



Smart Charge Controller

The EPC 3.0 SMART is our most advanced EVSE controller and your gateway to effortless smart EV charging.

It features all the protection mechanisms of EPC 2.0 whilst adding OCPP 1.6j in an industry leading compact form.

EPC 3.0 SMART offers smart charging functionality including load management, user access control and back-office integrations for remote scheduling and energy monitoring.

The load management capabilities, which can be configured both locally and remotely, protect against overcurrent and optimise the power distribution in a multi-charge point system.

The EPC 3.0 SMART EVSE controller is the ideal technology solution for creating a smart EV charge point, whether for domestic or commercial applications.

Direct OCPP Communication

The built in Wi-Fi and OCPP stack allows the EPC 3.0 to communicate with an increasing number of back-office systems easily and gives immediate access to all the features these powerful platforms offer including payments, load management, charge scheduling, and access control. Multiple back-offices systems are already integrated which will simplify establishing a charge point network and keep development costs low

Product Features

- ◆ IEC 61851-1 Mode 3
- ◆ Supports 1 outlet; Socket or tethered cable
- ◆ 35mm DIN rail mount module
- ◆ Solenoid or motor interlock drive
- ◆ Status LED & external LED support
- ◆ RCM support for >6mA DC leakage
- ◆ PEN Loss detection
- ◆ Modbus over RS485
- ◆ Local & remote load management capabilities
- ◆ RFID access control support
- ◆ Overtemperature control (adjustable)
- ◆ 2.4GHz Wi-Fi
- ◆ OCPP 1.6j
- ◆ OTA updates



EPC 3.0 Smart — Extended Datasheet

ELECTRICAL

Power

Power Supply	90 -264 V @ 50 Hz AC
Charging Mode	1 x mode 3 according to IEC61851-1 via IEC62196-2 or SAE J1172 (socket or tethered cable outlets)
Charging Current	6A – 32A (configurable & variable)

Communication

Wireless	Wi-Fi —802.11b/g/n— 2.4GHz
Wired	RS485(Modbus), CT coil, CP, PP, TTL, Lock Feedback, RGB LED
Optical	RGB LED

Compatible Devices

EV Connection	Socket Tethered
RCM	Western Automation RCM14-01 Kemet FG-R05-3A
External LED	External RGB LED output connector (0V active with common 5V)
EV Contactor	Generic contactor support with activation supply on Common input
Aux Contactor	Generic contactor support with activation supply on Common input
Socket Lock	Phoenix Hella PCE 12V Solenoid
RFID	RF Solutions RFID1-13RTTL-3V
Current Monitoring	CT Coil 100A/50mA (2000:1) Modbus MID Meters Carlo Gavazzi (Selected Models)
External Button	Push button, activates selected features

MECHANICAL

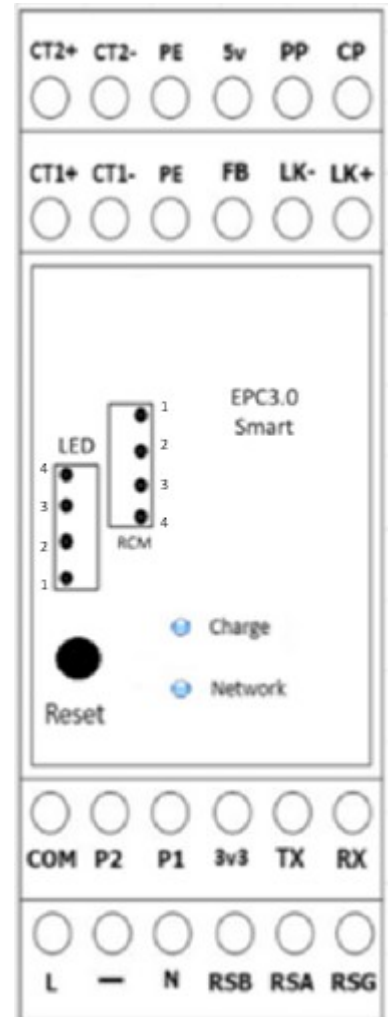
Mechanical

Dimensions	W: 35 mm, H: 91 mm, D: 63mm
Mounting	Standard DIN Rail (35mm)
Enclosure Material	Plastic
Unit weight	150g
Operating Temperature	–25°C to 50°C
User access	None
Colour / finish	White

