CITYSì
ARREDO URBANO / URBAN DESIGN

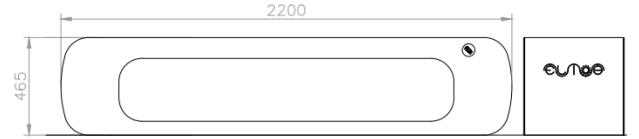
SMART BENCH

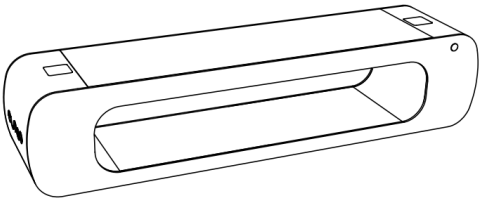
INSTRUCTIONS MANUAL

VERSION 1.1 - 2025

TECHNICAL SPECIFICATIONS

TECHNICAL DRAWINGS





FEATURES

- Dimensions: 2200 x 570 x 465 mm
- Structure consisting of two laser-cut and curved front plates, with two laser-cut side closure plates assembled in carpentry with each other.
- Seat composed of 8mm clear tempered glass monoblock in black monocrystalline photovoltaic cells, with total power 170 W, inserted inside a core welded into the structure
- AISI 304 stainless steel hardware
- Standard exterior frame available in galvanized steel and painted in light ivory (RAL 1015) or brown (RAL 8019)
- Front and back structure also available in colors:

  Light ivory (RAL 1015)
  Grey brown (RAL 8019)
  Pure white (RAL 9010)
  Telegray (RAL 7046)
  Anthracite gray (RAL 7016)
  Signal yellow (RAL 1003)
  Flame red (RAL 3000)
  Telemagenta (RAL 4010)
  Gentian blue (RAL 5010)
  Yellow green (RAL 6018)

COMPONENT SHEET

- MPPT 75V 15A solar charge controller with maximum power point tracking technology, with significantly increased efficiency in cold or temperate climates and partial shade situations compared to more standard PWM controllers
- 170W 12V monocrystalline photovoltaic panel with high-efficiency monocrystalline cells
- Cooling system with three axial blowers with a flow rate of 80 m3/h each
- 4 USB fast charging ports (Qualcomm Quick Charge 3.0, Type USB-A + USB-C) with electrical protections
- 2 Qi 15/20W wireless chargers under the seating surface
- RGB LED night lighting with multicolor light scenes that can be configured from the cloud portal
- AGM Super Cycle 100Ah batteries, available in both lead-acid and lithium-ion technology (for hybrid model: 50 Ah for Lt battery, 60 Ah for Pb battery) ideal for a high number of discharge cycles (over 4000), with estimated average life of 7-10 years
- Monitoring and management connectivity via Wi-Fi network

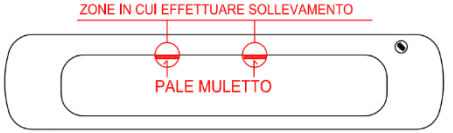
OPTIONAL

- Additional two ports for rapid USB charging (Qualcomm Quick Charge 3.0, Type USB-A + USB-C) with electrical protections
- Hybrid variant: equipped with 230V mains connection and 60 Ah battery (50 Ah if lithium) in case of locations with low sun exposure
- System management and monitoring via 4G network
- Ability to request a public network service provider to set up a hotspot network with access portal and connection policy (4G version only).
- 150W heating system based on six heat tapes (IP67 rated) with dedicated power supply (24V 200W)

INSTALLING THE BENCH

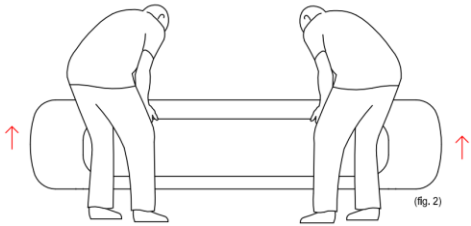
HANDLING

Lifting with forklift: fork the bench with the paddles in the middle part, taking care to protect it at the point of contact (fig. 1)



(fig. 1)

Lifting by hand: lift the bench by grasping it in the middle part paying attention to the microperforated sheet metal panel placed inside (fig. 2).



(fig. 2)

Be careful not to turn the bench upside down to avoid damaging the components

GROUND FIXING

To carry out the fixing of the bench to the floor by dowels, open the two side doors located in the part below the seat.

(fig.3)

The bench will have four drilled plates internally, two on each side. Drill at the holes and insert the dowels, then tighten them with a wrench.

Flat installation of the bench is recommended. In case of installation of the bench on unpaved areas or on a lawn, it is advisable to make a cement basement of the size of the bench, which ensure a greater

mechanical tightness of the same, greater protection from the possible entry of insects and small animals into the interior of the same, while also preventing the possible rise of excessive moisture that could affect the proper functioning.

CONNECTION TO THE POWER GRID (only Hybrid version)

Required cables:

-Power supply 230V-50Hz: protected upstream by 6A differential circuit breaker with properly sized FG1616OR16 cable.

-Grounding: not less than FS17 10mm2

Procedure:

1. Using the security key supplied with the bench, open the hatch from the side opposite to where the bench has the “ELIOS” logo on the outer side border.
2. Using a hydraulic compression tool, apply the supplied lug M99999 to the cable coming from the earth electrode.
3. Screw the lug onto the prepared hole with the M9999 screw provided.
4. Open the watertight control box by unscrewing the four screws at the ends of it.
5. Feed the power cable inside the switchboard from the prepared grommet and tighten it.
6. Remove the outer insulation sheath of the cable for about 10cm.
7. Attach insulated collar tube terminals (according to DIN 46228/4) to the three conductors.
8. Loosen the upper terminal block of the main switch and the upper screw of the ground terminal (5mm flat screwdriver).
9. Insert the phase and neutral wires into the main switch and the grounding wire into the ground terminal.

