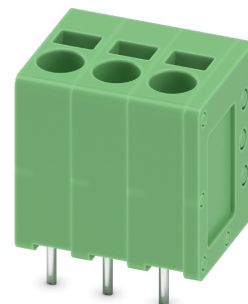


Data sheet

Item No.: 1991105

Type: SPT 2,5/ 3-V-5,0

PCB terminal block, Push-in spring connection



1 Main features



• No. of pos.	3	• Nominal current	24 A
• Conductor cross section	2.5 mm ²	• Nominal voltage	400 V
• Color	green (6021)	• Connection direction	90 °
• Pitch	5 mm	• Type of packaging	packed in cardboard
• Connection method	Push-in spring connection	• Mounting type	

2 Your advantages

- ✓ Time saving push-in connection, tools not required
- ✓ Defined contact force ensures that contact remains stable over the long term
- ✓ Clamping space opened by means of fixed screwdriver enables convenient conductor connection
- ✓ Operation and conductor connection from one direction enable integration into front of device
- ✓ Two solder pins reduce the mechanical strain on the soldering spots



Make sure you always use the latest documentation.

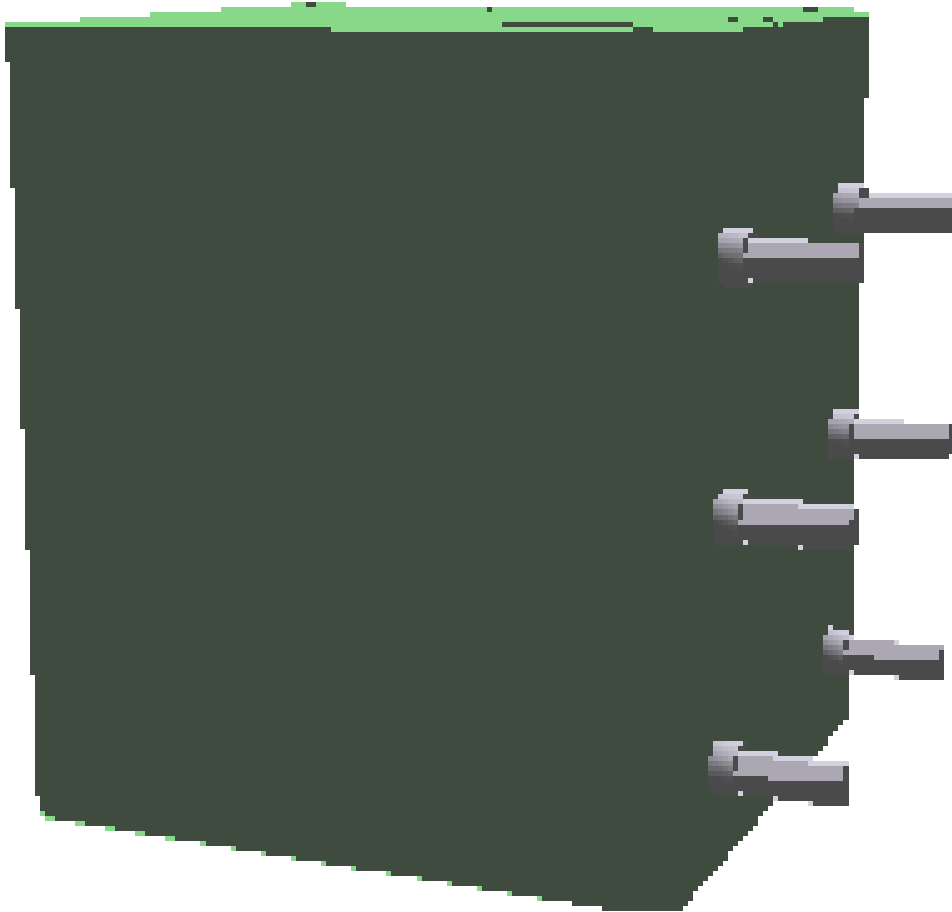
It can be downloaded at: phoenixcontact.net/product/1991105

1991105 SPT 2,5/ 3-V-5,0**3 Table of contents**

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1991105 SPT 2,5/ 3-V-5,0

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



1991105 SPT 2,5/ 3-V-5,0**5 General Technical Data****5.1 item properties**

Item no.	1991105
Type	SPT 2,5/ 3-V-5,0
Product line	COMBICON Terminals M
Product type	PCB terminal block
Range of articles	SPT 2,5/..-V
Pitch	5 mm
Number of positions	3
Number of rows	1
Number of connections	3
Number of potentials	3
Connection method	Push-in spring connection
Connection direction of the conductor to the PCB	90 °
Pin layout	Linear double pinning
Solder pins per potential	2