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Pinouts for Terminals

L (Line)	This is where the AC 'live' or 'line' connection is made (90-264V @ 50Hz AC)*
N (Neutral)	This is where the AC 'neutral' connection is made (90-264V @ 50Hz AC)*
—	Not used
0V (PE)	This is where the Protective Earth (ground) for the RCM and 0V reference voltage connections is made
LK+	Configuration is dependent: • Provides a drive current to continuously energise the solenoid interlock • Provides a drive current to change the motorised interlock state to locked (The signal is activated for 500ms and changes to pulsed 500ms intervals until the lock is engaged. (See LK FB) Rating 12V 300mA
LK-	Configuration is dependent: • Provides a return path for the solenoid interlock drive current LK+. • Provides a drive current to change the motorised interlock state to unlocked (The signal is activated for 500ms and changes to pulsed 500ms intervals until the lock is disengaged. (See LK FB) Rating 12V 300mA
LK FB	Use this terminal if lock feedback has been selected via Web page. For Phoenix and PCE locks connect to FB and PE terminals
COM	Relay 1 & 2 (common) Live from integrated electrical protection or mains terminals
P1	Relay 1 to coil on the EVSE (16A / 32A) Contactor
P2	Relay 2 to coil on the Auxiliary Contactor
PP	(Proximity Pilot) Connection for the IEC61851 / J1772 EVSE Connector (see Proximity)
CP	(Control Pilot) Connection for the IEC61851 / J1772 EVSE Connector (see Pilot Circuit)
5V	Reference voltage
CT1+	Connection for the current transformer 1
CT1-	Connection for the current transformer 1
CT2+	Connection for the current transformer 2
CT2-	Connection for the current transformer 2
3v3	Supply for RFID module / Used for Boost button terminal 1
RX	TTL Communication input for RFID
TX	Used for Boost button terminal 2 (Subject to software configuration)
RSA	RS485 connection available in EPC 3.0
RSB	RS485 connection available in EPC 3.0
RSG	RS485 ground connection available in EPC 3.0



Pinouts for JST Connectors

Charge Status LED

Pin 4	5v Common Anode
Pin 3	RGB Blue
Pin 2	RGB Green
Pin 1 (Bottom)	RGB Red

RCM (6mA)

Pin 1 (Top)	Fault
Pin 2	Test
Pin 3	12v
Pin 4	0v

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EPC 3.0 Wiring Example

Modules:

EVSE Contactor - This is the primary contactor used to supply power to the EV

Aux/PEN Loss Contactor - This is the secondary contactor used in PEN Loss (this is a UK specific function)

