2022-01-10
Product version 03
Document revision 00

Data sheet

Item No.: 1993763

Type: MKDS 10 HV/ 1-F-10,16

PCB terminal block, Screw connection with tension sleeve

1 Main features

- No. of pos. 1
- Conductor cross section 16 mm²
- Color green (6021)
- Pitch 10.16 mm
- Connection method Screw connection with tension sleeve
- Nominal current 76 A
- Nominal voltage 1000 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
- Unrestricted 600-V-UL approval thanks to compact zig-zag pinning
- Integrated protective guide prevents incorrect insertion of the conductor underneath the tension sleeve

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1993763

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.	1993763
Type	MKDS 10 HV/ 1-F-10,16
Product class	COMBICON Terminals L
Product type	PCB terminal block
Range of articles	MKDS 10 HV
Pitch	10.16 mm
Number of positions	1
Number of rows	1
Number of connections	1
Number of potentials	1
Connection method	Screw connection with tension sleeve
Screw thread	M4
Mounting type	Wave soldering
Connection direction of the conductor to the PCB	0 °
Pin layout	Linear front pinning
Solder pins per potential	2
Type	PC terminal block can be aligned

6 Conductor connection

6.1 Connection capacity

Conductor cross section, rigid	0.5 mm² ... 16 mm²
Conductor cross section, flexible	0.5 mm² ... 16 mm²
Conductor cross section flexible, with ferrule without plastic sleeve	0.5 mm² ... 16 mm²
Conductor cross section flexible, with ferrule with plastic sleeve	0.5 mm² ... 16 mm²
2 conductors with same cross section, solid	0.5 mm² ... 6 mm²
2 conductors with same cross section, stranded	0.5 mm² ... 6 mm²
2 conductors with same cross section, stranded, with ferrule without plastic sleeve	0.5 mm² ... 4 mm²
2 conductors with the same cross section flexible with TWIN ferrule and plastic sleeve	0.5 mm² ... 6 mm²
Stripping length	10 mm
Tightening torque	1.2 Nm ... 1.5 Nm

6.2 Connection capacity AWG

Conductor cross section AWG	20 ... 6

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

8 Dimensions

8.1 Dimensions for the product

Length	18.7 mm
Width	10.16 mm
Height (without solder pin)	30.8 mm
Total height	35.8 mm
Solder pin [P]	5 mm

