

# IPC 16/ 2-ST-10,16 YE - PCB connector



1745166

<https://www.phoenixcontact.com/us/products/1745166>

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The figure shows a 5-pos. version of the product

PCB connector, nominal cross section: 16 mm<sup>2</sup>, color: yellow, nominal current: 76 A, rated voltage (III/2): 1000 V, contact surface: Ag, contact connection type: Pin, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: IPC 16/..-ST, pitch: 10.16 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, locking clip: - without locking clip, plug-in system: COMBICON PC 16, locking: without, mounting method: without, type of packaging: packed in cardboard

## Your advantages

- Well-known connection principle allows worldwide use
- Low temperature rise, thanks to maximum contact force
- Allows connection of two conductors
- Inverted connector with pin contacts for touch-proof device outputs or free-hanging cable/cable connections

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1745166                        |
| Packing unit                         | 25 pc                          |
| Minimum order quantity               | 50 pc                          |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | AA05                           |
| Product key                          | AAEABA                         |
| GTIN                                 | 4046356307819                  |
| Weight per piece (including packing) | 21 g                           |
| Weight per piece (excluding packing) | 19.473 g                       |
| Customs tariff number                | 85366990                       |
| Country of origin                    | PL                             |

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## Technical data

### Product properties

|                       |                        |
|-----------------------|------------------------|
| Product type          | PCB connector          |
| Product family        | IPC 16/..-ST           |
| Product line          | COMBICON Connectors XL |
| Number of positions   | 2                      |
| Pitch                 | 10.16 mm               |
| Number of connections | 2                      |
| Number of rows        | 1                      |
| Number of potentials  | 2                      |
| Mounting type         | without                |

### Electrical properties

#### Properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 76 A   |
| Nominal voltage $U_N$       | 1000 V |
| Contact resistance          | 0.4 mΩ |
| Rated voltage (III/3)       | 1000 V |
| Rated surge voltage (III/3) | 8 kV   |
| Rated voltage (III/2)       | 1000 V |
| Rated surge voltage (III/2) | 8 kV   |
| Rated voltage (II/2)        | 1000 V |
| Rated surge voltage (II/2)  | 6 kV   |

### Connection data

#### Connection technology

|                         |                    |
|-------------------------|--------------------|
| Type                    | Inverted           |
| Connector system        | COMBICON PC 16     |
| Nominal cross section   | 16 mm <sup>2</sup> |
| Contact connection type | Pin                |

#### Interlock

|               |         |
|---------------|---------|
| Locking type  | without |
| Mounting type | without |

#### Conductor connection

|                                                                         |                                             |
|-------------------------------------------------------------------------|---------------------------------------------|
| Connection method                                                       | Screw connection with tension sleeve        |
| Conductor/PCB connection direction                                      | 0 °                                         |
| Conductor cross-section rigid                                           | 0.75 mm <sup>2</sup> ... 16 mm <sup>2</sup> |
| Conductor cross-section flexible                                        | 0.75 mm <sup>2</sup> ... 16 mm <sup>2</sup> |
| Conductor cross-section AWG                                             | 18 ... 6                                    |
| Conductor cross-section, flexible, with ferrule, without plastic sleeve | 0.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>  |

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|                                                                                           |                                            |
|-------------------------------------------------------------------------------------------|--------------------------------------------|
| Conductor cross-section, flexible, with ferrule, with plastic sleeve                      | 0.5 mm <sup>2</sup> ... 10 mm <sup>2</sup> |
| 2 conductors with same cross section, rigid                                               | 0.75 mm <sup>2</sup> ... 6 mm <sup>2</sup> |
| 2 conductors with same cross section, flexible                                            | 0.75 mm <sup>2</sup> ... 6 mm <sup>2</sup> |
| 2 conductors with same cross section, flexible, with ferrule without plastic sleeve       | 0.5 mm <sup>2</sup> ... 4 mm <sup>2</sup>  |
| 2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve | 0.5 mm <sup>2</sup> ... 6 mm <sup>2</sup>  |
| Cylindrical gauge a x b / diameter                                                        | - / 5.4 mm                                 |
| Stripping length                                                                          | 12 mm                                      |
| Drive form screw head                                                                     | Slotted (L)                                |
| Tightening torque                                                                         | 1.7 Nm ... 1.8 Nm                          |

