

# PC 6-16/ 3-G1F-10,16 - PCB header



1999013

<https://www.phoenixcontact.com/us/products/1999013>

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PCB headers, nominal cross section: 16 mm<sup>2</sup>, color: green, nominal current: 76 A (41 A in combination with PC 6 plug), rated voltage (III/2): 1000 V, contact surface: Silver, contact connection type: Pin, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: PC 6-16/..-G1F, pitch: 10.16 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 4 mm, number of solder pins per potential: 3, plug-in system: COMBICON PC 16, Pin connector pattern alignment: Standard, locking: Screw locking mechanism, mounting: Threaded flange, type of packaging: packed in cardboard

## Your advantages

- Well-known mounting principle allows worldwide use
- Screwable flange for superior mechanical stability
- Maximum flexibility when it comes to device design – one header for connectors with different connection technologies

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 1999013             |
| Packing unit                         | 50 pc               |
| Minimum order quantity               | 50 pc               |
| Sales key                            | AA05                |
| Product key                          | AAESBB              |
| Catalog page                         | Page 567 (C-1-2013) |
| GTIN                                 | 4046356038515       |
| Weight per piece (including packing) | 18.422 g            |
| Weight per piece (excluding packing) | 17.535 g            |
| Customs tariff number                | 85366930            |
| Country of origin                    | PL                  |

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## Technical data

### Product properties

|                           |                        |
|---------------------------|------------------------|
| Product type              | PCB headers            |
| Product family            | PC 6-16/...-G1F        |
| Product line              | COMBICON Connectors XL |
| Type                      | Headers                |
| Number of positions       | 3                      |
| Pitch                     | 10.16 mm               |
| Number of connections     | 3                      |
| Number of rows            | 1                      |
| Number of potentials      | 3                      |
| Mounting flange           | Threaded flange        |
| Pin layout                | Linear pinning         |
| Solder pins per potential | 3                      |

### Electrical properties

|                             |                                           |
|-----------------------------|-------------------------------------------|
| Nominal current $I_N$       | 76 A (41 A in combination with PC 6 plug) |
| Nominal voltage $U_N$       | 1000 V                                    |
| Contact resistance          | 0.3 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                                      |

### Mounting

|               |                |
|---------------|----------------|
| Mounting type | Wave soldering |
| Pin layout    | Linear pinning |

### Flange

|                   |                   |
|-------------------|-------------------|
| Tightening torque | 0.3 Nm ... 0.7 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                     | Electroplated silver                                                             |
| Metal surface contact area (top layer)      | Silver (4 - 8 μm Ag)                                                             |
| Metal surface contact area (middle layer)   | Nickel (2 - 4 μm Ni)                                                             |
| Metal surface soldering area (top layer)    | Silver (4 - 8 μm Ag)                                                             |
| Metal surface soldering area (middle layer) | Nickel (2 - 4 μm Ni)                                                             |

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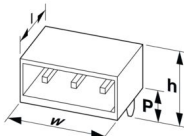
## Material data - housing

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

## Notes

|         |                                                                                                                                                                                          |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General | 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                 | 10.16 mm                                                                             |
| Width [w]             | 48.24 mm                                                                             |
| Height [h]            | 17.4 mm                                                                              |
| Length [l]            | 34 mm                                                                                |
| Installed height      | 13.4 mm                                                                              |
| Solder pin length [P] | 4 mm                                                                                 |
| Pin dimensions        | 1 x 1.2 mm                                                                           |

## PCB design

|               |          |
|---------------|----------|
| Pin spacing   | 10.16 mm |
| Hole diameter | 1.7 mm   |

## Mechanical tests

### Visual inspection

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

### Dimension check

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

### Resistance of inscriptions

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

## Polarization and coding

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

## Contact holder in insert

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

## Insertion and withdrawal forces

|                                     |             |
|-------------------------------------|-------------|
| Result                              | Test passed |
| No. of cycles                       | 50          |
| Insertion strength per pos. approx. | 14 N        |
| Withdraw strength per pos. approx.  | 12 N        |

