

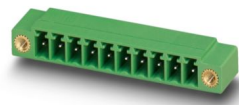
# MC 1,5/ 2-GF-3,5 - PCB header

1843790

<https://www.phoenixcontact.com/us/products/1843790>



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PCB headers, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, contact connection type: Pin, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: MC 1,5/-GF, pitch: 3.5 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.4 mm, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, 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                          | 1843790             |
| Packing unit                         | 250 pc              |
| Minimum order quantity               | 250 pc              |
| Sales key                            | AA02                |
| Product key                          | AABSAB              |
| Catalog page                         | Page 225 (C-1-2013) |
| GTIN                                 | 4017918112905       |
| Weight per piece (including packing) | 1.582 g             |
| Weight per piece (excluding packing) | 1.49 g              |
| Customs tariff number                | 85366930            |
| Country of origin                    | DE                  |

# MC 1,5/ 2-GF-3,5 - PCB header



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## Technical data

### Product properties

|                           |                       |
|---------------------------|-----------------------|
| Type                      | Standard              |
| Product line              | COMBICON Connectors S |
| Product type              | PCB headers           |
| Product family            | MC 1,5/...-GF         |
| Number of positions       | 2                     |
| Pitch                     | 3.5 mm                |
| Number of connections     | 2                     |
| Number of rows            | 1                     |
| Mounting flange           | Threaded flange       |
| Number of potentials      | 2                     |
| Pin layout                | Linear pinning        |
| Solder pins per potential | 1                     |

### Electrical properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 8 A    |
| Nominal voltage $U_N$       | 160 V  |
| Degree of pollution         | 3      |
| Contact resistance          | 1.3 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)        | 250 V  |
| Rated surge voltage (II/2)  | 2.5 kV |

### Mounting

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

### Flange

|                   |        |
|-------------------|--------|
| Tightening torque | 0.3 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                   | Tin-plated                                                                       |
| Metal surface contact area (top layer)    | Tin (3 - 5 μm Sn)                                                                |
| Metal surface contact area (middle layer) | Nickel (1.3 - 3 μm Ni)                                                           |
| Metal surface soldering area (top layer)  | Tin (3 - 5 μm Sn)                                                                |

# MC 1,5/ 2-GF-3,5 - PCB header



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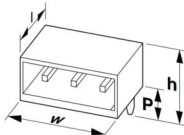
<https://www.phoenixcontact.com/us/products/1843790>

|                                             |                        |
|---------------------------------------------|------------------------|
| Metal surface soldering area (middle layer) | Nickel (1.3 - 3 µm Ni) |
|---------------------------------------------|------------------------|

## Material data - housing

|                                        |              |
|----------------------------------------|--------------|
| Color (Housing)                        | green (6021) |
| Insulating material                    | PBT          |
| Insulating material group              | IIIa         |
| CTI according to IEC 60112             | 225          |
| Flammability rating according to UL 94 | V0           |

## Dimensions

|                       |                                                                                    |
|-----------------------|------------------------------------------------------------------------------------|
| Dimensional drawing   |  |
| Pitch                 | 3.5 mm                                                                             |
| Width [w]             | 17.35 mm                                                                           |
| Height [h]            | 10.65 mm                                                                           |
| Length [l]            | 9.2 mm                                                                             |
| Installed height      | 7.25 mm                                                                            |
| Solder pin length [P] | 3.4 mm                                                                             |
| Pin dimensions        | 0.8 x 0.8 mm                                                                       |

## PCB design

|               |        |
|---------------|--------|
| Hole diameter | 1.2 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

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

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1843790

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|                                                |             |
|------------------------------------------------|-------------|
| Contact holder in insert<br>Requirements >20 N | Test passed |
|------------------------------------------------|-------------|

## Insertion and withdrawal forces

|                                     |             |
|-------------------------------------|-------------|
| Result                              | Test passed |
| No. of cycles                       | 25          |
| Insertion strength per pos. approx. | 6 N         |
| Withdraw strength per pos. approx.  | 4 N         |

