

EVA 18 Solutions

Hardware and Software Configurations



EVA 18

Charging Controller

EVA18

The EVA18 board is the most advanced controller for the management of single-phase and three-phase Mode 3 electric vehicle charging stations in compliance with the IEC 61851-1 standard. The card integrates all the functions necessary for charging management and data communication for use both in stand-alone mode and for remote control. The EVA 18 board constitutes a modular hardware and software base, flexible and adaptable to different needs so that it is possible to:

- Configure modular and flexible hardware and software solutions, fully manageable even remotely.
- Create a charging station open to future developments and applications so that the charging point can be adapted without impacting the basic solution.
- Saving in terms of product cost on large quantities and warehouse management, plus it speeds up supplies.

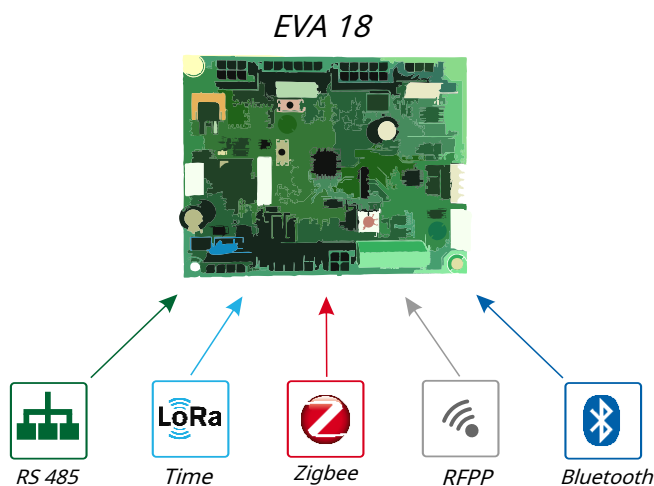
Features

The EVA18 board incorporates all the controls necessary for a correct and complete management of the recharging point.

Checking the single charging port in Mode3	Management of interface with LCD
Power supply 24Vdc and backup battery management	display Management of signaling LEDs
Digital and analogue inputs for diagnostics	Real TimeClockRTC management
Driving output power contactors	485, Zigbee, LoRa, RFPPeBluetooth protocols
Management of digital energy meters	RFID reader management

Hardware configuration

The EVA18 board is designed to accommodate RS 485, Bluetooth, LoRa, Zigbee and RFPP communication modules. This allows for a compact and easy to install solution.



SBC

Expansion Card

SBC

The SBC is a card that manages the communication protocols WiFi, LAN, 3G, Bluetooth and Rs485 and interfaces via serial directly with the EVA18. It is a solution of great interest and with a lot of potential because, in addition to the minimum system characteristics required for the correct functioning of a vehicle charging station, which the card satisfies abundantly, it has a series of advantages deriving from its modularity, its power. of and its expansion capacity.

