

# GMVSTBW 2,5/ 2-ST OG BDWH:L2 - PCB connector



1841746

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The figure shows a 10-position version of the product

PCB connector, nominal cross section: 2.5 mm<sup>2</sup>, color: orange, nominal current: 12 A, rated voltage (III/2): 630 V, contact surface: Sn, contact connection type: Socket, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: GMVSTBW 2,5/..-ST, pitch: 7.5 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: -90 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: without, mounting method: without, type of packaging: packed in cardboard

## Your advantages

- Well-known connection principle allows worldwide use
- Low temperature rise, thanks to maximum contact force
- Larger pitch for increased voltage requirements
- Allows connection of two conductors

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1841746       |
| Packing unit                         | 50 pc         |
| Minimum order quantity               | 50 pc         |
| Product key                          | AACALC        |
| GTIN                                 | 4046356915793 |
| Weight per piece (including packing) | 5.06 g        |
| Weight per piece (excluding packing) | 4.84 g        |
| Country of origin                    | DE            |

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## Technical data

### Product properties

|                       |                       |
|-----------------------|-----------------------|
| Product type          | PCB connector         |
| Product family        | GMVSTBW 2,5/..-ST     |
| Product line          | COMBICON Connectors M |
| Number of positions   | 2                     |
| Pitch                 | 7.5 mm                |
| Number of connections | 2                     |
| Number of rows        | 1                     |
| Number of potentials  | 2                     |
| Mounting type         | without               |

### Electrical properties

#### Properties

|                             |                |
|-----------------------------|----------------|
| Nominal current $I_N$       | 12 A           |
| Nominal voltage $U_N$       | 630 V          |
| Contact resistance          | 2.2 m $\Omega$ |
| Rated voltage (III/3)       | 500 V          |
| Rated surge voltage (III/3) | 6 kV           |
| Rated voltage (III/2)       | 630 V          |
| Rated surge voltage (III/2) | 6 kV           |
| Rated voltage (II/2)        | 1000 V         |
| Rated surge voltage (II/2)  | 6 kV           |

### Connection data

#### Connection technology

|                         |                     |
|-------------------------|---------------------|
| Type                    | Standard            |
| Connector system        | COMBICON MSTB 2,5   |
| Nominal cross section   | 2.5 mm <sup>2</sup> |
| Contact connection type | Socket              |

#### Interlock

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

#### Conductor connection

|   |  |
|---|--|
| Connection method   | Screw connection with tension sleeve         |
| Conductor/PCB connection direction                                      | -90 °  |
| Conductor cross-section rigid   | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| Conductor cross-section flexible  | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| Conductor cross-section AWG   | 24 ... 12                                    |
| Conductor cross-section, flexible, with ferrule, without plastic sleeve | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |

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|   |  |
|---|--|
| Conductor cross-section, flexible, with ferrule, with plastic sleeve                      | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| 2 conductors with same cross section, rigid   | 0.2 mm <sup>2</sup> ... 1 mm <sup>2</sup>    |
| 2 conductors with same cross section, flexible  | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| 2 conductors with same cross section, flexible, with ferrule without plastic sleeve       | 0.25 mm <sup>2</sup> ... 1 mm <sup>2</sup>   |
| 2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve | 0.5 mm <sup>2</sup> ... 1 mm <sup>2</sup>    |
| Cylindrical gauge a x b / diameter  | 2.8 mm x 2.0 mm / 2.4 mm                     |
| Stripping length  | 7 mm   |
| Drive form screw head   | Slotted (L)                                  |
| Tightening torque   | 0.5 Nm ... 0.6 Nm                            |

## Specifications for ferrules without insulating collar

|                           |                    |
|---------------------------|--------------------|
| recommended crimping tool | 1212034 CRIMPFOX 6 |
|---------------------------|--------------------|

