

# CHARX T2HBI24-DC375-2,0C2 - Vehicle charging inlet



1720109

<https://www.phoenixcontact.com/us/products/1720109>

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CHARX connect universal, DC CCS Typ 2, Vehicle charging inlet, > 500 A in Boost mode, 325 A permanent, 1000 V DC, 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 direct current (DC), IEC 62196-1, IEC 62196-2, A protective cap is supplied as standard for the DC contacts.

The figure shows a version of the product

## Product description

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

## Your advantages

- HPC-capable: a cable cross-section of 120 mm<sup>2</sup> enables permanent charging at 375 kW
- Waterproof, dirtproof, and dustproof due to IP6K6K/IP6K9K degree of protection in the front area – even with the charging flap open
- Easy design-in through the compact design, uniform dimensions, and identical screw-on points
- Developed and produced in accordance with the IATF 16949 automotive standard and ISO 9001

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1720109       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | EM01          |
| Product key                          | XWCAID        |
| GTIN                                 | 4067923271364 |
| Weight per piece (including packing) | 8,030 g       |
| Weight per piece (excluding packing) | 8,030 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 contacts. |
|---------|---------------------------------------------------------------|

### Product properties

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

### Electrical properties

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

|                          |                                                       |
|--------------------------|-------------------------------------------------------|
| Type of charging current | DC                                                    |
| Charging current         | 325 A DC (With cooled HPC vehicle charging connector) |
| Charging power           | 325 kW                                                |
| Rated voltage            | 1000 V                                                |

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

|                          |                                                                                                                                                             |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of charging current | DC Boost Mode                                                                                                                                               |
| Charging current         | > 500 A DC                                                                                                                                                  |
| Charging power           | > 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                        | 3 (PE, DC+, DC-)                                      |
| Rated voltage                 | 1000 V DC                                             |
| Rated current                 | 325 A DC (With non-cooled vehicle charging connector) |

#### 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 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

# CHARX T2HBI24-DC375-2,0C2 - Vehicle charging inlet



1720109

<https://www.phoenixcontact.com/us/products/1720109>

|                                          |                     |
|------------------------------------------|---------------------|
| Locking actuator                         | 24 V, 4-pos.        |
|                                          | 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)          | -30 °C ... 50 °C    |

## Temperature sensors (Pt 1000)

|                              |                                                            |
|------------------------------|------------------------------------------------------------|
| Sensor type                  | Pt 1000                                                    |
| Standards/regulations        | DIN EN 60751                                               |
| Attachment point             | 2 sensors for the DC contacts                              |
| Recommended measured current | $\leq 1 \text{ mA}$ ( $U_{\text{max}} = 16 \text{ V DC}$ ) |
| Coefficient                  | 3850 ppm/K                                                 |
| Ambient temperature          | -40 °C ... 130 °C                                          |

## Dimensions

### Vehicle charging inlet

|        |           |
|--------|-----------|
| Width  | 108 mm    |
| Height | 140.25 mm |
| Depth  | 143.5 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                                    |
| Cable type   | Single-core wires connected at one end |

### Single-core wires for DC

|              |     |
|--------------|-----|
| Cable length | 2 m |
|--------------|-----|

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1720109

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|                         |                         |
|-------------------------|-------------------------|
| Cable structure         | 2 x 120 mm <sup>2</sup> |
| Single wire, material   | Silicone                |
| Single wire, color      | OG                      |
| External cable diameter | 23.00 mm -0.8 mm        |

## Single-core wire for PE

|                         |                        |
|-------------------------|------------------------|
| Cable length            | 2 m                    |
| 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        |

## Single-core wires for locking actuator

|                         |                            |
|-------------------------|----------------------------|
| Cable length            | 0.5 m                      |
| Cable structure         | 4 x 0.5 mm <sup>2</sup>    |
| Single wire, material   | PVC                        |
| 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 Pt 1000 temperature sensors

|                         |                         |
|-------------------------|-------------------------|
| Cable length            | 1 m                     |
| 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                     |
| 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 |