CT1— Current Transformer coil used to measure power delivered to the EV

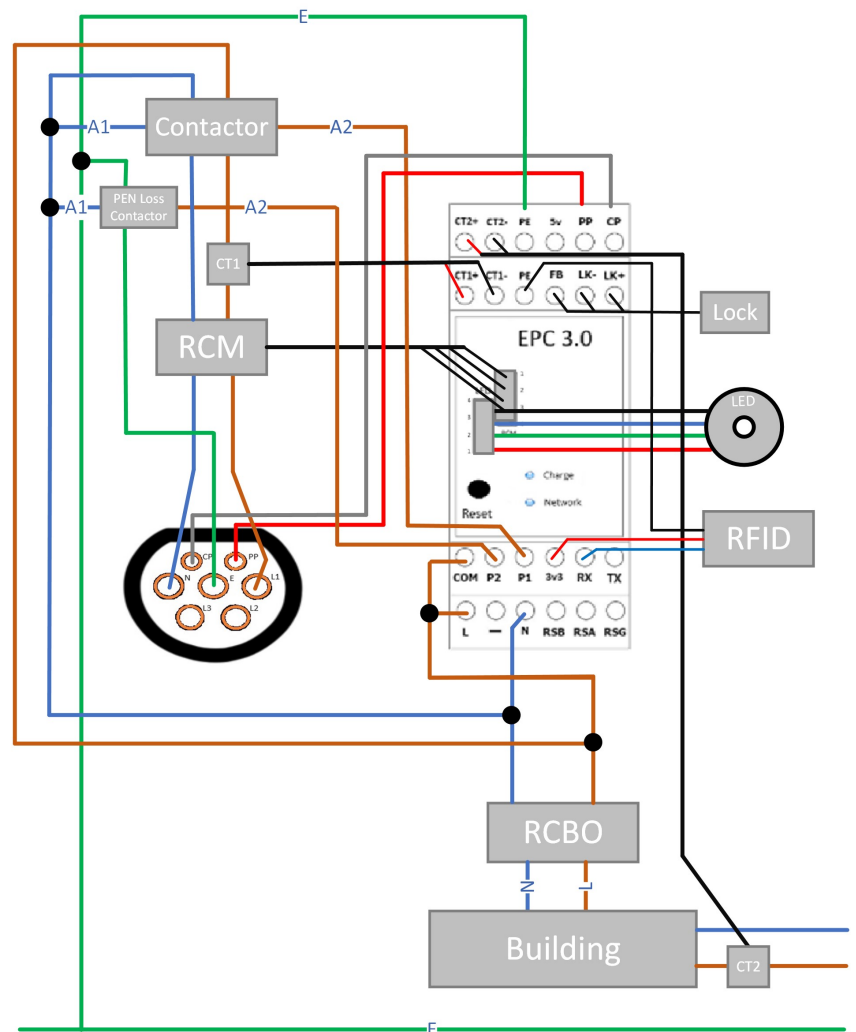
CT2— Current Transformer coil used to measure power delivered to the building. This is used to curtail the EV power when needed.