## Specifications for ferrules with insulating collar

|                           |                    |
|---------------------------|--------------------|
| recommended crimping tool | 1212034 CRIMPFOX 6 |
|---------------------------|--------------------|

## 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                  | hot-dip tin-plated   |
| Metal surface terminal point (top layer) | Tin (4 µm - 8 µm Sn)   |
| Metal surface contact area (top layer)   | Tin (4 µm - 8 µm Sn)   |

### Material data - housing

|   |               |
|---|---------------|
| Color (Housing)   | orange (2003) |
| 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        |

## Dimensions

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|                     |  |          |
|---------------------|--|----------|
| Dimensional drawing |  |          |
| Pitch               |  | 7.5 mm   |
| Width [w]           |  | 13 mm    |
| Height [h]          |  | 26 mm    |
| Length [l]          |  | 12.52 mm |

## 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. |
|--------------------|--|

## 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 | 0.2 mm <sup>2</sup> / solid / > 10 N    |
|   | 0.2 mm <sup>2</sup> / flexible / > 10 N |
|   | 2.5 mm <sup>2</sup> / solid / > 50 N    |
|   | 2.5 mm <sup>2</sup> / flexible / > 50 N |

### Insertion and withdrawal forces

|                                     |                        |
|-------------------------------------|------------------------|
| Specification                       | IEC 60512-13-2:2006-02 |
| Result                              | Test passed            |
| No. of cycles                       | 25                     |
| Insertion strength per pos. approx. | 8 N                    |
| Withdraw strength per pos. approx.  | 6 N                    |

### Torque test

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

### 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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## Visual inspection

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60512-1-1:2002-02 |
| Result        | Test passed           |

## Dimension check

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60512-1-2:2002-02 |
| Result        | Test passed           |

## Environmental and real-life conditions

### Durability test

|  |                       |
|--|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 4.8 kV                |
| Contact resistance R <sub>1</sub>            | 2.2 mΩ                |
| Contact resistance R <sub>2</sub>            | 2.2 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 | 2.21 kV   |

### 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           |

### Ambient conditions

|   |   |
|---|---|
| Ambient temperature (storage/transport) | -40 °C ... 70 °C                                    |
| Relative humidity (storage/transport)   | 30 % ... 70 %                                       |
| Ambient temperature (assembly)          | -5 °C ... 100 °C                                    |
| Ambient temperature (operation)         | -40 °C ... 100 °C (dependent on the derating curve) |

## 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 |
|---------------|-----------------------|

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|  |        |
|--|--------|
| Insulation resistance, neighboring positions | > 5 MΩ |
|--|--------|

