

# CHARX T2HBI24-3AC32DC250-2,0M2 - Vehicle charging inlet



1270301

<https://www.phoenixcontact.com/us/products/1270301>

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The figure shows a version of the product

CHARX connect universal, AC/DC CCS Typ 2, Vehicle charging inlet, up to 500 A in Boost mode, 250 A permanent, 1000 V DC, 32 A , 480 V AC, Single-core wires connected at one end, length: 2 m, locking actuator: 24 V, 4-pos., Front and rear mounting, M6, housing: black, for charging with alternating current (AC) and with direct current (DC), IEC 62196-2, IEC 62196-3, A protective cap is supplied as standard for the DC and AC contacts.

## Product description

Vehicle charging inlet for charging with alternating current (AC) and direct current (DC), compatible with type 2 AC and CCS vehicle charging connectors (EVSE), for installation in electric vehicles (EV).

## Your advantages

- Complete product range
- Uniform, space-saving dimensions for the installation space and the screw connection points of all Phoenix Contact vehicle charging inlets
- Developed and produced in accordance with the IATF 16949 automotive standard and ISO 9001
- Integrated interlock during charging
- Manual emergency release of the locking actuator
- Protected and sealed against dirt and water with a high degree of protection

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1270301       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | EM01          |
| Product key                          | XWCAID        |
| GTIN                                 | 4063151440084 |
| Weight per piece (including packing) | 7,485 g       |
| Weight per piece (excluding packing) | 107 g         |
| Customs tariff number                | 85444290      |
| Country of origin                    | PL            |

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## Technical data

### Notes

|         |                                                                      |
|---------|----------------------------------------------------------------------|
| General | A protective cap is supplied as standard for the DC and AC contacts. |
|---------|----------------------------------------------------------------------|

### Product properties

|                     |                         |
|---------------------|-------------------------|
| Product type        | Vehicle charging inlet  |
| Product family      | CHARX connect universal |
| Charging standard   | AC/DC CCS Typ 2         |
| Charging mode       | Mode 2, 3, 4            |
| Customer variations | On request              |

### Electrical properties

#### Charging power and current (AC charging, 3-phase)

|                          |                   |
|--------------------------|-------------------|
| Type of charging current | AC 3-phase        |
| Charging current         | 32 A AC (3-phase) |
| Charging power           | 26.6 kW           |

#### Charging power and current (DC charging)

|                          |          |
|--------------------------|----------|
| Type of charging current | DC       |
| Charging current         | 250 A DC |
| Charging power           | 250 kW   |
| Rated voltage            | 1000 V   |

#### Charging power and current (DC charging in Boost Mode)

|                          |                                                                                                                                                             |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of charging current | DC Boost Mode                                                                                                                                               |
| Charging current         | up to 500 A DC                                                                                                                                              |
| Charging power           | up to 500 kW                                                                                                                                                |
| Rated voltage            | 1000 V                                                                                                                                                      |
| Note                     | The specifications refer to charging in Boost Mode and are dependent on ambient conditions. For further details, see the packing slip in the download area. |

#### Pin assignment (Power contacts)

|                               |                                          |
|-------------------------------|------------------------------------------|
| Note on the connection method | Crimp connection, cannot be disconnected |
| Number                        | 7 (L1, L2, L3, N, PE, DC+, DC-)          |
| Rated voltage                 | 480 V AC<br>1000 V DC                    |
| Rated current                 | 32 A AC<br>250 A DC                      |

#### Pin assignment (Signal contacts)

|                               |                                                                                                           |
|-------------------------------|-----------------------------------------------------------------------------------------------------------|
| Note on the connection method | Crimp connection, cannot be disconnected                                                                  |
| Type of signal transmission   | Pulse width modulation with modulated Powerline communication in accordance with ISO/IEC 15118 / DIN SPEC |

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|                       |                            |
|-----------------------|----------------------------|
|                       | 70121                      |
| Number                | 2 (CP, PP)                 |
| Rated voltage         | 30 V AC                    |
| Rated current         | 2 A                        |
| Coding                | 4.7 kΩ (between PE and PP) |
| Insulation resistance | > 200 MΩ                   |

