2021-09-04
Product version 03
Document revision 00

Data sheet

Order No.: 1786187

Type: IC 2,5/ 3-ST-5,08

PCB connector, Screw connection with tension sleeve

The figure shows a 10-position version of the product

1 Main features

- No. of pos. 3
- Conductor cross section 2.5 mm²
- Color green (6021)
- Pitch 5.08 mm
- Connection method Screw connection with tension sleeve
- Nominal current 12 A
- Nominal voltage 320 V
- Connection direction 0 °
- Type of packaging packed in cardboard

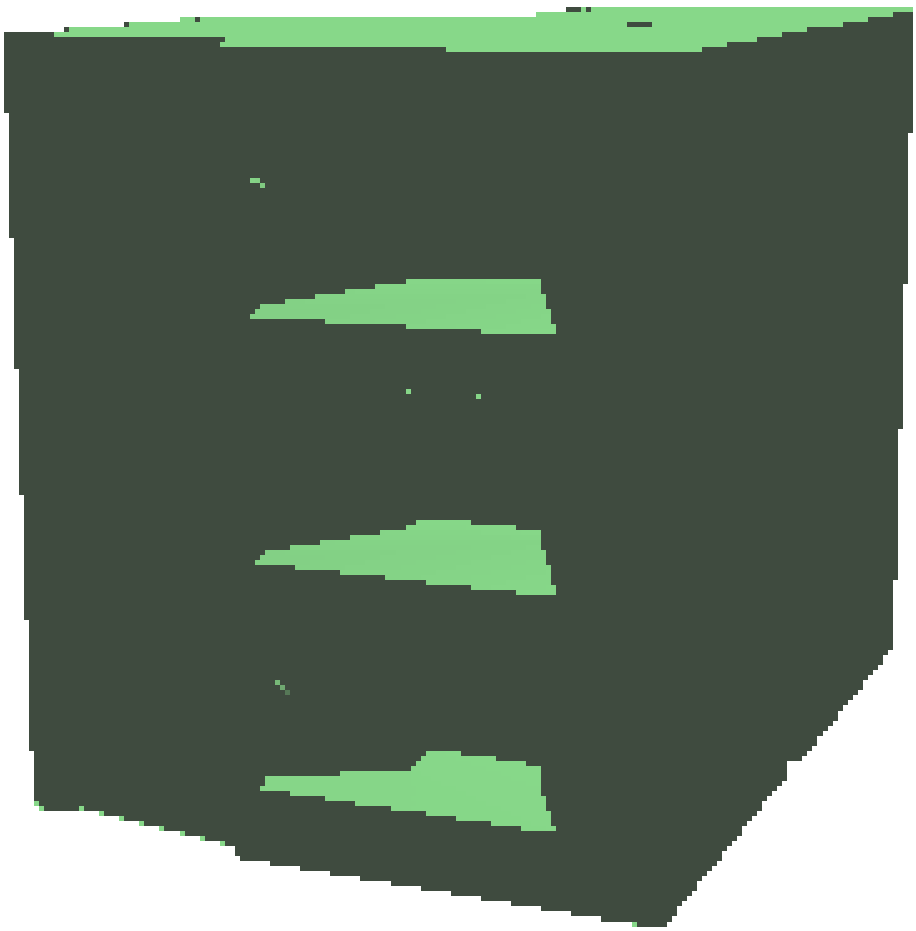
2 Your advantages

- Well-known connection principle allows worldwide use
- Easy PCB replacement thanks to plug-in modules
- Inverted connector with pin contacts for touch-proof device outputs or free-hanging cable/cable connections
- Can be combined with the MSTB 2,5 range
- Low temperature rise, thanks to maximum contact force

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1786187

3 Table of contents

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



5 General Technical Data

5.1 item properties

Order No.	1786187
Type	IC 2,5/ 3-ST-5,08
Connector system	CLASSIC COMBICON
Product type	PCB connector
Type of contact	Male connector
Range of articles	IC 2,5/..-ST
Pitch	5.08 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	M3
Drive form screw head	Slotted (L)
Connection direction of the conductor to plug-in direction	0 °
Type	Inverted