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1720109

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## Environmental and real-life conditions

### Ambient conditions

|                                               |                                                                                                                                    |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Degree of protection (Vehicle charging inlet) | IP6K7                                                                                                                              |
| Degree of protection (Locking actuator)       | IP5K4                                                                                                                              |
| Degree of protection (Front area)             | IP6K9K                                                                                                                             |
| Ambient temperature (operation)               | -40 °C ... 40 °C (Max. 60 K heating, current reduction required. Observe the limit value for the DC contact temperature of 90 °C.) |
| Ambient temperature (storage/transport)       | -40 °C ... 85 °C                                                                                                                   |
| Altitude                                      | 4000 m (above sea level)                                                                                                           |

## Standards and regulations

### Standards

|                       |             |
|-----------------------|-------------|
| Standards/regulations | IEC 62196-1 |
|                       | IEC 62196-2 |
|                       | 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                                                                  |

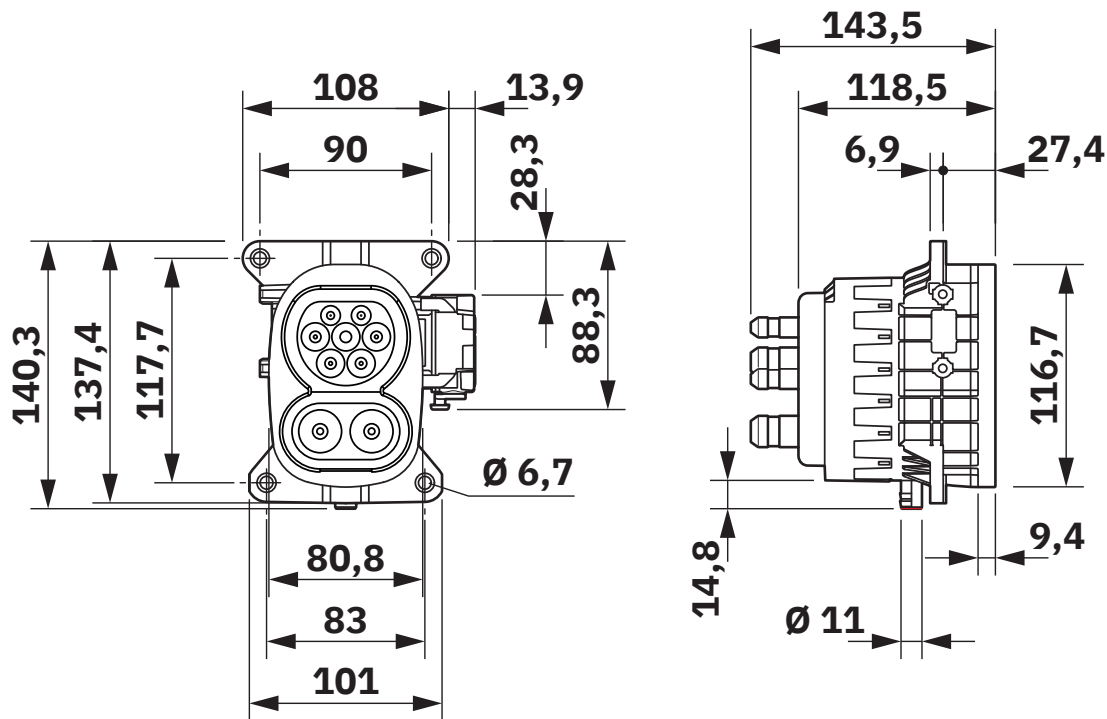
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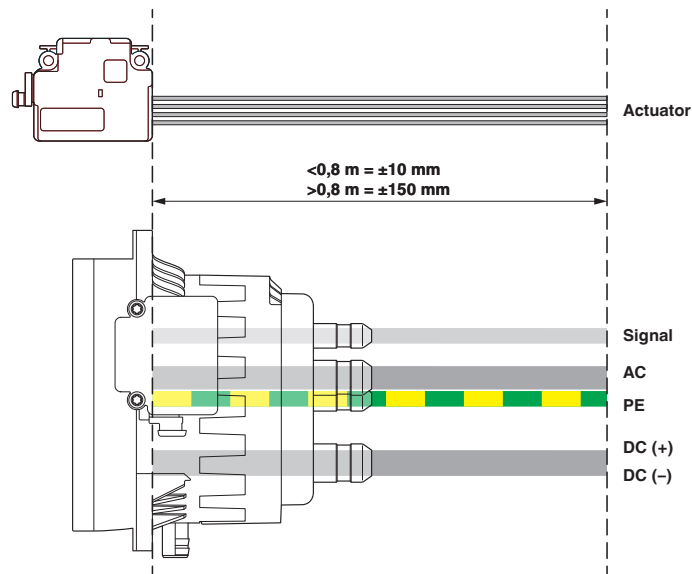
## Drawings