RCM - Protects against potential DC residual currents

Lock - Locks the cable into the socket

LED— Displays the charge state

RFID - Offers access control via the back office

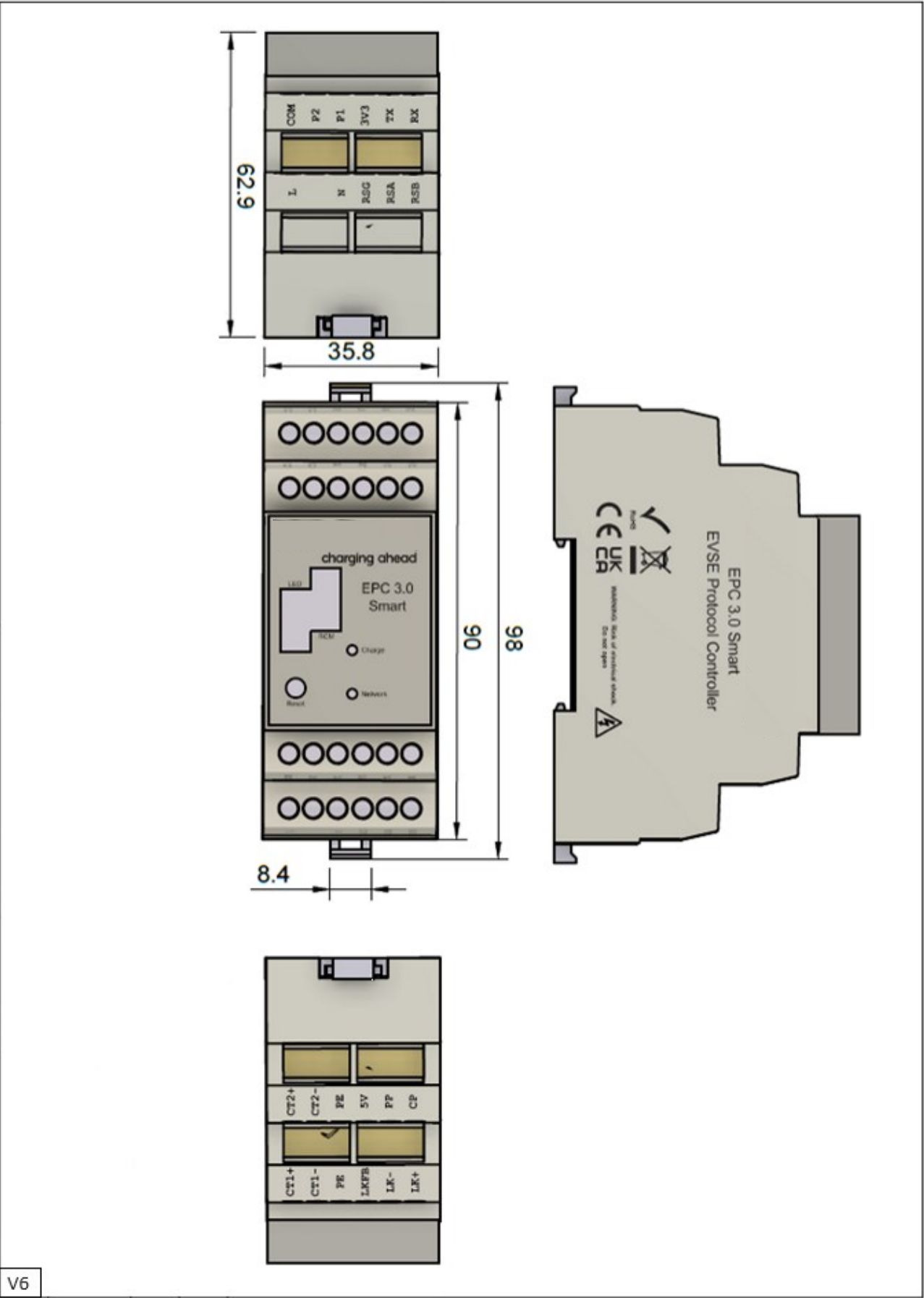


*The inclusion of certain modules may be mandated by law. Please check the legislation of your region to ensure your configuration meets the legal requirements.

Incorrect wiring of a controller can result in serious consequences, including but not limited to damage to equipment, electrical shock, fire, or other hazards. It is crucial that all wiring and installation tasks are performed by qualified professionals in accordance with local electrical codes and standards.

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EPC 3.0 Dimensions



V6

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EPC 3.0 Charging and Network LED codes — Fw.V14

Charging Sate	Charging LED
State A; Car not plugged in	Dim Blue
State B; Car plugged in, not requesting charge (Suspended EV)	Bright Blue
State B; Car plugged in, requesting charge (Suspended EVSE)	Pulsing Blue
State C; Car charging (including Boost Charge)	Bright Green
Boost mode ready, car not plugged in	Dim Amber
Boost mode ready, not requesting charge	Bright Amber
State F; Car Fault	Slow Pulsing Red
State F; Diode fault	Flashing Red
RCM fault	Fast Pulsing Red
State E; PEN fault	Pulsing Purple
Current transformer fault	Flashing Purple & Red
Over temperature fault	Flashing Blue & Red
Motor fault / Lock Error	Flashing White
Other error	Bright Red

Network LED state indicator — Fw.V14

Network State	Network LED
Searching for Wi-Fi / Network or Disabled	Bright Amber
Wi-Fi detected / On Network	Pulsing Blue
Wi-Fi detected / Connecting back office	Blue
Wi-Fi connection to back office established	Green
Wi-Fi discoverable for webpage access	Other State + Flashing White
Rejected / Disconnected from network	Red