## 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                |

### Air clearances and creepage distances |

|                                                        |                     |
|--------------------------------------------------------|---------------------|
| Specification                                          | IEC 60664-1:2007-04 |
| Insulating material group                              | IIIa                |
| Comparative tracking index (IEC 60112)                 | CTI 225             |
| 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)                      | 2.5 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)                      | 1.6 mm              |
| Rated insulation voltage (II/2)                        | 250 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)                       | 2.5 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) |
| Sweep speed            | 5g (60.1 Hz ... 150 Hz)     |
| Test duration per axis | 2.5 h                       |

### Durability test

# MC 1,5/ 2-GF-3,5 - PCB header



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|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 2.95 kV               |
| Contact resistance R <sub>1</sub>            | 1.3 mΩ                |
| Contact resistance R <sub>2</sub>            | 1.4 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 | 1.39 kV                                                                   |

## Shocks

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

## Packaging specifications

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

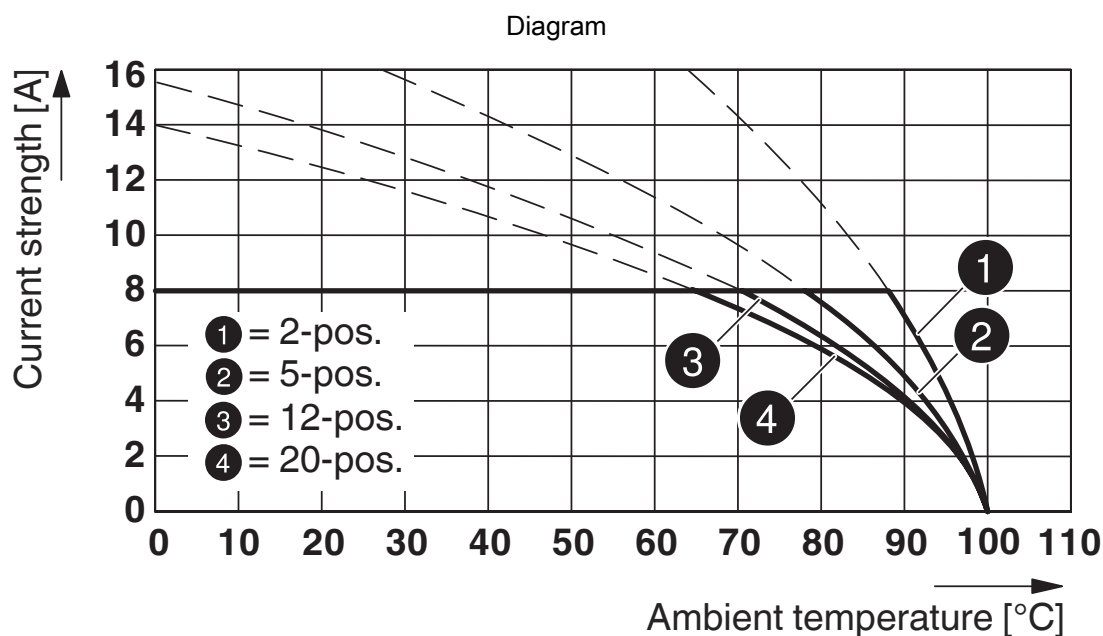
# MC 1,5/ 2-GF-3,5 - PCB header

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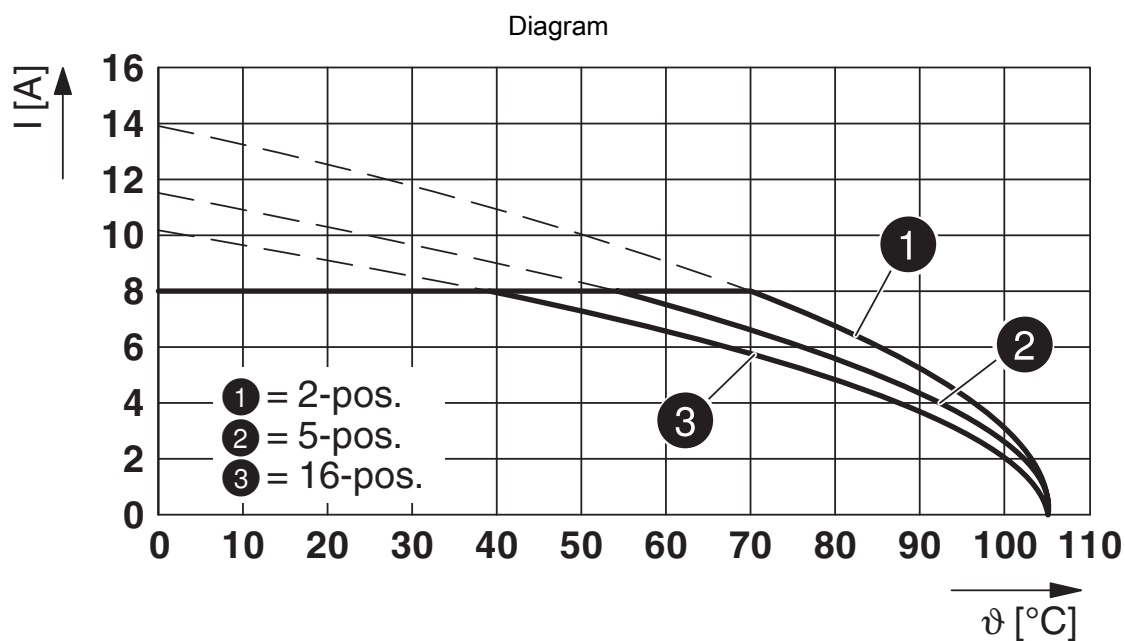
<https://www.phoenixcontact.com/us/products/1843790>