## Air clearances and creepage distances |

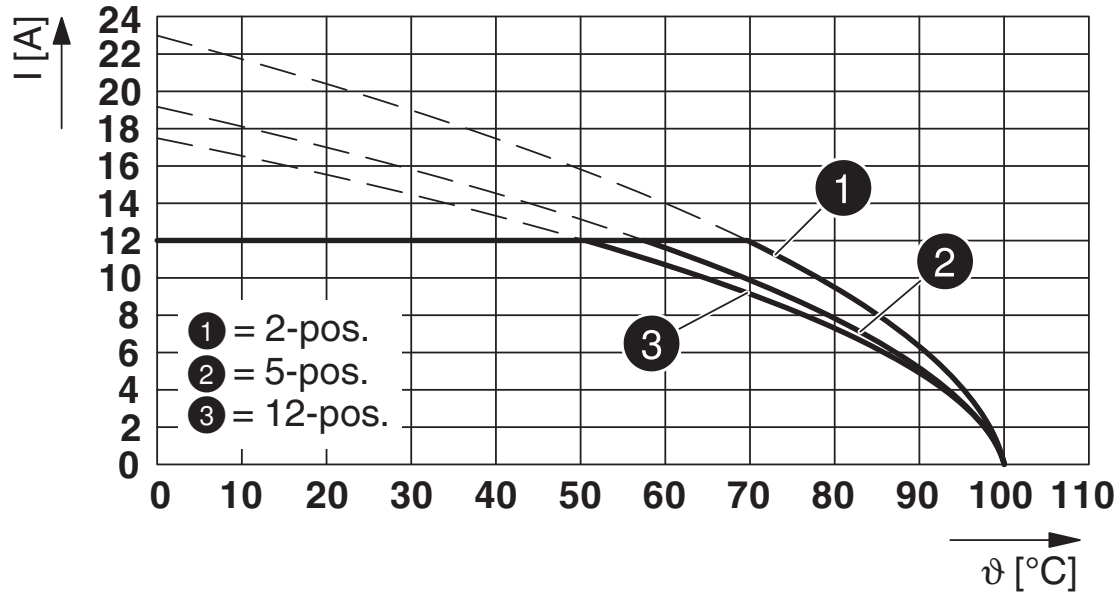
|  |   |
|--|---|
| Specification  | IEC 60664-1:2007-04                                 |
| Insulating material group                              | I   |
| Comparative tracking index (IEC 60112)                 | CTI 600   |
| Rated insulation voltage (III/3)                       | 500 V   |
| Rated surge voltage (III/3)                            | 6 kV  |
| minimum clearance value - non-homogenous field (III/3) | 5.5 mm  |
| minimum creepage distance (III/3)                      | 6.3 mm  |
| Note on connection cross section                       | With connected conductor 4 mm <sup>2</sup> (solid). |
| Rated insulation voltage (III/2)                       | 630 V   |
| Rated surge voltage (III/2)                            | 6 kV  |
| minimum clearance value - non-homogenous field (III/2) | 5.5 mm  |
| minimum creepage distance (III/2)                      | 5.5 mm  |
| Rated insulation voltage (II/2)                        | 1000 V  |
| Rated surge voltage (II/2)                             | 6 kV  |
| minimum clearance value - non-homogenous field (II/2)  | 5.5 mm  |
| minimum creepage distance (II/2)                       | 5.5 mm  |

