“CONNEXT” Control System
User Manual

Zucchetti Centro Sistemi S.p.A. - Green Innovation Division
Via Lungarno, 248 - 52028 Terranuova Bracciolini - Arezzo, Italy
tel. +39 055 91971 - fax. +39 055 9197515
innovation@zcscompany.com - zcs@pec.it - **zcsazzurro.com**

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General instructions

This manual contains important safety instructions that must be followed during installation and maintenance of the equipment.

Please keep these instructions!

This manual must be considered an integral part of the equipment, and must be available at all times to everyone who interacts with the equipment. The manual must always accompany the equipment, even when it is transferred to another user or plant.

Copyright statement

Technical support

ZCS offers full technical support and advice which can be accessed by making a direct request through the website www.zcsazzurro.com
The toll-free number for Italy is: 800 72 74 64.

Summary

Preface

General information

Please read this manual carefully before installation, use or maintenance. This manual contains important safety instructions that must be followed during installation and maintenance of the system.

Scope

This manual describes the assembly, installation, electrical connections, commissioning, maintenance and troubleshooting of the Connext system. Keep this manual so that it is accessible at all times.

Recipients

This manual is intended for qualified technical personnel (installers, technicians, electricians, technical support personnel or anyone who is qualified and certified to work on an electrical system), responsible for installation and start-up of the system. The manual is also intended for end users who can find useful information on how to manage their installation via the Connext system.

Symbols used

This manual provides information for safe operation and uses certain symbols to ensure the safety of personnel and materials, and for efficient use of the equipment during normal operation.
It is important to understand this information to prevent accidents and damage to property. Please take note of the following symbols used in this manual.

⚠ **Danger**	**Danger: indicates a hazardous situation which, if not resolved or avoided, could result in serious personal injury or death**
⚠ **Warning**	**Warning: indicates a hazardous situation which, if not resolved or avoided, could result in serious personal injury or death**

Caution	**Caution: indicates a hazardous situation which, if not resolved or avoided, could result in minor or moderate personal injury**
Attention	**Attention: indicates a potentially hazardous situation which, if not resolved or avoided, could result in damage to the system or other property**
Note	**Note: provides important tips on correct and optimal operation of the product**

1. Preliminary safety instructions

Note	**If you have problems or questions in reading and understanding the following information, please contact Zucchetti Centro Sistemi S.p.A. through the appropriate channels.**

1.1. Safety instructions

This section highlights the main safety instructions to be followed during installation and use of the equipment.
Before installing and using the equipment, make sure you read and understand the instructions in this manual and familiarise yourself with the relative safety symbols shown in this chapter. According to national and local requirements, permission must be obtained from your local provider before connecting to the electrical grid. All connections must be carried out by a qualified electrician. All installation operations must be carried out by a qualified and competent electrician.
Contact the nearest authorised service centre for any repairs or maintenance. Contact your distributor for information on the nearest authorised service centre. DO NOT carry out repairs yourself, as this may result in injury or damage.

Qualified personnel

Ensure that the operator has the necessary skills and training to operate the equipment. Personnel responsible for use and maintenance of the equipment must be qualified and capable of performing the activities described, and must also have adequate knowledge on how to correctly interpret the contents of this manual. For safety reasons, this system must only be installed by a qualified electrician with the necessary training and/or skills and knowledge. Zucchetti Centro Sistemi S.p.A. declines all responsibility for damage to property or personal injury caused by incorrect use of the device.
Do not attempt in any way to repair or replace components of the system without the assistance of qualified personnel.

Installation requirements

Install and start the system according to the following instructions. Choose a suitable location for installation of the electrical equipment. Make sure there is sufficient space to accommodate future maintenance work.

Figure 1 – Do not lose or damage this manual

Transport requirements

If there are any problems with the packaging that could cause damage to the system or if there is visible damage, notify the transport company immediately. If necessary, request assistance from an installer or from Zucchetti Centro Sistemi S.p.A. Transport of the equipment, especially by road, must be carried out with vehicles suitable to protect the components (especially the electronic components) against violent knocks, humidity, vibrations, etc.

Electrical connections

Please follow all the current electrical regulations concerning accident prevention.

Danger	**Before connecting the power supply, make sure to properly disconnect the voltage on the AC connection cables.**
Warning	**All installation operations must be carried out by a professional electrician, who** **is prepared and has read this manual carefully and understands its contents.**
Note	**Do not remove the information label or tamper with the system.** **Otherwise, ZCS will not provide any warranty or assistance.**

Operation

Do not use the product if it has any defects, cracks, scratches or leaks, but contact your dealer or ZCS technical service.

⚠ **Danger**	**Contact with the electrical grid or the terminal of the equipment may cause electrocution or fire!** • Do not touch the terminal or the conductor connected to the electrical grid. • Follow all the instructions and safety requirements relating to grid connection
⚠ **Warning**	**If the system is not functioning properly:** • Disconnect the input and output power supply

Maintenance and repair

Keep the system clean and dry; if you need to clean it, use a clean dry cloth.

1.2. Symbols and icons

Introduces the main safety symbols on the Connext system. Some safety-related symbols are located on the device. Before installation, it is important to read and understand the contents of the symbols.

CE	Complies with the European Directives (CE)
⧈	Class II equipment

Table 1 – Symbols on the System

Labels

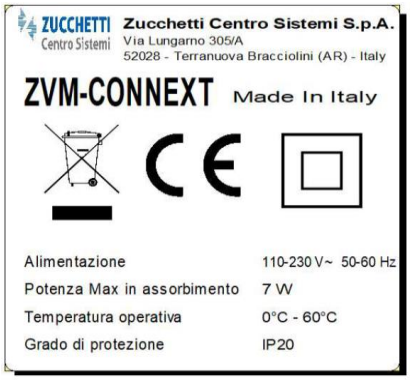


Figure 2 - Labels on the System

2. Product features

2.1. Product presentation

The Connext control system is able to communicate with Azzurro electric vehicle charging stations and Azzurro photovoltaic inverters. It can also measure energy consumption, monitor systems and safety limits and control domestic loads through the use of accessory sensors and programmable contacts.

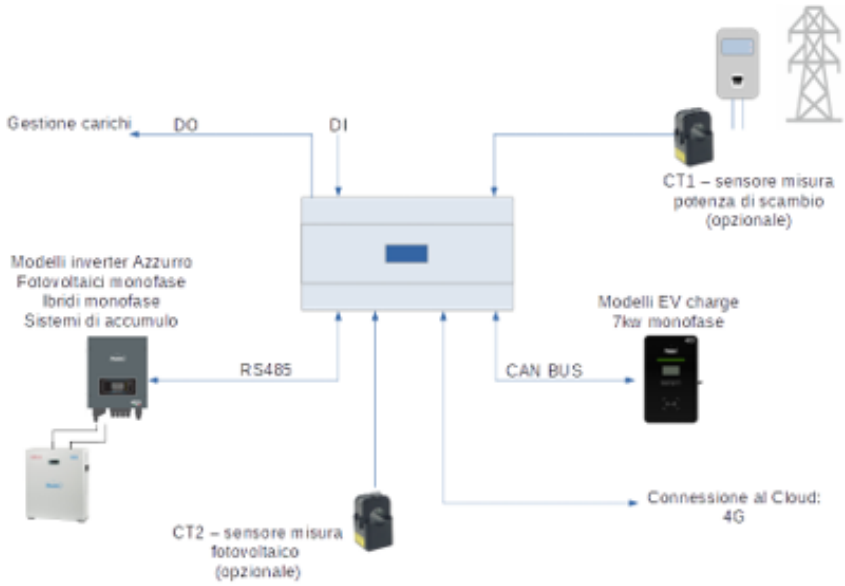


Figure 3 – Example of Connext system connection in a single-phase system

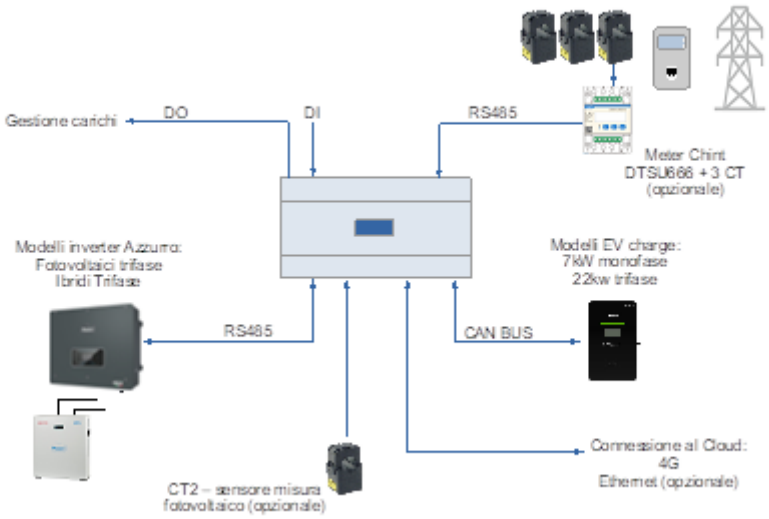


Figure 4 – Example of Connext system connection in a three-phase system

Overall dimensions: H × W × D = 105 mm x 85 mm (with antenna installed) x 89 mm.

2.2. Product overview

Connext can be installed on DIN bar (8 modules) and powered by a 230V AC mains power supply. It can be connected to Azzurro accessories, charging stations and inverters, as well as the necessary power supplies.

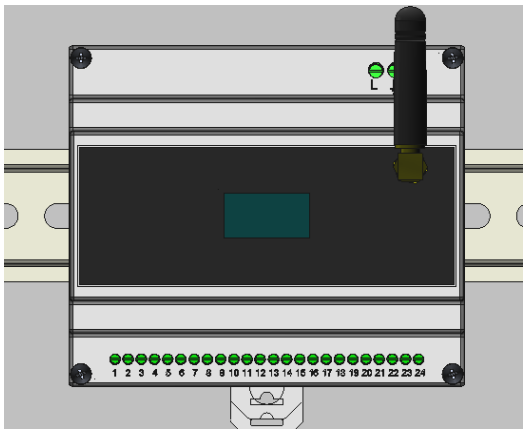


Figure 5 – Front view

The system has a 24-pin terminal block at the bottom for connecting the devices and accessories, a 3-pin terminal block at the top right for power supply connections, an Ethernet connector at the top, a slot for a microSD card at the top (for possible data storage), a front graphic display and a front connection for the 4G (or Ethernet) communication antenna.

24-pin terminal block

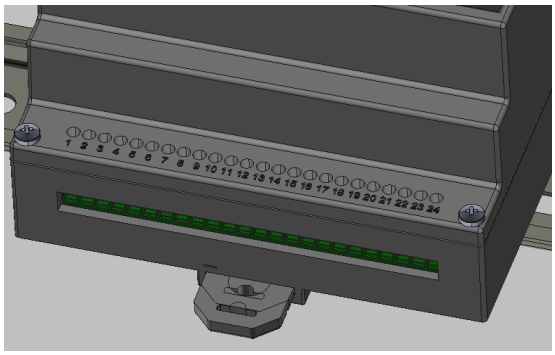


Figure 6 - 24-pin terminal block

The 24-pin terminal block has the following pin-out.

PIN	Connection	PIN	Connection
1	Not used	13	Relay1 normally closed contact
2	Digital output 2	14	Relay1 common contact
3	Digital output 1	15	Relay1 normally open contact
4	Earth connection ⏚	16	Relay2 normally closed contact
5	Digital Input 1	17	Relay2 common contact
6	Digital Input 2	18	Relay2 normally open contact
7	CAN-H	19	Temperature sensor
8	CAN-L	20	Earth connection ⏚
9	RS485 +	21	2 B sensor - Production
10	RS485 -	22	2 A sensor - Production
11	Temperature sensor	23	1 B sensor - Exchange
12	Earth connection ⏚	24	1 A sensor - Exchange

Table 2 – 24-pin terminal block pin-out

The maximum acceptable cable cross-section for the terminals is 1mm^2.

3-pin terminal block

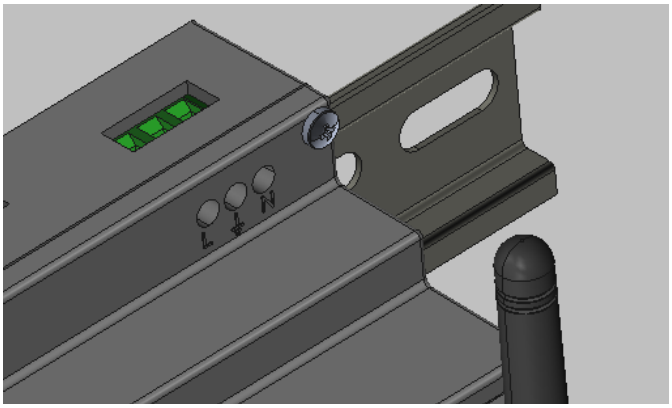


Figure 7 - 3-pin terminal block

The 3-pin terminal block has the following pin-out.

Pin	Connection
L	Line connection
⏚	Earth connection
N	Neutral connection

Table 3 – 3-pin terminal block pin-out

The maximum acceptable cable cross-section for the terminals is 1.5mm^2.

SD card slot

The "push-push" SD card slot allows the use of a microSD card with maximum capacity of 8 GB. The card is inserted and removed by simply pushing the card in. The microSD card is not on board the device and is only required for specific applications, as specified by ZCS Technical Support.

Ethernet connector

The Ethernet connector with two LEDs enables network connection via cable. All Connext devices are already set-up for connection either via the on-board SIM or via cable.

3. Installation

Danger	• DO NOT install the charging station near flammable materials. • DO NOT install the charging station in an area where flammable or explosive materials are stored.
Attention	• Take into account the weight of the charging station during transport and installation. • Choose an appropriate mounting position and surface.

3.1. Checks before installation

Checking the outer packaging

Packaging materials and components may be damaged during transport. Therefore, please check the materials of the outer packaging before installation. Check the surface of the box for external damage such as holes or tears. If any form of damage is detected, do not open the box and contact the supplier and the courier as soon as possible.
It is also recommended that you check the contents of the packaging and make sure that they correspond to what was declared. If not, contact your dealer to have any missing parts sent to you.

Checking the product

After removing the system from its packaging, check that the product is intact and complete. If any damage is found or components are missing, contact the supplier and transport company.

Contents of the packaging

No.	Component		Qty
1		Connext	1
2		Product documentation	1

Table 4 – Package contents

Installation tools

The following tools are required for installation and electrical connections; therefore, they must be prepared before installation.

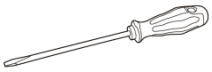
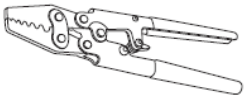
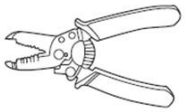
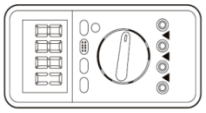
No.	Tool		Function
1		Screwdriver	To screw and unscrew screws for the various connections
2		Crimping tool	To crimp the wires
3		Wire stripping tool	To remove the outer sheath of the wires
4		Multi-meter	To check the voltage and current values

Table 5 – Installation tools

3.2. Installation process

Installation position

Choose an appropriate installation location. Follow the requirements below to determine the installation position.
The installation location chosen must allow easy access for normal operation and maintenance.
For safety reasons, ZCS and/or its authorised partners may not perform repair/maintenance work or move the appliance from and to the ground if the devices are installed at a height of more than 180 cm. Devices installed at greater heights must be moved to the ground before they can be repaired or serviced.

3.3. Materials and cables

Name	Specifications	Quantity
Power cord	≥ 3 × 1.5mm^2 single-phase	As required
Network cable	STP or UTP, CAT5E, 8 cores	As required
Connector for network cable	RJ45	As required
Insulating tape	0.15 mm × 18mm; 0-600V; 0°C-80°C	As required
Cable tie	4 × 200mm	As required

Table 6 - Electrical equipment

It is important that all cables used are suitable for outdoor use.
NOTE: For safety reasons, make sure to use suitably sized cables, otherwise the current may cause overheating or overloading, leading to fires.