## Drawings



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

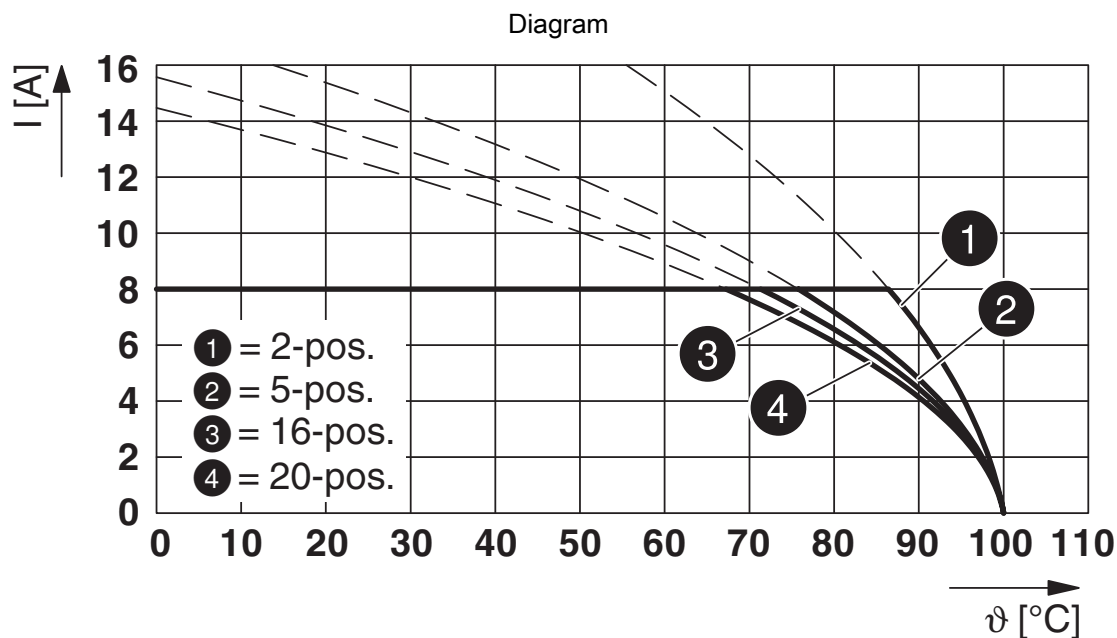


Type: MCVW 1,5/...-STF-3,5 with MC 1,5/...-GF-3,5

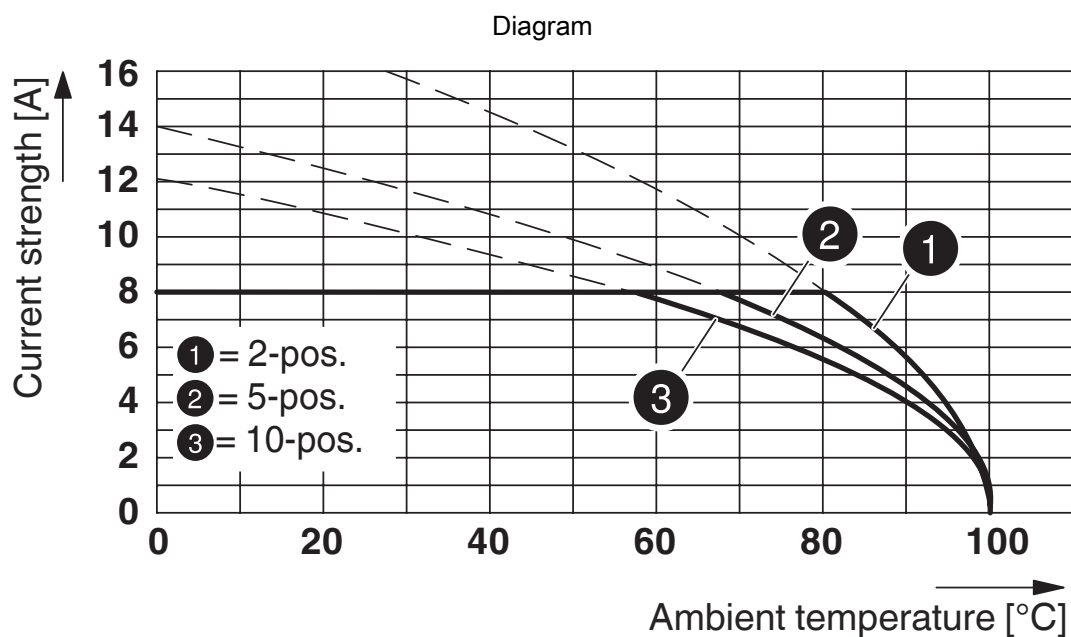
# MC 1,5/ 2-GF-3,5 - PCB header

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Type: FMC 1,5/...-STF-3,5 with MC 1,5/...-GF-3,5



