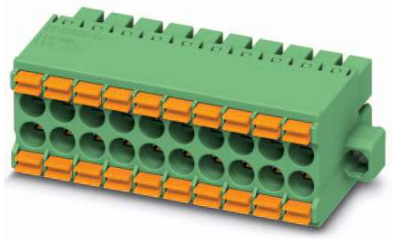
2017-09-12
Product version 03
Document revision 0

Data sheet

Order No.: 1790438

Type: DFMC 1,5/16-STF-3,5

Plug component, Push-in spring connection



The figure shows a 10-pos. version with 20 contacts

1 Main features

- No. of pos. 16
- Conductor cross section 1.5 mm²
- Color green
- Pitch 3.5 mm
- Connection method Push-in spring connection
- Nominal current 8 A
- Nominal voltage 160 V
- Connection direction
- Type of packaging packed in cardboard

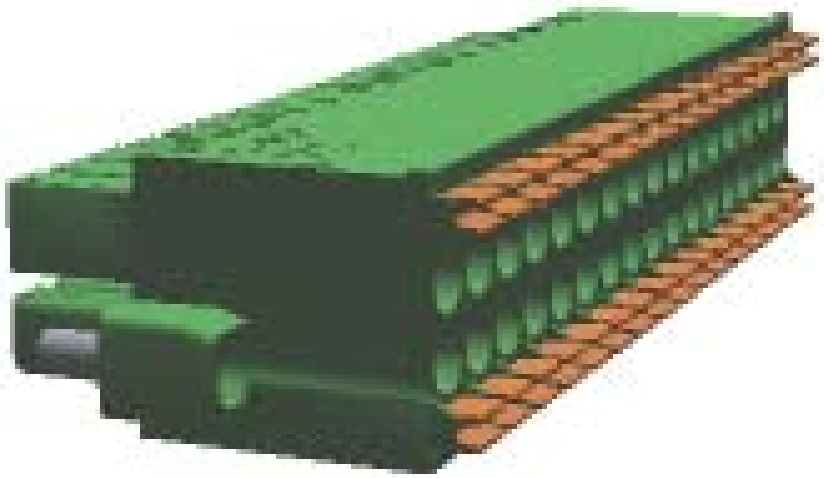
2 Your advantages

- Time saving push-in connection, tools not required
- Defined contact force ensures that contact remains stable over the long term
- Intuitive use through colour coded actuation lever
- Optimized for tight installation situations: operation and conductor connection from one direction
- Screwable flange for superior mechanical stability

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1790438

3 Table of contents

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



5 item properties

Order No.	1790438
Type	DFMC 1,5/16-STF-3,5
Type of contact	Female connector
Range of articles	DFMC 1,5/..-STF
Pitch	3.5 mm
Number of positions	16
Connection method	Push-in spring connection
Locking	Screw flange

5.1 Connection capacity

Conductor cross section, solid	0.2 mm² to 1.5 mm²
Conductor cross section, flexible	0.2 mm² to 1.5 mm²
Conductor cross section AWG/kcmil	24 to 16
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm² to 1.5 mm²
Conductor cross section flexible, with ferrule with plastic sleeve	0.25 mm² to 0.75 mm²
Stripping length	10 mm

5.2 Specifications for ferrules

Ferrules without insulating collar, according to DIN 46228–1	Cross section: 0.25 mm²; Length: 5 mm ... 7 mm Cross section: 0.34 mm²; Length: 7 mm Cross section: 0.5 mm²; Length: 8 mm ... 10 mm Cross section: 0.75 mm²; Length: 8 mm ... 10 mm Cross section: 1 mm²; Length: 8 mm ... 10 mm Cross section: 1.5 mm²; Length: 10 mm
Ferrules with insulating collar, according to DIN 46228–4	Cross section: 0.14 mm²; Length: 8 mm Cross section: 0.25 mm²; Length: 8 mm ... 10 mm Cross section: 0.34 mm²; Length: 8 mm ... 10 mm Cross section: 0.5 mm²; Length: 8 mm ... 10 mm Cross section: 0.75 mm²; Length: 8 mm ... 10 mm

5.3 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
Terminal point surface	Sn 4 µm ... 8 µm
Surface contact area	Sn 4 µm ... 8 µm
Surface characteristics	hot-dip tin-plated

