

**USER  
MANUAL  
CHARGING  
STATIONS  
POWER  
MANAGEMENT**

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## GENERAL INFORMATION

- This manual contains warnings and instructions that must be followed for the installation, use and maintenance of the charging station and which must be available for consultation by authorised personnel.
- Station installation and start-up, together with maintenance operations, must be carried out by qualified and specifically authorised personnel in compliance with current safety standards, regulations and legislation.
- The manufacturer of the station shall not be held liable for any damage to persons, animals and/or property resulting from failure to comply with the instructions in this manual.
- Given that improvement is continuous, we reserve the right to make changes to the product and this manual at any time.
- The total or partial reproduction of this manual without the prior consent of Scame Parre S.p.A. is prohibited.

## SAFETY INSTRUCTIONS



**DANGER:** Risk of electrical shock, explosion or electric arcs

- Before performing any operations on the charging station, disconnect the power and use suitable tools to check that the power is disconnected from all parts.
- Before starting up the station, check that the metal structure is grounded by way of the green and yellow earth conductor and protect the power line using an automatic safety device and differential switch coordinated with the grounding system.
- Before connecting the vehicle to the station, make sure it is firmly secured.
- Power cables, sockets and plugs used to connect the vehicle must comply with safety requirements laid down by current legislation.
- It is prohibited to use extension cords to connect the vehicle.
- Failure to comply with safety precautions may cause serious injury and even death.



**CAUTION:** Risk of damaging the station

- Do not touch the printed circuit boards and/or use suitable instruments when accessing components/parts subject to electrostatic discharges.
- If necessary due to the environmental conditions, install devices to protect against atmospheric discharges in the upstream power distribution board (e.g. surge arrester type 2,  $U_p = 1.5 \text{ kV}$ ,  $I_n = 20 \text{ kA}$ ).
- If the station is damaged it should not be installed or used.
- To clean, use a damp cloth or neutral detergent compatible with plastic materials

### **WARRANTY**

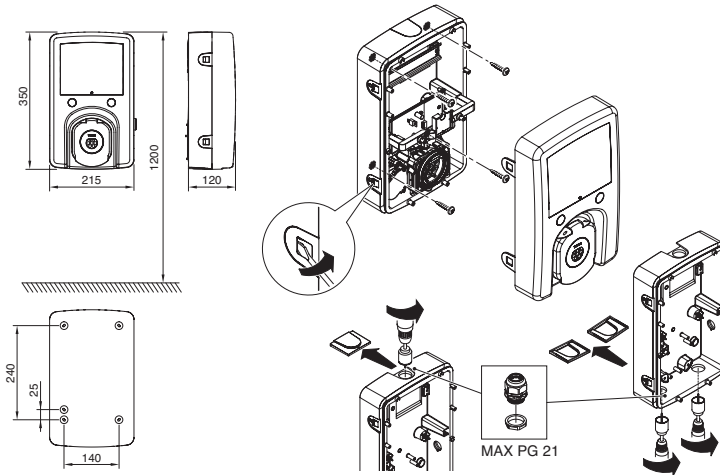
- The charging station referred to by this manual is covered by a two-year manufacturer's warranty in accordance with the Consumer Code (articles 128 and following), which includes reimbursement, necessary repairs or replacement to rectify any manufacturing defects encountered during normal use for a period of 24 months from the date of delivery of the product.
- Any changes made to the station or installations and start-up procedures that do not comply with the instructions in this manual, shall result in the nullification of the warranty and compromise the validity of product certificates.