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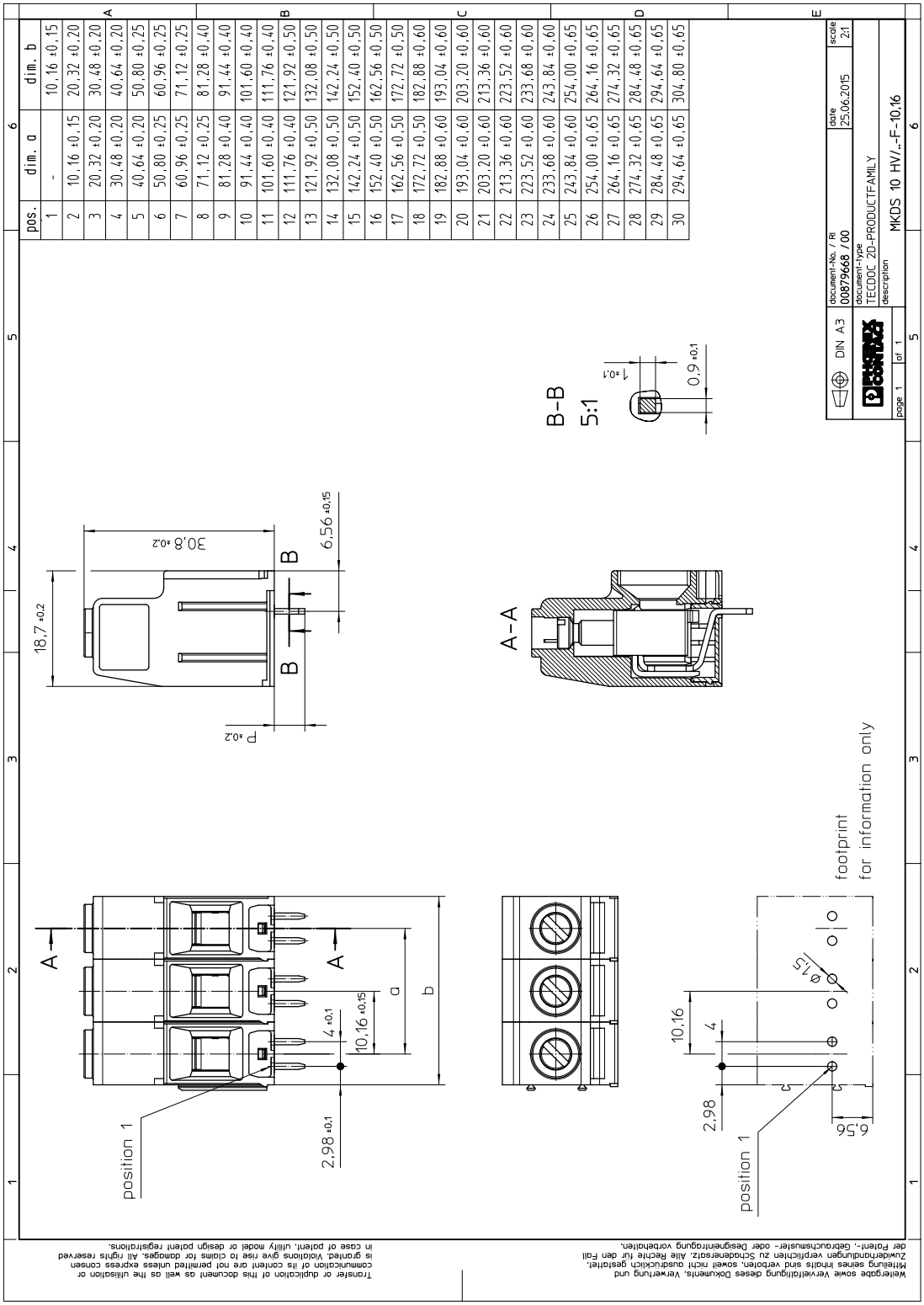
9 Series drawing



10 Product notes

10.1 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).

10.2 Dimensions for PCB design

Hole diameter	1.5 mm
Pin dimensions	1 x 0.9 mm

11 Application

12 Packaging information

Type of packaging	packed in cardboard
Pieces per package	50

12.1 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 (Depending on the current carrying capacity/derating curve)

13 Mechanical tests

13.1 Pull-out test

Specification	IEC 60998-2-1:2002-12
Result	Test passed
Conductor cross section/conductor type/tractive force actual value	0.5 mm^2 / solid / > 20 N
Conductor cross section/conductor type/tractive force actual value	0.5 mm^2 / flexible / > 20 N
Conductor cross section/conductor type/tractive force actual value	16 mm^2 / solid / > 100 N
Conductor cross section/conductor type/tractive force actual value	10 mm^2 / flexible / > 90 N

13.2 Check for damage to conductor or loosening

Specification	IEC 60998-1:2002-12
Result	Test passed

14 Electrical tests

Rated current / conductor cross section	76 A / 16 mm²
Rated insulation voltage (III/2)	1000 V
Rated surge voltage (III/2)	8 kV
Contact resistance	0.3 mΩ
Degree of pollution	2

14.1 Air and creepage distances

Component	PCB terminal block		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	I		
Comparative tracking index (IEC 60112:2003-01)	CTI 600		
Rated insulation voltage	800 V	1000 V	1000 V
Rated surge voltage	8 kV	8 kV	8 kV
Degree of pollution	3	2	2
Overvoltage category	III	III	II
Minimum clearance case A (inhomogeneous field)	8 mm	8 mm	8 mm
Minimum value of the creepage path requirement in acc. with table	10 mm	8 mm	10 mm

