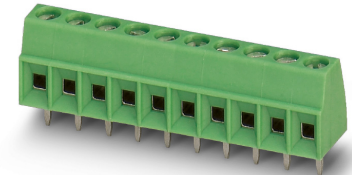


# Data sheet

Item No.: 1727023

Type: MKDS 1/ 3-3,81

PCB terminal block, Screw connection with tension sleeve



The figure shows a 10-position version of the product

## 1 Main features



• No. of pos.	3	• Nominal current	13.5 A
• Conductor cross section	1.5 mm <sup>2</sup>	• Nominal voltage	200 V
• Color	green (6021)	• Connection direction	0°
• Pitch	3.81 mm	• Type of packaging	packed in cardboard
• Connection method	Screw connection with tension sleeve	• Mounting type	Wave soldering

## 2 Your advantages

- ✓ Well-known connection principle allows worldwide use
- ✓ Low temperature rise, thanks to maximum contact force
- ✓ Allows connection of two conductors
- ✓ Extremely small design for the respective conductor cross section



Make sure you always use the latest documentation.

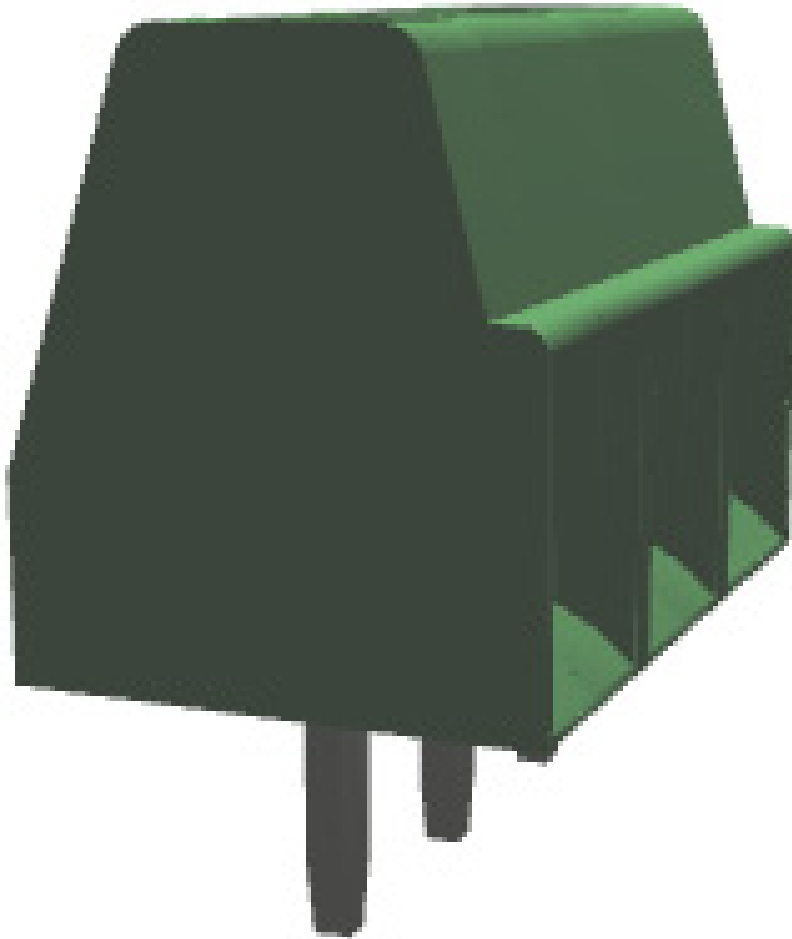
It can be downloaded at: [phoenixcontact.net/product/1727023](https://phoenixcontact.net/product/1727023)