10. Tighten the upper terminal block of the main switch and the upper screw of the ground terminal (5mm flat screwdriver).
11. Close the watertight switchboard by tightening the four screws at the ends of it.
12. Replace the side door and close the lock with the safety key supplied with the bench.

CLOUD CONNECTION – MPPT MODULE
(only Full Wi-Fi version)

1. Download the VictronConnect app from the Google Play Store or AppStore
2. Open the app: a short tutorial will be shown and you will be asked for permissions to geolocate and use Bluetooth. Turn on Bluetooth and search for devices.
3. Click on “Bench SN:xxx.” In case you find two different devices with this name, click on the one with the description “Generic Venus device”. If prompted, enter pin 000000.
4. Click the Settings icon in the upper right corner, then on Network.
5. Select the Wi-Fi network to which the bench will be connected and enter the password.
6. Now the device should be visible on the Victron VRM portal, the operation of which will be explained later.

CLOUD CONNECTION – LED MODULE
(only Full Wi-Fi version)

The LED module has already been configured for you: you only need to enter your Wi-Fi network data to make the device work properly. To connect the LED module to your Wi-Fi network follow this procedure:

1. Download the Shelly Smart Control application from the Google Play Store or AppStore and log in with the credentials we have provided you with.

2. Set up a temporary Wi-Fi hotspot (such as your smartphone's Wi-Fi hotspot) with the following credentials:

   Network name: **assistenza** Password: **elios1234**

3. The LED module, after some time, will automatically connect to the newly created temporary network. To verify proper operation, try turning the LED on and off from the homepage of the Shelly Smart Control app.

4. Now you can connect the LED module to the final network: from the Shelly Smart Control app, click on the device and then on the "Network" tab, then select "Wi-Fi 2," click "Enable" and enter the SSID and password of the Wi-Fi network to which the bench is to connect, taking care to respect upper and lower case in both, then save.

5. Turn off the temporary hotspot from the smartphone, then wait a few minutes for the LED module to connect to the final network.

6. Verify the correct connection of the LED module by turning it on and then off from the homepage of the Shelly Smart Control app. If there are any problems, check that you have entered your Wi-Fi credentials correctly and that there is sufficient network coverage in your area.

Only in case the device needs to be reconfigured because of malfunctions and technical support is not sufficient to solve the problem, follow this procedure:

1. Delete the malfunctioning device from the Shelly Cloud portal: from the device list, select the device to be deleted, then click on the "Settings" tab and then click on "Delete."
2. Reset the Shelly device by opening the electronic box on the bench and clicking the reset button on the LED module (yellow).
3. Download the Shelly Smart Control app from the Google Play Store or AppStore and log in with the credentials we provided.
4. Connect your smartphone to the Wi-Fi network to which the bench will be connected.
5. Click the "+" button, then on "Add new device."
6. Follow the wizard, if prompted select the Wi-Fi network mentioned above and then select the device to pair, which will have a name like "shelly-xxxx".
7. Set the name and room of the device.
8. Log in to the Shelly Cloud portal, the device should now be visible on your dashboard or in My Home -> All Devices. The operation of the portal will be explained later.

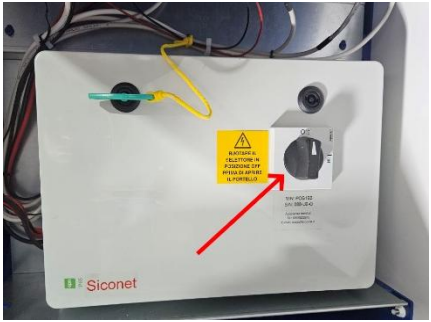
N.B. To function, the LED module requires connection to the internet without which it will be unusable. In case of momentary absence of the network, even prolonged for a few days, the device can store the last commands received (e.g., scheduled power on at a certain time) and repeat them at the correct time. However, without a network connection it will not be possible to control the device, except through a specially created temporary Wi-Fi network (as done during setup). Note that without a connection some features (e.g., power on at sunset) may be unusable.

MAINTENANCE

PRECAUTIONS

Any intervention involving the opening of the bench must be carried out knowledgeably and always after turning off the bench's power supply.

Power to the bench is turned off through the electrical panel inside one of the two flaps located under the seat.

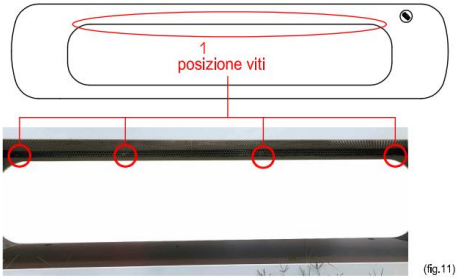


Any changes to the original configuration of the bench not explicitly authorized by the manufacturer may invalidate the equipment's compliance with legal requirements for safety and electromagnetic compatibility.

When carrying out work inside the electronic panel, it is advisable to use antistatic devices to avoid electrostatic discharge damage.

