

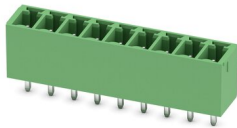
# MCV 1,5/ 9-G-3,81 - PCB header



1803497

<https://www.phoenixcontact.com/in/products/1803497>

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PCB headers, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Pin, number of potentials: 9, number of rows: 1, number of positions: 9, number of connections: 9, product range: MCV 1,5/..-G, pitch: 3.81 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.4 mm, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, Pin connector pattern alignment: Standard, locking: without, mounting: without, type of packaging: packed in cardboard

## Your advantages

- Well-known mounting principle allows worldwide use
- Vertical connection enables multi-row arrangement on the PCB
- Maximum flexibility when it comes to device design – one header for connectors with different connection technologies

## Commercial Data

Item number	1803497
Packing unit	100 pc
Minimum order quantity	100 pc
Sales Key	AAB
Product Key	AABSBE
Catalog Page	Page 226 (C-1-2013)
GTIN	4017918045807
Weight per Piece (including packing)	2.48 g
Weight per Piece (excluding packing)	2.2 g
Customs tariff number	85366930
Country of origin	IN

# MCV 1,5/ 9-G-3,81 - PCB header



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## Technical Data

### Product properties

Type	Standard
Product line	COMBICON Connectors S
Product type	PCB headers
Product family	MCV 1,5/..-G
Number of positions	9
Pitch	3.81 mm
Number of connections	9
Number of rows	1
Mounting flange	without
Number of potentials	9
Pin layout	Linear pinning
Solder pins per potential	1

### Electrical properties

Nominal current $I_N$	8 A
Nominal voltage $U_N$	160 V
Degree of pollution	3
Contact resistance	1.2 m $\Omega$
Rated voltage (III/3)	160 V
Rated surge voltage (III/3)	2.5 kV
Rated voltage (III/2)	160 V
Rated surge voltage (III/2)	2.5 kV
Rated voltage (II/2)	250 V
Rated surge voltage (II/2)	2.5 kV

### Mounting

Mounting type	Wave soldering
Pin layout	Linear pinning

### 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	Tin-plated
Metal surface contact area (top layer)	Tin (3 - 5 $\mu\text{m}$ Sn)
Metal surface contact area (middle layer)	Nickel (1 - 3 $\mu\text{m}$ Ni)
Metal surface soldering area (top layer)	Tin (3 - 5 $\mu\text{m}$ Sn)
Metal surface soldering area (middle layer)	Nickel (1 - 3 $\mu\text{m}$ Ni)

#### Material data - housing

# MCV 1,5/ 9-G-3,81 - PCB header

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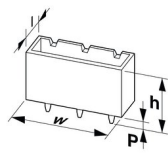
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Color (Housing)	green (6021)
Insulating material	PBT
Insulating material group	IIIa
CTI according to IEC 60112	225
Flammability rating according to UL 94	V0

## Material data – actuating element

Color ()	()
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## Dimensions

Dimensional drawing	
Pitch	3.81 mm
Width [w]	35.68 mm
Height [h]	12.6 mm
Length [l]	7.25 mm
Installed height	9.2 mm
Solder pin length [P]	3.4 mm

## 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	0.14 mm <sup>2</sup> / solid / > 10 N
	0.14 mm <sup>2</sup> / flexible / > 10 N
	1.5 mm <sup>2</sup> / solid / > 40 N
	1.5 mm <sup>2</sup> / flexible / > 40 N

### 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

### Torque test

Specification	IEC 60999-1:1999-11
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### Contact holder in insert

Specification	IEC 60512-15-1:2008-05
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# MCV 1,5/ 9-G-3,81 - PCB header



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Contact holder in insert Requirements >20 N	Test passed
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

