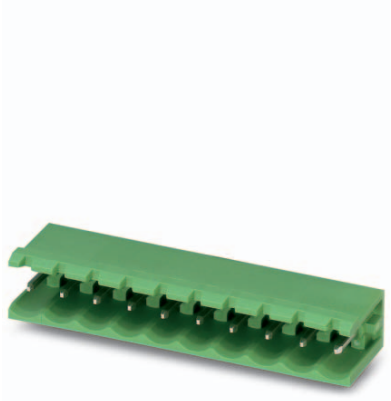
2017-09-29
Product version 04
Document revision 0

Data sheet

Order No.: 1759088

Type: MSTB 2,5/ 9-G-5,08

Header



The figure shows a 10-position version of the product

1 Main features

- No. of pos. 9
- Nominal cross section 2.5 mm²
- Color green
- Pitch 5.08 mm
- Mounting type Wave soldering
- Nominal current 12 A
- Nominal voltage 320 V
- Connection direction 0 °
- Type of packaging packed in cardboard

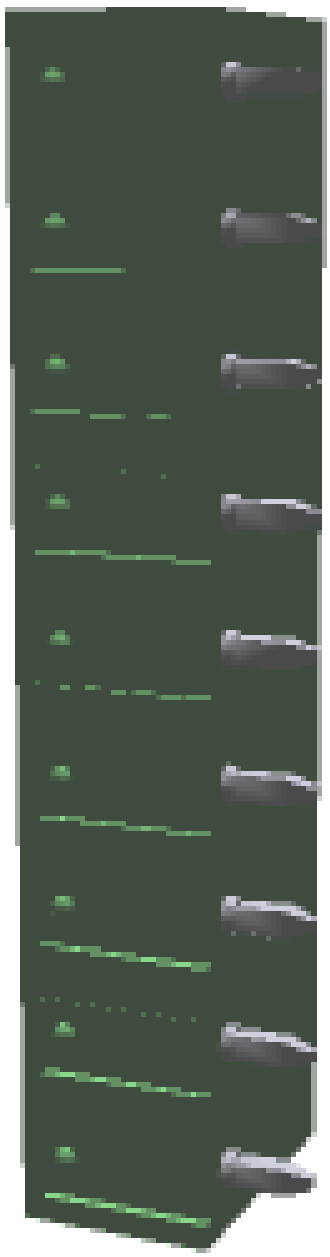
2 Your advantages

- Maximum flexibility when it comes to device design – one header for connectors with different connection technologies
- Easy PCB replacement thanks to plug-in modules
- Well-known mounting principle allows worldwide use
- Plug-in direction parallel to the PCB
- Items that can be aligned in various pitches support flexible and space-saving PCB assembly

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1759088

3 Table of contents

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



5 item properties

Order No.	1759088
Type	MSTB 2,5/ 9-G-5,08
Type of contact	Male connector
Range of articles	MSTB 2,5/..-G
Pitch	5.08 mm
Number of positions	9
Locking	without
Mounting type	Wave soldering
Pin layout	Linear pinning

5.1 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 1 µm ... 3 µm , Sn 3 µm ... 5 µm
Soldering area surface	Ni 1 µm ... 3 µm , Sn 3 µm ... 5 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	12 mm
Width	45.72 mm
Height (without solder pin)	8.6 mm
Total height	12.1 mm
Solder pin [P]	3.5 mm
Dimension a	40.64 mm

6.2 Dimensions for PCB design

Hole diameter	1.4 mm
Pin dimensions	1 x 1 mm

7 Series drawing

8 Packaging information

Type of packaging	packed in cardboard
Pieces per package	100

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.	41 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	1.4 mΩ
Degree of pollution	2

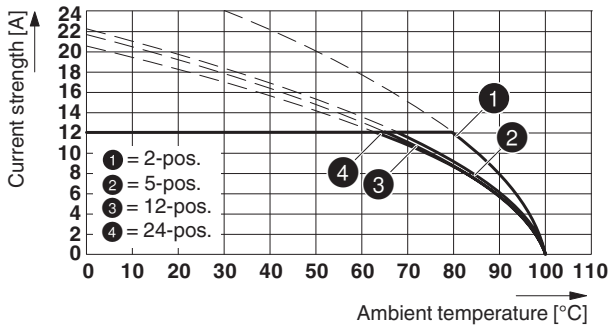
11.2 Air and creepage distances

Component	Header		
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	400 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 mm

