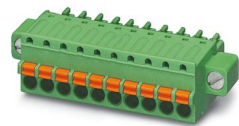


Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Sn, contact connection type: Socket, number of potentials: 20, number of rows: 1, number of positions: 20, number of connections: 20, product range: FK-MCP 1,5/...-STF, pitch: 3.81 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: Screw locking mechanism, mounting method: Screw flange, type of packaging: packed in cardboard

Your advantages

- Time saving push-in connection, tools not required
- Defined contact force ensures that contact remains stable over the long term
- Intuitive operation due to color-coded actuating push button
- Screwable flange for superior mechanical stability
- Quick and convenient testing using integrated test option

Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1965995                        |
| Packing unit                         | 50 pc                          |
| Minimum order quantity               | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Product key                          | AABFNB                         |
| GTIN                                 | 4017918911386                  |
| Weight per piece (including packing) | 19.999 g                       |
| Weight per piece (excluding packing) | 19.108 g                       |
| Country of origin                    | DE                             |

# FK-MCP 1,5/20-STF-3,81BSN21-40 - PCB connector



1965995

<https://www.phoenixcontact.com/us/products/1965995>

## Technical data

### Product properties

|                       |                       |
|-----------------------|-----------------------|
| Product type          | PCB connector         |
| Product family        | FK-MCP 1,5/...-STF    |
| Product line          | COMBICON Connectors S |
| Number of positions   | 20                    |
| Pitch                 | 3.81 mm               |
| Number of connections | 20                    |
| Number of rows        | 1                     |
| Number of potentials  | 20                    |
| Mounting flange       | Screw flange          |

### Electrical properties

#### Properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 8 A    |
| Nominal voltage $U_N$       | 160 V  |
| Contact resistance          | 1.4 mΩ |
| Rated voltage (III/3)       | 160 V  |
| Rated surge voltage (III/3) | 2.5 kV |
| Rated voltage (III/2)       | 160 V  |
| Rated surge voltage (III/2) | 2.5 kV |
| Rated voltage (II/2)        | 320 V  |
| Rated surge voltage (II/2)  | 2.5 kV |

### Connection data

#### Connection technology

|                         |                     |
|-------------------------|---------------------|
| Type                    | Standard            |
| Connector system        | COMBICON MC 1,5     |
| Nominal cross section   | 1.5 mm <sup>2</sup> |
| Contact connection type | Socket              |

#### Interlock

|                   |                         |
|-------------------|-------------------------|
| Locking type      | Screw locking mechanism |
| Mounting flange   | Screw flange            |
| Tightening torque | 0.3 Nm                  |

#### Conductor connection

|                                    |                                              |
|------------------------------------|----------------------------------------------|
| Connection method                  | Push-in spring connection                    |
| Conductor/PCB connection direction | 0 °                                          |
| Conductor cross section rigid      | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section flexible   | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section AWG        | 26 ... 16                                    |

# FK-MCP 1,5/20-STF-3,81BSN21-40 - PCB connector



1965995

<https://www.phoenixcontact.com/us/products/1965995>

|                                                                       |                                               |
|-----------------------------------------------------------------------|-----------------------------------------------|
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| Conductor cross section, flexible, with ferrule, with plastic sleeve  | 0.25 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |
| Cylindrical gauge a x b / diameter                                    | 2.4 mm x 1.5 mm / -                           |
| Stripping length                                                      | 9 mm                                          |

## Specifications for ferrules without insulating collar

|                                                              |                                                              |
|--------------------------------------------------------------|--------------------------------------------------------------|
| recommended crimping tool                                    | 1212034 CRIMPFOX 6                                           |
| ferrules without insulating collar, according to DIN 46228-1 | Cross section: 0.25 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: 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: 10 mm           |

## Specifications for ferrules with insulating collar

|                                                           |                                                             |
|-----------------------------------------------------------|-------------------------------------------------------------|
| recommended crimping tool                                 | 1212034 CRIMPFOX 6                                          |
| ferrules with insulating collar, according to DIN 46228-4 | Cross section: 0.14 mm <sup>2</sup> ; Length: 8 mm          |
|                                                           | Cross section: 0.25 mm <sup>2</sup> ; Length: 8 mm          |
|                                                           | Cross section: 0.34 mm <sup>2</sup> ; Length: 8 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         |

## 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 - 8 µm Sn)                                                                |
| Metal surface contact area (top layer)   | Tin (4 - 8 µm Sn)                                                                |

### 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       |

### Material data – actuating element

|                           |               |
|---------------------------|---------------|
| Color (Actuating element) | orange (2003) |
|---------------------------|---------------|

# FK-MCP 1,5/20-STF-3,81BSN21-40 - PCB connector

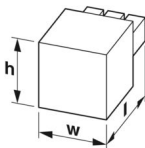


1965995

<https://www.phoenixcontact.com/us/products/1965995>

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

## Dimensions

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Pitch               | 3.81 mm                                                                            |
| Width [w]           | 86.59 mm                                                                           |
| Height [h]          | 12.4 mm                                                                            |
| Length [l]          | 20.8 mm                                                                            |