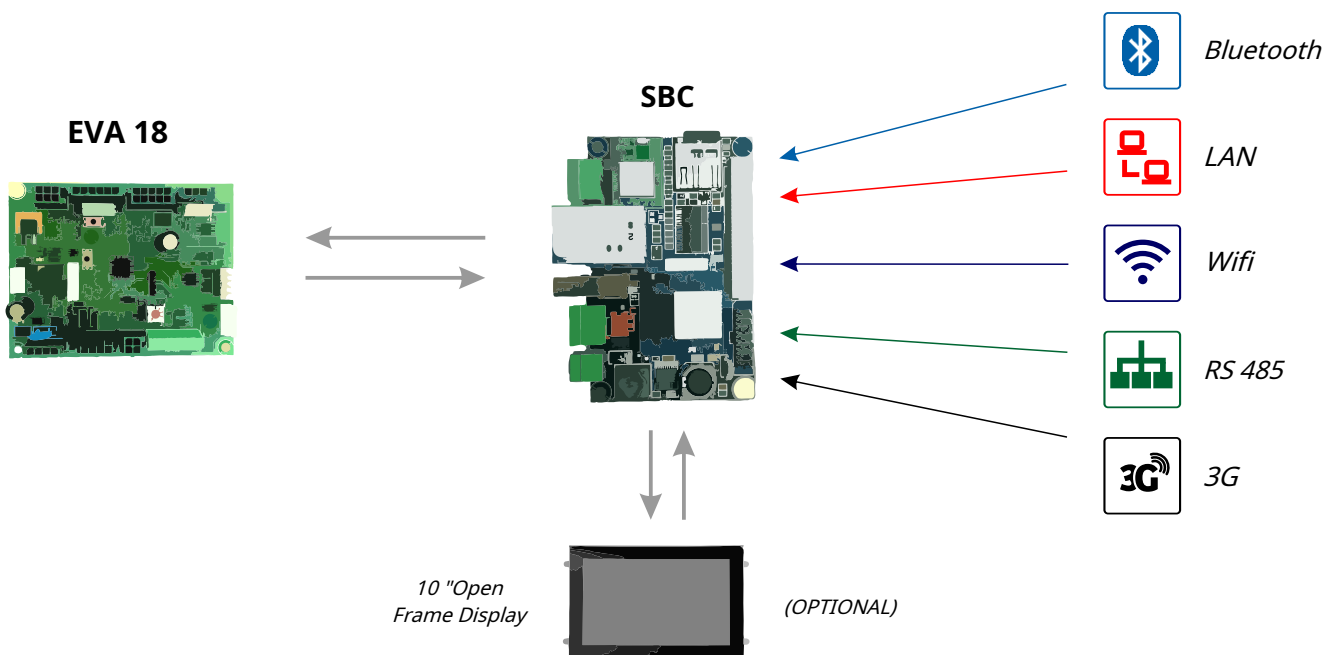
Features

All the main technical characteristics of the SBC board are listed below.

MX6ULL 800MHz processor with 128MB DDR3 RAM	One SD card slot (for operating system)
One 10/100 Ethernet port	Module for WiFi communication
One RS 232 port	Bluetooth communication module
One USB port	UMTS / 3G communication module
One RS 485 port	Temperature sensor and RTC

Hardware configuration

In addition to the modules already present on the EVA18 board, all the expansion potentialities made available by the SBC board are added. An open frame display (optional) for user interface can be added and managed directly from the SBC.



SW CONFIGURATIONS

EVA18 Plug In

The EVA 18 board with its plug-ins is able to perform, in addition to all the services and processes related to the recharging of electric vehicles, as per the CEI / EN 61851-1 standard, also a series of accessory functions that have now become essential for a complete management of the charging point.

POWER MANAGEMENT

The Plug in Power Management allows you to constantly monitor the amount of energy delivered to the recharging point and, in the event of a pre-established limit being exceeded, to limit the current absorbed by the vehicle to avoid the intervention of the protection devices. This plug in can be installed and managed in any HW configuration and is available with 3 working modes:

DPM (Domestic Power Management)

With Domestic Power Management, the recharging point is able to communicate with the home energy meter and know in real time what is the real availability of energy that can be supplied to the vehicle.

LPM (Local Power Management)

Local Power Management is used in environments with multiple charging points installed. In this case the available energy is distributed dynamically, taking into account the set limit, on the sockets used.

RPM (Remote Power Management)

With the Remote Power Management it is possible to remotely monitor, also via the Central Station, the status of the energy consumption of the individual sockets of the station and configure the limit of energy supplied to be distributed to the charging sockets of all the connected points.

PERSONAL

The Plug in Personal is able to manage a user database and to check the credentials for accessing the recharge service both directly on the EVA18 board and on a local server.

LPE (Local Personal)


The Local Personal Plug-in manages a user database, with the relevant access credentials to the recharge service, stored directly inside the EVA18 board.


RPE (Remote Personal)


The Remote Personal Plug in manages a user database, with the relative credentials for accessing the recharging service, stored on a local server that can also be managed remotely.


SECTORS

Thanks to the extreme configuration flexibility of the solutions used with EVA18, it is possible to configure a large number of different scenarios (some examples on the following pages). The functions of the EVA18 and SBC can be used both individually and simultaneously depending on the type of product to be obtained and the devices with which the charging point must communicate. The software plug ins are managed by the EVA 18 in board regardless of the hardware configuration used.

 **HOME** is the sector dedicated to home recharging where the recharging point is managed directly by the individual user and there are no particular connectivity needs.

 **HOTEL** is the sector that encompasses all tourist accommodation facilities such as hotels, spas, B & Bs, restaurants and shopping centers which, among the various services offered, also include the recharging of electric vehicles.

 **PARKING** is the sector inherent to public and private parking areas, paid and free. The recharging service in this sector requires connection to other devices for control and management of the station.

