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CHARX control vehicle, Vehicle charging controller, Can be parameterized, in housing, For autonomous control of the DC charging process in electric vehicles (EV) with CCS charging inlets, DIN SPEC 70121, ISO 15118-2, ISO 15118-20, operating mode: Stand-Alone



Product description

Vehicle charging controller (EVCC) for DC charging with high-level communication (TCP/IP) between DC charging station and electric vehicle (EV) via PLC (Powerline) and CAN protocol, compatible with CCS vehicle charging connectors (EVSE).

Your advantages

- Universal use for all electric vehicles with CCS charging inlet
- Fast setup, thanks to pre-parameterization for our CCS charging inlets
- Vehicle-to-grid-capable for bidirectional charging in accordance with ISO 15118-20
- Compliance with high safety standards of the automotive industry
- Immediately ready to operate, thanks to the short startup time of the operating system
- E1 approval for road vehicles

Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1722154       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | EM01          |
| Product key                          | XWCXCA        |
| GTIN                                 | 4067923275720 |
| Weight per piece (including packing) | 400 g         |
| Weight per piece (excluding packing) | 400 g         |
| Customs tariff number                | 85371098      |
| Country of origin                    | DE            |

# CHARX EVC-100 - Vehicle charging controller



1722154

<https://www.phoenixcontact.com/us/products/1722154>

## Technical data

### Product properties

|                |                                    |
|----------------|------------------------------------|
| Type           | Can be parameterized<br>in housing |
| Compatibility  | CCS                                |
| Operating mode | Stand-Alone                        |

### System properties

|                  |                                                                                                                                                          |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Processor        | 2x NXP Semiconductors S32K146                                                                                                                            |
| Operating system | Real-time operating system with start times of 100 ms ... 200 ms                                                                                         |
| Control          | CCS charging inlet (CP, PP, PE, locking actuator, temperature sensors)<br>LED status indicator<br>Cancel charging button<br>2 HV contactors              |
| Programming tool | UDS Service Tool                                                                                                                                         |
| Security         | Prepared for cybersecurity in accordance with UNECE R155 and R156<br>Processing of safety functions up to ISO 26262 ASIL B                               |
| Communication    | DC charging communication from PLC to CAN in accordance with DIN 70121 and ISO 15118<br>AC charging communication in conjunction with VCU-controlled OBC |

### Electrical properties

#### CL30 power supply

|                                            |                                                                                                                                                                                                                                                                                         |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply voltage range                       | 9 V ... 16 V (12 V system)<br>9 V ... 32 V (24 V system)                                                                                                                                                                                                                                |
| Operating current                          | nom. 0.5 A (In normal operation, CL30 does not exceed 0.5 A. Other loads on CL30 include LockMotor+, LockMotor-, LED1, LED2, LED3, LED4, HMI Supply, and Sens Supply.)<br>typ. 0.3 A (The two CL30 pins can be operated up to 10 A in total. They are bridged internally.)<br>max. 9 mA |
| Quiescent current                          | 300 µA                                                                                                                                                                                                                                                                                  |
| Inrush current                             | typ. 0.5 A<br>max. 0.7 A                                                                                                                                                                                                                                                                |
| Supply current of the switch (HVSW Supply) | max. 6 A                                                                                                                                                                                                                                                                                |
| Supply voltage of switch (HVSW Supply)     | 32 V (depending on the HV switches used, e.g., 12 V and 1.5 A per switch, which are the only two loads on HVSW Supply)                                                                                                                                                                  |

### Connection data

#### Conductor connection

|                               |                                          |
|-------------------------------|------------------------------------------|
| Conductor cross-section rigid | as of 1.5 mm <sup>2</sup> (with ferrule) |
|-------------------------------|------------------------------------------|

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|                                  |                                          |
|----------------------------------|------------------------------------------|
| Conductor cross-section flexible | to 1.5 mm <sup>2</sup> (without ferrule) |
|----------------------------------|------------------------------------------|

## Environmental and real-life conditions

### Ambient conditions

|                                          |                                                        |
|------------------------------------------|--------------------------------------------------------|
| Degree of protection                     | IP6K9K (In accordance with ISO 20653)                  |
| Ambient temperature (operation)          | -40 °C ... 85 °C                                       |
| Ambient temperature (storage/transport)  | -40 °C ... 85 °C                                       |
| Permissible humidity (operation)         | 0 % ... 85 %                                           |
| Permissible humidity (storage/transport) | 0 % ... 85 %                                           |
| Air pressure (operation)                 | 79 kPa ... 106 kPa (up to 2000 m above sea level)      |
| Air pressure (storage/transport)         | 58 kPa ... 108 kPa (up to 4500 m above mean sea level) |