3.4. Electrical connections

This chapter describes the electrical connections of the system. Carefully read this section before connecting the cables. All the local, regional and national regulations must be complied with during installation, repair and maintenance of the product.

Attention	**Before making any electrical connections, make sure there is no AC current. Zucchetti Centro Sistemi Spa assumes no responsibility for any liabilities arising from the use of this product. Installation must be carried out by a qualified professional with the skills and knowledge to build, install and operate electrical components, and who has been trained on how to identify and prevent potential risks.**
Attention	**Installation and maintenance must be performed by professional technicians or electricians.**

3.5. Connecting AC power cables

Connect the Connext system to the power supply network or mains using the AC power cables.

Context

All AC power cables used for the inverter must be three-pole outdoor cables. For easier installation, use flexible cables. The specific cross-section recommended for connections is at least 1mm^2.

Note	**For safety reasons, make sure to use suitably sized cables, otherwise the current may cause overheating or overloading, leading to fires.**

Cable connection procedure

1) Remove a suitable length of the protective sleeve, as shown in the figure (A: 80~100 mm B: 6~8 mm).

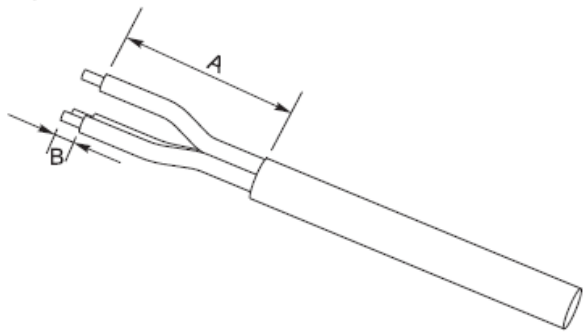


Figure 8- Connecting AC power cables

2) Connect the AC power cable as shown the 3-pin terminal block (Figure 7).

4. Connecting to Azzurro EV charging stations

Up to 8 Azzurro EV charging stations can be connected in cascade. Connect the Connext system to the first EV charging station according to the instructions given here.

1) Connect the 8-pin cable to the ports indicated as CAN port in the relevant figure using a RJ45 connector. For clarity,
2) Figure 10 the pin-out of the RJ45 connector is shown.

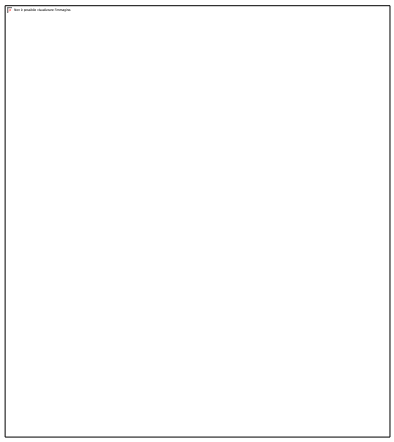


Figure 9 – Communication connection

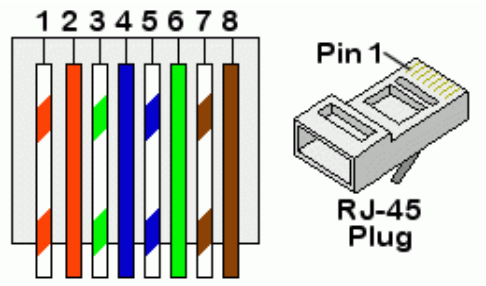


Figure 10 - RJ45 connector pin-out

3) Remove a suitable length of the protective sleeve, as shown in the figure (A: 80~100 mm B: 6~8 mm).

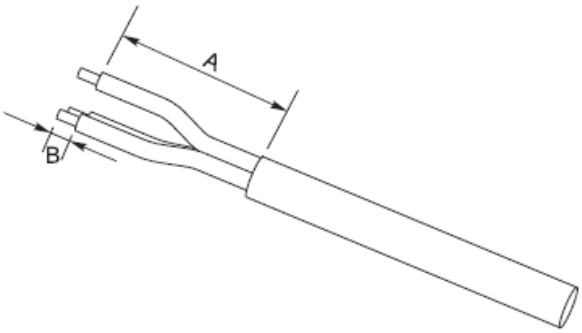


Figure 11 – Preparing the CAN bus cables

4) Connect the cables according to the table below.

Pin RJ45	Cable colour	Connection	24-pin terminal block
4	Blue	CAN-H	7
5	White-blue	CAN-L	8

Table 7 - CAN bus connections on Connext

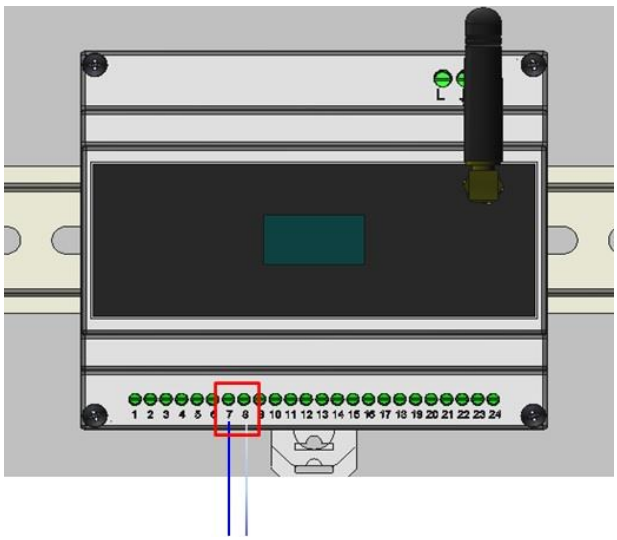


Figure 12 - CAN bus connections on Connext

5) Connect any other wallboxes in cascade using the RJ45 connectors of the CAN ports as "in-out." Only the first wallbox is connected to the Connext system.

Note	**Consult the manual of the charging station to check the firmware version installed. If it is lower than version 1.0.493, please contact Azzurro technical support at the toll free number 800727464**

The wallbox settings can be checked in Appendix A – Wallbox settings.

5. Systems with ZCS Azzurro inverter

Up to 8 Azzurro photovoltaic or storage inverters can be connected in cascade. Connect the Connext system to the first inverter according to the instructions given here. To connect to hybrid, storage or photovoltaic inverters, follow the instructions in the sections below.

NOTE: IF THE SYSTEM HAS ONE OF THESE INVERTERS: 1PH HYD3000-HYD6000-ZSS, 3PH HYD5000-HYD20000-ZSS, 3000SP, REFER TO THE RESPECTIVE MANUALS FOR CONNECTING THE SENSORS (ZSM-ACC-TA) AND/OR THE METER (DTSU666).

5.1. Configuration 1 – System with Azzurro single-phase hybrid inverter

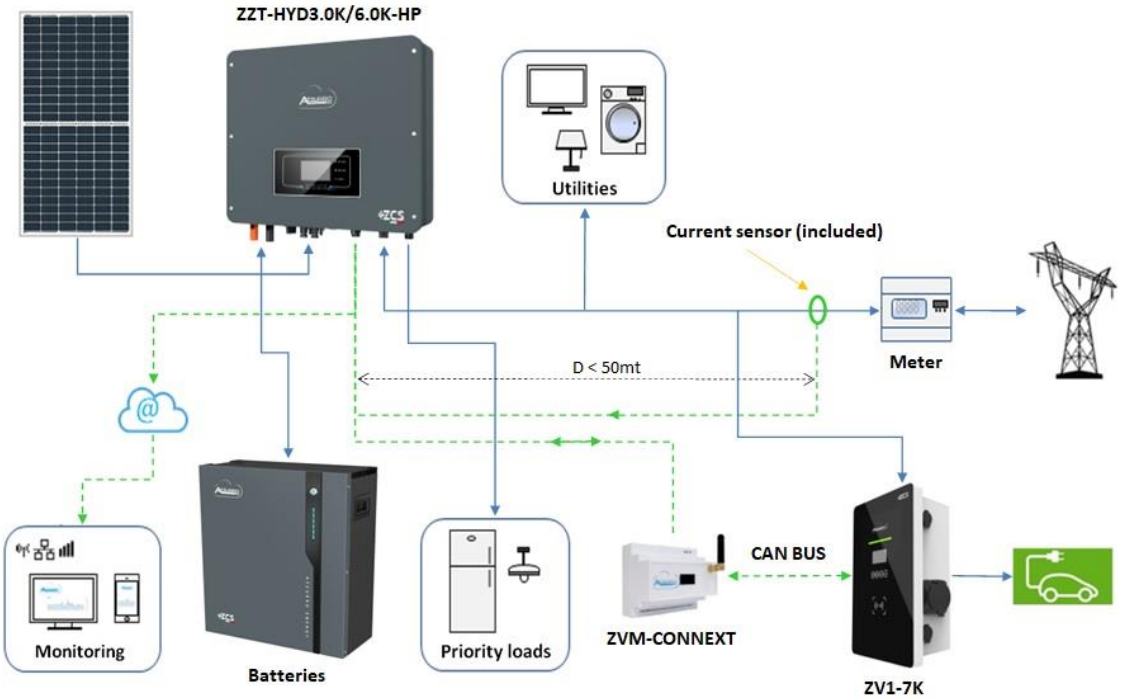


Figure 13 - Configuration 1 with single-phase hybrid inverter

THE SENSOR OR METER FOR MEASURING THE EXCHANGE MUST BE CONNECTED TO THE INVERTER ACCORDING TO THE MANUAL

Follow the instructions to connect the RS485 port to HYD-3000/3600/4000/5000/6000-ZSS -HP inverters.

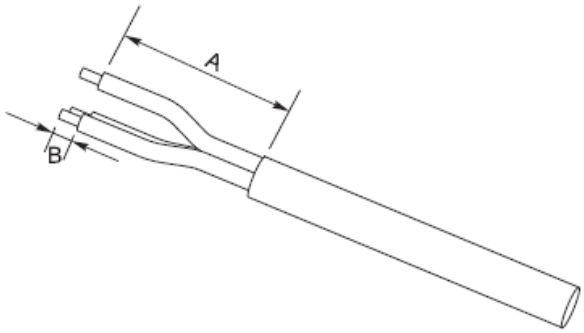


Figure 14 – Preparing RS485 cables

1) Remove a suitable length of the protective sleeve, as shown in the figure (A: 80~100 mm B: 6~8 mm).
2) Connect the 2-pole cable to the pins of the HP hybrid inverter marked "RS485". Follow the polarity shown in the figure and the pin-out in the table.

Figure 15 - Connections on HP single-phase hybrid inverter

RS485 Pin	24-pin terminal block
RS485 + (Red)/ 5	9
RS485 – (Black)/ 6	10

Table 8 - RS485 connections to HP single-phase hybrid inverter

For connecting the RS485 port to HYD-3000/3600/4000/5000/6000-ZSS inverters, refer to Figure 17 on connecting to the inverter.

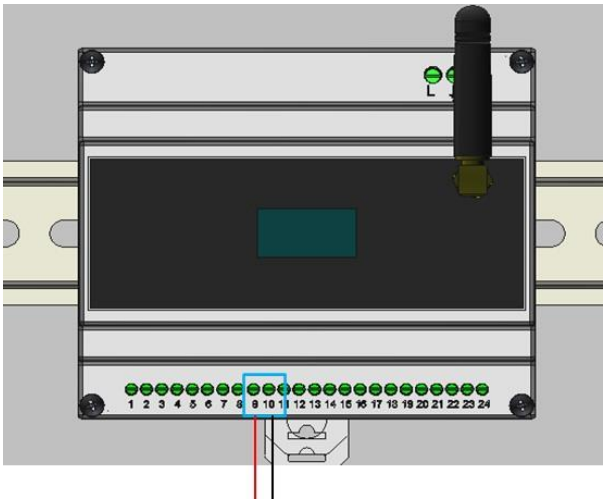


Figure 16 - RS485 connections to single-phase hybrid inverter

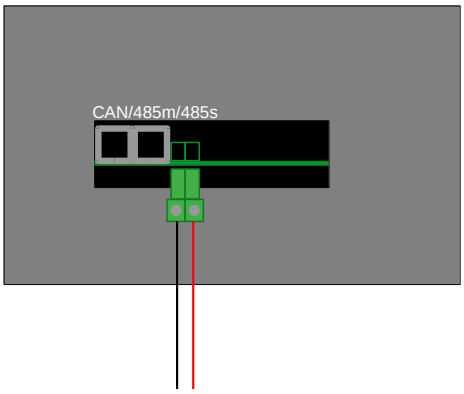


Figure 17 - Connections on single-phase hybrid inverter

RS485 Pin	24-pin terminal block
RS485 + (Red)	9
RS485 – (Black)	10

Table 9 - RS485 connections to 3000SP inverter

5.2. Configuration 2 – System with Azzurro 3000SP inverter

THE SENSOR (OR SENSORS) FOR MEASURING THE EXCHANGE MUST BE CONNECTED TO THE INVERTER ACCORDING TO THE MANUAL

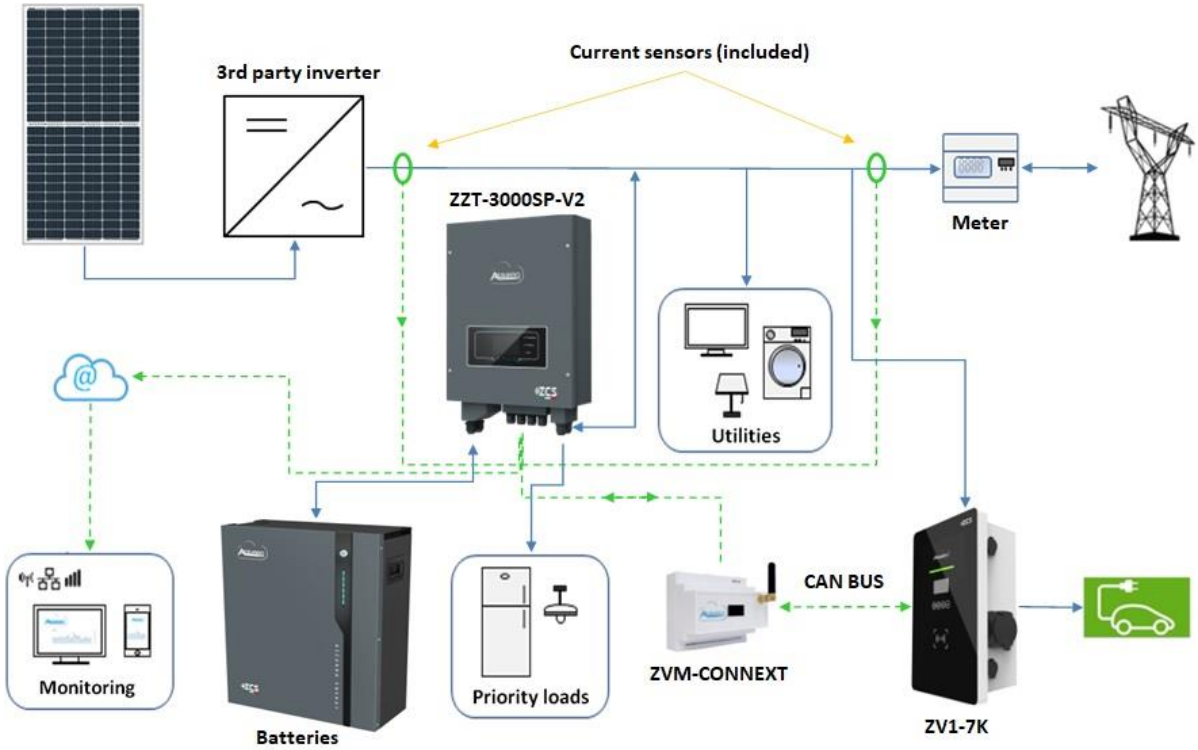


Figure 18 - Configuration 2 with 3000SP retrofit inverter

Follow the instructions to connect the RS485 port to 3000SP inverters.