## Electrical tests

### Thermal test | Test group C

Specification	IEC 60512-5-1:2002-02
Tested number of positions	20

### 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	IIIa
Comparative tracking index (IEC 60112)	CTI 225
Rated insulation voltage (III/3)	160 V
Rated surge voltage (III/3)	2.5 kV
minimum clearance value - non-homogenous field (III/3)	1.5 mm
minimum creepage distance (III/3)	2.5 mm
Rated insulation voltage (III/2)	160 V
Rated surge voltage (III/2)	2.5 kV
minimum clearance value - non-homogenous field (III/2)	1.5 mm
minimum creepage distance (III/2)	1.6 mm
Rated insulation voltage (II/2)	250 V
Rated surge voltage (II/2)	2.5 kV
minimum clearance value - non-homogenous field (II/2)	1.5 mm
minimum creepage distance (II/2)	2.5 mm

## Environmental and real-life conditions

# MCV 1,5/ 9-G-3,81 - PCB header



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## 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)
Sweep speed	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	2.95 kV
Contact resistance R <sub>1</sub>	1.2 mΩ
Contact resistance R <sub>2</sub>	1.2 mΩ
Insertion/withdrawal cycles	25
Insulation resistance, neighboring positions	> 5 MΩ

## Climatic test

Specification	ISO 6988:1985-02
Corrosive stress	0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> /40 °C/1 cycle
Thermal stress	100 °C/168 h
Power-frequency withstand voltage	1.39 kV

## Ambient conditions

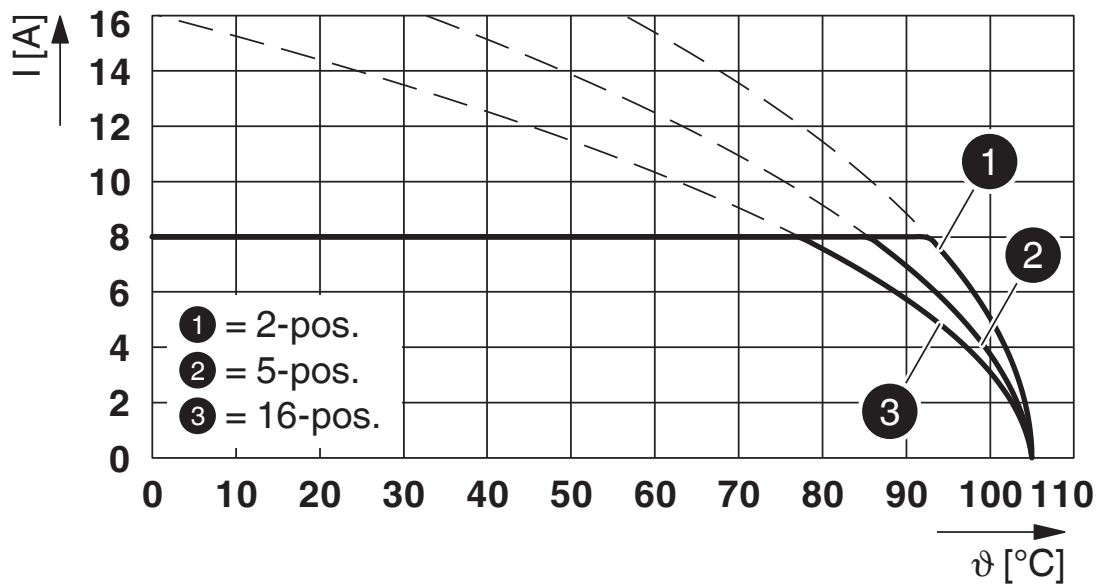
Ambient temperature (operation)	-40 °C ... 100 °C (dependent on the derating curve)
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Relative humidity (storage/transport)	30 % ... 70 %
Ambient temperature (assembly)	-5 °C ... 100 °C

