

# GFKC 2,5/ 9-STF-7,62 - PCB connector



1939811

<https://www.phoenixcontact.com/us/products/1939811>

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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: 9, number of rows: 1, number of positions: 9, number of connections: 9, product range: GFKC 2,5/..-STF, pitch: 7.62 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking mechanism, mounting: Screw flange, type of packaging: packed in cardboard

## Your advantages

- Time saving push-in connection, tools not required
- Defined contact force ensures that contact remains stable over the long term
- Larger pitch for increased voltage requirements
- Intuitive operation due to color-coded actuating push button
- Screwable flange for superior mechanical stability
- Quick and convenient testing using integrated test option

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1939811                        |
| Packing unit                         | 50 pc                          |
| Minimum order quantity               | 50 pc                          |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | AA03                           |
| Product key                          | AACFDB                         |
| Catalog page                         | Page 341 (C-1-2013)            |
| GTIN                                 | 4017918877811                  |
| Weight per piece (including packing) | 19.67 g                        |
| Weight per piece (excluding packing) | 18.704 g                       |
| Customs tariff number                | 85366990                       |
| Country of origin                    | DE                             |

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## Technical data

### Product properties

|                       |                       |
|-----------------------|-----------------------|
| Product type          | PCB connector         |
| Product family        | GFKC 2,5/...-STF      |
| Product line          | COMBICON Connectors M |
| Type                  | Standard              |
| Number of positions   | 9                     |
| Pitch                 | 7.62 mm               |
| Number of connections | 9                     |
| Number of rows        | 1                     |
| Number of potentials  | 9                     |
| Mounting flange       | Screw flange          |

### Electrical properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 12 A   |
| Nominal voltage $U_N$       | 630 V  |
| Degree of pollution         | 3      |
| Contact resistance          | 2 mΩ   |
| Rated voltage (III/3)       | 400 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

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

#### Interlock

|                   |                         |
|-------------------|-------------------------|
| Locking type      | Screw locking mechanism |
| Mounting flange   | Screw flange            |
| Tightening torque | 0.3 Nm                  |

#### Conductor connection

|                                                                |                                              |
|----------------------------------------------------------------|----------------------------------------------|
| Connection method                                              | Push-in spring connection                    |
| Conductor/PCB connection direction                             | 0 °                                          |
| 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 | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |

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|                                                                                           |                                              |
|-------------------------------------------------------------------------------------------|----------------------------------------------|
| sleeve                                                                                    |                                              |
| Conductor cross section, flexible, with ferrule, with plastic sleeve                      | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| 2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve | 0.5 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| Cylindrical gauge a x b / diameter                                                        | 2.8 mm x 2.0 mm / 2.4 mm                     |
| Stripping length                                                                          | 10 mm                                        |

## Specifications for ferrules without insulating collar

|                                                              |                                                              |
|--------------------------------------------------------------|--------------------------------------------------------------|
| recommended crimping tool                                    | 1212034 CRIMPFOX 6                                           |
| ferrules without insulating collar, according to DIN 46228-1 | Cross section: 0.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm  |
|                                                              | Cross section: 0.75 mm <sup>2</sup> ; Length: 8 mm ... 10 mm |
|                                                              | Cross section: 1 mm <sup>2</sup> ; Length: 8 mm ... 10 mm    |
|                                                              | Cross section: 1.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm  |
|                                                              | Cross section: 2.5 mm <sup>2</sup> ; Length: 10 mm           |

## Specifications for ferrules with insulating collar

|                                                           |                                                              |
|-----------------------------------------------------------|--------------------------------------------------------------|
| recommended crimping tool                                 | 1212034 CRIMPFOX 6                                           |
| ferrules with insulating collar, according to DIN 46228-4 | Cross section: 0.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm  |
|                                                           | Cross section: 0.75 mm <sup>2</sup> ; Length: 8 mm ... 10 mm |
|                                                           | Cross section: 1 mm <sup>2</sup> ; Length: 8 mm ... 10 mm    |
|                                                           | Cross section: 1.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm  |
|                                                           | Cross section: 2.5 mm <sup>2</sup> ; Length: 10 mm           |

## 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       |

### Material data – actuating element

|                           |               |
|---------------------------|---------------|
| Color (Actuating element) | orange (2003) |
|---------------------------|---------------|

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|                                        |     |
|----------------------------------------|-----|
| Insulating material                    | PBT |
| Insulating material group              | I   |
| CTI according to IEC 60112             | 600 |
| Flammability rating according to UL 94 | V0  |

## Dimensions

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Pitch               | 7.62 mm                                                                            |
| Width [w]           | 78.18 mm                                                                           |
| Height [h]          | 15 mm                                                                              |
| Length [l]          | 25.6 mm                                                                            |

## Mounting

|                   |        |
|-------------------|--------|
| Flange            |        |
| Tightening torque | 0.3 Nm |