1) Remove a suitable length of the protective sleeve, as shown in the figure (A: 80~100 mm B: 6~8 mm).

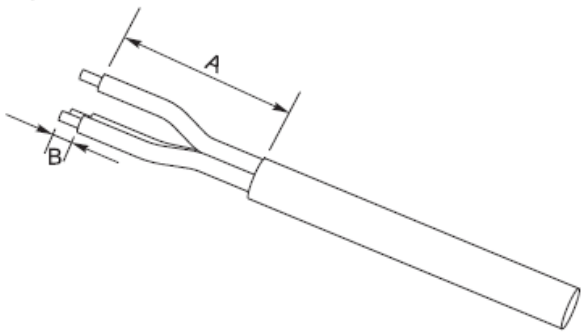


Figure 19 – Preparing RS485 cables

2) Connect the 2-pole cable to the port of the 3000SP inverter marked “RS485”. Follow the polarity shown in the figure and the pin-out in the table.

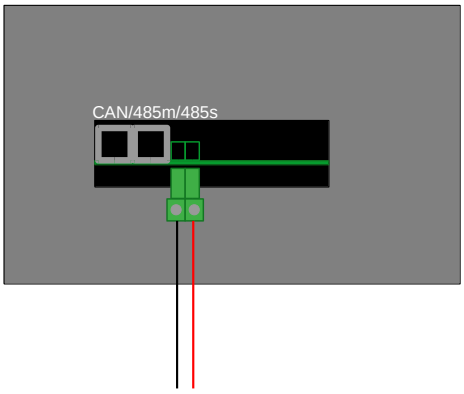


Figure 20 - Connections on 3000SP inverter

RS485 Pin	24-pin terminal block
RS485 + (Red)	9
RS485 – (Black)	10

Table 10 - RS485 connections to 3000SP inverter

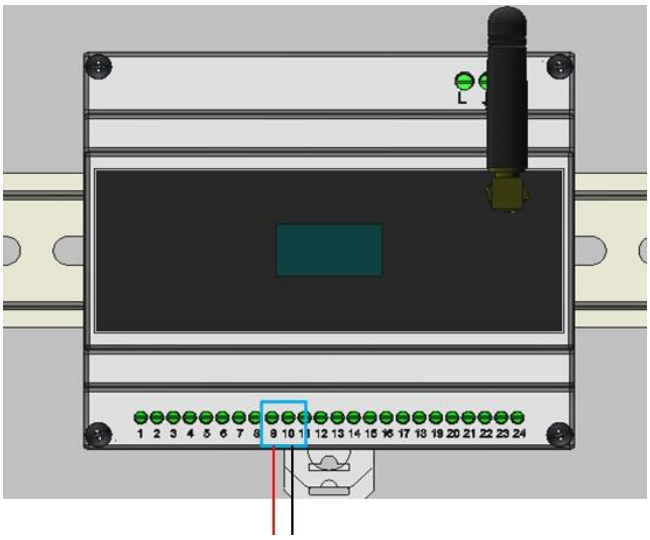


Figure 21 - RS485 connections to 3000SP inverter

5.3. Configuration 3 – System with Azzurro three-phase hybrid inverter

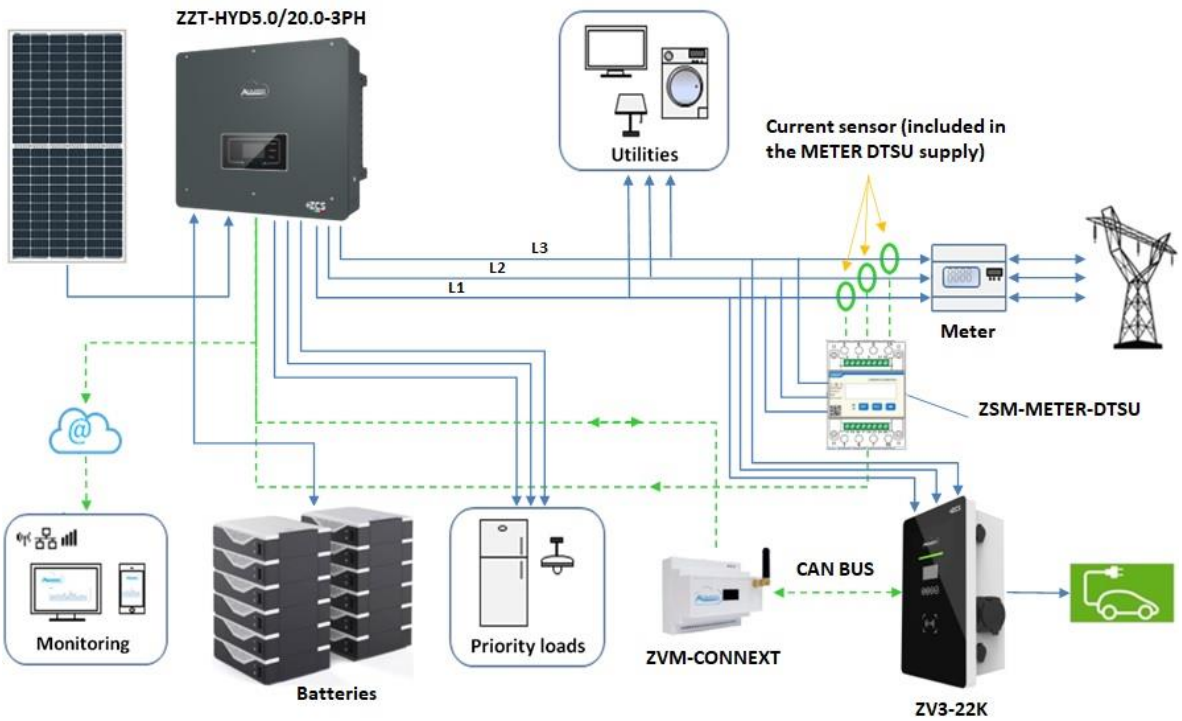


Figure 22 - Configuration 3 with three-phase hybrid inverter

THE SENSORS OR METER FOR MEASURING THE EXCHANGE MUST BE CONNECTED TO THE INVERTER ACCORDING TO THE MANUAL

Follow the instructions to connect the RS485 port to HYD-5000/6000/8000/10000/15000/20000 inverters.

1) Remove a suitable length of the protective sleeve, as shown in the figure (A: 80~100 mm B: 6~8 mm).

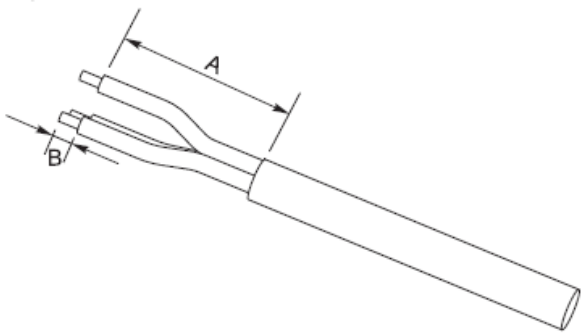


Figure 23 - Preparing RS485 cables

2) Connect the 2-pole cable to the port of the hybrid inverter marked “COM”. Follow the polarity shown in the figure and the pin-out in the table.

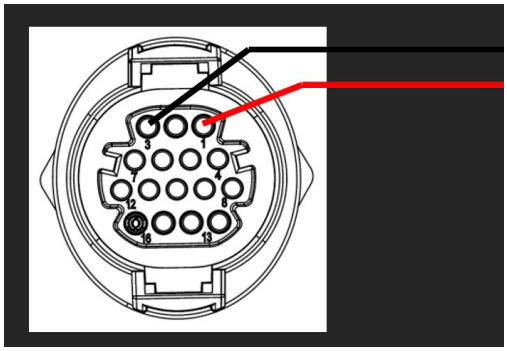


Figure 24 - Connecting on COM Port for three-phase hybrid inverter

COM port pin	24-pin terminal block
1 (Red)	9
3 (Black)	10

Table 11 - RS485 connections to three-phase hybrid inverter

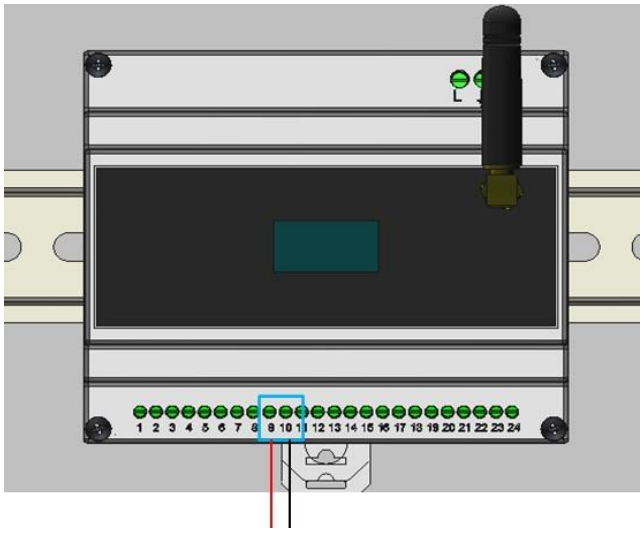


Figure 25 - RS485 connections with three-phase hybrid inverter

5.4. Configuration 4 – System with Azzurro single-phase photovoltaic inverter

A SENSOR MUST BE MOUNTED ON THE CONNEXT SYSTEM FOR MEASURING THE EXCHANGE

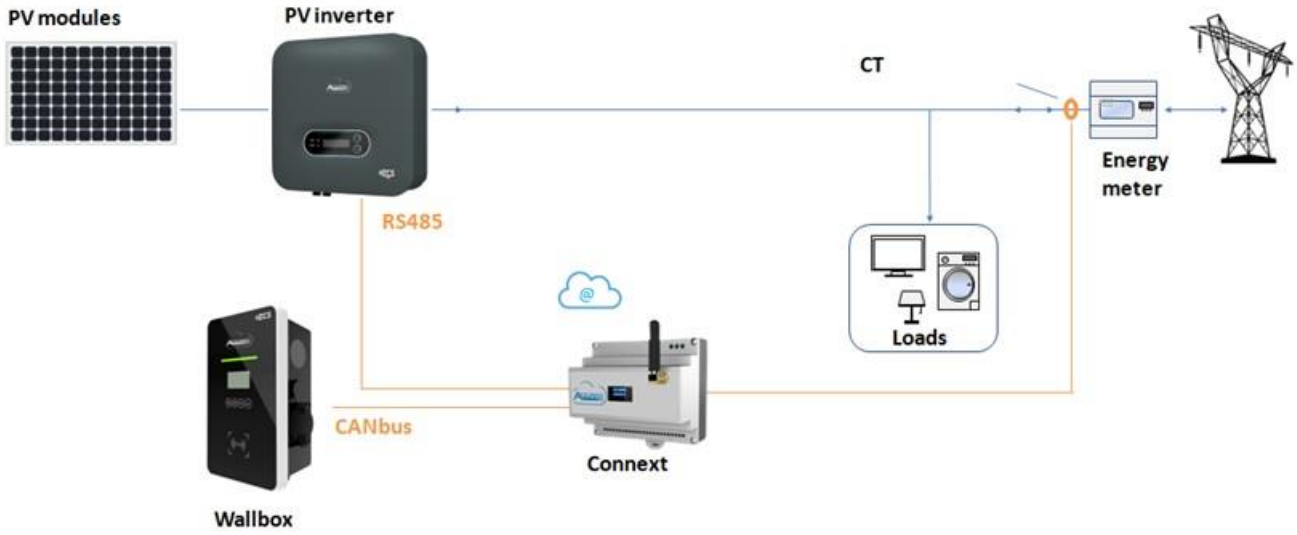


Figure 26 - Configuration 4 with single-phase string inverter

Follow the instructions to connect the RS485 port to Azzurro single-phase photovoltaic inverters.

1) Remove a suitable length of the protective sleeve, as shown in the figure (A: 80~100 mm B: 6~8 mm).

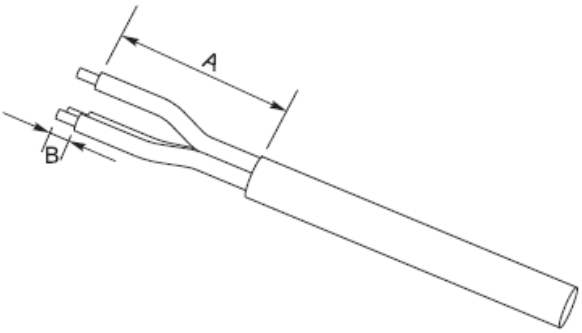


Figure 27 – Preparing RS485 cables

2) Connect the 2-pole cable to the port of the photovoltaic inverter marked "RS485". Follow the polarity shown in the figure and the pin-out in the table. For -V1 and -V2 models, refer to the connection on the left, for -V3 models, refer to the COM connection on the right.

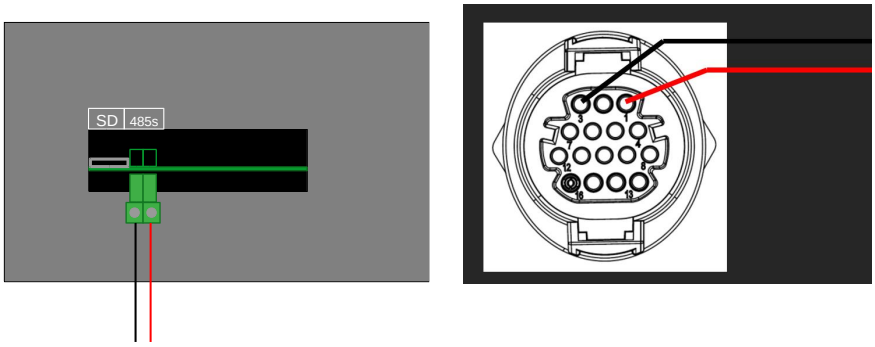


Figure 28 - Connections on photovoltaic inverter (-V1 and -V2 on the left; -V3 on the right)

RS485 Pin	24-pin terminal block
RS485 + (Red)/ 1	9
RS485 – (Black)/ 3	10

Table 11- RS485 connections to photovoltaic inverter

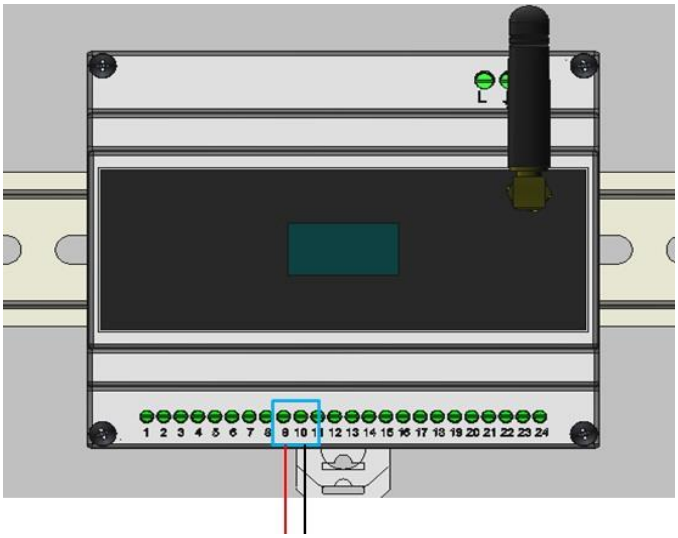


Figure 29 - RS485 connections with single-phase string inverter

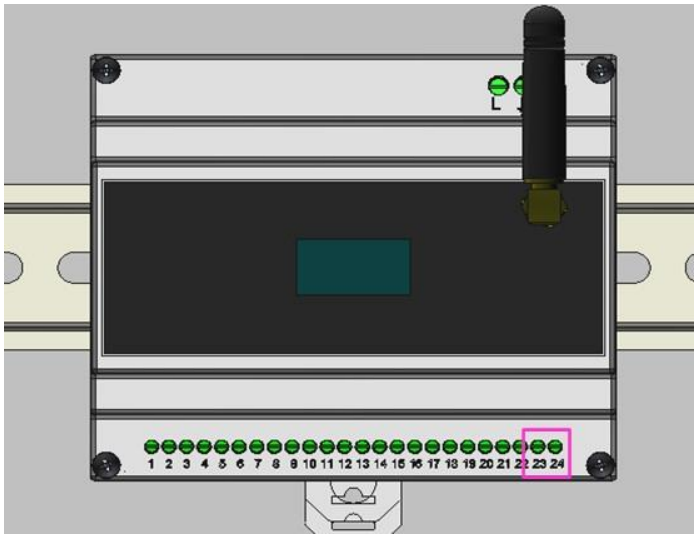


Figure 30 – Connection of exchange sensor on Connext

The CT must be positioned according to the diagram shown in
Figure 26. Then check the direction of the current measured by the CT. Procedure:

- Photovoltaic system switched OFF
- Loads switched ON (e.g. oven, hairdryer, etc.)