6 Mounting

6.1 Flange mounting

Type of locking	without
Mounting flange	without

7 Conductor connection

7.1 Connection capacity

Nominal cross section	2.5 mm²
Conductor cross section, rigid	0.2 mm² ... 2.5 mm²
Conductor cross section, flexible	0.2 mm² ... 2.5 mm²
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm² ... 2.5 mm²
Conductor cross section flexible, with ferrule with plastic sleeve	0.25 mm² ... 2.5 mm²
2 conductors with same cross section, solid	0.2 mm² ... 1 mm²
2 conductors with same cross section, stranded	0.2 mm² ... 1.5 mm²
2 conductors with same cross section, stranded, with ferrule without plastic sleeve	0.25 mm² ... 1 mm²
2 conductors with the same cross section flexible with TWIN ferrule and plastic sleeve	0.5 mm² ... 1.5 mm²
Cylindrical gauge a x b / diameter	2.8 mm x 2.0 mm / 2.4 mm
Stripping length	7 mm
Tightening torque	0.5 Nm ... 0.6 Nm

7.2 Connection capacity AWG

Conductor cross section AWG	24 ... 12

8 Material properties

8.1 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)
Surface contact area	Nickel (2 - 3 µm Ni) , Tin (5 - 7 µm Sn)
Surface characteristics	Tin-plated

8.2 Material of plastic parts

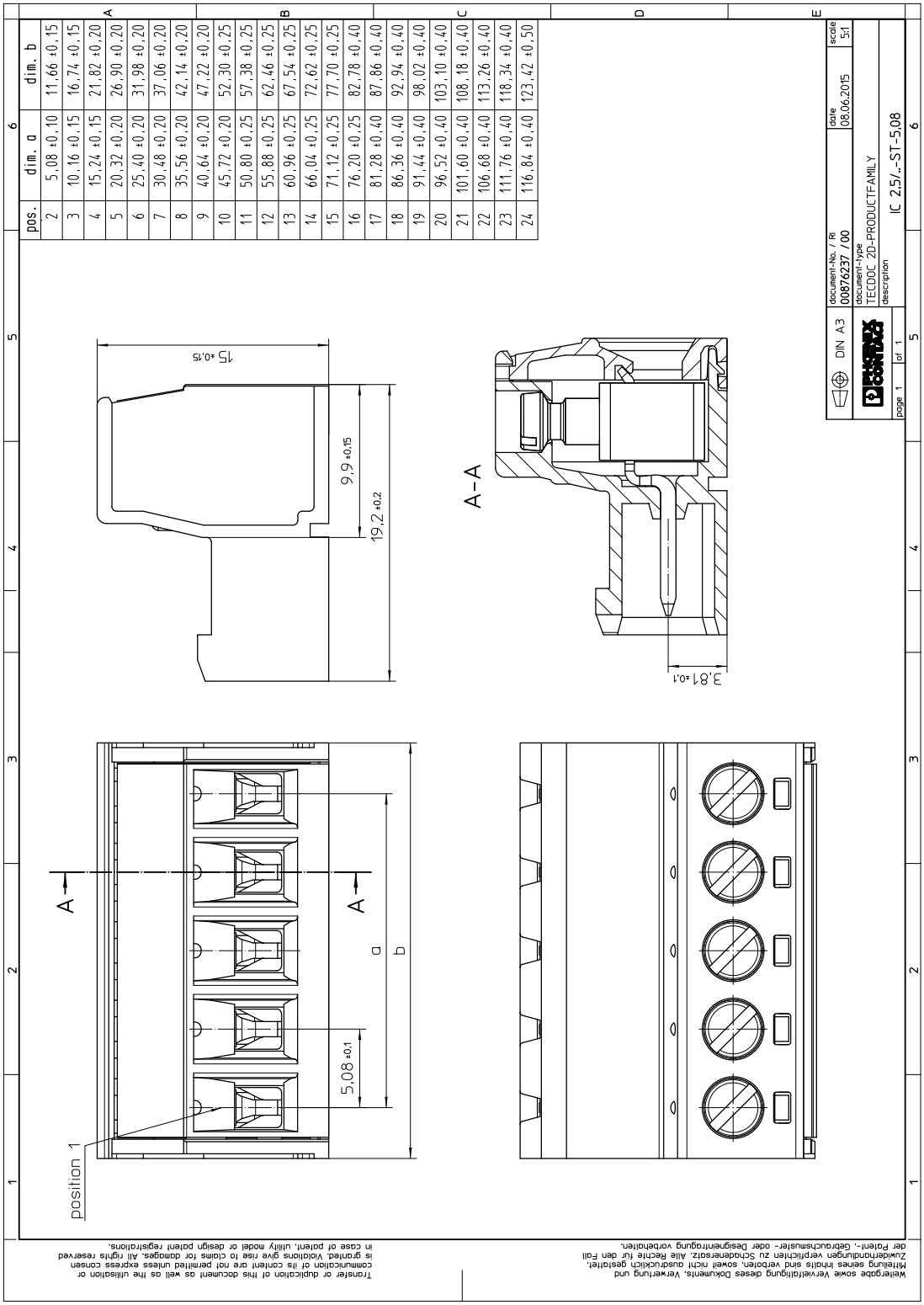
	Housing
Color	green (6021)
Insulating material	PA
Insulating material group	I
CTI according to IEC 60112	600
Flammability rating according to UL 94	V0
Glow wire flammability index GWFI according to EN 60695-2-12	850
Glow wire ignition temperature GWIT according to EN 60695-2-13	775
Temperature for the ball pressure test according to EN 60695-10-2	125 °C

