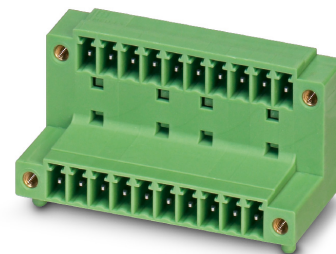


Item No.: 1830169

Type: MCD 1,5/ 8-GF-3,81

PCB headers



The figure shows a 10-pos. version with 20 contacts

## 1 Main features



- |                         |                     |                        |                     |
|-------------------------|---------------------|------------------------|---------------------|
| • No. of pos.           | 8                   | • Nominal current      | 8 A                 |
| • Nominal cross section | 1.5 mm <sup>2</sup> | • Nominal voltage      | 160 V               |
| • Color                 | green (6021)        | • Connection direction | 0 °                 |
| • Pitch                 | 3.81 mm             | • Type of packaging    | packed in cardboard |
| • Mounting type         | Wave soldering      |                        |                     |

## 2 Your advantages

- ✓ Well-known mounting principle allows worldwide use
- ✓ Screwable flange for superior mechanical stability
- ✓ Conductor connection on several levels enables higher contact density



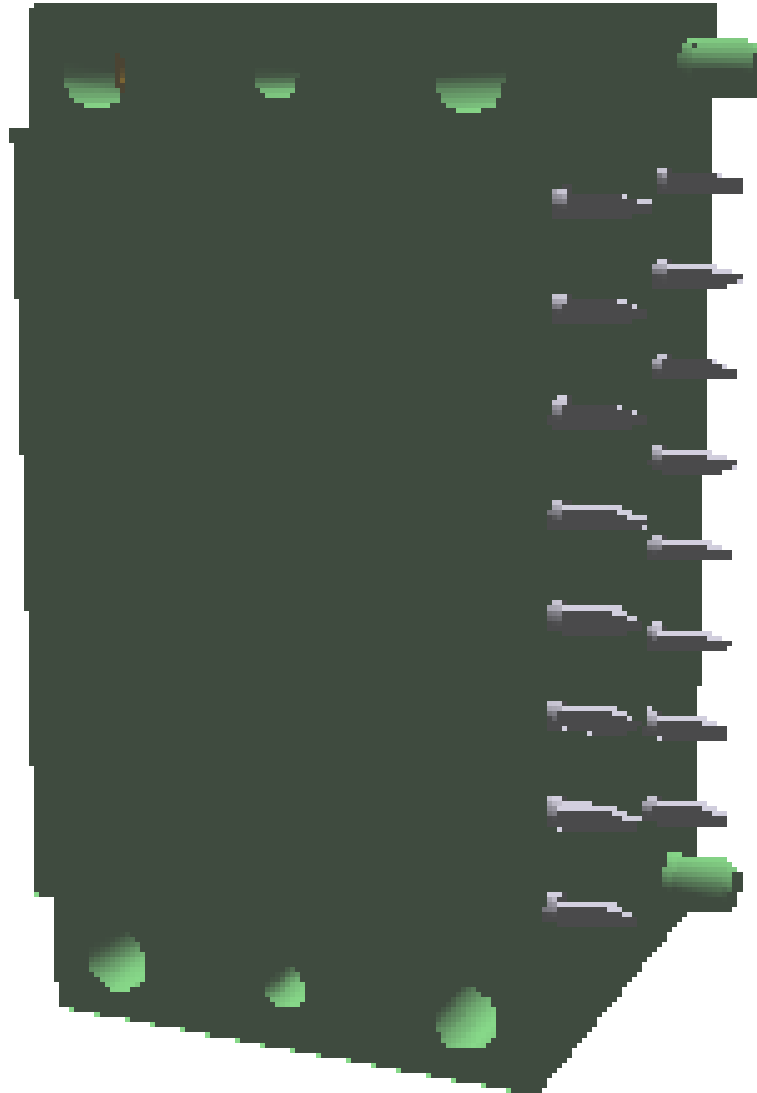
Make sure you always use the latest documentation.  
It can be downloaded at: [phoenixcontact.net/product/1830169](https://phoenixcontact.net/product/1830169)

### 3 Table of contents

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1830169 MCD 1,5/ 8-GF-3,81

4 3D model in PDF can be activated (Acrobat Reader only)



