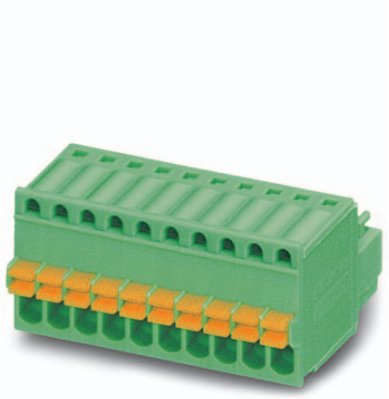
2018-03-26
Product version 06
Document revision 0

Data sheet

Order No.: 1881406

Type: FK-MC 0,5/10-ST-2,5

Plug component, Push-in spring connection



The figure shows a 10-position version of the product

1 Main features

- No. of pos. 10
- Conductor cross section 0.5 mm²
- Color green
- Pitch 2.5 mm
- Connection method Push-in spring connection
- Nominal current 4 A
- Nominal voltage 160 V
- Connection direction 0 °
- Type of packaging packed in cardboard

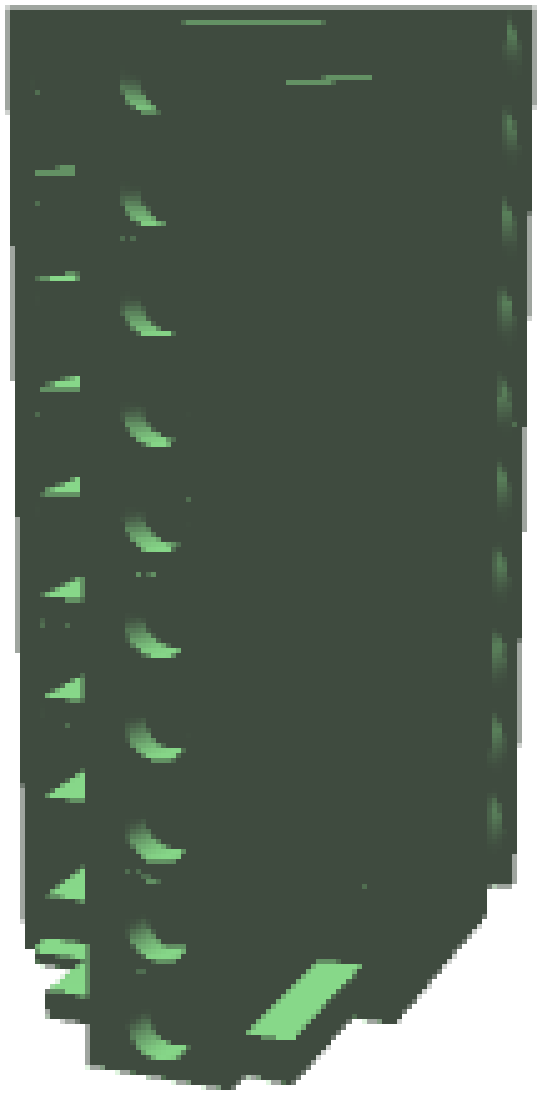
2 Your advantages

- 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
- Operation and conductor connection from one direction enable integration into front of device
- Quick and convenient testing using integrated test option

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1881406

3 Table of contents

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



5 item properties

Order No.	1881406
Type	FK-MC 0,5/10-ST-2,5
Type of contact	Female connector
Range of articles	FK-MC 0,5/..-ST
Pitch	2.5 mm
Number of positions	10
Connection method	Push-in spring connection
Locking	without

5.1 Connection capacity

Conductor cross section, solid	0.14 mm² to 0.5 mm²
Conductor cross section, flexible	0.14 mm² to 0.5 mm²
Conductor cross section AWG/kcmil	26 to 20
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm² to 0.5 mm²
Cylindrical gauge a x b / diameter	- / 1.4 mm
Stripping length	8 mm

