

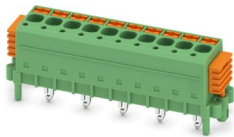
# SDC 2,5/10-PV-5,0-ZB - Direct connector



1864118

<https://www.phoenixcontact.com/us/products/1864118>

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PCB direct plug, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Sn, number of potentials: 10, number of rows: 1, number of positions: 10, number of connections: 10, product range: SDC 2,5/..-PV, pitch: 5 mm, connection method: Push-in spring connection, mounting: SKEDD - Direct plug-in technology, conductor/PCB connection direction: 90 °, pin layout: Zigzag pinning W, solder pin [P]: 5 mm, plug-in system: SKEDD, locking: Snap-in locking, mounting method: Latching flange, type of packaging: packed in cardboard

## Your advantages

- SKEDD direct plug-in technology enables flexible positioning on the PCB
- Reduced component and process costs: simple insertion by hand and vibration-resistant connection
- Wide range of applications, thanks to suitability for PCBs with chemically tin-plated or Hot Air Leveling (HAL) surface
- Time saving push-in connection, tools not required
- Intuitive operation due to color-coded actuating push button
- Quick and convenient testing using integrated test option

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1864118                        |
| Packing unit                         | 50 pc                          |
| Minimum order quantity               | 50 pc                          |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | AA03                           |
| Product key                          | AACDBA                         |
| GTIN                                 | 4055626210513                  |
| Weight per piece (including packing) | 12.604 g                       |
| Weight per piece (excluding packing) | 11.717 g                       |
| Customs tariff number                | 85366990                       |
| Country of origin                    | SK                             |

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## Technical data

### Product properties

|                       |                       |
|-----------------------|-----------------------|
| Product type          | PCB direct plug       |
| Product family        | SDC 2,5/...-PV        |
| Product line          | COMBICON Connectors M |
| Number of positions   | 10                    |
| Pitch                 | 5 mm                  |
| Number of connections | 10                    |
| Number of rows        | 1                     |
| Number of potentials  | 10                    |
| Pin layout            | Zigzag pinning W      |

### Electrical properties

#### Properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 12 A   |
| Nominal voltage $U_N$       | 320 V  |
| Contact resistance          | 1.1 mΩ |
| Rated voltage (III/3)       | 200 V  |
| Rated surge voltage (III/3) | 4 kV   |
| Rated voltage (III/2)       | 320 V  |
| Rated surge voltage (III/2) | 4 kV   |
| Rated voltage (II/2)        | 320 V  |
| Rated surge voltage (II/2)  | 4 kV   |

### Connection data

#### Connection technology

|                       |                     |
|-----------------------|---------------------|
| Connector system      | SKEDD               |
| Nominal cross section | 2.5 mm <sup>2</sup> |

#### Interlock

|               |                 |
|---------------|-----------------|
| Locking type  | Snap-in locking |
| Mounting type | Latching flange |

#### Conductor connection

|                                                                       |                                              |
|-----------------------------------------------------------------------|----------------------------------------------|
| Connection method                                                     | Push-in spring connection                    |
| Connection direction of the conductor to plug-in direction            | 0 °                                          |
| Conductor cross-section rigid                                         | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| Conductor cross-section flexible                                      | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| Conductor cross-section AWG                                           | 24 ... 12                                    |
| Conductor cross-section flexible, with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve  | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Cylindrical gauge a x b / diameter                                    | 2.4 mm x 1.5 mm / 2.4 mm                     |

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|                  |       |
|------------------|-------|
| Stripping length | 10 mm |
|------------------|-------|

## Conductor connection

|                   |                           |
|-------------------|---------------------------|
| Connection method | Push-in spring connection |
| Stripping length  | 10 mm                     |

## Specifications for ferrules without insulating collar

|                                                              |                                                             |
|--------------------------------------------------------------|-------------------------------------------------------------|
| recommended crimping tool                                    | 1212045 CRIMPFOX 10S                                        |
| ferrules without insulating collar, according to DIN 46228-1 | Cross section: 0.25 mm <sup>2</sup> ; Length: 7 mm          |
|                                                              | Cross section: 0.34 mm <sup>2</sup> ; Length: 7 mm          |
|                                                              | Cross section: 0.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm |
|                                                              | Cross section: 0.75 mm <sup>2</sup> ; Length: 10 mm         |
|                                                              | Cross section: 1 mm <sup>2</sup> ; Length: 10 mm            |
|                                                              | Cross section: 2.5 mm <sup>2</sup> ; Length: 10 mm          |

