

## Printed-circuit board connector - FK-MCP 1,5/ 4-ST-3,81-LR - 1817440

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PCB connector, nominal current: 8 A, rated voltage (III/2): 160 V, nominal cross section: 1.5 mm<sup>2</sup>, number of positions: 4, pitch: 3.81 mm, connection method: Push-in spring connection, color: green, contact surface: Tin



The figure shows a 10-position version of the product

### Your advantages

- ✓ 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
- ✓ Automatic locking and intuitive release through Lock and Release operating lever in contrasting color
- ✓ Quick and convenient testing using integrated test option



### Key Commercial Data

|              |               |
|--------------|---------------|
| Packing unit | 50 pc         |
| GTIN         |               |
| GTIN         | 4046356756785 |

### Technical data

#### Item properties

|                           |                              |
|---------------------------|------------------------------|
| Brief article description | PCB connector                |
| Plug-in system            | MINI COMBICON                |
| Type of contact           | Female connector             |
| Range of articles         | FK-MCP 1,5/...-ST-LR         |
| Pitch                     | 3.81 mm                      |
| Number of positions       | 4                            |
| Connection method         | Push-in spring connection    |
| Locking                   | Lock & Release ejector lever |
| Number of levels          | 1                            |
| Number of connections     | 4                            |

# Printed-circuit board connector - FK-MCP 1,5/ 4-ST-3,81-LR - 1817440

## Technical data

### Item properties

|                      |   |
|----------------------|---|
| Number of potentials | 4 |
|----------------------|---|

### Electrical parameters

|                             |        |
|-----------------------------|--------|
| Nominal current             | 8 A    |
| Nom. voltage                | 160 V  |
| Rated voltage               | 160 V  |
| Rated voltage (III/2)       | 160 V  |
| Rated 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 |

### Connection capacity

|                                                                       |                                               |
|-----------------------------------------------------------------------|-----------------------------------------------|
| Connection method                                                     | Push-in spring connection                     |
| 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> ... 0.75 mm <sup>2</sup> |
| Cylindrical gauge a x b / diameter                                    | 2.4 mm x 1.5 mm / 1.6 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           |
|                                                              | Cross section: 0.34 mm <sup>2</sup> ; Length: 7 mm           |
|                                                              | 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: 10 mm           |
| Recommended crimping pliers                                  | 1212034 CRIMPFOX 6                                           |
| Ferrules with insulating collar, according to DIN 46228-4    | Cross section: 0.14 mm <sup>2</sup> ; Length: 8 mm           |
|                                                              | Cross section: 0.25 mm <sup>2</sup> ; Length: 8 mm           |
|                                                              | Cross section: 0.34 mm <sup>2</sup> ; Length: 8 mm           |
|                                                              | Cross section: 0.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm  |
|                                                              | Cross section: 0.75 mm <sup>2</sup> ; Length: 10 mm          |

### Flange specifications

|                 |                              |
|-----------------|------------------------------|
| Type of locking | Snap-in locking              |
| Mounting flange | Lock & Release ejector lever |

### Material data - contact

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

# Printed-circuit board connector - FK-MCP 1,5/ 4-ST-3,81-LR - 1817440

## Technical data

### Material data - contact

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

|                                                                   |              |
|-------------------------------------------------------------------|--------------|
| Housing color                                                     | 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 for the product

|                             |          |
|-----------------------------|----------|
| Length [ l ]                | 27.4 mm  |
| Width [ w ]                 | 22.17 mm |
| Height [ h ]                | 14.22 mm |
| Pitch                       | 3.81 mm  |
| Height (without solder pin) | 14.22 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 ... 100 °C (dependent on the derating curve) |

### Termination and connection method

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

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## Technical data

### Pull-out test

|  |                                         |
|--|-----------------------------------------|
|  | 1.5 mm <sup>2</sup> / flexible / > 40 N |
|--|-----------------------------------------|