**1830169 MCD 1,5/ 8-GF-3,81****5 General Technical Data****5.1 item properties**

Item no.	1830169
Type	MCD 1,5/ 8-GF-3,81
Product line	COMBICON Connectors S
Connector system	COMBICON MC 1,5
Product type	PCB headers
Type of contact	Male connector
Range of articles	MCD 1,5/..-GF
Pitch	3.81 mm
Number of positions	8
Number of rows	2
Number of connections	16
Number of potentials	16
Connection direction of the connector to the PCB	0 °
Pin layout	Linear pinning
Solder pins per potential	1
Product note	In combination with MCV plug components, both an MCVW and an MCVR plug must be used.
Type	Standard

**1830169 MCD 1,5/ 8-GF-3,81****6 Mounting****6.1 Flange mounting**

Type of locking	Screw locking
Mounting flange	Threaded flange
Torque	0.3 Nm

**7 Material properties****7.1 Material of metal parts**

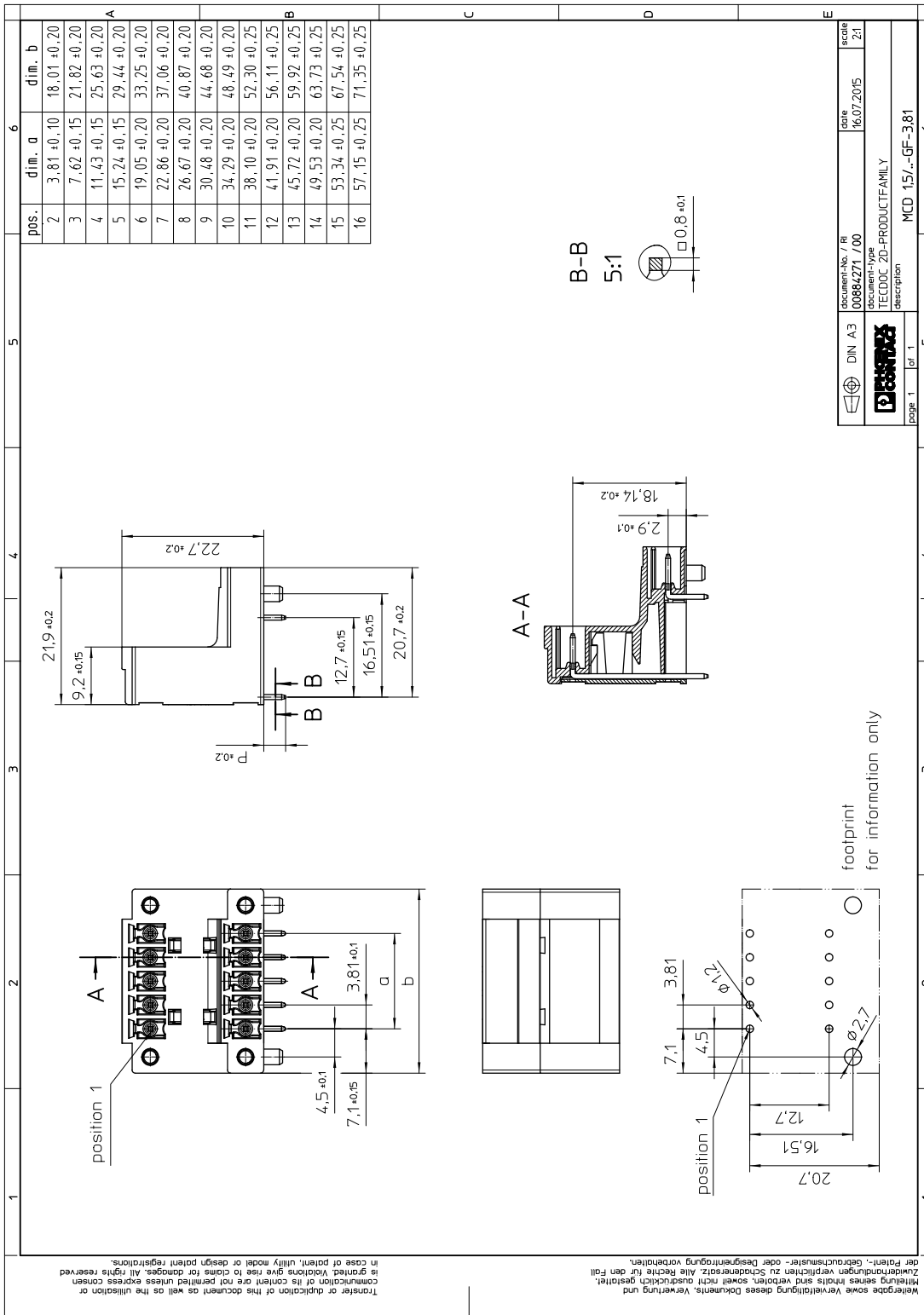
Note	WEEE/RoHS-compliant, whisker-free acc. to IEC 60068-2-82/JEDEC JESD 201
Contact material	Cu alloy
Surface contact area	Nickel (1.3 - 3 µm Ni) , Tin (3 - 5 µm Sn)
Soldering area surface	Nickel (1.3 - 3 µm Ni) , Tin (3 - 5 µm Sn)
Surface characteristics	Tin-plated
<b>Insulating material data</b>	<b>Housing</b>
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