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1727023 MKDS 1/ 3-3,81

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



1727023 MKDS 1/ 3-3,81

## 5 General Technical Data

### 5.1 item properties

Item no.	1727023
Type	MKDS 1/ 3-3,81
Product line	COMBICON Terminals S
Product type	PCB terminal block
Range of articles	MKDS 1
Pitch	3.81 mm
Number of positions	3
Number of rows	1
Number of connections	3
Number of potentials	3
Connection method	Screw connection with tension sleeve
Screw thread	M2
Drive form screw head	Slotted (L)
Connection direction of the conductor to the PCB	0 °
Pin layout	Linear pinning
Solder pins per potential	1
Type	PC termination block

## 1727023 MKDS 1/ 3-3,81

## 6 Conductor connection

### 6.1 Connection capacity

Conductor cross section, rigid	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 flexible, with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 0.5 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>
2 conductors with same cross section, solid	0.14 mm <sup>2</sup> ... 0.5 mm <sup>2</sup>
2 conductors with same cross section, stranded	0.14 mm <sup>2</sup> ... 0.34 mm <sup>2</sup>
Stripping length	5 mm
Tightening torque	0.22 Nm ... 0.25 Nm

### 6.2 Connection capacity AWG

Conductor cross section AWG	26 ... 16
-----------------------------	-----------

## 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
Terminal point surface	Nickel (2 - 3 μm Ni) , Tin (5 - 7 μm Sn)
Soldering area surface	Nickel (2 - 3 μm Ni) , Tin (5 - 7 μm Sn)
Surface characteristics	Tin-plated