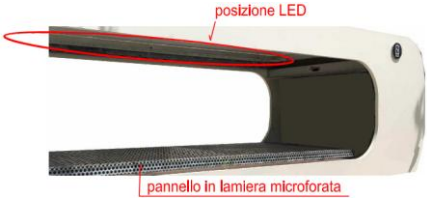
LED STRIP REPLACEMENT

After turning off the power, as mentioned in the previous paragraph, unscrew the screws inside the seat



(fig.11)

Remove the micro-perforated sheet metal panel in order to access the area where the LEDs are located to perform replacement or maintenance



ELECTRONIC PANEL OPERATIONS

Opening procedure:

1. Using the security key supplied with the bench, open the hatch from the side where the bench has the “ELIOS” logo on the outer side border.
2. Move the switch to the OFF position (NB: It is not possible to open the panel if this operation has not been done first, since the switch is equipped with a door lock)
3. Using the green-colored latch contained in the compartment, open the two locks by turning the key toward the inside of the switchboard.
4. Gently open the door downward, avoiding letting water, dust, animals and other objects enter the box.

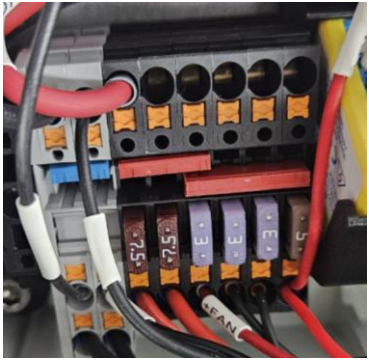
Closing procedure:

1. Gently close the door by applying light pressure to the middle part of the door, then using the green-colored security latch contained in the compartment close the two locks by turning the latch toward the outer side of the panel.
2. If you want to turn the bench back on, move the switch to the ON position.
3. Reposition the side door and close the lock with the safety key supplied with the bench.

FUSES REPLACEMENT

Electronic panel fuses: blade type, standard size (ATO)

1. Using the safety key supplied with the bench open both side doors.
2. Turn off the main switch contained inside the switchboard located in the battery side.
3. Move the switch located in the side containing the electronic panel to the OFF position.
4. Open the cap of the in-line fuse holder containing the damaged fuse (which can be checked with a multimeter) and replace it with an identical one.
5. Close the fuse holder again, making sure it is sealed properly.
6. Move the stop control to the ON position and turn on the main switch.
7. Reposition the side doors and close the locks with the safety key supplied with the bench.



Photovoltaic panel fuse: photovoltaic fuse, 10x38mm, 10 A

1. Using the safety key supplied with the bench open both side doors.
2. Move the switch located in the side containing the electronic panel to the OFF position.
3. Following the cable with positive polarity coming from the solar panel locate the in-line fuse holder (shown in the figure) and disconnect it.
4. Open the fuse holder and replace the fuse with an identical one.
5. Close the fuse holder again, making sure it seals properly, and reconnect it to the connector from which it was removed.
6. Move the switch to the ON position.
7. Reposition the side doors and close the locks with the safety key supplied with the bench.

SIM CARD REPLACEMENT
(only for Full LTE version)

You must use an unlocked SIM card; the device is not compatible with PIN-coded SIM cards. If you have a PIN-coded SIM card, you must unlock it before inserting it into the 4G module.

1. Perform the procedure named “Opening electronic panel”.
2. Locate the 4G module (located on the bottom DIN rail, black in color).
3. Remove the old SIM card, noting its placement.
4. Insert the new SIM card, taking care to position it the same way as the old one.
5. Perform the procedure named “Closing electronic panel”.
6. Wait a few minutes to allow the modem to reconfigure itself.

WI-FI NETWORK REPLACEMENT
(only for Full Wi-Fi version)

MPPT: you can replace the Wi-Fi network used by the device directly from the VRM portal. Proceed to the Remote Console tab as shown in the VRM portal instructions (given on the following pages), then click on Settings. Repeatedly press the down arrow to the Wi-Fi tab, then click the middle button. Select the new Wi-Fi network and enter the password to start the connection procedure.

LED Module: After selecting the device whose network you want to change on the cloud portal, access tab 9 (Network), which allows you to change Wi-Fi-related settings. The LED control module allows you to save two different Wi-Fi networks, connecting to the first of the two it detects available.

To change the network currently in use, enter SSID and password in the Wi-Fi tab 2. Check the data before saving and enabling.

These maneuvers permanently disconnect the device from the previous network. Therefore, an error in password entry or a malfunction will result in the need to reconfigure the network manually. Being in proximity of the device, follow the procedures outlined in the section “Connecting in the cloud”

INSTRUCTIONS

VRM PORTAL – SOLAR PANEL MANAGEMENT

(only Full version)

Access the online portal at https://vrm.victronenergy.com/login using the credentials provided by the manufacturer

On the "*My Installations*" page you should see all the devices associated with your account. The page is customizable using the *Table Adjustments* button, next to the *Add* button.

The menu on the left shows all the devices. By clicking *Back*, in the *Preferences* tab you can change some settings (including language) and in the *Manual* tab you will find additional instructions for using the portal.

Clicking on one of the devices in "*My Installations*" provides more information and controls:

The *Dashboard* tab contains information about the solar charging module and battery. At the top right, the status indicator shows the last connection to the device (set to send statistics to the server every 15 minutes). If there is no connection or no power, the device is programmed to retry the connection to the server as soon as possible.

The *Advanced* tab shows detailed information about the MPPT controller. Statistics can be filtered by period by clicking on the time filter. The page can be customized using the *Widget* button in the upper right corner

The *Settings* tab allows you to change some device parameters. Pay attention to the default settings, as changing them may lead to malfunctions.

Do not change the VRM Portal ID: it is associated with the RPi communication module, and changing it would lead to permanent disconnection of the device from the cloud portal.