Type: TFMC 1,5/...-STF-3,5 with MC 1,5/...-GF-3,5

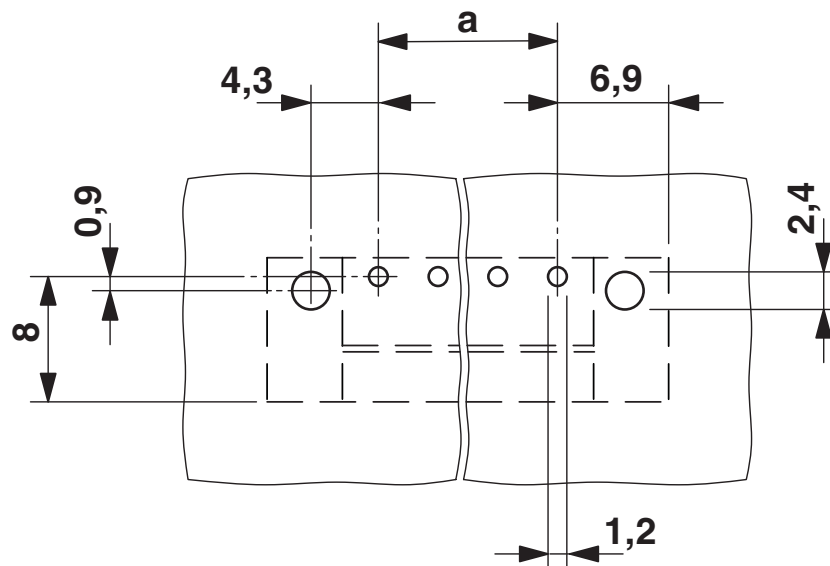
# MC 1,5/ 2-GF-3,5 - PCB header

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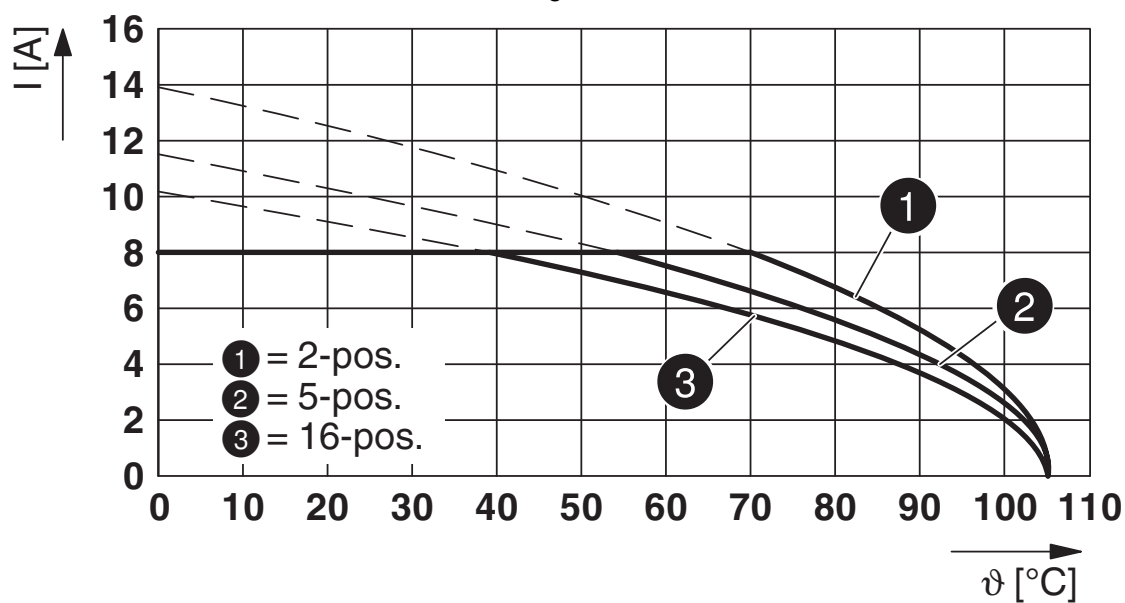
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Drilling plan/solder pad geometry