## Electrical tests

### Thermal test | Test group C

|                            |                       |
|----------------------------|-----------------------|
| Specification              | IEC 60512-5-1:2002-02 |
| Tested number of positions | 8                     |

### Insulation resistance

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

### Air clearances and creepage distances |

|                                                        |                     |
|--------------------------------------------------------|---------------------|
| Specification                                          | IEC 60664-1:2007-04 |
| 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              |

## Environmental and real-life conditions

### Vibration test

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

## Durability test

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 9.8 kV                |
| Contact resistance $R_1$                     | 0.3 mΩ                |
| Contact resistance $R_2$                     | 0.3 mΩ                |
| Insertion/withdrawal cycles                  | 50                    |
| 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                    | 105 °C/168 h                                                              |
| Power-frequency withstand voltage | 4.26 kV                                                                   |

## Ambient conditions

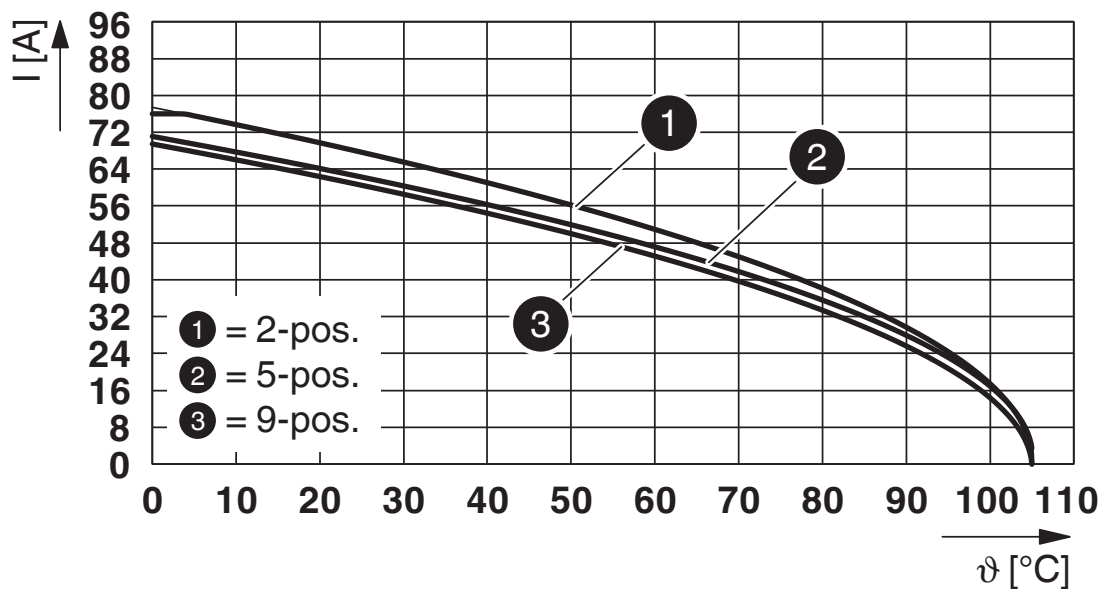
|                                         |                                                     |
|-----------------------------------------|-----------------------------------------------------|
| Ambient temperature (operation)         | -40 °C ... 105 °C (dependent on the derating curve) |
| Ambient 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 |
|-------------------|---------------------|