The *Remote Console* tab allows direct control of the MPPT module. Use this function carefully to avoid malfunctions.

VICTRON APP – SOLAR PANEL MANAGEMENT
(only for Basic version)

To manage the settings of the solar charging module, the VictronConnect application can be used

1. Download and open the smartphone application “VictronConnect”
2. Provide the required permissions
3. Turn on Bluetooth and, among the devices detected on the VictronConnect app, click on the MPPT device. If prompted, enter pin 000000.

Once the device is connected, the app will show detailed information regarding the battery, load and solar panel. It also allows you to change some settings, presented here: pay attention to the parameters that are varied, as they may affect the proper functioning of the system.

LED module management: the MPPT module independently controls the LED module based on sunrise and sunset detection. The module is programmed to turn on the LEDs at sunset and keep them on for four hours to preserve proper battery operation and avoid battery malfunction. The parameters can be changed in the *Settings* menu (top right), then clicking on “*Streetlight*” and then on “*At sunset*”.

Load management: the MPPT module dynamically controls load enablement to keep the battery voltage between 10.8 V and 12.6 V, the optimal range to preserve its functionality. The parameters can be changed in the *Settings* menu (top right), then clicking on "*Load Output*".

SHELLY CLOUD PORTAL – LED MANAGEMENT
(only for Full version)

Access the portal at https://control.shelly.cloud/#/login using the credentials provided. Similarly, you can also control the LED module from the Shelly Smart Control app, available in the Google Play Store and App Store.

In the *Dashboard* tab you can find the devices associated with your account, each showing its status and a button to quickly turn LEDs on or off. In *My Home* you can find group controls to control multiple LEDs at once. The *Energy* tab contains information regarding the current and past consumption of the system.

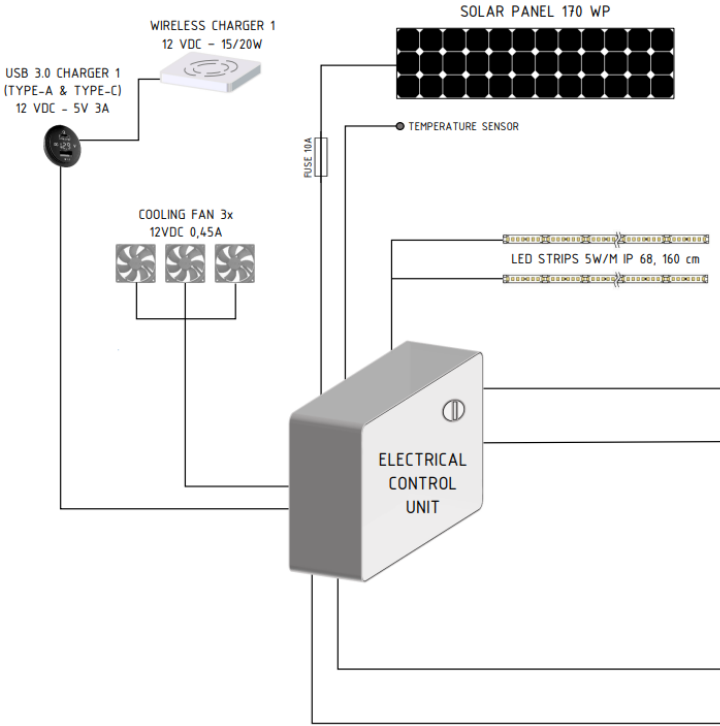
Clicking on one of the devices in the Control Panel will open a menu containing settings related to an individual device:

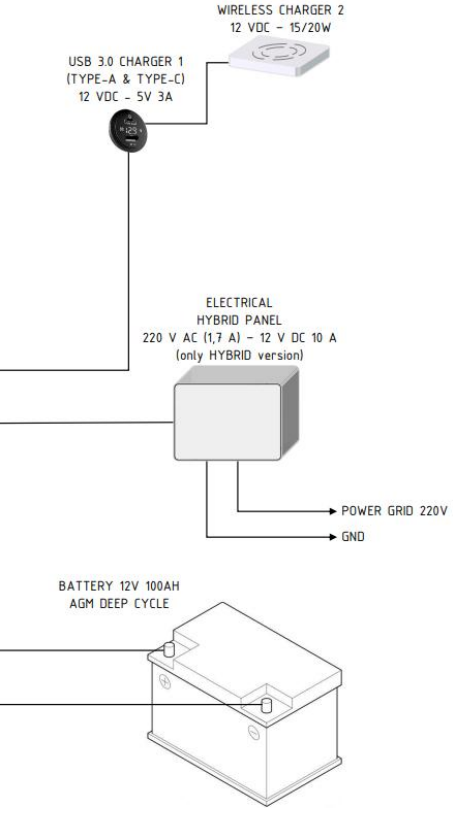
Tabs 1 and 2 (*Control*) allow you to change parameters related to the brightness and color of the LED strips. The last settings saved in these tabs will be the default settings used by the automatic control functions described below.