## ASSEMBLY INSTRUCTIONS

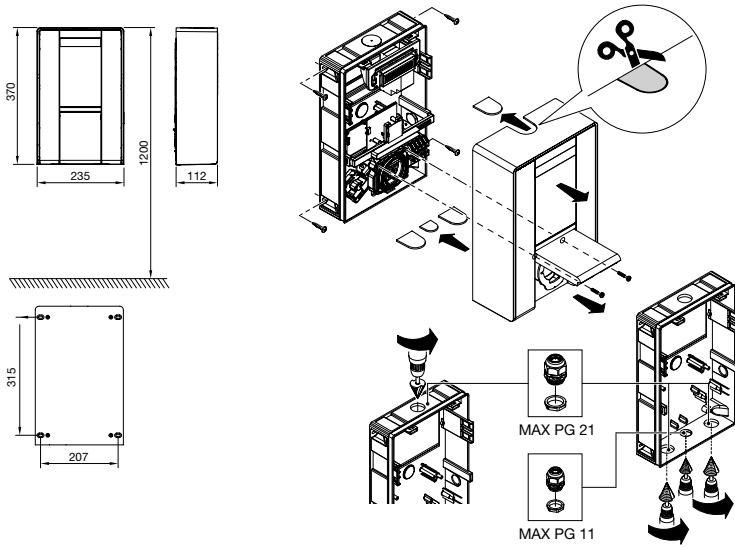
### WALL STATIONS

- Wall charging stations are supplied assembled (base and cover).
- Access the internal compartment by removing the cover or door, drill no.4 holes into the base and secure the station to the wall using no.4 rawlplugs (not included).
- For drilling, follow the measures provided in the instruction sheet (included) with the station.
- Insert the dedicated screw caps to create a double insulated enclosure.

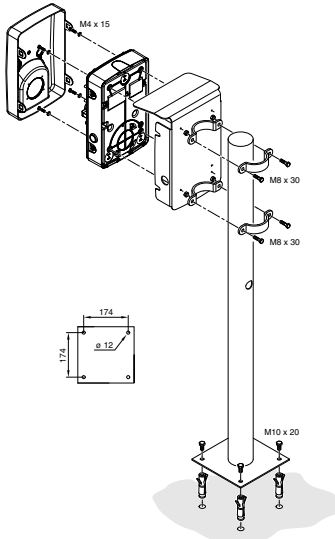
### WB WallBox



## BE-W WallBox



## POLE STATIONS (optional)



- Anchor the pole to the floor using no.4 rawlplugs (not included) and secure the plate to the pole using the supplied collars.
- Anchor the station using the same procedure as for the wall assembly, using the pre-drilled holes in the plate.
- Insert the dedicated screw caps to create a double insulated enclosure.

## CABLING INSTRUCTIONS

### SYSTEM REQUIREMENTS

- Check the following electrical values:
  - ◇ Grounding system: TT, TN(S), TN(C),
  - ◇ Phase to phase voltage (L-L): between 380 and 400Vac inclusive
  - ◇ Phase to neutral voltage (L-N): between 220 and 230Vac inclusive
  - ◇ Neutral to ground voltage (N-PE): less than 5Vac
  - ◇ Frequency (f): 50 or 60Hz
  - ◇ Ground resistance (Rt): less than 150Ω
  - ◇ Total Harmonic Distortion (THD): less than 8%
- Values different to those indicated may influence vehicle behaviour and compromise its charging.

### POWER LINE

- Develop the power line using wires gauge suited to the load.

Power (kW)	Voltage (Vac)	Current (A)	Wire gauge (mm <sup>2</sup> )	Max. length (m)
3.5	230	16	3G4	50
7	230	32	3G6	40