## Locking actuator

|                                          |                                |
|------------------------------------------|--------------------------------|
| Locking actuator                         | 24 V, 4-pos.<br>Right position |
| Possible power supply range at the motor | 22 V ... 26 V                  |
| Maximum voltage for locking detection    | 30 V                           |
| Typical motor current for locking        | 0.05 A                         |
| Reverse current of the motor             | max. 0.5 A                     |
| Max. dwell time with reverse current     | 1 s                            |
| Recommended adaptation time              | 600 ms                         |
| Pause time after entry or exit path      | 3 s                            |
| Service life insertion cycles            | > 10000 load cycles            |
| Lock recognition                         | available                      |
| Mechanical emergency release             | available                      |
| Ambient temperature (operation)          | -40 °C ... 40 °C               |

## Temperature sensors (PTC chain)

|                              |                                     |
|------------------------------|-------------------------------------|
| Sensor type                  | PTC chain                           |
| Standards/regulations        | DIN EN 60738-1                      |
| Attachment point             | Sensor for the AC contacts          |
| Measuring range_resistance   | 790 Ω ... 1420 Ω                    |
| Resistance                   | max. 1280 Ω ±5 K                    |
| Recommended measured current | ≤ 1 mA (U <sub>max</sub> = 16 V DC) |
| Ambient temperature          | -40 °C ... 130 °C (Operation)       |

## Temperature sensors (Pt 1000)

|                       |                               |
|-----------------------|-------------------------------|
| Sensor type           | Pt 1000                       |
| Standards/regulations | DIN EN 60751                  |
| Attachment point      | 2 sensors for the DC contacts |

## Dimensions

### Vehicle charging inlet

|                     |        |
|---------------------|--------|
| Dimensional drawing |        |
| Width               | 108 mm |

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|        |           |
|--------|-----------|
| Height | 140.25 mm |
| Depth  | 128.4 mm  |

## Bore dimensions

|        |           |
|--------|-----------|
| Width  | 117.65 mm |
| Height | 90 mm     |
| Depth  | 117.65 mm |

## Material specifications

|                            |              |
|----------------------------|--------------|
| Color (Housing)            | black (9005) |
| Color (Mating face)        | black (9005) |
| Material (Housing)         | Plastic      |
| Material (Contact surface) | Silver       |

## Cable/line

|              |                                        |
|--------------|----------------------------------------|
| Cable length | 2 m +150 mm                            |
| Cable type   | Single-core wires connected at one end |

### Single-core wires for AC

|                         |                       |
|-------------------------|-----------------------|
| Cable length            | 2 m +150 mm           |
| Cable structure         | 4 x 6 mm <sup>2</sup> |
| Single wire, material   | Silicone              |
| Single wire, color      | OG                    |
| External cable diameter | 14.70 mm ±0.2 mm      |
| Cable resistance        | ≤ 3.2 Ω/km            |

### Single-core wires for DC

|                         |                        |
|-------------------------|------------------------|
| Cable length            | 2 m +150 mm            |
| Cable structure         | 2 x 95 mm <sup>2</sup> |
| Single wire, material   | Silicone               |
| Single wire, color      | OG                     |
| External cable diameter | 20.60 mm ±0.3 mm       |
| Cable resistance        | ≤                      |

### Single-core wire for PE

|                         |                        |
|-------------------------|------------------------|
| Cable length            | 2 m +150 mm            |
| Cable structure         | 1 x 25 mm <sup>2</sup> |
| Single wire, material   | Silicone               |
| Single wire, color      | GN/YE                  |
| External cable diameter | 8.60 mm ±0.1 mm        |
| Cable resistance        | ≤ 0.743 Ω/km           |

### Single-core wires for locking actuator

|                       |                         |
|-----------------------|-------------------------|
| Cable length          | 0.5 m ±50 mm            |
| Cable structure       | 4 x 0.5 mm <sup>2</sup> |
| Single wire, material | PVC                     |

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|                         |                            |
|-------------------------|----------------------------|
| Single wire, color      | BU/RD, BU/GN, BU/YE, BU/BN |
| External cable diameter | 1.60 mm ±0.20 mm           |
| Cable resistance        | ≤ 37.1 Ω/m                 |

## Single-core wires for PTC temperature sensors

|                         |                         |
|-------------------------|-------------------------|
| Cable length            | 1 m ±100 mm             |
| Cable structure         | 5 x 0,5 mm <sup>2</sup> |
| Single wire, material   | PVC                     |
| Single wire, color      | BN/GY                   |
|                         | BN/YE/GN                |
| External cable diameter | 1.60 mm ±0.20 mm        |
| Cable resistance        | ≤ 37.1 Ω/m              |