5.2 Specifications for ferrules

Ferrules without insulating collar, according to DIN 46228–1	
Ferrules with insulating collar, according to DIN 46228–4	

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	Actuation element
Insulating material	PA	POM
CTI according to IEC 60112	600	600
Flammability rating according to UL 94	V0	HB
Color	green (6021)	orange (2003)
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	

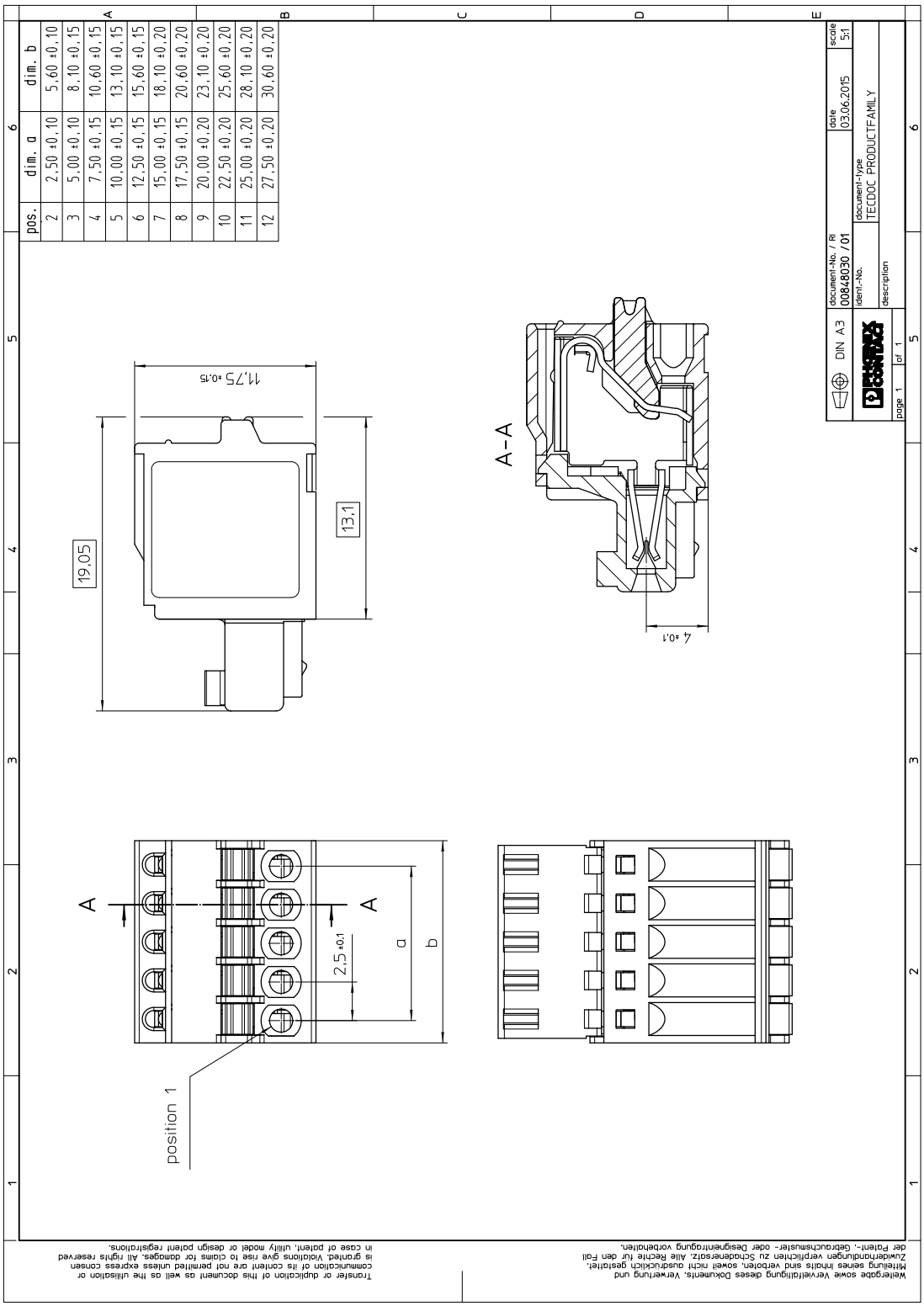
6 Dimensions

6.1 Dimensions for the product

1881406 FK-MC 0,5/10-ST-2,5

Length	19.05 mm
Width	25.6 mm
Total height	11.75 mm
Dimension a	22.5 mm

7 Series drawing



8 Packaging information

Type of packaging	packed in cardboard
Pieces per package	50

9 Application

9.1 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.

9.2 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 examination	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.	24 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 mm^2 / solid / > 10 N
Conductor cross section/conductor type/tractive force actual value	0.2 mm^2 / stranded / > 10 N
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 / stranded / > 20 N

11 Electrical tests