**1830169 MCD 1,5/ 8-GF-3,81****8 Dimensions****8.1 Dimensions for the product**

Length	21.9 mm
Width	40.87 mm
Height (without solder pin)	22.7 mm
Total height	26.2 mm
Solder pin [P]	3.5 mm

1830169 MCD 1,5/ 8-GF-3,81

9 Series drawing



**1830169 MCD 1,5/ 8-GF-3,81****10 Application****11 Packaging information**

Type of packaging	packed in cardboard
Pieces per package	50

**11.1 Temperature limit values**

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

**1830169 MCD 1,5/ 8-GF-3,81****12 Mechanical tests****12.1 Visual examination**

Specification	IEC 61984:2008-10
Visual examination	Test passed
Specification	IEC 60512-1-1:2002-02

**12.2 Dimensional test**

Dimensional test	Test passed
Specification	IEC 60512-1-2:2002-02

**12.3 Resistance of marking**

Resistance of marking	Test passed
Specification	IEC 60068-2-70:1995-12

**12.4 Polarization and coding**

Polarization and coding	Test passed
Specification	IEC 60512-13-5:2006-02
Test force	20 N

**12.5 Contact retention in insert**

Contact holder in insert Requirements >20 N	Test passed
Specification	IEC 60512-15-1:2008-05

**1830169 MCD 1,5/ 8-GF-3,81****13 Insertion and withdrawal forces**

Insertion and withdrawal force	
Specification	Test passed
No. of cycles	25
Insertion strength per pos. approx.	8 N
Withdraw strength per pos. approx.	6 N

**1830169 MCD 1,5/ 8-GF-3,81****14 Electrical tests**

Rated current / conductor cross section	8 A / 1.5 mm <sup>2</sup>
Rated insulation voltage (III/2)	160 V
Rated surge voltage (III/2)	2.5 kV
Contact resistance	2 mΩ
Degree of pollution	2

**1830169 MCD 1,5/ 8-GF-3,81****15 Air and creepage distances**

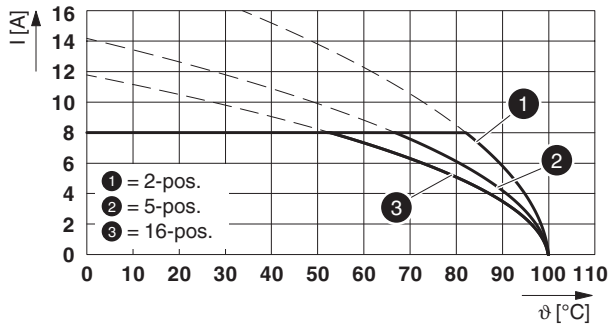
Component	PCB headers		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	I		
Comparative tracking index (IEC 60112)	CTI 600		
Rated insulation voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Degree of pollution	3	2	2
Overvoltage category	III	III	II
Minimum clearance case A (inhomogeneous field)	1.5 mm	1.5 mm	1.5 mm
Minimum value of the creepage path requirement in acc. with table	2 mm	1.5 mm	1.6 mm