## Packaging specifications

Type of packaging	packed in cardboard
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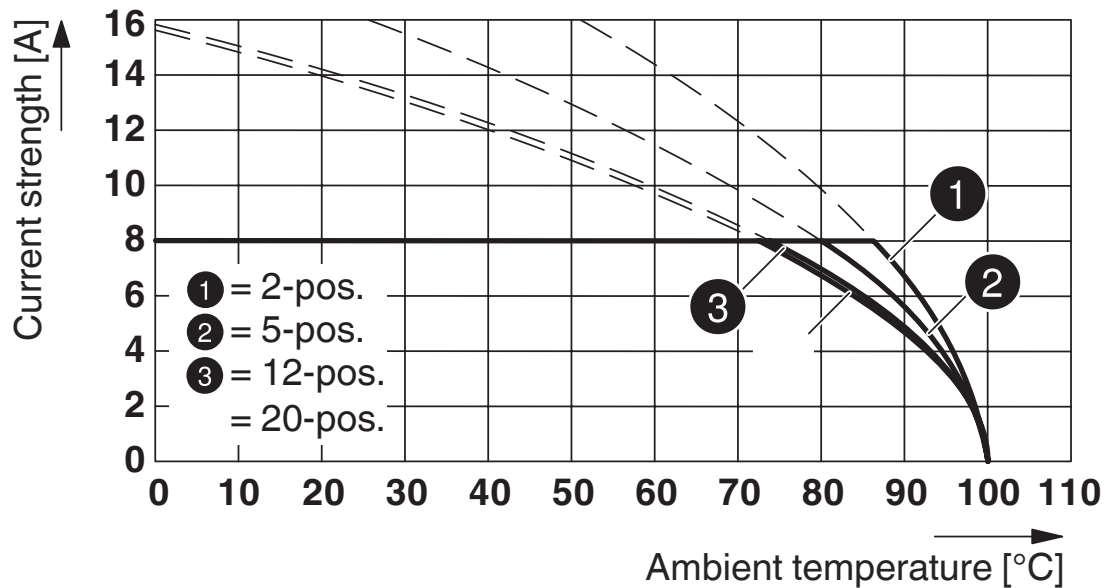
## Drawings

