2017-10-24
Product version 04
Document revision 0

Data sheet

Order No.: 1788101

Type: UMSTBVK 2,5/20-GF-5,08

Plug component, Screw connection with tension sleeve

The figure shows a 10-position version of the product

1 Main features

- No. of pos. 20
- Conductor cross section 2.5 mm²
- Color green
- Pitch 5.08 mm
- Connection method Screw connection with tension sleeve
- Nominal current 12 A
- Nominal voltage 320 V
- Connection direction 90 °
- Type of packaging packed in cardboard

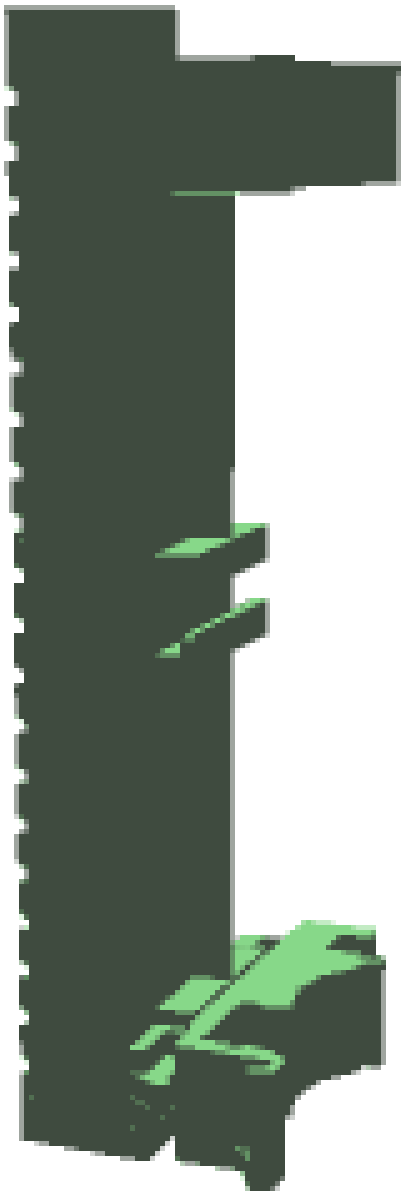
2 Your advantages

- Direct plug-in block with universal foot for mounting on NS 32 or NS 35 DIN rail
- Can be combined with the MSTB 2´,5 range
- Screwable flange for superior mechanical stability
- Well-known connection principle allows worldwide use

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1788101

3 Table of contents

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



5 item properties

Order No.	1788101
Type	UMSTBVK 2,5/20-GF-5,08
Type of contact	Male connector
Range of articles	UMSTBVK 2,5/..-GF
Pitch	5.08 mm
Number of positions	20
Connection method	Screw connection with tension sleeve
Drive form screw head	Slotted
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm
Locking	Threaded flange
Mounting type	DIN rail

5.1 Connection capacity

Conductor cross section, solid	0.2 mm² to 2.5 mm²
Conductor cross section, flexible	0.2 mm² to 2.5 mm²
Conductor cross section AWG/kcmil	24 to 12
2 conductors with same cross section, solid	0.2 mm² to 1 mm²
2 conductors with same cross section, stranded	0.2 mm² to 1.5 mm²
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm² to 2.5 mm²
Conductor cross section flexible, with ferrule with plastic sleeve	0.25 mm² to 2.5 mm²
2 conductors with same cross section, stranded, with ferrule without plastic sleeve	0.25 mm² to 1 mm²
2 conductors with same cross section, stranded, with TWIN ferrules with plastic sleeve	0.5 mm² to 1.5 mm²
Cylindrical gauge a x b / diameter	2.8 mm x 2.0 mm / 2.4 mm
Stripping length	7 mm

5.2 Material data

Material of metal parts		
Note	WEEE/RoHS-compliant, whisker-free acc. to IEC 60068-2-82/JEDEC JESD 201	
Contact material	Cu alloy	
Surface contact area	Ni 2 µm ... 3 µm , Sn 5 µm ... 7 µm	
Soldering area surface	Ni 2 µm ... 3 µm , Sn 5 µm ... 7 µm	
Surface characteristics	Tin-plated	
Insulating material data	**Housing**	
Insulating material	PA	
CTI according to IEC 60112	600	
Flammability rating according to UL 94	V0	
Color	green (6021)	
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	