## Material specifications

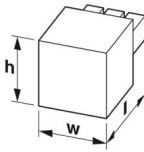
### Material data - contact

|                                          |                                                                                  |
|------------------------------------------|----------------------------------------------------------------------------------|
| Note                                     | WEEE/RoHS-compliant, free of whiskers according to IEC 60068-2-82/JEDEC JESD 201 |
| Contact material                         | Cu alloy                                                                         |
| Surface characteristics                  | completely silver-plated                                                         |
| Metal surface terminal point (top layer) | Silver (4 µm - 8 µm Ag)                                                          |
| Metal surface contact area (top layer)   | Silver (4 µm - 8 µm Ag)                                                          |

### Material data - housing

|                                                                   |               |
|-------------------------------------------------------------------|---------------|
| Color (Housing)                                                   | yellow (1018) |
| Insulating material                                               | PA            |
| Insulating material group                                         | I             |
| CTI according to IEC 60112                                        | 600           |
| Flammability rating according to UL 94                            | V0            |
| Glow wire flammability index GWFI according to EN 60695-2-12      | 850           |
| Glow wire ignition temperature GWIT according to EN 60695-2-13    | 775           |
| Temperature for the ball pressure test according to EN 60695-10-2 | 125 °C        |

## Dimensions

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Pitch               | 10.16 mm                                                                             |
| Width [w]           | 23.36 mm                                                                             |
| Height [h]          | 27.8 mm                                                                              |
| Length [l]          | 44.1 mm                                                                              |

## Notes

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|                    |                                                                                                                                                                                          |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Notes on operation | In accordance with IEC 61984, COMBICON connectors have no switching power (COC). During designated use, they must not be plugged in or disconnected when carrying voltage or under load. |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Mechanical tests

### Test for conductor damage and slackening

|               |                     |
|---------------|---------------------|
| Specification | IEC 60999-1:1999-11 |
| Result        | Test passed         |

### Pull-out test

|                                                                             |                                          |
|-----------------------------------------------------------------------------|------------------------------------------|
| Specification                                                               | IEC 60999-1:1999-11                      |
| Conductor cross-section/conductor type/tractive force setpoint/actual value | 0.75 mm <sup>2</sup> / solid / > 30 N    |
|                                                                             | 0.75 mm <sup>2</sup> / flexible / > 30 N |
|                                                                             | 16 mm <sup>2</sup> / solid / > 100 N     |
|                                                                             | 16 mm <sup>2</sup> / flexible / > 100 N  |

### Insertion and withdrawal forces

|                                     |                        |
|-------------------------------------|------------------------|
| Specification                       | IEC 60512-13-2:2006-02 |
| Result                              | Test passed            |
| No. of cycles                       | 50                     |
| Insertion strength per pos. approx. | 8 N                    |
| Withdraw strength per pos. approx.  | 9 N                    |

### Torque test

|               |                     |
|---------------|---------------------|
| Specification | IEC 60999-1:1999-11 |
|---------------|---------------------|

### Resistance of inscriptions

|               |                        |
|---------------|------------------------|
| Specification | IEC 60068-2-70:1995-12 |
| Result        | Test passed            |

### Polarization and coding

|               |                        |
|---------------|------------------------|
| Specification | IEC 60512-13-5:2006-02 |
| Result        | Test passed            |

### Visual inspection

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60512-1-1:2002-02 |
| Result        | Test passed           |

### Dimension check

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60512-1-2:2002-02 |
| Result        | Test passed           |

## Environmental and real-life conditions

### Durability test

|                                        |                       |
|----------------------------------------|-----------------------|
| Specification                          | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level | 9.8 kV                |
| Contact resistance R <sub>1</sub>      | 0.4 mΩ                |