## Specifications for ferrules with insulating collar

|                                                           |                                                              |
|-----------------------------------------------------------|--------------------------------------------------------------|
| recommended crimping tool                                 | 1212045 CRIMPFOX 10S                                         |
| ferrules with insulating collar, according to DIN 46228-4 | Cross section: 0.25 mm <sup>2</sup> ; Length: 8 mm           |
|                                                           | Cross section: 0.34 mm <sup>2</sup> ; Length: 8 mm ... 10 mm |
|                                                           | Cross section: 0.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm  |
|                                                           | Cross section: 0.75 mm <sup>2</sup> ; Length: 8 mm ... 10 mm |
|                                                           | Cross section: 1 mm <sup>2</sup> ; Length: 8 mm ... 10 mm    |
|                                                           | Cross section: 1.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm  |
|                                                           | Cross section: 2.5 mm <sup>2</sup> ; Length: 10 mm           |

## Mounting

|               |                                   |
|---------------|-----------------------------------|
| Mounting type | SKEDD - Direct plug-in technology |
| Pin layout    | Zigzag pinning W                  |

## 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                     | Tin-plated                                                                       |
| Metal surface terminal point (top layer)    | Tin (4 - 8 µm Sn)                                                                |
| Metal surface terminal point (middle layer) | Nickel (1.5 - 4 µm Ni)                                                           |
| Metal surface contact area (top layer)      | Tin (4 - 8 µm Sn)                                                                |
| Metal surface contact area (middle layer)   | Nickel (1.5 - 4 µm Ni)                                                           |

### Material data - housing

|                                        |              |
|----------------------------------------|--------------|
| Color (Housing)                        | green (6021) |
| Insulating material                    | PA           |
| Insulating material group              | I            |
| CTI according to IEC 60112             | 600          |
| Flammability rating according to UL 94 | V0           |

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

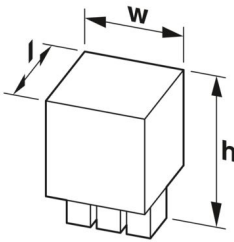
## Material data – actuating element

|                                        |      |
|----------------------------------------|------|
| Insulating material                    | PBT  |
| Insulating material group              | IIIa |
| CTI according to IEC 60112             | 275  |
| Flammability rating according to UL 94 | V0   |

## 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. |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Dimensions

|                       |                                                                                      |
|-----------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing   |  |
| Pitch                 | 5 mm                                                                                 |
| Width [w]             | 58.18 mm                                                                             |
| Height [h]            | 21.2 mm                                                                              |
| Length [l]            | 15.3 mm                                                                              |
| Installed height      | 16.2 mm                                                                              |
| Solder pin length [P] | 5 mm                                                                                 |

## PCB design

|               |          |
|---------------|----------|
| Pin spacing   | 10.00 mm |
| Hole diameter | 2.4 mm   |

## 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

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|               |                     |
|---------------|---------------------|
| 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 <sup>2</sup> / solid / > 10 N    |
|                                                                             | 0.2 mm <sup>2</sup> / flexible / > 10 N |
|                                                                             | 2.5 mm <sup>2</sup> / solid / > 50 N    |
|                                                                             | 2.5 mm <sup>2</sup> / flexible / > 50 N |

## Insertion and withdrawal forces

|                                     |             |
|-------------------------------------|-------------|
| Result                              | Test passed |
| No. of cycles                       | 25          |
| Insertion strength per pos. approx. | 8 N         |
| Withdraw strength per pos. approx.  | 6 N         |

## Contact holder in insert

|                                             |                        |
|---------------------------------------------|------------------------|
| Specification                               | IEC 60512-15-1:2008-05 |
| Contact holder in insert Requirements >20 N | Test passed            |

## 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           |

## Electrical tests

### Thermal test | Test group C

|                            |                       |
|----------------------------|-----------------------|
| Specification              | IEC 60512-5-1:2002-02 |
| Tested number of positions | 16                    |

### Insulation resistance

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

### Temperature cycles

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

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| Result                                                 | Test passed         |
|--------------------------------------------------------|---------------------|
| Air clearances and creepage distances                  |                     |
| Specification                                          | IEC 60664-1:2007-04 |
| Insulating material group                              | I                   |
| Comparative tracking index (IEC 60112)                 | CTI 275             |
| Rated insulation voltage (III/3)                       | 200 V               |
| Rated surge voltage (III/3)                            | 4 kV                |
| minimum clearance value - non-homogenous field (III/3) | 3 mm                |
| minimum creepage distance (III/3)                      | 3.2 mm              |
| Rated insulation voltage (III/2)                       | 320 V               |
| Rated surge voltage (III/2)                            | 4 kV                |
| minimum clearance value - non-homogenous field (III/2) | 3 mm                |
| minimum creepage distance (III/2)                      | 3.2 mm              |
| Rated insulation voltage (II/2)                        | 320 V               |
| Rated surge voltage (II/2)                             | 4 kV                |
| minimum clearance value - non-homogenous field (II/2)  | 3 mm                |
| minimum creepage distance (II/2)                       | 3.2 mm              |