Tabs 6 and 7 (*Programming*) allow routines to be set up to automatically turn the LEDs on and off. The default program turns the LEDs on at sunset (based on the location obtained from the Wi-Fi network) and turns them off four hours later. To add a new program, click the add button at the bottom of the tab, then follow the instructions by choosing the days to

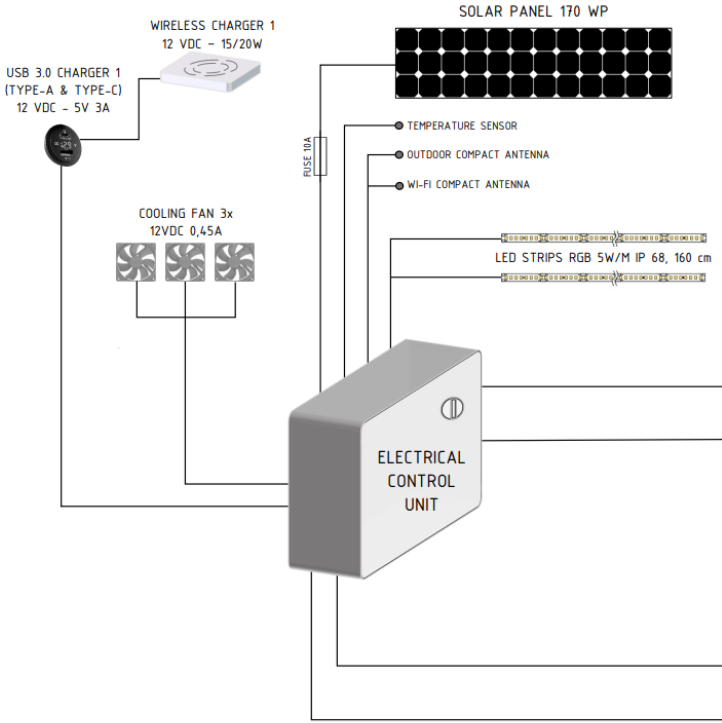
apply the program, the time of application (exact time or linked to sunrise/sunset), and the action to be performed (turn on, turn off, or dim).

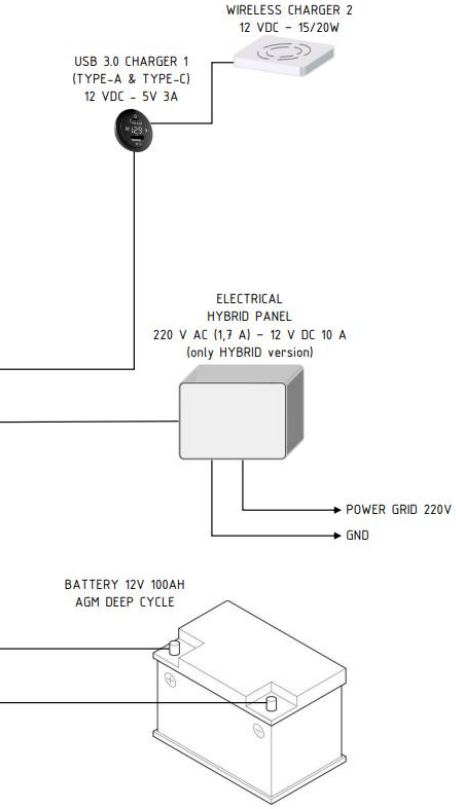
DISTRIBUTION DIAGRAM (BASIC)




WIRELESS CHARGER 2
12 VDC – 15/20W
USB 3.0 CHARGER 1
(TYPE-A & TYPE-C)
12 VDC – 5V 3A
ELECTRICAL
HYBRID PANEL
220 V AC (1,7 A) – 12 V DC 10 A
(only HYBRID version)
POWER GRID 220V
GND
BATTERY 12V 100AH
AGM DEEP CYCLE

DISTRIBUTION DIAGRAM (FULL)




WIRELESS CHARGER 2
12 VDC – 15/20W
USB 3.0 CHARGER 1
(TYPE-A & TYPE-C)
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HYBRID PANEL
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GND
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AGM DEEP CYCLE