### Mechanical tests according to standard

|                                     |                        |
|-------------------------------------|------------------------|
| Test specification                  | IEC 61984              |
| Visual inspection                   | IEC 60512-1-1:2002-02  |
| Dimension check                     | IEC 60512-1-2:2002-02  |
| Resistance of inscriptions          | IEC 60068-2-70:1995-12 |
| Insertion and withdrawal force      | IEC 60512-13-2:2006-02 |
| No. of cycles                       | 25                     |
| Insertion strength per pos. approx. | 9 N                    |
| Withdraw strength per pos. approx.  | 7 N                    |
| Polarization and coding             | IEC 60512-13-5:2006-02 |
| Contact holder in insert            | IEC 60512-15-1:2008-05 |
| Test force per pos.                 | 31 N                   |

### Air clearances and creepage distances

|                                                 |                     |
|-------------------------------------------------|---------------------|
| Clearances and creepage distances               | IEC 60664-1:2007-04 |
| Specification                                   | IEC 60664-1:2007-04 |
| Minimum clearance - inhomogeneous field (III/3) | 1.5 mm              |
| Minimum clearance - inhomogeneous field (III/2) | 1.5 mm              |
| Minimum clearance - inhomogeneous field (II/2)  | 1.5 mm              |
| Minimum creepage distance value (III/3)         | 2 mm                |
| Minimum creepage distance value (III/2)         | 1.5 mm              |
| Minimum creepage distance value (II/2)          | 1.6 mm              |

### Current carrying capacity / derating curves

|                  |                                                             |
|------------------|-------------------------------------------------------------|
| Caption          | Type: FK-MCP 1,5/...-ST-3,81-LR with MCV 1,5/...-GF-3,81-LR |
| Specification    | IEC 61984:2008-10                                           |
| Reduction factor | 0.8                                                         |
| Note             | Representation based on IEC 60512-5-2:2002-02               |
|                  | For number of positions, see diagram                        |

### Mechanical tests (A)

|                                              |             |
|----------------------------------------------|-------------|
| Test specification                           | IEC 61984   |
| Insertion strength per pos. approx.          | 9 N         |
| Withdraw strength per pos. approx.           | 7 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 <sub>1</sub> | 1.6 mΩ                |
| Insertion/withdrawal cycles       | 25                    |

## Printed-circuit board connector - FK-MCP 1,5/ 4-ST-3,81-LR - 1817440

### Technical data

#### Durability tests (B)

|                                              |                 |
|----------------------------------------------|-----------------|
| Contact resistance $R_2$                     | 1.6 m $\Omega$  |
| Impulse withstand voltage at sea level       | 2.95 kV         |
| Power-frequency withstand voltage            | 1.39 kV         |
| Insulation resistance, neighboring positions | > 53 G $\Omega$ |

#### Thermal tests (C)

|                                                 |                       |
|-------------------------------------------------|-----------------------|
| Specification                                   | IEC 60512-5-1:2002-02 |
| Number of positions                             | 20                    |
| Conductor cross section                         | 1.5 mm <sup>2</sup>   |
| Test current                                    | 8 A                   |
| Upper limiting temperature requirements <100 °C | Test passed           |

#### Climatic tests (D)

|                                        |                                                                           |
|----------------------------------------|---------------------------------------------------------------------------|
| Specification                          | ISO 6988:1985-02                                                          |
| Cold stress                            | -40 °C/2 h                                                                |
| Thermal stress                         | 100 °C/168 h                                                              |
| Corrosive stress                       | 0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> /40 °C/1 cycle |
| 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 |