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|                                              |                |
|----------------------------------------------|----------------|
| Contact resistance $R_2$                     | 0.4 m $\Omega$ |
| Insertion/withdrawal cycles                  | 50             |
| Insulation resistance, neighboring positions | > 5 M $\Omega$ |

## Climatic test

|                                   |                                                                           |
|-----------------------------------|---------------------------------------------------------------------------|
| Specification                     | EN ISO 22479:2022-06                                                      |
| Corrosive stress                  | 0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> /40 °C/1 cycle |
| Thermal stress                    | 105 °C/168 h                                                              |
| Power-frequency withstand voltage | 4.26 kV                                                                   |

## Vibration test

|                        |                             |
|------------------------|-----------------------------|
| Specification          | IEC 60068-2-6:2007-12       |
| Frequency              | 10 - 150 - 10 Hz            |
| Sweep speed            | 1 octave/min                |
| Amplitude              | 0.35 mm (10 Hz ... 60.1 Hz) |
| Acceleration           | 5g (60.1 Hz ... 150 Hz)     |
| Test duration per axis | 2.5 h                       |
| Test directions        | X-, Y- and Z-axis           |

## Ambient conditions

|                                         |                                                     |
|-----------------------------------------|-----------------------------------------------------|
| Ambient temperature (storage/transport) | -40 °C ... 70 °C                                    |
| Relative humidity (storage/transport)   | 30 % ... 70 %                                       |
| Ambient temperature (assembly)          | -5 °C ... 100 °C                                    |
| Ambient temperature (operation)         | -40 °C ... 105 °C (dependent on the derating curve) |

## Electrical tests

### Thermal test | Test group C

|                            |                       |
|----------------------------|-----------------------|
| Specification              | IEC 60512-5-1:2002-02 |
| Tested number of positions | 9                     |

### Insulation resistance

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-3-1:2002-02 |
| Insulation resistance, neighboring positions | > 5 M $\Omega$        |

### Air clearances and creepage distances | 1. Insulation coordination

|                                                        |                   |
|--------------------------------------------------------|-------------------|
| Specification                                          | IEC 61984:2008-10 |
| Insulating material group                              | I                 |
| Comparative tracking index (IEC 60112)                 | CTI 600           |
| Rated insulation voltage (III/3)                       | 1000 V            |
| Rated surge voltage (III/3)                            | 8 kV              |
| minimum clearance value - non-homogenous field (III/3) | 8 mm              |
| minimum creepage distance (III/3)                      | 12.5 mm           |
| Rated insulation voltage (III/2)                       | 1000 V            |
| Rated surge voltage (III/2)                            | 8 kV              |
| minimum clearance value - non-homogenous field (III/2) | 8 mm              |
| minimum creepage distance (III/2)                      | 8 mm              |

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|                                                       |        |
|-------------------------------------------------------|--------|
| Rated insulation voltage (II/2)                       | 1000 V |
| Rated surge voltage (II/2)                            | 6 kV   |
| minimum clearance value - non-homogenous field (II/2) | 5.5 mm |
| minimum creepage distance (II/2)                      | 5.5 mm |

## Air clearances and creepage distances | 2. Insulation coordination

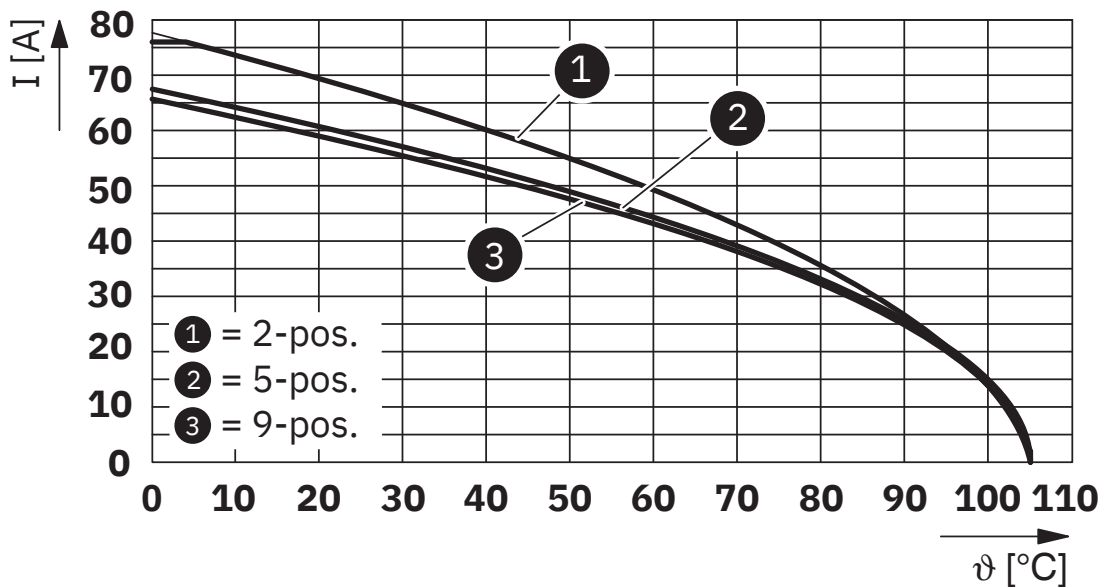
|                                                        |                     |
|--------------------------------------------------------|---------------------|
| Specification                                          | IEC 60664-1:2020-05 |
| Insulating material group                              | I                   |
| Comparative tracking index (IEC 60112)                 | CTI 600             |
| Rated insulation voltage (III/3)                       | 1000 V AC/DC        |
| Rated surge voltage (III/3)                            | 8 kV                |
| minimum clearance value - non-homogenous field (III/3) | 8 mm                |
| minimum creepage distance (III/3)                      | 12.5 mm             |
| Rated insulation voltage (III/2)                       | 1250 V DC           |
| Rated surge voltage (III/2)                            | 8 kV                |
| minimum clearance value - non-homogenous field (III/2) | 8 mm                |
| minimum creepage distance (III/2)                      | 8 mm                |
| Rated insulation voltage (II/2)                        | 1500 V DC           |
| Rated surge voltage (II/2)                             | 8 kV                |
| minimum clearance value - non-homogenous field (II/2)  | 8 mm                |
| minimum creepage distance (II/2)                       | 8 mm                |

## Packaging specifications

|                   |                     |
|-------------------|---------------------|
| Type of packaging | packed in cardboard |
|-------------------|---------------------|

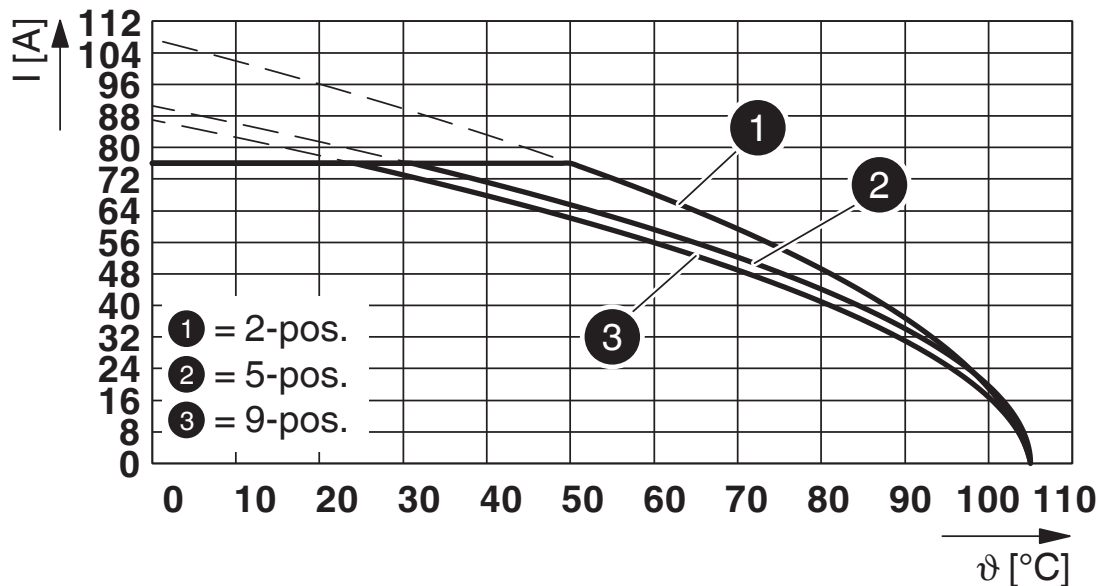
Drawings

Diagram



Type: IPC 16/...-ST-10,16 with IPC 16/...-G-10,16

Diagram

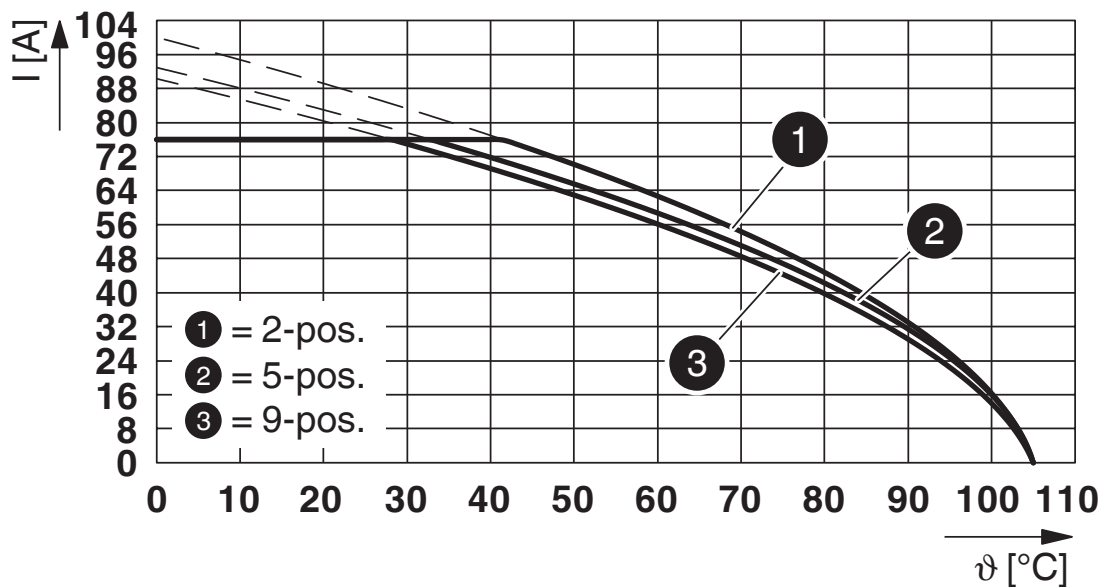


Type: PC 16/...-ST-10,16 with industrial PC 16/...-ST-10,16

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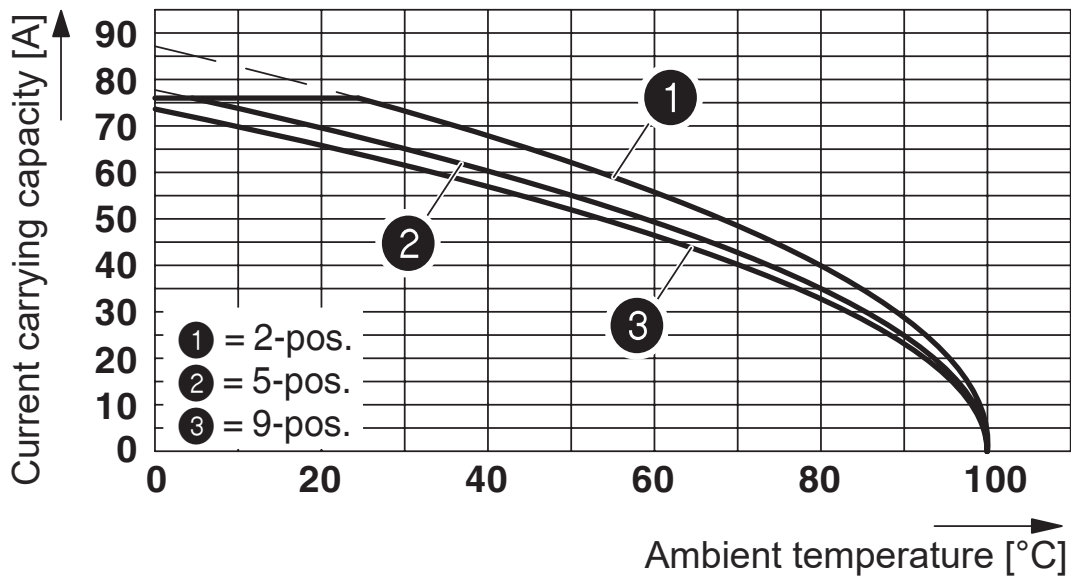
<https://www.phoenixcontact.com/us/products/1745166>

