

# GMVSTBW 2,5 HV/ 3-ST-7,62 - PCB connector



1993967  
<https://www.phoenixcontact.com/us/products/1993967>

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PCB connector, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 12 A, rated voltage (III/2): 630 V, contact surface: Tin, contact connection type: Socket, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: GMVSTBW 2,5 HV/...-ST, pitch: 7.62 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 HC, locking: without, mounting: without, type of packaging: packed in cardboard

## Your advantages

- Well-known connection principle allows worldwide use
- Low temperature rise, thanks to maximum contact force
- Allows connection of two conductors
- Integrated double steel spring provides additional safety in the event of temperature and power fluctuations
- 600 V UL approval in the smallest of dimensions

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 1993967             |
| Packing unit                         | 50 pc               |
| Minimum order quantity               | 50 pc               |
| Sales key                            | AA03                |
| Product key                          | AACAME              |
| Catalog page                         | Page 501 (C-1-2013) |
| GTIN                                 | 4017918982881       |
| Weight per piece (including packing) | 7.75 g              |
| Weight per piece (excluding packing) | 7.227 g             |
| Customs tariff number                | 85366990            |
| Country of origin                    | DE                  |

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## Technical data

### Product properties

|                       |                       |
|-----------------------|-----------------------|
| Product type          | PCB connector         |
| Product family        | GMVSTBW 2,5 HV/...-ST |
| Product line          | COMBICON Connectors M |
| Type                  | Standard              |
| Number of positions   | 3                     |
| Pitch                 | 7.62 mm               |
| Number of connections | 3                     |
| Number of rows        | 1                     |
| Number of potentials  | 3                     |
| Mounting flange       | without               |

### Electrical properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 12 A   |
| Nominal voltage $U_N$       | 630 V  |
| Contact resistance          | 2.5 mΩ |
| 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 HC |
| Nominal cross section   | 2.5 mm <sup>2</sup>  |
| Contact connection type | Socket               |

#### Interlock

|                 |         |
|-----------------|---------|
| Locking type    | without |
| Mounting flange | 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, solid                                               | 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 |
|---------------------------|--------------------|

## Material specifications

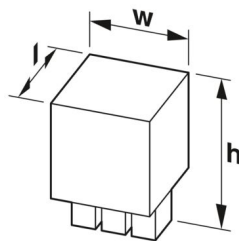
### Material data - contact

|                                          |                                                                                  |
|------------------------------------------|----------------------------------------------------------------------------------|
| 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 - 8 µm Sn)                                                                |
| Metal surface contact area (top layer)   | Tin (4 - 8 µm Sn)                                                                |

### 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       |

## Dimensions

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Pitch               | 7.62 mm                                                                              |

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|            |          |
|------------|----------|
| Width [w]  | 20.81 mm |
| Height [h] | 27.5 mm  |
| Length [l] | 15 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

|                                     |             |
|-------------------------------------|-------------|
| Result                              | Test passed |
| No. of cycles                       | 25          |
| Insertion strength per pos. approx. | 8 N         |
| Withdraw strength per pos. approx.  | 8 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 60512-7:1993-08 (Polarization) |
| Result        | Test passed                        |

### Visual inspection

|               |                     |
|---------------|---------------------|
| Specification | IEC 60512-2:1985-00 |
| Result        | Test passed         |

### Dimension check

|               |                     |
|---------------|---------------------|
| Specification | IEC 60512-2:1985-00 |
| Result        | Test passed         |

## Environmental and real-life conditions

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## Vibration test

|                        |                             |
|------------------------|-----------------------------|
| Specification          | IEC 60068-2-6:1995-03       |
| 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                       |

## Durability test

|                                        |                     |
|----------------------------------------|---------------------|
| Specification                          | IEC 60512-5:1992-08 |
| Impulse withstand voltage at sea level | 4.8 kV              |
| Contact resistance R <sub>1</sub>      | 2.5 mΩ              |
| Contact resistance R <sub>2</sub>      | 2.5 mΩ              |
| Insertion/withdrawal cycles            | 25                  |

## Climatic test

|                                   |                   |
|-----------------------------------|-------------------|
| Specification                     | ISO 6988:1985-02  |
| Corrosive stress                  | KFW 0.2 S/1 cycle |
| Thermal stress                    | 100 °C/168 h      |
| Power-frequency withstand voltage | 2.21 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                                    |

## Electrical tests

### Thermal test | Test group C

|                            |                       |
|----------------------------|-----------------------|
| Specification              | IEC 60512-5-1:2002-02 |
| Tested number of positions | 6                     |

### Insulation resistance

|                                              |                     |
|----------------------------------------------|---------------------|
| Specification                                | IEC 60512-2:1985-00 |
| Insulation resistance, neighboring positions | 10 <sup>12</sup> Ω  |

