

# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block



1833085

<https://www.phoenixcontact.com/us/products/1833085>

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.



Direct plug-in block, 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: Pin, number of potentials: 8, number of rows: 1, number of positions: 8, number of connections: 8, product range: MCVU 1,5/.-GFD, pitch: 3.81 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, mounting: Direct mounting, conductor/PCB connection direction: 0 °, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, locking: Screw locking mechanism, mounting method: Threaded flange, type of packaging: packed in cardboard

## Your advantages

- Screwable flange for superior mechanical stability
- Laterally mounted flange for screw connection in the housing or on the mounting panel
- Maximum flexibility when it comes to device design – one header for connectors with different connection technologies

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1833085       |
| Packing unit                         | 50 pc         |
| Minimum order quantity               | 50 pc         |
| Sales key                            | AA02          |
| Product key                          | AABMBA        |
| GTIN                                 | 4017918051778 |
| Weight per piece (including packing) | 9.34 g        |
| Weight per piece (excluding packing) | 9 g           |
| Customs tariff number                | 85366990      |
| Country of origin                    | PL            |

# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block



1833085

<https://www.phoenixcontact.com/us/products/1833085>

## Technical data

### Product properties

|                           |                       |
|---------------------------|-----------------------|
| Product type              | Direct plug-in block  |
| Product family            | MCVU 1,5/..-GFD       |
| Product line              | COMBICON Connectors S |
| Type                      | Direct mounting       |
| Number of positions       | 8                     |
| Pitch                     | 3.81 mm               |
| Number of connections     | 8                     |
| Number of rows            | 1                     |
| Number of potentials      | 8                     |
| Mounting type             | Threaded flange       |
| Solder pins per potential | 1                     |

### Electrical properties

#### Properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 8 A    |
| Nominal voltage $U_N$       | 160 V  |
| Contact resistance          | 3.5 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                    | Direct mounting     |
| Connector system        | COMBICON MC 1,5     |
| Nominal cross section   | 1.5 mm <sup>2</sup> |
| Contact connection type | Pin                 |

#### Interlock

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

#### Conductor connection

|                                                            |                                              |
|------------------------------------------------------------|----------------------------------------------|
| Connection method                                          | Screw connection with tension sleeve         |
| Connection direction of the conductor to plug-in direction | 0 °                                          |
| Conductor cross-section rigid                              | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |

# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block



1833085

<https://www.phoenixcontact.com/us/products/1833085>

|                                                                                           |                                               |
|-------------------------------------------------------------------------------------------|-----------------------------------------------|
| Conductor cross-section flexible                                                          | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| Conductor cross-section AWG                                                               | 28 ... 16                                     |
| 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> ... 0.5 mm <sup>2</sup>  |
| 2 conductors with same cross section, solid                                               | 0.14 mm <sup>2</sup> ... 0.5 mm <sup>2</sup>  |
| 2 conductors with same cross section, flexible                                            | 0.14 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |
| 2 conductors with same cross section, flexible, with ferrule without plastic sleeve       | 0.25 mm <sup>2</sup> ... 0.34 mm <sup>2</sup> |
| 2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve | 0.5 mm <sup>2</sup> ... 0.5 mm <sup>2</sup>   |
| Cylindrical gauge a x b / diameter                                                        | 2.4 mm x 1.5 mm / 1.6 mm                      |
| Stripping length                                                                          | 7 mm                                          |
| Tightening torque                                                                         | 0.22 Nm ... 0.25 Nm                           |

## Mounting

|               |                 |
|---------------|-----------------|
| Mounting type | Direct mounting |
|---------------|-----------------|

### 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 terminal point (top layer)    | Tin (5 - 7 µm Sn)                                                                |
| Metal surface terminal point (middle layer) | Nickel (2 - 3 µm Ni)                                                             |
| Metal surface contact area (top layer)      | Tin (5 - 7 µm Sn)                                                                |
| Metal surface contact area (middle layer)   | Nickel (2 - 3 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           |
| 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

# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block



1833085

<https://www.phoenixcontact.com/us/products/1833085>

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

|            |         |
|------------|---------|
| Pitch      | 3.81 mm |
| Width [w]  | 4.87 mm |
| Height [h] | 12.5 mm |
| Length [l] | 20.3 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