11.1 Electrical data

Rated current / conductor cross section	4 A / 0.5 mm²
Rated insulation voltage (III/2)	160 V
Rated surge voltage (III/2)	2.5 kV
Contact resistance	2 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	100 V	160 V	320 V
Rated surge voltage	1.5 kV	2.5 kV	2.5 kV
Degree of pollution	3	2	2
Overvoltage category	III	III	II
Minimum clearance case A (inhomogeneous field)	0.8 mm	1.5 mm	1.5 mm
Minimum value of the creepage path requirement in acc. with table	1.8 mm	0.8 mm	1.6 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
Test current (maximum cross section)	6 A
Conductor cross section, flexible	0.14 mm² to 0.5 mm²
Conductor cross section, solid	0.14 mm² to 0.5 mm²

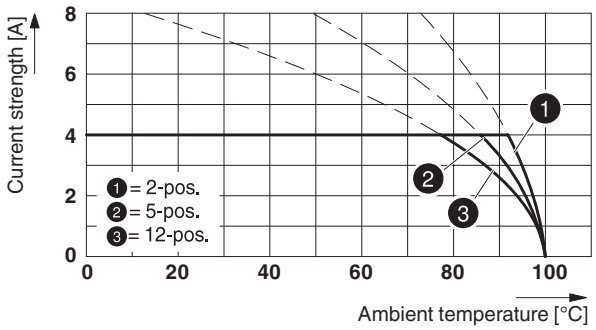
11.4 Temperature cycles

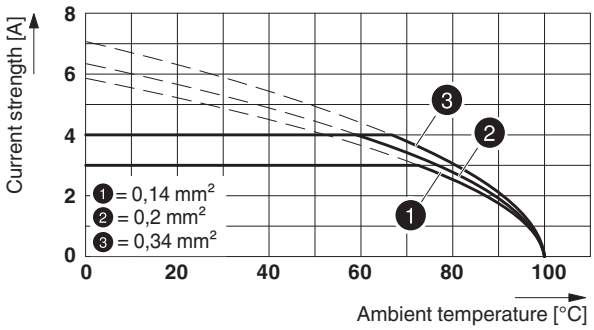
Specification	IEC 60999-1:1999-11
Result	Test passed
Voltage drop	Voltage drop (U) after the load ≤ 22.5 mV or 1.5 x $U_{\text{after 24 h}}$ The small value is to be used.
Test current (minimum cross section)	4 A
Test current (maximum cross section)	6 A
Temperature cycles	192
Conductor cross section, flexible	0.14 mm² to 0.5 mm²
Conductor cross section, solid	0.14 mm² to 0.5 mm²