Diagram



Type: MCVR 1,5/...-STF-3,5 with MC 1,5/...-GF-3,5

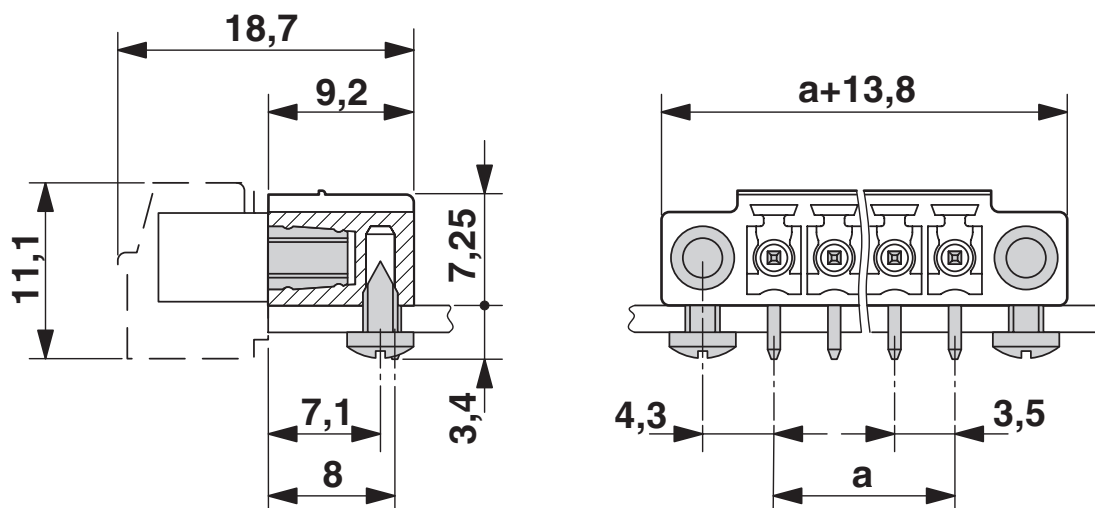
# MC 1,5/ 2-GF-3,5 - PCB header

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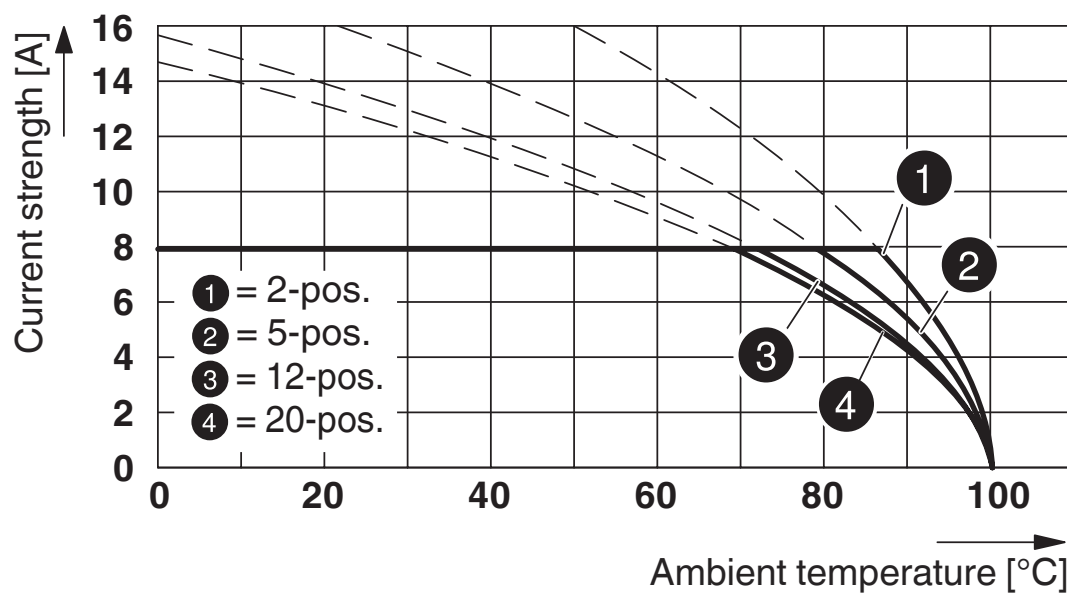
<https://www.phoenixcontact.com/us/products/1843790>



Dimensional drawing



Diagram



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

# MC 1,5/ 2-GF-3,5 - PCB header



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1843790>

|  <b>VDE Zeichengenehmigung</b><br>Approval ID: 40057836 |                       |                       |                   |                             |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                          | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group keine                                                                                                                          |                       |                       |                   |                             |
|                                                                                                                                          | 160 V                 | 8 A                   | -                 | -                           |

|  <b>CSA</b><br>Approval ID: 13631 |                       |                       |                   |                             |
|--------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                    | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B                                                                                                        |                       |                       |                   |                             |
|                                                                                                                    | 300 V                 | 8 A                   | -                 | -                           |
| Use group D                                                                                                        |                       |                       |                   |                             |
|                                                                                                                    | 300 V                 | 8 A                   | -                 | -                           |

|  <b>cULus Recognized</b><br>Approval ID: E60425-20110128 |                       |                       |                   |                             |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                             | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B                                                                                                                                 |                       |                       |                   |                             |