## Single-core wires for Pt 1000 temperature sensors

|                         |                         |
|-------------------------|-------------------------|
| Cable length            | 1 m ±100 mm             |
| Cable structure         | 3 x 0.5 mm <sup>2</sup> |
| Single wire, material   | PVC                     |
| Single wire, color      | BN                      |
|                         | GN                      |
|                         | YE                      |
| External cable diameter | 1.60 mm ±0.20 mm        |
| Cable resistance        | ≤ 37.1 Ω/m              |

## Single-core wires for communication

|                         |                         |
|-------------------------|-------------------------|
| Cable length            | 1 m ±100 mm             |
| Cable structure         | 2 x 0.5 mm <sup>2</sup> |
| Single wire, material   | PVC                     |
| Single wire, color      | BK                      |
|                         | WH                      |
| External cable diameter | 1.60 mm ±0.20 mm        |
| Cable resistance        | ≤ 37.1 Ω/m              |

## Mechanical properties

### Mechanical data

|                             |         |
|-----------------------------|---------|
| Insertion/withdrawal cycles | > 10000 |
| Insertion force             | < 100 N |
| Withdrawal force            | < 100 N |

## Environmental and real-life conditions

### Ambient conditions

|                                               |                                                                                                                                                                                                                |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Degree of protection (Vehicle charging inlet) | IP55 (plugged in; when plugged in and ready to operate, the degree of protection is only ensued if both plug-in components are original products from Phoenix Contact or suitable standard-compliant products) |
|                                               | IP67 (Inner area of vehicle charging inlet)                                                                                                                                                                    |

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|                                         |                                                                                                                       |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Ambient temperature (operation)         | -40 °C ... 40 °C (60°C, maximum (current reduction required, observe the DC contact temperature limit value of 90°C)) |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C                                                                                                      |
| Altitude                                | 4000 m (above sea level)                                                                                              |

## Standards and regulations

|                          |             |
|--------------------------|-------------|
| Standards/specifications | IEC 62196-2 |
| Standards/specifications | IEC 62196-3 |

## Mounting

|                                          |                                                                       |
|------------------------------------------|-----------------------------------------------------------------------|
| Mounting type                            | Front and rear mounting (0 to 90 degree frontal inclination possible) |
| Mounting hole diameter                   | 6.70 mm (ø)                                                           |
| Fixing screws                            | M6                                                                    |
| Screws included in the scope of delivery | none                                                                  |

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## Drawings

Dimensional drawing



Dimensional drawing

Dimensional drawing



Reference points for measuring the line length

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Pin assignment of vehicle charging inlets



Installation positions

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Detection for Vehicle Connector



The Combined Charging System (CCS) principle - standard-compliant charging system for electric vehicles, which supports both conventional AC charging and fast DC charging. Both Vehicle Connectors fit into the CCS Vehicle Inlet.

