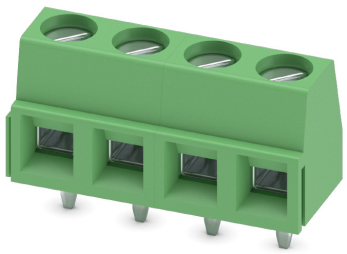
2023-08-10
Product version 09
Document revision 03

Data sheet

Item No.: 1729144

Type: MKDSN 1,5/ 4-5,08

PCB terminal block, Screw connection with tension sleeve



The design shown in the illustrations and 3D data may differ from the original item due to pro-

1 Main features

- No. of pos. 4
- Conductor cross section 1.5 mm²
- Color green (RAL 6021)
- Pitch 5.08 mm
- Connection method Screw connection with tension sleeve
- Nominal current 17.5 A
- Nominal voltage 400 V
- Connection direction 0 °
- Type of packaging packed in cardboard
- Mounting type Wave soldering

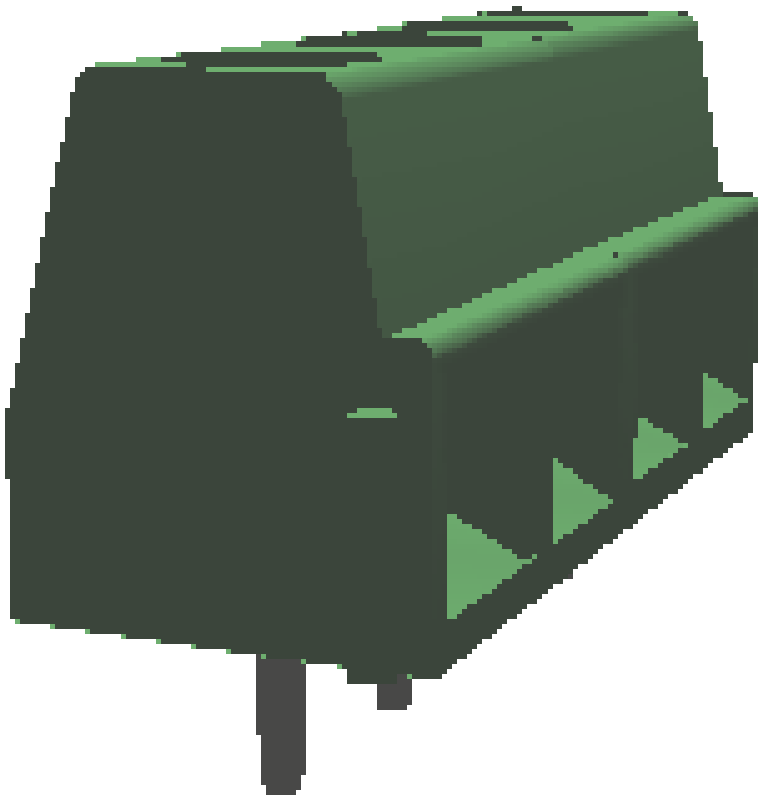
2 Your advantages

- 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
- The latching on the side enables various numbers of positions to be combined

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.com/product/1729144

3 Table of contents

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



5 General Technical Data

5.1 item properties

Item no.	1729144
Type	MKDSN 1,5/ 4-5,08
Product line	COMBICON Terminals S
Product type	PCB terminal block
Range of articles	MKDSN 1,5
Pitch	5.08 mm
Number of positions	4
Number of rows	1
Number of connections	4
Number of potentials	4
Connection method	Screw connection with tension sleeve
Screw thread	M3
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

