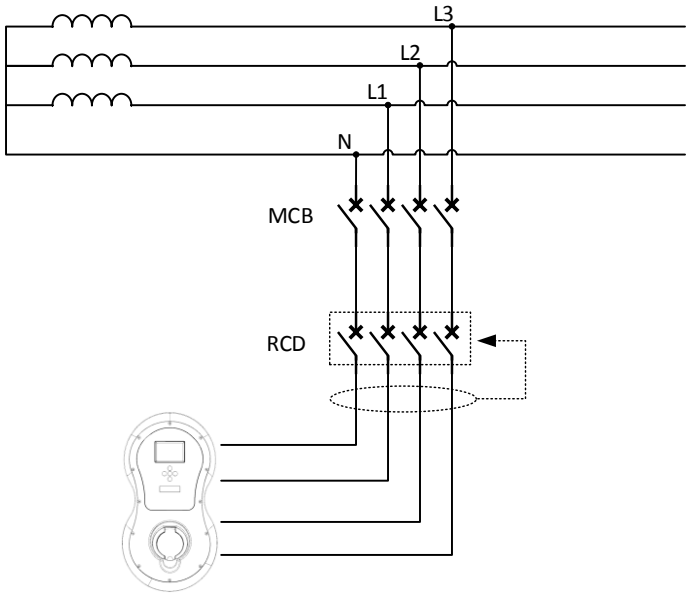
For example, with a 7.4KW (32A) single-phase charging station, the RCD must tolerate at least 40A and the MCB trip current must be a maximum of 40A.

The devices (1) and (2) can be combined in a single RCBO.

⚠ WARNING

Do not connect more than one charging station to the same RCD+MCB or RCBO device.

The following diagram shows an example of a connection with an MCB and an RCD in a three-phase TT / TN system.



Infinergi tests the integrated RDC-DD device before each charge.

Do periodical manual tests on the appliance upstream RCD differential switch.

4.5. Tools needed for installation

- Infinergi packaging included hardware (section 2.8.1)
- Drill, Ø 8mm wall drill bit and conical stepped bit or crown bit with same cable gland diameter
- Pen or pencil
- Level
- Meterstick
- Crosshead screwdriver and optionally electrical screwdriver
- Flat screwdriver
- Electrician scissors
- Mains cable gland with the appropriate diameter and locking wrenches

For pedestal installations (optional), then:

- Pedestal packaging included hardware (section 2.8.2)
- Ground fixing screws and plugs or nuts, to be chosen depending on the mounting surface (max Ø 12 mm)
- 4 mm hex key
- 8 mm wrench
- 10 mm wrench

To use optional features, then:

- CT and any additional cable gland, in case of use of DLM functionality
- Nano SIM card of the network operation, if a GPRS module is used
- Ethernet cable, RJ45 plug to be crimped, crimp plier and cable gland, if an Ethernet module is used
- A supported Modbus meter, wiring, and cable gland, if an external meter is used
- RS485 cable and cable gland, if the expansion module is used for clustering

4.6. Grid connection

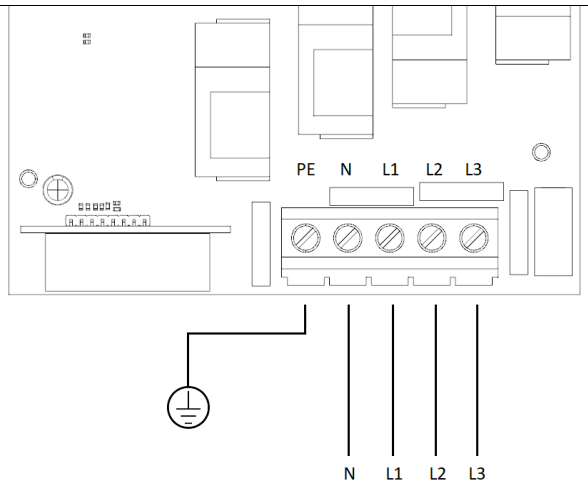
⚠ DANGER

Check that the system cables are not energized before handling.

When the panel is open, the device's electronic boards are visible. Since they are electrostatic discharge sensitive, be careful during handling and wear protective devices to prevent damage.

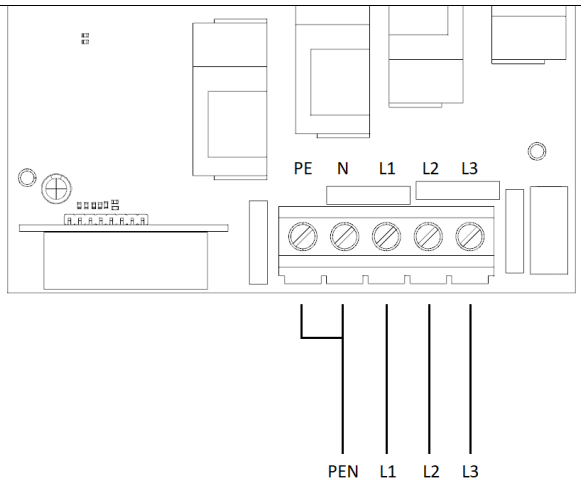
Connection diagram for TT systems.

On single-phase systems, L2 and L3 terminal blocks are not present.



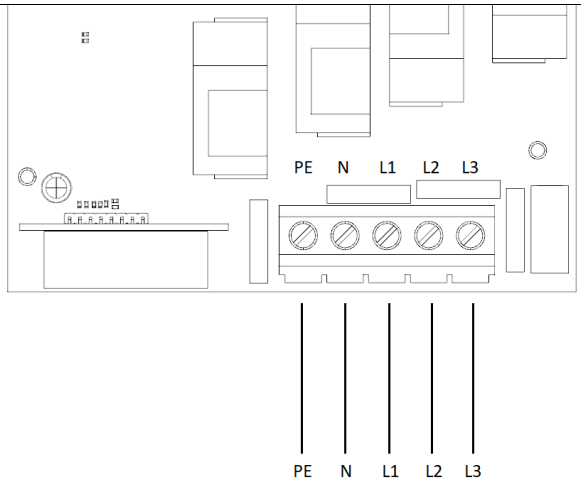
Connection diagram for TN-C systems.

On single-phase systems, L2 and L3 terminal blocks are not present.



Connection diagram for TN-S and TN-CS systems.

On single-phase systems, L2 and L3 terminal blocks are not present.



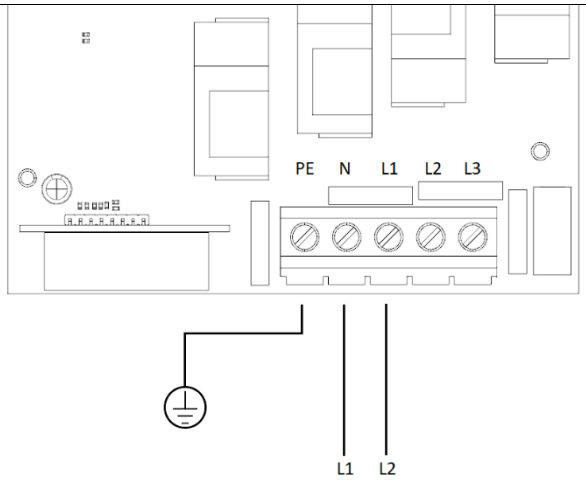
Connection diagram for IT systems.

In a three-phase IT system, Infinergi can work only with a star point wire, to be connected to the terminal block neutral point (N).

⚠WARNING

Use insulation and protection monitoring devices as specified in IEC 60364-4-41 standard.

On single-phase systems, L2 and L3 terminal blocks are not present.



4.7. CT connection

Infinergi can optionally be equipped with one (single-phase models) or three (three-phase models) CTs for DLM functionality.

A CT is a splittable device to be clamped around an electric cable to make a non-invasive measurement of the current flowing inside it without disconnection.

Up to three CTs can be connected to infinergi.

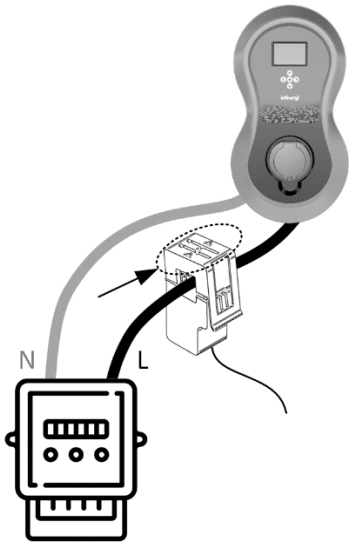
To ensure correct operation, they must be installed according to the following configuration:

- Single-phase versions: only one CT downstream the user appliance electric meter
- Three-phase versions: three CTs, one per phase, downstream the user appliance electric meter

Each infinergi CT can measure up to 100A AC currents.
Use only specific optional CTs to ensure the correct operation of advanced features.
The optional CT part number is the following:

- 08200015 – 100 Ampere split-core CT

The CT, equipped with five meters length cable, must be clamped only on the line cable coming from the upstream meter, respecting the direction of the arrow marked on the top side, as shown in the figure.



The neutral cable can be used instead the line one, but the arrow direction of the CT must be inverted.
A wrong installation will cause unexpected behavior of the DLM functionality.

CT connection operations are shown below.

⚠ DANGER

The CT connection must be done only after the disconnection of Infinergi from the mains.