Diagram



Type: SPC 16/...-ST-10,16 with IPC 16/...-ST-10,16

Diagram



Type: IPC 16/..-ST-10,16 with DFK-IPC 16/..-G-10,16

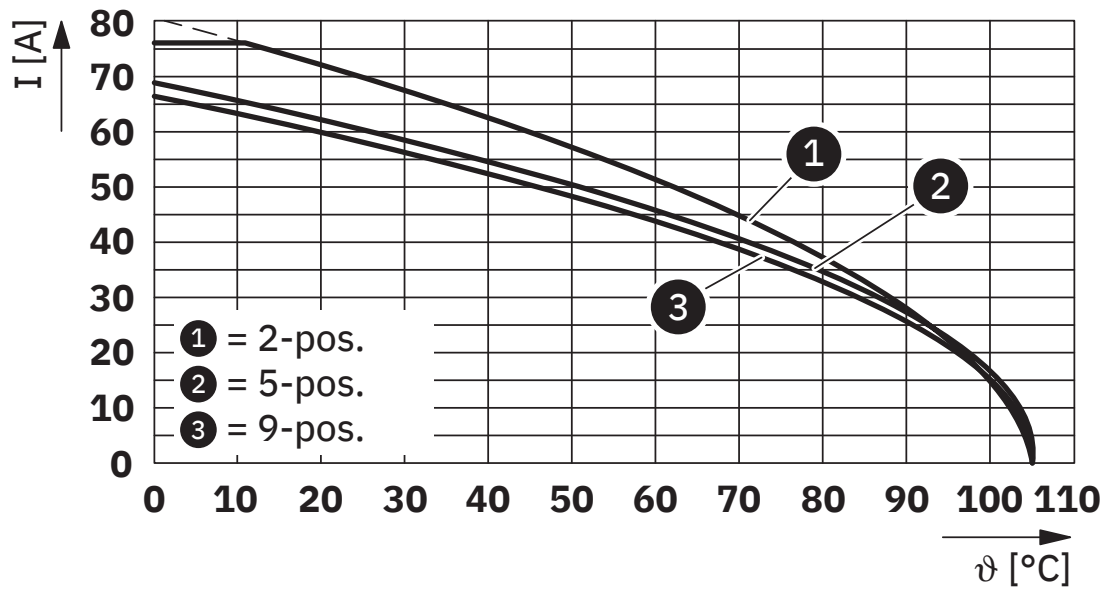
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Diagram



Type: IPC 16/...-ST-10,16 with IPC 16/...-GU-10,16

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27460202 |
| ECLASS-15.0 | 27460202 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC002638 |
|-----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121400 |
|-------------|----------|

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## Environmental product compliance

### EU RoHS

|                                         |                    |
|-----------------------------------------|--------------------|
| Fulfills EU RoHS substance requirements | Yes, No exemptions |
|-----------------------------------------|--------------------|

### China RoHS

|                                        |                                          |
|----------------------------------------|------------------------------------------|
| Environment friendly use period (EFUP) | EFUP-E                                   |
|                                        | No hazardous substances above the limits |

### EU REACH SVHC

|                                     |                            |
|-------------------------------------|----------------------------|
| REACH candidate substance (CAS No.) | No substance above 0.1 wt% |
|-------------------------------------|----------------------------|

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 0.241 kg CO2e |
|---------|---------------|

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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)