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Schematic diagram



Operating instructions

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Schematic diagram



Temperature sensor technology resistance range at AC contacts

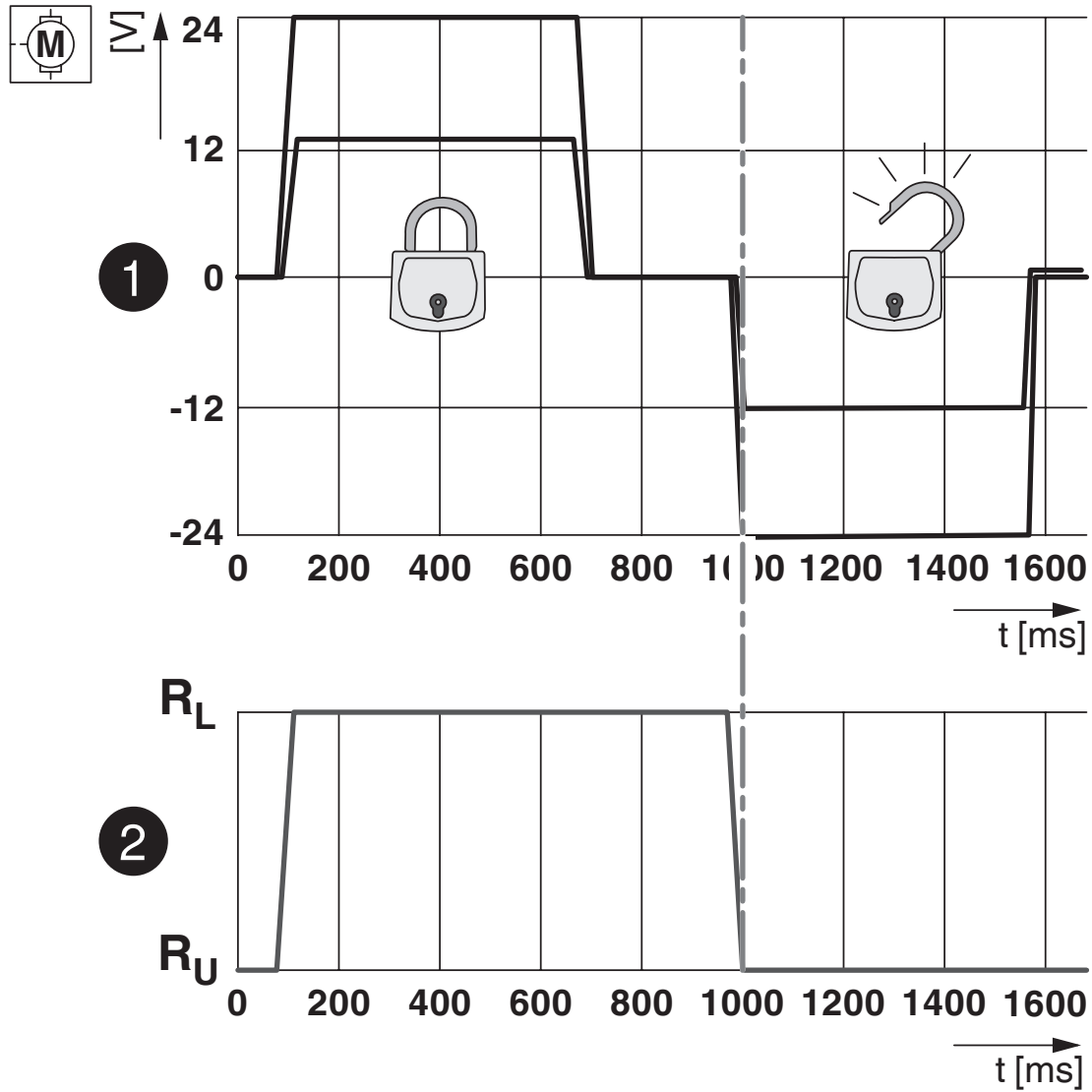
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Diagram



Locking states of the locking actuator

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Diagram



Pt 1000 characteristic curve at an ambient temperature of 25°C for temperature measurement at the DC contacts