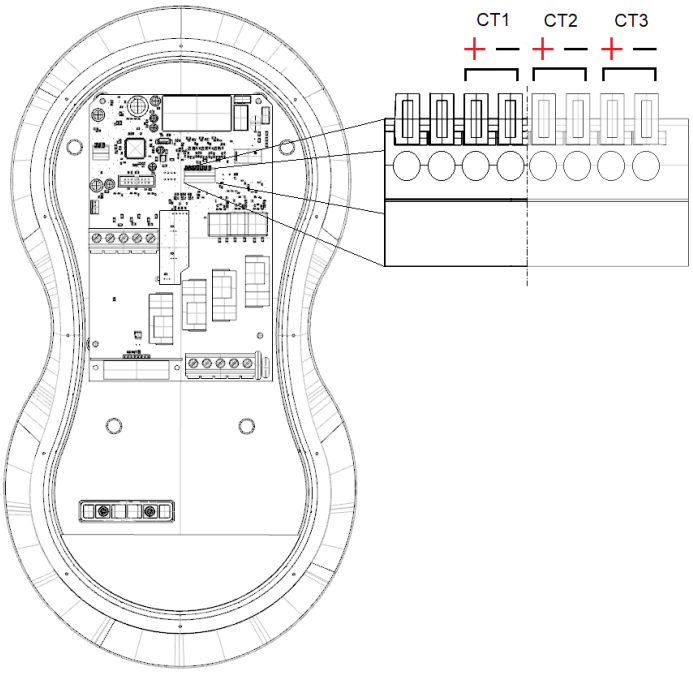
⚠ WARNING

The operation must be carried out only by qualified technical personnel.
The charging station provides a CT dedicated spring terminal block, shrouded by electronic components. Be careful and do not use tools that could damage them.

When the panel is open, the device's electronic boards are visible. Since they are electrostatic discharge sensitive, be careful during handling and wear protective devices to prevent damage.

The CT cable/s must be inserted in a waterproof cable gland to maintain the IP degree of the device. See section 4.11.1 for more information.

1. Disconnect the supply by the main switch.
2. Remove the front cover by the 5 clips, unscrew the 10 screws of the front panel and disconnect the data cable connector from the main board.
3. Drill the box in the dedicated area and install a cable gland with a suitable section (see section 4.11.1).
4. Insert the CT cables in the cable gland and connect the wires to the terminal block inserting the terminals into the holes. The black terminal is the negative pole and the red terminal is the positive one. Refer to the figure.



For single-phase Infinergi versions, the CT1 input is reserved for the CT installed downstream of the user appliance meter. The terminal block has 4 poles.

For three-phase Infinergi versions, CT1, CT2, and CT3 inputs are reserved for the relative phase CT installed downstream of the user appliance meter. The terminal block has 8 poles.

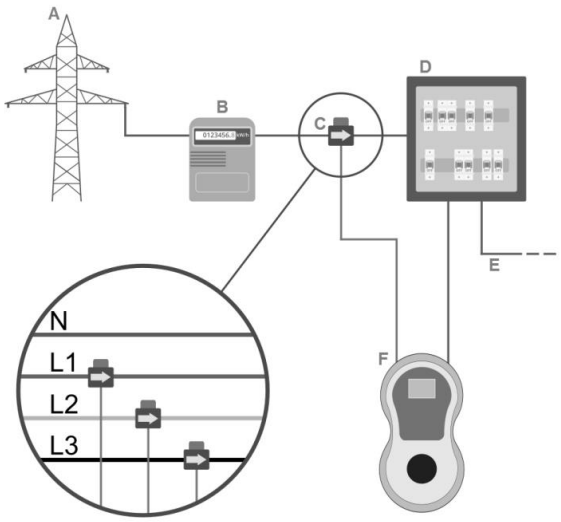
5. Connect back the data cable between the boards.
6. Mount again the front panel and tighten the cable gland.
7. Power on the device through the main switch and enable the DLM function in the, checking that it correctly works.

If the distance between the installation site and the pick-up point is greater than the CT integrated cable, it can be extended by joining another one. Do not exceed 100 meters in total length.

Use only UTP-type cables such as Ethernet cables, at least category CAT5e, to avoid possible interference that could negatively affect current measurements.

An Ethernet cable contains 8 paired wires: use one of four pairs. If multiple CTs are used, they can be joined with the other pairs of the same Ethernet cable.

The following diagram shows a CT connection example.



A. Grid
B. Energy meter and MCB
C. CT current sensor(s)
D. RCD consumer unit
E. House wiring
F. Infinergi

4.8. MID-certified Modbus meter connection

Infinergi versions equipped with the RFID reader have a terminal block where an external MID-certified RS485 meter (Modbus RTU) can be connected.

"INFINERGI-xx" models without "DR" suffix, do not support this optional.

Infinergi is compatible with the following MID meters

- Carlo Gavazzi EM111 (single-phase)
- Carlo Gavazzi EM112 (single-phase)
- Carlo Gavazzi EM340 (three-phase)
- LUMEL NMID30-2 (single-phase and three-phase)
- Eastron SDM230 (single-phase)
- Eastron SDM72D (three-phase)
- IVY metering single-phase
- IVY metering (three-phase) [2]

The listed meters are ready to be used with Infinergi. Do not change the Modbus communication settings, otherwise, compatibility with the charging station will be lost.

Each charging station supports only one external MID meter, single-phase or three-phase.
It's possible to directly order the optional meter using the following code[3]:
09100005 – MID certified single-phase Modbus meter
09100006 – MID certified three-phase Modbus meter

The procedure for the external device connection is described below.

⚠ DANGER

The connection of the RS485 data cable must be done only after the device disconnection from the mains.

[2] Requires firmware versions 2.1.0 or newer.
[3] Depending on the availavility, one of the compatible device will be supplied

⚠ WARNING

The operation must be done only by qualified technical personnel.

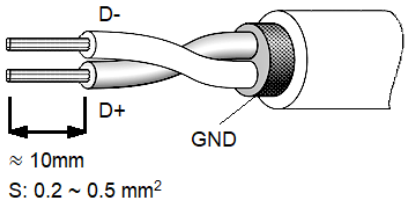
The charging station contains a dedicated terminal block to connect the RS485 data cable, surrounded by electronic components. Be careful during operations and do not use tools that could damage them.

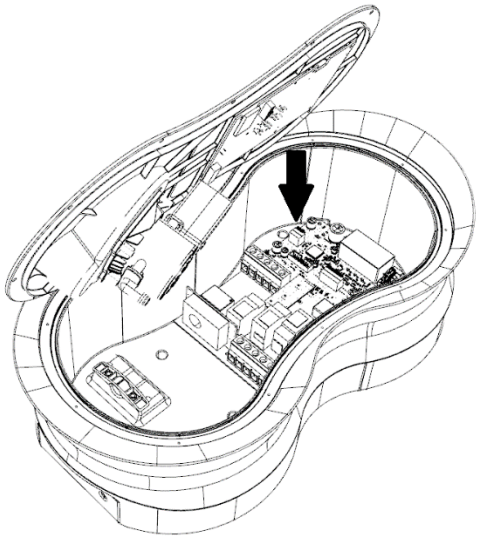
When the panel is open, the device's electronic boards are visible. Since they are electrostatic discharge sensitive, be careful during handling and wear protective devices to prevent damage.

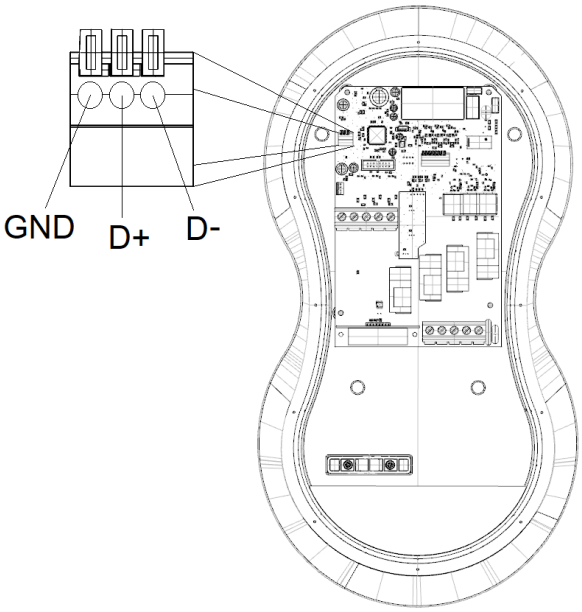
The RS485 data cable must be inserted in a waterproof cable gland to maintain the IP degree of the device. See section 4.11.1 for more information.

The RS485 interface for Modbus meters consists of a 3-pole spring terminal block (D+, D-, and GND). Use a shielded twisted pair cable with wires having a section between 0.2 and 0.5 mm^2, stripping the terminals by approximately 10mm, as shown on the right figure.

Connect the shield to the GND pole of the terminal block.







1. Disconnect the supply by the main switch.
2. Install the energy meter in series with the device power line, downstream the main switch.
3. Remove the front cover by the 5 clips, unscrew the 10 screws of the front panel and disconnect the data cable connector from the main board. The RS485 interface terminal block is located on the left side of the board, as illustrated above.
4. Drill the box in the dedicated area and install a cable gland with a suitable section (see section 4.11.1).
5. Insert the cable for the energy meter in the cable gland and connect it to Infinergi terminal block inserting the wires into the holes and following the indications shown above for the wiring. For removal, fully press the orange levers and pull out the wires.
6. Connect back the data cable between the boards.
7. Reinstall the front panel and the cover and tighten the cable gland.
8. Connect the other end of the RS485 cable to the energy meter.
9. Power on the device through the main switch and configure the energy meter in the device settings. Check that the external meter is properly working.

The meter wiring may differ between models. Follow the wiring instructions in the meter's package.