### 7.2 Material of plastic parts

	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

**1727023 MKDS 1/ 3-3,81**

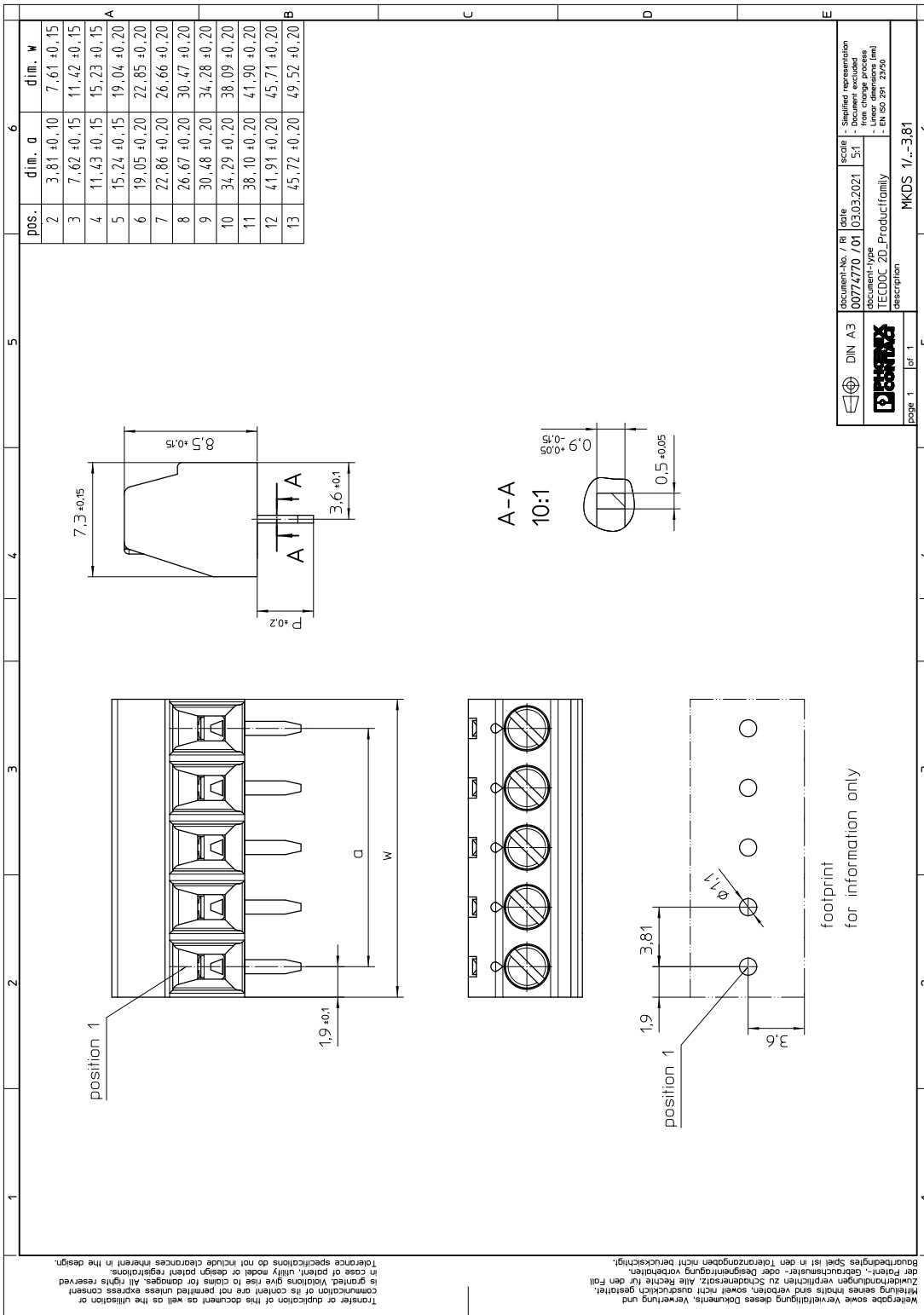
## 8 Dimensions

### 8.1 Dimensions for the product

Length	7.3 mm
Width	11.42 mm
Height (without solder pin)	8.5 mm
Total height	12 mm
Solder pin [P]	3.5 mm

1727023 MKDS 1/ 3-3,81

9 Series drawing





## 11 Product notes

### 11.1 General information

Note on application

For safe conductor connection, always adhere to a defined tightening torque. Particularly in the case of PCB terminal blocks with two or three positions, the individual solder pin for each contact point cannot compensate for this. That is why the terminal blocks must be supported during conductor connection (held with one hand, support on the housing).

### 11.2 Dimensions for PCB design

Hole diameter	1.1 mm
Pin dimensions	0.5 x 0.9 mm

## 12 Application

## 13 Packaging information

Type of packaging	packed in cardboard
Pieces per package	250

### 13.1 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 ... 105 °C (Depending on the current carrying capacity/derating curve)

**1727023 MKDS 1/ 3-3,81****14 Mechanical tests****14.1 Pull-out test**

Specification	IEC 60999-1:1999-11
Result	Test passed
Conductor cross section/conductor type/tractive force actual value	0.14 mm <sup>2</sup> / solid / > 10 N
Conductor cross section/conductor type/tractive force actual value	0.14 mm <sup>2</sup> / flexible / > 10 N
Conductor cross section/conductor type/tractive force actual value	1.5 mm <sup>2</sup> / solid / > 40 N
Conductor cross section/conductor type/tractive force actual value	1.5 mm <sup>2</sup> / flexible / > 40 N

**14.2 Check for damage to conductor or loosening**

Specification	IEC 60999-1:1999-11
Result	Test passed

**1727023 MKDS 1/ 3-3,81****15 Electrical tests**

Rated current / conductor cross section	13.5 A / 1.5 mm <sup>2</sup>
Rated insulation voltage (III/2)	200 V
Rated surge voltage (III/2)	2.5 kV
Contact resistance	1.79 mΩ
Degree of pollution	2

**15.1 Short-time withstand current test**

Specification	IEC 60947-7-4:2019-01
Result	Test passed
Conductor cross section/short-time current	1.5 mm <sup>2</sup> / 54 A

**15.2 Aging test (climatic impact and corrosion testing)**

Specification	IEC 60947-7-4:2019-01
Result	Test passed
Contact resistance R <sub>1</sub>	1.79 mΩ / 1.5 mm <sup>2</sup>
Test sequence 1: low temperature storage	-40 °C / 2 h
Test sequence 2: heat storage	168 h/105 °C
Test sequence 3: noxious gas storage (ISO 6988)	KFW 0.2 S/1 cycle
Contact resistance R <sub>2</sub>	1.79 mΩ / 1.5 mm <sup>2</sup>
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 μs)	2.95 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	2.2 kV