1830169 MCD 1,5/ 8-GF-3,81

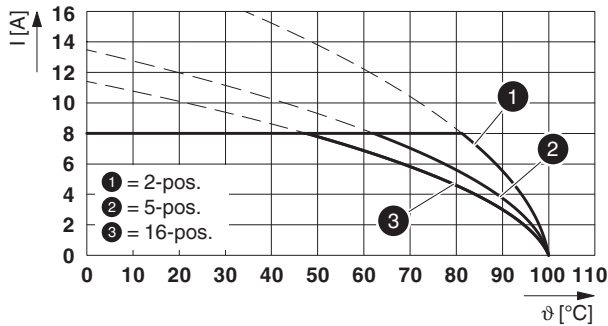
16 Current carrying capacity/derating curves

Specification	IEC 61984:2008-10
Note	Representation based on IEC 60512-5-2:2002-02
Note	For number of positions, see diagram
Reduction factor	0.8
Conductor cross section	1.5 mm <sup>2</sup>

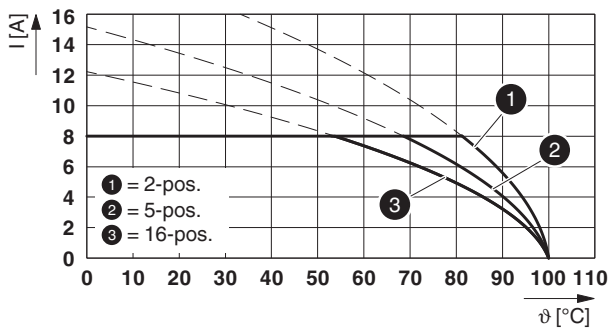
Type: FRONT-MC 1,5/...-ST-3,81 with MCD 1,5/...-GF-3,81



Type: FMC 1,5/...-STF-3,81 with MCD 1,5/...-GF-3,81

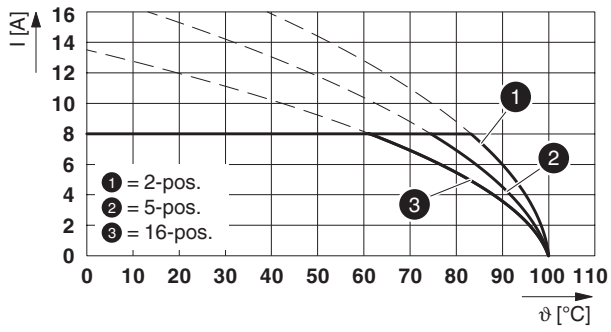


Type: FK-MCP 1,5/...-STF-3,81 with MCD 1,5/...-GF-3,81



1830169 MCD 1,5/ 8-GF-3,81

Type: MC 1,5/...-STF-3,81 with MCD 1,5/...-GF-3,81



**1830169 MCD 1,5/ 8-GF-3,81****17 Environmental and durability tests****17.1 Vibration test**

Specification	IEC 60068-2-6:2007-12
Result	Test passed
Frequency	10 - 150 - 10 Hz
Sweep speed	1 octave/min
Amplitude	0.35 mm (10 - 60.1 Hz)
Acceleration	5g (60.1 - 150 Hz)
Test duration per axis	2.5 h
Test directions	X-, Y- and Z-axis
Note	

**17.2 Insulation resistance**

Specification	IEC 60512-3-1:2002-02
Result	Test passed
Insulation resistance, neighboring positions	> 5 MΩ





1830169 MCD 1,5/ 8-GF-3,81

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## 18 Data transmission

## 1830169 MCD 1,5/ 8-GF-3,81

## 19 Approvals / Certificates

CSA 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
<b>Usegroup B</b>				
	300 V	8 A	-	-
<b>Usegroup D</b>				
	300 V	8 A	-	-
IECEE CB Scheme 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
	160 V	8 A	-	-
EAC 				
cULus Recognized 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
<b>Usegroup B</b>				
	300 V	8 A	-	-
<b>Usegroup D</b>				
	300 V	8 A	-	-
VDE report with production monitoring 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
	160 V	8 A	-	-

**1830169 MCD 1,5/ 8-GF-3,81****20 Commercial Data**

Item no.	1830169
Type	MCD 1,5/ 8-GF-3,81
Pieces per package	50
Net weight	8.753 g
GTIN	4017918111298
	Information that applies locally, see link on page 1