4.9. GPRS and RS485 expansion module installation

To use cellular connectivity you need a nano-SIM with:

- active data plan (estimated monthly traffic less than 200MB)
- PIN code removed

All infinergi models can be equipped with an optional which integrates a cellular GPRS interface for Internet connection. On the same module there is a Modbus RTU RS485 interface which allows the connection of multiple devices for clustering mode.

It is possible to directly order the optional module through the following code:
28630062 – GPRS and RS485 expansion module

⚠ DANGER

The module must be installed only when the charging station has been disconnected from the grid.

⚠ WARNING

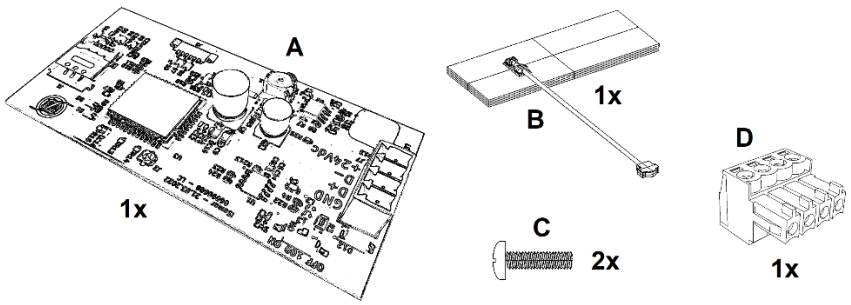
The operation must be done only by qualified technical personnel.
The charging station contains a dedicated connector for expansion module, surrounded by electronic components. Be careful during operations and do not use tools that could damage them.
The manufacturer is not responsible for damage caused by incorrect installation.

When the panel is open, the device's electronic boards are visible. Since they are electrostatic discharge sensitive, be careful during handling and wear protective devices to prevent damage.

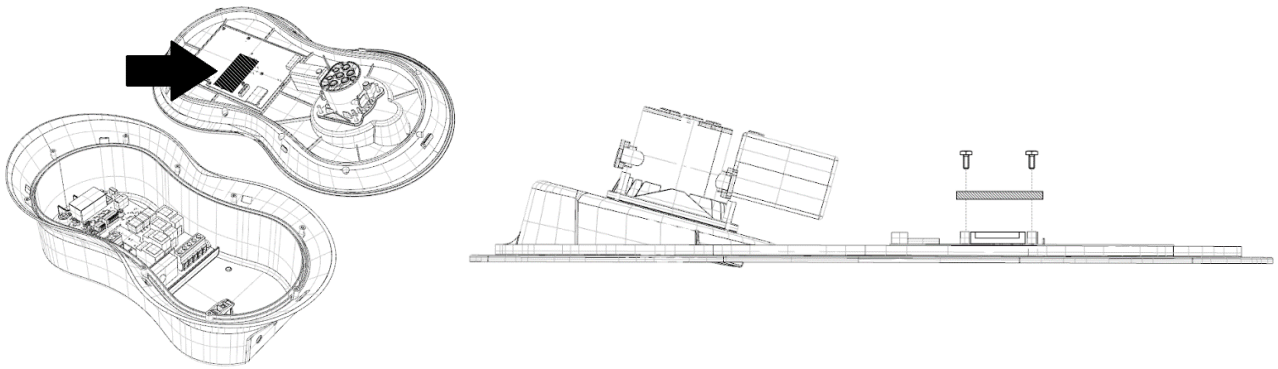
For the RS485 interface use a shielded cable with 2 or 3 twisted wires with section between 0.2 and 1 mm^2.
The RS485 data cable must be inserted in a waterproof cable gland to maintain the IP degree of the device. See section 4.11.1 for more information.

Check that the packaging contains all the parts below. If any part is missing or damaged, refer to the local distributor.

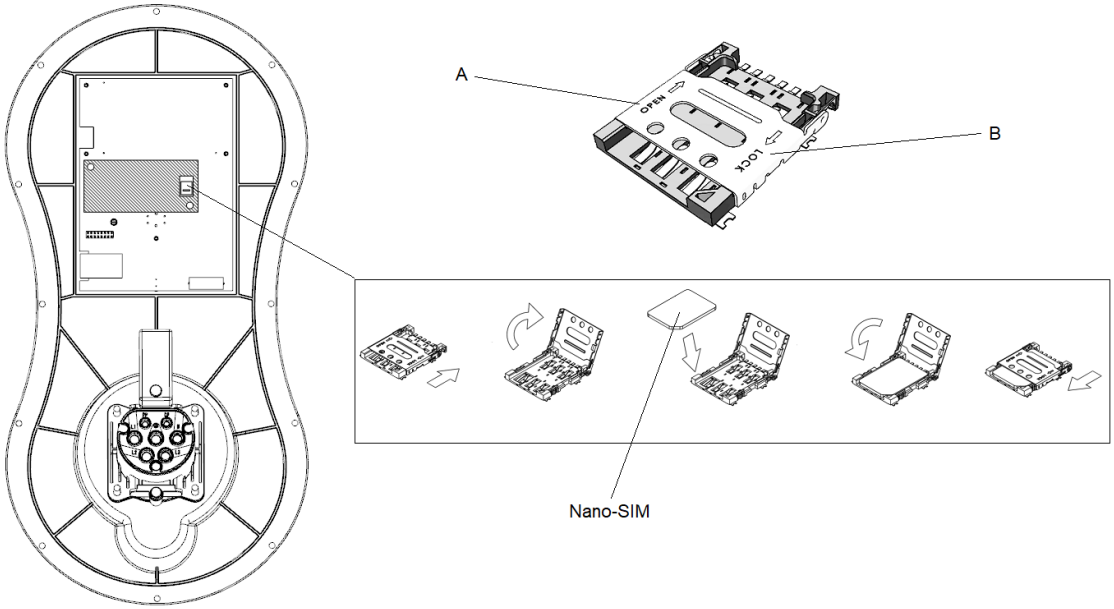
A. GPRS electronic module
B. Adhesive antenna with cable
C. M2.5 x 8mm scews
D. RS485 connector



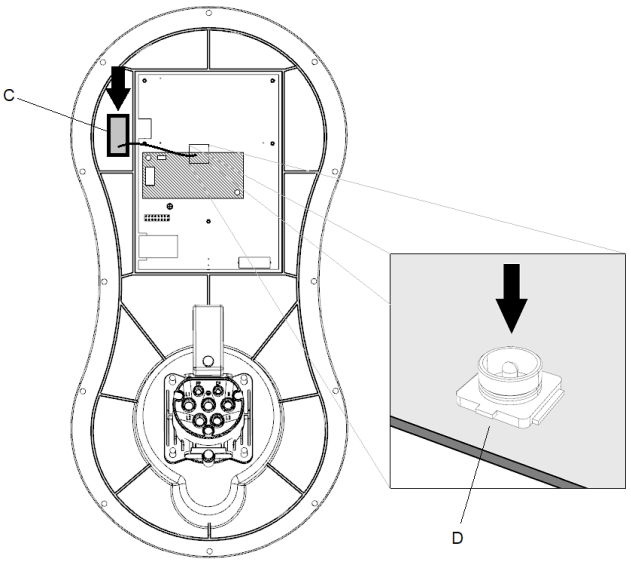
The expansion module must be inserted into the dedicated connector on the front panel electronic board, following the procedure illustrated below.

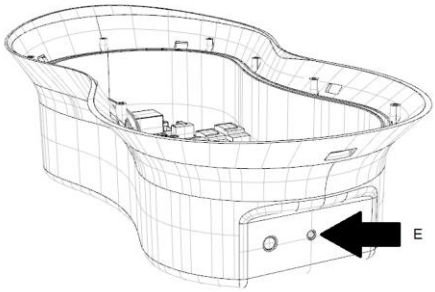


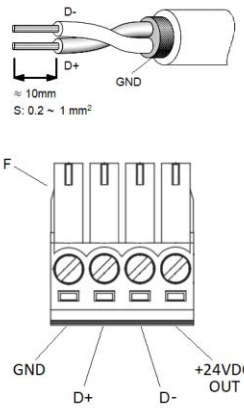
1. Disconnect the supply by the main switch.
2. Remove the front cover by the 5 clips, unscrew the 10 screws of the front panel and disconnect the data cable connector from the main board.
3. Insert the expansion module on the dedicated connector and screw the supplied screws on the dedicated stands, as shown in the above figure.
4. Unlock the nano-SIM holder metallic shell sliding it as indicated by the “open” (A) sign.
5. Lift the metallic shell and place the SIM as indicated in the figure, with metallic contacts on the bottom side.
6. Pull down the metallic shell and lock the nano-SIM holder metallic shell sliding it as indicated by the “lock” (B) sign, until it clicks.

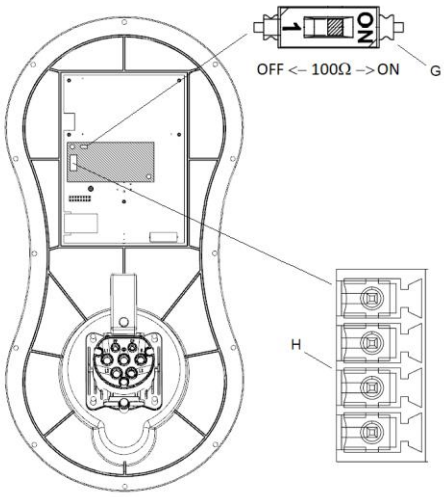


7. Stick the supplied antenna (C) on the plastic panel as illustrated.
8. Connect the antenna cable to the dedicated module connector (D).
9. To use the RS485 interface, follow the points from 10 to 13 otherwise go to 14.
10. Choose an RS485 cable with wires section between 0.2 and 1 mm^2 and drill the box in the dedicated area (E), placing a cable gland with a suitable section and peeling the wires by about 10mm.
11. Connect the wires to the plug (F) following the illustrated scheme.
12. Insert the connector (F) on the 4 poles socket (H) on the module.
13. Enable the 100Ω bus termination acting on the switch (G) if needed.
14. Connect back the data cable on the main board.
15. Reinstall the front panel and the cover.
16. Power on the device through the main switch and configure the module in the device settings, checking that it correctly works.