## Standards and regulations

### Standards

|                       |                |
|-----------------------|----------------|
| Standards/regulations | DIN SPEC 70121 |
|                       | ISO 15118-2    |
|                       | ISO 15118-20   |

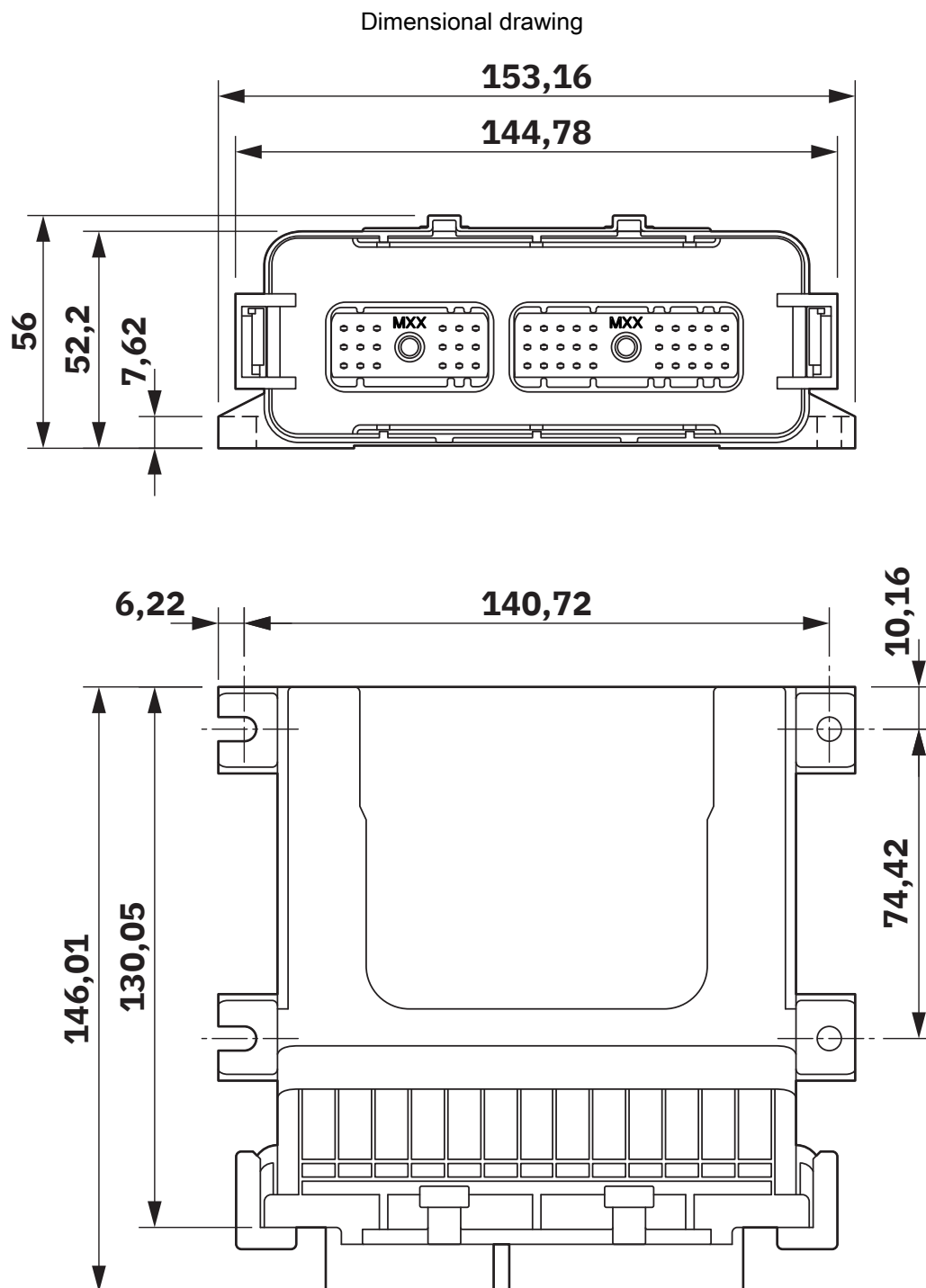
# CHARX EVC-100 - Vehicle charging controller



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## Drawings



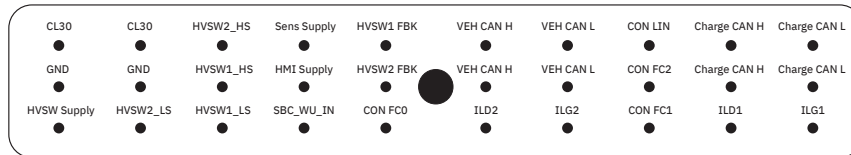
# CHARX EVC-100 - Vehicle charging controller