## Environmental and real-life conditions

### 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           |

### Durability test

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 4.8 kV                |
| Contact resistance $R_1$                     | 1.1 mΩ                |
| Contact resistance $R_2$                     | 1.1 mΩ                |
| Insertion/withdrawal cycles                  | 25                    |
| Insulation resistance, neighboring positions | > 5 MΩ                |

### Climatic test

|                                   |                                                                           |
|-----------------------------------|---------------------------------------------------------------------------|
| Specification                     | ISO 6988:1985-02                                                          |
| Corrosive stress                  | 0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> /40 °C/1 cycle |
| Thermal stress                    | 100 °C/168 h                                                              |
| Power-frequency withstand voltage | 2.21 kV                                                                   |

### Ambient conditions

|                                 |                                                     |
|---------------------------------|-----------------------------------------------------|
| Ambient temperature (operation) | -40 °C ... 100 °C (dependent on the derating curve) |
|---------------------------------|-----------------------------------------------------|

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|                                         |                  |
|-----------------------------------------|------------------|
| Ambient temperature (storage/transport) | -40 °C ... 70 °C |
| Relative humidity (storage/transport)   | 30 % ... 70 %    |
| Ambient temperature (assembly)          | -5 °C ... 100 °C |

## Packaging specifications

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

## Drawings

Dimensional drawing

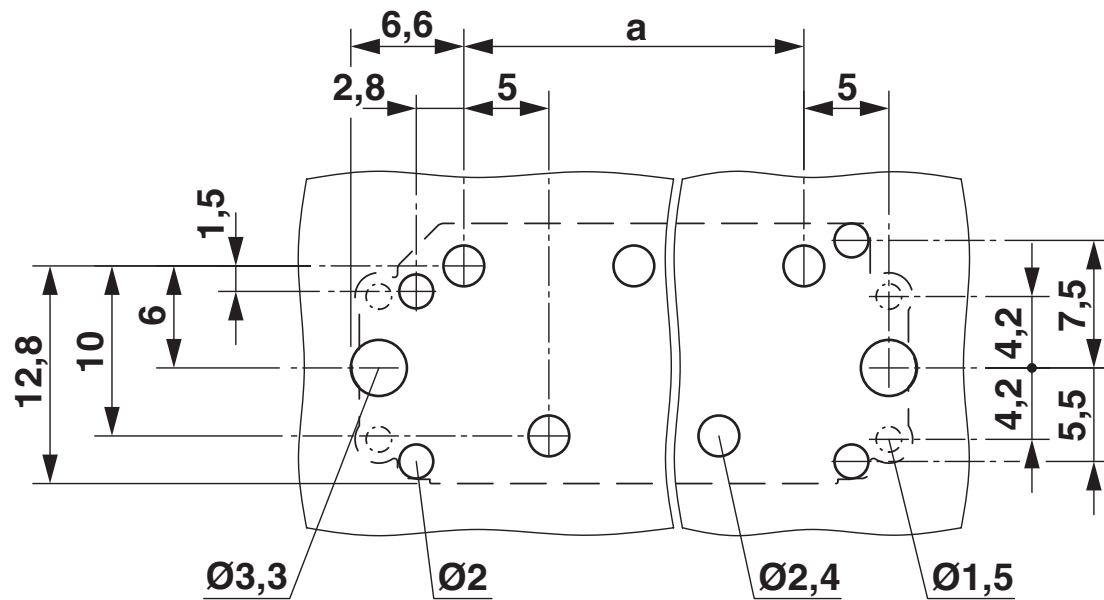


Diagram



Type: SDC 2,5/...-PV-5,0-ZB

Drilling plan/solder pad geometry



Size of the PCB: 1.6 mm

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1864118>

|  <b>cULus Recognized</b><br>Approval ID: E60425-20160718 |                       |                       |                   |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                           | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| B                                                                                                                                         |                       |                       |                   |                             |
|                                                                                                                                           | 300 V                 | 12 A                  | 24 - 12           | -                           |
| D                                                                                                                                         |                       |                       |                   |                             |
|                                                                                                                                           | 300 V                 | 10 A                  | 24 - 12           | -                           |

|  <b>VDE Zeichengenehmigung</b><br>Approval ID: 40044617 |                       |                       |                   |                             |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                          | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine                                                                                                                                    |                       |                       |                   |                             |
|                                                                                                                                          | 320 V                 | 12 A                  | -                 | 0.2 - 2.5                   |

|  <b>UL Recognized</b><br>Approval ID: E60425-20160718 |                       |                       |                   |                             |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                          | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| F                                                                                                                                        |                       |                       |                   |                             |
|                                                                                                                                          | 250 V                 | 12 A                  | 24 - 12           | -                           |

# SDC 2,5/10-PV-5,0-ZB - Direct connector



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## Classifications

### ECLASS

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

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | 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%               |
| EF3.0 Climate Change                    |                                          |
| CO2e kg                                 | 0.24 kg CO2e                             |

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