Power from the grid must be negative (i.e. withdrawal) If this is not the case, change the direction of the CT.

5.5. Configuration 5 – System with Azzurro three-phase photovoltaic inverter

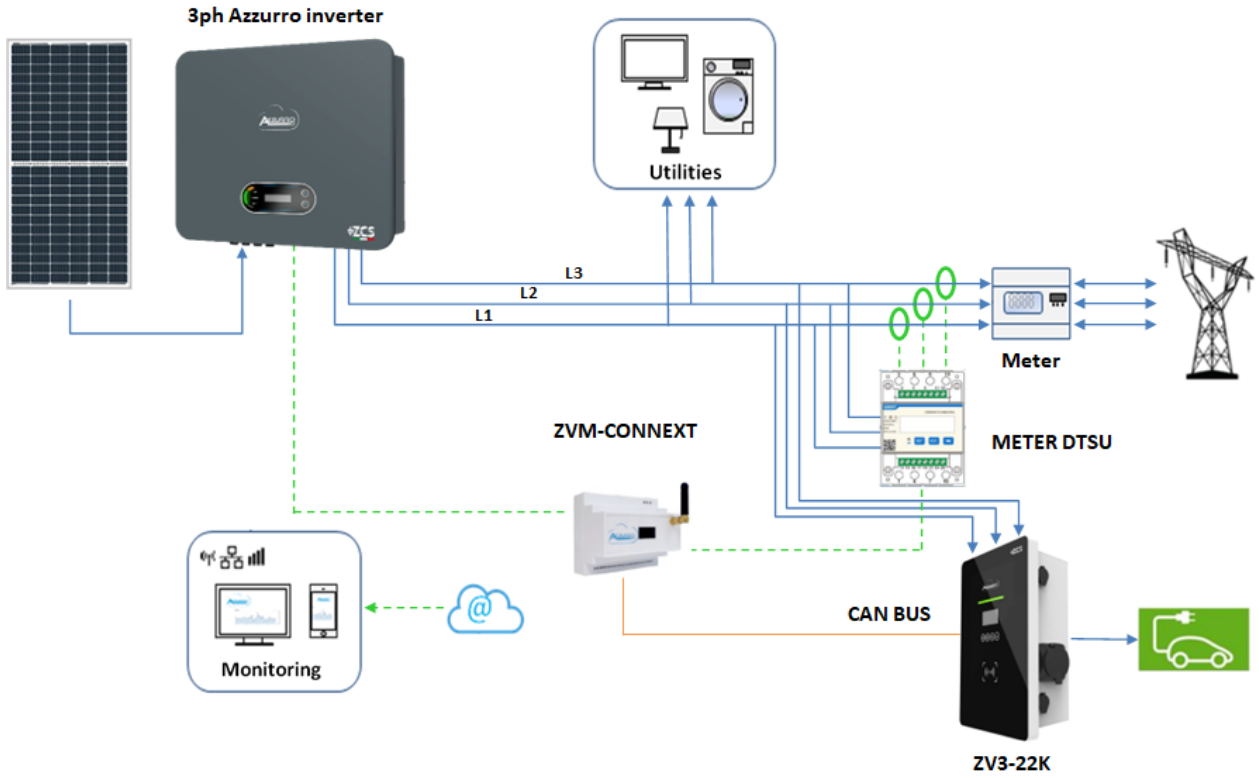


Figure 31 - Configuration 5 with three-phase string inverter

Follow the instructions to connect the RS485 port to Azzurro three-phase photovoltaic inverters.

1) Use a COM connector to connect to one of those identified as RS485 on the inverter (check the manual of the inverter in question).

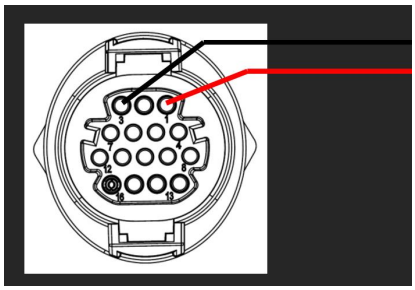


Figure 32 - RJ45 connector pin-out

RS485 Pin	24-pin terminal block
RS485 + (Red)/ 1	9
RS485 – (Black)/ 3	10

Table 12 - RS485 connections to photovoltaic inverter

The exchange must be measured via a three-phase meter, configured as follows.

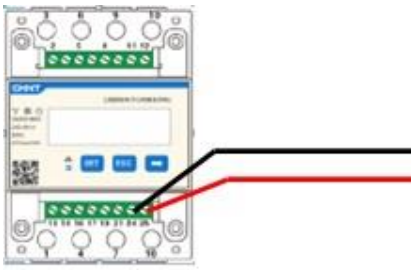


Figure 33 - RS485 connection on meter side

Pin Meter	24-pin terminal block
24	9
25	10

Table 12 - RS485 connections to three-phase meter

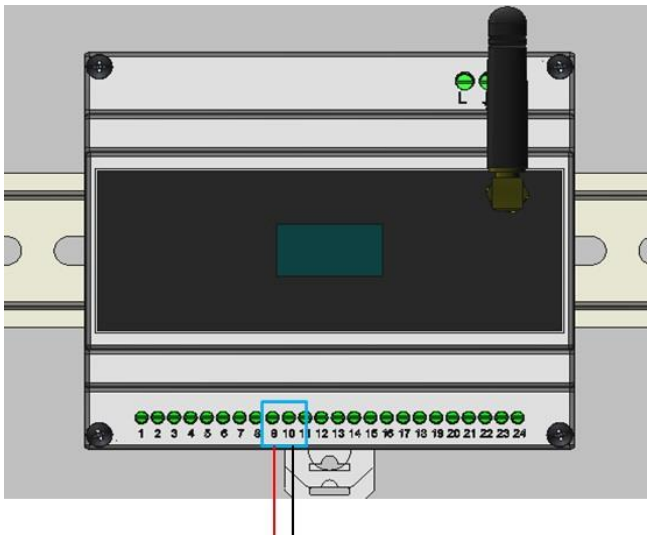


Figure 34 - RS485 connections with exchange meter

Follow the meter's manual to configure it correctly, setting the communication address to 32.

The meter settings can be checked in Appendix B – Meter settings.

6. Systems without ZCS Azzurro inverter

The current sensors/accessory meters have the function of measuring (when necessary) the power produced by the photovoltaic system and the power exchanged with the grid.

NOTE: IF THE SYSTEM HAS ONE OF THESE INVERTERS: 1PH HYD3000-HYD6000-ZSS, 3PH HYD5000-HYD20000-ZSS, 3000SP, REFER TO THE RESPECTIVE MANUALS FOR CONNECTING THE SENSORS (ZSM-ACC-TA) AND/OR THE METER (DTSU666).

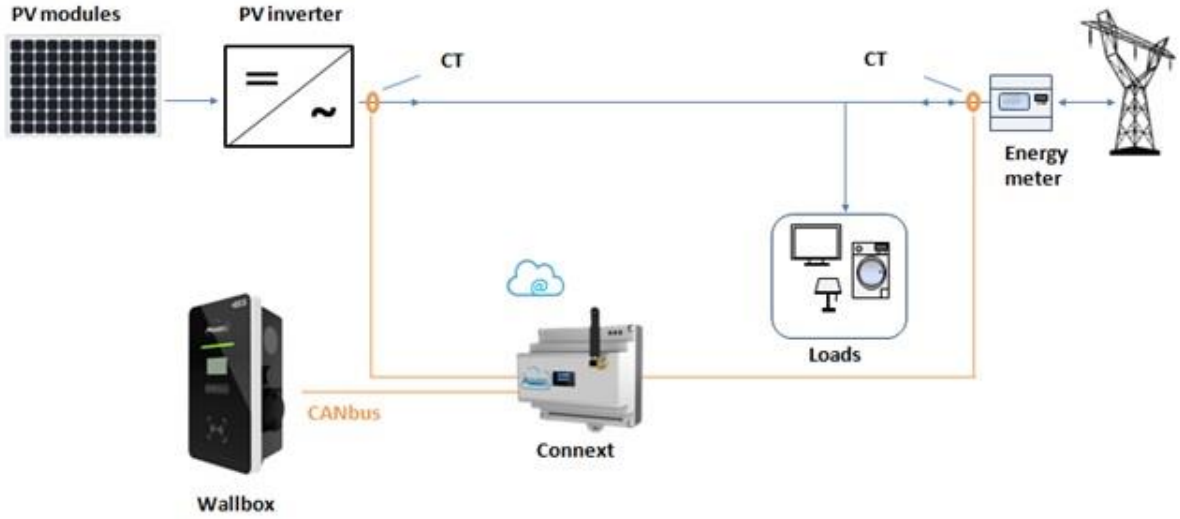


Figure 35 - Configuration 6 with NON-Azzurro photovoltaic inverter

6.1. Configuration 6 – System with single-phase photovoltaic production

If one or more single-phase photovoltaic inverters do not belong to the ZCS Azzurro brand, two accessory sensors (ZSM-ACC-TA) must be installed.
The sensor must be positioned directly at the output of the photovoltaic inverter on the AC side.

Sensor cable	24-pin terminal block
Black cable	21
Red cable	22

Table 13 - Photovoltaic sensor connections

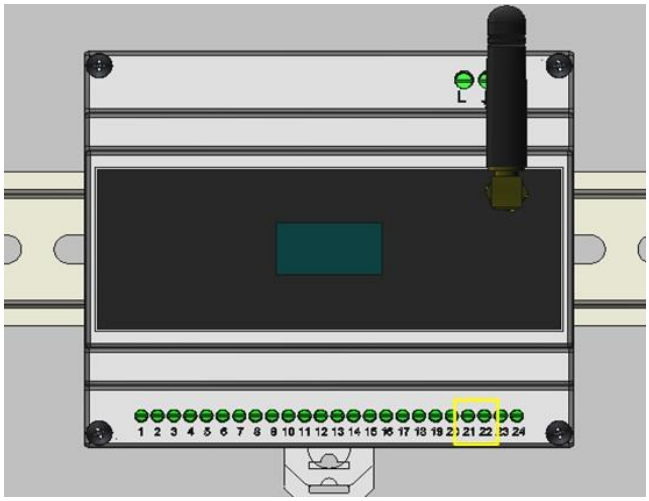


Figure 36 - NON-Azzurro production sensor connection on Connext

Sensor cable	24-pin terminal block
Black cable	23
Red cable	24

Table 14 - Exchange sensor connections

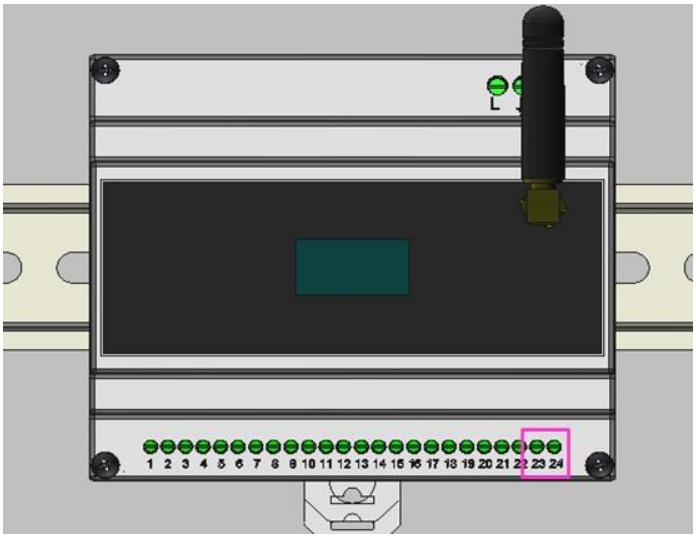


Figure 37 - Connection of exchange sensor on Connext

Note	**The direction of the arrow on the current sensor represents the installation direction. Pay attention to the insertion direction**

Check the positioning of the production CT (Figure 36). The value shown on the Connext display must be same as that shown by the inverter.

Check the positioning of the exchange CT (Figure 37). Procedure:

- Photovoltaic system switched OFF
- Loads connected

The power from the grid must be negative (i.e. withdrawal). If this is not the case, change the direction of the CT.

6.2. Configuration 7 – System with three-phase photovoltaic production

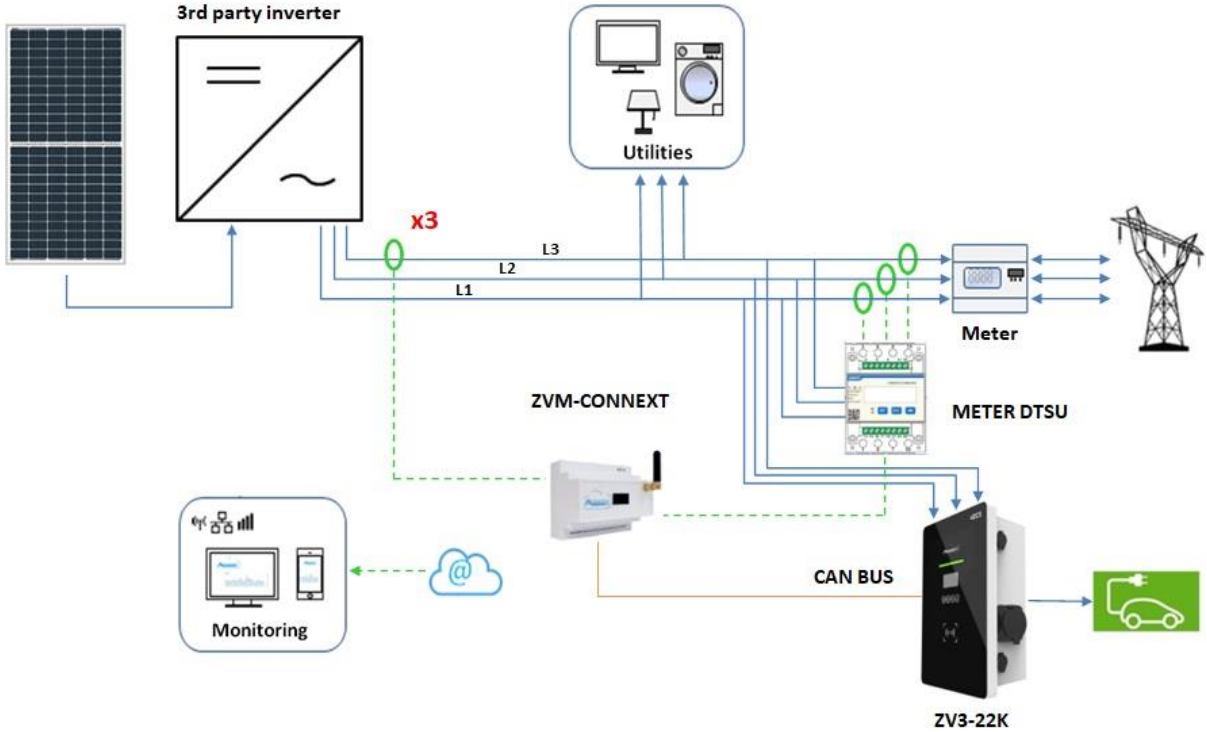


Figure 38 - Configuration 7 with NON-Azzurro string inverter

If at least one three-phase photovoltaic inverter does not belong to the Azzurro brand and the photovoltaic production needs to be measured, an accessory sensor (ZSM-ACC-TA) and a meter (ZSM-METER-DTSU) must be installed.
The sensor must be placed directly on the output of the photovoltaic inverter **on the same phase** from which the Connext power supply derives. The measurement will be made on one phase only, the multiplication factor x3 will then be indicated on the application.