Diagram



Type: LPC 1,5/...-ST-3,81 with MCV 1,5/...-G-3,81

Diagram

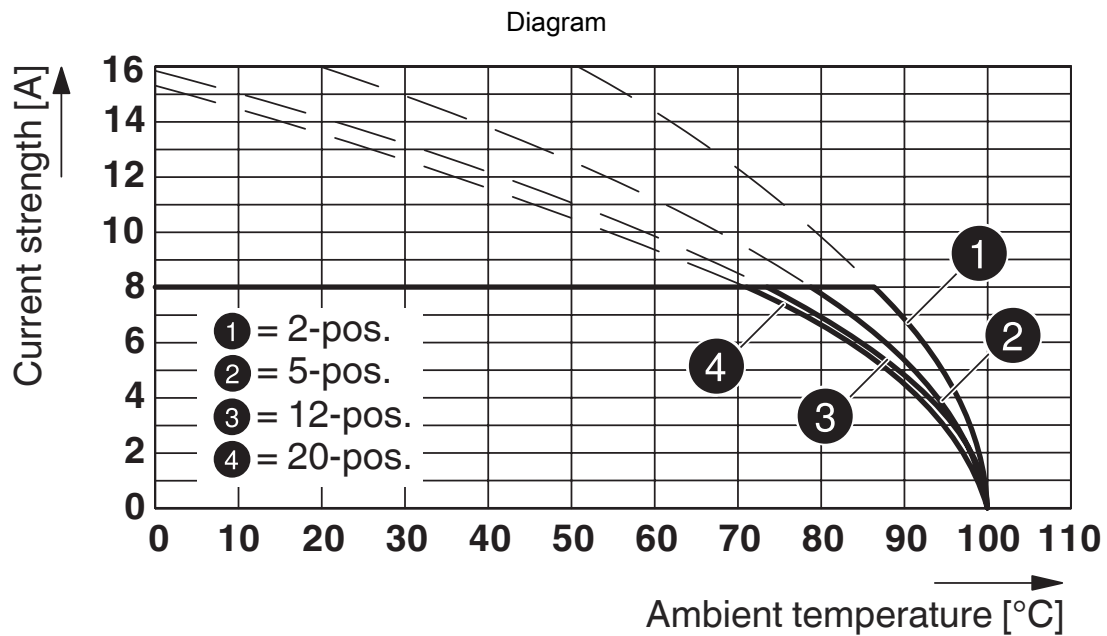


Type: FK-MCP 1,5/...-ST-3,81 with MCV 1,5/...-G-3,81

# MCV 1,5/ 9-G-3,81 - PCB header

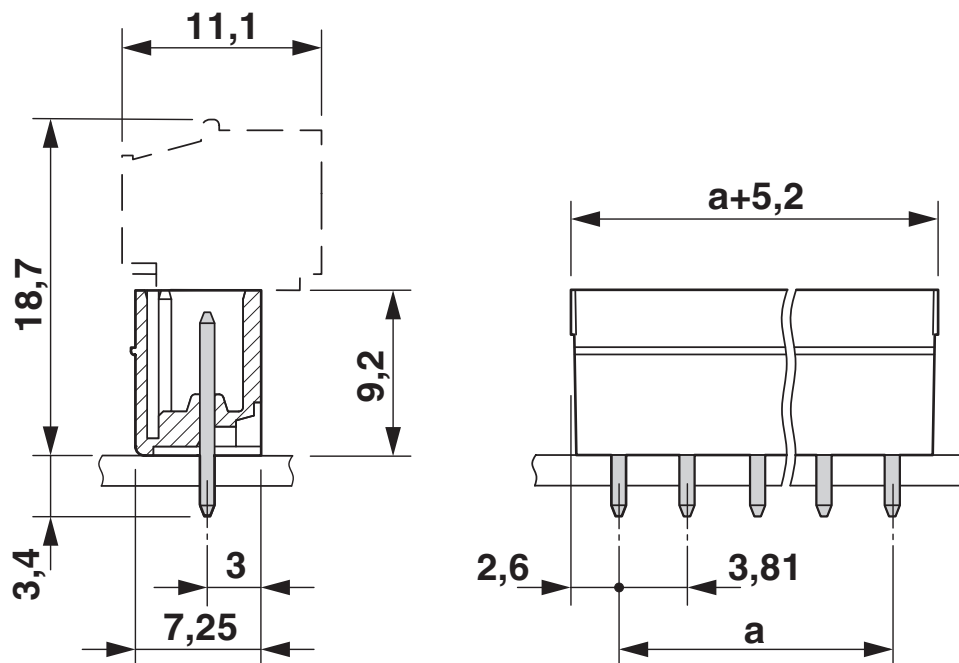
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Type: FRONT-MC 1,5/...-ST-3,81 with MCV 1,5/...-G-3,81