4.10. Ethernet and RS485 expansion module installation

All Infinergi models can be equipped with a module which integrates an Ethernet interface for Internet connection. On the same module there is a Modbus RTU RS485 interface which allows the connection of multiple devices for clustering mode.

The Ethernet module supports the 10BASE-T and 100BASE-TX standards. Ensure that the network device to be connected supports at least one of them.
It is possible to directly order the optional module through the following code:
28630066 – Ethernet and RS485 expansion module

⚠ DANGER

The module must be installed only when the charging station has been disconnected from the grid.

⚠ WARNING

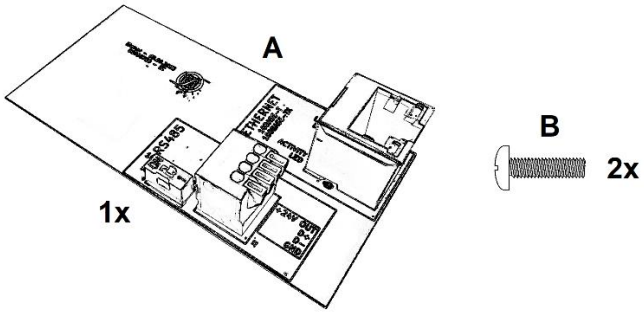
The operation must be done only by qualified technical personnel.
The charging station contains a dedicated connector for expansion module, surrounded by electronic components. Be careful during operations and do not use tools that could damage them.
The manufacturer is not responsible for damage caused by incorrect installation.

When the panel is open, the device's electronic boards are visible. Since they are electrostatic discharge sensitive, be careful during handling and wear protective devices to prevent damage.

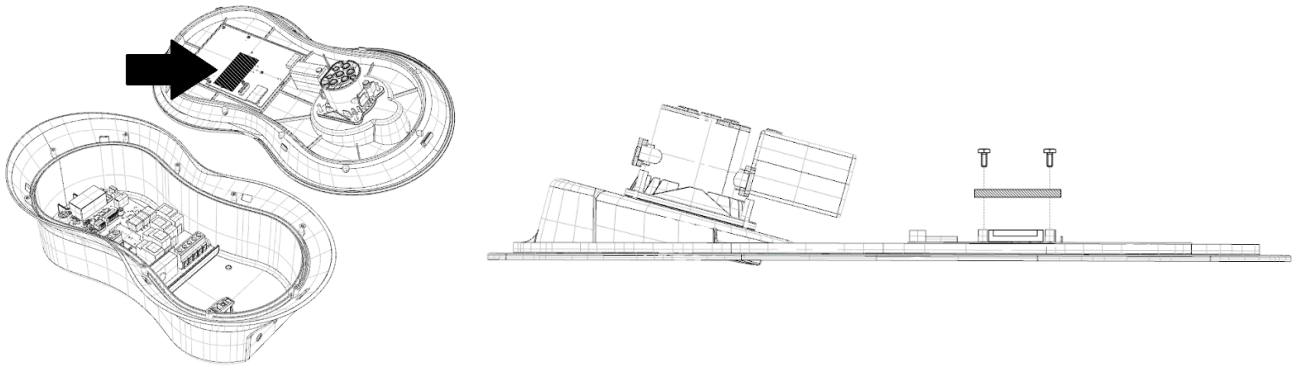
A cable and an RJ45 male plug to be crimped must be used for the Ethernet interface connection. It is recommended to use at least a Cat-5e Ethernet cable.
For the RS485 interface use a shielded cable with 2 or 3 twisted wires with section between 0.2 and 0.5 mm^2.
The cables must be inserted in a waterproof cable gland to maintain the IP degree of the device. See section 4.11.1 for more information.

Check that the packaging contains all the parts below.If any part is missing or damaged, refer to the local distributor.

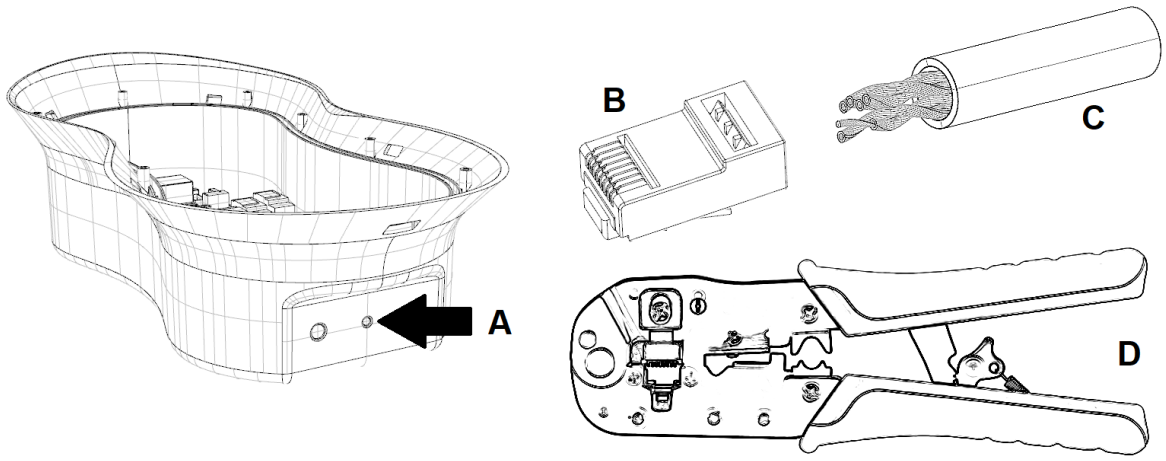
A. Ethernet electronic module
B. M2.5 x 8mm screws



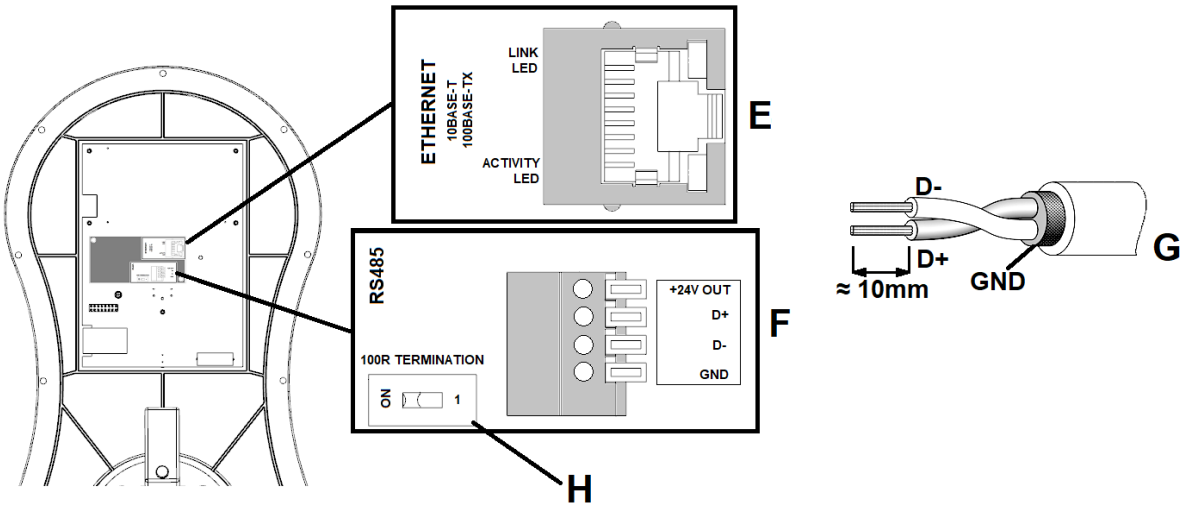
The expansion module must be inserted into the dedicated connector on the front panel electronic board, following the procedure illustrated below.



1. Disconnect the supply by the main switch
2. Remove the front cover by the 5 clips, unscrew the 10 screws of the front panel and disconnect the data cable connector from the main board.
3. Insert the expansion module on the dedicated connector and screw the supplied screws on the dedicated stands, as shown in the above figure.
4. Depending on the module interfaces to be used (Ethernet RS485), choose one or more cable glands with suitable section.
5. Drill the box in the dedicated area (A) and install the cable glands.



6. For the Ethernet interface, slide the cable (C) inside the cable gland and crimp the RJ45 male jack (B) in the wires using a crimp plier (D). Connect then the Ethernet cable in the module connector (E).
7. For the RS485 interface, slide the data cable inside the cable gland, peel off the wires by about 10mm (G) insert them in the 4 poles terminal block (F), using the specified connection scheme, and connecting the cable shield to the GND pole (do not connect the "+24V OUT" pole if not used).



8. Enable the 100Ω bus termination if needed, setting to "ON" the switch in the board (H).
9. Connect back the data cable on the main board.
10. Reinstall the front panel and the cover.

Power on the device through the main switch and configure the module in the device, checking that it correctly works.