12 Current carrying capacity/derating curves

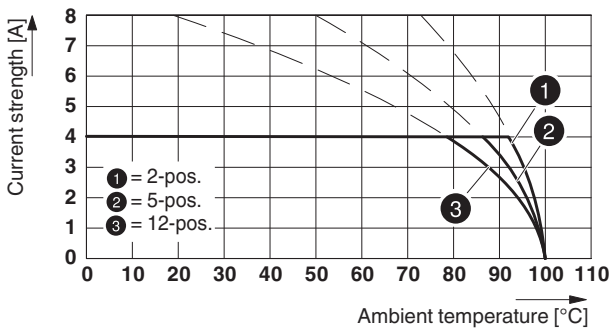
Specification	IEC 61984:2008-10
Note	Representation based on IEC 60512-5-2:2002-02
Reduction factor	0.8
Number of positions	See diagram
Conductor cross section	0.5 mm²

Type: FK-MC 0,5/...-ST-2,5 with MC 0,5/...-G-2,5

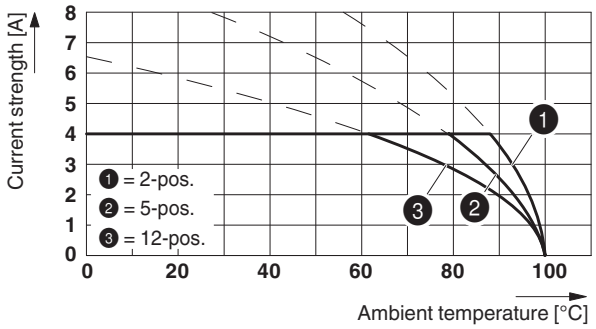




Type: FK-MC 0,5/...-ST-2,5 with MCV 0,5/...-G-2,5

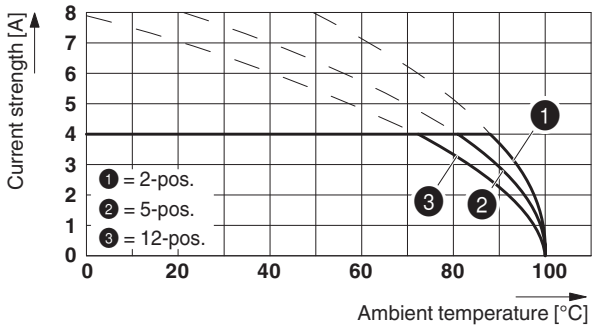


Type: FK-MC 0,5/...-ST-2,5 with MCD 0,5/...-G1-2,5

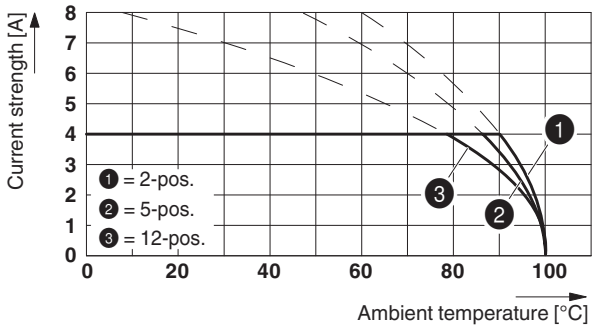


1881406 FK-MC 0,5/10-ST-2,5

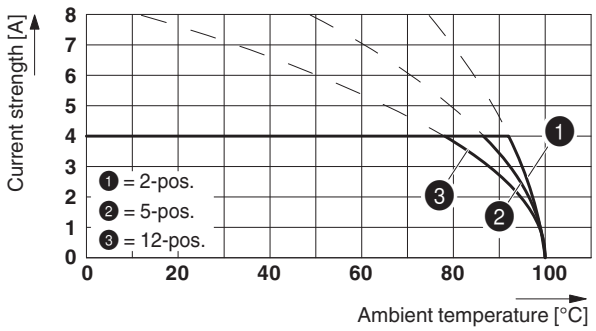
Type: FK-MC 0,5/...-ST-2,5 with MCDV 0,5/...-G1-2,5