1991105 SPT 2,5/ 3-V-5,0**6 Conductor connection****6.1 Connection capacity**

Conductor cross section, rigid	0.2 mm ² ... 4 mm ² (Conductor connection with open terminal point)
Conductor cross section, rigid	0.34 mm ² ... 4 mm ² (Push-in connection)
Conductor cross section, flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm ² ... 2.5 mm ² (Stripping length 8 mm)
Conductor cross section flexible, with ferrule with plastic sleeve	0.25 mm ² ... 1.5 mm ² (Stripping length 8 mm)
Stripping length	10 mm

6.2 Connection capacity AWG

Conductor cross section AWG	24 ... 12
-----------------------------	-----------

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	Tin (4 - 8 µm Sn)
Soldering area surface	Tin (4 - 8 µm Sn)
Surface characteristics	hot-dip 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

1991105 SPT 2,5/ 3-V-5,0**8 Dimensions****8.1 Dimensions for the product**

Length	13.5 mm
Width	16.4 mm
Height (without solder pin)	14.4 mm
Total height	16.9 mm
Solder pin [P]	2.5 mm

1991105 SPT 2,5/ 3-V-5,0

9 Series drawing

pos.	dim. a	dim. b
2	5.00 ±0.10	11.40 ±0.15
3	10.00 ±0.15	16.40 ±0.15
4	15.00 ±0.15	21.40 ±0.20
5	20.00 ±0.20	26.40 ±0.20
6	25.00 ±0.20	31.40 ±0.20
7	30.00 ±0.20	36.40 ±0.20
8	35.00 ±0.20	41.40 ±0.20
9	40.00 ±0.20	46.40 ±0.20
10	45.00 ±0.20	51.40 ±0.25
11	50.00 ±0.25	56.40 ±0.25
12	55.00 ±0.25	61.40 ±0.25
13	60.00 ±0.25	66.40 ±0.25
14	65.00 ±0.25	71.40 ±0.25
15	70.00 ±0.25	76.40 ±0.25
16	75.00 ±0.25	81.40 ±0.40
17	80.00 ±0.40	86.40 ±0.40
18	85.00 ±0.40	91.40 ±0.40
19	90.00 ±0.40	96.40 ±0.40
20	95.00 ±0.40	101.40 ±0.40
21	100.00 ±0.40	106.40 ±0.40
22	105.00 ±0.40	111.40 ±0.40
23	110.00 ±0.40	116.40 ±0.40
24	115.00 ±0.40	121.40 ±0.50
25	120.00 ±0.50	126.40 ±0.50
26	125.00 ±0.50	131.40 ±0.50
27	130.00 ±0.50	136.40 ±0.50
28	135.00 ±0.50	141.40 ±0.50
29	140.00 ±0.50	146.40 ±0.50
30	145.00 ±0.50	151.40 ±0.50
31	150.00 ±0.50	156.40 ±0.50
32	155.00 ±0.50	161.40 ±0.50
33	160.00 ±0.50	166.40 ±0.50
34	165.00 ±0.50	171.40 ±0.50

position 1

position 1

footprint for information only

A-A

B-B

5:1

0.7 ±0.01

0.8 ±0.01

13.5 ±0.15

14.4 ±0.15

2.5 ±0.02

8.2 ±0.15

2.55 ±0.01

5 ±0.01

1.4 ±0.01

2.3

5

8.2

2.55

position 1

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date 14.12.2015
scale 1:2:1
Ident.-No. 1991105
document-type TECDOC 2D-PRODUCT FAMILY
description SPT 2,5/ 3-V-5,0
page 1 of 1

1991105 SPT 2,5/ 3-V-5,0

10 Product drawing

1						2						3						4						5						6																													
A												B												C												D												E											
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<p>General Information</p> <ul style="list-style-type: none"> - Simplified representation - Document excluded from change process - Linear dimensions (mm) 												<p>document-No. / RI 01055272 / 700</p> <p>document-type TECDOC 2D_Productdrawing</p> <p>description SPT 2,5/ 3-V-5,0</p>												<p>date 22.02.2017</p> <p>scale 1:1</p>												<p>DIN A3</p> <p>page 1 of 1</p>												<p>2022-05-13</p>											