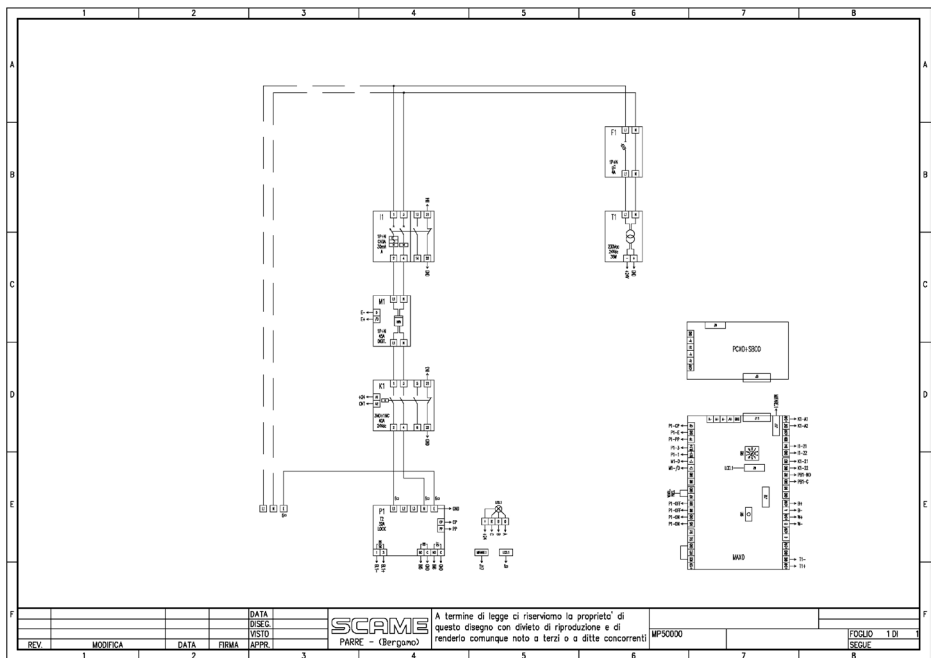
Values determined considering type FG7OR 0.6/1kV wires and voltage drop < 4%.

The designer of the electrical system is the only person responsible for the sizing of the power line.

# USER MANUAL POWER MANAGEMENT

- The stations are designed with spaces in which to insert the cable: drilling and assembling cable glands as indicated in the instruction sheet (included).
- The stations have terminal blocks to connect the cable: connect the phase, neutral and earth conductors as indicated in the wiring diagram attached (included).

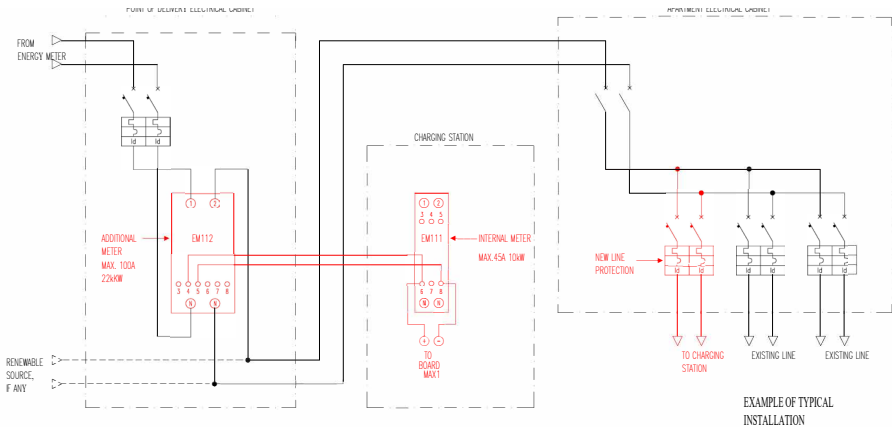
## WIRING DIAGRAM EXEMPLE





## ADDITIONAL ENERGY METER

Compared to the standard version, this station is supplied with an additional energy meter to be installed and connected as follows:



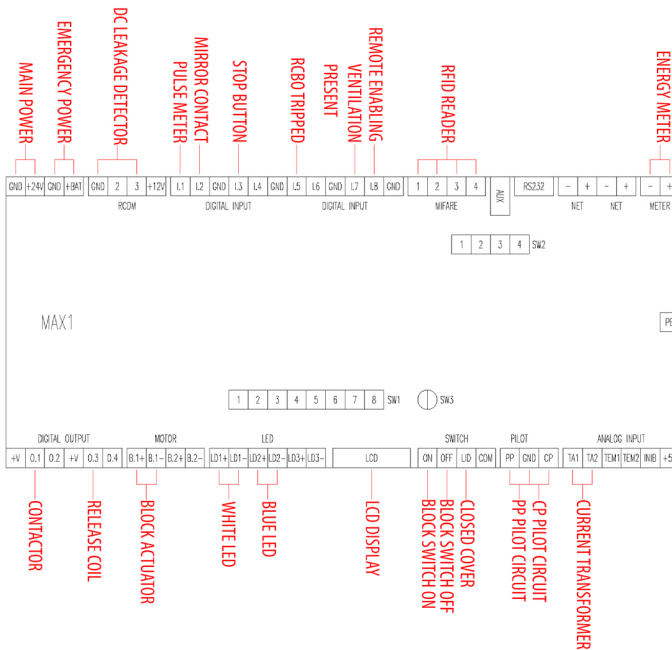
### Notes:

- Install the additional energy meter immediately downstream of the energy meter and main switch.
- Connect the additional energy meter with internal energy meter by shielded cable (e.g. Belden 9841 or CAT5-CAT6 type).
- Connect terminal "4" of the additional energy meter to terminal "6" of the internal energy meter.
- Connect terminal "5" of the additional energy meter to terminal "8" of the internal energy meter.
- The address of the additional energy meter is set to 2 by default (see instruction sheet EM112).
- The type of measurement of the additional energy meter is set to b by default (see instruction sheet EM112).

# USER MANUAL POWER MANAGEMENT

- In case of no communication with the additional energy meter, the station blocks charging, the white LED turns off and the display shows the message: Addit.ENERGY METER OUT OF ORDER.
- The maximum current supported by the additional energy meter is 100A (22kW).

## CONTROLLER BOARD



MAX1: charging station controller board.

SW1: dip switches to change operating mode

- 1: on 2: off -> free mode.
- 1: off 2: off -> personal mode.

SW3: maximum current output selector.

- Normally positioned on rated current.
- 0: 6A, 1: 10A, 2: 13A, 3: 16A, 4: 20A, 5: 25A, 6: 32A, 7: 40A, 8: 50A, 9: 63A

IN8-GND: remote enabling contact.

- Connectable with external devices (NA free contact).
- If closed, stops the charging under way or prevents a new charging session.
- If open, resumes the charging under way or allows a new charging session.

IN7-GND: ventilation present contact.

- Connectable with external devices (NA free contact).
- If closed, enables the charging of vehicles that require ventilation.
- If open, prevents the charging of vehicles that require ventilation.

## USER INSTRUCTIONS

### *PRODUCT DESCRIPTION*

Scame charging stations use the mode 3 charging method (as per IEC/EN 61851-1 standard), which involves connecting an electrical or hybrid vehicle to a power network in AC using specific connectors (as per standards IEC/EN 62196-1 and 2).

Depending on the version, the stations can be equipped with:

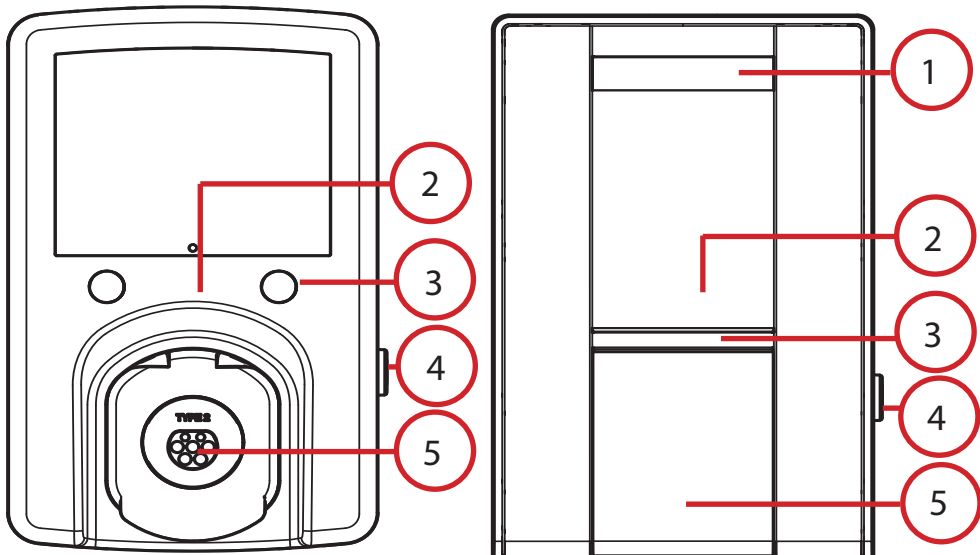
- 1. Display (multilingual).**
- 2. RFID reader (Mifare Classic or Mifare Plus).**
- 3. Led lights (pair or rgb).**
- 4. Button:**
  - Change language (by simply pushing when the charging point is not occupied).
  - Charging interrupted (in free mode only by pushing during a charging session).