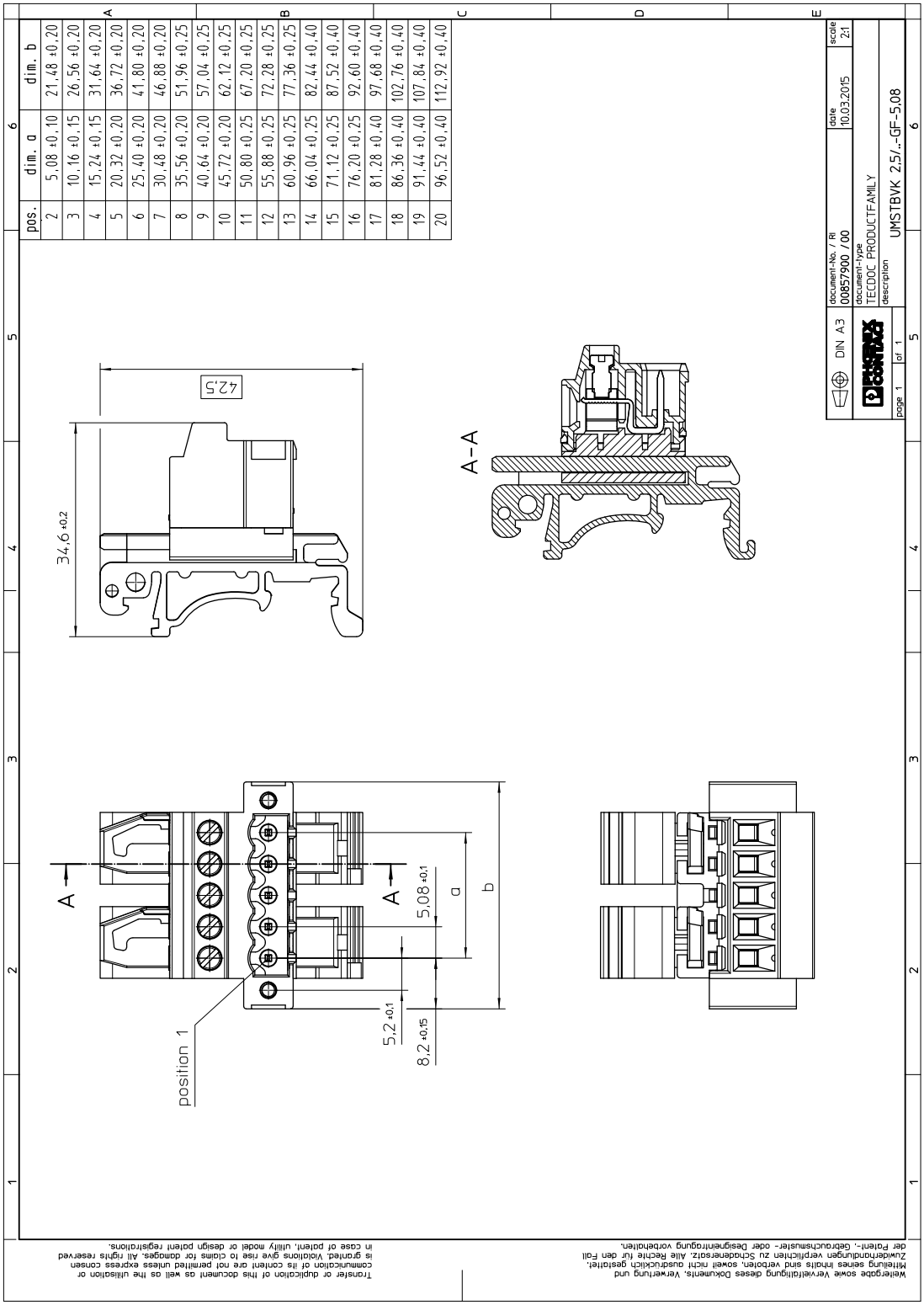
6 Dimensions

6.1 Dimensions for the product

Length	34.6 mm
Width	112.92 mm
Total height	42.5 mm
Dimension a	96.52 mm

1788101 UMSTBVK 2,5/20-GF-5,08

7 Series drawing



8 Packaging information

Type of packaging	packed in cardboard
Pieces per package	50

9 Application

9.1 Temperature limit values

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

10 Mechanical tests

Mechanical test group A	
Specification	IEC 61984:2008-10
Visual test	Test passed
Specification	IEC 60512-1-1:2002-02
Dimensional test	Test passed
Specification	IEC 60512-1-2:2002-02
Resistance of marking	Test passed
Specification	IEC 60068-2-70:1995-12
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.	6 N
Polarization and coding	Test passed
Specification	IEC 60512-13-5:2006-02
Test force	20 N
Contact retention in insert	Test passed
Specification	IEC 60512-15-1:2008-05
Test force per pos.	29 N

10.1 Termination and connection method

Specification	IEC 60999-1:1999-11
Check for damage to conductor or loosening	Test passed

10.2 Pull-out test

Termination and connection method: 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 / stranded / > 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 / stranded / > 50 N