1991105 SPT 2,5/ 3-V-5,0**10.1 Dimensions for PCB design**

Hole diameter	1.1 mm
Pin dimensions	0.8 x 0.8 mm
Pin spacing	5 mm

11 Application**12 Packaging information**

Type of packaging	packed in cardboard
Pieces per package	100

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

1991105 SPT 2,5/ 3-V-5,0**13 Mechanical tests****13.1 Pull-out test**

Specification	IEC 60999-1:1999-11
Result	Test passed
Conductor cross section/conductor type/tractive force actual value	0.2 mm ² / solid / > 10 N
Conductor cross section/conductor type/tractive force actual value	0.2 mm ² / flexible / > 10 N
Conductor cross section/conductor type/tractive force actual value	4 mm ² / solid / > 60 N
Conductor cross section/conductor type/tractive force actual value	2.5 mm ² / flexible / > 50 N
Conductor cross section/conductor type/tractive force actual value	0.34 mm ² / solid / > 15 N

13.2 Check for damage to conductor or loosening

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

1991105 SPT 2,5/ 3-V-5,0**14 Electrical tests**

Rated current / conductor cross section	24 A / 2.5 mm ²
Rated insulation voltage (III/2)	400 V
Rated surge voltage (III/2)	4 kV
Contact resistance	0.72 mΩ
Degree of pollution	2

14.1 Short-time withstand current test

Specification	IEC 60947-7-4:2019-01
Result	Test passed
Conductor cross section/short-time current	4 mm ² / 135 A

14.2 Aging test (climatic impact and corrosion testing)

Specification	IEC 60947-7-4:2019-01
Result	Test passed
Contact resistance R ₁	0.72 mΩ / 4 mm ²
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	1.88 mΩ / 4 mm ²
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 μs)	4.8 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	3.1 kV

14.3 Insulation resistance

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

14.4 Mechanical connection test for the PCB terminal block

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

14.5 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	4 mm ² / 32 A / 44.2 K
Conductor cross section/test current/temperature rise	2.5 mm ² / 24 A / 44.9 K

1991105 SPT 2,5/ 3-V-5,0**15 Air and creepage distances**

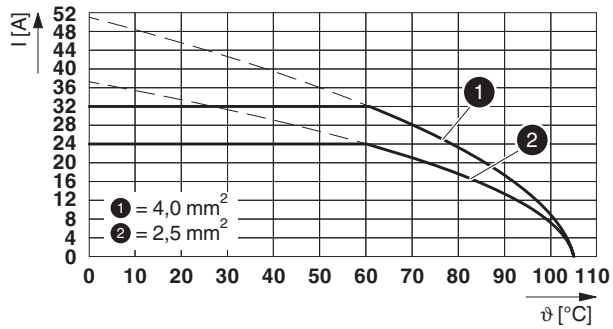
Component	PCB terminal block		
Specification	IEC 60947-7-4:2019-01		
Mains type	unearthed mains		
Insulating material group	I		
Comparative tracking index (IEC 60112)	CTI 600		
Rated insulation voltage	250 V	400 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Degree of pollution	3	2	2
Overvoltage category	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

1991105 SPT 2,5/ 3-V-5,0

16 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	2.5 mm ²

Type: SPT 2,5/...-V-5,0



1991105 SPT 2,5/ 3-V-5,0**17 Environmental and durability tests****17.1 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	Test object without conductor connection, no damage.



17.2 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		

17.3 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

1991105 SPT 2,5/ 3-V-5,0**18 Approvals / Certificates**

EAC ENEC				
cULus Recognized 				
	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
Usegroup B				
	300 V	20 A	24 - 12	-
Usegroup C				
	150 V	20 A	24 - 12	-
Usegroup D				
	150 V	15 A	24 - 12	-
VDE Zeichengenehmigung 				
	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
	400 V	32 A	-	0.2 - 4

1991105 SPT 2,5/ 3-V-5,0**19 Commercial Data**

Item no.	1991105
Type	SPT 2,5/ 3-V-5,0
Pieces per package	100
Net weight	3.83 g
GTIN	4046356104722
	Information that applies locally, see link on page 1

20 Accessories

Description	Item No.	Type
Actuation tool, for ST terminal blocks, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip	1204517	SZF 1-0,6X3,5
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
	0804183	SK 5/3,8:FORTL.ZAHLEN