## Mounting

|                   |        |
|-------------------|--------|
| Flange            |        |
| Tightening torque | 0.3 Nm |

## 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 | 0.14 mm <sup>2</sup> / solid / > 10 N    |
|                                                                             | 0.14 mm <sup>2</sup> / flexible / > 10 N |
|                                                                             | 1.5 mm <sup>2</sup> / solid / > 40 N     |
|                                                                             | 1.5 mm <sup>2</sup> / flexible / > 40 N  |

|                                 |                        |
|---------------------------------|------------------------|
| Insertion and withdrawal forces |                        |
| Specification                   | IEC 60512-13-2:2006-02 |
| Result                          | Test passed            |
| No. of cycles                   | 25                     |

# FK-MCP 1,5/20-STF-3,81BSN21-40 - PCB connector



1965995

<https://www.phoenixcontact.com/us/products/1965995>

|                                     |     |
|-------------------------------------|-----|
| Insertion strength per pos. approx. | 8 N |
| 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

### 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 | 2.95 kV               |
| Contact resistance R <sub>1</sub>      | 1.4 mΩ                |
| Contact resistance R <sub>2</sub>      | 1.5 mΩ                |
| Insertion/withdrawal cycles            | 25                    |

### 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 | 1.39 kV                                                                   |

### Shocks

|                |                        |
|----------------|------------------------|
| Specification  | IEC 60068-2-27:2008-02 |
| Pulse shape    | Half-sine              |
| Acceleration   | 30g                    |
| Shock duration | 18 ms                  |

# FK-MCP 1,5/20-STF-3,81BSN21-40 - PCB connector



1965995

<https://www.phoenixcontact.com/us/products/1965995>

|                 |                                   |
|-----------------|-----------------------------------|
| Test directions | X-, Y- and Z-axis (pos. and neg.) |
|-----------------|-----------------------------------|

## Ambient conditions

|                                         |                                                     |
|-----------------------------------------|-----------------------------------------------------|
| Ambient temperature (operation)         | -40 °C ... 100 °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                                    |

## Electrical tests

### Thermal test | Test group C

|                            |                       |
|----------------------------|-----------------------|
| Specification              | IEC 60512-5-1:2002-02 |
| Tested number of positions | 20                    |

### 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         |

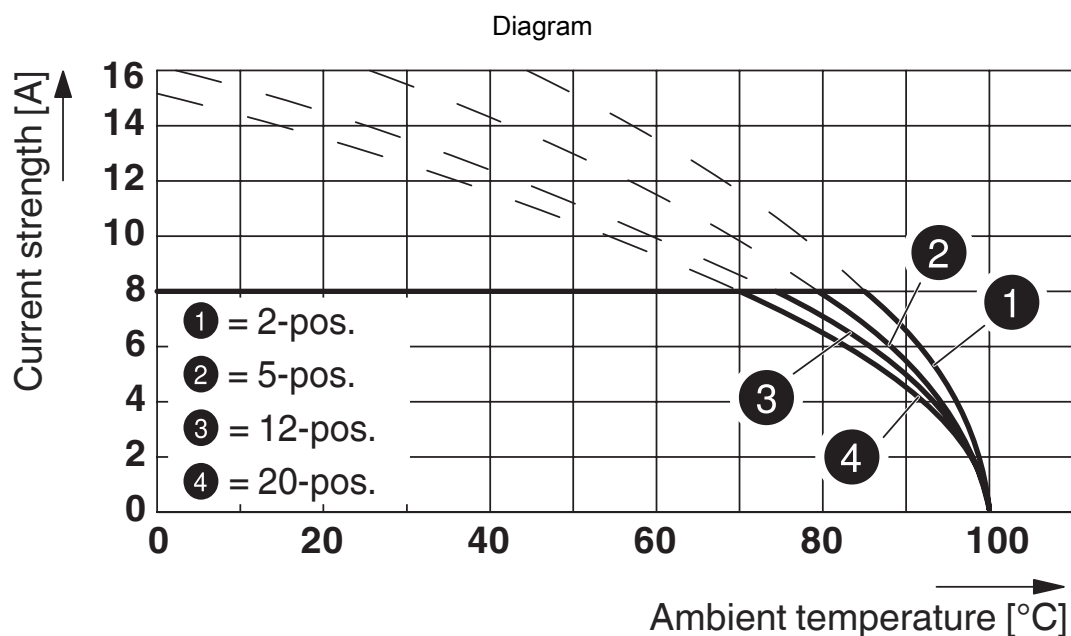
### Air clearances and creepage distances |