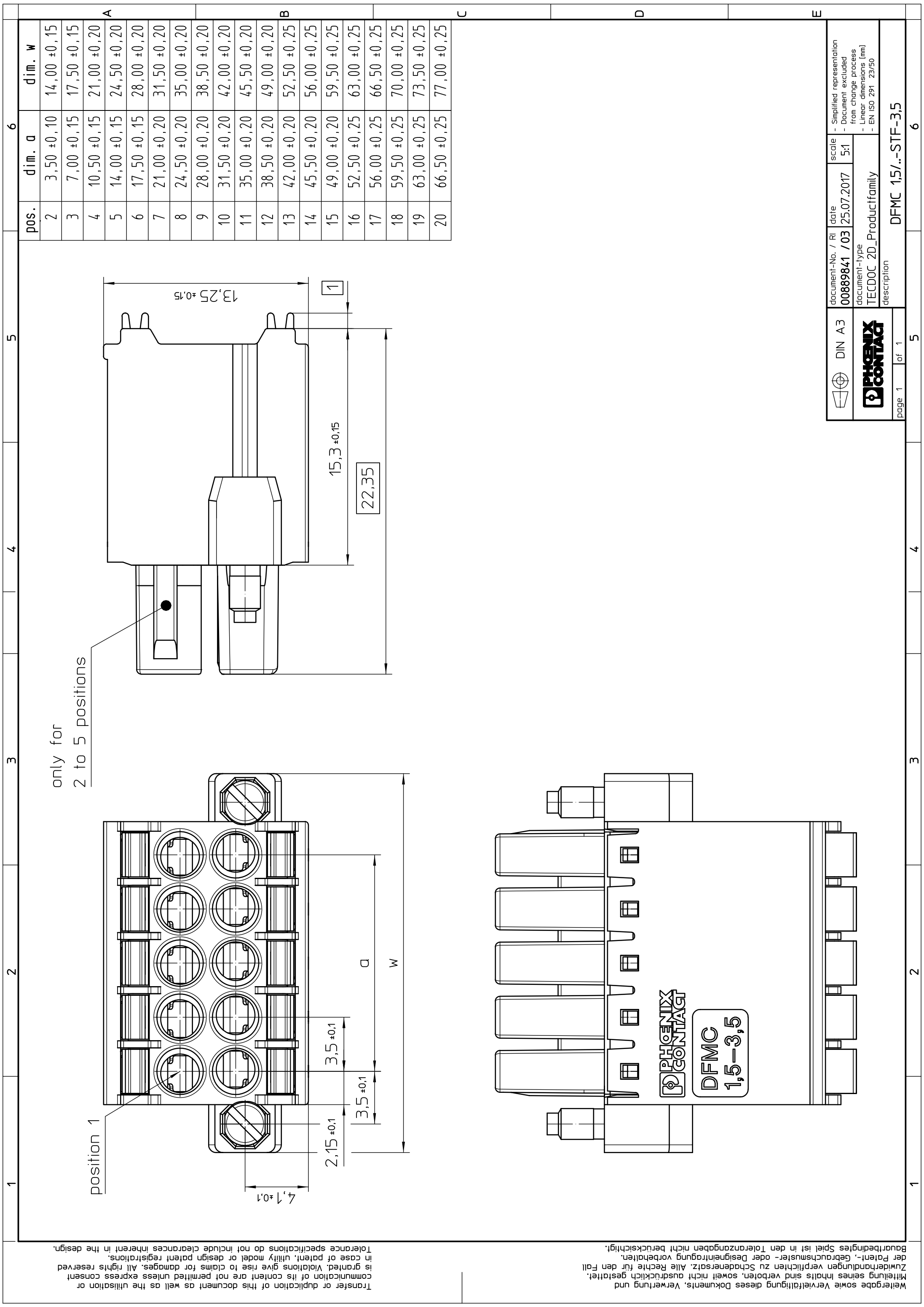
Insulating material data	Housing	
Insulating material	PA	PBT
CTI according to IEC 60112	600	600
Flammability rating according to UL 94	V0	V0
Color	green (6021)	
Glow wire flammability index GWFI according to EN 60695-2-12	850	
Glow wire ignition temperature GWIT according to EN 60695-2-13	775	
Temperature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

6 Dimensions

6.1 Dimensions for the product

Length	23.35 mm
Width	63 mm
Total height	13.25 mm
Dimension a	52.5 mm

7 Series drawing



pos.	dim. a	dim. w
2	3,50 ±0,10	14,00 ±0,15
3	7,00 ±0,15	17,50 ±0,15
4	10,50 ±0,15	21,00 ±0,20
5	14,00 ±0,15	24,50 ±0,20
6	17,50 ±0,15	28,00 ±0,20
7	21,00 ±0,20	31,50 ±0,20
8	24,50 ±0,20	35,00 ±0,20
9	28,00 ±0,20	38,50 ±0,20
10	31,50 ±0,20	42,00 ±0,20
11	35,00 ±0,20	45,50 ±0,20
12	38,50 ±0,20	49,00 ±0,20
13	42,00 ±0,20	52,50 ±0,25
14	45,50 ±0,20	56,00 ±0,25
15	49,00 ±0,20	59,50 ±0,25
16	52,50 ±0,25	63,00 ±0,25
17	56,00 ±0,25	66,50 ±0,25
18	59,50 ±0,25	70,00 ±0,25
19	63,00 ±0,25	73,50 ±0,25
20	66,50 ±0,25	77,00 ±0,25

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.	3 N
Withdraw strength per pos. approx.	2 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.	30 N