Dimensional drawing



Dimensional drawing

Dimensional drawing



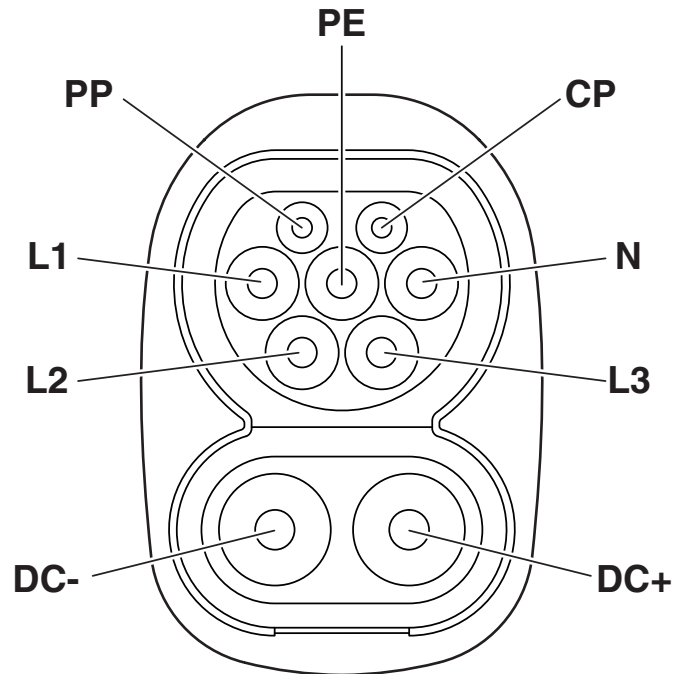
Reference points for measuring the line length

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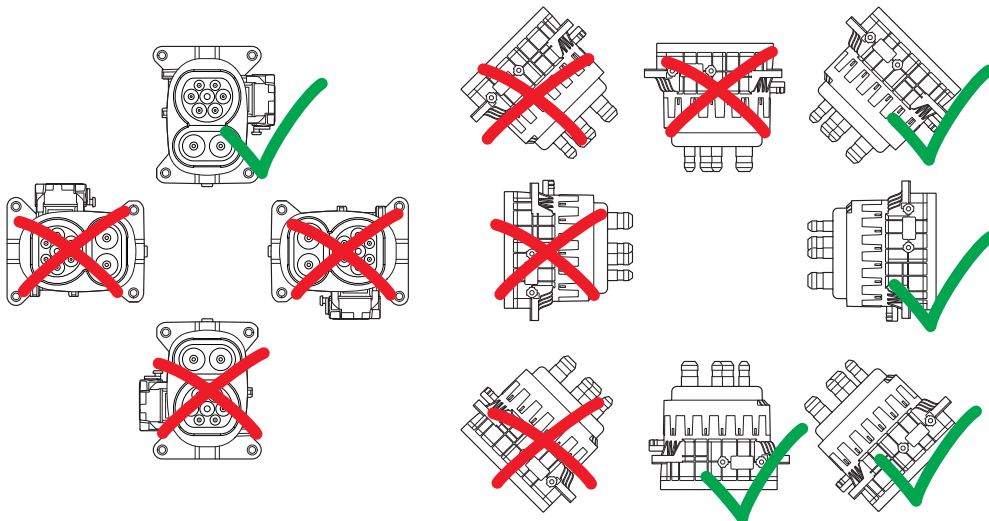
<https://www.phoenixcontact.com/us/products/1720109>