|                                                        |                     |
|--------------------------------------------------------|---------------------|
| Specification                                          | IEC 60664-1:2007-04 |
| Insulating material group                              | I                   |
| Comparative tracking index (IEC 60112)                 | CTI 600             |
| Rated insulation voltage (III/3)                       | 160 V               |
| Rated surge voltage (III/3)                            | 2.5 kV              |
| minimum clearance value - non-homogenous field (III/3) | 1.5 mm              |
| minimum creepage distance (III/3)                      | 2 mm                |
| Rated insulation voltage (III/2)                       | 160 V               |
| Rated surge voltage (III/2)                            | 2.5 kV              |
| minimum clearance value - non-homogenous field (III/2) | 1.5 mm              |
| minimum creepage distance (III/2)                      | 1.5 mm              |
| Rated insulation voltage (II/2)                        | 320 V               |
| Rated surge voltage (II/2)                             | 2.5 kV              |
| minimum clearance value - non-homogenous field (II/2)  | 1.5 mm              |
| minimum creepage distance (II/2)                       | 1.6 mm              |

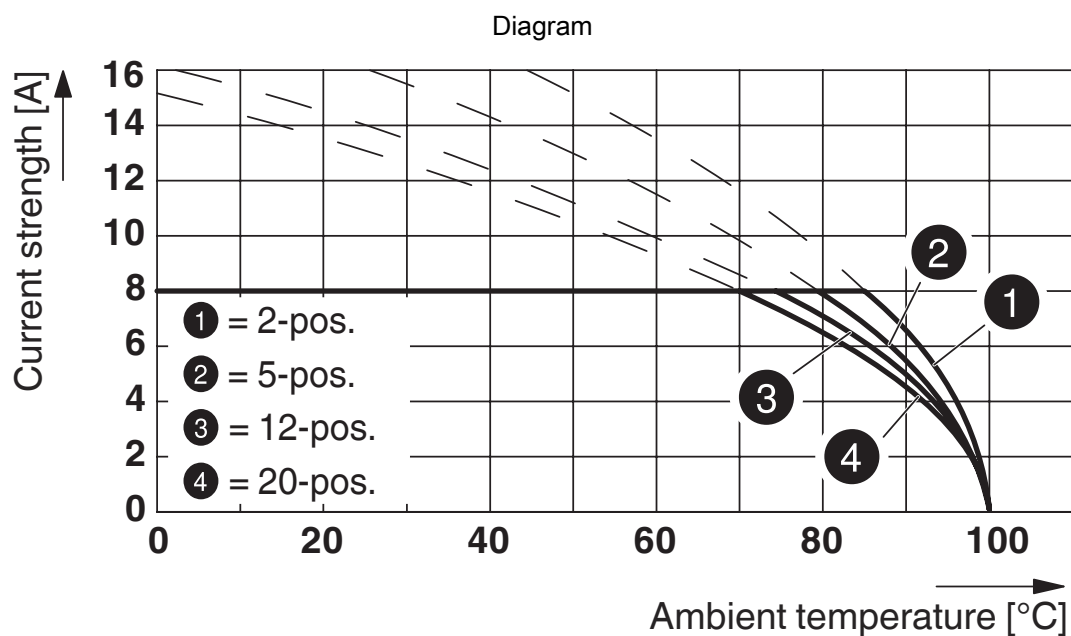
## Packaging specifications

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

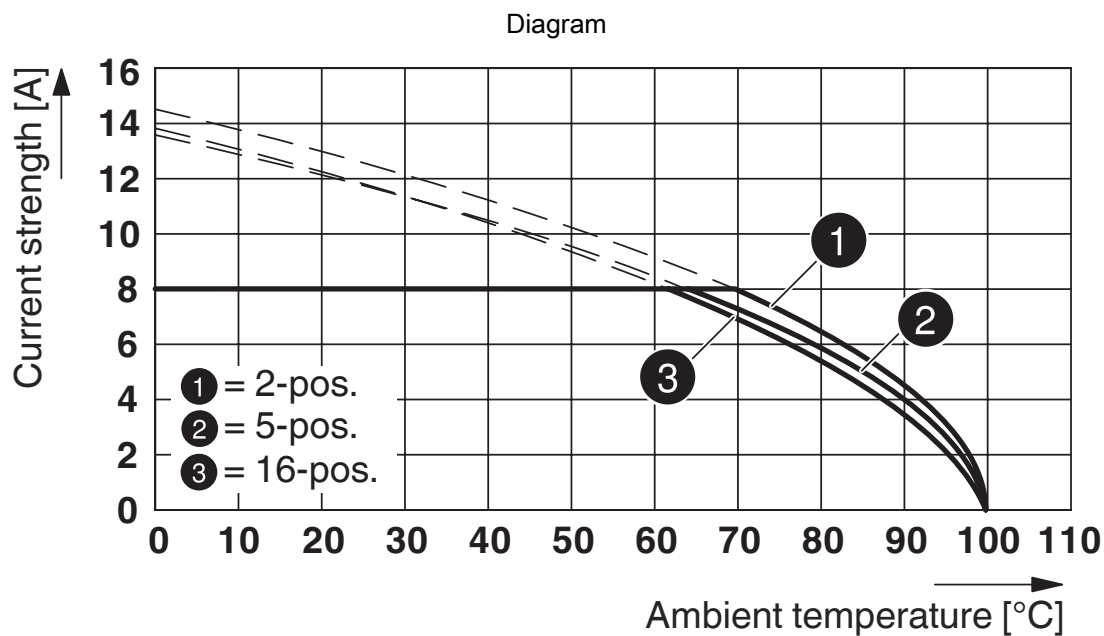
## Drawings



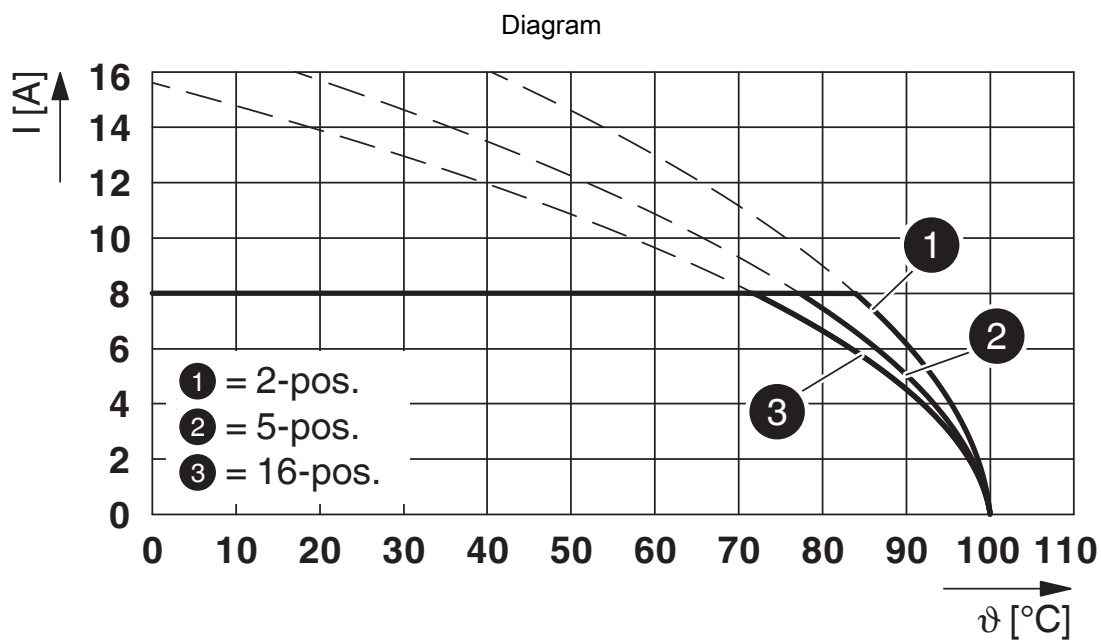
Type: FK-MCP 1,5/...-STF-3,81 with MC 1,5/...-GF-3,81 P... THR



Type: FK-MCP 1,5/...-STF-3,81 with MC 1,5/...-GF-3,81 P... THRR...