## Dimensional drawing

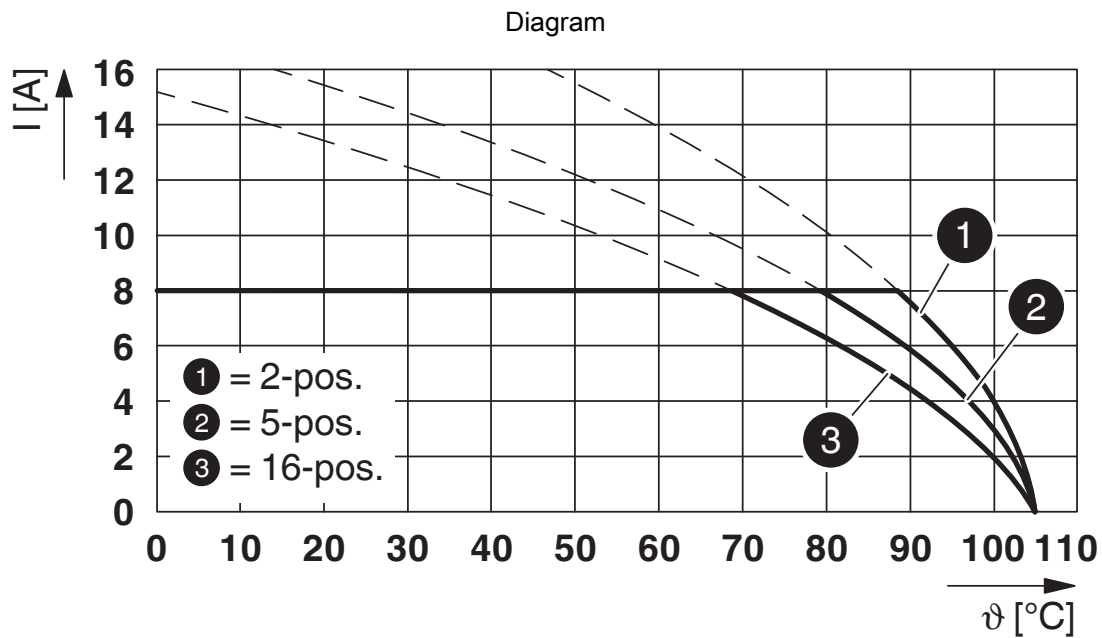


# MCV 1,5/ 9-G-3,81 - PCB header

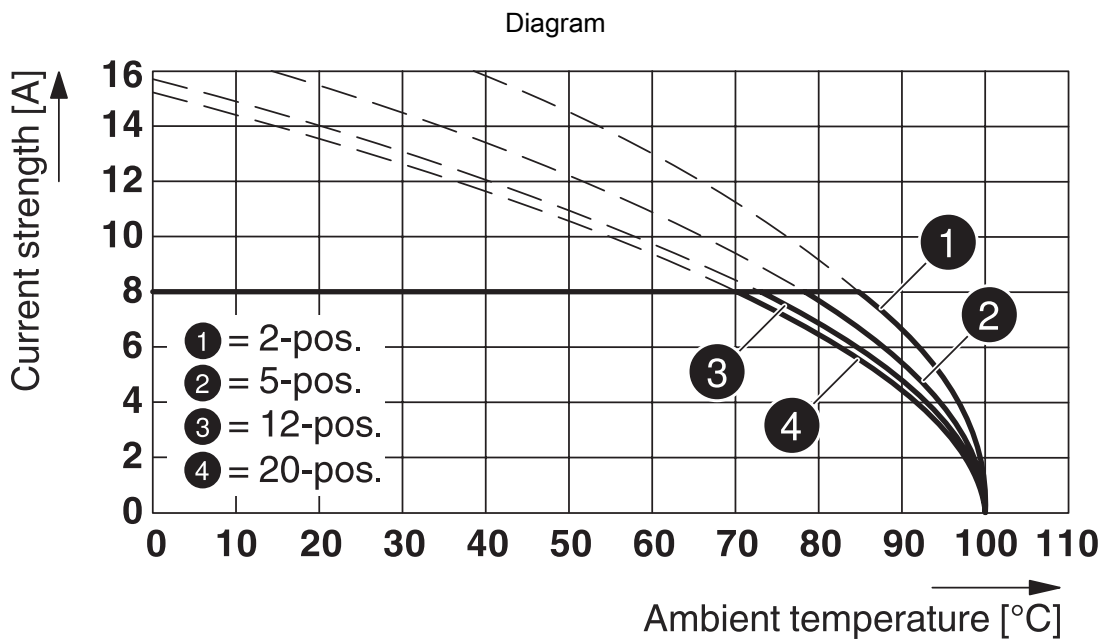


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Type: IMC 1,5/...-G-3,81 with MCV 1,5/...-G-3,81