Connection diagram



Pin assignment of vehicle charging inlets

Connection diagram

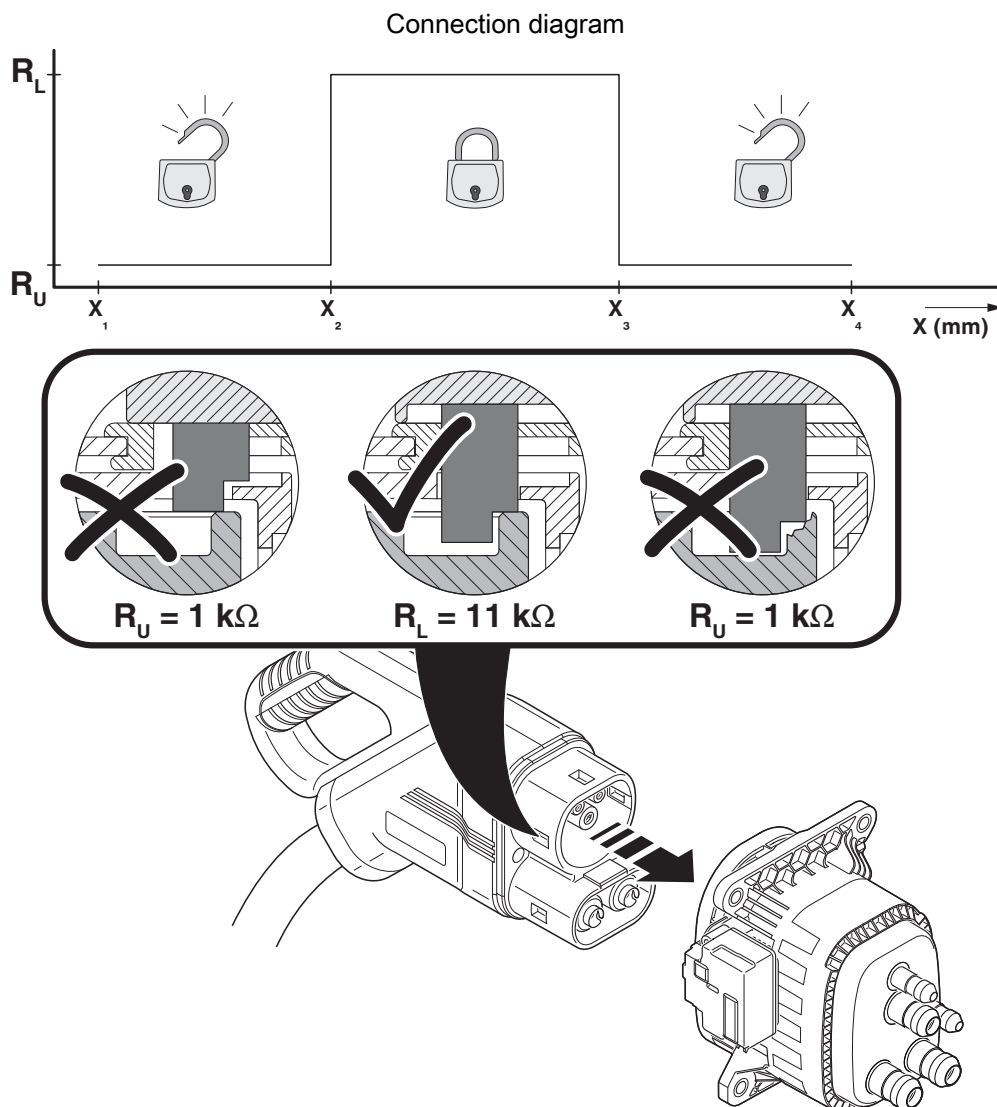


Installation positions

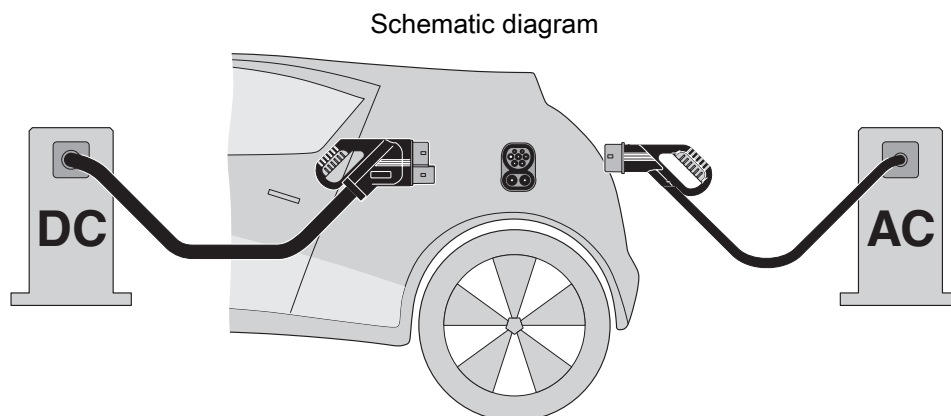
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Detection for Vehicle Connector



