

## Plug - FK-MCP 1,5/12-ST-3,5GYAUBD-12Q - 1701853

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PCB connector, nominal current: 8 A, number of positions: 12, pitch: 3.5 mm, connection method: Push-in spring connection, color: gray, contact surface: Gold



The figure shows a 10-position version of the product

### Your advantages

- ✓ Gold-plated contacts ensure transfer quality remains stable over the long term
- ✓ Time saving push-in connection, tools not required
- ✓ Defined contact force ensures that contact remains stable over the long term
- ✓ Intuitive use through colour coded actuation lever
- ✓ Operation and conductor connection from one direction enable integration into front of device
- ✓ Quick and convenient testing using integrated test option



### Key Commercial Data

|              |                                                                                      |
|--------------|--------------------------------------------------------------------------------------|
| Packing unit | 50 pc                                                                                |
| GTIN         |  |
| GTIN         | 4046356563185                                                                        |

### Technical data

#### Item properties

|                           |                                 |
|---------------------------|---------------------------------|
| Brief article description | Printed-circuit board connector |
| Plug-in system            | MINI COMBICON                   |
| Type of contact           | Female connector                |
| Range of articles         | FK-MCP 1,5/...-ST               |
| Pitch                     | 3.5 mm                          |
| Number of positions       | 12                              |
| Connection method         | Push-in spring connection       |
| Locking                   | without                         |
| Number of levels          | 1                               |

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## Technical data

### Electrical parameters

|                                  |        |
|----------------------------------|--------|
| Rated current                    | 8 A    |
| Rated insulation voltage (III/2) | 160 V  |
| Rated surge voltage (III/2)      | 2.5 kV |

### Connection capacity

|                                                                       |                                              |
|-----------------------------------------------------------------------|----------------------------------------------|
| Conductor cross section solid                                         | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section flexible                                      | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section AWG / kcmil                                   | 26 ... 16                                    |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section, flexible, with ferrule, with plastic sleeve  | 0.25 mm <sup>2</sup> ... 0.5 mm <sup>2</sup> |
| Cylindrical gauge a x b / diameter                                    | 2.4 mm x 1.5 mm / -                          |
| Stripping length                                                      | 9 mm                                         |

### Specifications for ferrules

|                                                              |                                                             |
|--------------------------------------------------------------|-------------------------------------------------------------|
| Recommended crimping pliers                                  | 1212034 CRIMPFOX 6                                          |
| Ferrules without insulating collar, according to DIN 46228-1 | Cross section: 0.25 mm <sup>2</sup> ; Length: 7 mm ... 9 mm |
|                                                              | Cross section: 0.34 mm <sup>2</sup> ; Length: 7 mm ... 9 mm |
|                                                              | Cross section: 0.5 mm <sup>2</sup> ; Length: 8 mm ... 9 mm  |
|                                                              | Cross section: 0.75 mm <sup>2</sup> ; Length: 8 mm ... 9 mm |
|                                                              | Cross section: 1 mm <sup>2</sup> ; Length: 8 mm ... 9 mm    |
|                                                              | Cross section: 1.5 mm <sup>2</sup> ; Length: 8 mm ... 9 mm  |

### 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                     | partially gold-plated                                                             |
| Metal surface terminal point (top layer)    | Tin (5 - 8 µm Sn)                                                                 |
| Metal surface terminal point (middle layer) | Nickel (2 - 3 µm Ni)                                                              |
| Metal surface contact area (top layer)      | Gold (0.8 Au)                                                                     |
| Metal surface contact area (middle layer)   | Nickel (2 - 3 µm Ni)                                                              |

### Material data - housing

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

|                            |     |
|----------------------------|-----|
| Insulating material        | POM |
| CTI according to IEC 60112 | 600 |

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## Technical data

### Material data – actuating element

|                                        |    |
|----------------------------------------|----|
| Flammability rating according to UL 94 | HB |
|----------------------------------------|----|

### Dimensions for the product

|                             |         |
|-----------------------------|---------|
| Length [ l ]                | 21 mm   |
| Width [ w ]                 | 42.9 mm |
| Height [ h ]                | 12.4 mm |
| Pitch                       | 3.5 mm  |
| Height (without solder pin) | 12.4 mm |
| Dimension a                 | 38.5 mm |

### Packaging information

|                            |                     |
|----------------------------|---------------------|
| Type of packaging          | packed in cardboard |
| Pieces per package         | 50                  |
| Denomination packing units | Pcs.                |

### Ambient conditions

|                                         |                  |
|-----------------------------------------|------------------|
| Ambient temperature (storage/transport) | -40 °C ... 70 °C |
| Ambient temperature (assembly)          | -5 °C ... 100 °C |
| Ambient temperature (operation)         | -40 °C           |

### Termination and connection method

|                                          |                                                                                                                                               |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Conductor connection test                | The stripped-off ends of the largest conductor can be completely inserted in the opening of the terminal point without using excessive force. |
| Test result                              | Test passed                                                                                                                                   |
| Test – repeated connection and release   | IEC 60999-1:1999-11                                                                                                                           |
|                                          | Test passed                                                                                                                                   |
| Test for conductor damage and slackening | IEC 60999-1:1999-11                                                                                                                           |
|                                          | Test passed                                                                                                                                   |

### Pull-out test

|                                                          |                              |
|----------------------------------------------------------|------------------------------|
| Pull-out test                                            | IEC 60999-1:1999-11          |
|                                                          | Test passed                  |
| Conductor cross section / conductor type / tensile force | 0.14 mm² / solid / > 10 N    |
|                                                          | 0.14 mm² / flexible / > 10 N |
|                                                          | 1.5 mm² / solid / > 40 N     |
|                                                          | 1.5 mm² / flexible / > 40 N  |