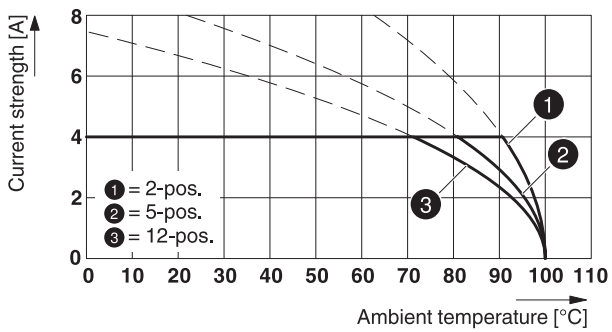
Type: FK-MC 0,5/...-ST-2,5 with MC 0,5/...-G-2,5 THT



Type: FK-MC 0,5/...-ST-2,5 with MCV 0,5/...-G-2,5 THT



Type: FK-MC 0,5/...-ST-2,5 with MCD 0,5/...-G1-2,5 HT BK



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	0.2-0.5			
Voltage	100 V			
Current	4 A			
IECEE CB Scheme				
mm^2/AWG/kcmil	0.2-0.5			
Voltage	100 V			
Current	4 A			
CCA				
mm^2/AWG/kcmil	0.2-0.5			
Voltage	100 V			
Current	4 A			
EAC				
cULus Recognized				
Use group	B			
mm^2/AWG/kcmil	28-20			
Voltage	125 V			
Current	4 A			

16 Commercial Data

Order No.	1881406
Type	FK-MC 0,5/10-ST-2,5
Pieces per package	50
Net weight	6.15 g
GTIN	4017918156657
	Information that applies locally, see link on page 1
Country of origin	Information that applies locally, see link on page 1

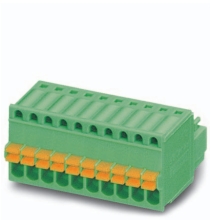
17 corresponding headers

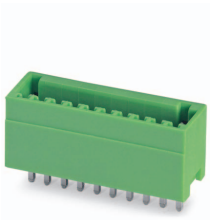
Order No.	Type
1881529	MC 0,5/10-G-2,5
1881639	MCV 0,5/10-G-2,5
1894888	MCD 0,5/10-G1-2,5
1894998	MCDV 0,5/10-G1-2,5
1961229	MCD 0,5/10-G1-2,5 HT BK
1961326	MCDV 0,5/10-G1-2,5 HT BK
1963502	MC 0,5/10-G-2,5 THT
1963612	MCV 0,5/10-G-2,5 THT
1963722	MC 0,5/10-G-2,5 THT R44
1963845	MCV 0,5/10-G-2,5 THT R44

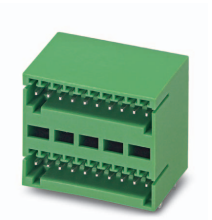
18 Accessories

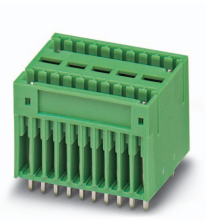
Description	Order No.	Type
Micro screwdriver, bladed, size: 0.4 x 2.0 x 60 mm, 2-component grip, with non-slip grip and twist cap	1205202	SZS 0,4X2,0
	0804853	SK 2,54/2,8:FORTL.ZAHLEN