## 5. Sockets:

- Movable with cable (e.s. type 1 and type 2).
- Without blocks (e.g. type 3A and UNEL).
- With plug block (e.g. type 2).
- With plug block/cover (e.g. type 3A, type 2 and UNEL).

### Depending on the version, the stations can have this operating modes

- FREE: user identification not necessary.
- PERSONAL: user identification necessary.



## STATION PROGRAMMING

The pre-set contractual power is 3kW; to set different values, proceed as follows:

- Power the electronic board off.
  - ◊ Move dip switch 8 of **SW1** to ON.
  - ◊ Memorise the initial position of the SW3 selector (e.g. 3 = 16A).
- Give the power back to the electronic board.
  - ◊ POWER MANAGEMENT will appear on the display with the pre-set power (3.0kW by default).
  - ◊ The blue LED will blink 1 second for every kW set, and ½ second for 0.5kW (e.g. 3kW = 3 blinks).
- When the white LED is permanently lit:
  - ◊ SYSTEM POWER appears on the display with the value corresponding to the position of the selector (e.g. 3 = 4.5kW).
  - ◊ Move the SW3 selector to the chosen power value (e.g. 5 = 6.0kW).

Position	0	1	2	3	4	5	6	7	8	9
Power (kW)	3	3.5	4	4.5	5	6	7	8	9	10

- ◊ Move dip switch 8 of SW1 to OFF.
- ◊ The blue LED will blink 1 second for every kW set, and ½ second for 0.5kW (e.g. 6kW = 6 blinks).
- When the white LED is permanently ON:
  - ◊ Move the SW3 selector to the initial or chosen position (e.g. 16A = 3).

Position	0	1	2	3	4	5	6	7	8	9
Current (A)	6	10	13	16	20	25	32	32	32	32

- The station is ready to charge.

Notes on minimum charging power:

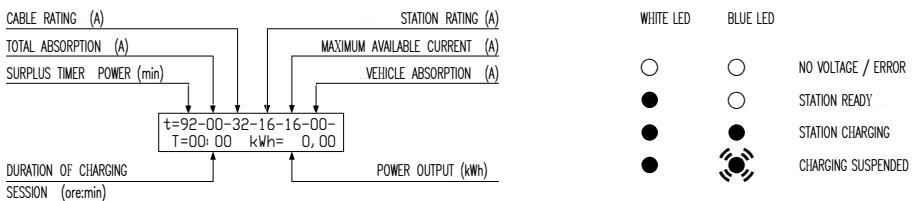
- The pre-set minimum charging power is 1.4kW (6A), which is sufficient for the majority of vehicles on the market (e.g. Nissan Leaf).
- Other electric vehicles currently on the market require greater power (e.g. Renault Zoè); to prevent these vehicles from going into safety lock mode, the minimum charging power can be increased to 2.3kW (10A) by moving dip switch 3 of **SW2** to ON.
- For more information see the technical documentation supplied with your vehicle.

### **OPERATING MODES**

Charging stations with a power management function include dedicated firmware, which automatically limits the power allocated to an electric vehicle charging session based on the user's contractual power and the power used within the home (e.g. washing machine, TV, oven, etc.), thus preventing the meter from unexpectedly tripping.

- Supplying power to the station:
  - ◇ POWER MANAGEMENT will appear on the display with the pre-set power (3.0kW by default).
  - ◇ The blue LED will blink 1 second for every kW set, and ½ second for 0.5kW (e.g. 3kW = 3 blinks).
  - ◇ When the white LED is permanently lit, the station is ready to charge, INSERT PLUG will appear on the display with the current date and time.
  - ◇ If errors are detected during start-up, the white LED will turn off and the display will show the "error" message.
- Insert the plug of the cord-set into the socket of the station, and the connector into the fixed vehicle plug:
  - ◇ If in FREE mode, charging begins.
  - ◇ If in PERSONAL mode, when SHOW CARD appears on the display, put the user card on the RFID reader for a few seconds, then charging will begin.