### 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). |

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

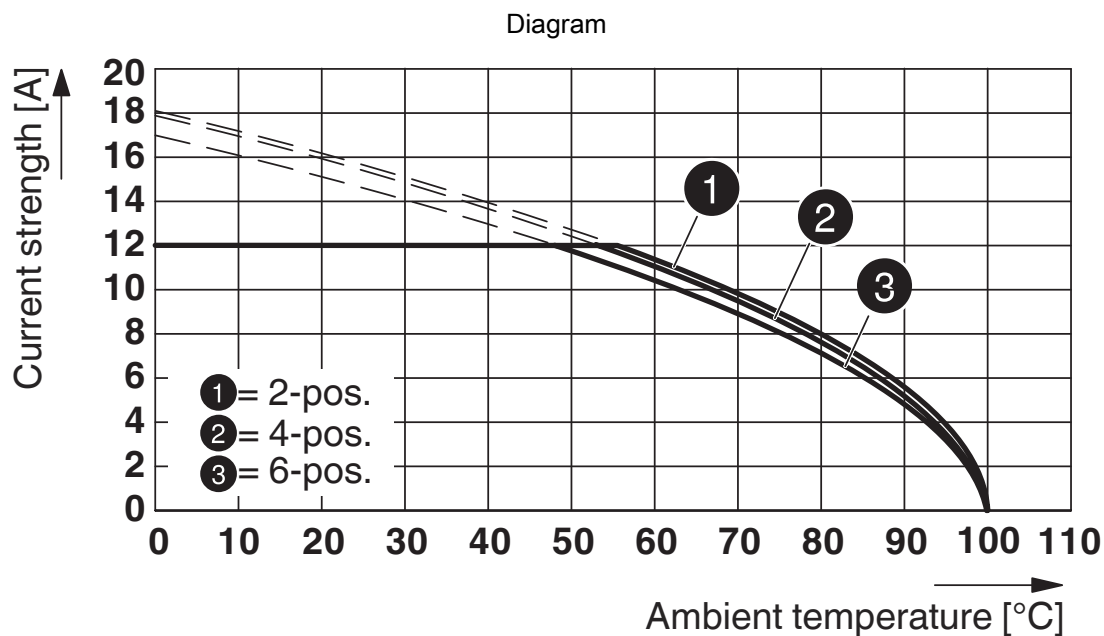
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## Drawings



Type: GMVSTBW 2,5 HV/...-ST-7,62 with GMSTBA 2,5/...-G-7,62

# GMVSTBW 2,5 HV/ 3-ST-7,62 - PCB connector



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1993967>

| <div> <b>cULus Recognized</b><br/>Approval ID: E60425-19931013</div> |                       |                       |                   |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                                       | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B                                                                                                                                           |                       |                       |                   |                             |
| Multi-conductor connection                                                                                                                            | 600 V                 | 15 A                  | 24 - 16           | -                           |
| Screw connection                                                                                                                                      | 600 V                 | 15 A                  | 30 - 12           | -                           |
| Use group C                                                                                                                                           |                       |                       |                   |                             |
| Multi-conductor connection                                                                                                                            | 600 V                 | 15 A                  | 24 - 16           | -                           |
| Screw connection                                                                                                                                      | 600 V                 | 15 A                  | 30 - 12           | -                           |



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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27460202 |
| ECLASS-12.0 | 27460202 |
| ECLASS-13.0 | 27460202 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | 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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## Accessories

### SZS 0,6X3,5 - Screwdriver

1205053

<https://www.phoenixcontact.com/us/products/1205053>



Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

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### CP-MSTB - Coding profile

1734634

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



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

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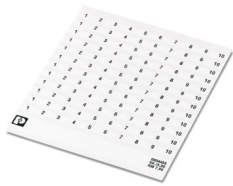
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## SK 7,5/3,8:FORTL.ZAHLEN - Marker card

0804455

<https://www.phoenixcontact.com/us/products/0804455>



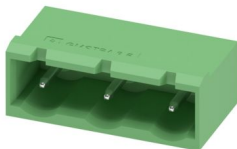
Marker card, white, labeled, horizontal: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... 100, mounting type: adhesive, for terminal block width: 7.5 mm, lettering field size: 7.5 x 3.8 mm

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## GMSTBA 2,5/ 3-G-7,62 - PCB header

1766246

<https://www.phoenixcontact.com/us/products/1766246>



PCB headers, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 12 A, rated voltage (III/2): 630 V, contact surface: Tin, contact connection type: Pin, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: GMSTBA 2,5/-G, pitch: 7.62 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.23 mm, number of solder pins per potential: 1, plug-in system: COMBICON MSTB 2,5, Pin connector pattern alignment: Standard, locking: without, mounting: without, type of packaging: packed in cardboard

# GMVSTBW 2,5 HV/ 3-ST-7,62 - PCB connector



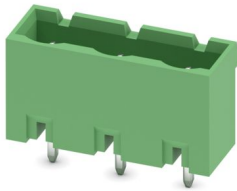
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## GMSTBVA 2,5/ 3-G-7,62 - PCB header

1766783

<https://www.phoenixcontact.com/us/products/1766783>



PCB headers, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 12 A, rated voltage (III/2): 630 V, contact surface: Tin, contact connection type: Pin, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: GMSTBVA 2,5/..-G, pitch: 7.62 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.9 mm, number of solder pins per potential: 1, plug-in system: COMBICON MSTB 2,5, Pin connector pattern alignment: Standard, locking: without, mounting: without, type of packaging: packed in cardboard

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