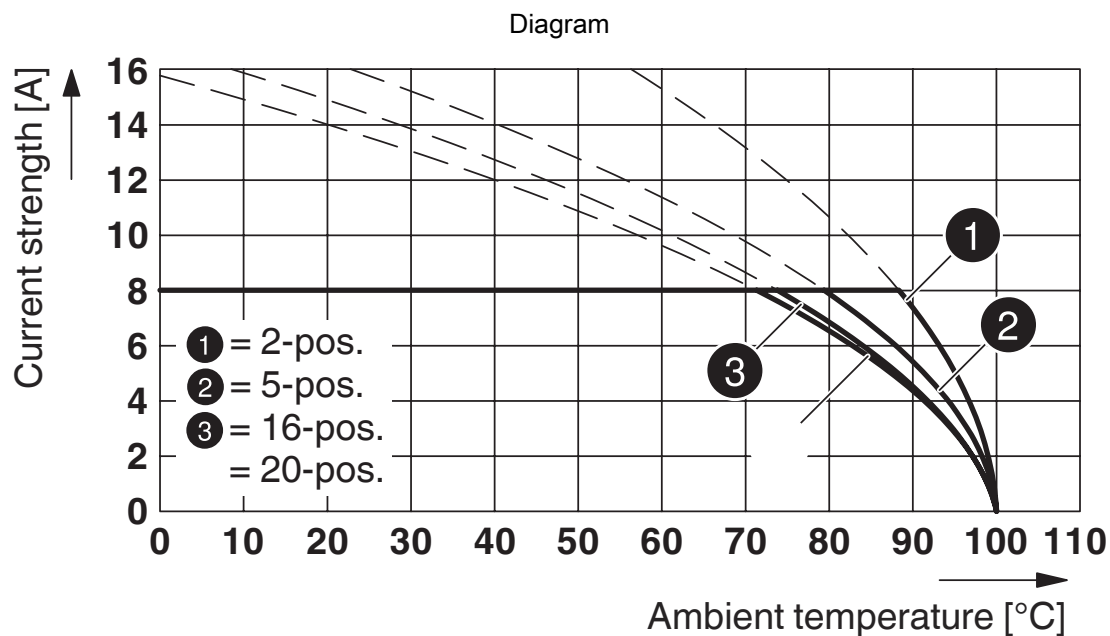


Type: FK-MCP 1,5/...-STF-3,81 with DFK-MC 1,5/...-GF-3,81

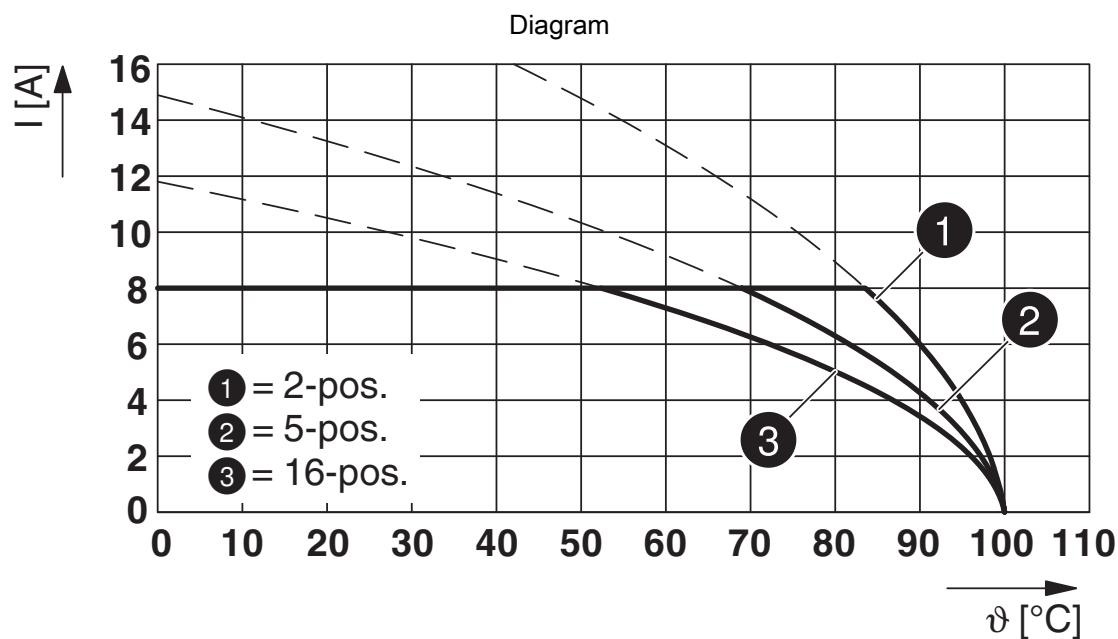


Type: FK-MCP 1,5/...-STF-3,81 with IMC 1,5/...-STGF-3,81

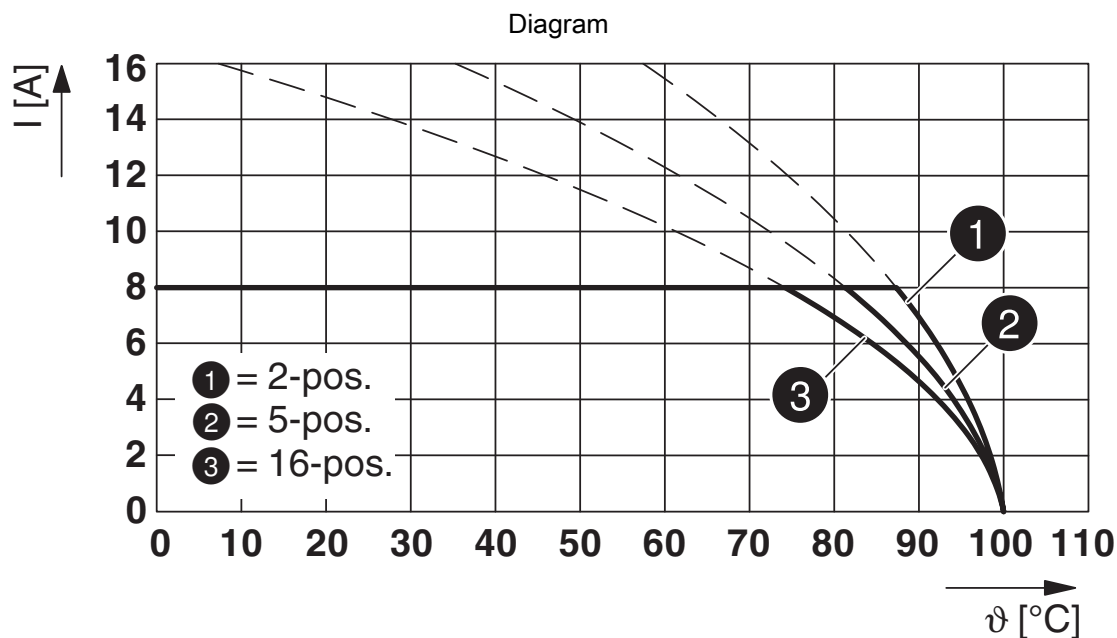




