

# IMCV 1,5/12-G-3,5 P20 THR - PCB header



1830812

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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: Sn, contact connection type: Socket, number of potentials: 12, number of rows: 1, number of positions: 12, number of connections: 12, product range: IMCV 1,5/..-G-THR, pitch: 3.5 mm, mounting: THR soldering / wave soldering, pin layout: Linear pinning, solder pin [P]: 1.9 mm, number of solder pins per potential: 2, plug-in system: COMBICON MC 1,5, Pin connector pattern alignment: Standard, locking: without, mounting: without, type of packaging: packed in cardboard

## Your advantages

- Designed for integration into the SMT soldering process
- Vertical connection enables multi-row arrangement on the PCB
- Inverted header with socket contacts for touch-proof device outputs or PCB/PCB connections

## Commercial data

|                                      |                    |
|--------------------------------------|--------------------|
| Item number                          | 1830812            |
| Packing unit                         | 50 pc              |
| Minimum order quantity               | 50 pc              |
| Sales key                            | AA02               |
| Product key                          | AABTID             |
| Catalog page                         | Page 17 (NTK-2014) |
| GTIN                                 | 4046356887991      |
| Weight per piece (including packing) | 5.55 g             |
| Weight per piece (excluding packing) | 2.456 g            |
| Customs tariff number                | 85366930           |
| Country of origin                    | DE                 |

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## Technical data

### Product properties

|                           |                       |
|---------------------------|-----------------------|
| Product type              | PCB headers           |
| Product family            | IMCV 1,5/...-G-THR    |
| Product line              | COMBICON Connectors S |
| Type                      | Inverted              |
| Number of positions       | 12                    |
| Pitch                     | 3.5 mm                |
| Number of connections     | 12                    |
| Number of rows            | 1                     |
| Number of potentials      | 12                    |
| Mounting flange           | without               |
| Pin layout                | Linear pinning        |
| Solder pins per potential | 2                     |

### Data management status

|                  |    |
|------------------|----|
| Article revision | 01 |
|------------------|----|

### Electrical properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 8 A    |
| Nominal voltage $U_N$       | 160 V  |
| Contact resistance          | 0.9 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 |

### Mounting

|               |                                |
|---------------|--------------------------------|
| Mounting type | THR soldering / wave soldering |
| Pin layout    | Linear pinning                 |

### Processing notes

|                                  |                       |
|----------------------------------|-----------------------|
| Process                          | Reflow/wave soldering |
| Moisture Sensitive Level         | MSL 1                 |
| Classification temperature $T_c$ | 260 °C                |
| Solder cycles in the reflow      | 3                     |

### Material specifications

#### Material data - contact

|      |                                                                                  |
|------|----------------------------------------------------------------------------------|
| Note | WEEE/RoHS-compliant, free of whiskers according to IEC 60068-2-82/JEDEC JESD 201 |
|------|----------------------------------------------------------------------------------|

# IMCV 1,5/12-G-3,5 P20 THR - PCB header



1830812

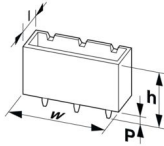
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|                                          |                    |
|------------------------------------------|--------------------|
| Contact material                         | Cu alloy           |
| Surface characteristics                  | hot-dip tin-plated |
| Metal surface contact area (top layer)   | Tin (2 - 4 µm Sn)  |
| Metal surface soldering area (top layer) | Tin (2 - 4 µm Sn)  |

## Material data - housing

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

## Dimensions

|                       |                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------|
| Dimensional drawing   |  |
| Pitch                 | 3.5 mm                                                                              |
| Width [w]             | 42.8 mm                                                                             |
| Height [h]            | 16.35 mm                                                                            |
| Length [l]            | 6.3 mm                                                                              |
| Installed height      | 14.45 mm                                                                            |
| Solder pin length [P] | 1.9 mm                                                                              |
| Pin dimensions        | 0.62 x 1.12 mm                                                                      |

## PCB design

|               |         |
|---------------|---------|
| Pin spacing   | 3.81 mm |
| Hole diameter | 1.1 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 |
|---------------|------------------------|

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1830812

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| Result                                         | Test passed            |
|------------------------------------------------|------------------------|
| 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  | 12                    |

|                                              |                       |
|----------------------------------------------|-----------------------|
| 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)                        | 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)                       | 3.2 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) |

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1830812

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|                        |                         |
|------------------------|-------------------------|
| Acceleration           | 5g (60.1 Hz ... 150 Hz) |
| Test duration per axis | 2.5 h                   |
| Test directions        | X-, Y- and Z-axis       |

## Durability test

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 2.95 kV               |
| Contact resistance R <sub>1</sub>            | 0.9 mΩ                |
| Contact resistance R <sub>2</sub>            | 0.97 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 |
|-------------------|---------------------|