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

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

# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block



1833085

<https://www.phoenixcontact.com/us/products/1833085>

## 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                |

### 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              |

## 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           |

# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block



1833085

<https://www.phoenixcontact.com/us/products/1833085>

## Durability test

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 2.95 kV               |
| Contact resistance R <sub>1</sub>            | 3.5 mΩ                |
| Contact resistance R <sub>2</sub>            | 3.7 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                                                                   |

## 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                                    |

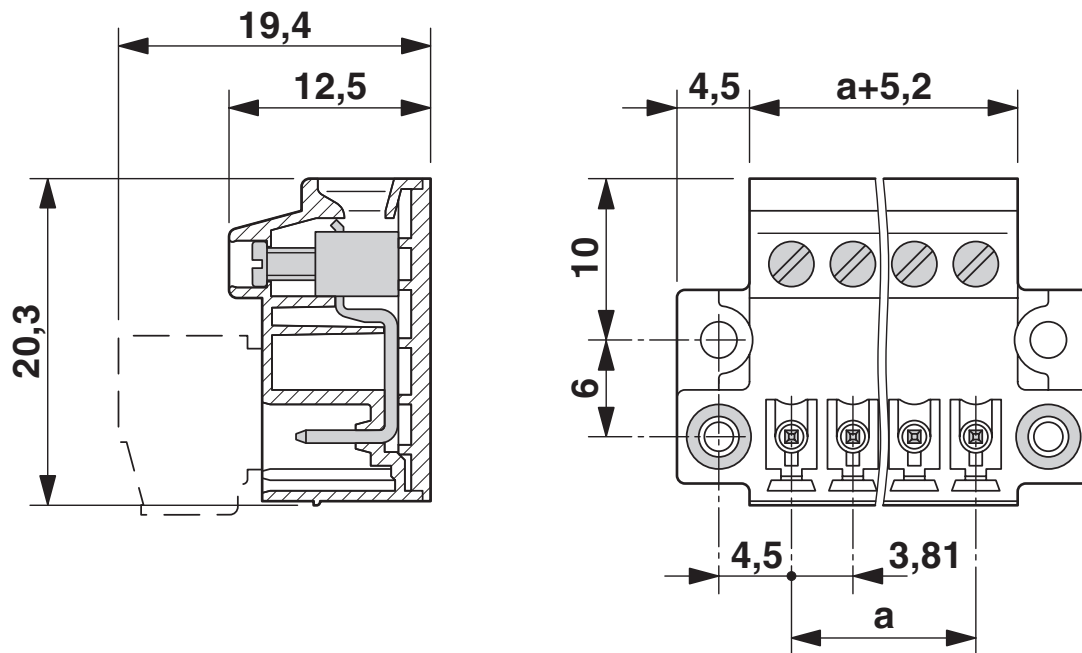
## Packaging specifications

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



<https://www.phoenixcontact.com/us/products/1833085>

## Dimensional drawing



The graph plots Current strength [A] on the y-axis (0 to 16) against Ambient temperature [°C] on the x-axis (0 to 110). Three curves are shown, labeled 1, 2, and 3, representing different positions. Curve 1 (2-pos.) starts at 8 A and remains constant until 60°C, then decreases. Curve 2 (5-pos.) starts at 8 A and decreases gradually. Curve 3 (16-pos.) starts at 8 A and decreases most sharply. Dashed lines represent extrapolations of the curves at lower temperatures.

| Ambient temperature [°C] | Current strength [A] (2-pos.) | Current strength [A] (5-pos.) | Current strength [A] (16-pos.) |
|--------------------------|-------------------------------|-------------------------------|--------------------------------|
| 0                        | 14.5                          | 13.5                          | 12.5                           |
| 10                       | 14.0                          | 13.0                          | 12.0                           |
| 20                       | 13.5                          | 12.5                          | 11.5                           |
| 30                       | 13.0                          | 12.0                          | 11.0                           |
| 40                       | 12.5                          | 11.5                          | 10.5                           |
| 50                       | 12.0                          | 11.0                          | 10.0                           |
| 60                       | 11.5                          | 10.5                          | 9.5                            |
| 70                       | 11.0                          | 10.0                          | 8.5                            |
| 80                       | 10.5                          | 9.5                           | 7.5                            |
| 90                       | 10.0                          | 9.0                           | 6.5                            |
| 100                      | 9.5                           | 8.5                           | 5.5                            |
| 110                      | 9.0                           | 8.0                           | 4.5                            |

