

# MCDNV 1,5/19-G1-3,5 RNP14THR - PCB header



1952678

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PCB headers, nominal cross section: 1.5 mm<sup>2</sup>, color: black, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, contact connection type: Pin, number of potentials: 38, number of rows: 2, number of positions: 19, number of connections: 38, product range: MCDNV 1,5/...-G1-RN-THR, pitch: 3.5 mm, mounting: THR soldering, pin layout: Linear pinning, solder pin [P]: 1.4 mm, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, Pin connector pattern alignment: Standard, locking: Snap-in locking, mounting: Engagement nose, type of packaging: packed in cardboard, Article with engagement nose. The pin length is 14 mm. User information and design recommendations on Through Hole Reflow Technology can be found at: "Downloads"

## Your advantages

- Designed for integration into the SMT soldering process
- Intuitive locking mechanism prevents accidental disconnection
- Vertical connection enables multi-row arrangement on the PCB

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1952678                        |
| Packing unit                         | 30 pc                          |
| Minimum order quantity               | 30 pc                          |
| Note                                 | Made to order (non-returnable) |
| Product key                          | AABTGC                         |
| Catalog page                         | Page 105 (CC-2005)             |
| GTIN                                 | 4017918919788                  |
| Weight per piece (including packing) | 12 g                           |
| Weight per piece (excluding packing) | 11.183 g                       |
| Customs tariff number                | 85366930                       |
| Country of origin                    | DE                             |

## Technical data

### Product properties

|                           |                                            |
|---------------------------|--------------------------------------------|
| Product type              | PCB headers                                |
| Product family            | MCDNV 1,5/..-G1-RN-THR                     |
| Product line              | COMBICON Connectors S                      |
| Type                      | Component suitable for through hole reflow |
| Number of positions       | 19                                         |
| Pitch                     | 3.5 mm                                     |
| Number of connections     | 38                                         |
| Number of rows            | 2                                          |
| Number of potentials      | 38                                         |
| Mounting flange           | Engagement nose                            |
| 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          | 1.8 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 | THR soldering  |
| Pin layout    | Linear pinning |

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

#### Material data - housing

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|                                        |              |
|----------------------------------------|--------------|
| Color (Housing)                        | black (9005) |
| Insulating material                    | LCP          |
| Insulating material group              | IIIa         |
| CTI according to IEC 60112             | 175          |
| Flammability rating according to UL 94 | V0           |

## Notes

|                                 |                                                                                                                                                                                 |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Details for soldering processes | Processing using reflow processes in compliance with IEC 60068-2-58 or DIN EN 61760-1 (latest version)<br>Moisture Sensitive Level (MSL) = 1 according to IPC/JEDEC J-STD-020-C |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Dimensions

|                       |              |
|-----------------------|--------------|
| Dimensional drawing   |              |
| Pitch                 | 3.5 mm       |
| Width [w]             | 70.2 mm      |
| Height [h]            | 14.7 mm      |
| Length [l]            | 15.2 mm      |
| Installed height      | 13.3 mm      |
| Solder pin length [P] | 1.4 mm       |
| Pin dimensions        | 0.8 x 0.8 mm |

|               |         |
|---------------|---------|
| PCB design    |         |
| Pin spacing   | 8.30 mm |
| Hole diameter | 1.4 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            |

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## Contact holder in insert

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

## Insertion and withdrawal forces

|                                     |             |
|-------------------------------------|-------------|
| Result                              | Test passed |
| No. of cycles                       | 25          |
| Insertion strength per pos. approx. | 8 N         |
| Withdraw strength per pos. approx.  | 6 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 175             |
| 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) |
| Acceleration  | 5g (60.1 Hz ... 150 Hz)     |

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|                        |       |
|------------------------|-------|
| Test duration per axis | 2.5 h |
|------------------------|-------|

## Durability test

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 2.95 kV               |
| Contact resistance R <sub>1</sub>            | 1.8 mΩ                |
| Contact resistance R <sub>2</sub>            | 2 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