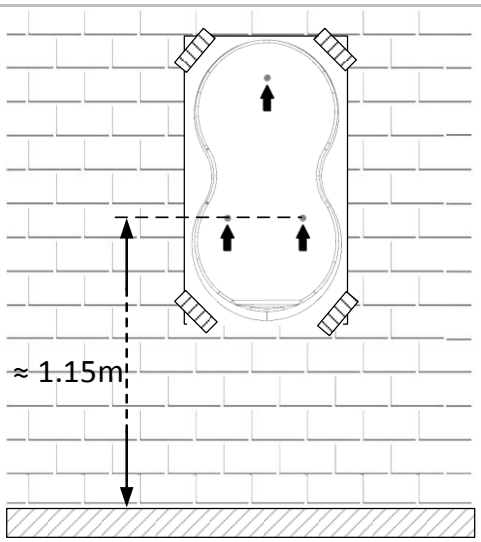
4.11. Mounting the device

⚠ DANGER
Make sure that the electrical system has been made according to the guidelines of sections 4.2 and 4.4. Before proceeding, make sure that the interested cables are disconnected from the grid checking the upstream circuit breaker (RCD, MCB, or RCBO).

Make sure that the selected cable glands are suitable for the diameter of the power cable. Use only the hardware enclosed in the packaging. Failure to observe these guidelines can compromise the IP rating of Infinergi.

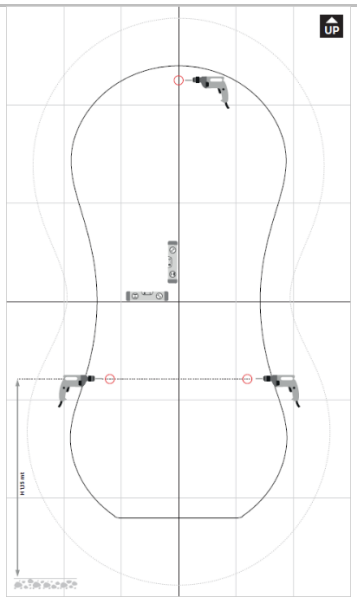
4.11.1. Wall mount

1. Open the Infinergi package and fix the enclosed template on the selected wall. The best mounting height of the lower holes is 1.15m from the floor.

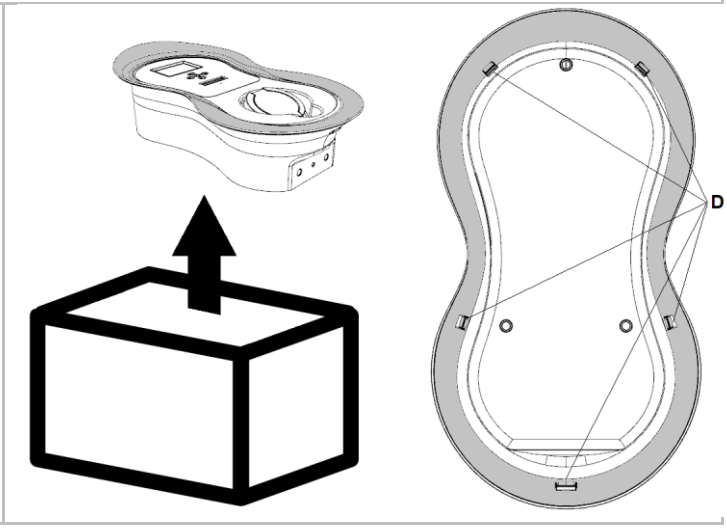


Use a level to properly mount the device.

2. Drill the wall with a Ø8 mm bit as indicated on the template and insert the wall plugs included in the package into the holes.



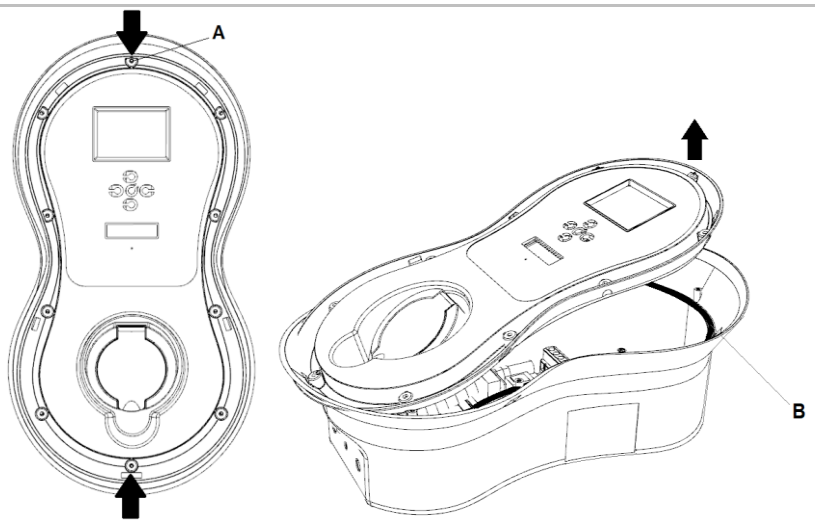
3. Remove the charging station from its package and remove the front cover unlocking the five clips (D) on the back.



4. Remove Infinergi from its packaging and carefully lift the front panel after loosening the 2 screws (A).

Be careful to keep the sealing O-ring (B) on its seat.

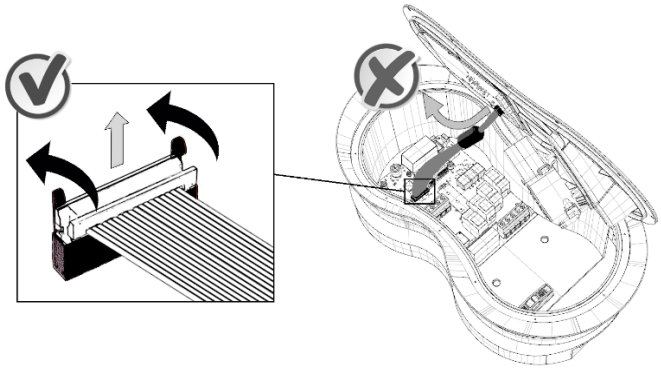
When the panel is open, the device's electronic boards are visible. Since they are electrostatic discharge sensitive, be careful during handling and wear protective devices to prevent damage.



5. Disconnect the data cable from the main board, acting on the locking levers as in the picture, and take the panel apart.

⚠ ATTENTION

In untethered versions (case B), the panel remains connected to the main board with the socket wires. Do not disconnect them and pull the panel aside protecting it to facilitate the mounting procedure.

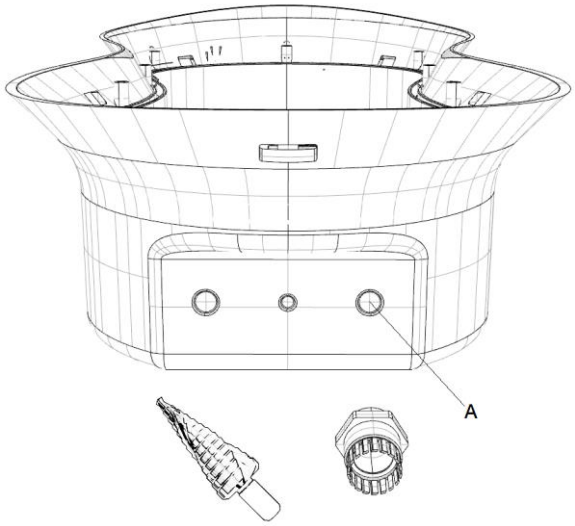


6. Using a stepped conical drill bit or a crown drill bit, make a hole on the right side of the bottom of the box to mount a cable gland for the power cable entry. Use the blind hole (A) for centering.

A wrong cable gland installation can cause the loss of the device's IP rating.

⚠ ATTENTION

In tethered versions (case C) take care to not damage the assembled charging cable.



7. (Optional) Drill another hole on the bottom of the box to insert a second cable gland of CTs, RS485 cable or Ethernet cable, if any. Use the central blind hole for centering.

(See sections 4.7, 4.8, 4.9 and 4.10 for connections)

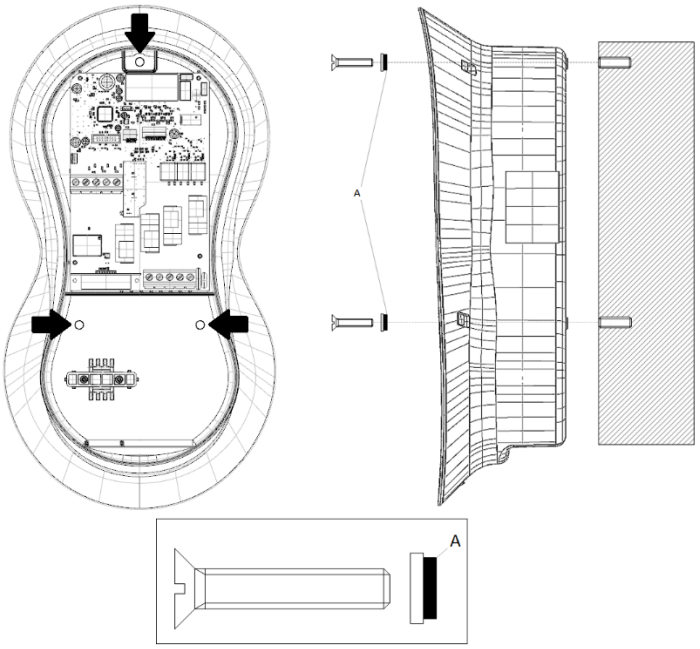
8. Fix the box on the wall using the three screws by inserting the sealing washers.

The sealing washers are needed to maintain the IP rating of the device.