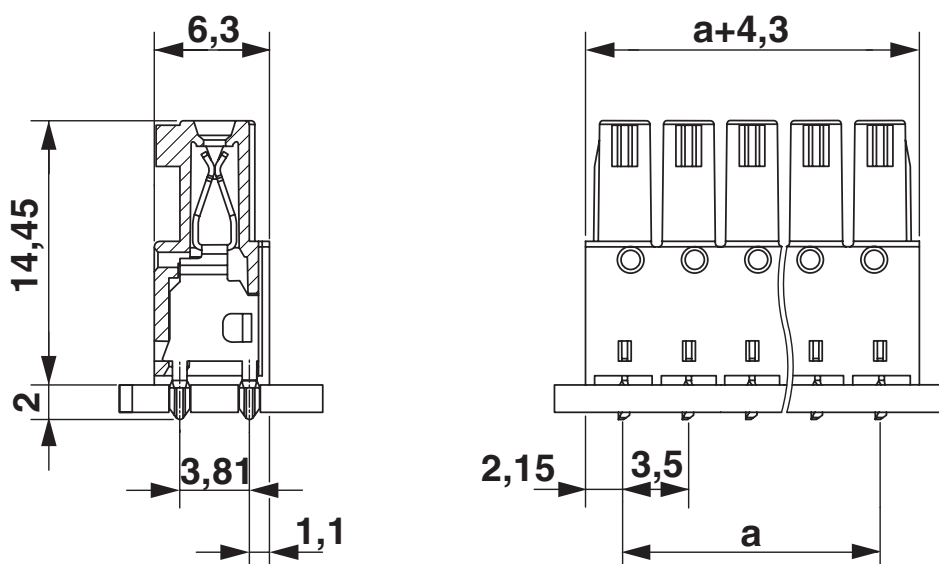
# IMCV 1,5/12-G-3,5 P20 THR - PCB header

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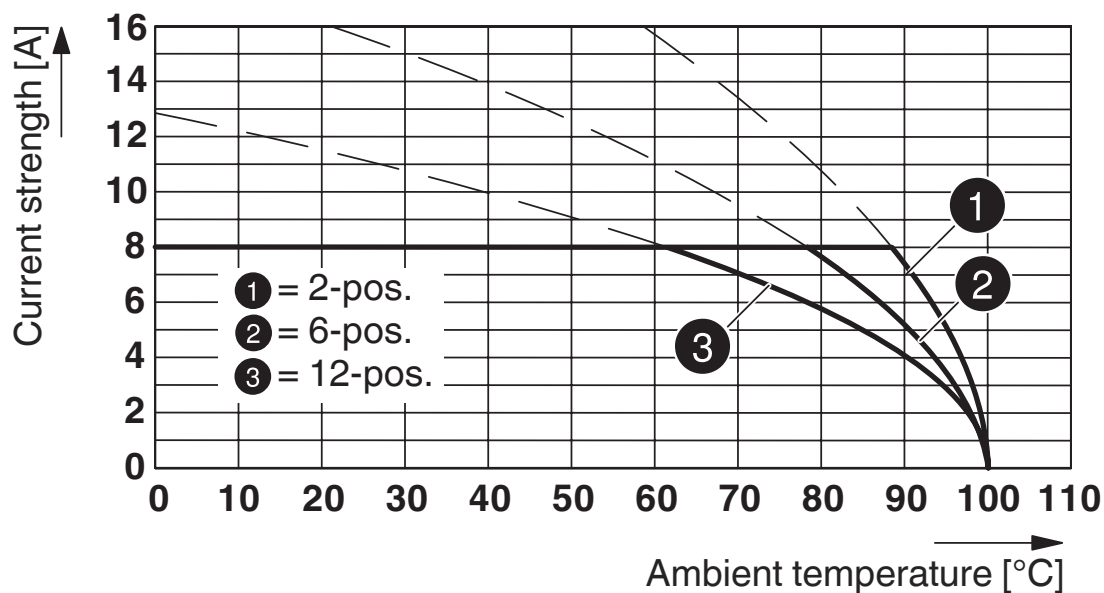
<https://www.phoenixcontact.com/us/products/1830812>

## Drawings

Dimensional drawing



Diagram



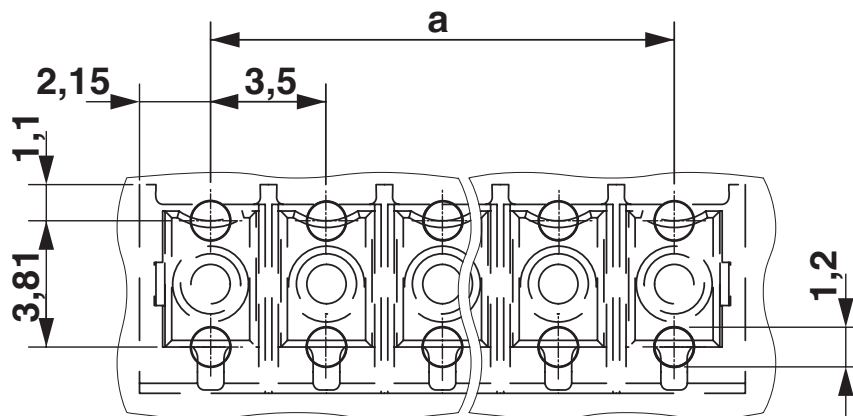
Type: IMCV 1,5/...-G-3,5 P20 THR with MCV 1,5/...-G-3,5 P26 THR

# IMCV 1,5/12-G-3,5 P20 THR - PCB header

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Drilling plan/solder pad geometry



# IMCV 1,5/12-G-3,5 P20 THR - PCB header



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1830812>

|  <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 $\text{mm}^2$ |
|                                                                                                                                          | 160 V                 | 8 A                   | -                 | -                           |



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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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