CC613-Hxx charge controller

Charge controller for wallboxes

CC613-Hxx_D00423_02_D_XXEN/08.2022

CC613-Hxx charge controller

CC613-Hxx

Device features (depending on the variant)

- Charge controller in accordance with IEC 61851-1 (mode 3 charging)
- Residual direct current monitoring module (external RCD type A required), different cable lengths can be selected
- Integrated emergency opener for actuator control (locking/unlocking) and monitoring of the 12 V supply voltage
- Can be integrated in single- or three-phase systems up to 80 A
- 3 USB interfaces:
  - 1 CONFIG interface for local configuration and installation of software updates
  - 2 USB host interfaces
- Control Pilot and Proximity Pilot communication (acc. to IEC 61851-1)
- Internal temperature sensor to reduce the charging current depending on the ambient temperature
- ISO 15118 Powerline Communication (PLC) for plug & charge or autocharge
- Ethernet interface

Certifications

CE

Product description

The charge controller is designed for use in compact wallboxes and primarily controls the charging process of an electric vehicle. It monitors the internal hardware of the wallboxes.

Functional description

The charging system consists of an RCD type A and a contactor. These are directly connected to a type 2 socket-outlet, or to a permanently attached cable.

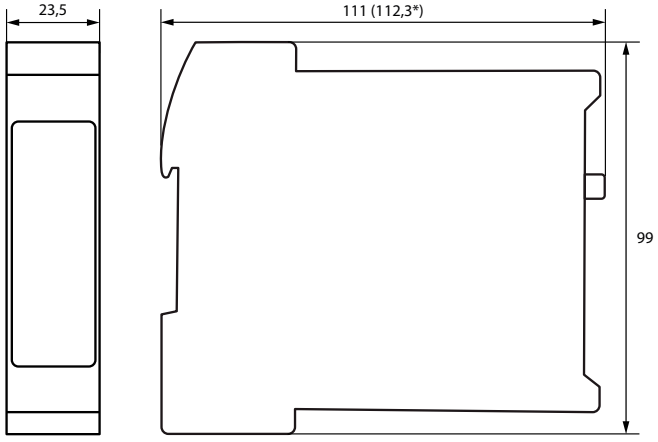
General functions (depending on the variant)

- The charging system can be equipped with a meter. A Modbus meter is required for digital reading of the energy consumption. The Modbus RTU wires are attached directly to the charge controller.
- A 12 V power supply is needed for operation.
- Power flow toward the vehicle is enabled by enabling the contactor via an integrated 230 V control relay in the charge controller.
- For fault current detection in an AC charging system, the charge controller features an integrated residual direct current monitoring module (RDC-M) which uses an externally connected current transformer. With the integrated monitoring of the DC fault current, only an RCD type A is required in the charging system.
- Data exchange between the electric vehicle and the charging system is possible via ISO 15118 compliant Powerline Communication (PLC).
- Data management and control functionality of the charge controller:
  - Termination of the charging process after tripping of the residual current device (RCD) due to a residual current.
  - Detection of critical fault currents by the RCM sensor. For the vehicle owner, this can be an early warning, provided that the charge controller is connected to an energy management system and that it supports this function.

The charge controller with residual direct current monitoring module (RDC-M) only works in combination with the measuring current transformer (to be ordered separately).