11 Electrical tests

11.1 Electrical data

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

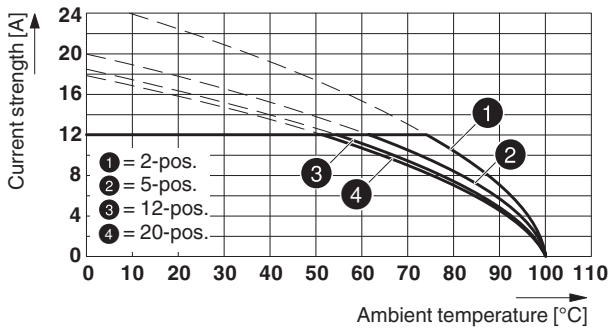
11.2 Air and creepage distances

Component	Plug component		
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	320 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	4 mm	3 mm	3.2 mm

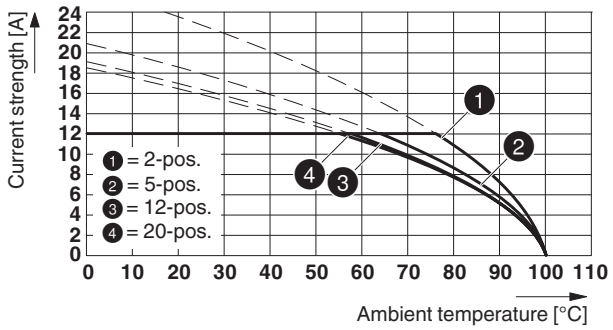
12 Current carrying capacity/derating curves

Specification	IEC 61984:2008-10
Note	Representation based on IEC 60512-5-2:2002-02
Reduction factor	0.8
Number of positions	See diagram
Conductor cross section	2.5 mm²

Type: MVSTBW 2,5/...-STF-5,0 with UMSTBVK 2,5/...-GF-5,08



Type: MVSTBR 2,5/...-STF-5,08 with UMSTBVK 2,5/...-GF-5,08



13 Environmental and durability tests

13.1 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	5 g (60.1 - 150 Hz)
Test duration per axis	2.5 h
Test directions	X-, Y- and Z-axis

14 Classification for connectors

Specification	IEC 61984:2008-10
Main features	Connectors without switching capacity (COC)
Construction form	Fixed connectors
Strain relief elements	without strain relief
Connection method	Can be reconnected
Protection against electric shock	Not encapsulated - touch-proof when inserted
Protective conductor	without PE
Lock	no
Connection method	Screw terminal points

15 Approvals

CSA				
Use group	B	D		
mm²/AWG/kcmil	28-12	28-12		
Voltage	300 V	300 V		
Current	10 A	10 A		

UL Recognized				
Use group	B	D		
mm²/AWG/kcmil	30-12	30-12		
Voltage	250 V	300 V		
Current	12 A	10 A		

VDE Gutachten mit Fertigungsüberwachung				
mm²/AWG/kcmil	0.2-2.5			
Voltage	250 V			
Current	12 A			

cUL Recognized				
Use group	B	D		
mm²/AWG/kcmil	30-12	30-12		
Voltage	250 V	300 V		
Current	12 A	10 A		

1788101 UMSTBVK 2,5/20-GF-5,08

IECEE CB Scheme					
mm²/AWG/kcmil	0.2-2.5				
Voltage	250 V				
Current	12 A				

EAC

cULus Recognized

16 Commercial Data

Order No.	1788101
Type	UMSTBVK 2,5/20-GF-5,08
Pieces per package	50
Net weight	52.338 g
GTIN	4017918043162
	Information that applies locally, see link on page 1
Country of origin	Information that applies locally, see link on page 1

17 corresponding headers

Order No.	Type
1778166	MSTB 2,5/20-STF-5,08
1835274	MVSTBR 2,5/20-STF-5,08
1835083	MVSTBW 2,5/20-STF-5,08
1777976	FRONT-MSTB 2,5/20-STF-5,08
1809912	MSTBC 2,5/20-STZF-5,08

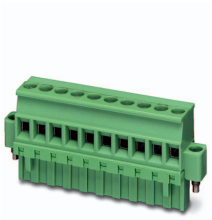
18 Accessories

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

19 Combination tests

UMSTBVK 2,5/..-GF

MVSTBW 2,5/..-STF



MVSTBR 2,5/..-STF

Specification	IEC 61984	IEC 61984		
Mechanical tests (A)				
Insertion/withdrawal force per position	approx. 8 N / 6 N	approx. 8 N / 6 N		
Polarization when inserted Requirement >20 N	Test passed	Test passed		
Contact holder in insert Requirements >20 N	Test passed	Test passed		
Durability tests (B)				
Contact resistance R_1	2.9 mΩ	3 mΩ		
Insertion/withdrawal cycles	25	25		
Contact resistance R_2	2.9 mΩ	3.1 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		
Insulation resistance Requirements > 5 MΩ	> 0.7 TΩ	> 0.1 TΩ		
Thermal tests (C)				
Tested number of positions	20	20		
Tested conductor cross section	2.5 mm²	2.5 mm²		
Test current	12 A	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		