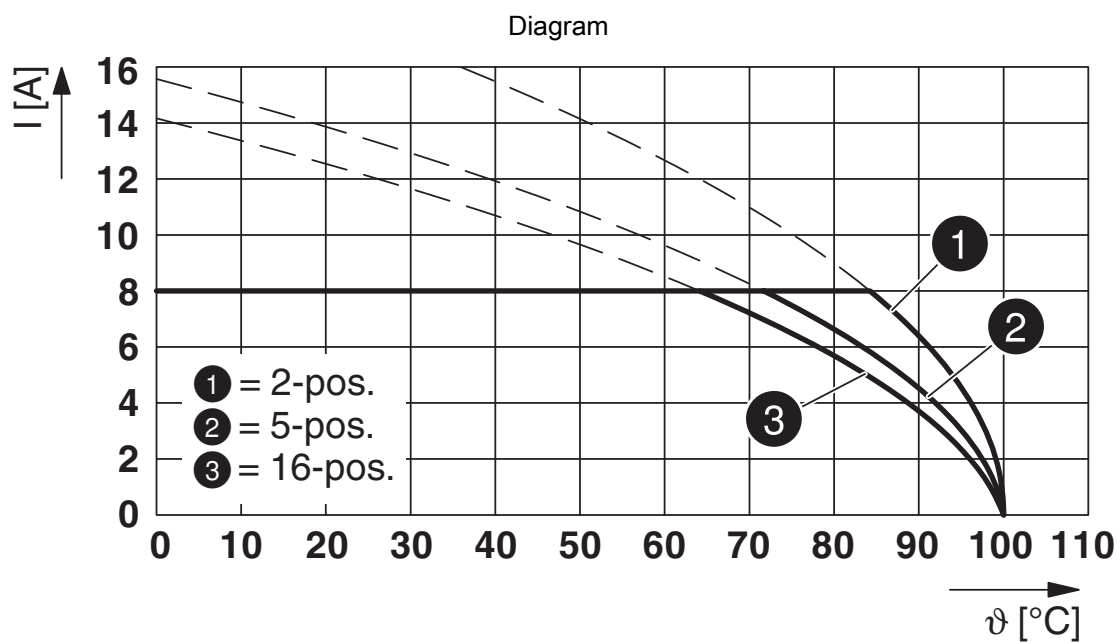
Type: FK-MCP 1,5/...-STF-3,81 with MCV 1,5/...-GF-3,81 P...THR



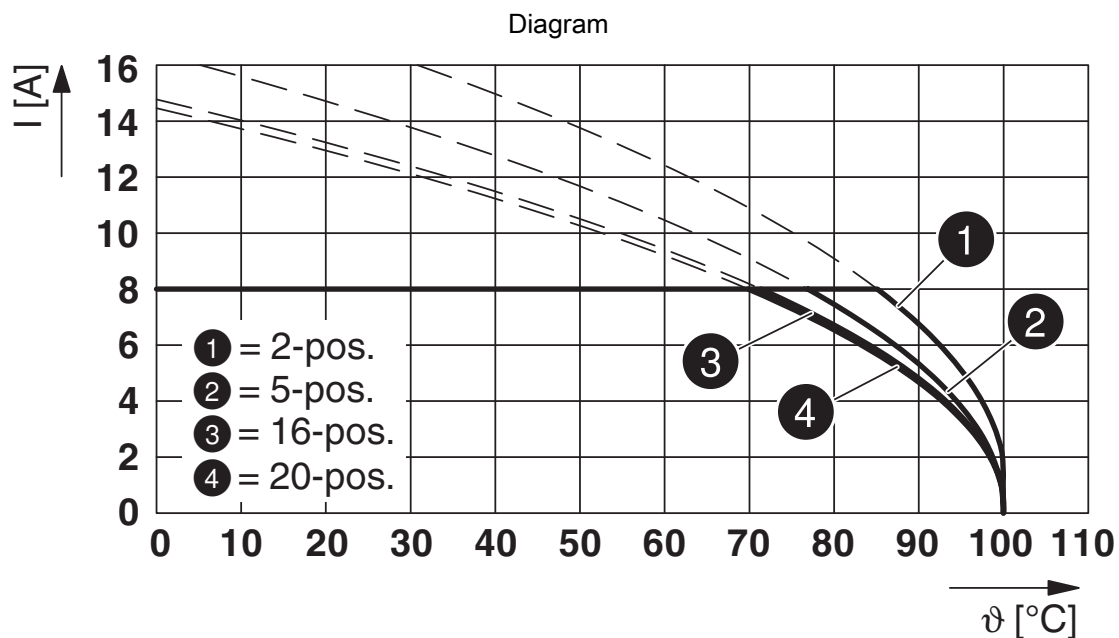
Type: FK-MCP 1,5/...-STF-3,81 with MCD 1,5/...-G1F-3,81