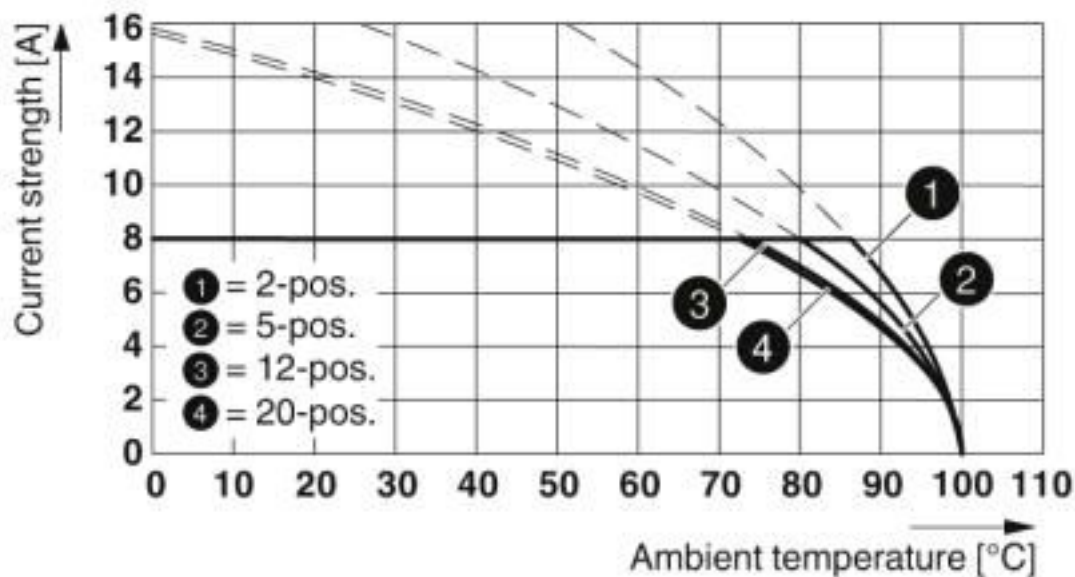
#### Environmental Product Compliance

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

### Drawings

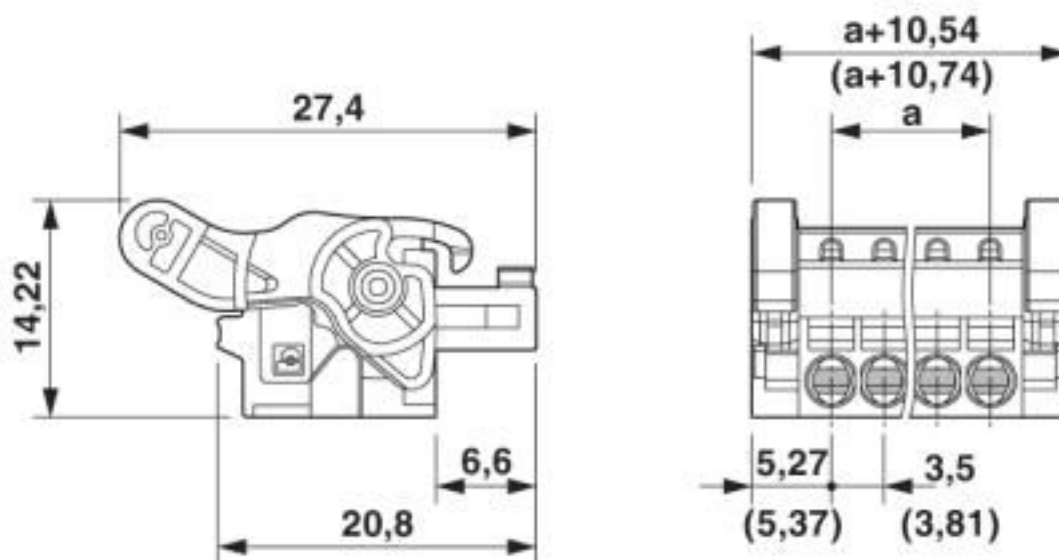
## Printed-circuit board connector - FK-MCP 1,5/ 4-ST-3,81-LR - 1817440

Diagram



Type: FK-MCP 1,5/...-ST-3,81-LR with MCV 1,5/...-GF-3,81-LR

Dimensional drawing



### Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27440309 |
| eCl@ss 4.0    | 27260700 |
| eCl@ss 4.1    | 27260700 |
| eCl@ss 5.0    | 27260700 |

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## Classifications

### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 5.1 | 27260700 |
| eCl@ss 6.0 | 27260700 |
| eCl@ss 7.0 | 27440309 |
| eCl@ss 8.0 | 27440309 |
| eCl@ss 9.0 | 27440309 |