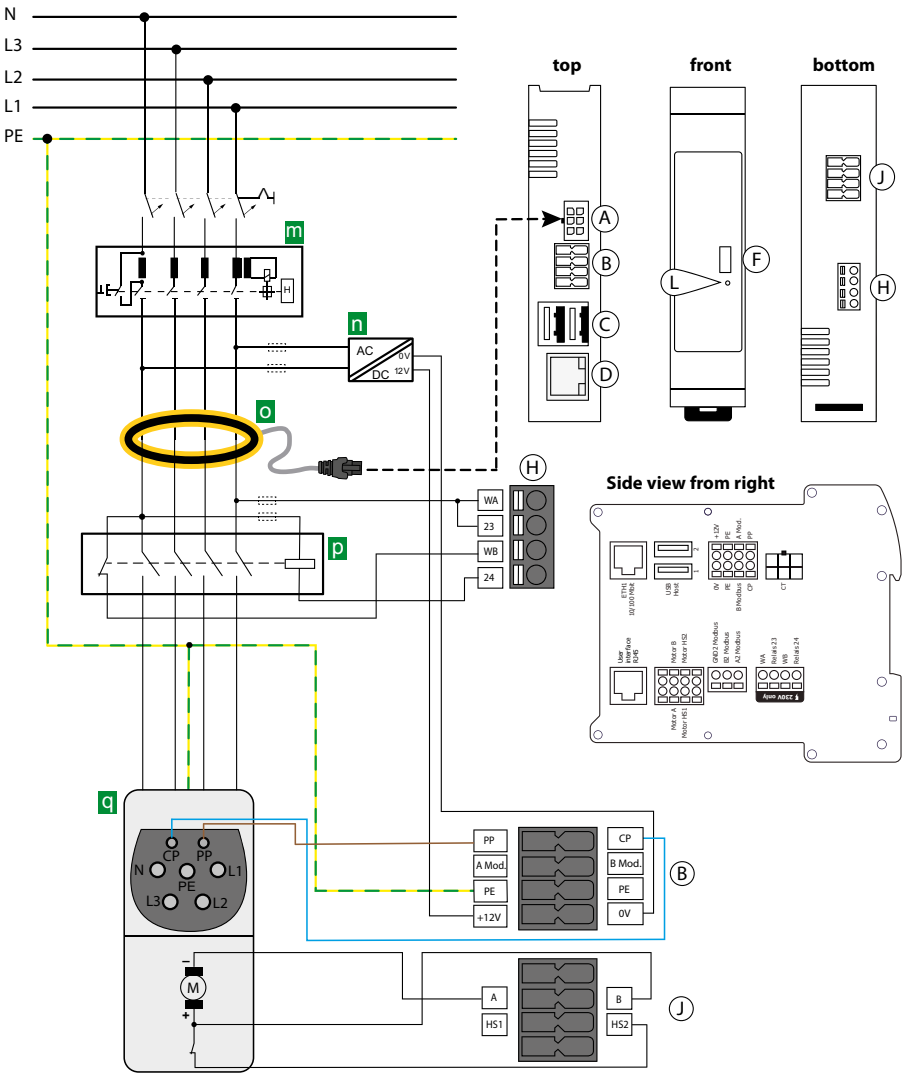
Dimension diagram

Dimensions in mm



** Dimensions incl. antenna socket (depending on the variant)*

Charging system with type 2 socket-outlet



- A Connection measuring current transformer (CT)
- B 12 V supply, PE, Modbus meter, CP, PP
- C 2x USB type A (1, 2)
- D Connection Ethernet (ETH1)
- F Configuration interface
- H Weld check, relay for contactor control rated for 230 V/4 A
- J Locking
- L STATUS LED
- **m** RCD type A
- **n** Voltage supply DC 12 V
- **o** Measuring current transformer (CT) with plug
- **p** Contactor
- **q** Type 2 socket-outlet

Terminal assignment

B	0V	Input 0 V
	+ 12 V	Supply voltage +12 V
	PE	Input PE
	PE	Input PE
	B Mod.	Modbus meter B
	A Mod.	Modbus meter A
	CP	Control Pilot
	PP	Proximity Pilot

H	WA	Weld check input L1
	23	Relais 23: Switching contact contactor
	WB	Weld check input N
	24	Relais 24: Switching contact contactor

J	A	Motor A: Locking motor output negative
	B	Motor B: Locking motor output positive
	HS2	Motor HS2: Locking input motor switch
	HS1	Motor HS1: Locking 12 V output motor switch

Technical data

Insulation coordination acc. to IEC 60664-1/IEC 60664-3

Rated voltage	250 V
Overvoltage category	II (within terminal H)
Overvoltage category	III (terminal H and all other terminals)
Rated impulse voltage	6 kV (terminal H and all other terminals)
Rated impulse voltage	2.5 kV (within terminal H)
Double insulation acc. to OVC III between	terminal H and all other terminals
Basic insulation acc. to OVC II	within terminal H
Operating altitude	≤ 2000 m AMSL

Supply voltage (terminal B (0V, +12V))

Nominal voltage	DC 12 V
Operating range of the nominal voltage	DC 11.4 V…12.6 V
Max. nominal current	750 mA
Max. nominal current without USB load	400 mA
Max. nominal current with max. USB load	750 mA

Residual direct current monitoring module (RDC-M, terminal A)

Measuring range	100 mA
Response values:	
Residual current $I_{\Delta n}$	DC 6 mA
Response tolerance $I_{\Delta n}$	-50…0 %
Restart sequence value:	
DC 6 mA	< 3 mA