## 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

|                      |                     |
|----------------------|---------------------|
| Conductor connection |                     |
| Specification        | IEC 60999-1:1999-11 |
| Result               | Test passed         |

|                                          |                     |
|------------------------------------------|---------------------|
| Test for conductor damage and slackening |                     |
| Specification                            | IEC 60999-1:1999-11 |
| Result                                   | Test passed         |

|                                       |                     |
|---------------------------------------|---------------------|
| Repeated connection and disconnection |                     |
| 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 |

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## 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         |

## 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

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

### 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                       |

### Durability test

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 7.3 kV                |
| Contact resistance $R_1$                     | 2 mΩ                  |
| Contact resistance $R_2$                     | 2.1 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 | 3.31 kV                                                                   |

### Shocks

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|                 |                                   |
|-----------------|-----------------------------------|
| Specification   | IEC 60068-2-27:2008-02            |
| Pulse shape     | Semi-sinusoidal                   |
| Acceleration    | 30g                               |
| Shock duration  | 18 ms                             |
| Test directions | X-, Y- and Z-axis (pos. and neg.) |

## 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                                    |

## 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                              | I                   |
| Comparative tracking index (IEC 60112)                 | CTI 600             |
| Rated insulation voltage (III/3)                       | 400 V               |
| Rated surge voltage (III/3)                            | 6 kV                |
| minimum clearance value - non-homogenous field (III/3) | 5.5 mm              |
| minimum creepage distance (III/3)                      | 5.5 mm              |
| 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 |
|-------------------|---------------------|