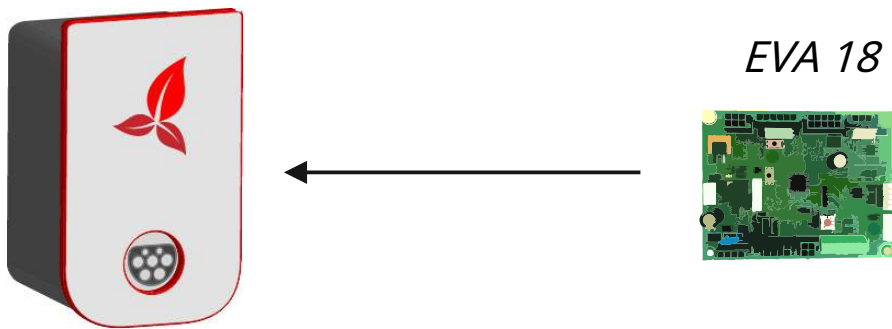
 **BUSINESS** it is the sector that encompasses all the large companies that set up charging stations complete with all the accessory services that favor complete local and remote control of the charging points.

SCENARIOS	SECTORS			
				
Base	✓	✗	✗	✗
Smart	✓	✗	✗	✗
Enterprise	✗	✓	✓	✗
Complete	✗	✓	✓	✓

Base



The basic solution is designed for WallBoxes or columns without intelligence to be installed in small environments where connection to third party devices or remote management is not required. In this configuration, the charging point is used without access control or user management.



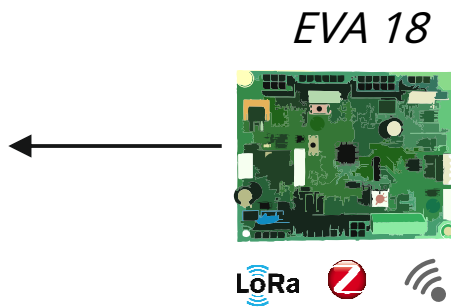
<i>EVA 18 HW modules</i>	<i>Time</i>	<i>ZigBee</i>	<i>RFPP</i>	<i>BT</i>
	✘	✘	✘	✘

<i>EVA 18 Plug In</i>	<i>DPM</i>	<i>LPM</i>	<i>RPM</i>	<i>LPE</i>	<i>RPE</i>
	✘	✘	✘	✘	✘

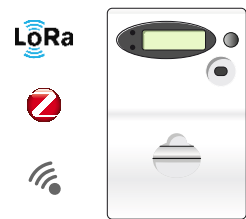
Smart



The smart solution is designed for WallBoxes and Columns to be installed in medium / small environments where connection to other devices is required, such as the electricity meter for monitoring consumption, but not a remote connection for the management or maintenance of the WallBox. .