Sensor cable	24-pin terminal block
Black cable	21
Red cable	22

Table 15 - Photovoltaic sensor connections

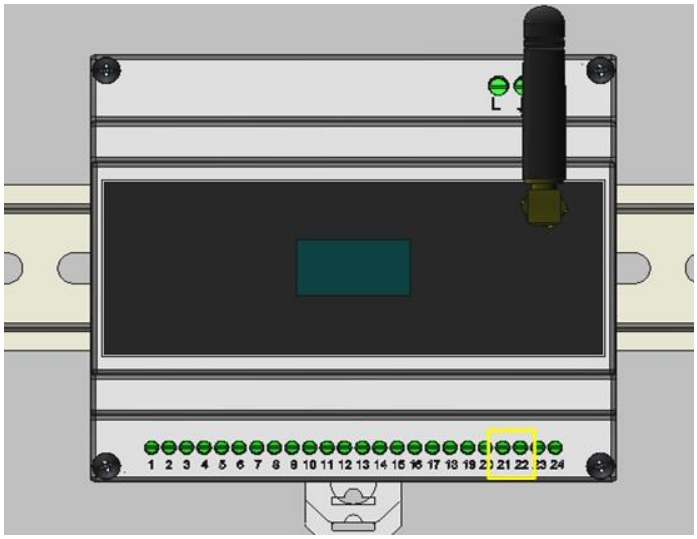


Figure 39 - Connection of NON-Azzurro production sensor on Connext

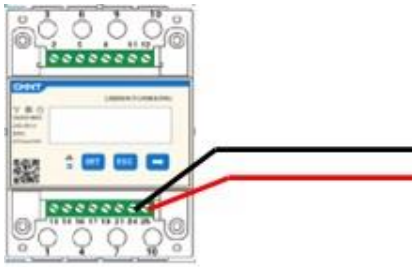


Figure 40 - RS485 connection on meter side

Pin Meter	24-pin terminal block
24	9
25	10

Table 16 - RS485 connections to three-phase meter

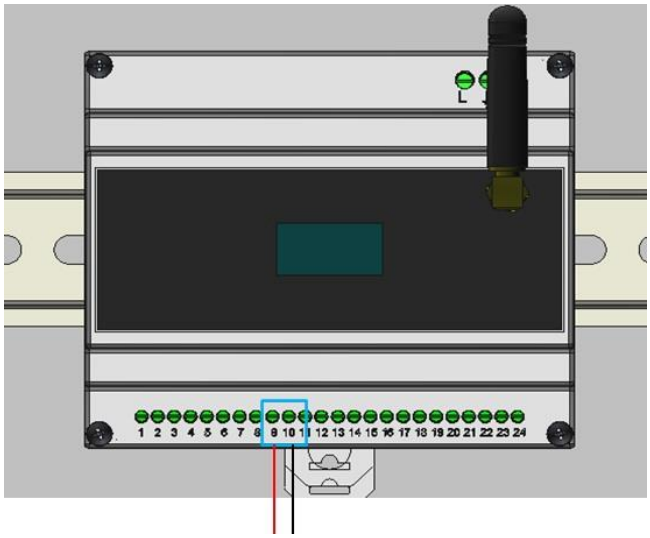


Figure 41 - RS485 connections with exchange meter

Follow the meter's manual to configure it correctly, setting the communication address to 32.

Note	**The direction of the arrow on the current sensor represents the installation direction. Pay attention to the insertion direction**

The meter settings can be checked in Appendix B – Meter settings.

6.3. Configuration 8 – Single-phase system without photovoltaic production

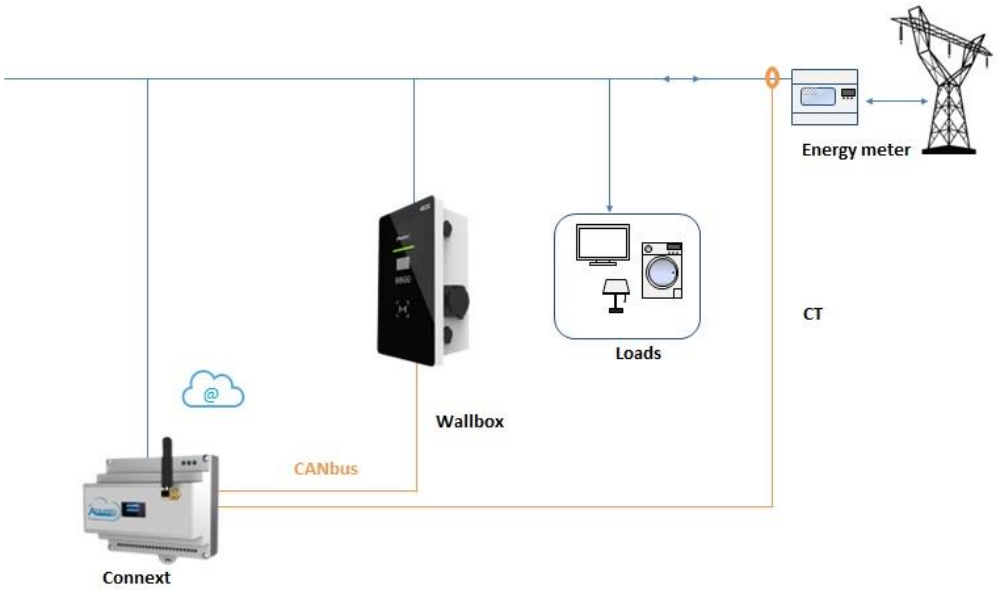


Figure 42 - Configuration 8 of single-phase system without production

If there is no Azzurro string or hybrid inverter, the Connext can still be used to manage the wallbox. It is only necessary to measure the exchange with a sensor. The sensor must be positioned directly at the exchange meter and measure all the utilities.

Sensor cable	24-pin terminal block
Black cable	23
Red cable	24

Table 17 - exchange sensor connections

Note	**The direction of the arrow on the current sensor represents the installation direction. Pay attention to the insertion direction**

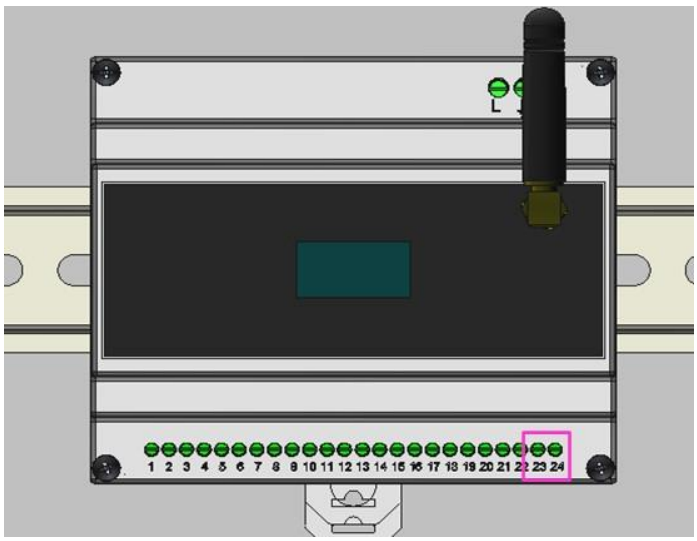


Figure 43 - Connection of exchange sensor on Connext

6.4. Configuration 9 – Three-phase system without photovoltaic production

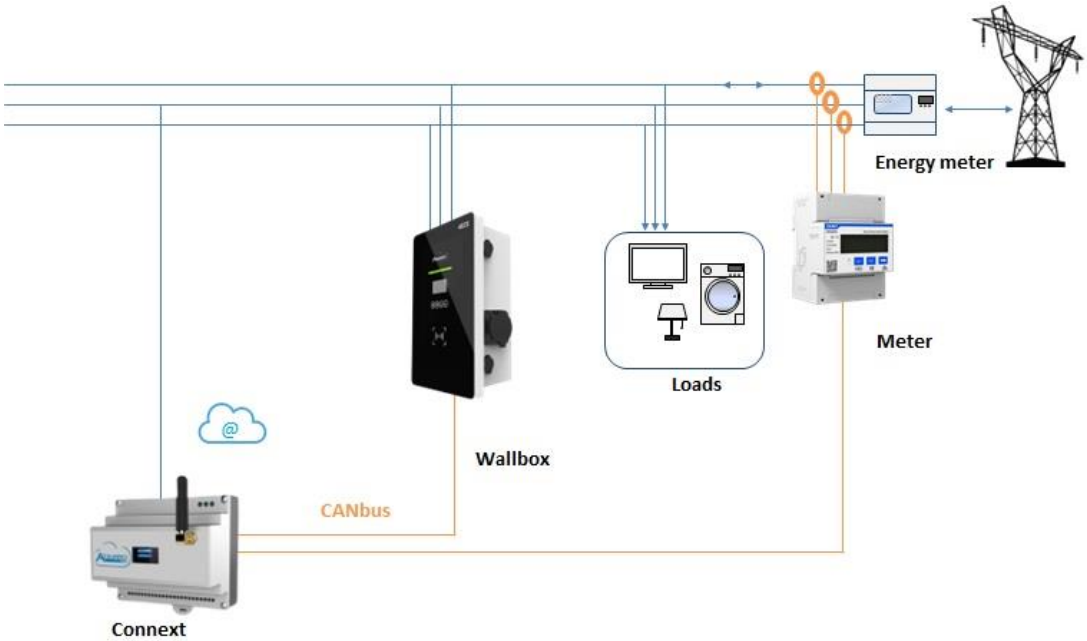


Figure 44 - Configuration 9 of three-phase system without photovoltaic production

If there is no storage system inverter belonging to the Azzurro brand and the photovoltaic production needs to be measured, an accessory meter (ZSM-METER-DTSU) must be installed.
The Meter must be placed directly on the output of the exchange meter and connected to the Connext system via the RS485 port following the pin-out shown.

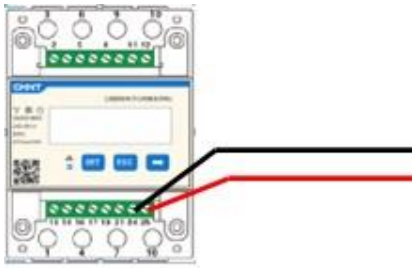


Figure 45 - RS485 connection on meter side

Pin Meter	24-pin terminal block
24	9
25	10

Table 18 - RS485 connections to three-phase meter

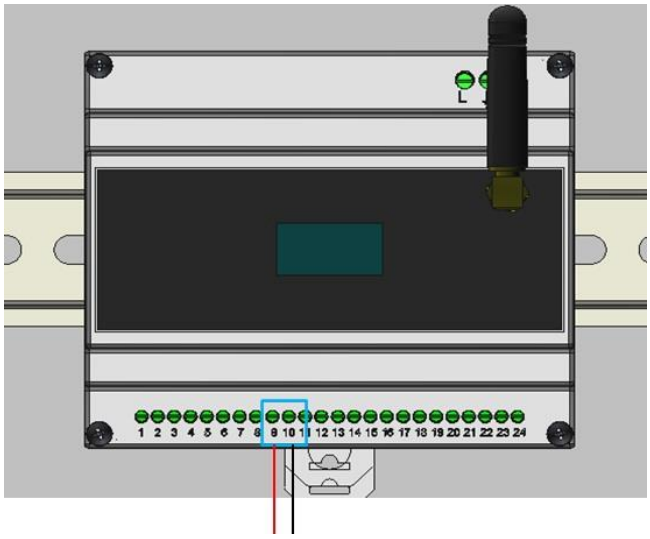


Figure 46 - RS485 connections with exchange meter

Follow the meter's manual to set **the communication address to 32**.

The meter settings can be checked in Appendix B – Meter settings.

7. Initial system configuration

The Connext must be powered and connected in order to proceed with the registration of the system. The device is connected when one of the two symbols shown Figure 47 in the display appears.

Figure 47 - Connext in GSM (left) or LAN (right)

7.1. Creating an account on the Azzurro Systems app

For the initial configuration, simply follow the instructions given in the "Azzurro Systems" App which can be downloaded for Android and iOS systems. **If an account has already been created on the "Azzurro Monitoring" app, it is possible to log in using those credentials.**

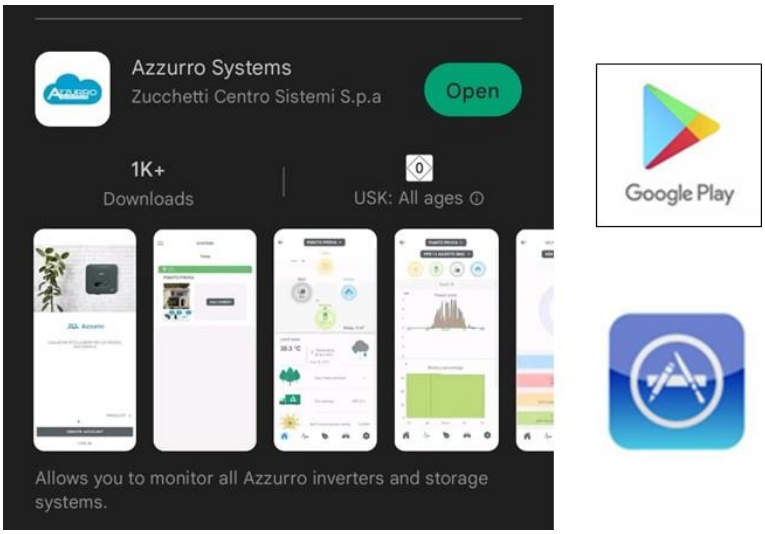


Figure 48 - Azzurro Systems on Google Play and App Store

NB: the first configuration should be made with the account of the system owner. The first account that registers the "Connext" system is the "Owner."
The virtual and physical owner must be the same.

	Owner	Administrator	User
Choose Administrator account	Yes	No	No
Change system power	Yes	Yes	No
Add devices	Yes	Yes	No
Change charging strategy (EVC)	Yes	Yes	No
System monitoring	Yes	Yes	Yes

Table 19 - Account levels

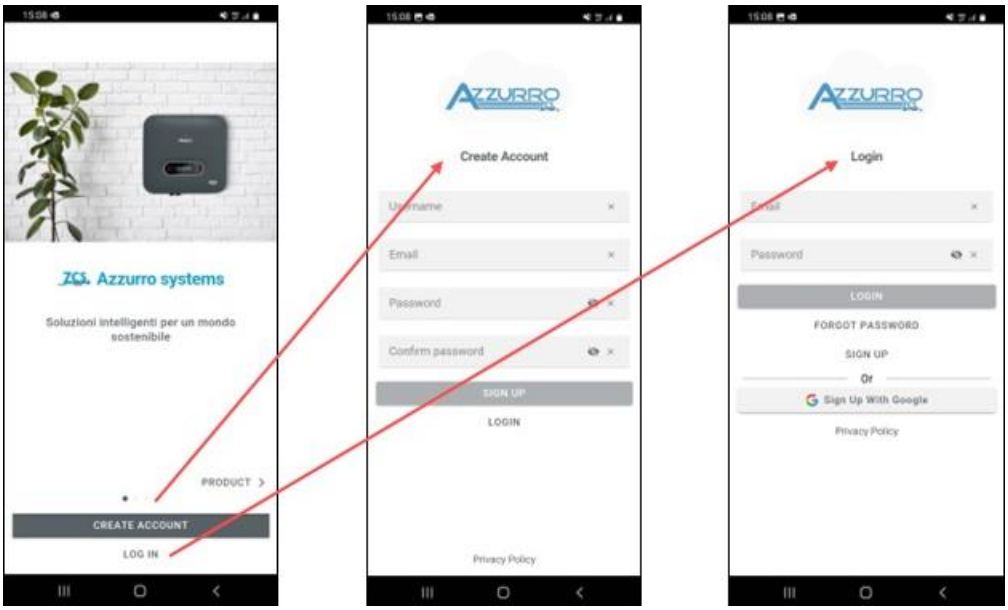


Figure 49 - Access to Azzurro Systems app

Any systems already registered on the account used will be imported, and new ones can be added by clicking the + icon located on the bottom right of the screen
The "With Connext" type of system must be selected and the serial number on the device itself and on the box must be entered (e.g. CA020490200005).