|                                                                                                                                             | 300 V                 | 8 A                   | -                 | -                           |
| Use group D                                                                                                                                 |                       |                       |                   |                             |
|                                                                                                                                             | 300 V                 | 8 A                   | -                 | -                           |

|  <b>VDE Zeichengenehmigung</b><br>Approval ID: 40011723 |                       |                       |                   |                             |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                            | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group keine                                                                                                                            |                       |                       |                   |                             |
|                                                                                                                                            | 160 V                 | 8 A                   | -                 | -                           |

# MC 1,5/ 2-GF-3,5 - PCB header

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

# MC 1,5/ 2-GF-3,5 - PCB header

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## Environmental product compliance

|            |                                                         |
|------------|---------------------------------------------------------|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

# MC 1,5/ 2-GF-3,5 - PCB header

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## Accessories

### SK 3,5/2,8:FORTL.ZAHLEN - Marker card

0804073

<https://www.phoenixcontact.com/us/products/0804073>



Marker card, Sheet, white, labeled, horizontal: consecutive numbers 1 ... 10, 11 .  
.. 20, etc. up to 91 ... 99, mounting type: adhesive, for terminal block width: 3.5  
mm, lettering field size: 3.5 x 2.8 mm, Number of individual labels: 14

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### CP-MSTB - Coding profile

1734634

<https://www.phoenixcontact.com/us/products/1734634>



Coding profile, is inserted into the slot on the plug or inverted header, red  
insulating material