Connection possible with Zegbee modules, LoRa, RFPP verso the energy meter



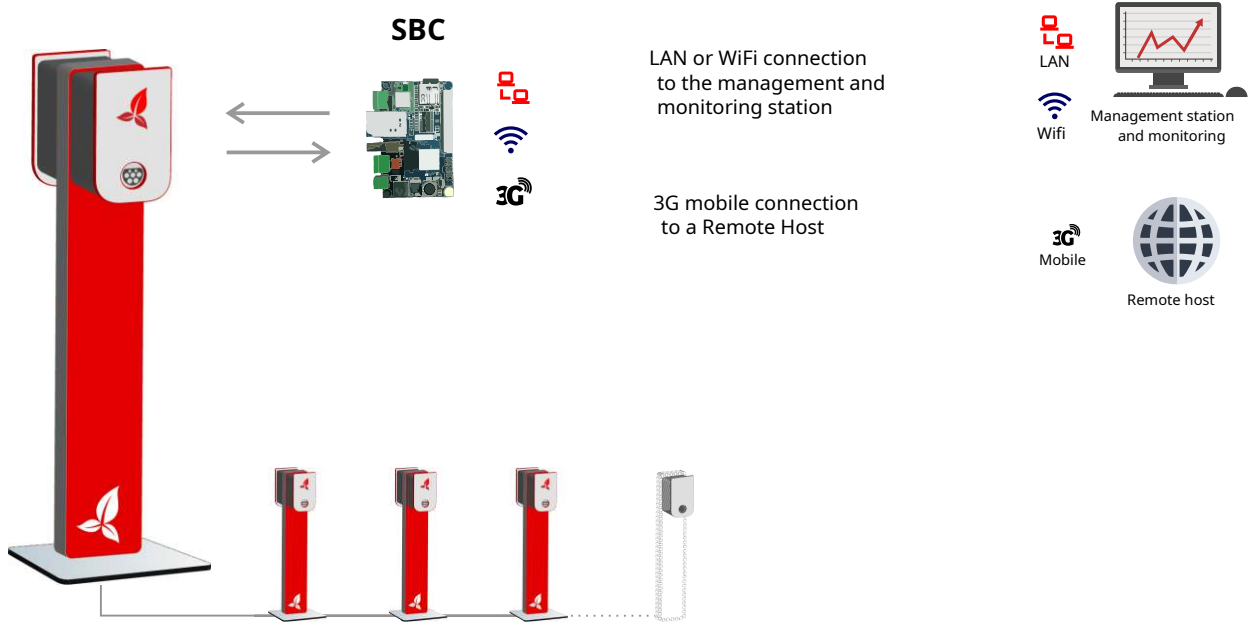
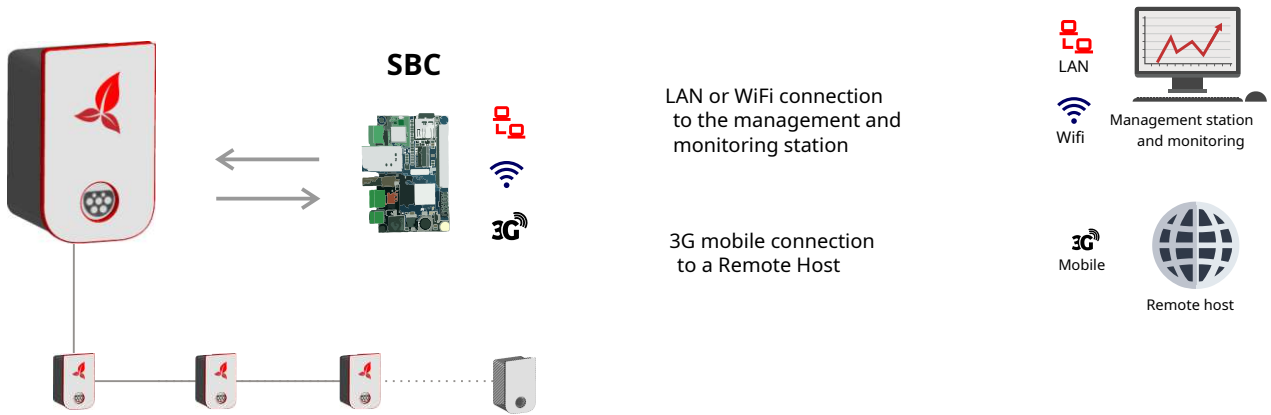
<i>EVA 18</i>	<i>Time</i>	<i>ZigBee</i>	<i>RFPP</i>	<i>BT</i>
<i>HW modules</i>	✓	✓	✓	✗

<i>EVA 18</i>	<i>DPM</i>	<i>LPM</i>	<i>RPM</i>	<i>LPE</i>	<i>RPE</i>
<i>Plug In</i>	✓	✗	✗	✗	✗

Enterprise



The enterprise solution is designed for Columns and WallBoxes to be installed in medium to large environments where the interconnection of all charging points, a 3G mobile connection for a remote host and also a remote connection for management, maintenance and monitoring is required. In this solution, a Master unit, internal or external to the recharging point, manages the power management plug in.