14.2 Insulation resistance

Specification	IEC 60998-1:2002-12
Result	Test passed
Insulation resistance, neighboring positions	10^9 Ω

14.3 Temperature rise test

Specification	IEC 60998-1:2002-12
Result	Test passed
Requirement temperature-rise test	Increase in temperature ≤ 45 K
Conductor cross section/test current/temperature rise	16 mm² / 76 A / 36 K

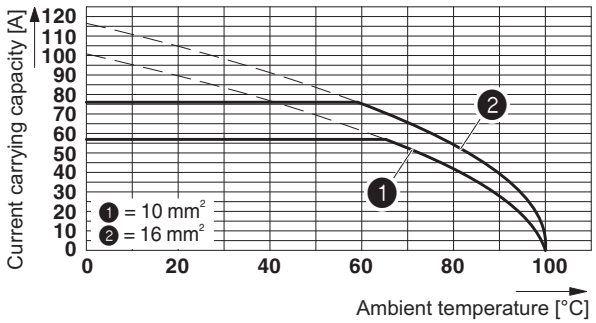
14.4 Impulse withstand voltage test

Result	Test passed
Specification	IEC 60664-1:1992-10 + A1:2000-02 + A2:2002-05
Rated surge voltage	8 kV
Surge voltage between neighboring positions	9.8 kV

15 Current carrying capacity/derating curves

Specification	Following IEC 60512-5-2:2002-02
Reduction factor	1
Number of positions	5
Conductor cross section	16 mm²

Type: MKDS 10 HV/...-ZB-10,16
Tested in accordance with DIN EN 60512-5-2:2003-01
Reduction factor = 1
No. of positions = 5



16 Environmental and durability tests

16.1 Vibration test

Specification	IEC 60068-2-6:1995-03
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	

16.2 Assessment of fire risk (glow wire test)

Specification	IEC 60998-1:2002-12		
Result	Test passed		
Temperature	850 °C		
Time of exposure	5 s		

Protection against electric shock	
Specification	IEC 60998-1:2002-12
Result	Test passed

16.3 Shock protection

Specification	IEC 61032:1997-12
Back of the hand protection (Ball ø 50)	guaranteed
Finger protection (movable test finger)	guaranteed
Note	unenclosed basic insulation - protected against finger contact with IP20 test finger in acc. with IEC 60529 when connected, above the PCB

16.4 Mechanical strength/tumbling barrel

Specification	IEC 60998-1:2002-12
Result	Test passed
Height of fall	50 cm
Number of drop cycles	50

16.5 Resistance to ageing, humidity and penetration of solids

Specification	IEC 60998-1:2002-12
Result	Test passed
Dry heat	168 h/100°C
Damp heat	48 h/30 °C/92 %

16.6 Test of the power frequency electric strength

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Specification	IEC 60998-1:2002-12
Result	Test passed
Test voltage between neighboring positions	3.5 kV

17 Approvals / Certificates

IECEE CB Scheme	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Nur flexible Leiter	400 V	76 A	-	10
Nur starre Leiter	400 V	76 A	-	16

EAC

cULus Recognized	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Usegroup B				
	300 V	60 A	20 - 6	-
Usegroup C				
	150 V	60 A	20 - 6	-
Usegroup D				
	300 V	10 A	20 - 6	-

SEV	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Nur flexible Leiter	400 V	76 A	-	10
Nur starre Leiter	400 V	76 A	-	16

18 Commercial Data

Item no.	1993763
Type	MKDS 10 HV/ 1-F-10,16
Pieces per package	50
Net weight	8.571 g
GTIN	4046356037600
	Information that applies locally, see link on page 1

19 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
	0805221	SK 5,0 WH:REEL
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^2 ... 6.0 mm^2, lateral entry, trapezoidal crimp	1212034	CRIMPFOX 6
Crimping pliers for ferrules up to 16 mm^2	1207983	CRIMPFOX 16 S