## Packaging specifications

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

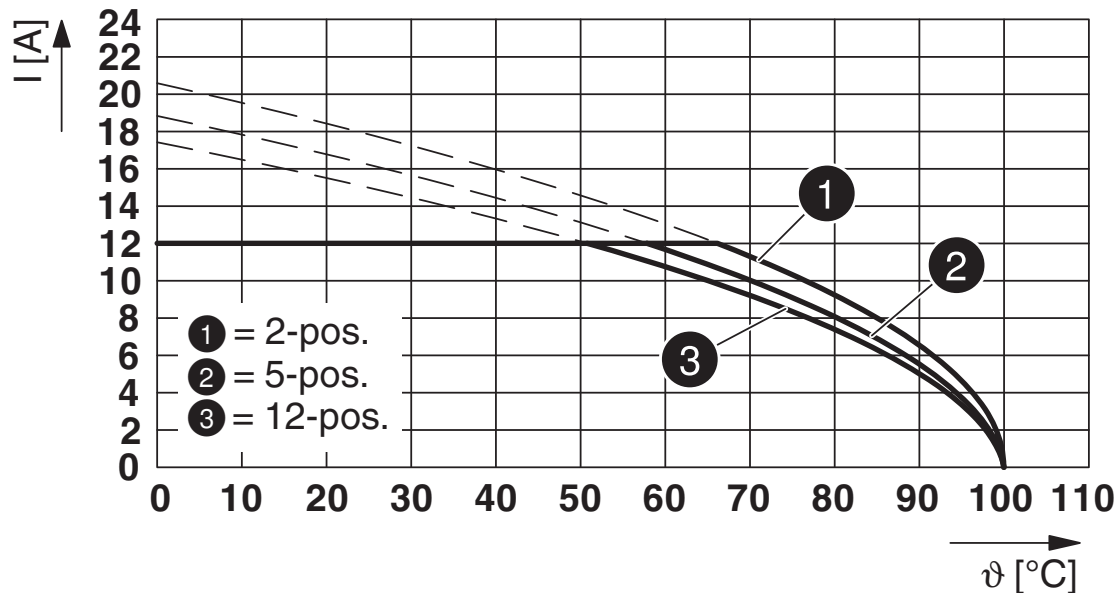
Drawings

Diagram



Type: GMVSTB(R/W) 2,5/...-ST with GMSTB 2,5/...-G

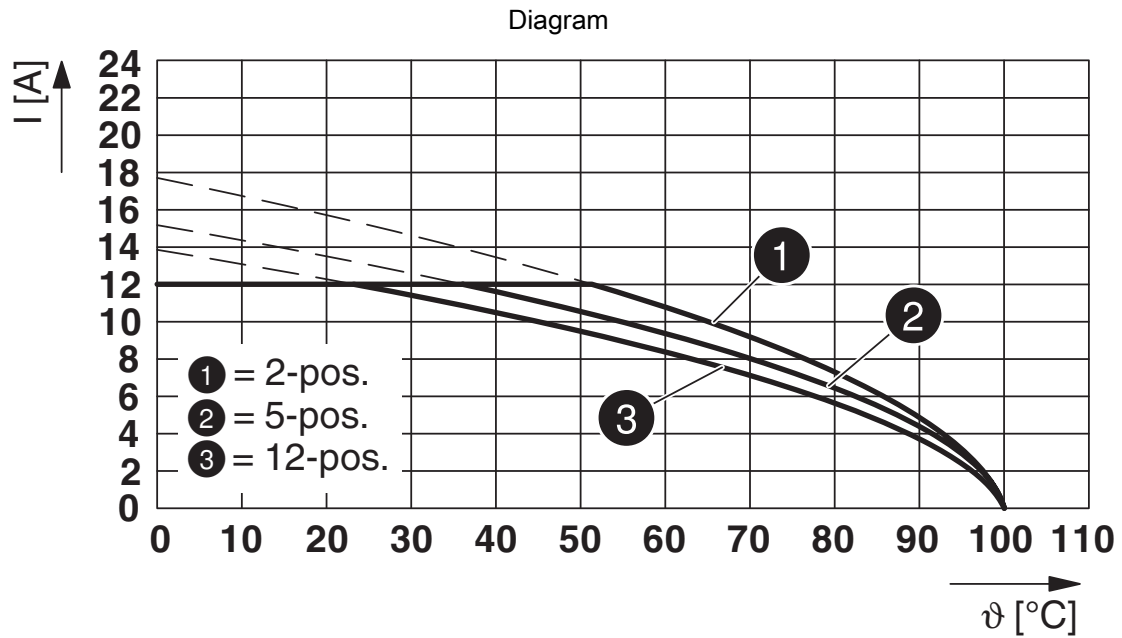
Diagram



Type: GMVSTB(R/W) 2,5/...-ST with GMSTBA 2,5/...-G

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Type: GMVSTB(R/W) 2,5/...-ST with GMSTBV 2,5/...-G

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1841746>

|  <b>CSA</b><br>Approval ID: 2585950 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| B  | 300 V                 | 10 A                  | 28 - 12           | -                           |
| D  | 300 V                 | 10 A                  | 28 - 12           | -                           |

|  <b>cULus Recognized</b><br>Approval ID: E60425-19931013 |                       |                       |                   |                             |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
|   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| B   | 300 V                 | 15 A                  | 30 - 12           | -                           |
| D   | 300 V                 | 10 A                  | 30 - 12           | -                           |

|  <b>VDE approval of drawings</b><br>Approval ID: 40050646 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine  | 400 V                 | 12 A                  | -                 | 0.2 - 2.5                   |

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## Classifications

### ECLASS

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

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC002638 |
|-----------|----------|

### 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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