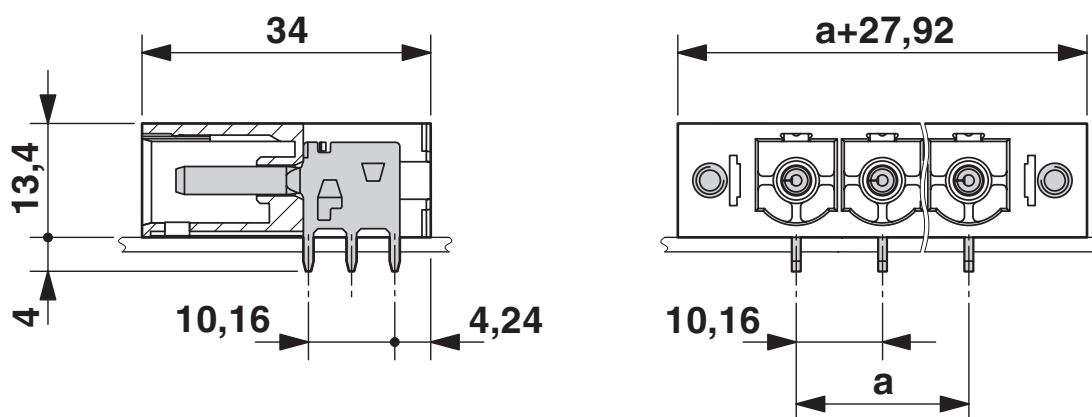
## Drawings

Diagram

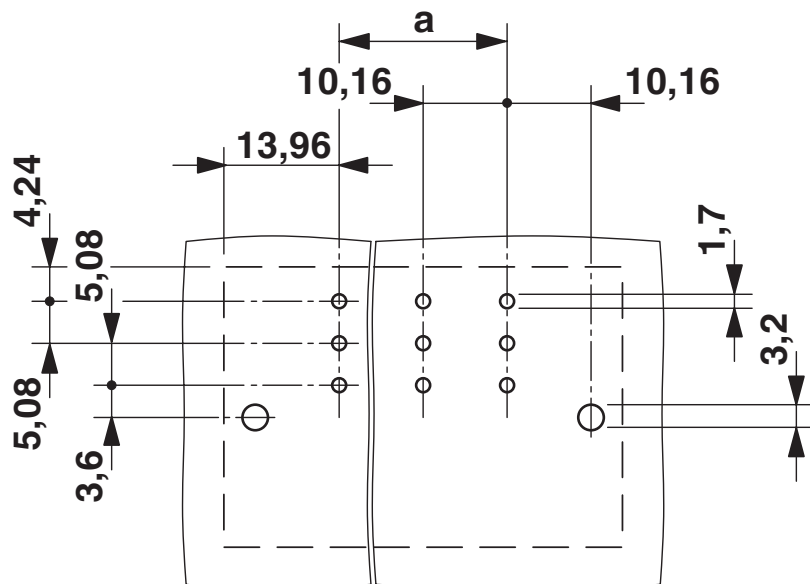


Type: PC 16/...-STF-10,16 with PC 6-16/...-G1F-10,16

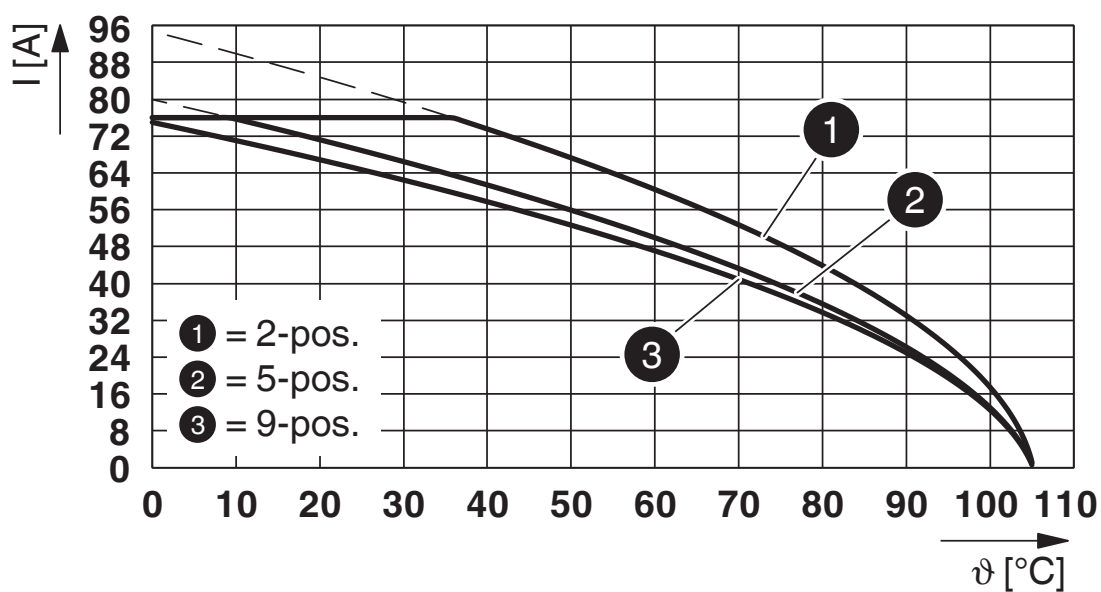
Dimensional drawing



Drilling plan/solder pad geometry



Diagram



Type: SPC 16/...-STF-10,16 with PC 6-16/...-G1F-10,16

# PC 6-16/ 3-G1F-10,16 - PCB header



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1999013>

|  <b>cULus Recognized</b><br>Approval ID: E60425-20040202 |                       |                       |                   |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                           | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B                                                                                                                               | 300 V                 | 66 A                  | -                 | -                           |
| Use group C                                                                                                                               | 300 V                 | 66 A                  | -                 | -                           |
| Use group D                                                                                                                               | 600 V                 | 5 A                   | -                 | -                           |

|  <b>VDE Zeichengenehmigung</b><br>Approval ID: 40055586 |                       |                       |                   |                             |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                          | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|                                                                                                                                          | 1000 V                | 76 A                  | -                 | -                           |

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27460201 |
| ECLASS-12.0 | 27460201 |
| ECLASS-13.0 | 27460201 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC002637 |
|----------|----------|

### 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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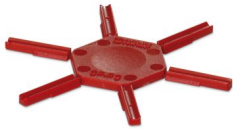
## Accessories

### CP-PC RD - Coding profile

1701967

<https://www.phoenixcontact.com/us/products/1701967>

Coding profile, for plugging into the coding ribs of the plug at a later date, insulating material, color: Red



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### DFK-PC 16-SS - Accessories