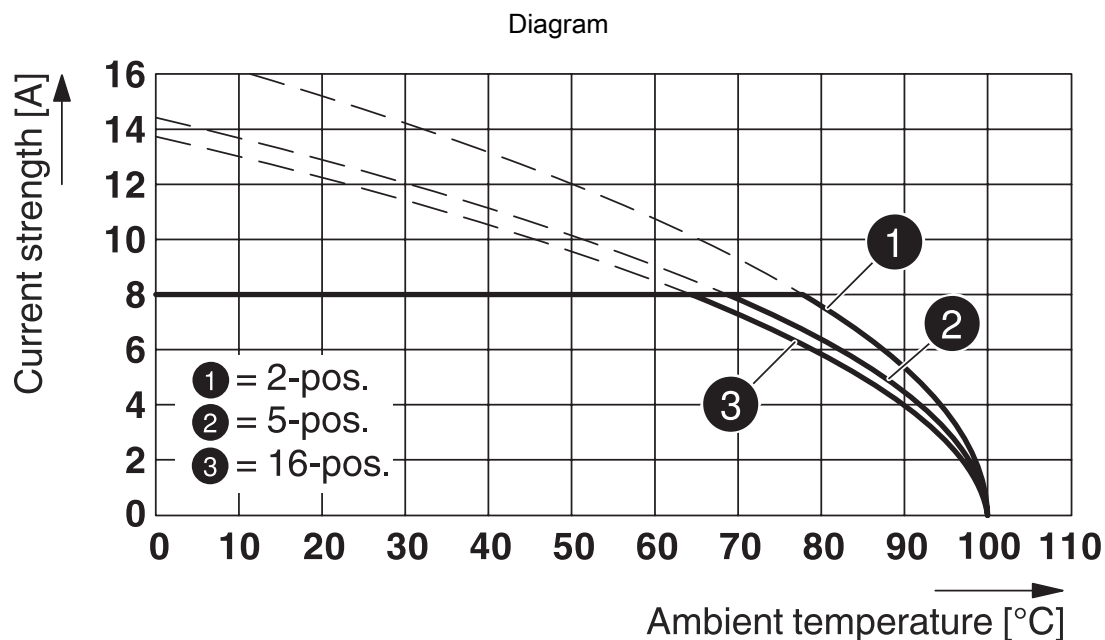
Nov 6, 2025, 1:39 PM Page 7 (13)

# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block

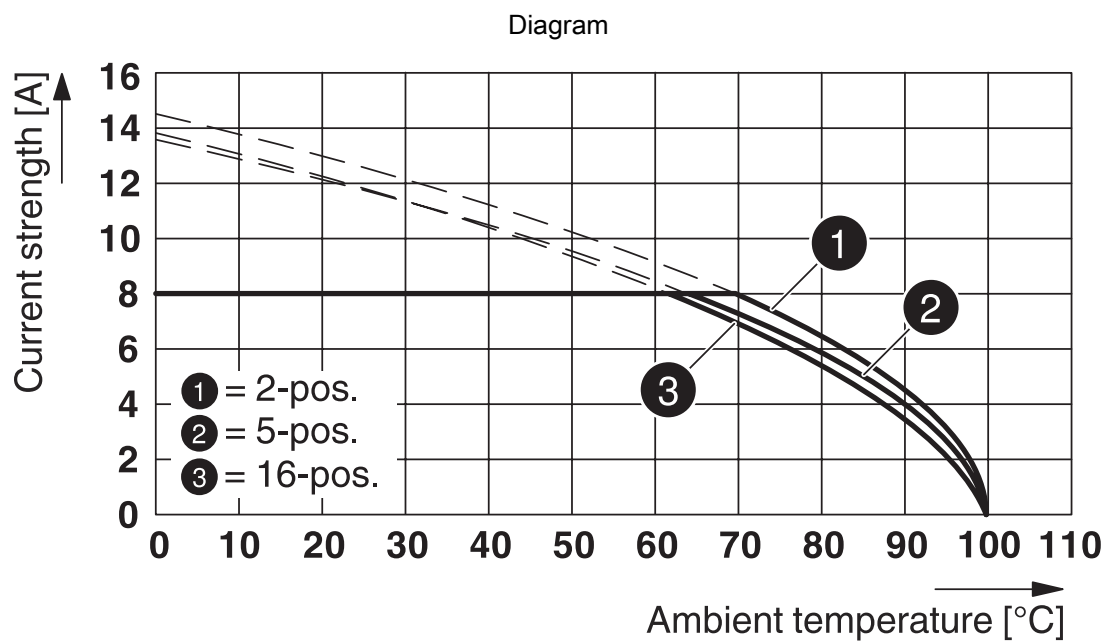


1833085

<https://www.phoenixcontact.com/us/products/1833085>



Type: FMC 1,5/...-ST-3,81 with MCVU 1,5/...-GFD-3,81



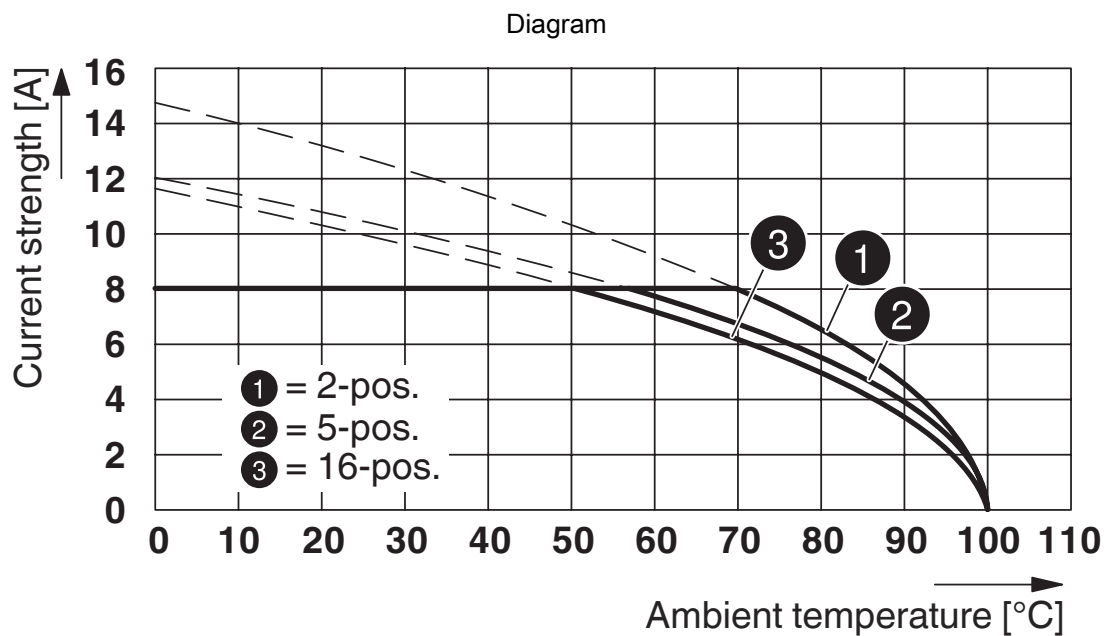
Type: MC 1,5/...-ST-3,81 with MCVU 1,5/...-GFD-3,81

# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block

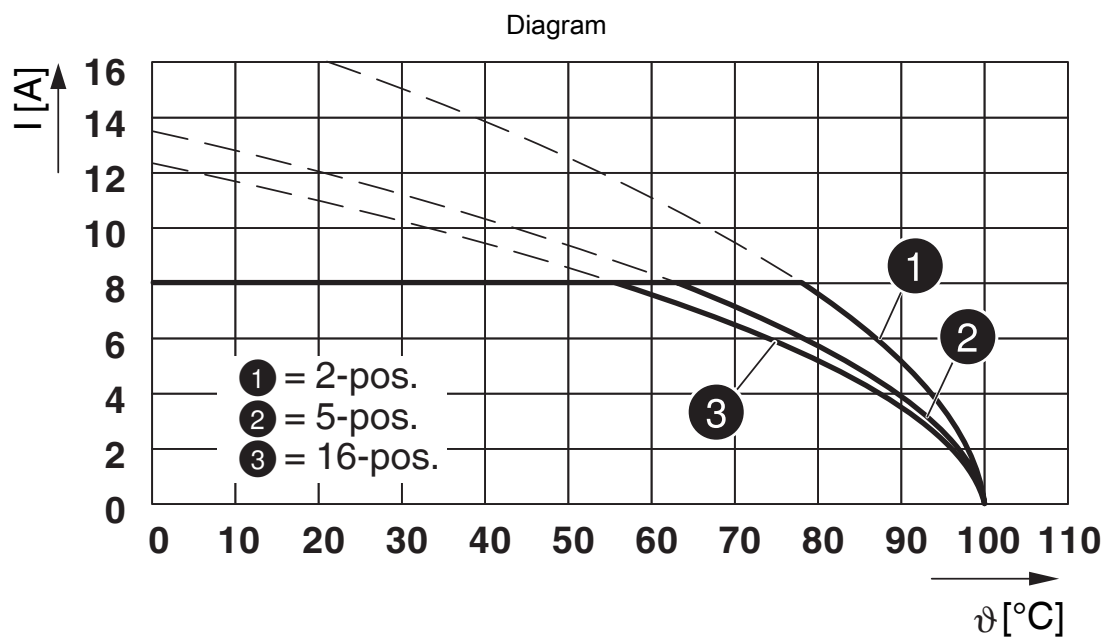


1833085

<https://www.phoenixcontact.com/us/products/1833085>



Type: MCVR 1,5/...-STF-3,81 with MCVU 1,5/...-GFD-3,81

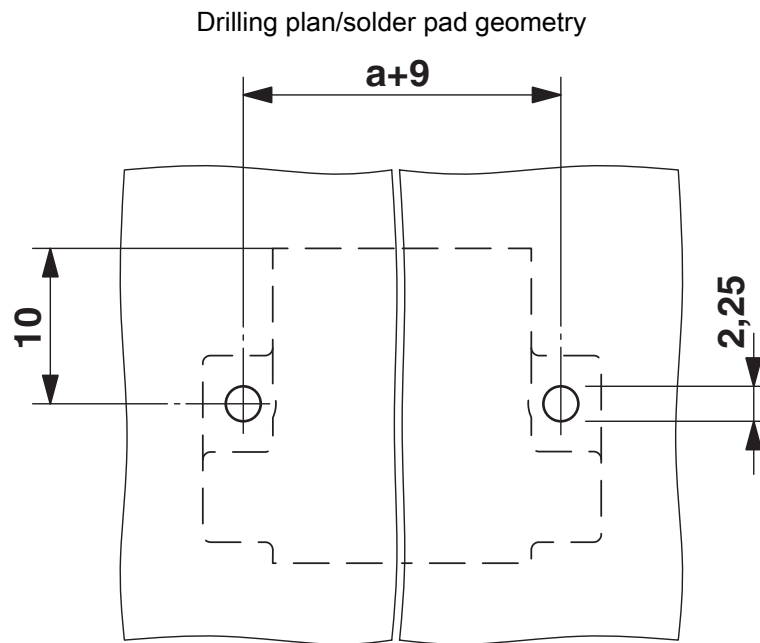


Type: FRONT-MC 1,5/...-STF-3,81 with MCVU 1,5/...-GFD-3,81

# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block

1833085

<https://www.phoenixcontact.com/us/products/1833085>



# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block



1833085

<https://www.phoenixcontact.com/us/products/1833085>

## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1833085>

|  <b>CSA</b><br>Approval ID: 13631 |                       |                       |                   |                             |
|--------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                    | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| B                                                                                                                  |                       |                       |                   |                             |
|                                                                                                                    | 300 V                 | 8 A                   | 28 - 16           | -                           |
| D                                                                                                                  |                       |                       |                   |                             |
|                                                                                                                    | 300 V                 | 8 A                   | 28 - 16           | -                           |

|  <b>cULus Recognized</b><br>Approval ID: E60425-20110128 |                       |                       |                   |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                           | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| B                                                                                                                                         |                       |                       |                   |                             |
|                                                                                                                                           | 300 V                 | 8 A                   | 30 - 14           | -                           |
| D                                                                                                                                         |                       |                       |                   |                             |
|                                                                                                                                           | 300 V                 | 8 A                   | 30 - 14           | -                           |

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

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

# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block



1833085

<https://www.phoenixcontact.com/us/products/1833085>

## Classifications

### ECLASS

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

### ETIM

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

### UNSPSC

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

# MCVU 1,5/ 8-GFD-3,81 - Direct plug-in block



1833085

<https://www.phoenixcontact.com/us/products/1833085>

## 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 | 0.11 kg CO2e |
|---------|--------------|

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)