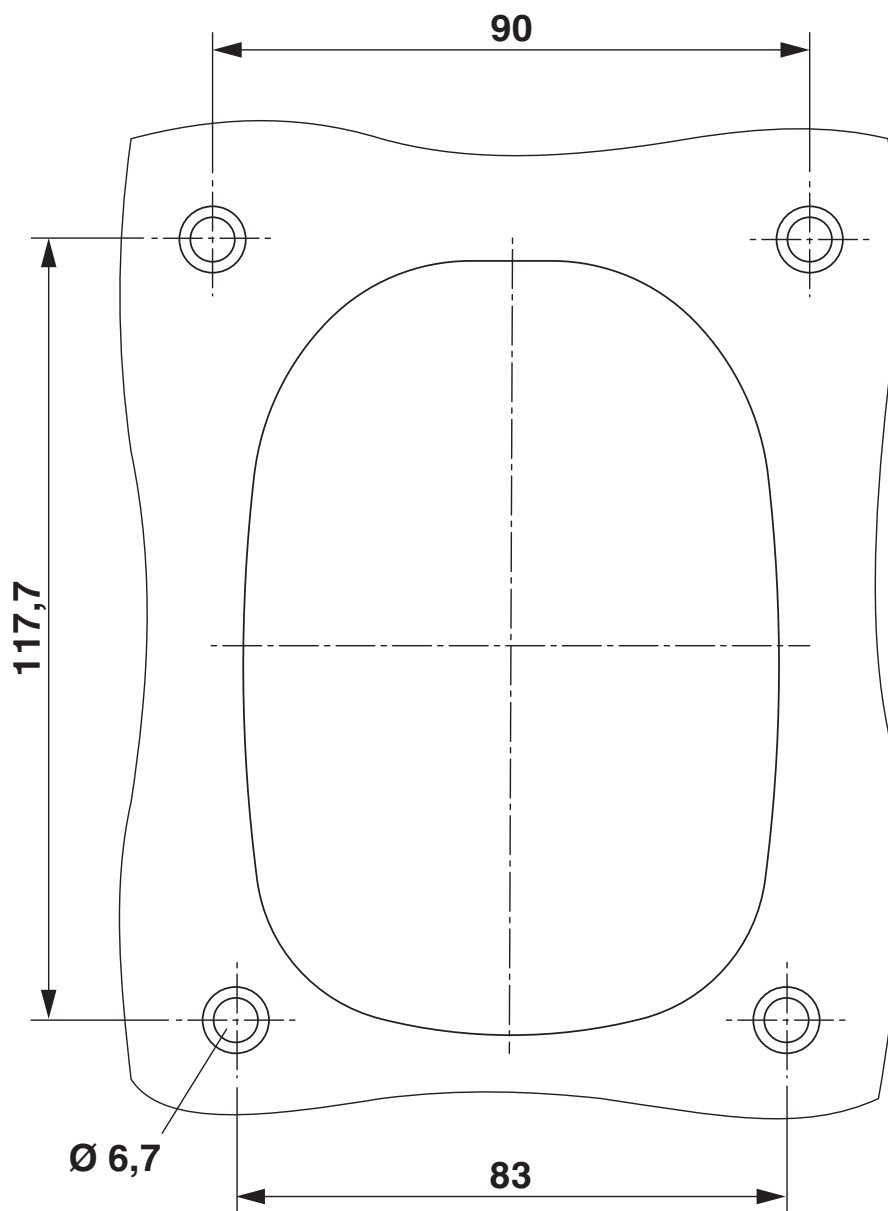
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Drilling plan/solder pad geometry



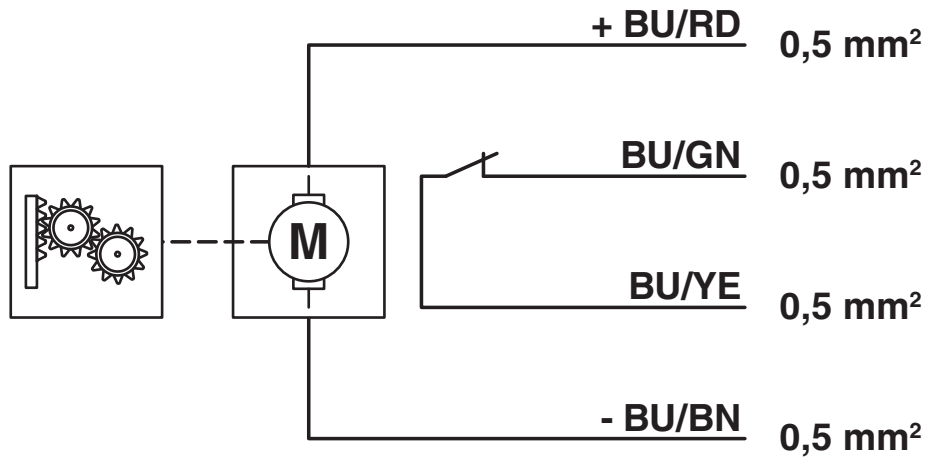
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Block diagram



Block diagram of the locking actuator

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27144706 |
| ECLASS-15.0 | 27144706 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC002898 |
|-----------|----------|

### UNSPSC

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

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## Environmental product compliance

### EU RoHS

|                                         |              |
|-----------------------------------------|--------------|
| Fulfills EU RoHS substance requirements | Yes          |
| Exemption                               | 6(c), 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.) | 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)(CAS: 15571-58-1) |
|                                     | Lead(CAS: 7439-92-1)                                                                                    |
|                                     | 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol(CAS: 119-47-1)                                             |
| SCIP                                | c50be0ef-a5b9-48f9-a6e6-70c499990986                                                                    |

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 58.45 kg CO2e |
|---------|---------------|

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