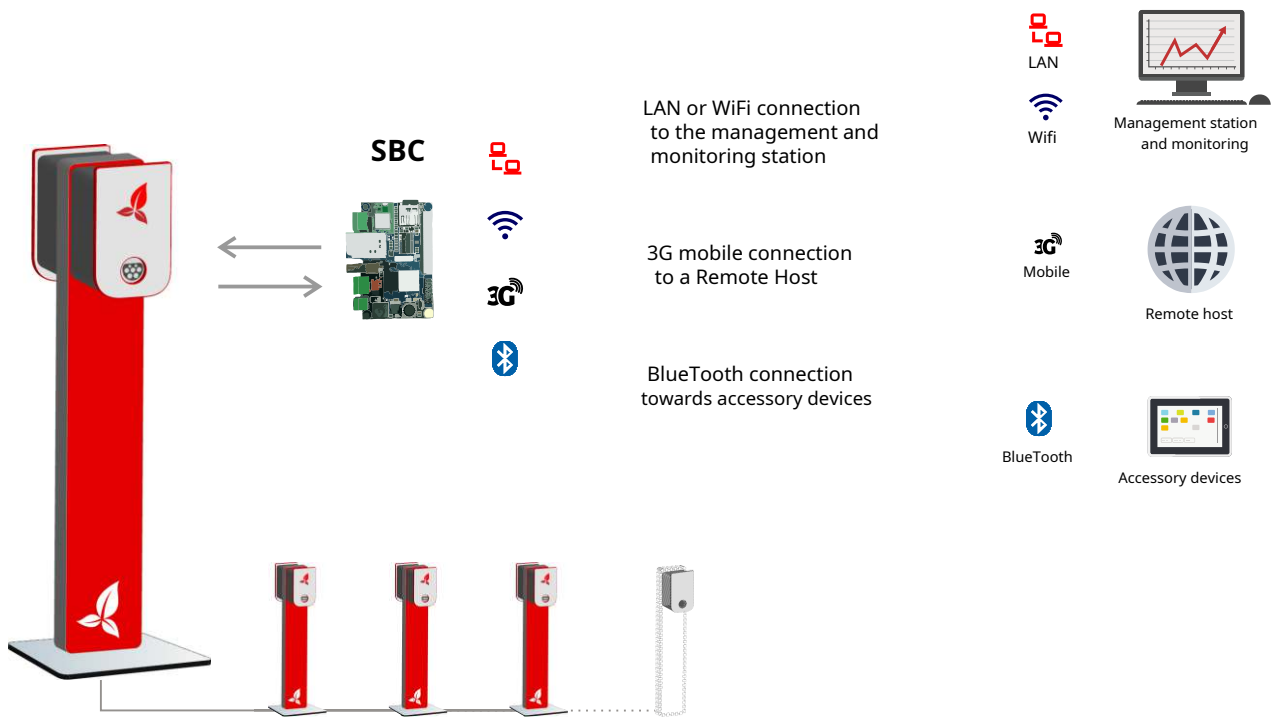
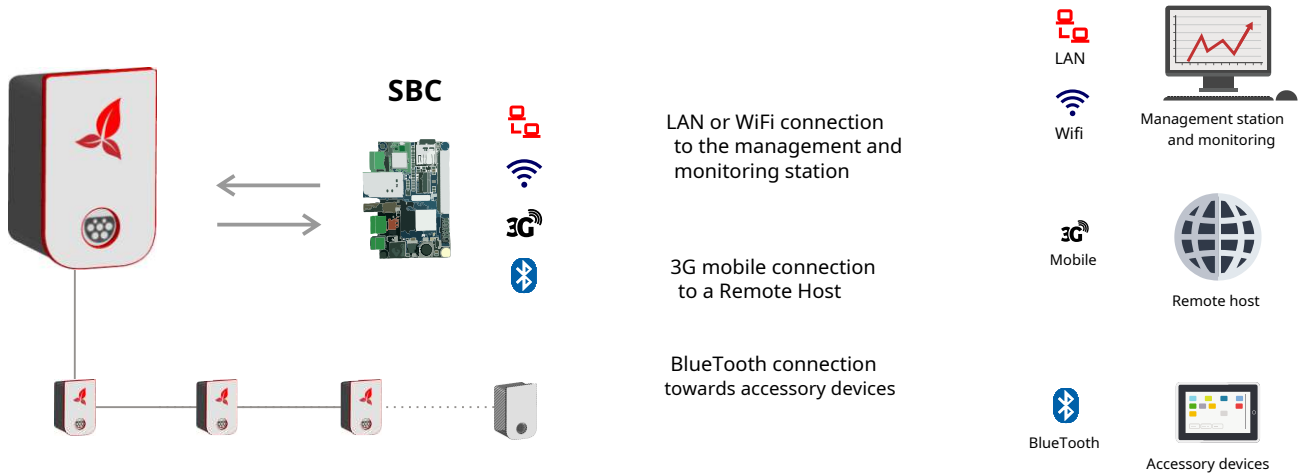
<i>EVA 18 Plug In</i>	<i>DPM</i>	<i>LPM</i>	<i>RPM</i>	<i>LPE</i>	<i>RPE</i>
	✗	✓	✓	✗	✓

SBC HW modules	<i>Bluetooth</i>	<i>LAN</i>	<i>Wifi</i>	<i>3G</i>
	✗	✓	✓	✓

Complete



The complete solution is designed for Columns and WallBoxes to be installed in large environments where all the functions that allow: full management of the charging stations, remote control and maintenance, connection to a Central Station for centralization of authorizations, connection to other devices to promote interoperability.



	DPM	LPM	RPM	LPE	RPE
EVA 18 Plug In	✗	✓	✓	✗	✓

SBC HW modules	Bluetooth	LAN	Wifi	3G
	✓	✓	✓	✓