

SPC 4/12-ST-6,35 - PCB connector

1233107

<https://www.phoenixcontact.com/us/products/1233107>

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PCB connector, nominal cross section: 4 mm², color: black, nominal current: 24 A, rated voltage (III/2): 1000 V, contact surface: Sn, contact connection type: Socket, number of potentials: 12, number of rows: 1, number of positions: 12, number of connections: 12, product range: SPC 4/-ST, pitch: 6.35 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, locking clip: - without locking clip, plug-in system: COMBICON PC 4, locking: without, mounting method: without, type of packaging: packed in cardboard

Your advantages

- 600 V UL approval in the smallest of dimensions
- Increased touch protection in accordance with IEC/UL 61800-5-1
- Time saving push-in connection, tools not required
- Optimized for tight installation situations: operation and conductor connection from one direction
- Defined contact force ensures that contact remains stable over the long term

Commercial data

| | |
|--------------------------------------|--------------------------------|
| Item number | 1233107 |
| Packing unit | 25 pc |
| Minimum order quantity | 25 pc |
| Note | Made to order (non-returnable) |
| Sales key | AA04 |
| Product key | AADFAA |
| GTIN | 4063151336110 |
| Weight per piece (including packing) | 44.948 g |
| Weight per piece (excluding packing) | 2.22 g |
| Customs tariff number | 85366990 |
| Country of origin | CN |

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Technical data

Product properties

| | |
|-----------------------|-----------------------|
| Product type | PCB connector |
| Product family | SPC 4/..-ST |
| Product line | COMBICON Connectors L |
| Number of positions | 12 |
| Pitch | 6.35 mm |
| Number of connections | 12 |
| Number of rows | 1 |
| Number of potentials | 12 |

Electrical properties

Properties

| | |
|-----------------------------|---------|
| Nominal current I_N | 24 A |
| Nominal voltage U_N | 1000 V |
| Contact resistance | 0.81 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

| | |
|-------------------------|-------------------|
| Connector system | COMBICON PC 4 |
| Nominal cross section | 4 mm ² |
| Contact connection type | Socket |

Interlock

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

Conductor connection

| | |
|---|--|
| Connection method | Push-in spring connection |
| Conductor/PCB connection direction | 0 ° |
| Conductor cross-section rigid | 0.2 mm ² ... 4 mm ² |
| Conductor cross-section flexible | 0.2 mm ² ... 4 mm ² |
| Conductor cross-section AWG | 24 ... 10 |
| Conductor cross-section, flexible, with ferrule, without plastic sleeve | 0.25 mm ² ... 4 mm ² |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve | 0.25 mm ² ... 4 mm ² |
| Cylindrical gauge a x b / diameter | 3.6 mm x 3.1 mm / 3.0 mm |

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| | |
|------------------|-----------------|
| Stripping length | 10 mm ... 12 mm |
|------------------|-----------------|

Specifications for ferrules without insulating collar

| | |
|--|--|
| recommended crimping tool | 1212034 CRIMPFOX 6 |
| ferrules without insulating collar, according to DIN 46228-1 | Cross section: 0.5 mm ² ; Length: 10 mm |
| | Cross section: 0.75 mm ² ; Length: 10 mm |
| | Cross section: 1 mm ² ; Length: 10 mm |
| | Cross section: 1.5 mm ² ; Length: 10 mm ... 12 mm |
| | Cross section: 2.5 mm ² ; Length: 12 mm |
| | Cross section: 4 mm ² ; Length: 12 mm |

Specifications for ferrules with insulating collar

| | |
|---|---|
| recommended crimping tool | 1212034 CRIMPFOX 6 |
| ferrules with insulating collar, according to DIN 46228-4 | Cross section: 0.25 mm ² ; Length: 10 mm ... 12 mm |
| | Cross section: 0.34 mm ² ; Length: 10 mm ... 12 mm |
| | Cross section: 0.5 mm ² ; Length: 10 mm ... 12 mm |
| | Cross section: 0.75 mm ² ; Length: 10 mm ... 12 mm |
| | Cross section: 1 mm ² ; Length: 10 mm ... 12 mm |
| | Cross section: 1.5 mm ² ; Length: 10 mm ... 12 mm |
| | Cross section: 2.5 mm ² ; Length: 10 mm ... 12 mm |
| | Cross section: 4 mm ² ; Length: 10 mm ... 12 mm |

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 | hot-dip tin-plated |
| Metal surface terminal point (top layer) | Tin (4 µm - 8 µm Sn) |
| Metal surface contact area (top layer) | Tin (4 µm - 8 µm Sn) |

Material data - housing

| | |
|---|--------------|
| Color (Housing) | black (9005) |
| 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 | 300 °C |

Material data – actuating element

| | |
|---------------------------|---------------|
| Color (Actuating element) | orange (2003) |
| Insulating material | PA |

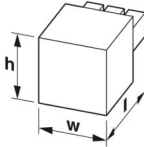
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| | |
|--|-----|
| Insulating material group | I |
| CTI according to IEC 60112 | 600 |
| Flammability rating according to UL 94 | V0 |