Type: FMC 1,5/...-ST-3,81 with MCV 1,5/...-G-3,81

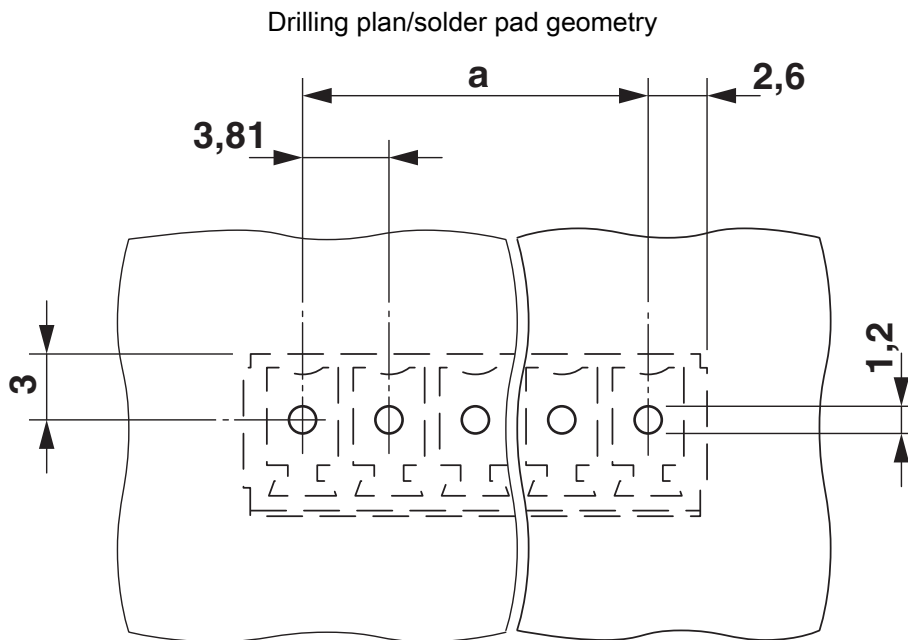


# MCV 1,5/ 9-G-3,81 - PCB header

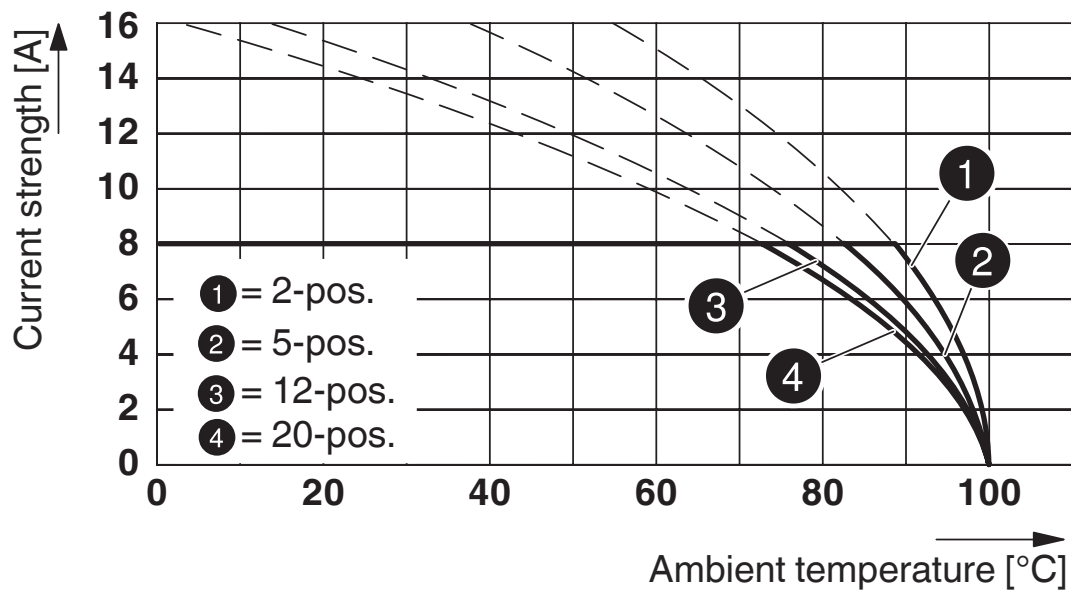


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Diagram



Type: MC 1,5/...-ST-3,81 with MCV 1,5/...-G-3,81


# MCV 1,5/ 9-G-3,81 - PCB header




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## Approvals

 <b>CSA</b> Approval ID: 13631				
	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
Use group B	300 V	8 A	-	-
Use group D	300 V	8 A	-	-