19 Combination tests



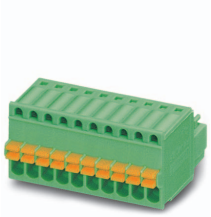


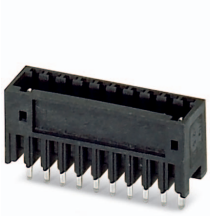




FK-MC 0,5/..-ST	MC 0,5/..-G	MCV 0,5/..-G	MCD 0,5/..-G1	MCDV 0,5/..-G1
Specification	IEC 61984	IEC 61984	IEC 61984	IEC 61984
Mechanical tests (A)				
Insertion/withdrawal force per position	approx. 8 N / 6 N	approx. 7 N / 6 N	approx. 7 N / 7 N	approx. 7 N / 6 N
Polarization when inserted Requirement >20 N	Test passed	Test passed	Test passed	Test passed
Contact holder in insert Requirements >20 N	Test passed	Test passed	Test passed	Test passed
Durability tests (B)				
Contact resistance R_1	2 mΩ	2 mΩ	3 mΩ	3 mΩ
Insertion/withdrawal cycles	25	25	25	25
Contact resistance R_2	2.2 mΩ	2.2 mΩ	4 mΩ	4 mΩ
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	2.95 kV	2.95 kV	1.75 kV	1.75 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	1.39 kV	1.39 kV	0.84 kV	0.84 kV
Insulation resistance Requirements > 5 MΩ	80 GΩ	0.1 TΩ	10^{12} Ω	10^{11} Ω
Thermal tests (C)				
Tested number of positions	12	12	12	12
Tested conductor cross section	0.5 mm^2	0.5 mm^2	0.5 mm^2	0.5 mm^2
Test current	4 A DC	4 A DC	4 A	4 A
Upper limiting temperature Requirements < 100°C	Test passed	Test passed	Test passed	Test passed
Climatic tests (D)				
Test sequence 1: low temperature storage	-40 °C/2 h	-40 °C/2 h	-40 °C/2 h	-40 °C/2 h
Test sequence 2: heat storage	100 °C/168 h	100 °C/168 h	100 °C/168 h	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	0.2 dm^3 SO_2 on 300 dm^3/ 40 °C/1 cycle	0.2 dm^3 SO_2 on 300 dm^3/ 40 °C/1 cycle	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	2.95 kV	1.75 kV	1.75 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	1.39 kV	1.39 kV	0.84 kV	0.84 kV
Environmental and endurance tests (E)				
Specification	IEC 61984:2008-10	IEC 61984:2008-10	IEC 61984:2008-10	IEC 61984:2008-10
Degree of protection	Finger safety with IP20 test finger	Finger safety with IP20 test finger	Finger safety with IP20 test finger	Finger safety with IP20 test finger

1881406 FK-MC 0,5/10-ST-2,5





	FK-MC 0,5/..-ST	MC 0,5/..-G-THT	MCV 0,5/..-G-THT	MCD 0,5/..-G1-HT	
Specification		IEC 61984	IEC 61984	IEC 61984	
Mechanical tests (A)					
Insertion/withdrawal force per position		approx. 8 N / 6 N	approx. 8 N / 6 N	approx. 7 N / 6 N	
Polarization when inserted Requirement >20 N		Test passed	Test passed	Test passed	
Contact holder in insert Requirements >20 N		Test passed	Test passed	Test passed	
Durability tests (B)					
Contact resistance R_1		2 mΩ	2 mΩ	3 mΩ	
Insertion/withdrawal cycles		25	25	25	
Contact resistance R_2		2.2 mΩ	2.2 mΩ	3.2 mΩ	
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)		2.95 kV	2.95 kV	2.5 kV	
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)		1.39 kV	1.39 kV	1.39 kV	
Insulation resistance Requirements > 5 MΩ		> 10 TΩ	> 10 TΩ	> 20 GΩ	
Thermal tests (C)					
Tested number of positions		12	12	12	
Tested conductor cross section		0.5 mm^2	0.5 mm^2	0.5 mm^2	
Test current		4 A	4 A	4 A	
Upper limiting temperature Requirements < 100°C		Test passed	Test passed	Test passed	
Climatic tests (D)					
Test sequence 1: low temperature storage		-40 °C/2 h	-40 °C/2 h	-40 °C/2 h	
Test sequence 2: heat storage		100 °C/168 h	100 °C/168 h	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	0.2 dm^3 SO_2 on 300 dm^3/ 40 °C/1 cycle	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	2.95 kV	2.5 kV	
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)		1.39 kV	1.39 kV	1.39 kV	
Environmental and endurance tests (E)					
Specification		IEC 61984:2008-10	IEC 61984:2008-10	IEC 61984:2008-10	
Degree of protection		Finger safety with IP20 test finger	Finger safety with IP20 test finger	Finger safety with IP20 test finger	