## MC 1,5/ 2-GF-3,5 - PCB header

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### MC 1,5/10-LWL 1,5-3,5 - Fiber optic

1841161

<https://www.phoenixcontact.com/us/products/1841161>

MINI COMBICON fiber optics, 3.5 mm pitch, 10-pos., separable for other numbers of positions (minimum: 2-pos.), inserts into the back of the MC header, color: transparent, dimension a: 1.5 mm



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### MC 1,5/10-LWL 2,3-3,5 - Fiber optic

1841187

<https://www.phoenixcontact.com/us/products/1841187>

MINI COMBICON fiber optics, 3.5 mm pitch, 10-pos., separable for other numbers of positions (minimum: 2-pos.), inserts into the back of the MC header, color: transparent, dimension a: 2.3 mm



## MC 1,5/ 2-GF-3,5 - PCB header

1843790

<https://www.phoenixcontact.com/us/products/1843790>



## MC 1,5/10-LWL 4-3,5 - Fiber optic

1841200

<https://www.phoenixcontact.com/us/products/1841200>

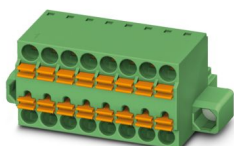
MINI COMBICON fiber optics, 3.5 mm pitch, 10-pos., separable for other numbers of positions (minimum: 2-pos.), inserts into the back of the MC header, color: transparent, dimension a: 4 mm



## TFMC 1,5/ 2-STF-3,5 - Printed-circuit board connector

1772702

<https://www.phoenixcontact.com/us/products/1772702>



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: Tin, contact connection type: Socket, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 4, product range: TFMC 1,5/...-STF, pitch: 3.5 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: Screw locking mechanism, mounting: Screw flange, type of packaging: packed in cardboard

## MC 1,5/ 2-GF-3,5 - PCB header

1843790

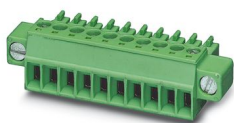
<https://www.phoenixcontact.com/us/products/1843790>



## MC 1,5/ 2-STF-3,5 - PCB connector

1847055

<https://www.phoenixcontact.com/us/products/1847055>



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: Tin, contact connection type: Socket, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: MC 1,5/...-STF, pitch: 3.5 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: Screw locking mechanism, mounting: Screw flange, type of packaging: packed in cardboard

## MCVW 1,5/ 2-STF-3,5 - PCB connector

1863000

<https://www.phoenixcontact.com/us/products/1863000>



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: Tin, contact connection type: Socket, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: MCVW 1,5/...-STF, pitch: 3.5 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: -90 °, plug-in system: COMBICON MC 1,5, locking: Screw locking mechanism, mounting: Screw flange, type of packaging: packed in cardboard

# MC 1,5/ 2-GF-3,5 - PCB header

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## MCVR 1,5/ 2-STF-3,5 - PCB connector

1863301

<https://www.phoenixcontact.com/us/products/1863301>



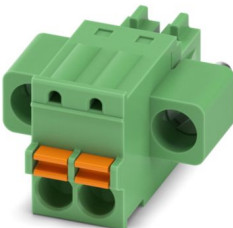
PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, contact connection type: Socket, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: MCVR 1,5/...-STF, pitch: 3.5 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 90 °, plug-in system: COMBICON MC 1,5, locking: Screw locking mechanism, mounting: Screw flange, type of packaging: packed in cardboard

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## FK-MCP 1,5/ 2-STF-3,5 - PCB connector

1940091

<https://www.phoenixcontact.com/us/products/1940091>



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: Tin, contact connection type: Socket, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: FK-MCP 1,5/...-STF, pitch: 3.5 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: Screw locking mechanism, mounting: Screw flange, type of packaging: packed in cardboard

# MC 1,5/ 2-GF-3,5 - PCB header

1843790

<https://www.phoenixcontact.com/us/products/1843790>



## FMC 1,5/ 2-STF-3,5 - Printed-circuit board connector

1966091

<https://www.phoenixcontact.com/us/products/1966091>



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: Tin, contact connection type: Socket, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: FMC 1,5/..-STF, pitch: 3.5 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: Screw locking mechanism, mounting: Screw flange, type of packaging: packed in cardboard

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