Figure 50 - Add system with Connext

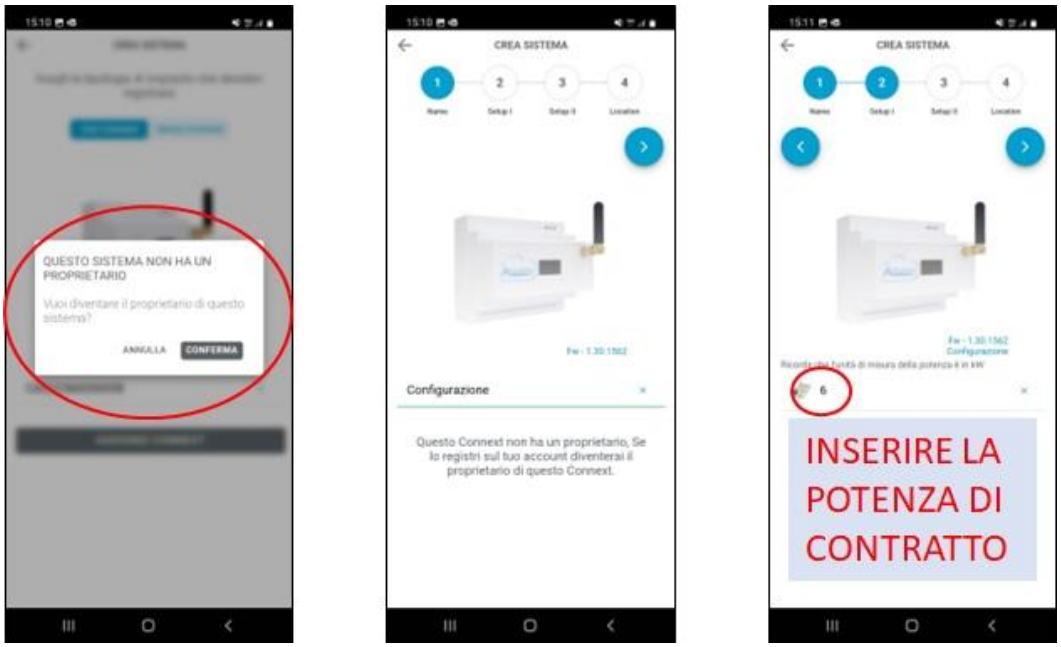


Figure 51 - Configuration of system with Connext (1)

If Connext has already been registered by an account, it will no longer be possible to become its owner.
The power set must be the power contracted with the electricity supplier and is the maximum power that can be drawn from the meter.

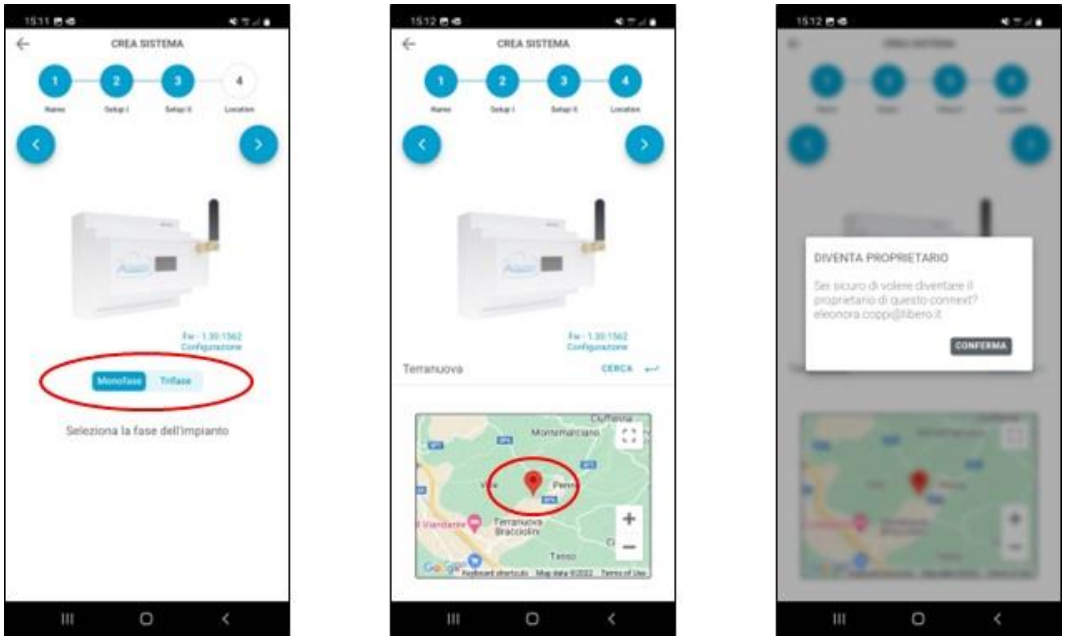


Figure 52 - Configuration of system with Connext (2)

The system configuration must be indicated, whether single-phase or three-phase. IMPORTANT: do not indicate whether it is a single-phase or three-phase inverter, but the system.

The location of the system allows for correct weather and time data.

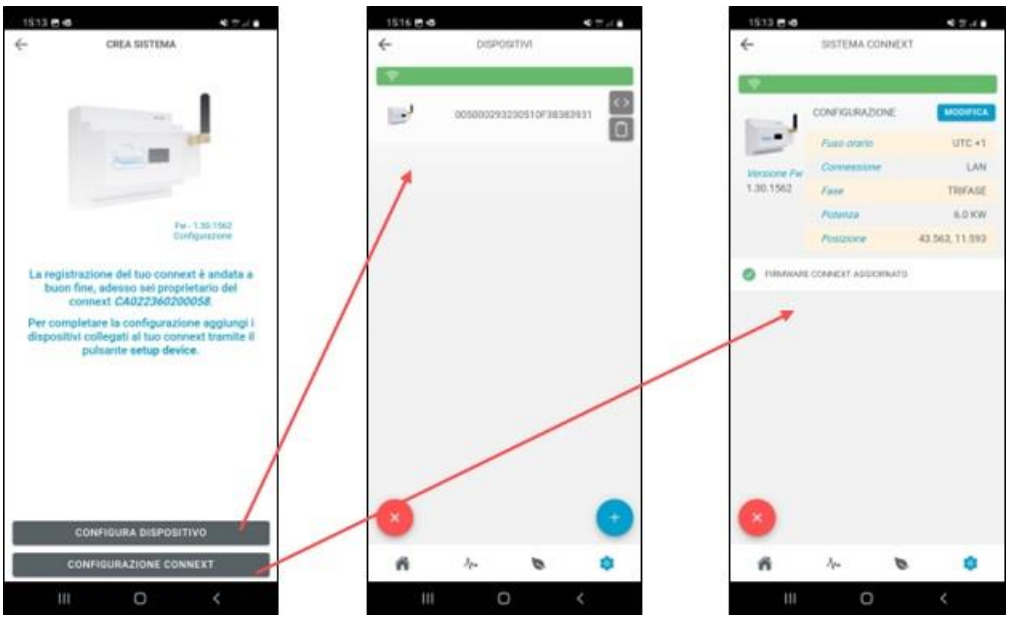


Figure 53 - Verification of Connext registration

7.2. Adding an Azzurro inverter

When the configuration is complete, the list of connected devices and the settings of the system can be checked.

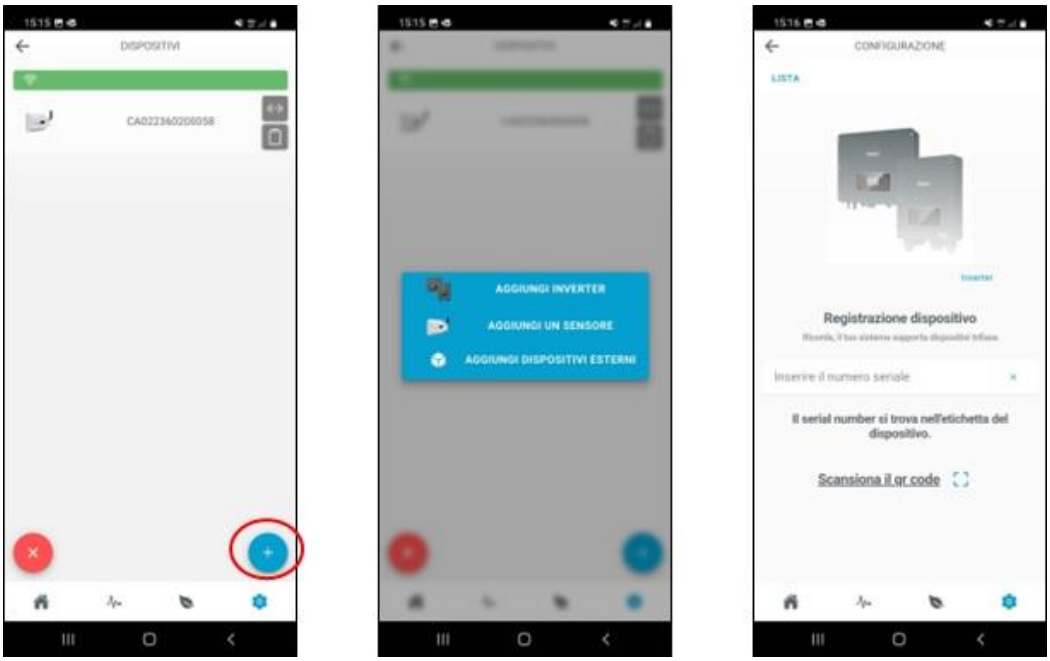


Figure 54 – Adding devices

To add devices, click the + icon, click "Add inverter" and enter the serial number of the Azzurro inverter. The serial number can be found on the inverter label. The communication address of the inverter must be indicated. This can be checked from the System Info.

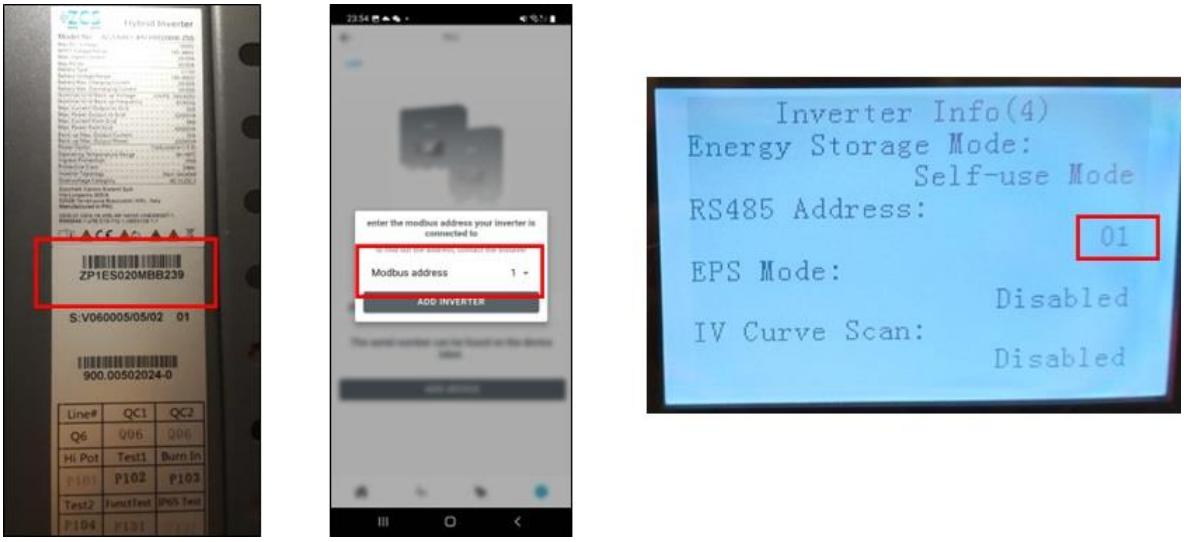


Figure 55 - Inverter communication address

7.3. Adding measuring systems

There are different options: an inverter and sensors cannot be inserted on the same system. If there is no inverter, select "Add sensors."

To add measuring devices in Configuration 6 (6.1), Configuration 7 (6.2), Configuration 8 (6.3), Configuration 9 (6.4), select the correct multiplication constant: 1 for single-phase systems, 3 for three-phase systems.

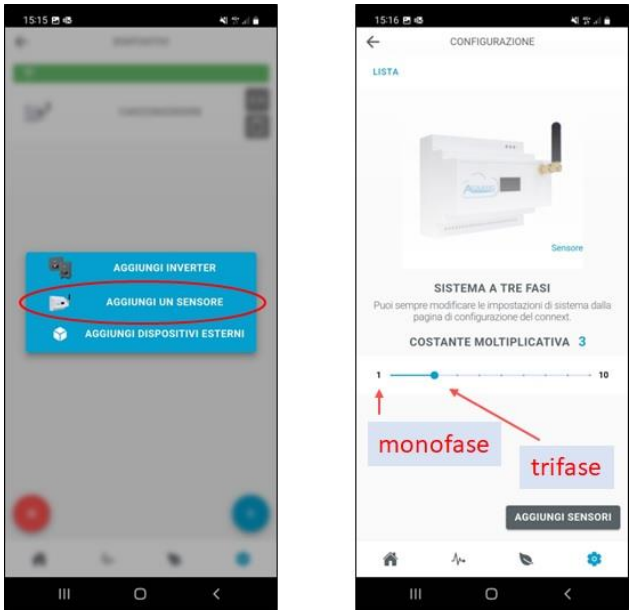


Figure 56 - Adding measuring sensors

7.4. Adding and managing wallboxes

NB: the wallbox is recognised automatically. Make sure it is powered and set on Plug&Play.
If the wallbox is added later, it can be registered using the serial number.