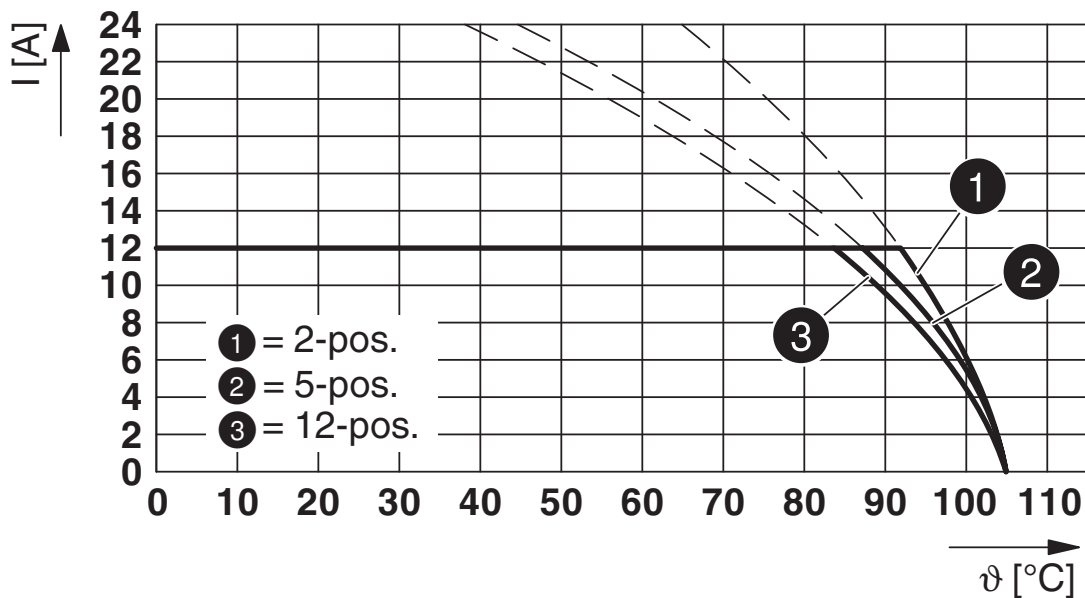
## Drawings

Diagram



Type: GFKC 2,5/...-STF-7,62 with GMSTBV 2,5/...-GF-7,62

Diagram



Type: GFKC 2,5/...-STF-7,62 with GMSTB 2,5/...-GF-7,62

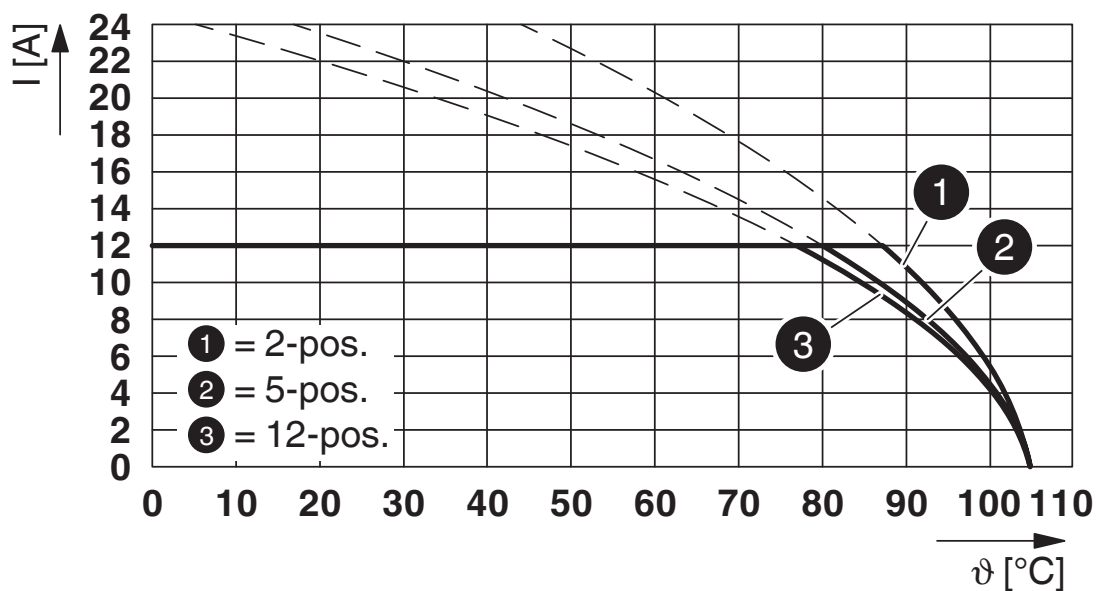
# GFKC 2,5/ 9-STF-7,62 - PCB connector



1939811

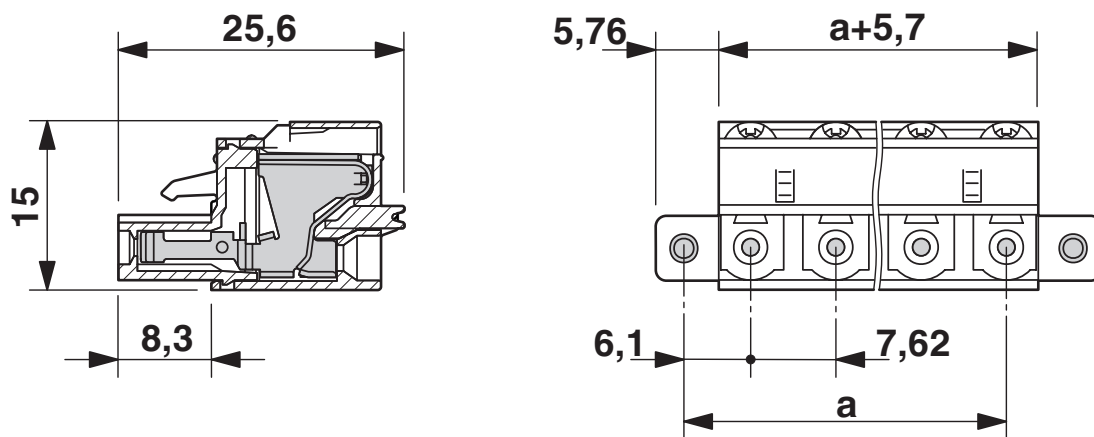
<https://www.phoenixcontact.com/us/products/1939811>

Diagram



Type: GFKC 2,5/...-STF-7,62 with GIC 2,5/...-STGF-7,62

Dimensional drawing



# GFKC 2,5/ 9-STF-7,62 - PCB connector



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1939811>

|  <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                 | 12 A                  | 24 - 12           | -                           |
| Use group D                                                                                                        |                       |                       |                   |                             |
|                                                                                                                    | 300 V                 | 10 A                  | 24 - 12           | -                           |

|  <b>cULus Recognized</b><br>Approval ID: E60425-19931013 |                       |                       |                   |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                           | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B                                                                                                                               |                       |                       |                   |                             |
|                                                                                                                                           | 300 V                 | 10 A                  | 26 - 12           | -                           |
| Use group D                                                                                                                               |                       |                       |                   |                             |
|                                                                                                                                           | 300 V                 | 10 A                  | 26 - 12           | -                           |

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

# GFKC 2,5/ 9-STF-7,62 - PCB connector



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

# GFKC 2,5/ 9-STF-7,62 - PCB connector



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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%               |

# GFKC 2,5/ 9-STF-7,62 - PCB connector



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## Accessories

### 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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### MPS-MT - Test plug

0201744

<https://www.phoenixcontact.com/us/products/0201744>

Test plug, with solder connection up to 1 mm<sup>2</sup> conductor cross section, number of positions: 1, color: gray



## GFKC 2,5/ 9-STF-7,62 - PCB connector

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## RPS - Reducing plug

0201647

<https://www.phoenixcontact.com/us/products/0201647>



Reducing plug, number of positions: 1, color: gray

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## 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

# GFKC 2,5/ 9-STF-7,62 - PCB connector



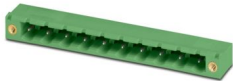
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## GMSTB 2,5/ 9-GF-7,62 - PCB header

1806290

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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: 9, number of rows: 1, number of positions: 9, number of connections: 9, product range: GMSTB 2,5/...-GF, pitch: 7.62 mm, mounting: Wave soldering, conductor/PCB connection direction: 0 °, 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: Screw locking mechanism, mounting: Threaded flange, type of packaging: packed in cardboard

## GMSTBV 2,5/ 9-GF-7,62 - PCB header

1829222

<https://www.phoenixcontact.com/us/products/1829222>



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: 9, number of rows: 1, number of positions: 9, number of connections: 9, product range: GMSTBV 2,5/...-GF, 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: Screw locking mechanism, mounting: Threaded flange, type of packaging: packed in cardboard

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