**21 corresponding plugs**

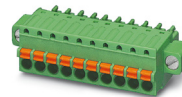
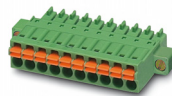
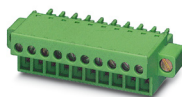
Item no.	Type
1827761	MC 1,5/ 8-STF-3,81
1828401	MCVR 1,5/ 8-STF-3,81
1828553	MCVW 1,5/ 8-STF-3,81
1850916	FRONT-MC 1,5/ 8-STF-3,81
1851290	FK-MCP 1,5/ 8-STF-3,81
1852422	MCC 1/ 8-STZF-3,81
1897607	QC 0,5/ 8-STF-3,81

**22 Accessories**

Description	Item No.	Type
Coding profile, is inserted into the slot on the plug or inverted header, red insulating material	1734634	CP-MSTB
	0804109	SK 3,81/2,8:FORTL.ZAHLEN

## 1830169 MCD 1,5/ 8-GF-3,81

## 23 Combination tests

**MCD 1,5/..-GF****FRONT-MC 1,5/..-STF****FMC 1,5/..-STF****FK-MCP 1,5/..-STF****MC 1,5/..-STF**

IEC 61984

IEC 61984

IEC 61984

IEC 61984

IEC 61984

**Mechanical tests (A)**

Insertion/withdrawal force per position

approx. 8 N / 6 N

approx. 8 N / 6 N

approx. 8 N / 6 N

approx. 8 N / 5 N

Polarization when inserted  
Requirement >20 N

Test passed

Test passed

Test passed

Test passed

Contact holder in insert  
Requirements >20 N

Test passed

Test passed

Test passed

Test passed

**Durability tests (B)**Contact resistance R<sub>1</sub> 1st level

2 mΩ

1.6 mΩ

1.3 mΩ

1.3 mΩ

Contact resistance R<sub>1</sub> 2nd level

2.4 mΩ

2.3 mΩ

1.8 mΩ

1.8 mΩ

Insertion/withdrawal cycles

25

25

25

25

Contact resistance R<sub>2</sub>

2.1 mΩ

2 mΩ

1.4 mΩ

1.4 mΩ

Rated impulse voltage at sea level  
Voltage waveform ≥ (1.2/50 μs)

2.95 kV

4.8 kV

2.95 kV

2.95 kV

Power-frequency withstand voltage  
Voltage waveform ≥ (50/60 Hz)

1.39 kV

2.21 kV

1.39 kV

1.39 kV

Insulation resistance  
Requirements > 5 MΩ

&gt; 5 MΩ

&gt; 5 MΩ

&gt; 5 MΩ

&gt; 5 MΩ

**Thermal tests (C)**

Tested number of positions

16

16

16

16

Tested conductor cross section

1.5 mm<sup>2</sup>1.5 mm<sup>2</sup>1.5 mm<sup>2</sup>1.5 mm<sup>2</sup>

Test current

8 A

8 A

8 A

8 A

Upper limiting temperature  
Requirements < 100°C

Test passed

Test passed

Test passed

Test passed

**Climatic tests (D)**

Test sequence 1: low temperature storage

-40 °C/2 h

-40 °C/2 h

-40 °C/2 h

-40 °C/2 h

Test sequence 2: heat storage

100 °C/168 h

100 °C/168 h

100 °C/168 h

100 °C/168 h

Test sequence 3: noxious gas storage  
(ISO 6988)0.2 dm<sup>3</sup> SO<sub>2</sub> on 300 dm<sup>3</sup>/  
40 °C/1 cycle0.2 dm<sup>3</sup> SO<sub>2</sub> on 300 dm<sup>3</sup>/  
40 °C/1 cycle0.2 dm<sup>3</sup> SO<sub>2</sub> on 300 dm<sup>3</sup>/  
40 °C/1 cycle0.2 dm<sup>3</sup> SO<sub>2</sub> on 300 dm<sup>3</sup>/  
40 °C/1 cycleRated impulse voltage at sea level  
Voltage waveform ≥ (1.2/50 μs)

2.95 kV

4.8 kV

2.95 kV

2.95 kV

Power-frequency withstand voltage  
Voltage waveform ≥ (50/60 Hz)

1.39 kV

2.21 kV

1.39 kV

1.39 kV

**Environmental and endurance tests (E)**

Specification

IEC 61984:2008-10

IEC 61984:2008-10

IEC 61984:2008-10

IEC 61984:2008-10

Degree of protection

Finger safety with IP20  
test fingerFinger safety with IP20  
test fingerFinger safety with IP20  
test fingerFinger safety with IP20  
test finger