### ETIM

|          |          |
|----------|----------|
| ETIM 3.0 | EC001121 |
| ETIM 4.0 | EC002643 |
| ETIM 5.0 | EC002638 |
| ETIM 6.0 | EC002638 |
| ETIM 7.0 | EC002638 |

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211801 |
| UNSPSC 7.0901 | 39121432 |
| UNSPSC 11     | 39121432 |
| UNSPSC 12.01  | 39121432 |
| UNSPSC 13.2   | 39121409 |
| UNSPSC 18.0   | 39121409 |
| UNSPSC 19.0   | 39121409 |
| UNSPSC 20.0   | 39121409 |
| UNSPSC 21.0   | 39121409 |

## Approvals

### Approvals

#### Approvals

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

#### Ex Approvals

### Approval details

|                    |                     |                                                           |                |
|--------------------|---------------------|-----------------------------------------------------------|----------------|
| IECEE CB Scheme    | <b>CB</b><br>scheme | <a href="http://www.iecee.org/">http://www.iecee.org/</a> | DE1-60987-B1B2 |
| Nominal voltage UN | 160 V               |                                                           |                |

## Printed-circuit board connector - FK-MCP 1,5/ 4-ST-3,81-LR - 1817440

### Approvals

|                                |         |
|--------------------------------|---------|
|                                |         |
| Nominal current I <sub>N</sub> | 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 U <sub>N</sub>             |                                                                                   | 160 V                                                                                                                                                                                                          |          |
| Nominal current I <sub>N</sub>             |                                                                                   | 8 A                                                                                                                                                                                                            |          |
| mm <sup>2</sup> /AWG/kcmil                 |                                                                                   | 0.2-1.5                                                                                                                                                                                                        |          |

|     |                                                                                   |         |
|-----|-----------------------------------------------------------------------------------|---------|
| EAC |  | B.01687 |
|-----|-----------------------------------------------------------------------------------|---------|

|                                |                                                                                     |                                                                                                                                                       |                 |
|--------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 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 U <sub>N</sub> |                                                                                     | 300 V                                                                                                                                                 |                 |
| Nominal current I <sub>N</sub> |                                                                                     | 8 A                                                                                                                                                   |                 |
| mm <sup>2</sup> /AWG/kcmil     |                                                                                     | 28-16                                                                                                                                                 |                 |

### Accessories

#### Accessories

#### Crimping tool

Crimping pliers - CRIMPFOX 6 - 1212034



Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25 mm<sup>2</sup> ... 6.0 mm<sup>2</sup>, lateral entry, trapezoidal crimp

#### Labeled terminal marker

Marker card - SK 3,81/2,8:FORTL.ZAHLEN - 0804109



Marker card, Card, white, labeled, horizontal: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... (99)100, mounting type: adhesive, for terminal block width: 3.81 mm, lettering field size: 3.81 x 2.8 mm



# Printed-circuit board connector - FK-MCP 1,5/ 4-ST-3,81-LR - 1817440

## Accessories

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### Screwdriver tools

Screwdriver - SZS 0,4X2,5 VDE - 1205037



Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip

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### Terminal marking

Marker card - SK U/2,8 WH:UNBEDRUCKT - 0803883



Marker card, Sheet, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, Office printing systems, mounting type: adhesive, for terminal block width: 210 mm, lettering field size: 186 x 2.8 mm, Number of individual labels: 3600

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### Additional products

Printed-circuit board connector - MC 1,5/ 4-GF-3,81-LR - 1817822



PCB headers, nominal current: 8 A, rated voltage (III/2): 160 V, nominal cross section: 1.5 mm<sup>2</sup>, number of positions: 4, pitch: 3.81 mm, color: green, contact surface: Tin, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.4 mm

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Feed-through header - MCV 1,5/ 4-GF-3,81-LR - 1818203



PCB headers, nominal current: 8 A, rated voltage (III/2): 160 V, nominal cross section: 1.5 mm<sup>2</sup>, number of positions: 4, pitch: 3.81 mm, color: green, contact surface: Tin, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.4 mm

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