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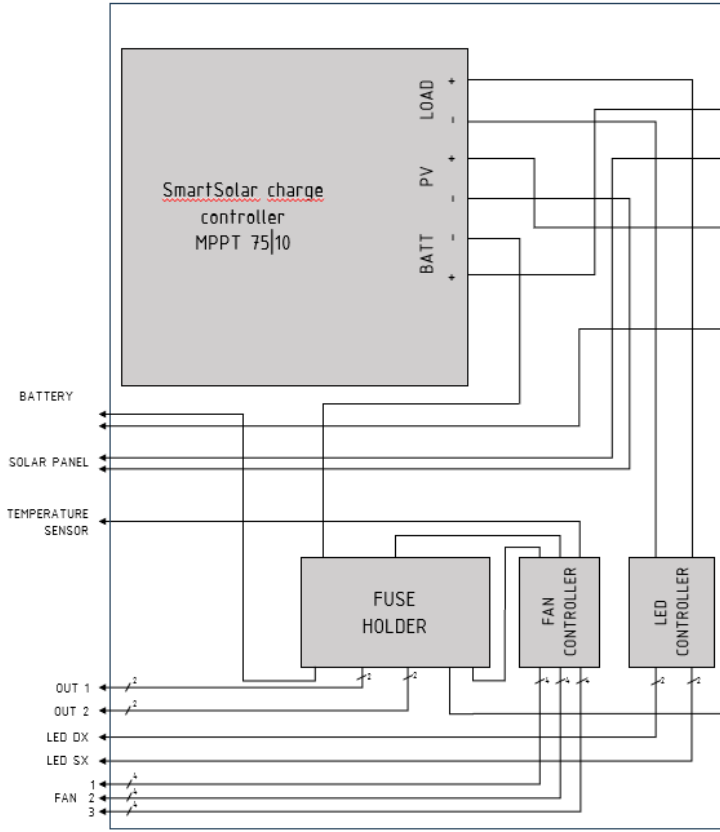
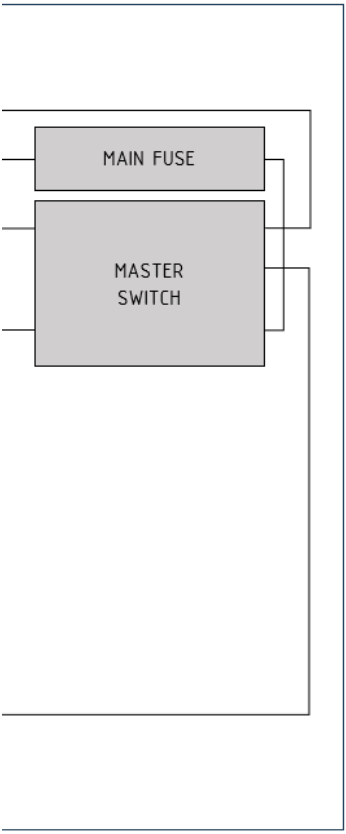
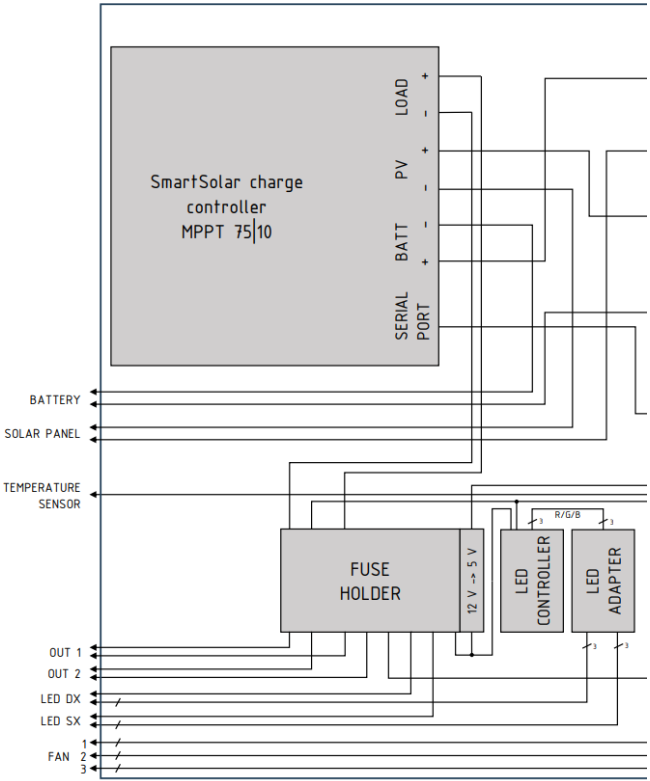
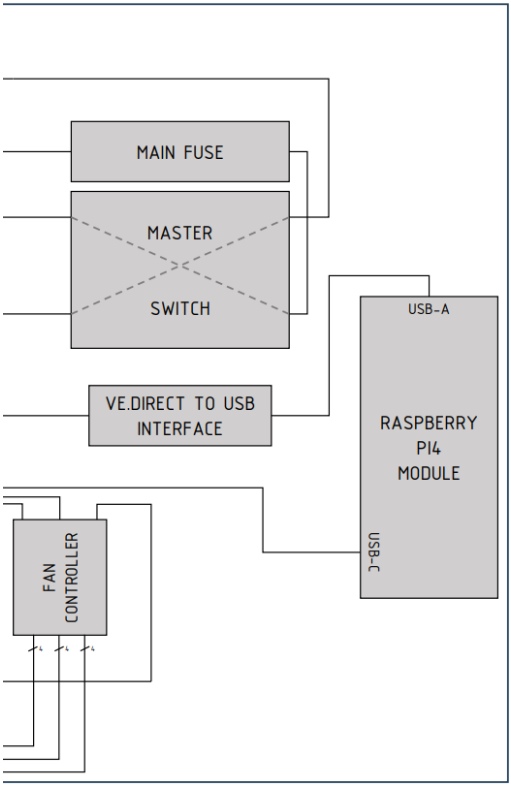