6 Instruction

6.1 Connection capacity

Conductor cross section, rigid	0.14 mm² ... 1.5 mm²
Conductor cross section, flexible	0.14 mm² ... 1.5 mm²
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm² ... 1 mm²
Conductor cross section flexible, with ferrule with plastic sleeve	0.25 mm² ... 1.5 mm²
2 conductors with same cross section, solid	0.14 mm² ... 0.75 mm²
2 conductors with same cross section, stranded	0.14 mm² ... 0.75 mm²
2 conductors with same cross section, stranded, with ferrule without plastic sleeve	0.25 mm² ... 0.5 mm²
2 conductors with the same cross section flexible with TWIN ferrule and plastic sleeve	0.5 mm² ... 0.75 mm²
Stripping length	6 mm
Tightening torque	0.5 Nm ... 0.6 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 (RAL 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

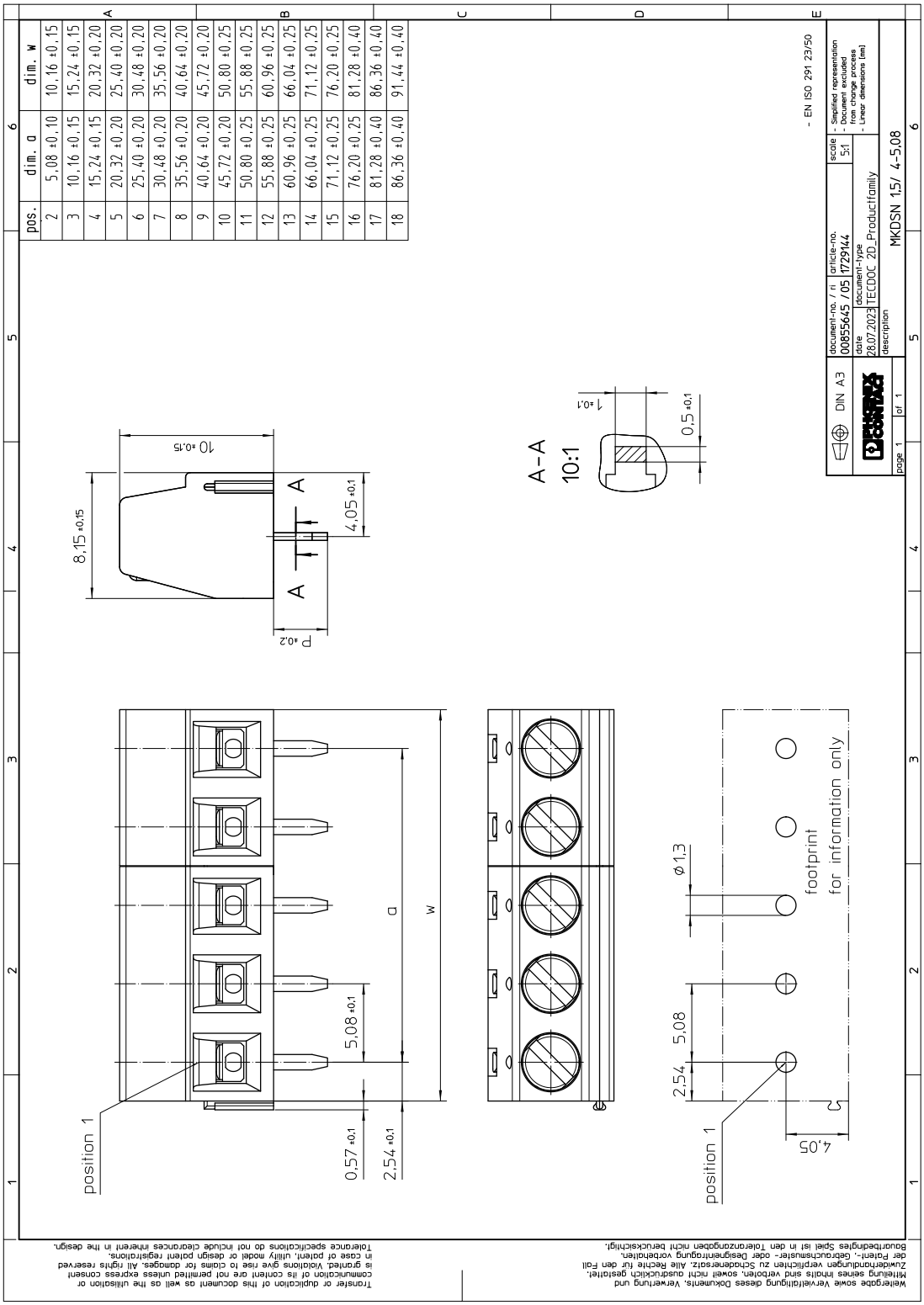
8 Dimensions

8.1 Dimensions for the product

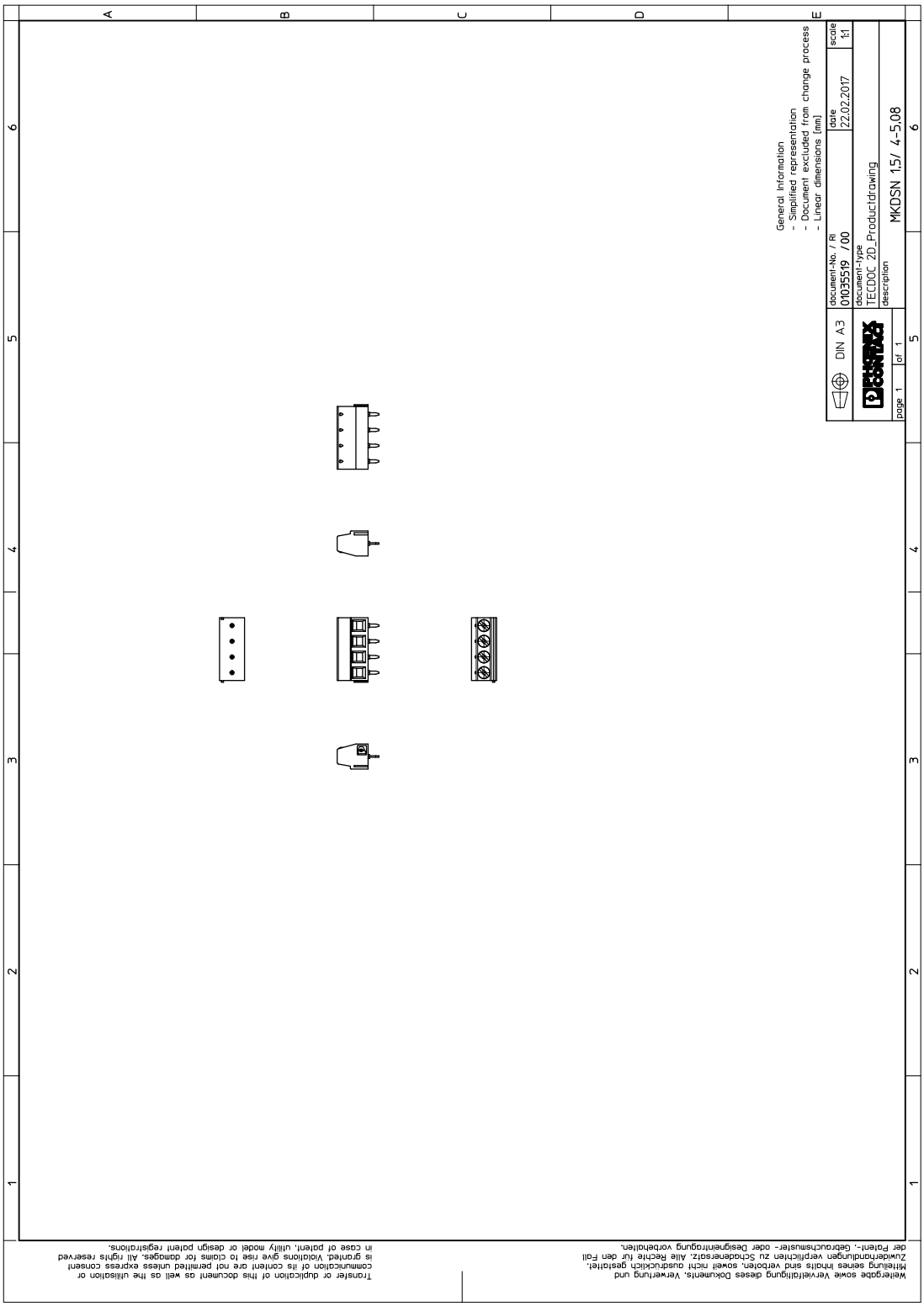
Length	8.1 mm
Width	20.32 mm
Height (without solder pin)	10 mm
Total height	13.5 mm
Solder pin [P]	3.5 mm