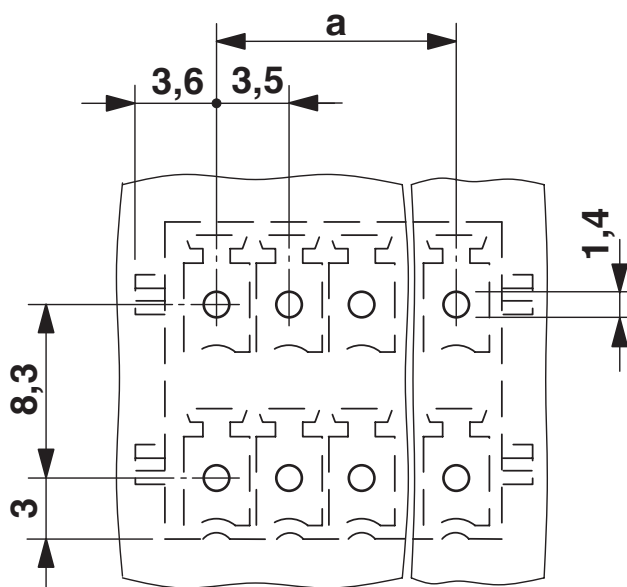
|                                         |                                                     |
|-----------------------------------------|-----------------------------------------------------|
| Ambient temperature (operation)         | -40 °C ... 100 °C (dependent on the derating curve) |
| Ambient 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 |
|-------------------|---------------------|