Make sure that the washers are oriented with the rubber side (A) towards the plastic, as shown in the figure.

Be careful to not damage the electronic board during assembly.

Use only the screws and the washers included in the package.



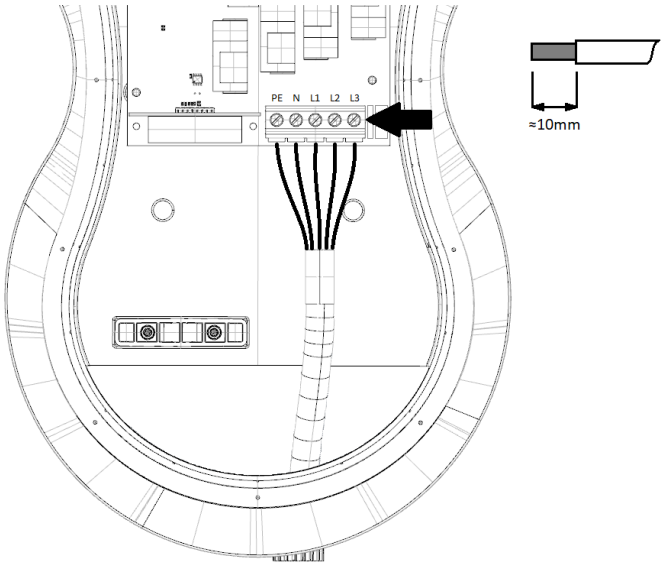
9. Insert the mains cable and strip back about 10 mm of insulation from the wires. Connect the wires on the terminal block and tighten them with a flat screwdriver. Take care to correctly tighten the cable gland to keep the IP rating of the device.

⚠ DANGER

Tighten firmly the wires to the terminal block; a loose screw can cause a fire.
Tightening torque: 1.2Nm

⚠ ATTENTION

The connection must be made according to your grid system type. See section 4.6 for details.



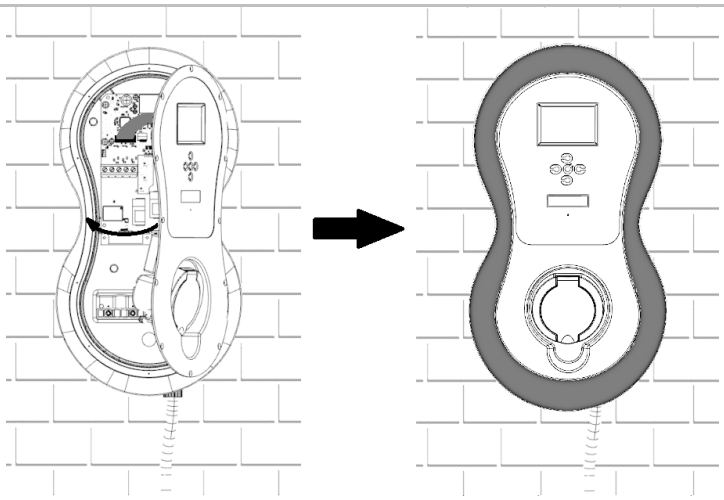
10. (Optional) Insert the CT cable, the RS485 cable and the Ethernet cable inside the secondary cable gland and tighten it. (See sections 4.7, 4.8, 4.9 and 4.10 for connections)

11. Pull the front cover back connecting the data cable on the main board and check the connector locking through the levers.

Handle the flat data cable carefully to avoid damage. Check it is seated firmly on both sides before closing the device.

The QR code printed on the internal label is needed for the first configuration of Infinergi. The label is duplicated on the quick guide inside the packaging. If the packaging or the quick guide is not available, make a pic of it before closing the box. It will be used by the App for the first configuration.

12. Refit the panel, tighten all the 10 screws to close the box and fix the front cover through the 5 clips.



Use a screwdriver only to tighten the screws. The use of an electric screwdriver could damage the plastic.

Make sure that the sealing O-ring is on its seat before closing the box to maintain the IP rating of the device.

13. For tethered units, wrap the charging cable around the box and put the plug on the front holder.

Follow the first configuration procedure described in section 5.

4.11.2. Pedestal mount

Prepare the base plate fixing point with an electrical corrugated pipe before mounting.

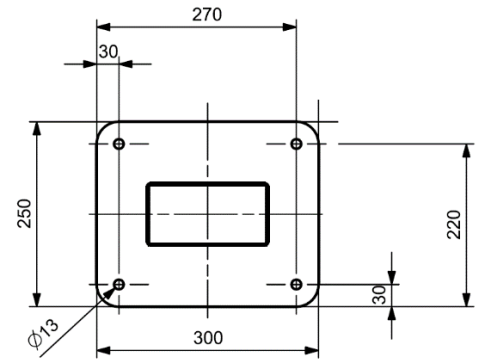
- The maximum pipe diameter is 50mm.
- Cut the pipe at least 100mm height from the ground
- According to local regulations, it may also be necessary to use a dedicated ground wire in the wiring, connected to a local earth rod, to be fixed on the dedicated pin inside the pedestal.

The pedestal installation hardware is supplied within the package (see section 2.8.2) but the sealing washers contained inside Infinergi package are required to mount the device. The ground plate fixing hardware (anchor bolts or plugs and screws) is not supplied and must be selected depending on the floor type. The ground plate is provided with four 12mm fixing holes.

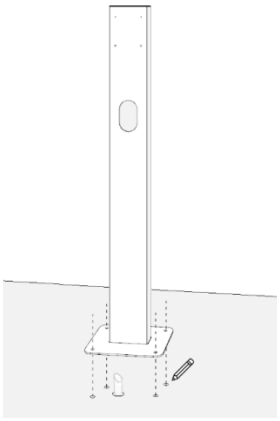
The single and double pedestal mounting procedure are the same. The second unit must be connected to a dedicated electrical system, as described in section 4.4.

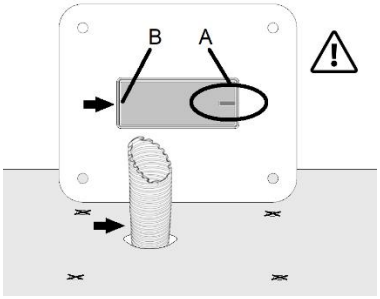
1. Extract the pedestal and the mounting hardware from the package.

2. Depending on the pedestal mounting type, prepare the ground fixing points:
   - if anchor bolts are used, fix them referring to the dimensions picture on the side. Jump to point 4
   - if plugs and screws are used, place the pedestal on the ground by inserting the corrugated pipe inside the base hole and by marking the fixing points.

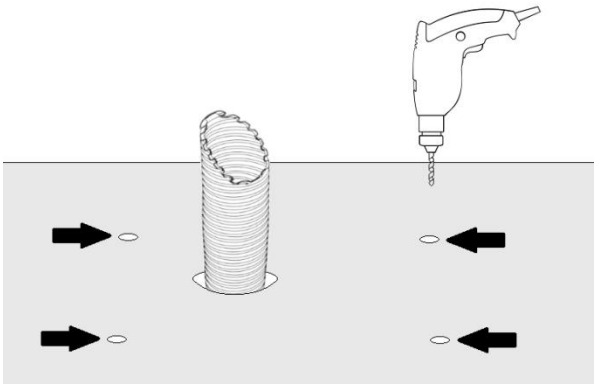


The pedestal integrates internally an earth wire pin (A). To facilitate the installation procedure, mark the fixing points aligning the corrugated pipe on the (B) internal side, as indicated in the picture.





3. If plugs and screws are used, move aside the pedestal, drill the ground on marked points using an appropriate drill bit and insert the plugs on it.

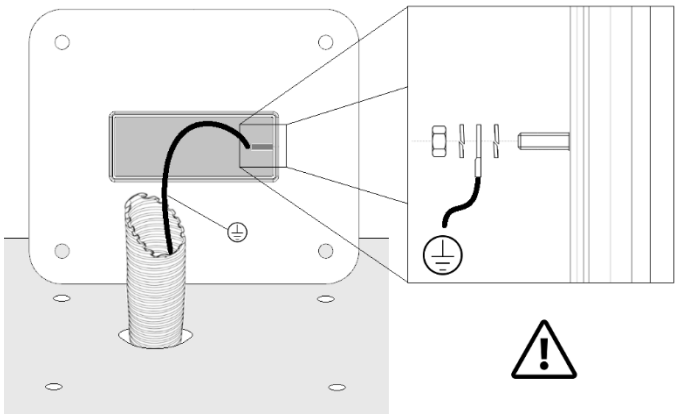


4. Lay down the pedestal and connect the earth wire on the M6 internal pin, if any.

⚠ ATTENTION

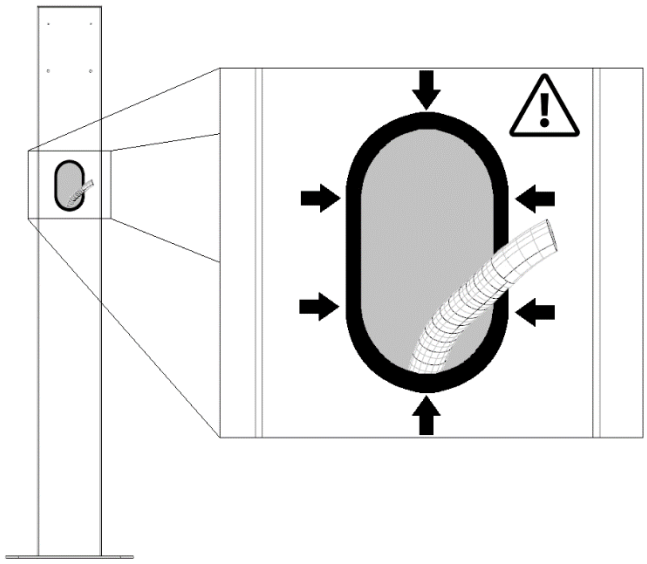
Keep the wire terminal connection point on the upper side before tightening the nut to avoid damage when fixing.