10.1 Termination and connection method

Specification	IEC 60999-1:1999-11
Conductor connection	Test passed
Repeated connection and disconnection	Test passed
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	0.2 mm² / solid / > 10 N
Conductor cross section/conductor type/tractive force actual value	0.2 mm² / stranded / > 10 N
Conductor cross section/conductor type/tractive force actual value	1.5 mm² / solid / > 40 N
Conductor cross section/conductor type/tractive force actual value	1.5 mm² / stranded / > 40 N
Conductor cross section/conductor type/tractive force actual value	AWG 16 / stranded / > 40 N

11 Electrical tests

11.1 Electrical data

Rated current / conductor cross section	8 A / 1.5 mm²
Rated insulation voltage (III/2)	160 V
Rated surge voltage (III/2)	2.5 kV
Contact resistance	2.1 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	160 V	160 V	250 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Degree of pollution	3	2	2
Overvoltage category	III	III	II
Minimum clearance case A (inhomogeneous field)	1.5 mm	1.5 mm	1.5 mm
Minimum value of the creepage path requirement in acc. with table	2 mm	1.5 mm	1.5 mm

11.3 Electrical function

Specification	IEC 60999-1:1999-11
Result	Test passed
Voltage drop	Voltage drop (U) after the load ≤ 15 mV
Test current (minimum cross section)	4 A AC
Test current (maximum cross section)	8 A AC
Conductor cross section, flexible	0.2 mm² to 1.5 mm²
Conductor cross section, solid	0.2 mm² to 1.5 mm²

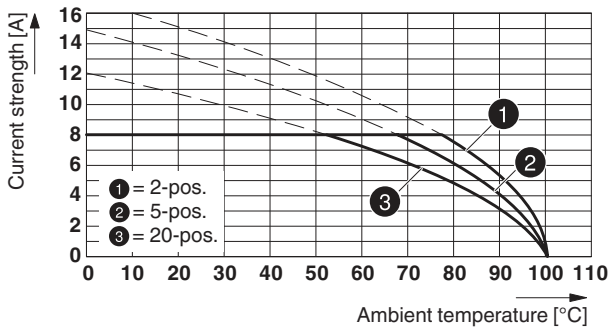
11.4 Temperature cycles

Specification	IEC 60999-1:1999-11
Result	Test passed
Voltage drop	Voltage drop (U) after the load ≤ 22.5 mV or 1.5 x $U_{\text{after 24 h}}$ The small value is to be used.
Test current (minimum cross section)	4 A DC
Test current (maximum cross section)	8 A DC
Temperature cycles	192
Conductor cross section, flexible	0.2 mm² to 1.5 mm²
Conductor cross section, solid	0.2 mm² to 1.5 mm²

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	1.5 mm²

Typ: DFMC 1,5/..-ST-3,5 with DMCV 1,5/..-G1-3,5 P20 THR



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	Screwless terminal points

15 Approvals

VDE Gutachten mit Fertigungsüberwachung				
mm^2/AWG/kcmil	0.2-1.5			
Voltage	160 V			
Current	8 A			

IECEE CB Scheme				
mm^2/AWG/kcmil				
Voltage	160 V			
Current	8 A			

cULus Recognized

EAC

cULus Recognized				
Use group	B	C	D	
mm^2/AWG/kcmil	16-24	16-24	16-24	
Voltage	300 V	50 V	300 V	
Current	8 A	8 A	8 A	

16 Commercial Data

Order No.	1790438
Type	DFMC 1,5/16-STF-3,5
Pieces per package	50
Net weight	16.822 g
GTIN	4046356594882
	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
1787153	DMC 1,5/16-G1F-3,5-LR P20THR
1787535	DMCV 1,5/16-G1F-3,5-LR P20THR

18 Accessories

Description	Order No.	Type
Coding profile, for insertion between the coding ribs of the connector and the header following the reflow soldering process, insulating material, color: natural	1790647	CP-DMC 1,5 NAT
Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip	1205037	SZS 0,4X2,5 VDE
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

19 Combination tests

DFMC 1,5/..-STF

DMC 1,5/..-G1F-THR

Specification	IEC 61984			
Mechanical tests (A)				
Insertion/withdrawal force per position	approx. 3 N / 2 N			
Polarization when inserted Requirement >20 N	Test passed			
Contact holder in insert Requirements >20 N	Test passed			
Durability tests (B)				
Contact resistance R_1	2.1 mΩ			
Insertion/withdrawal cycles	25			
Contact resistance R_2	2.4 mΩ			
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	2.95 kV			
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	1.39 kV			
Insulation resistance Requirements > 5 MΩ	13,6 TΩ			
Thermal tests (C)				
Tested number of positions	20			
Tested conductor cross section	1.5 mm^2			
Test current	8 A DC			
Upper limiting temperature Requirements < 100°C	Test passed			
Climatic tests (D)				
Test sequence 1: low temperature storage	-40 °C/2 h			
Test sequence 2: heat storage	100 °C/168 h			
Test sequence 3: noxious gas storage (ISO 6988)	0.2 dm^3 SO_2 on 300 dm^3/ 40 °C/1 cycle			
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	2.95 kV			
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	1.39 kV			
Environmental and endurance tests (E)				
Specification	IEC 61984:2008-10			
Degree of protection	Finger safety with IP20 test finger			