- During charging:
  - ◇ If the minimum charging power (see note) is not available, the charging session is suspended and INSUFFICIENT POWER will appear on the display.
  - ◇ If the vehicle doesn't need to be charged, the charging session will be suspended and CHARGING SUSPENDED will appear on the display.
  - ◇ If the station is distributing power, the following information will appear on the display:

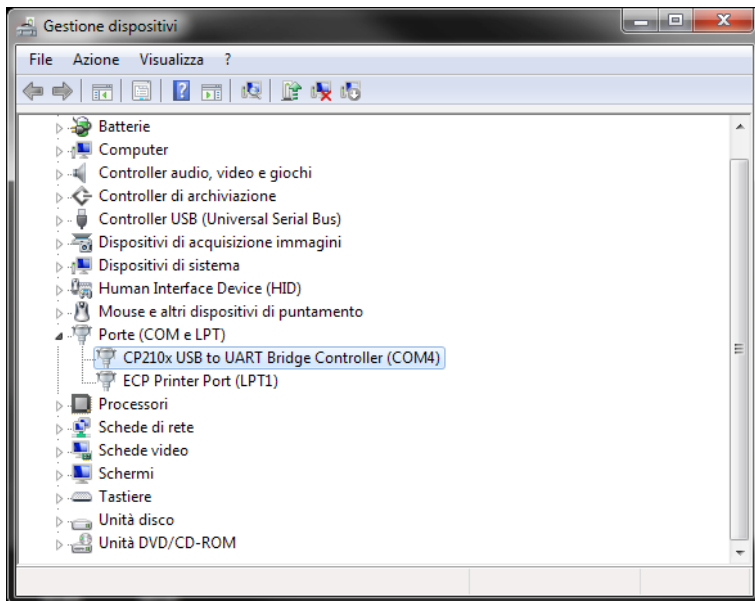


- To stop the charging session:
  - ◇ If in FREE mode, push the stop button or disconnect the vehicle.
  - ◇ If in PERSONAL mode, put place the user card that was used to start the charging session on the RFID reader.

## PROGRAMMER

PROGRAMMER DRIVER - Only for Microsoft Windows Systems

- Before connecting the programmer, download the driver and programmer software 208.PROG from the download area of our website: <https://e-mobility.scame.com>
- Open and extract all the contents of the **.zip** file downloaded in the previous point
- Open the folder **Driver\_ProgrammatoreActive**
- Install the driver **CP210xVCInstaller**
- Once the driver has been correctly installed, insert the USB cable in the programmer and in the computer's USB port and wait for the procedure to finish.
- From the Control Panel -> System -> Device manager, check the COM port number associated with the device CP210x USB to UART Bridge Controller (e.g. COM4).





## PROGRAMMER SOFTWARE

- Run the **SLActive** application (refer to the Readme.txt file in the .zip file to select the correct version).
- From Options -> COM port, set the COM port number associated with the device (e.g. COM4).



## USER INSTRUCTIONS

### USER CARD PROGRAMMER

- Run the **SLActive** application (refer to the Readme.txt file in the .zip file to select the correct version).
- Place the user card on the reader
- Fill in the card code field (mandatory):
  - ◇ This is the card code that will be saved inside the station
  - ◇ 10 hexadecimal numbers of your choice (e.g. AAAAAA00001)

- Insert the number of accesses field (optional):
  - ◇ This is the accumulative number of accesses for which the card is enabled
  - ◇ Numeric value between 1 and 65000
  - ◇ To disable this function, leave the field empty (default)
- Insert an expiry date (optional):
  - ◇ This is the date after which the card will no longer be valid
  - ◇ Day/month/year
  - ◇ To disable this function, leave the field empty (default)
- Click **Write card**