**15.3 Insulation resistance**

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

**15.4 Mechanical connection test for the PCB terminal block**

Specification	IEC 60947-7-4:2019-01
Result	Test passed

**15.5 Temperature rise test**

Specification	IEC 60947-7-4:2019-01
Result	Test passed
Requirement temperature-rise test	The sum of ambient temperature and temperature rise of the PCB terminal block shall not exceed the upper limiting temperature.
Conductor cross section/test current/temperature rise	1.5 mm <sup>2</sup> / 17.5 A / 70.9 K
Conductor cross section/test current/temperature rise	1 mm <sup>2</sup> / 13.5 A / 54.5 K

**1727023 MKDS 1/ 3-3,81****16 Air and creepage distances**

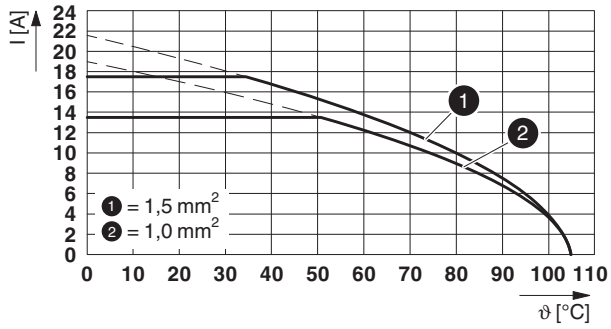
Component	PCB terminal block		
Specification	IEC 60947-1:2007-06 + A1:2010-12 + A2:2014-09		
Mains type	unearthed mains		
Insulating material group	I		
Comparative tracking index (IEC 60112)	CTI 600		
Rated insulation voltage	160 V	200 V	400 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Degree of pollution	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	2 mm

## 1727023 MKDS 1/ 3-3,81

## 17 Current carrying capacity/derating curves

Specification	IEC 60947-7-4:2019-01
Note	Representation based on IEC 60512-5-2:2002-02
Reduction factor	1
Number of positions	4
Conductor cross section	1.5 mm <sup>2</sup>

Type: MKDS 1/...-3,81



1727023 MKDS 1/ 3-3,81

## 18 Environmental and durability tests

### 18.1 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	

### 18.2 Assessment of fire risk (glow wire test)

Specification	IEC 60695-2-10:2013-04		
Result	Test passed		
Temperature	850 °C		
Time of exposure	5 s		

1727023 MKDS 1/ 3-3,81

## 19 Approvals / Certificates

EAC ENEC				
cULus Recognized 				
	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
<b>Usegroup B</b>				
Nur flexible Leiter	300 V	13.5 A	30 - 16	-
Standard	-	10 A	30 - 16	-
<b>Usegroup D</b>				
Nur flexible Leiter	150 V	13.5 A	30 - 16	-
Standard	-	10 A	30 - 16	-

**1727023 MKDS 1/ 3-3,81****20 Commercial Data**

Item no.	1727023
Type	MKDS 1/ 3-3,81
Pieces per package	250
Net weight	1.476 g
GTIN	4017918025496
	Information that applies locally, see link on page 1

**21 Accessories**

Description	Item No.	Type
Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip	1205037	SZS 0,4X2,5 VDE
	0804109	SK 3,81/2,8:FORTL.ZAHLEN
	0805399	SK 3,81/2,8:UNBEDRUCKT
	0804112	SK 3,81/2,8: 0-9
Marker card, printed horizontally, self-adhesive, 10 -section marker strip, 14 identical decades, with consecutive numbers from 501-750	0804167	SK 3,81/2,8: 501-750
Marker card, printed horizontally, self-adhesive, 10 -section marker strip, 14 identical decades, with consecutive numbers from 751-1000	0804170	SK 3,81/2,8: 751-1000
Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm	1051993	B-STIFT