9 Dimensions

9.1 Dimensions for the product

Length	19.2 mm
Width	16.74 mm
Installed height	15 mm
Total height	15 mm

10 Series drawing



11 Product notes

11.1 General information

Notes on operation	In accordance with IEC 61984, COMBICON connectors have no switching power (COC). During designated use, they must not be plugged in or disconnected when carrying voltage or under load.

12 Packaging information

Type of packaging	packed in cardboard
Pieces per package	50

13 Application

13.1 Temperature limit values

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

14 General tests

14.1 Specification

Specification	IEC 61984
Specification	IEC 60999-1
Brief description	DIN rail connectors

15 Mechanical tests

15.1 Check for damage to conductor or loosening

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

15.2 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	2.5 mm^2 / solid / > 50 N
Conductor cross section/conductor type/tractive force actual value	2.5 mm^2 / flexible / > 50 N

15.3 Torque test

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

15.4 Visual examination

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

15.5 Dimensional test

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

15.6 Resistance of marking

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

16 Insertion and withdrawal forces

Insertion and withdrawal force	Test passed
Specification	IEC 60512-13-2:2006-02
No. of cycles	25
Insertion strength per pos. approx.	8 N
Withdraw strength per pos. approx.	7 N

17 Electrical tests

Rated current / conductor cross section	12 A / 2.5 mm²
Rated insulation voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
Contact resistance	2.9 mΩ
Degree of pollution	2

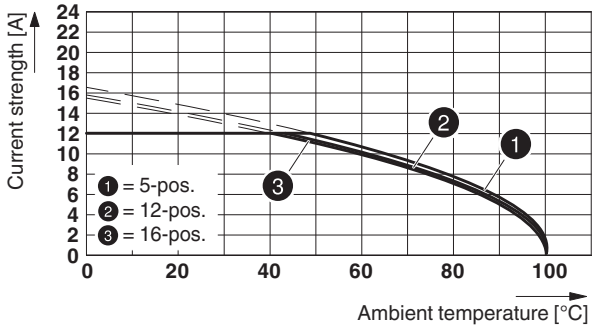
17.1 Air and creepage distances

Component	PCB connector		
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	250 V	320 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

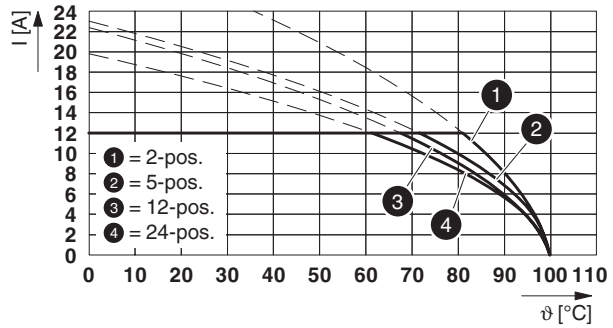
18 Current carrying capacity/derating curves

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	2.5 mm²

Type: (U)MSTBVK 2,5/...-ST-5,08 with IC 2,5/...-ST-5,08



Type: IC 2,5/...-ST-5,08 with ICV 2,5/...-G-5,08



19 Environmental and durability tests

19.1 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	The connected conductor loops were guided to the test sample at a distance of approx. 10 cm.