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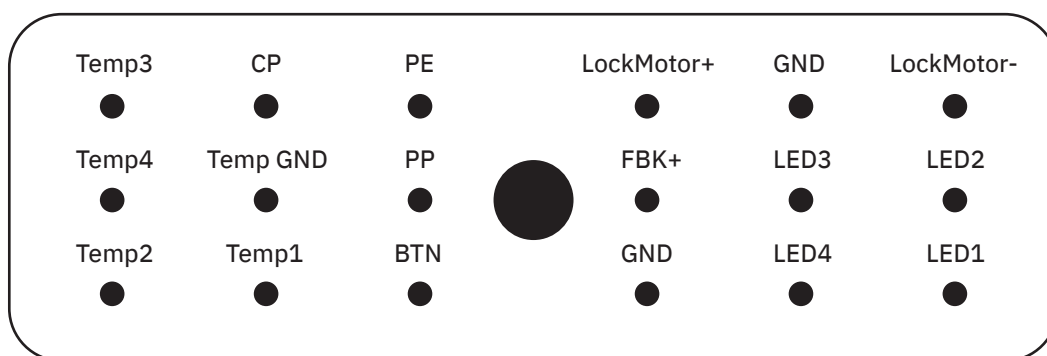
<https://www.phoenixcontact.com/us/products/1722154>

Connection diagram



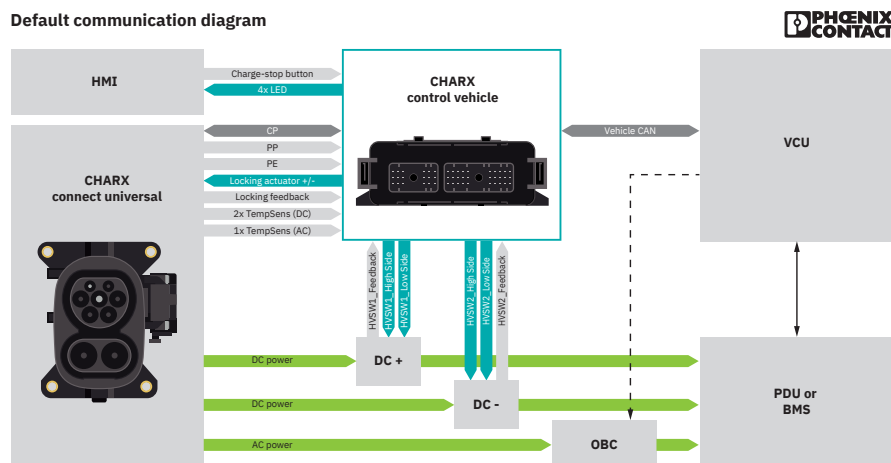
Pin assignment of the 30-pos. connector, for communication with the electric vehicle via CAN protocol

Connection diagram



Pin assignment of the 18-pos. connector, for communication with the charging station via PLC protocol

Graphic



The vehicle charging controller CHARX control vehicle is integrated in the LV on-board power supply (LV = low voltage) between the vehicle charging inlet and vehicle.

The interface to the CHARX connect universal vehicle charging inlet consists of standardized CP, PP, PE connections as well as actuator and temperature sensor connections. Start/stop and LED signals are communicated directly to the charging station (HMI = Human Machine Interface).

The exchange with the vehicle control unit (VCU) takes place via a CAN or CAN-FD protocol. The VCU in turn communicates with the power distribution unit (PDU) or the battery management system (BMS).

The HV switches (HV = high voltage) can be controlled directly or optionally connected to a control box via CAN.

An optional on-board charger (OBC) can be connected to the same bus or controlled directly by the vehicle.

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27144703 |
| ECLASS-15.0 | 27144703 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC002889 |
|-----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121800 |
|-------------|----------|

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## Environmental product compliance

### EU RoHS

|                                         |                    |
|-----------------------------------------|--------------------|
| Fulfills EU RoHS substance requirements | Yes                |
| Exemption                               | 6(c), 7(a), 7(c)-I |

### China RoHS

|                                        |                                                                                                                                                                                                                                   |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environment friendly use period (EFUP) | EFUP-50                                                                                                                                                                                                                           |
|                                        | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

### EU REACH SVHC

|                                     |                      |
|-------------------------------------|----------------------|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1) |
|-------------------------------------|----------------------|

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