 <b>IECEE CB Scheme</b> Approval ID: DE1-60987-B1B2				
	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
	160 V	8 A	-	-

 <b>EAC</b> Approval ID: B.01687				
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 <b>cULus Recognized</b> Approval ID: E60425-20110128				
	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
Use group B	300 V	8 A	-	-
Use group D	300 V	8 A	-	-

 <b>VDE Zeichengenehmigung</b> Approval ID: 40011723				
	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
	160 V	8 A	-	-

# MCV 1,5/ 9-G-3,81 - PCB header



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## Classifications

### ECLASS

ECLASS-11.0	27460201
ECLASS-12.0	27460201
ECLASS-13.0	27460201

### ETIM

ETIM 8.0	EC002637
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### UNSPSC

UNSPSC 21.0	39121400
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# MCV 1,5/ 9-G-3,81 - PCB header

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## Environmental Product Compliance

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

# MCV 1,5/ 9-G-3,81 - PCB header

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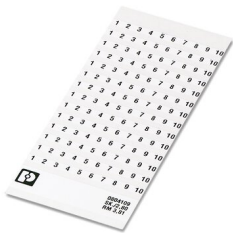


## Accessories

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

0804109

<https://www.phoenixcontact.com/in/products/0804109>



Marker 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

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### CP-MSTB - Coding profile

1734634

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



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

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## B-STIFT - Marker pen

1051993

<https://www.phoenixcontact.com/in/products/1051993>



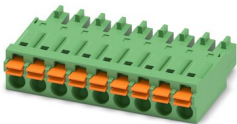
Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

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## FMC 1,5/ 9-ST-3,81 - Printed-circuit board connector

1748040

<https://www.phoenixcontact.com/in/products/1748040>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Socket, number of potentials: 9, number of rows: 1, number of positions: 9, number of connections: 9, product range: FMC 1,5/..-ST, pitch: 3.81 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

# MCV 1,5/ 9-G-3,81 - PCB header

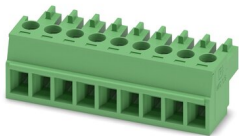
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## MC 1,5/ 9-ST-3,81 - PCB connector

1803646

<https://www.phoenixcontact.com/in/products/1803646>



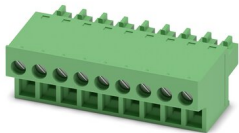
PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Socket, number of potentials: 9, number of rows: 1, number of positions: 9, number of connections: 9, product range: MC 1,5/..-ST, pitch: 3.81 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

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## FRONT-MC 1,5/ 9-ST-3,81 - Printed-circuit board connector

1850738

<https://www.phoenixcontact.com/in/products/1850738>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Socket, number of potentials: 9, number of rows: 1, number of positions: 9, number of connections: 9, product range: FRONT-MC 1,5/..-ST, pitch: 3.81 mm, connection method: Front screw connection, screw head form: L Slotted, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

# MCV 1,5/ 9-G-3,81 - PCB header

1803497

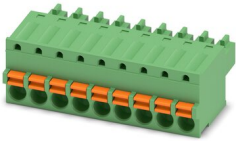
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## FK-MCP 1,5/ 9-ST-3,81 - PCB connector

1851119

<https://www.phoenixcontact.com/in/products/1851119>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Socket, number of potentials: 9, number of rows: 1, number of positions: 9, number of connections: 9, product range: FK-MCP 1,5/..-ST, pitch: 3.81 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

## MCC 1/ 9-STZ-3,81 - PCB connector

1852244

<https://www.phoenixcontact.com/in/products/1852244>



PCB connector, nominal cross section: 1 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, type of contact: Socket, number of potentials: 9, number of rows: 1, number of positions: 9, number of connections: 9, product range: MCC 1/..-STZ, pitch: 3.81 mm, connection method: Crimp connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard, Corresponding female crimp contacts with current [A] and conductor cross section range [mm<sup>2</sup>] data: 5A/MCC-MT 0,2-0,35 (1859988); 8A/MCC-MT 0,5-1,0 (1859991)

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