1705449

<https://www.phoenixcontact.com/us/products/1705449>

Screw set for DFK-PC 16... connectors



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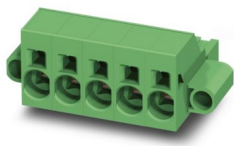
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## SPC 16/ 3-STF-10,16 - PCB connector

1711381

<https://www.phoenixcontact.com/us/products/1711381>



PCB connector, nominal cross section: 16 mm<sup>2</sup>, color: green, nominal current: 76 A, rated voltage (III/2): 1000 V, contact surface: Silver, contact connection type: Socket, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: SPC 16/...-STF, pitch: 10.16 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, locking clip: - without locking clip, plug-in system: COMBICON PC 16, locking: Screw locking mechanism, mounting: Screw flange, type of packaging: packed in cardboard

## TPC 16/ 3-STF-10,16 - PCB connector

1715264

<https://www.phoenixcontact.com/us/products/1715264>



PCB connector, nominal cross section: 16 mm<sup>2</sup>, color: green, nominal current: 76 A, rated voltage (III/2): 1000 V, contact surface: Silver, contact connection type: Socket, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 6, product range: TPC 16/...-STF, pitch: 10.16 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 50 °, locking clip: - without locking clip, plug-in system: COMBICON PC 16, locking: Screw locking mechanism, mounting: Screw flange, type of packaging: packed in cardboard

# PC 6-16/ 3-G1F-10,16 - PCB header



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## PC 6/ 3-STF-10,16 - PCB connector

1913581

<https://www.phoenixcontact.com/us/products/1913581>



PCB connector, nominal cross section: 6 mm<sup>2</sup>, color: green, nominal current: 41 A, rated voltage (III/2): 1000 V, contact surface: Silver, contact connection type: Socket, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: PC 6/...-STF, 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: Screw locking mechanism, mounting: Screw flange, type of packaging: packed in cardboard

## PC 16/ 3-STF-10,16 - PCB connector

1967469

<https://www.phoenixcontact.com/us/products/1967469>



PCB connector, nominal cross section: 16 mm<sup>2</sup>, color: green, nominal current: 76 A, rated voltage (III/2): 1000 V, contact surface: Silver, contact connection type: Socket, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: PC 16/...-STF, 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: Screw locking mechanism, mounting: Screw flange, type of packaging: packed in cardboard

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