19.2 Insulation resistance

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

20 Type approval and special tests

21 Approvals / Certificates

CSA	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Usegroup B				
	300 V	10 A	28 - 12	-
Usegroup D				
	300 V	10 A	28 - 12	-

IECEE CB Scheme	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	250 V	12 A	-	0.2 - 2.5

EAC				

cULus Recognized	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Usegroup B				
	250 V	12 A	30 - 12	-
Usegroup D				
	300 V	10 A	30 - 12	-

VDE Zeichengenehmigung	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	250 V	12 A	-	0.2 - 2.5

22 Commercial Data

Order No.	1786187
Type	IC 2,5/ 3-ST-5,08
Pieces per package	50
Net weight	5.065 g
GTIN	4017918042332
	Information that applies locally, see link on page 1

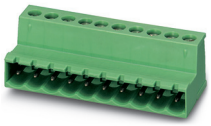
23 corresponding headers

Order No.	Type
1776168	MSTB 2,5/ 3-STZ-5,08
1873663	FKCVW 2,5/ 3-ST-5,08
1792252	MVSTBR 2,5/ 3-ST-5,08
1786417	IC 2,5/ 3-G-5,08
1785955	ICV 2,5/ 3-G-5,08
1779990	MSTBT 2,5/ 3-ST-5,08
1777293	FRONT-MSTB 2,5/ 3-ST-5,08
1769023	MSTBP 2,5/ 3-ST-5,08
1757022	MSTB 2,5/ 3-ST-5,08
1917914	QC 0,75/ 3-ST-5,08
1902123	FKCT 2,5/ 3-ST-5,08
1883268	QC 1/ 3-ST-5,08
1873964	FKCVR 2,5/ 3-ST-5,08
1873061	FKC 2,5/ 3-ST-5,08
1872703	A-ICV 2,5/ 3-G-5,08
1853023	TMSTBP 2,5/ 3-ST-5,08
1826296	SMSTB 2,5/ 3-ST-5,08
1792760	MVSTBW 2,5/ 3-ST-5,08

24 Accessories

Description	Order No.	Type
Keying cap, for forming sections, plugs onto header pin, green insulating material	1755477	MSTB-BL
Insertion bridge for connectors with 5.0 mm or 5.08 mm pitch	1733169	EBP 2- 5
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
Coding section, inserted into the recess in the header or the inverted plug, red insulating material	1734401	CR-MSTB
	0804293	SK 5,08/3,8:FORTL.ZAHLEN
	1803947	KGG-MSTB 2,5/ 3

25 Combination tests



IC 2,5/..-ST	MSTBVK 2,5/..-ST	ICV 2,5/..-G		
IEC 61984	IEC 61984	IEC 61984		
Mechanical tests (A)				
Insertion/withdrawal force per position	approx. 8 N / 7 N	approx. 8 N / 6 N		
Polarization when inserted Requirement >20 N	Test passed	Test passed		
Durability tests (B)				
Contact resistance R_1 1st level	2.9 mΩ	1.6 mΩ		
Contact resistance R_1 2nd level				
Insertion/withdrawal cycles	25	25		
Contact resistance R_2	3 mΩ	1.6 mΩ		
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	4.8 kV	4.8 kV		
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	2.21 kV	2.21 kV		
Thermal tests (C)				
Tested number of positions	16	24		
Tested conductor cross section	2.5 mm²	2.5 mm²		
Test current	12 A DC	12 A		
Upper limiting temperature Requirements < 100°C	Test passed	Test passed		
Climatic tests (D)				
Test sequence 1: low temperature storage	-40 °C/2 h	-40 °C/2 h		
Test sequence 2: heat storage	100 °C/168 h	100 °C/168 h		
Test sequence 3: noxious gas storage (ISO 6988)	0.2 dm³ SO_2 on 300 dm³/ 40 °C/1 cycle	0.2 dm³ SO_2 on 300 dm³/ 40 °C/1 cycle		
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	4.8 kV	4.8 kV		
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	2.21 kV	2.21 kV		
Environmental and endurance tests (E)				
Specification	IEC 61984:2008-10	IEC 61984:2008-10		
Degree of protection	Finger safety with IP20 test finger	Finger safety with IP20 test finger		