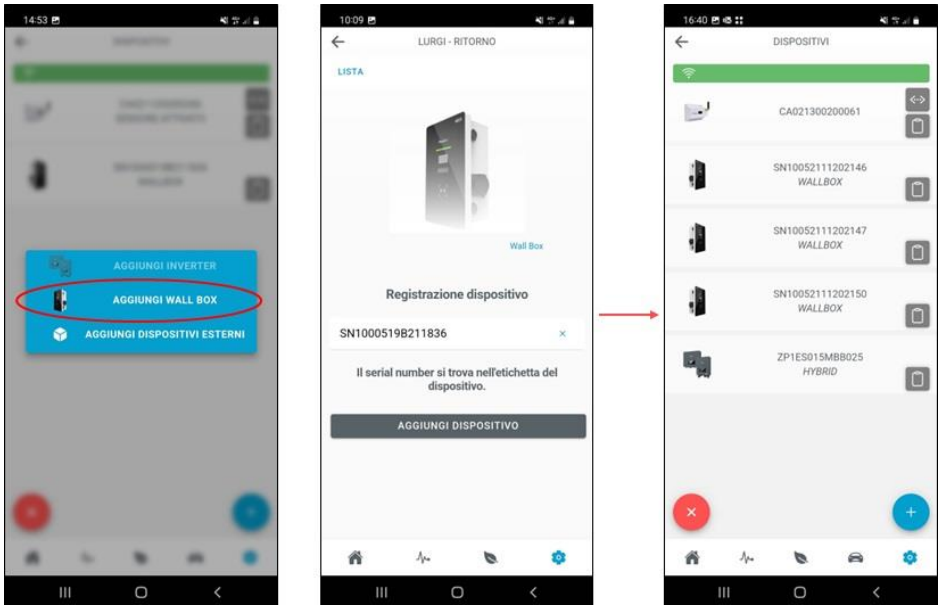


Figure 57 - Adding a wallbox

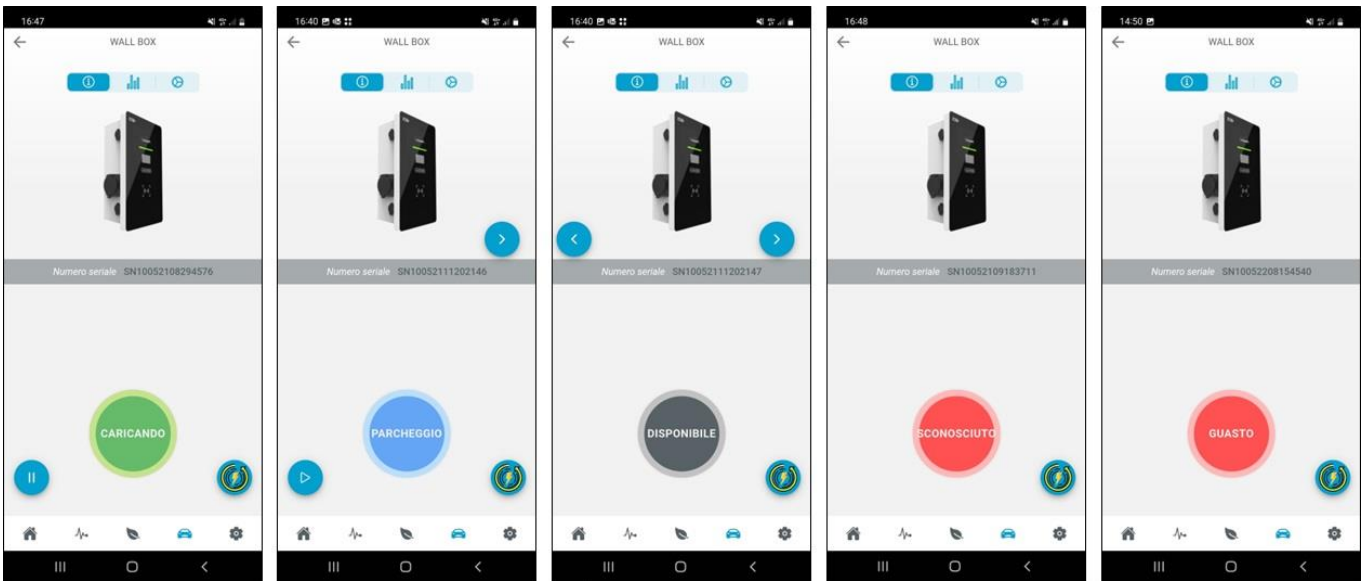


Figure 58 - Wallbox operating status

When the connector of the car is plugged in and if the car itself allows it, the charging can be started or stopped remotely.

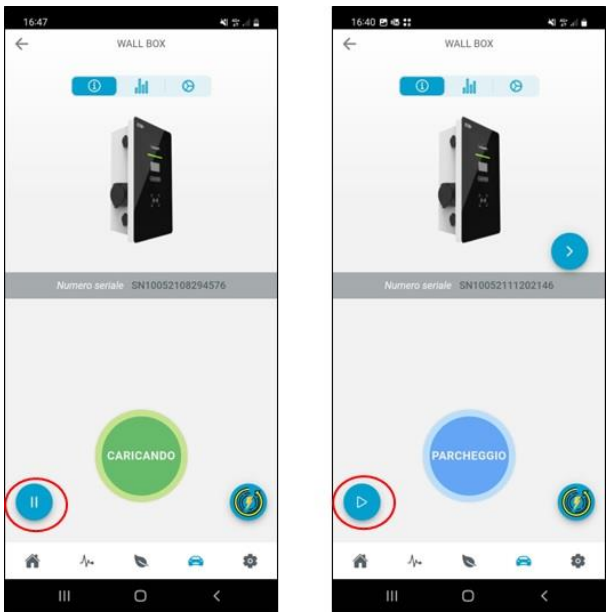


Figure 59 - Remote start/stop

Charging strategies

Strategies can only be changed by Administrators and the Owner when a charging session is not in progress.

- **Kilometre Strategy (Single)**

Based on the consumption of the vehicle entered (Wh/km), the vehicle is charged with enough energy in kWh to cover the desired distance in kilometres, in addition to the charge already present in the vehicle. In practice, a defined number of kilometres of autonomy is added to the vehicle. Charging stops automatically without the battery reaching full capacity.

- **Kilometre Strategy (Repeated)**

The same settings as for the Kilometre Strategy (consumption and number of km) remain active until the strategy is changed.

- **Fast Strategy**

The wallbox supplies the maximum power available at that moment to charge the vehicle. This strategy can also be started without photovoltaic production. It can also function at night.

- **Ecological Strategy (Pure)**

The wallbox uses all the photovoltaic output to charge the car (subject to the maximum current set from the display and the maximum current accepted by the car). Obviously, the presence of other loads on the same line will be managed by the grid. When the photovoltaic power produced falls below 1.8kW, the wallbox goes into stand-by mode and resumes when the production reaches 1.8kW again.

- **Ecological Strategy (Mixed)**

The wallbox uses all the photovoltaic output to charge the car (subject to the maximum current set from the display and the maximum current accepted by the car). The presence of other loads will be managed by the grid.
When the photovoltaic production is between 1.8kW and 0.5kW, power will be withdrawn from the grid in order to reach the minimum charging value of 1.8kW. This is so that the charging session is never interrupted. When photovoltaic production falls below 0.5kW, the wallbox goes into stand-by mode and resumes when production rises above 0.5kW again.

- **Time-Power**

It is possible to set the charging start time and duration of the session, after which the charging will stop automatically. The wallbox must remain connected to the car and in communication during the stand-by time.

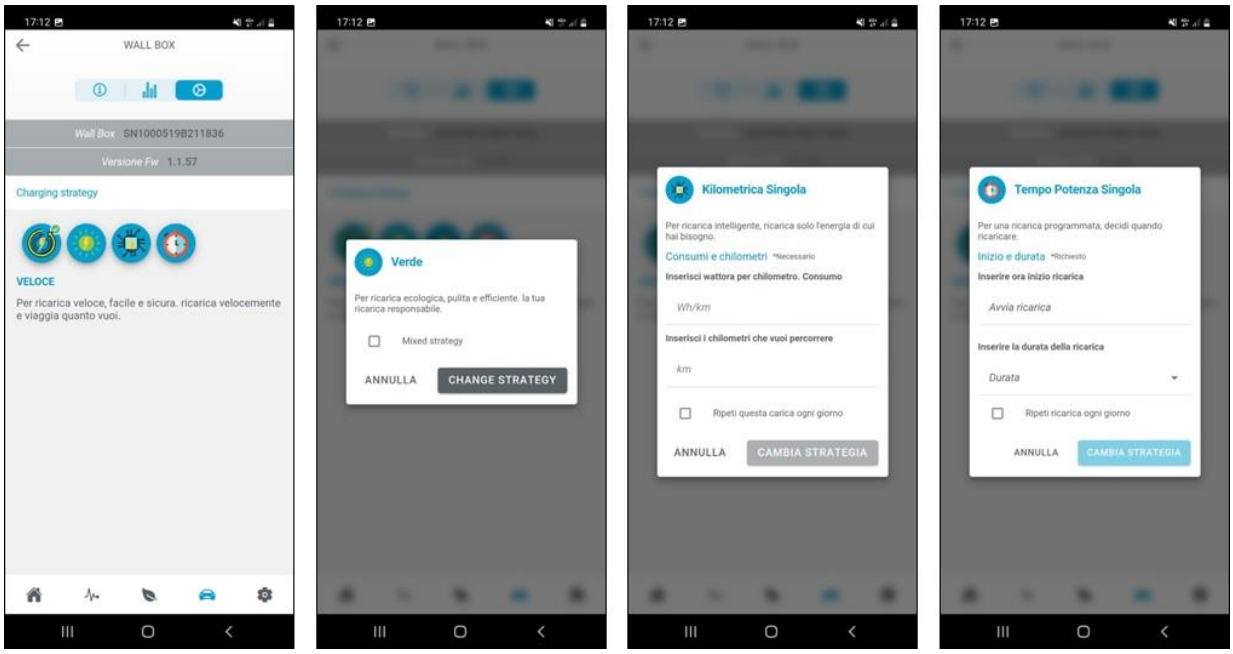


Figure 60 - Charging strategies

8. Dry contact management

The Connext device can also be used to manage external loads such as heat pumps, hot water boilers, etc.
There are 4 outputs in total, please refer to the table below for physical connections.

Output on app	24-pin terminal block
Output 1	3 - 4
Output 2	2 - 4
Output 3	16 – 17 – 18
Output 4	13 – 14 - 15

Table20 - Output settings on app

8.1. Setting dry contacts from app

ONLY THE OWNER AND ADMINISTRATORS CAN ADD, REMOVE AND CHANGE SETTINGS FOR DRY CONTACTS

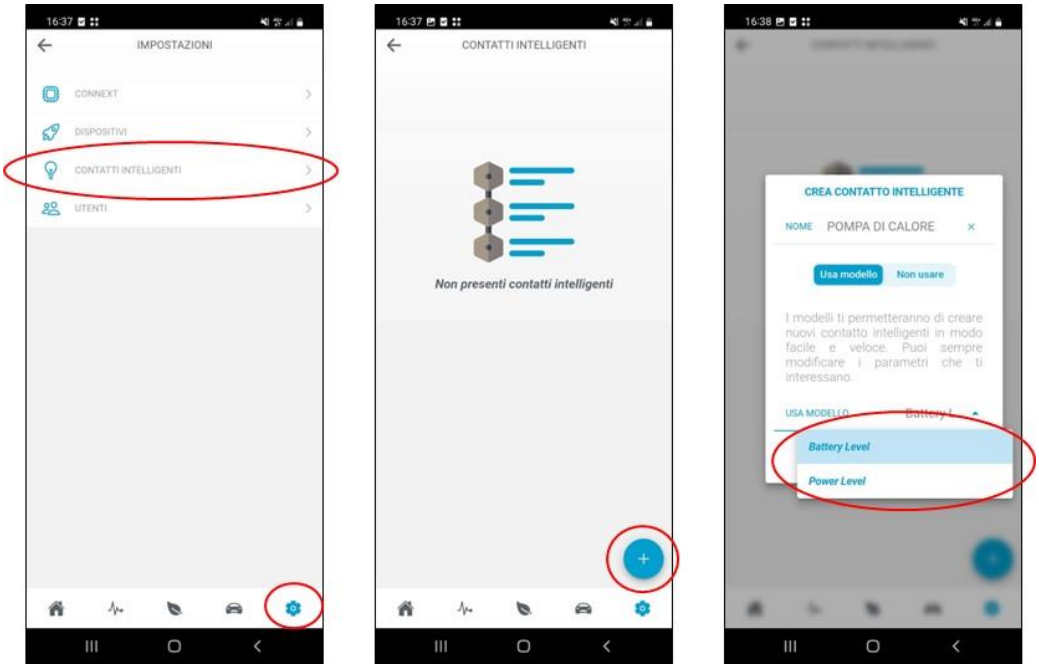


Figure 61 - Setting dry contacts (1)

Each output can be set using several variables as a control. These are: battery status (SoC %), photovoltaic power produced (W), vehicle charging power (W), power fed into or withdrawn from the grid (W), in-feed power (W).

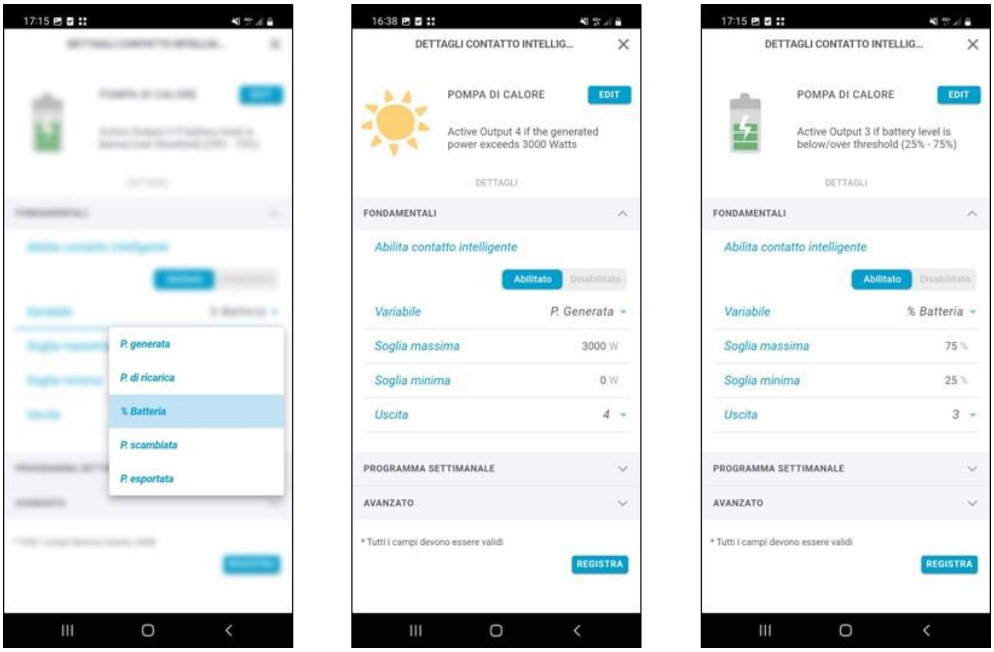


Figure 62 - Setting dry contacts (2)

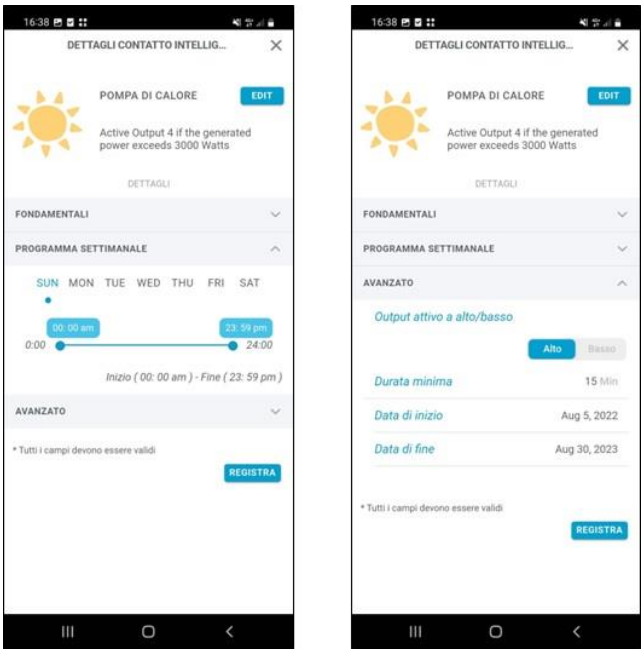


Figure 63 - Setting dry contacts (3)

The maximum threshold represents the minimum value (W or %) of output activation, if this value is not reached, the contact is open (e.g. 2000W → power generated, contact open, heat pump off; battery with SoC = 65% → contact open, heat pump off).

When this value is reached, the contact closes and the logic comes into operation. It is kept active until the minimum threshold (W or %) is verified. The threshold is checked by default every 15 minutes, but it can be changed.
The 24-hour and yearly operating interval can also be defined.