## ***STATION PROGRAMMING***

### **USER CARD PRESENTATION**

- With the station in PERSONAL mode (display: PRESENT CARD)
- Pass the master card on the RFID reader to go to programming (display: SET UP - PRESENT CARD)
- Pass the user card on the RFID reader to be saved in memory (display: SAVED)
- Repeat the operation for additional user cards or wait 20s to exit programming

### **USER CARD DELETION**

- With the station in PERSONAL mode (display: SHOW CARD)
- Pass the master card on the RFID reader to go to programming (display: PRESENT CARD)
- Pass the user card to be removed from memory (display: ALREADY SAVED - DELETE USER?)
- Pass the same user card again to confirm (display: DELETED)
- Repeat the operation for additional user cards or wait 20s to exit programming

## DATE AND TIME SETTINGS

- Through the data cable connect the RS232 gate of the main controller to the PC's COM (otherwise use an USB-COM adapter)
- Execute file **SLSetup\_v1.0**
- Set the computer COM port
- Click **Read** to read the main board configuration
- Set date/time by clicking on the clock icon
- Click **Write** to apply settings

The screenshot shows the 'SLSetup - SerieLIBERA Scame - v1.0' application window. The interface is divided into several sections:

- Settings:** Contains a clock icon, a 'Date:' field with the value '19/03/2019', and a 'Time:' field with the value '14:25:03'.
- Language:** A dropdown menu currently set to 'English'.
- Socket 1:** A section with a checked checkbox and several dropdown menus: 'Socket type' (Type 1), 'Locking type' (None), 'Contactor control' (None), 'Current measure' (No meter), 'Max Curr. M3' (empty), 'Max Curr. M3-S' (empty), and 'Operating mode' (empty).
- Socket 2:** A section with an unchecked checkbox and several dropdown menus: 'Socket type' (Type 1), 'Locking type' (None), 'Contactor control' (None), 'Current measure' (No meter), 'Max Curr. M3' (empty), 'Max Curr. M3-S' (empty), and 'Operating mode' (Simultaneous).
- COM Port:** A dropdown menu set to 'COM3'.
- Interface language:** A dropdown menu set to 'English'.
- Buttons:** Three buttons labeled 'Read', 'Write', and 'Reboot' are located at the bottom right.

## CHANGE MODE

From PERSONAL to FREE:

- Switch off the electronic board
- Set the dip switch (SW1) to ON
- Switch on the electronic board

From FREE to PERSONAL:

- Switch off the electronic board
- Set the dip switch (SW1) to OFF
- Switch on the electronic board

### **PRECAUTIONS**

Compared to the standard version, the modulation of the PWM signal (maximum available current signal transmitted to vehicle) every 30 seconds may cause a variation in charging times:

- If the power used by the home is zero, the vehicle can be charged at the maximum available power;
- If the power used by the home increases, the power allocated to the vehicle is reduced;
- If the power allocated to the vehicle is less than the value of the pre-set minimum charging power, the charging session is suspended due to INSUFFICIENT POWER (blue LED flashes quickly) and automatically resumes once the minimum value is exceeded.

In any case, in order to facilitate charging at the maximum possible power, in accordance with the operating principle of Italian energy meters, the station allows:

- A total consumption no greater than +10% of the contractual power for unlimited periods (e.g.  $\leq 3.3\text{kW}$ ).
- A total consumption no greater than +10% +27% of the contractual power for 90 minutes (e.g.  $\leq 4.2\text{kW}$ ), after which the station allows a total consumption no greater than +10% for another 90 minutes (note: this function can be bypassed by moving dip switch 2 of SW2 to ON).

**CAUTION:** If the contractual power is exceeded by +10% +27%, even if vehicle charging is suspended, the meter will trip within 4 minutes.

## MAINTENANCE

The charging station is basically a distribution panel. The following operations should therefore be carried out by qualified personnel at regular intervals:

- Every six months: check structure and external components and check operation of safety switches.
- Every twelve months: check internal components and ensure tightening of terminals.

## ASSISTANCE

In the case of operating problems, the first person to contact is your qualified electrician.

The Scame customer service centre is available to answer to additional technical queries.

Visit our website: <https://e-mobility.scame.com/>





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