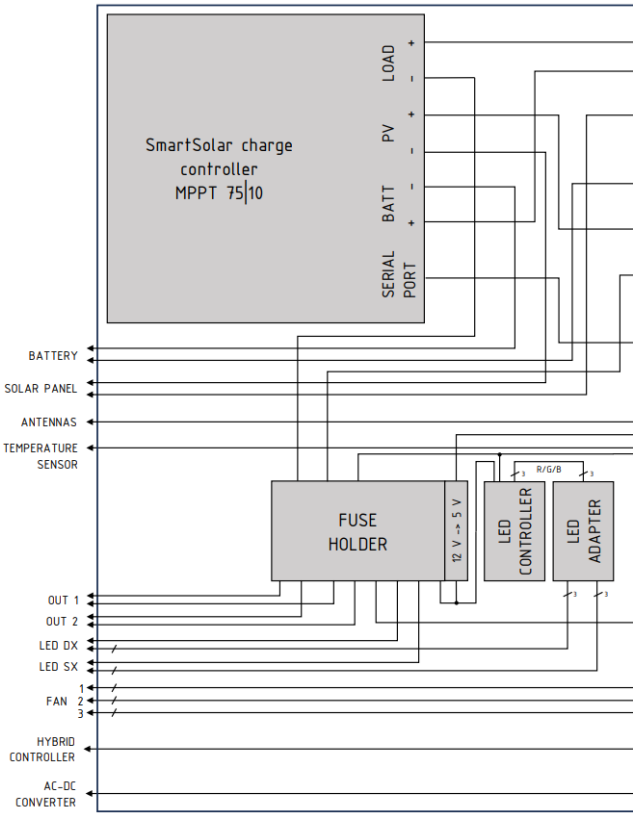

MAIN FUSE
MASTER
SWITCH

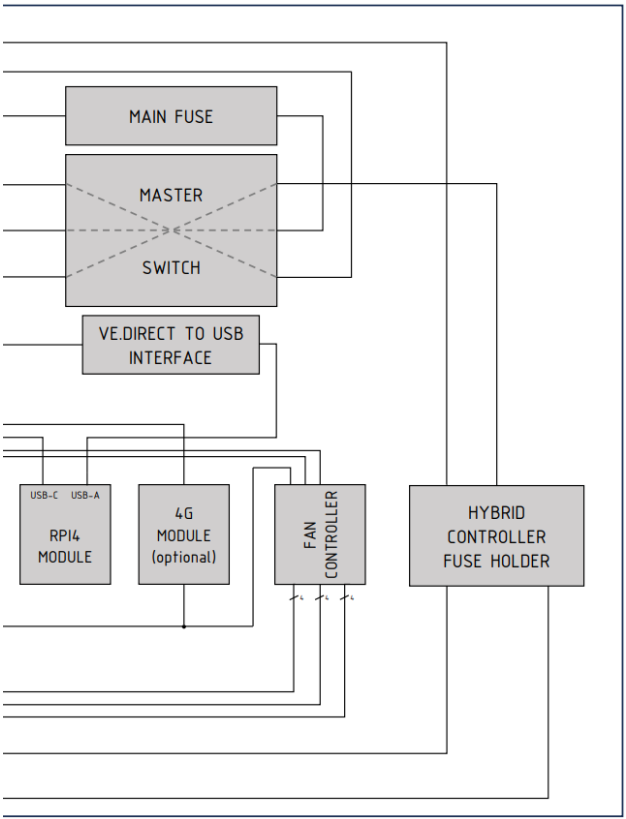
ELECTRONIC DIAGRAM (FULL)




MAIN FUSE
MASTER
SWITCH
VE.DIRECT TO USB
INTERFACE
USB-A
RASPBERRY
PI4
MODULE
USB-C
FAN
CONTROLLER

ELECTRONIC DIAGRAM (HYBRID)




MAIN FUSE
MASTER
SWITCH
VE.DIRECT TO USB
INTERFACE
USB-C
USB-A
RPI4
MODULE
4G
MODULE
(optional)
FAN
CONTROLLER
HYBRID
CONTROLLER
FUSE HOLDER

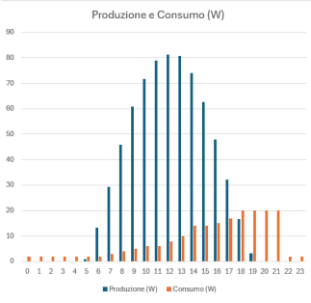
PRODUCTION/CONSUMPTION ESTIMATES

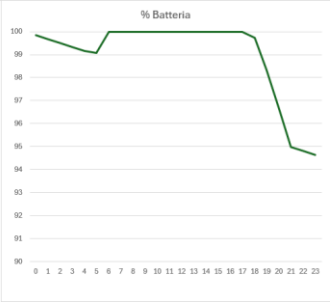
The following pages show estimates of bench production and consumption at different latitudes. Solar irradiance data available from the PVGIS portal were used to produce the graphs. Data from January 2023 (representing winter months) and July 2023 (representing summer months) were used. For consumption data, energy use was estimated relative to the average consumption of the lighting system and wireless/USB charging.

N.B.: The graphs shown are to be considered as a rough estimate that cannot take into account, except statistically, some variables (e.g., intensive use of charging systems, lower solar irradiation due to bad weather or mounting position of the bench, etc.) and therefore may not represent the actual behavior of the bench.

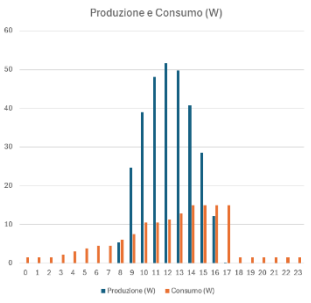
For each scenario, the first graph indicates solar panel production (blue line, W) versus system consumption (orange line, W) during a typical day. The second graph indicates battery level (green line, %) during a typical day.