### Mechanical tests according to standard

|                       |                                    |
|-----------------------|------------------------------------|
| Test specification    | IEC 61984                          |
| Visual examination    | Test passed IEC 60512-1-1:2002-02  |
| Dimensional test      | Test passed IEC 60512-1-2:2002-02  |
| Resistance of marking | Test passed IEC 60068-2-70:1995-12 |
| Result                | Test passed                        |
| Specification         | IEC 60512-13-2:2006-02             |

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### Technical data

#### Mechanical tests according to standard

|                                     |                                    |
|-------------------------------------|------------------------------------|
| No. of cycles                       | 25                                 |
| Insertion strength per pos. approx. | 7 N                                |
| Withdraw strength per pos. approx.  | 5 N                                |
| Polarization and coding             | Test passed IEC 60512-13-5:2006-02 |
| Result                              | Test passed                        |
| Specification                       | IEC 60512-15-1:2008-05             |
| Test force per pos.                 | 25 N                               |

#### Air clearances and creepage distances

|                                  |        |
|----------------------------------|--------|
| Insulating material group        | I      |
| Voltage                          | 160 V  |
| Rated insulation voltage (III/3) | 160 V  |
| Rated insulation voltage (III/2) | 160 V  |
| Rated insulation voltage (II/2)  | 320 V  |
| Rated surge voltage (III/3)      | 2.5 kV |
| Rated surge voltage (III/2)      | 2.5 kV |
| Rated surge voltage (II/2)       | 2.5 kV |

#### Electrical tests - Function

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

#### Temperature cycles

|                    |                     |
|--------------------|---------------------|
| Specification      | IEC 60999-1:1999-11 |
| Temperature cycles | 192                 |

#### Current carrying capacity / derating curves

|               |           |
|---------------|-----------|
| Specification | IEC 61984 |
|---------------|-----------|

#### Mechanical tests (A)

|                                              |             |
|----------------------------------------------|-------------|
| Test specification                           | IEC 61984   |
| Insertion strength per pos. approx.          | 7 N         |
| Withdraw strength per pos. approx.           | 5 N         |
| Polarization when inserted requirement >20 N | Test passed |
| Contact holder in insert requirements >20 N  | Test passed |

#### Durability tests (B)

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Contact resistance $R_1$                     | 1.6 mΩ                |
| Insertion/withdrawal cycles                  | 100                   |
| Contact resistance $R_2$                     | 1.6 mΩ                |
| Impulse withstand voltage at sea level       | 2.95 kV               |
| Power-frequency withstand voltage            | 1.39 kV               |
| Insulation resistance, neighboring positions | > 0.2 TΩ              |

#### Climatic tests (D)

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### Technical data

#### Climatic tests (D)

|                                        |                                                                            |
|----------------------------------------|----------------------------------------------------------------------------|
| Specification                          | DIN 50018:2013-05                                                          |
| Cold stress                            | -40 °C/2 h                                                                 |
| Thermal stress                         | 100 °C/168 h                                                               |
| Corrosive stress                       | 1.0 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> /40 °C/3 cycles |
| Impulse withstand voltage at sea level | 2.95 kV                                                                    |
| Power-frequency withstand voltage      | 1.39 kV                                                                    |

#### Environmental and durability tests (E)

|                                       |                                     |
|---------------------------------------|-------------------------------------|
| Specification                         | IEC 61984:2008-10                   |
| Result, degree of protection, IP code | Finger safety with IP20 test finger |

#### Environmental Product Compliance

|            |                                                         |
|------------|---------------------------------------------------------|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

### Approvals

#### Approvals

#### Approvals

IECEE CB Scheme / VDE Gutachten mit Fertigungsüberwachung / EAC / cULus Recognized

#### Ex Approvals

#### Approval details

|                            |                                                                                     |                                                           |                |
|----------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------|
| IECEE CB Scheme            |  | <a href="http://www.iecee.org/">http://www.iecee.org/</a> | DE1-60987-B1B2 |
| Nominal voltage UN         | 160 V                                                                               |                                                           |                |
| Nominal current IN         | 8 A                                                                                 |                                                           |                |
| mm <sup>2</sup> /AWG/kcmil | 0.2-1.5                                                                             |                                                           |                |

|                                            |                                                                                     |                                                                                                                                                                                                                |          |
|--------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| VDE Gutachten mit<br>Fertigungsüberwachung |  | <a href="http://www2.vde.com/de/Institut/Online-Service/VDE-gepruefteProdukte/Seiten/Online-Suche.aspx">http://www2.vde.com/de/Institut/Online-Service/<br/>VDE-gepruefteProdukte/Seiten/Online-Suche.aspx</a> | 40011723 |
| Nominal voltage UN                         | 160 V                                                                               |                                                                                                                                                                                                                |          |
| Nominal current IN                         | 8 A                                                                                 |                                                                                                                                                                                                                |          |

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### Approvals

|               |         |
|---------------|---------|
|               |         |
| mm²/AWG/kcmil | 0.2-1.5 |

|     |                                                                                   |         |
|-----|-----------------------------------------------------------------------------------|---------|
| EAC |  | B.01742 |
|-----|-----------------------------------------------------------------------------------|---------|

|                    |                                                                                   |                                                                                                                                                       |                 |
|--------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| cULus Recognized   |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | E60425-19920306 |
|                    |                                                                                   | B                                                                                                                                                     |                 |
| Nominal voltage UN |                                                                                   | 300 V                                                                                                                                                 |                 |
| Nominal current IN |                                                                                   | 8 A                                                                                                                                                   |                 |
| mm²/AWG/kcmil      |                                                                                   | 28-16                                                                                                                                                 |                 |

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