

Smart Charge Controller for EV Charging Point



Product overview

The Smart Charge Controller is an electronic device which is used in conjunction with an EV charging station.

It measures the grid current and controls the charge current of the EV charging station based on the station's Dynamic Load Balancing function and a chosen charging mode.

It can control any EV charging station that supports Dynamic Load Balancing based on an Modbus RTU or Modbus TCP/IP current meter. The Smart Energy Controller can be used for both, single phase and multi phase installations.

Maximum 3 current transformers can be connected to the Smart Charge Controller to measure the grid current. Or as a device option, the P1 output of a connected grid Smart Meter can be used for grid measurements. Wi-Fi is available to commission the unit and to enable firmware updates when connected to the internet via the home router. The unit is powered by the mains voltage.

The user selects the charging mode via the user interface, which consists of an OLED display and 3 buttons.

Selecting the charging mode by a smartphone app is a roadmap feature. There are charging modes:

- PV only
- PV + 6 A
- Capacity (4-22kW, in steps of 1 kW)

Specifications

Physical Characteristics

- Housing DIN43880, 4 unit
- Weight 142 gr
- Dimensions 90 x 72 x 65 mm

Environmental conditions

- Protection Class II
- Overvoltage category Class II
- Ambient Temperature -10°C ~ 55 °C
- Storage Temperature -20°C ~ 80° C
- Operating Humidity 10%-95%RH (Non-Condensing)
- Storage Humidity 5%-95%RH (Non-Condensing)
- Pollution Degree 2
- Altitude < 2000m
- Application area Residential, Indoors in suitable meter cabinet

Power interface

- Connector Screw terminal connector for N, L1 ② ③ and functional ground ①
- Power rating 230V AC mains < 5W

Modbus RTU interface

- Connector Screw terminal connector for A, B and Shield ⑫...⑭
- Protocol Modbus RTU over RS485
- Max cable length 100 meter
- Cable location Indoor + outdoor

Modbus TCP/IP interface

- Connector RJ-45 ⑪
- Protocol Modbus TCP over Ethernet
- Max cable length 100 meter
- Cable location Indoor + outdoor

Metering Interface

- Connector Screw terminal connectors for max 3 Current Transformers ⑤...⑩
- Measuring principle Current measurement by Current Transformer
- Measurement range 1A ... 80A (if CT ratio = 2000)
- CT ratio Configurable (default = 2000)
- Input impedance 20 Ohm
- Accuracy Typically <5 % at 23 °C
- Max Cable length 1 meter

PI Interface (optional)

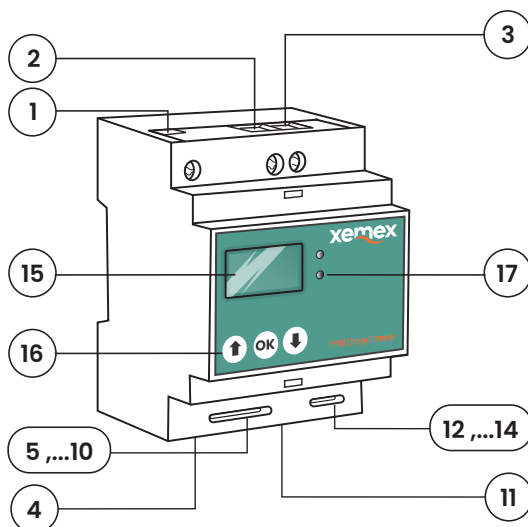
- Connector RJ-11 ④
- Protocol DSMR4 / DSMR5
- Max cable length 3 meter
- Cable location Indoor

GUI interface

- LCD OLED ⁽¹⁵⁾
- Buttons 3 push buttons ⁽¹⁶⁾
- Wi-Fi WEP64/128, AES, WPA, WPA2, WAP 2.4GH
- AP, STA, AP&STA mode
- Encryption modes IEEE 802.11 b/g/n

Standards and certifications RED (2014/53/EU)

- Health & Safety EN 62311, EN 61010-1: 2010 + A1: 2019
- EMC EN 301 489
- Radio EN 300 328 - Wi-Fi 2.4 GHz



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| 1. | Ground connection |
| 2. | 230AC, N connection |
| 3. | 230AC, L1 connection |
| 4. | PI input connection |
| 5,...10 | current transformer connection |
| 11. | Modbus TCP/IP connection |
| 12,...14 | Modbus RJ485/RTU connection |
| 15. | OLED screen |
| 16. | Control buttons |
| 17. | LED indicators |