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Est.1899

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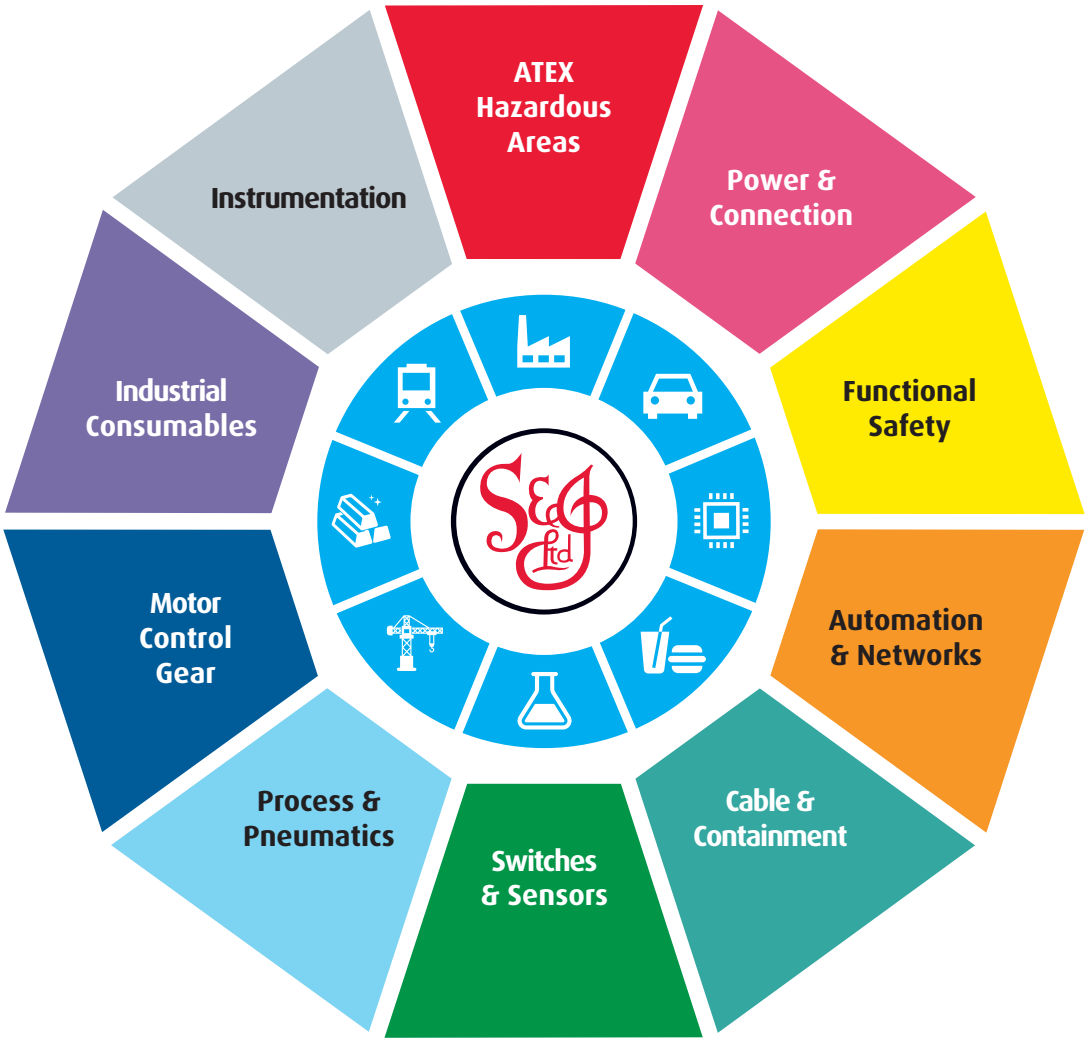

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