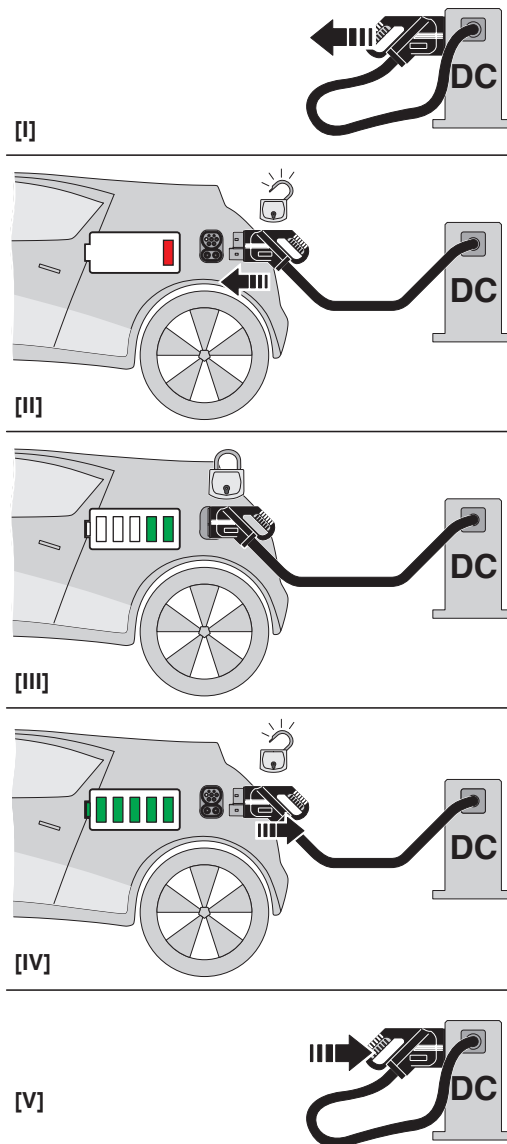
The Combined Charging System (CCS) principle - standard-compliant charging system for electric vehicles, which supports both conventional AC charging and fast DC charging. Both Vehicle Connectors fit into the CCS Vehicle Inlet.