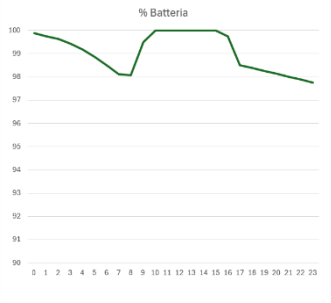
Rome, summer



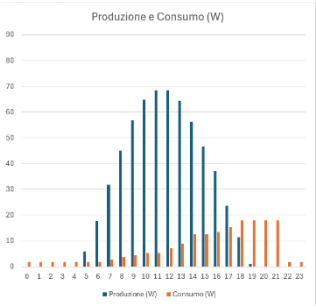


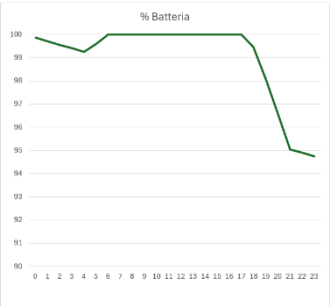
Rome, winter





Budapest, summer





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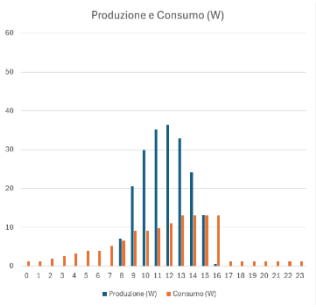
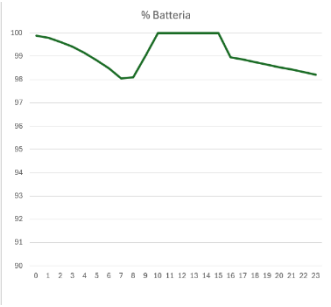
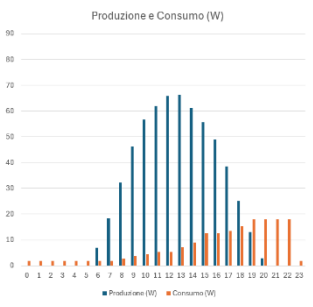
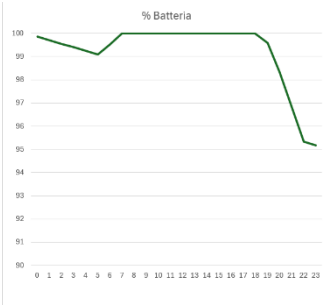




Paris, summer





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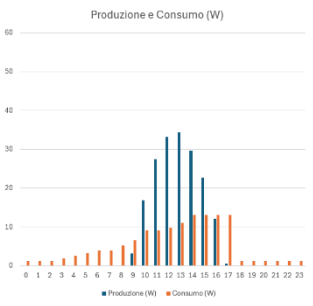
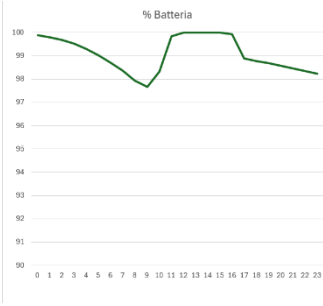
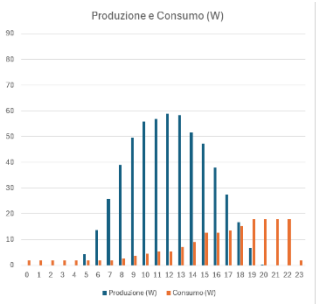
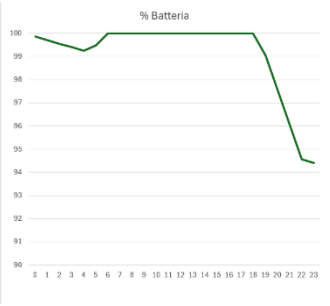


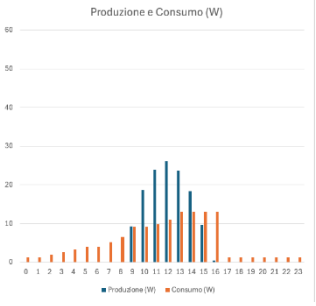


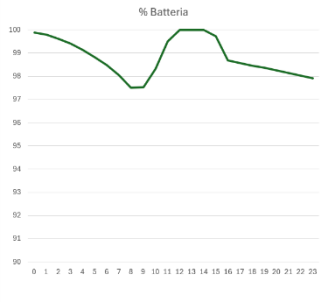
Berlin, summer





Berlin, winter





Siconet
Powering ICT

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DECLARATION OF CONFORMITY
LOW VOLTAGE SWITCHBOARDS ACCORDING TO CEI EN 61439-2

The firm Siconet S.r.l. based in Bari, Lungomare Starita, 62 manufacturer of the switchboard with serial no. 0001 declares, under its own responsibility, that the switchboard described above has been made in a workmanlike manner and in accordance with all the specifications provided for in the CEI EN 61439-2 (2021) standard.

It also declares that it has complied with the selection criteria and assembly instructions indicated in the catalogs and instruction sheets of the components used and that it has not compromised in any way, during assembly or through modifications, the performance of the material used declared in the aforementioned catalogs.

These performances and the verifications carried out thus make it possible to declare the compliance of the framework in question with the following requirements of the standard:

Construction Requirements:
- Robustness of the materials and parts of the switchboard
- Degree of protection
- Air and surface clearances
- Protection against electric shock
- Equipment and component installation
- Internal electrical circuits and connections
- Terminals for external conductors

Performance requirements:
- Dielectric properties
- Overtemperature
- Short-circuit withstand
- Electromagnetic compatibility (EMC)
- Mechanical operation

Finally, we declare, on our own responsibility, that we have carried out all individual tests required by the standard with positive results, namely:

Construction specifications:
- degree of protection of the enclosure;
- air and surface isolation distances;
- protection against electric shock and integrity of protective circuits;
- installation of switchgear and components;
- internal electrical circuits and connections;
- terminals for external conductors;
- mechanical operation.

Performance specifications:
- dielectric properties;
- wiring, performance under operating conditions and functionality.

Bari, 26th February 2024

Vito Colaianni
L'Amministratore Unico

WARRANTY TERMS

Siconet S.r.l. guarantees all installed components for 2 years from the date of delivery to the end customer. The warranty covers the supply of all necessary spare parts, which must be installed by the end customer, who must have an electrical installer to carry out the procedures given in this manual or indicated by Siconet.

The warranty does not cover damage caused by:

- Unauthorized intervention

- Atmospheric discharges

- Inexperience in installation

- Entry of animals inside the circuitry

- Flooding

- Vandalism

- Fires

- Components subject to wear and tear

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