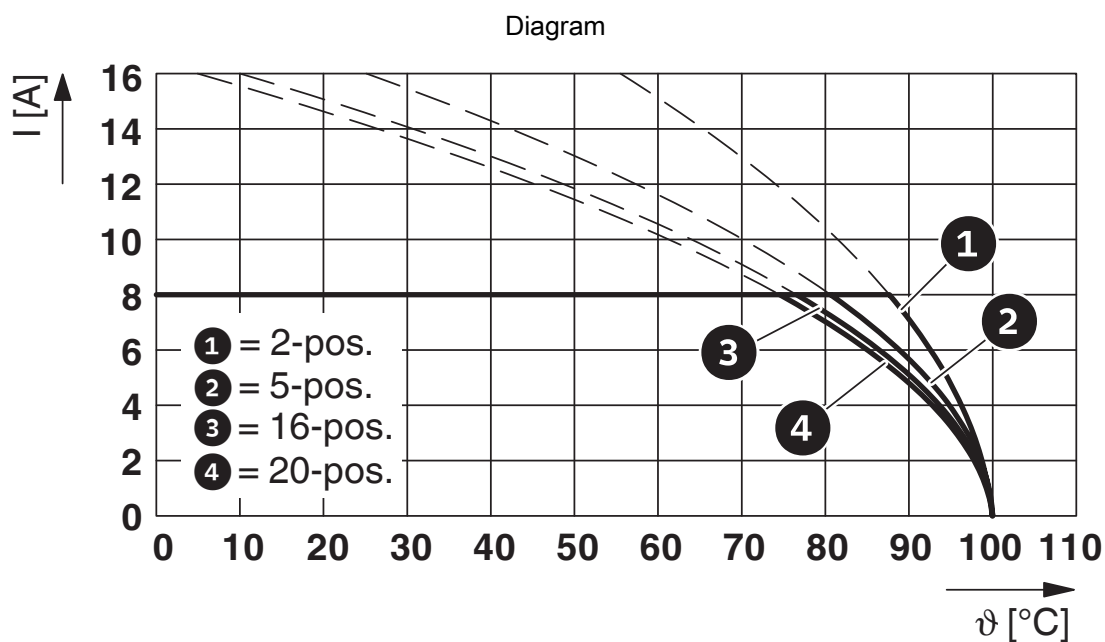
Type: FK-MCP 1,5/...-STF-3,81 with SMC 1,5/...-GF-3,81



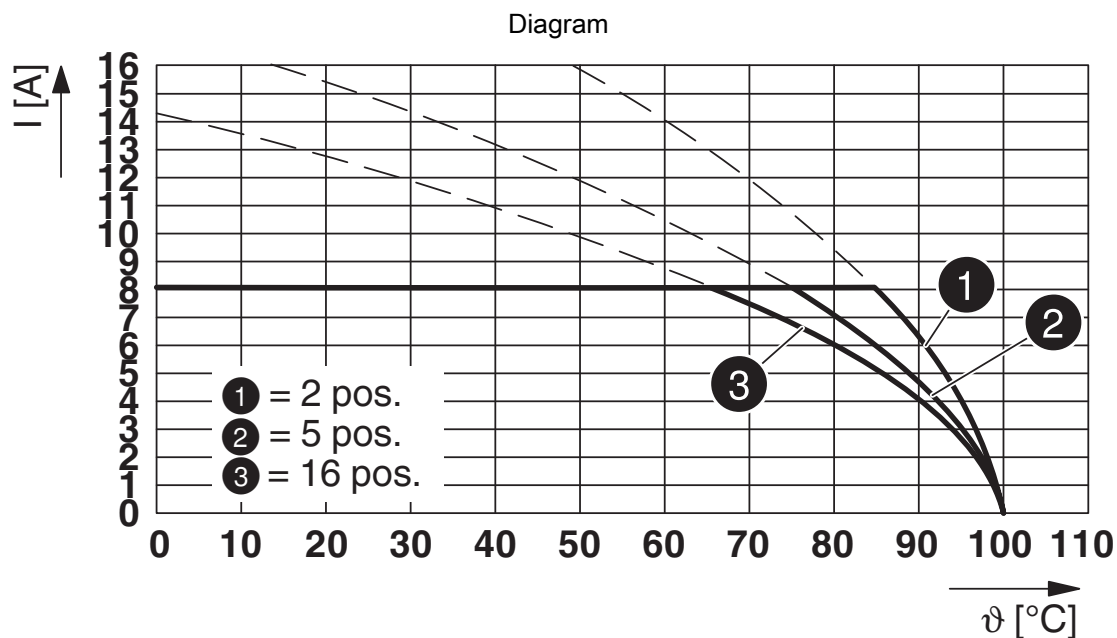
Type: FK-MCP 1,5/...-STF-3,81 with MCDV 1,5/...-GF-3,81