LED indications

STATUS (front panel	orange: power on/system not ready for operation blue: system is starting green: system started, not ready for operation yet flashing green: system running, system ready for operation red: system error
Ethernet (terminal D)	off: no Ethernet connection steady green: Ethernet connection at 100 Mbit/s flashing green: data exchange at 100 Mbit/s steady yellow: Ethernet connection at 10 Mbit/s flashing yellow: data exchange at 10 Mbit/s

Data interface

USB host 1 (terminal C1)	USB port type A; USB 2.0 max. 250 mA
USB host 2 (terminal C2)	USB port type A; USB 2.0 max. 250 mA
Ethernet (terminal D)	10/100 Mbit
CONFIG (configuration interface, terminal F)	micro USB port type AB
Modbus meter (terminal B)	9.6 kBit
Control Pilot (terminal B (CP))	acc. to IEC 61851
Proximity Pilot (terminal B (PP))	acc. to IEC 61851

Inputs

Weld check (terminal H (WB, WA))

Input voltage	AC 180 V…277 V
Input current	0.6…1.3 mA

Input PE (terminal B (PE, PE))

Outputs

Contact data acc. to IEC 60947-5-1:

Switching contact for contactor (terminal H (relay 23, relay 24))

Rated operational voltage U_e	AC 230 V
Rated operational current I_e	AC 4 A
Minimum contact rating	50 mA at ≥ 10 V (AC)

Environment/EMC

EMC	see CE declaration
Operating temperature	-30…+70 °C
Classification of climatic conditions acc. to IEC 60721:	
Stationary use (IEC 60721-3-3)	3K23 (except condensation and formation of ice)
Transport (IEC 60721-3-2)	2K11
Long-term storage (IEC 60721-3-1)	1K21
Classification of mechanical conditions acc. to IEC 60721:	
Stationary use (IEC 60721-3-3)	3M11
Transport (IEC 60721-3-2)	2M4
Long-term storage (IEC 60721-3-1)	1M12

Cable lengths/cable types

Ethernet (terminal D)

Connection cable	CAT 6
Max. connection cable length	100 m
Connection type (terminal blocks B and J)	push-wire terminal
Connection specifications:	
rigid /flexible	0.2…1.5 mm² (AWG 24…16)
flexible with ferrule without plastic sleeve	0.25…1.5 mm² (AWG 24…16)
flexible with ferrule with plastic sleeve	0.14…0.75 mm² (AWG 26…18)
Stripping length	10 mm
Max. connection cable length	2 m
Cross-section	≥ 0.5 mm²
Max. connection cable length (PE)	4 m
Cross-section (PE)	≥ 1 mm²
Connection type (terminal H)	**push-wire terminal**
Connection specifications:	
rigid /flexible	0.2…1.5 mm² (AWG 24…16)
flexible with ferrule without plastic sleeve	0.25…1.5 mm² (AWG 24…16)
flexible with ferrule with plastic sleeve	0.25…0.75 mm² (AWG 24…18)
Stripping length	10 mm
Max. connection cable length	2 m
Cross-section	≥ 0.75 mm²

Other

Operating mode	continuous operation
Mounting position	front panel orientated, air must pass through cooling slots vertically
Degree of protection	IP20
DIN rail	IEC 60715
Documentation number	D00423
Weight	max. 500 g (depends on variant)

Ordering details

LED	RDC-M	PLC[1)]	Meter interface	Ethernet interface	USB host interface	Type	Art. No.
STATUS	■	■	Modbus	■	■	CC613-HEM-X2	B94060028

[1)] Powerline Communication acc. to ISO/IEC 15118

The charge controller with residual direct current monitoring module (RDC-M) only works in combination with the measuring current transformer (to be ordered separately). Different cable lengths are available.

Accessory

Description	Art. No.
Current transformer CTBC17 (PCB variant)[1)]	B98080070
Connection cable CTBC17-Cable1470 incl. clip housing (cable length 1470 mm)	B98080542
Connection cable CTBC17-Cable325 incl. clip housing (cable length 325 mm)	B98080541
Connection cable CTBC17-Cable180 incl. clip housing (cable length 180 mm)	B98080540

[1)] Internal diameter: 17 mm

Plug kit	Content / Quantity	Art. No.
Plug kit (to be ordered separatly)	3-pole (1 x), 4-pole (1 x), 8-pole (2 x)	B94060129
Plug kit bulk pack, HEM-X2	4-pole (50 x), 8-pole (100 x)	B94060126

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