1729144 MKDSN 1,5/ 4-5,08

9 Series drawing



10 Product drawing



11 Product note

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	1.3 mm
Pin dimensions	0.5 x 1 mm

12 Application

13 Packaging specifications

Type of packaging	packed in cardboard
Packing unit	120

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)

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^2 / solid / > 10 N
Conductor cross section/conductor type/tractive force actual value	0.14 mm^2 / flexible / > 10 N
Conductor cross section/conductor type/tractive force actual value	1.5 mm^2 / solid / > 40 N
Conductor cross section/conductor type/tractive force actual value	1.5 mm^2 / flexible / > 40 N

14.2 Check for damage to conductor or loosening

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

15 Electrical tests

Rated current / conductor cross section	17.5 A / 1.5 mm²
Rated insulation voltage (III/2)	400 V
Rated surge voltage (III/2)	4 kV
Contact resistance	1.35 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 mm² / 60 A

15.2 Aging test (climatic impact and corrosion testing)

Specification	IEC 60947-7-4:2019-01
Result	Test passed
Contact resistance R_1	1.35 mΩ / 1.5 mm²
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_2	1.37 mΩ / 1.5 mm²
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	4.8 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 mm² / 17.5 A / 44.6 K

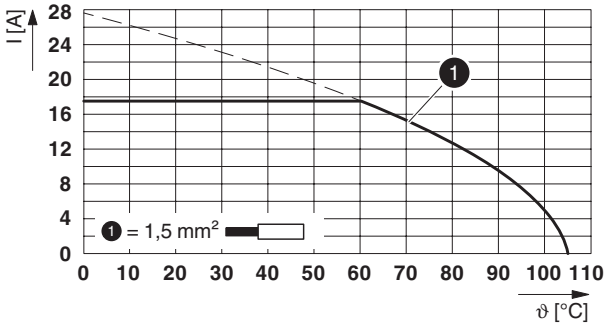
16 Air and creepage distances

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	250 V	400 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Degree of pollution	3	2	2
Overvoltage category	III	III	II
Minimum clearance case A (inhomogeneous field)	3 mm	3 mm	3 mm
Minimum value of the creepage path requirement in acc. with table	3.2 mm	3 mm	3.2 mm

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 mm²

Type: MKDSN 1,5/...-5,08



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 Hz ... 60.1 Hz)
Acceleration	5g (60.1 Hz ... 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		

19 Approvals / Certificates

EAC

cULus Recognized	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Usegroup B				
Mehrleiteranschluss	300 V	10 A	2X - 18	-
Schraubanschluss	300 V	10 A	30 - 14	-
Usegroup D				
Mehrleiteranschluss	300 V	10 A	2X - 18	-
Schraubanschluss	300 V	10 A	30 - 14	-

DNV GL

IECEE CB Scheme	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	400 V	13.5 A	-	0.2 - 1.5

VDE Zeichengenehmigung	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	400 V	17.5 A	-	0.2 - 1.5

20 Commercial Data

Item no.	1729144
Type	MKDSN 1,5/ 4-5,08
Packing unit	120
Net weight	3.579 g
GTIN	4017918026011
	Information that applies locally, see link on page 1

21 Accessories

Description	Item No.	Type
Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip	1205053	SZS 0,6X3,5
	0804293	SK 5,08/3,8:FORTL.ZAHLEN
	0805412	SK 5,08/3,8:UNBEDRUCKT