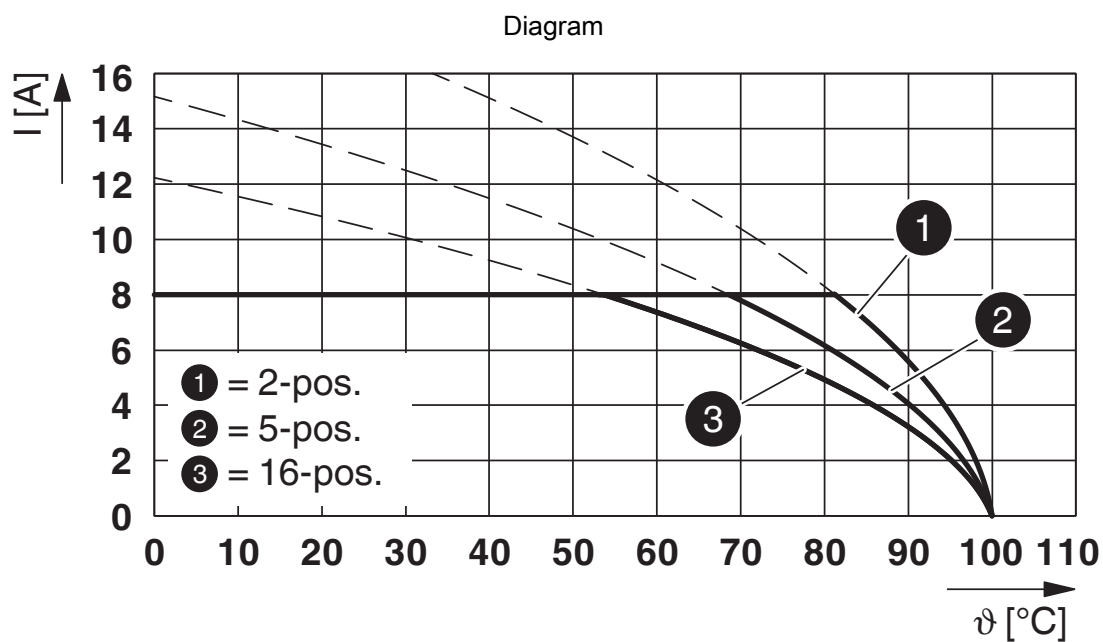
Type: FK-MCP 1,5/...-STF-3,81 with MC 1,5/...-GF-3,81



Type: FK-MCP 1,5/...-STF-3,81 with MCV 1,5/...-GF-3,81



Type: FK-MCP 1,5/...-STF-3,81 with MCDV 1,5/...-G1F-3,81



Type: FK-MCP 1,5/...-STF-3,81 with MCD 1,5/...-GF-3,81

# FK-MCP 1,5/20-STF-3,81BSN21-40 - PCB connector



1965995

<https://www.phoenixcontact.com/us/products/1965995>

## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1965995>

|                                                                                                                    |                                |                                |                   |                               |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------------------|-------------------------------|
|  <b>CSA</b><br>Approval ID: 13631 |                                |                                |                   |                               |
|                                                                                                                    | Nominal voltage U <sub>N</sub> | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| Use group B                                                                                                        |                                |                                |                   |                               |
|                                                                                                                    | 300 V                          | 8 A                            | 28 - 16           | -                             |

|                                                                                                                                           |                                |                                |                   |                               |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------------------|-------------------------------|
|  <b>cULus Recognized</b><br>Approval ID: E60425-19920306 |                                |                                |                   |                               |
|                                                                                                                                           | Nominal voltage U <sub>N</sub> | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| Use group B                                                                                                                               |                                |                                |                   |                               |
|                                                                                                                                           | 300 V                          | 8 A                            | 28 - 16           | -                             |

|                                                                                                                                              |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
|  <b>VDE approval of drawings</b><br>Approval ID: 40011723 |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|

|                                                                                                                                              |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
|  <b>VDE approval of drawings</b><br>Approval ID: 40011723 |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|

# FK-MCP 1,5/20-STF-3,81BSN21-40 - PCB connector



1965995

<https://www.phoenixcontact.com/us/products/1965995>

## Classifications

### ECLASS

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

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC002638 |
|----------|----------|

### UNSPSC

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

1965995

<https://www.phoenixcontact.com/us/products/1965995>

## 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% |
|-------------------------------------|----------------------------|

Phoenix Contact 2025 © - all rights reserved  
<https://www.phoenixcontact.com>

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