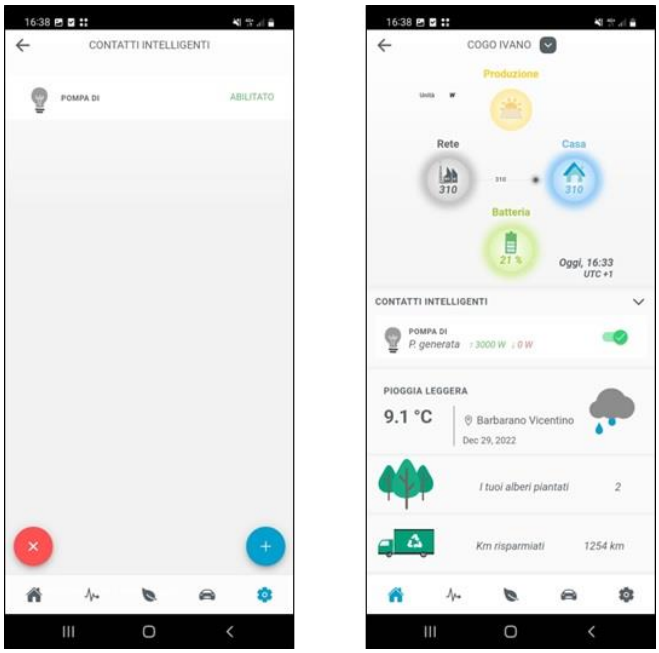


Figure 64 - Setting dry contacts (4)

After the control logics have been created, they appear among the active logics. They can be activated all at once or alternatively from the homepage. Only the owner and administrator can activate/change the logics.

9. Access for maintenance only

The Connext system allows internal access via USB for any extraordinary maintenance. To access, the following materials and tools are required:

- USB Cable (type C)
- Laptop or notebook
- Configuration software supplied by AZZURRO

Maintenance should only be carried out if explicitly requested by Azzurro technical support.

9.1. Access connection for maintenance only

To access, follow the steps below:

1) Check the connections to the various elements (wallbox, inverter, meter, sensors, etc.).
2) Make sure that the power cables of the Connext system in the 3-pin terminal block are NOT connected/powered.

⚠ **Danger**	• L and N power cables disconnected from the system MUST not be powered so as to prevent the risk of electric shock. • Connecting to the Connext system with power cables connected and powered causes a risk of electric shock to the operator.
⚠ **Attention**	• Connecting to the Connext system with power cables connected and powered may cause damage to the system.

3) Access the internal board by unscrewing the four fastening screws of the plastic front cover. Take care when moving the front cover so as not to damage or disconnect the internal connections to the display and antenna.
4) Connect the Type-C USB cable to the connector on the main board.
5) Connect the USB cable to the computer and check that the internal LEDs on the main board light up.
6) Open the maintenance program.

10. Technical datasheet

DATI TECNICI	CONNEXT
Dati tecnici generali	
Dimensioni (H*L*P)	89mm*105mm*65mm(+20mm per antenna esterna)
Peso	300g
Classe di protezione	IP20
Montaggio	Su barra DIN
Alimentazione	Alimentatore integrato 110V-230V
Range di temperatura di funzionamento	0°C...+40°C
Intervallo di umidità relative ammesso	0....95% senza condensazione
Interfaccia utente	Display grafico
Porte di comunicazione con dispositivi Azzurro	RS485, CAN bus
Porte per ingresso sensori corrente	2
Ulteriori porte di ingresso/uscita	2x DO Open Collector, 2x contatti puliti, 2x DI, 2x PT100, USB interna, Bluetooth opzionale
Comunicazione con portale	2G / Wifi / Ethernet (alternative)
Garanzia	2 anni
Consumo	< 7W

11. Maintenance

11.1. Troubleshooting

Follow the access procedure for maintenance and contact the supplier. Visit the website www.zcsazzurro.com.

11.2. Maintenance

Connext systems generally do not require daily or routine maintenance.

12. Dismantling and disposal

The packaging materials are environmentally friendly and can be recycled. Therefore, they can be disposed of in the appropriate recycling containers in accordance with the local waste disposal regulations. However, the device cannot be disposed of as household waste, but must be treated as special waste. It must be disposed of at facilities authorised to dispose of electrical and electronic goods. For more detailed information on the disposal and recycling of this product, please contact your local authority, waste disposal service or the retailer where you purchased the charger.

1) Uninstalling

- Disconnect the AC mains power supply
- Remove any communication connections
- Remove from the DIN bar support

2) Packaging

If possible, pack the system in its original packaging.

3) Storage

Store the system in a dry place where the ambient temperature is between -25°C and +60°C.

4) Disposal

Zucchetti Centro Sistemi S.p.a. is not liable for the disposal of the equipment, or parts thereof, which does not take place according to the regulations and standards in force in the country of installation.

Where present, the symbol of the crossed-out wheeled bin indicates that the equipment, at the end of its useful life, must be disposed of separately from household waste.
This product must be handed over to the waste collection point in your local community for recycling.
For more information, please contact the waste collection authority in your country.
Inappropriate waste disposal could have negative effects on the environment and on human health due to potentially hazardous substances.

By cooperating in the proper disposal of this product, you contribute to the reuse, recycling and recovery of the product, and to the protection of our environment.

13. Warranty terms and conditions

To view the “Warranty Terms and Conditions” offered by ZCS Azzurro, please refer to the documentation inside the product box and on the website www.zcsazzurro.com.

14. Appendix A – Wallbox settings

Registration of the wallbox on the Connext System via the app must be carried out with the wallbox switched on and set to Plug&Play operating mode.

Wallbox settings can be changed using the front keypad.

Figure 65 - Control keypad

1) Press the Confirm/Enter key for at least 10 seconds
2) The page shown in the figure below appears; use the Next, Back and Confirm/Enter keys to enter your password. Password: 123456

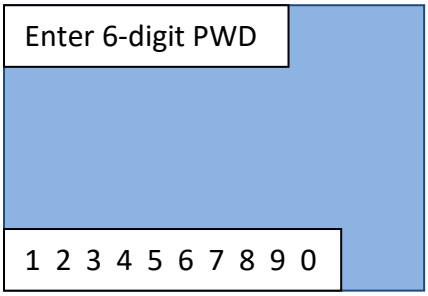


Figure 66 - Password entry screen

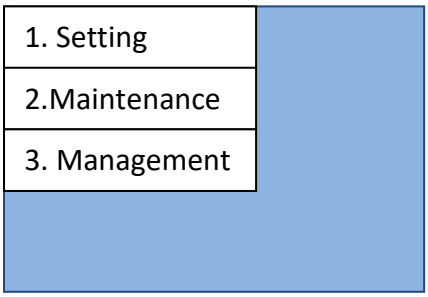


Figure 67 - Main configuration screen

3) From the screen in the figure below, select point '1. Settings', and press the Confirm/Enter key. Wait for the page in Figure 68 to appear.

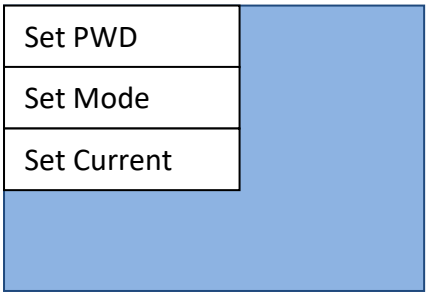
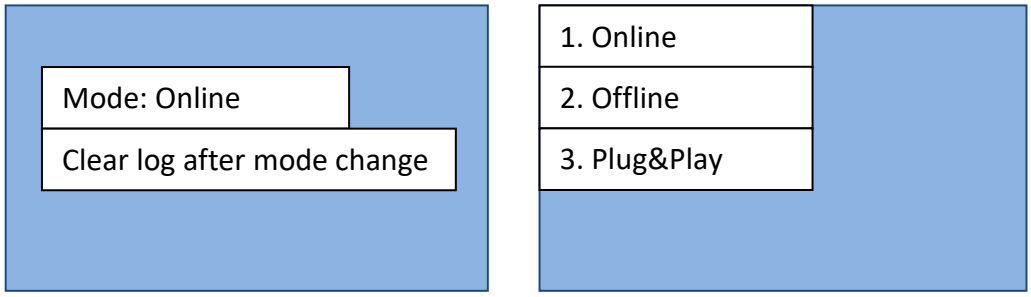


Figure 68 - Password setting, Mode of Use and Power configuration screen

4) To set the mode of use, select 'Set Mode' from the screen shown in the Figure, two screens (Figure 69 -a and Figure 69 -b) will open in sequence within a few seconds of each other. Wait until the screen in Figure 69 -b appears, then proceed to select the working mode



(a) (b)

Figure 69 - Screen for setting working mode

5) Select the desired working mode, i.e. **Plug&Play** – just plug in the car to automatically start the charging cycle. Wait 120 sec for the setting to become active, then switch the device off and on again.

Using RFID cards

After completing the system configuration on the app, you can configure the wallbox to use RFID cards.

1) In the screen shown in Figure 68, select the "Offline" working mode and press Confirm/Start. Wait 120 sec for the setting to become active, then switch the device off and on again.

2) From the screen in Figure 68, select item '3. Management' and press Confirm/Enter. Wait for the page in Figure 70 to appear.

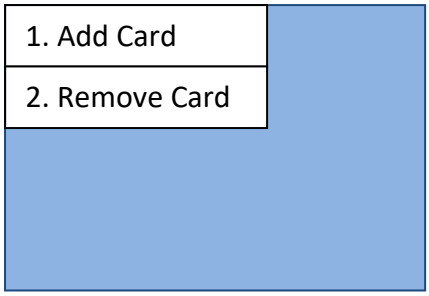


Figure 70 - RFID card control screen

3) To add charge-enabling cards, select '1. Add Card' and place the RFID card in front of the symbol below.

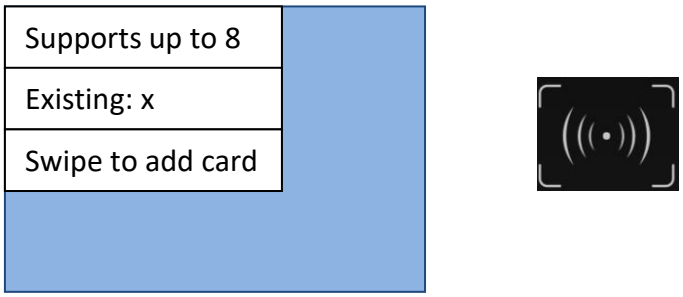


Figure 71 - Add card screen

Up to 8 RFID cards can be registered. The same card can be used to register more than one wallbox.

15. Appendix B – Meter settings

The power cables for phases R, S, T and the neutral cable (N) are connected to the meter via pints 2, 5, 8 and 10, respectively. The CTs for measuring the current are connected:

- R-phase measurement with the terminals connected to PIN 1 (red wire) and PIN 3 (black wire).
- S-phase measurement with the terminals connected to PIN 4 (red wire) and PIN 6 (black wire).
- T-phase measurement with the terminals connected to PIN 7 (red wire) and PIN 9 (black wire).

Position the sensors according to the direction on the sensor (arrow).

ATTENTION: attach the CT sensors to the phases only after they have been connected to the Meter.

Connect the Meter and Connext via the RS485 serial port. On the Meter side, this port is identified by PINs 24 and 25, on the Connext System by PINs 9 and 10, respectively.

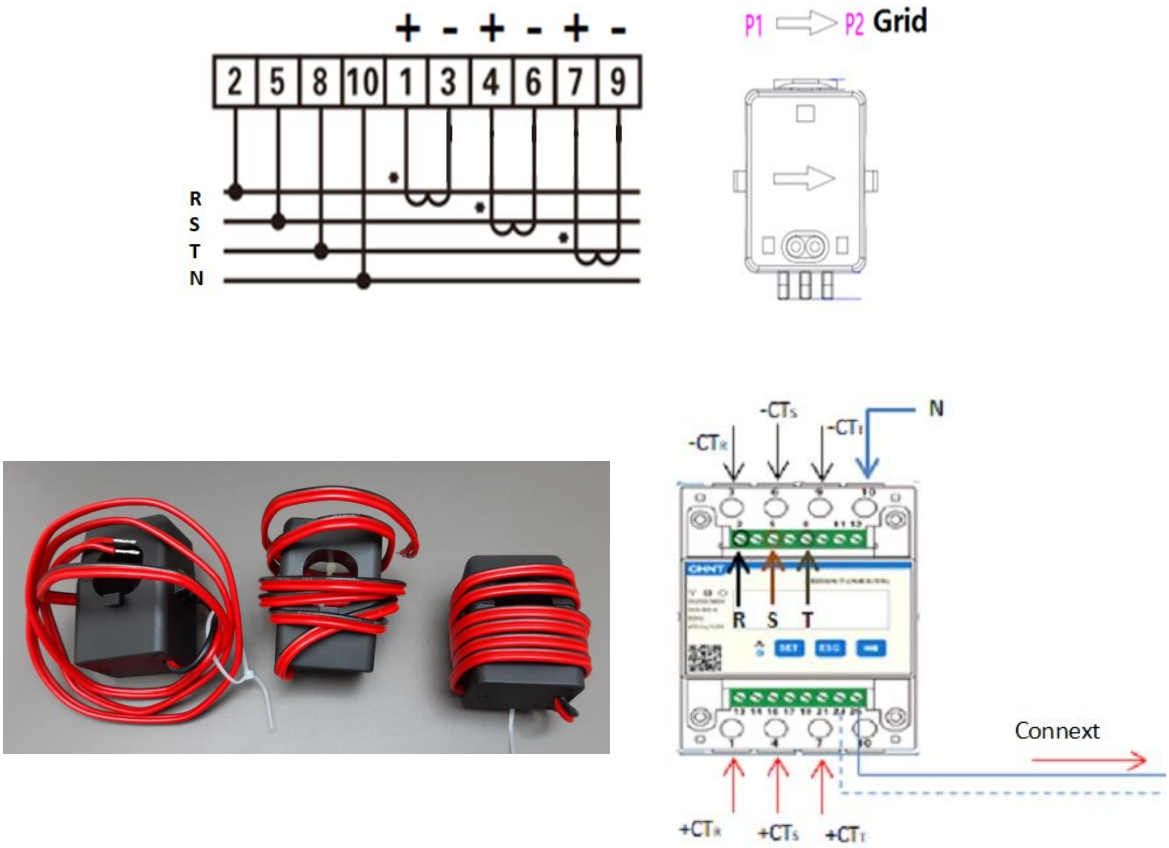


Figure 72 - Meter connections

1. Press to:
   - "Confirm"
   - "Move cursor" (to enter digit)
2. Press to "go back"
3. Press to "add"

Figure 89 - Meter Legend

Meter configuration

To configure the device in read mode, enter the settings menu as shown below:

1. Press **SET** and the word **CODE** will appear

2. Press **SET** again and "600" will appear:

3. Enter the number "701":
   a. From the first screen where the number "60<u>0</u>" appears, press the "→" key once to write the number "60<u>1</u>".
   b. Press "**SET**" twice to move the cursor left, highlighting "<u>6</u>01";
   c. Press the "→" key once more to write the number "<u>7</u>01"

Note: In case of error, press “ESC” and then “SET” again to reset the required code.

4. Confirm by pressing **SET** until you enter the settings menu.
5. Enter the following menus and set the parameters indicated:
   a. **CT**:
      i. Press **SET** to enter the menu
      ii. Write “40”:
         1. From the first screen where the number “1” appears, press the ”→” key several times until the number “10” is written.
         2. Press “**SET**” once to move the cursor left, highlighting “10”
         3. Press the “→” key several times to write the number “40”

         Note: In case of error, press “SET” until the number relating to thousands is highlighted and then press “→” until only the number “1” appears;
         at this point repeat the above procedure.

      i. Press “ESC” to confirm and “→” to scroll to the next setting.

   b. **ADDRESS**:
      i. Press **SET** to enter the menu:
      ii. Write “**32**” (by pressing “→” once from screen “01”).

iii. Press “ESC” to confirm.