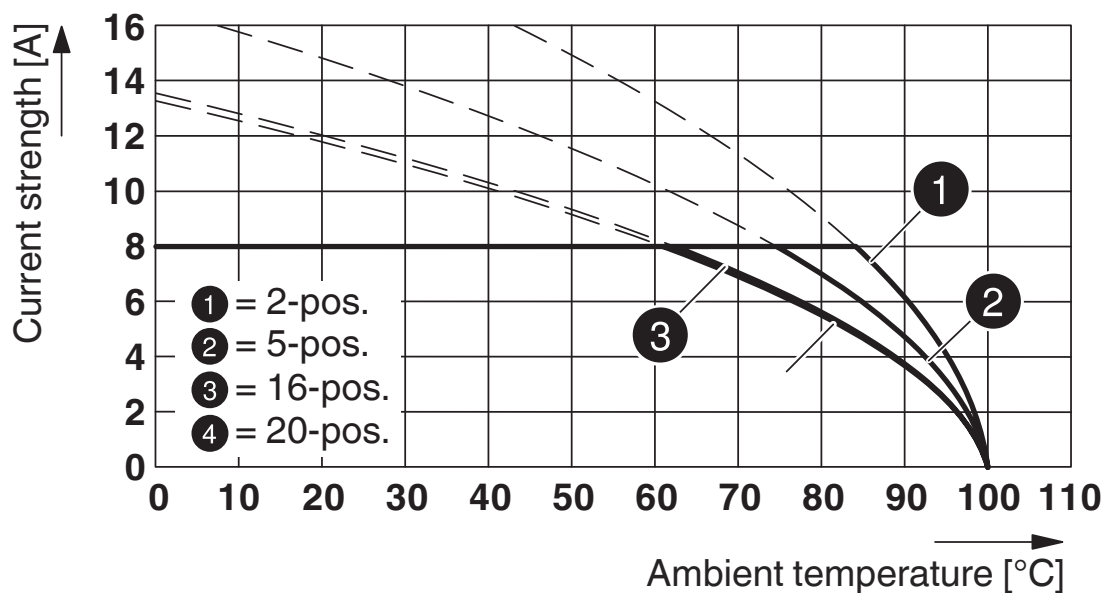
## Drawings

Drilling plan/solder pad geometry



\*)  $\leq 8\text{-pos.} = 1.3$  /  $> 8\text{-pos.} = 1.4$

Diagram



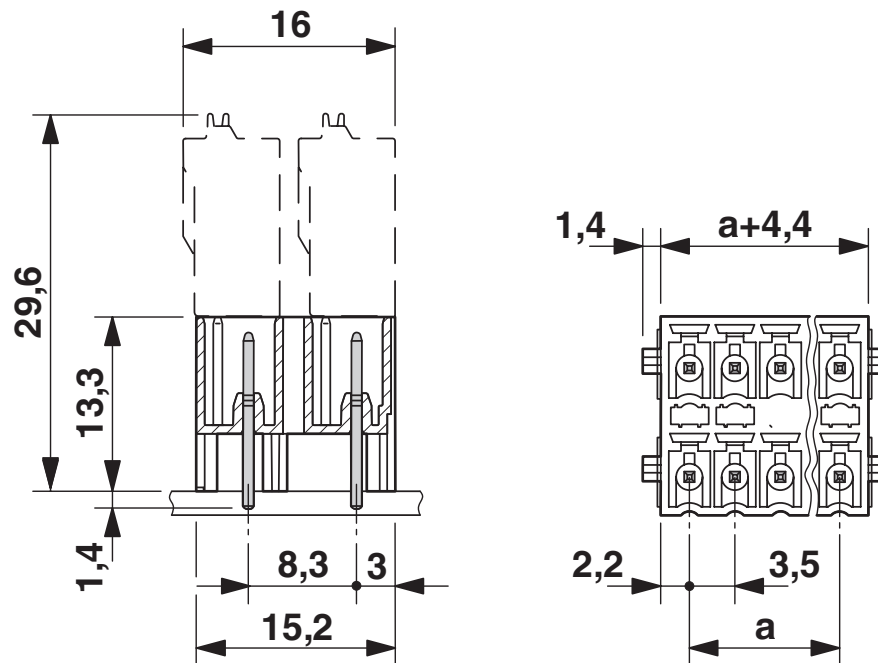
Type: FMC 1,5/...-ST-3,5-RF with MCDNV 1,5/...-G1-3,5 RNP...THR

# MCDNV 1,5/19-G1-3,5 RNP14THR - PCB header

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Dimensional drawing



# MCDNV 1,5/19-G1-3,5 RNP14THR - PCB header



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/pc/products/1952678>

|  <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                                                                                                                               | 150 V                 | 8 A                   | -                 | -                           |
| Use group D                                                                                                                               | 150 V                 | 8 A                   | -                 | -                           |

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

# MCDNV 1,5/19-G1-3,5 RNP14THR - 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 |
|-------------|----------|

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Environmental product compliance

|                                         |                                          |
|-----------------------------------------|------------------------------------------|
| EU RoHS                                 |                                          |
| Fulfills EU RoHS substance requirements | Yes, No exemptions                       |
| China RoHS                              |                                          |
| Environment friendly use period (EFUP)  | EFUP-E                                   |
|                                         | No hazardous substances above the limits |
| EU REACH SVHC                           |                                          |
| REACH candidate substance (CAS No.)     | No substance above 0.1 wt%               |

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## Accessories

### CP-MSTB - Coding profile

1734634

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

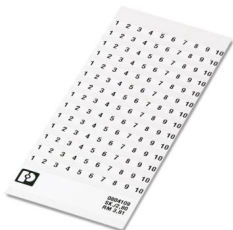
Coding profile, is inserted into the slot on the plug or inverted header, red insulating material



### SK 3,81/2,8:FORTL.ZAHLEN - Marker card

0804109

<https://www.phoenixcontact.com/pc/products/0804109>



Marker card, Sheet, white, labeled, horizontal: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... (99)100, mounting type: adhesive, for terminal block width: 3.81 mm, lettering field size: 3.81 x 2.8 mm, Number of individual labels: 14

# MCDNV 1,5/19-G1-3,5 RNP14THR - PCB header



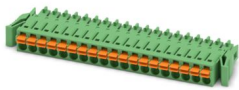
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## FMC 1,5/19-ST-3,5-RF - PCB connectors

1952199

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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: 19, number of rows: 1, number of positions: 19, number of connections: 19, product range: FMC 1,5/...-ST-RF, pitch: 3.5 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: Snap-in locking, mounting: Self-locking flange, type of packaging: packed in cardboard

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