Dimensions

| | |
|---------------------|--|
| Dimensional drawing |  |
| Pitch | 6.35 mm |
| Width [w] | 77.4 mm |
| Height [h] | 16.6 mm |
| Length [l] | 36.85 mm |

Notes

| | |
|--------------------|--|
| 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

Conductor connection

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

Test for conductor damage and slackening

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

Repeated connection and disconnection

| | |
|---------------|---------------------|
| 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 | 0.2 mm ² / solid / > 10 N |
| | 0.2 mm ² / flexible / > 10 N |
| | 4 mm ² / solid / > 60 N |
| | 4 mm ² / flexible / > 60 N |

Insertion and withdrawal forces

| | |
|-------------------------------------|------------------------|
| Specification | IEC 60512-13-2:2006-02 |
| Result | Test passed |
| No. of cycles | 25 |
| Insertion strength per pos. approx. | 8 N |

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| | |
|------------------------------------|------------------------|
| Withdraw strength per pos. approx. | 6 N |
| 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_1 | 0.81 m Ω |
| Contact resistance R_2 | 0.95 m Ω |
| Insertion/withdrawal cycles | 25 |
| Insulation resistance, neighboring positions | > 5 M Ω |

Climatic test

| | |
|-----------------------------------|---|
| Specification | EN ISO 22479:2022-06 |
| Corrosive stress | 0.2 dm ³ SO ₂ on 300 dm ³ /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 | 50 m/s ² (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) |

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Electrical tests

Thermal test | Test group C

| | |
|----------------------------|-----------------------|
| Specification | IEC 60512-5-1:2002-02 |
| Tested number of positions | 12 |

Insulation resistance

| | |
|--|-----------------------|
| Specification | IEC 60512-3-1:2002-02 |
| Insulation resistance, neighboring positions | > 5 MΩ |

Temperature cycles

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

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 |
| 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 |

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| | |
|---|------|
| minimum clearance value - non-homogenous field (I1/2) | 8 mm |
| minimum creepage distance (I1/2) | 8 mm |

Packaging specifications

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

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Drawings

Diagram



Type: SPC 4/...-ST-6,35 with PC 4/...-G-6,35 P... THR

Diagram



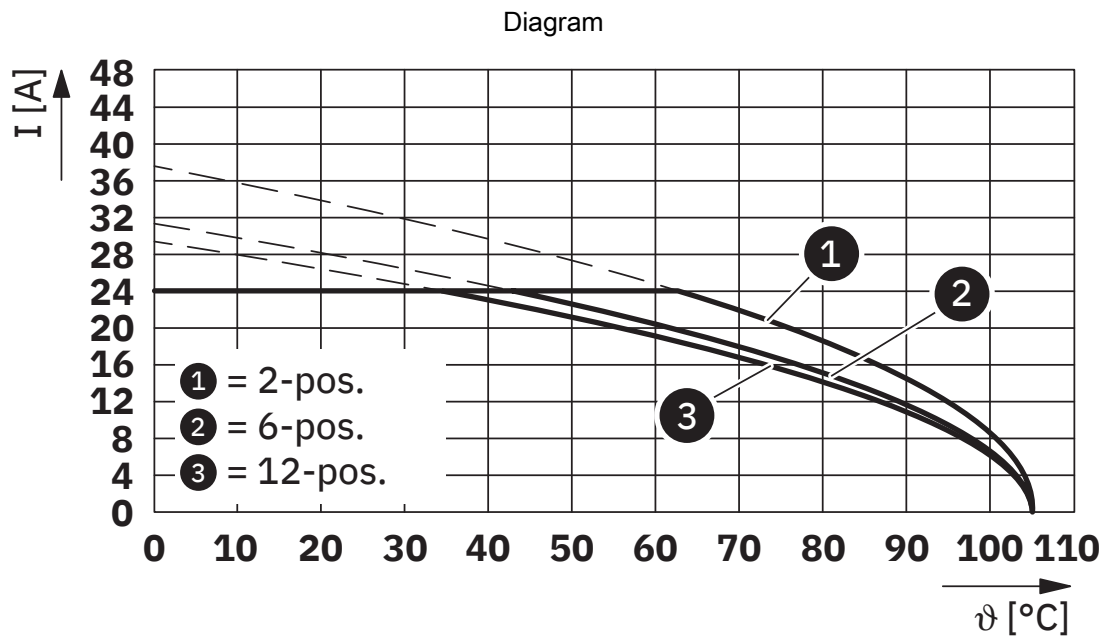
Type: SPC 4/...-ST-6,35 with PCV 4/...-G-6,35 P... THR

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Type: SPC 4/...-ST-6,35 with PC 4/...-GU-6,35 P... THR

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1233107>

|  UL Recognized Approval ID: E60425-20240415 | | | | |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| F | 600 V | 23 A | 24 - 10 | - |

|  cULus Recognized Approval ID: E60425-20240415 | | | | |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| B | 600 V | 23 A | 24 - 10 | - |
| C | 600 V | 23 A | 24 - 10 | - |
| D | 600 V | 5 A | 24 - 10 | - |

|  VDE Zeichengenehmigung Approval ID: 40061144 | | | | |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| keine | 1000 V | 24 A | - | 0.2 - 4 |

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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% |
|-------------------------------------|----------------------------|

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