

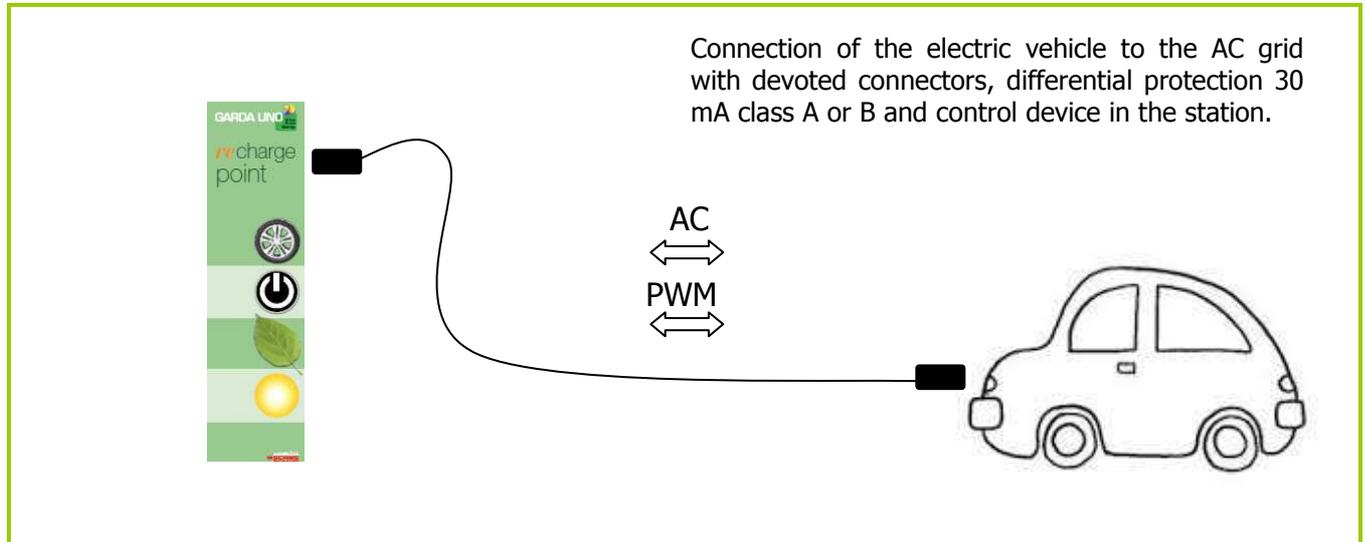


Technical data sheet:
Connection EV- charging column

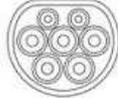


1. MODO 3 connection for charging in a public site

In Italy the AC charging of electric vehicles in a public site is regulated, in agreement with IEC 61851, by the "MODO 3" configuration. A schematic representation is reported here below.



STATION	TYPE 2	TYPE 3A
Circuit	Single phase/3 phase	Single phase
Current	70A (Single phase) 63A (3 phase)	16A
Max voltage	480V	250V
N. of pins	7	4
Connector		

VEICOLO	TYPE 1	TYPE 2
Circuit	Single phase	Single phase/3 phase
Current	32A	70A (Single phase) 63A (3 phase)
Max voltage	250V	480V
N. of pins	5	7
Connector		

The method guarantees the charging of vehicles only if the following safety conditions are satisfied:

- Cable correctly inserted on both sides (charging column and vehicle);
- Unbroken cable, without interruptions and damages;
- Sockets and plugs mechanically blocked from the charging start up till the moment when the owner of the vehicle will voluntarily disconnect the system and stop the charging phase.



2. Connectors



- **TYPE 2**

The connector, even called Mennekes, can be single phase (16A - 3,5 kW) or 3 phase (64A - 42 kW) and is devoted to electric vehicles of more than 3 kW, like autovehicles. It shows a CP contact for the pilot circuit and a PP for the identification of the cable dimension, info needed for a quick charging solution.

- **TYPE 3A**

The connector shape derives from the Scaem IEC309 plugs with a quick Snap-on closure device with the presence of an additional CP contact for the pilot circuit to test the continuity of the protection conductor in compliance with standard CEI 69-6. It can be used only for single phase applications (16A - 3,5 kW) so that it is usually mounted on small size vehicles like scooters and motorcycles.

3. Charging activation

The charging can be activated and stopped using the Mobility Card. The card, belonging to the user and not transferable, uses the RFID technology to identify the user and check the state (authorized, not authorized) and thus authorize/stop the charging process. In order to activate the charging process it is sufficient to approach the card to the reader near the chosen socket. Each user can only connect and disconnect his/her own vehicle and no other can disconnect it from the charging column since the socket-plug device is activated by the system till the card that launched the process again approaches the RFID reader.

On the higher part all charging columns show a luminous terminal divided in two sections: one for the right plug group side and the other for the left plug group side.

The terminal can assume three different colours:

- Green = charging column available
- Light blue = charging phase in progress
- Red = charging column not available.

Data associated to each charging phase are sent to an Analysis Centre managed by Garda Uno SpA, that uses these info for: commercial fulfillments related to transactions, statistical evaluations on the use of the electric vehicle and the implementation of data already collected in order to improve its research and development activities.





- Display for type 2 socket management
- RFID reader for type 2 socket management
- Button for language selection for type 2 socket management
- 3 phase type 2 socket (7 kW) for autovehicles
- Display for type 3A socket management
- RFID reader for type 3A socket management
- Button for language selection for type 3A socket management
- Single phase type 3A socket (3,5 kW) for motorcycles

4. Charging network “100% URBAN GREEN MOBILITY”

There are two types of charging columns uniformly diffused on the Garda territory and belonging to Garda Uno Spa infrastructure:

- **Charging column for autovehicles**

It is a bifacial charging station with two type 2 sockets, one for each side, with a nominal power of 7 kW each. Whenever the autovehicle is able to receive a lower input of electric energy the charging column-



autovehicle system will be able to automatically define the energy delivery and assure a completely safe charging.

- **Charging column for autovehicles and motorcycles**

It is a bifacial charging station with 4 sockets: two of type 2 (higher sockets) and two of type 3A (lower sockets), one for each side. The type 2 sockets are able to supply 7 kW each while the type 3A sockets deliver a maximum power of 3,5 kW. Whenever the autovehicle is able to receive a lower input of electric energy the system charging column -autovehicle will be able to automatically set up the energy supply and assure a completely safe charging phase.

On the Mobility section of Garda Uno SpA website the availability of all charging columns will be monitored in real time thanks to the georeferenced map with the charging stations distributed along the territory where the infrastructure is developed.

5. Anomalies

The charging process can be unintentionally interrupted for the following reasons:

- Lack of electric energy coming from the grid;
- Activation of electric protections by the charging column.

In these cases the user must warn Garda Uno SpA Service Centre calling the green number **800133966**. The operator, if possible, will remotely release the plug; on the contrary, a technician will be sent on site to check and solve the problem.

We thus warn the user that in any case, if the plug is not released by the system, the use of force is strictly forbidden.

6. Contacts

For more info and assistance consider the following contacts:

- Garda Uno SpA Research and Development Office
Via I. Barbieri 20
25080 Padenghe s/G
- Garda Uno SpA website: www.gardauno.it
- Garda Uno SpA Green number:

