

# MCVK 1,5/10-G-3,81 - DIN rail connector



1832811

<https://www.phoenixcontact.com/pc/products/1832811>

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DIN rail 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: Pin, number of potentials: 10, number of rows: 1, number of positions: 10, number of connections: 10, product range: MCVK 1,5/...-G, pitch: 3.81 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, mounting: DIN rail, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

## Your advantages

- Maximum flexibility when it comes to device design – one header for connectors with different connection technologies
- Direct plug-in block for DIN rail mounting
- For mounting on a DIN rail NS 15
- Well-known connection principle allows worldwide use

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1832811       |
| Packing unit                         | 50 pc         |
| Minimum order quantity               | 1 pc          |
| Product key                          | AABMAA        |
| GTIN                                 | 4017918051563 |
| Weight per piece (including packing) | 14.348 g      |
| Weight per piece (excluding packing) | 14.348 g      |
| Customs tariff number                | 85366990      |
| Country of origin                    | PL            |

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## Technical data

### Product properties

|                       |                       |
|-----------------------|-----------------------|
| Type                  | DIN rail mounting     |
| Product line          | COMBICON Connectors S |
| Product type          | DIN rail connector    |
| Product family        | MCVK 1,5/..-G         |
| Number of positions   | 10                    |
| Pitch                 | 3.81 mm               |
| Number of connections | 10                    |
| Number of rows        | 1                     |
| Mounting flange       | without               |
| Number of potentials  | 10                    |

### Electrical properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 8 A    |
| Nominal voltage $U_N$       | 160 V  |
| Degree of pollution         | 3      |
| Contact resistance          | 3.3 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)        | 320 V  |
| Rated surge voltage (II/2)  | 2.5 kV |

### Connection data

#### Connection technology

|                         |                     |
|-------------------------|---------------------|
| Type                    | DIN rail mounting   |
| Connector system        | COMBICON MC 1,5     |
| Nominal cross section   | 1.5 mm <sup>2</sup> |
| Contact connection type | Pin                 |

#### Interlock

|                 |         |
|-----------------|---------|
| Locking type    | without |
| Mounting flange | without |

#### 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> |
| 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 | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |

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|                                                                                           |                                               |
|-------------------------------------------------------------------------------------------|-----------------------------------------------|
| sleeve                                                                                    |                                               |
| 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         | DIN rail                             |
| Drive form screw head | Slotted (L)                          |
| Connection method     | Screw connection with tension sleeve |
| Drive form screw head | Slotted (L)                          |

## 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

|                    |                                                                                                                                                                                          |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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. |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

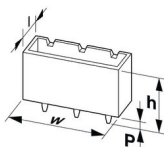
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## Dimensions

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Pitch               | 3.81 mm                                                                            |
| Width [w]           | 39.49 mm                                                                           |
| Height [h]          | 24.2 mm                                                                            |
| Length [l]          | 27.21 mm                                                                           |

## Mechanical tests

### Test for conductor damage and slackening

|               |                     |
|---------------|---------------------|
| 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.  | 4 N         |

### Torque test

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

### Contact holder in insert

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

### Resistance of inscriptions

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

### Polarization and coding

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

### Visual inspection

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|               |                       |
|---------------|-----------------------|
| 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                                                     |
| Note on connection cross section                       | With connected conductor 1.5 mm <sup>2</sup> (stranded). |
| 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) |
| Sweep speed            | 5g (60.1 Hz ... 150 Hz)     |
| Test duration per axis | 2.5 h                       |

### Durability test

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60512-9-1:2010-03 |
|---------------|-----------------------|

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|                                              |         |
|----------------------------------------------|---------|
| Impulse withstand voltage at sea level       | 2.95 kV |
| Contact resistance R <sub>1</sub>            | 3.3 mΩ  |
| Contact resistance R <sub>2</sub>            | 3.3 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                    | 105 °C/168 h                                                              |
| Power-frequency withstand voltage | 1.39 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 |
|-------------------|---------------------|

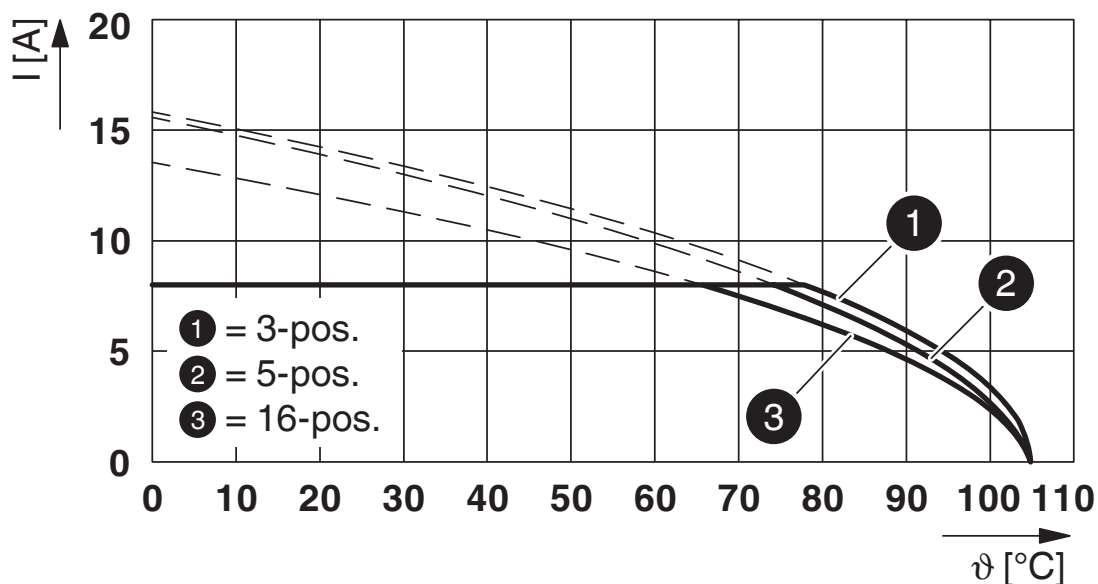
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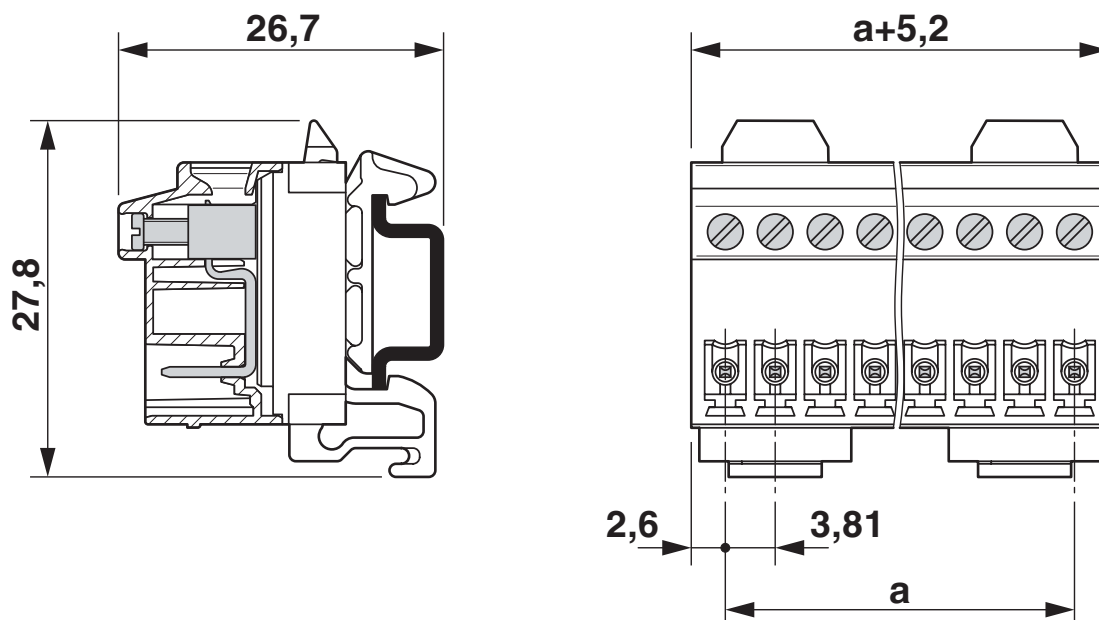
## Drawings

Diagram



Type: MC 1,5/...-ST-3,81 with MCVK 1,5/...-G-3,81

Dimensional drawing



# MCVK 1,5/10-G-3,81 - DIN rail connector



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/pc/products/1832811>

|                                                                                                                    |                       |                       |                   |                             |
|--------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|  <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                   | 28 - 16           | -                           |

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

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27141106 |
| ECLASS-12.0 | 27141106 |
| ECLASS-13.0 | 27141106 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001284 |
|----------|----------|

### UNSPSC

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

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## Environmental product compliance

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

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