Use an M6 eyelet terminal for the wire. Follow the grower washers and nut mounting sequence illustrated in the picture to better secure the earth wire.

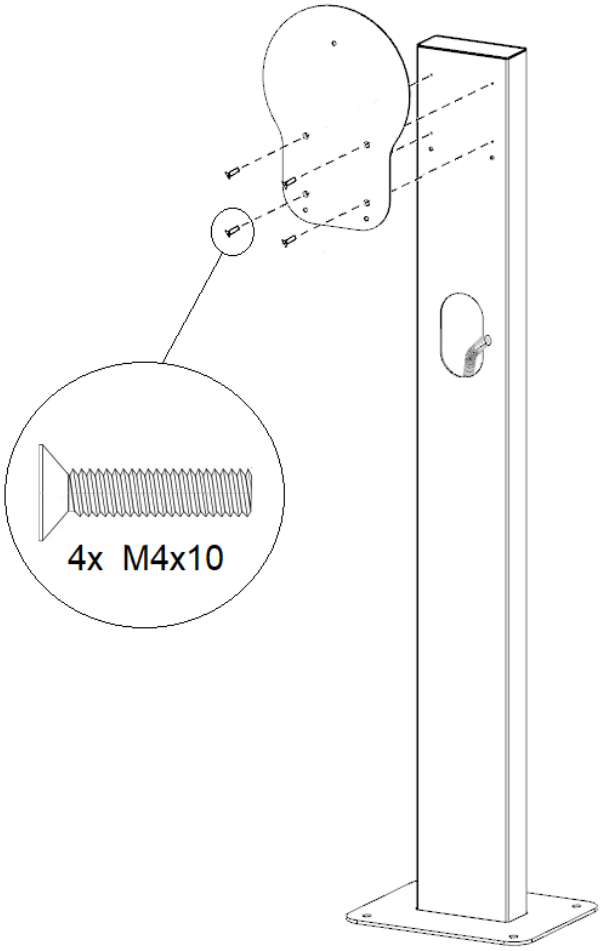


5. Place back the pedestal fixing it by the 4 anchors and pass Infinergi mains cable inside the pipe pulling it through the front hole.

The front hole is provided with a perimetral protection rubber. Check that it is in place after pulling the cable.



6. Mount the infinergi fixing plate on the pedestal using the M4 screws as illustrated in the picture.



7. See the wall mounting procedure in section 4.11.1 and follow points 3 to 6.

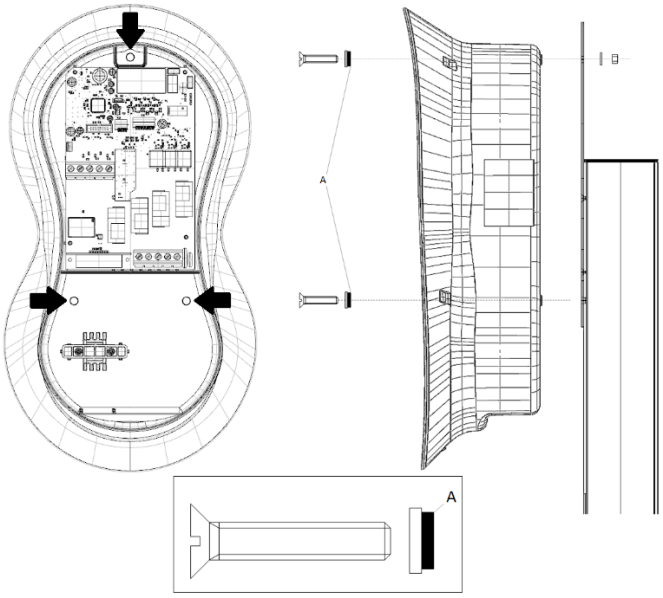
8. Fix the box on the pedestal using the four M5 screws of the pedestal packaging, inserting the sealing washers included in Infinergi package.

The sealing washers are needed to maintain the IP rating of the device.

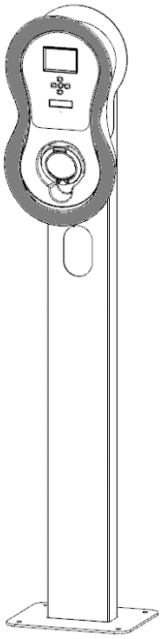
Make sure that the washers are oriented with the rubber side (A) towards the plastic, as shown in the figure.

Be careful not to damage the electronic board during assembly.

The two upper screws are through-hole type and must be fixed using the washers and the self-locking M5 nuts supplied with the pedestal packaging.



9. See the wall mounting procedure in section 4.11.1 and follow points from 9 to 13.



5. First configuration

⚠ WARNING

The first configuration must only be done by qualified technical personnel. It is forbidden to change the device settings configured by the installer to avoid the risk of damage or failures.

It is not possible to use Infinergi to charge a vehicle until the first configuration has been completed.

To configure the device, it is necessary to use the dedicated mobile App. The Infinergi App is available for devices running Android 5.1 and later and for Apple devices running iOS 14.0 and later.

It's also necessary to have the label with device access data sticked on the quick guide included in the original package or, alternatively, a pic of the label sticked inside the device (see section 2.4.2).

Alternatively, on Infinergi versions equipped with a display only, it is possible to complete the first configuration directly from it (see 5.2).

The parameters to be configured are the following:

- **Wiring limit**. It is the maximum value of current/power that Infinergi can supply. It must be set according to the maximum availability of the user's electrical system and with the section of cables used for wiring.
- **Earthing arrangements**. Indicates the grounding system (TN/TT or IT).

The following additional parameters must be enabled when the display is used to configure the device:

- **Charging enabled**. Needed to enable charging. Useful when the administrator wants to disable the device without turning it off.
- **Installation complete**. Confirms the installation end and make the device usable.

At the end, the device will exit the configuration mode and the yellow front logo wills stop blinking.

⚠ WARNING

Setting electrical system inconsistent limits can cause serious damage to property or people and create malfunctions for users.

⚠ ATTENTION

If the infinergi unit shows a warning by the acoustic and the lighting signals when pressing the Apply button, disconnect the switch upstream of the device and try to solve the problem as described in section 6.1.

5.1. Using the mobile App

Access the application store of your smartphone and search for the Infinergi App, or scan one of the following QR codes:

Download on the App Store

GET IT ON Google Play

For further information on the use and additional features of the App, refer to the "User Guide" document.

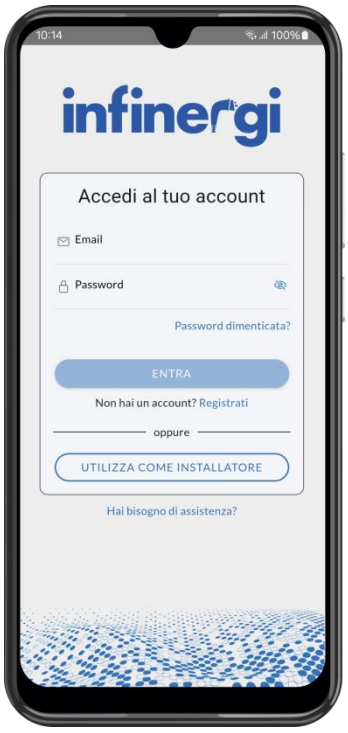
This section contains the steps for Infinergi initial configuration procedure only. This can be done in two ways.

- **Installer access**: does not require account registration. From the login screen it is possible to start a guided procedure that allows you to complete the installation of an Infinergi, and thus make it ready for use.
- **User access**: to take advantage of all the additional features of Infinergi and make it smart, it is recommended to create an account and complete the installation procedure as a user. This allows you to add the device to your account.

In any case, it is always possible to complete the initial configuration as an installer and add the device to your account later.

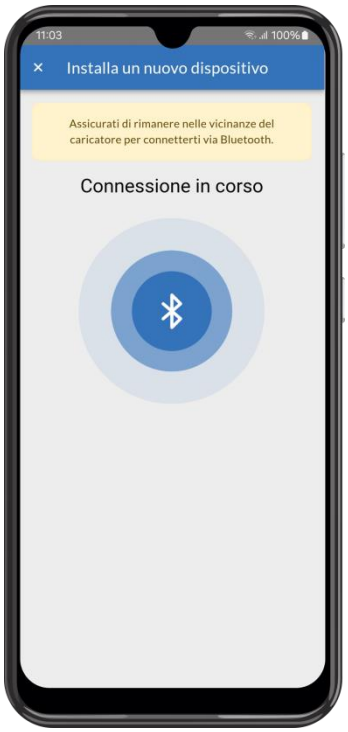
5.1.1. Installer access

1. From the login screen select “Use as installer”.



2. Scan the label on the quick guide or inside the device, on the back of the front panel.

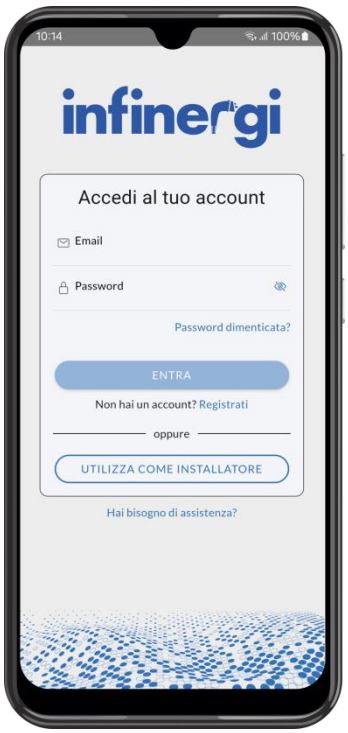
3. Wait for the device to connect and proceed to configure the settings.