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Schematic diagram



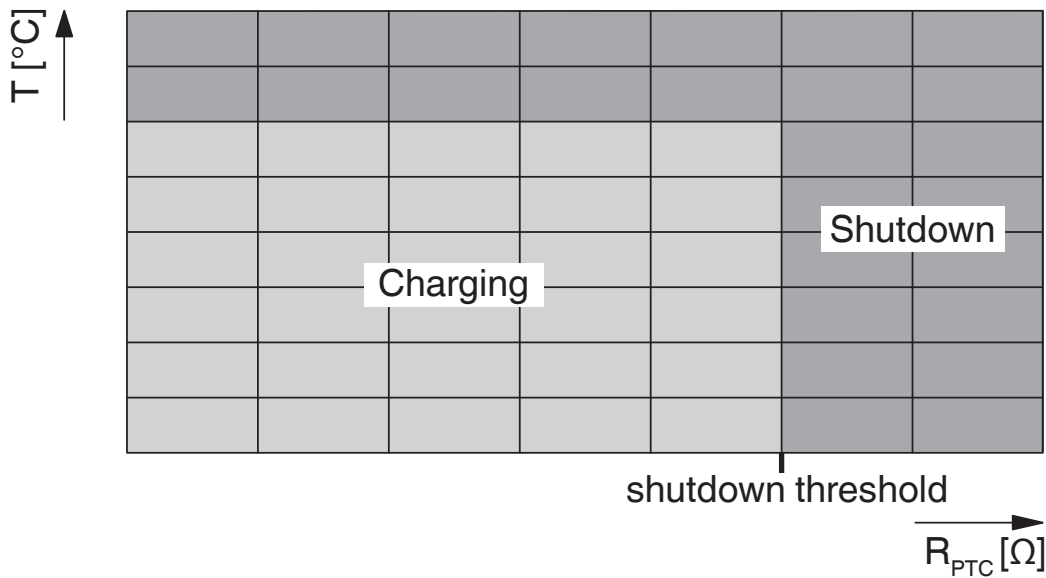
Operating instructions

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Schematic diagram



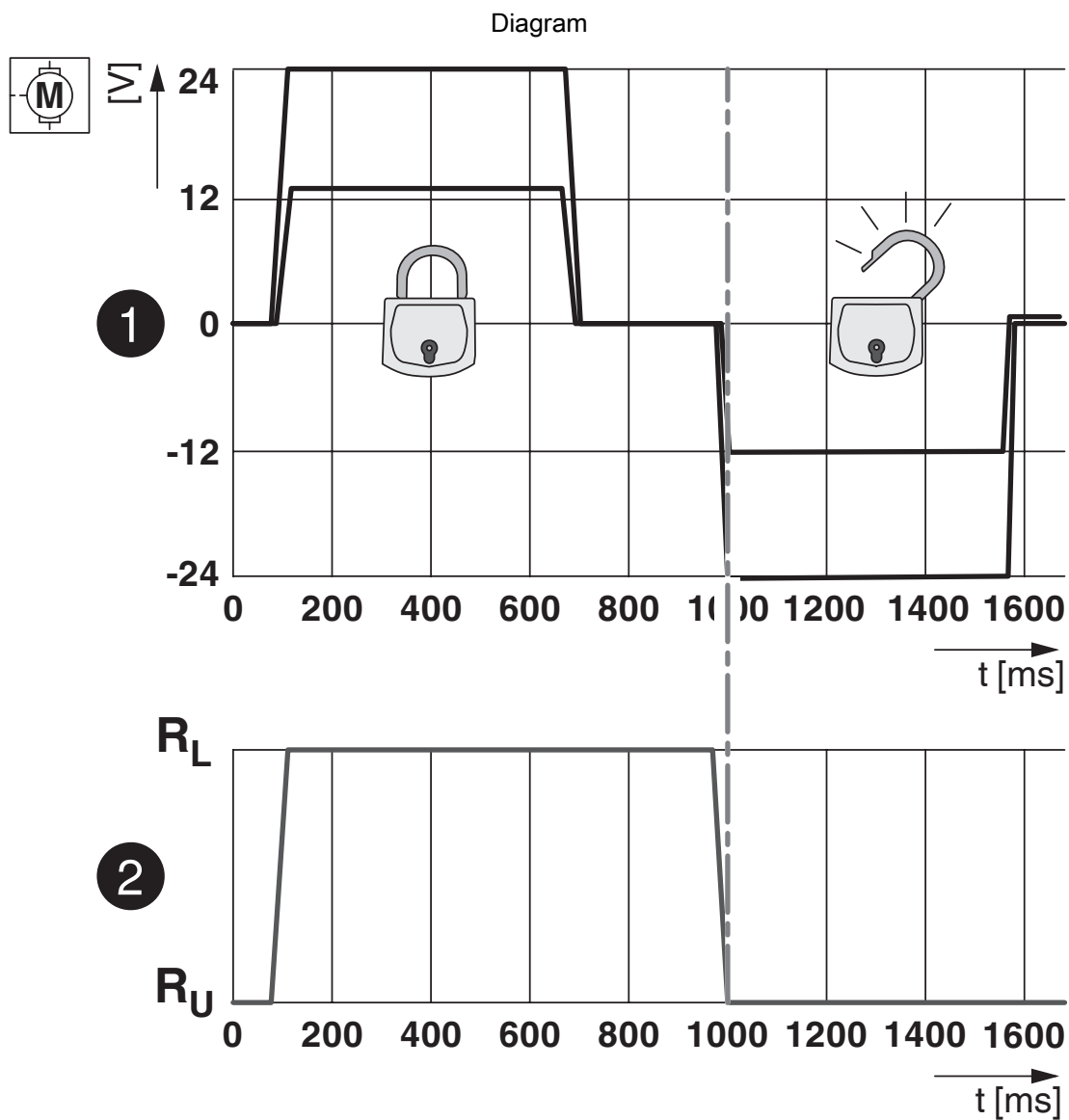
Temperature sensor technology resistance range at AC contacts

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Locking states of the locking actuator

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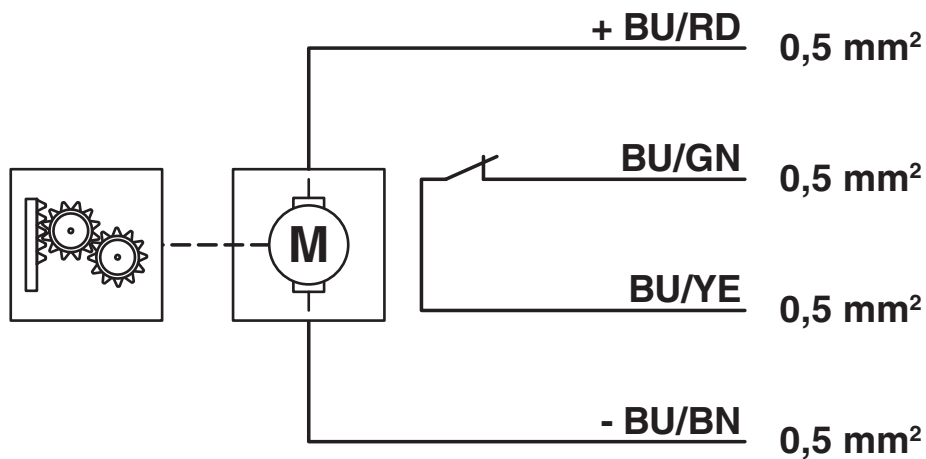
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Diagram



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

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                               | 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) |
|                                     | 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol(CAS: 119-47-1)                                             |

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