4. Select the electrical parameters of the system and, at the end of the procedure, click “Save”.

5.1.2. User access

1. Create an account and login.



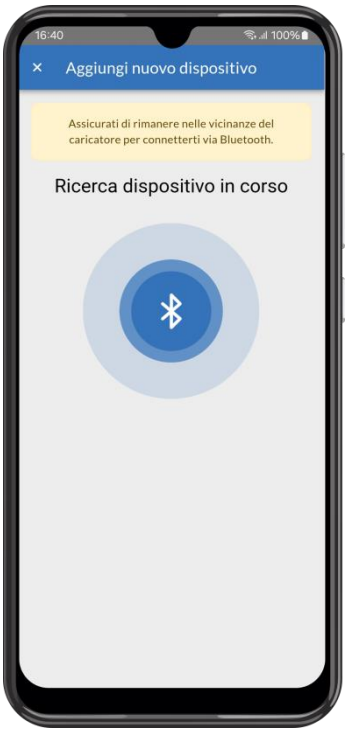
2. Click '+' to add a new device.

3. Scan the label on the device's quick guide or inside its front panel.

4. Assign a name to the device. It can be rename at any time.

5. Select “Configure now” to complete the configuration.

6. Wait for the device to connect and complete the configuration of the required parameters.



5.2. Using the display

1. Turn on Infinergi by the main switch.
2. Check by means of a light signal (blinking yellow) that the device is in configuration mode. The following screen will appear on the display.

3. Open the main menu by pressing the center button .
4. Use the navigation buttons and to open the section *“Admin”* → “*Installation*”. The default passcode is **4444**.
5. Use the navigation buttons and to scroll through section items.
6. Use the navigation buttons and to change the value of the selected item.
7. Once the last item “*Installation complete”* has been enabled, the device can be used to charge an electric vehicle.

6. Technical support

6.1. Errors and recovery

Infinergi can detect some failures and inform the user.
An error will always stop or suspend the charging process.
Errors are divided into three categories: installation, vehicle, and device errors.

CATEGORIA		ORIGINE
1	Installations	Incorrect wiring of the device or problems with the power supply system.
2	Vehicle	Problems related to the charging cable (untethered versions) or the connected vehicle.
3	Device	These errors are linked to internal problems of Infinergi.

If an error occurs, the front panel central LED flashes as many times as the number of its category. The flashing sequence is repeated cyclically, at intervals of one second, until the error is resolved manually or automatically.
For a limited time, LED signaling is accompanied by acoustic signaling.
Each error has its code to facilitate recognition, which can be displayed via the user interface or the display (if equipped).

⚠ ATTENTION

Some recovery actions can only be performed by qualified technical personnel.
If the problem report persists even after the indicated corrective action, please contact technical support.

COD.	ERROR	CAUSE	RECOVERY ACTION
I1	Problem with the earth connection	Earth wire disconnected or impedance too high.	Disconnect the vehicle and check that the earth connection is consistent with the type of installation specified in.
I2	Phase reversal	Phase and neutral input cables reversed.	Remove the power supply from the device and check the input cable wiring.
I3	Undervoltage	Input voltage too low.	The error is automatically cleared when the voltage returns above the minimum threshold. For a three-phase system, check that phase 2 and 3 cables are correctly inserted.
I4	Overvoltage	Input voltage too high.	The error is automatically cleared when the voltage returns below the maximum threshold.
V1	Overload	The current drawn by the vehicle exceeded the maximum limit (125%).	Disconnect the vehicle and press the multifunction button to reset the device.
V2	Ground fault	Excessive DC leakage current detected during charge.	Disconnect the vehicle, check that the source of the problem is cleared, and press the multifunction button to reset the device.
V3	Non-compliant vehicle	Vehicle not compliant with IEC 61851 detected.	Disconnect the vehicle and press the multifunction button to reset the device.

V4	Pilot problem	Problem detected on vehicle-side control pilot circuitry.	Disconnect the vehicle and press the multifunction button to reset the device. If the problem persists, check if the connector contacts are dirty.
V5	Invalid cable	(Only for untethered versions - case B): connected cable not correctly detected.	Disconnect the cable and check that the cable/plug is marked IEC 62196-2. Supported cables are 70/63A, 32A, 20A, and 13A. If the problem persists, check if the connector contacts are dirty.
D1	Internal communication error	Communication error between the panel and box electronic boards.	Press the multifunction key to reset the device. If the error persists, check the correct connection of the internal flat data cable between the two cards.
D2	Remote communication error	Radio communication error between the infinergi device and the associated CT remote device.	Press the multifunction button to reset the device. If the error persists, pair the two devices again.
D3	Internal hardware error	Hardware problem with the internal electronic boards.	Press the multifunction button to reset the device. If the problem persists, disconnect the unit's main power supply.
D4	Incorrect output voltage	Power failure when attempting to start charging.	Press the multifunction button to reset the device.
D5	Error in locking/unlocking the connector	Only for untethered versions (case B): connector locking system failure.	Check that the connector is firmly seated in the station socket and press the multifunction button to reset the device.
D6	Internal protective device error	Failure of the internal protection sensor (RDC-DD) during the test before a charge.	Disconnect the vehicle and press the multifunction button to reset the device.
D7	Overheating	Internal device temperature above maximum threshold limit.	Wait for the device to cool. Leaving the vehicle connected, the error persists until the temperature returns to the acceptable range.
D8	Unexpected status	The device signals an unexpected state, which does not comply with IEC 61851-1.	Disconnect the vehicle and press the multifunction button to reset the device.
D9	Communication error with MID meter[4]	Communication error between the device and the configured MID meter.	Press the multifunction key to reset the device. If the error persists, check the connection between the device and the meter.

6.2. Troubleshooting

This section lists the most common problems you may encounter. If you cannot find the solution to a problem, please refer to the local distributor of the product.

PROBLEM	POSSIBLE REASON	POSSIBLE SOLUTION
Display (option) or LEDs don't light up	• Device is not powered	• Check for correct supply voltage (230V AC ± 10%)
	• Device is in standby mode	• Tap the unit or press a button to wake it up
	• Flat data cable is not connected	• (*Only for installers*) Check flat data cable connection

[4] Some IVY METERING Modbus meters need about a minute before communicating correctly. Ignore the D9 errors reported by the infinergi device and perform corrective actions only if the problem persists even after a few minutes.

Charging does not start once a vehicle is connected	• A charging mode that does not enable charging is configured	• Check the charging mode configuration • If set, check DLM configuration
	• Charging cable is not correctly inserted (*only for untethered versions*)	• Fully press the charging cable on the vehicle and/or on Infinergi (*only for untethered versions*)
The charging rate is limited compared to the nominal power of infinergi	• A limit (installation or user) below nominal power has been set	• Check installation limit or user limit, if set
	• The vehicle does not accept charging rates above a certain threshold	• Consult the vehicle user manual
The energy supplied to the vehicle is reported as green even in the absence of renewable energy production	• DLM functionality is enabled but the current sensor is not properly installed	• Check that the current sensor is properly installed
The device signals an audible or visual alarm	• An error condition occurs • The charging station is damaged	• Check the light indications in or the error code and check 6.1 for the troubleshooting • If the error persists, disconnect Infinergi from the mains and contact assistance
The protection RCD trips after switching on the device	• Excessive earth leakage current on the system • The charging station is damaged	• Check your electrical system • In case of damage, Infinergi makes the RDC automatically trip for safety reasons. Contact assistance
Vehicle connection makes the energy meter trip	• Problems with DLM functionality	• If set, Check DLM configuration parameters • Check that the current sensor is properly installed
	• For devices without DLM functionality, the settled charge limit is too high	• Lower the charge limit via device settings
The device does not connect to a WiFi network	• Network connection has not been properly configured	• Check configuration parameters
	• Configured network is out of range or has a weak signal level	• Bring a WiFi signal repeater closer
The device does not connect to the mobile network (*only for GPRS versions*)	• GPRS module is not detected	• (*Only for installers*) Check GPRS module installation
	• Network connection has not been properly configured	• Check configuration parameters
	• Configured network is out of range or has a weak signal level	• Change the installation site to an area with better coverage
	• SIM card is not detected	• (*Only for installers*) Check SIM insertion
The device does not connect to the Ethernet network (*only for Ethernet versions*)	• Ethernet module is not detected	• (*Only for installers*) Check Ethernet module installation
	• Network connection has not been properly configured	• Check configuration parameters

7. Maintenance

⚠ DANGER

Using a damaged device could result in electric shock. Call a qualified technician to repair the unit or shutdown in case of irreparable damage.
Disconnect the mains before any maintenance operation.

⚠ WARNING

For outdoor installations, do not perform maintenance during rain, snow, or wet weather. Pay attention to reassembling the unit to maintain the device's IP rating.

Do a visual check to find element damage before each charge.

7.1. Cleaning

Do not use solvents or strong detergents to clean the enclosure or the charging cable.
Use a soft damp cloth and neutral detergent.

7.2. Disposal

Follow local regulations about the disposal and recycling of electrical components, plastics, and packaging materials to limit environmental pollution.