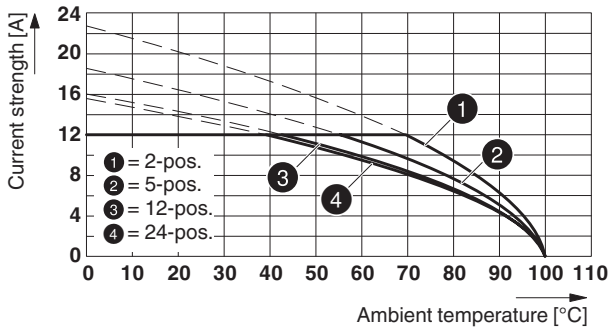
12 Current carrying capacity/derating curves

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
Note	

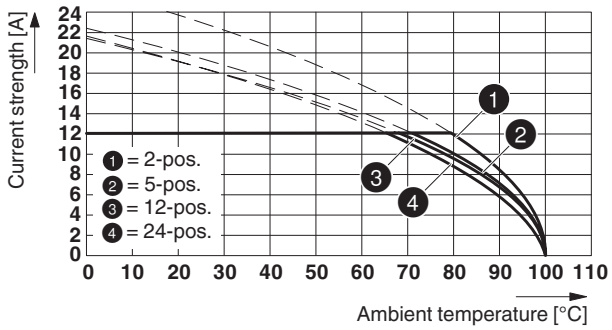
Type: MSTB 2,5/...-ST-5,08 with MSTB 2,5/...-G-5,08



Type: MSTBU 2,5/...-STD-5,08 with MSTB 2,5/...-G-5,08

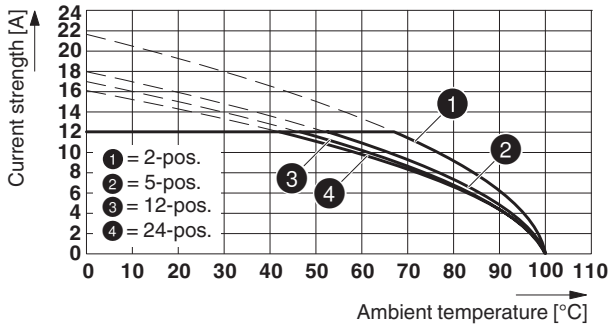


Type: MSTBP 2,5/...-ST-5,08 with MSTB 2,5/...-G-5,08

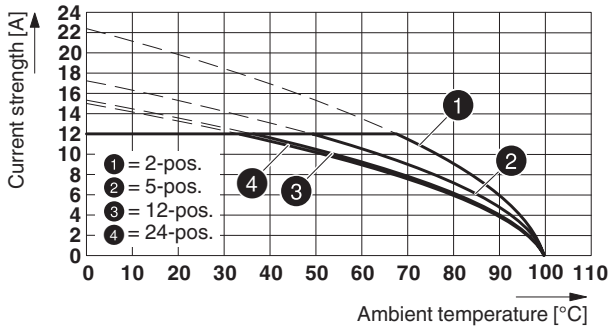


1759088 MSTB 2,5/ 9-G-5,08

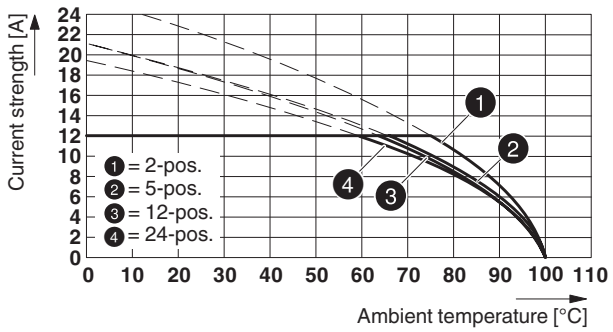
Type: SMSTB 2,5/...-ST-5,08 with MSTB 2,5/...-G-5,08



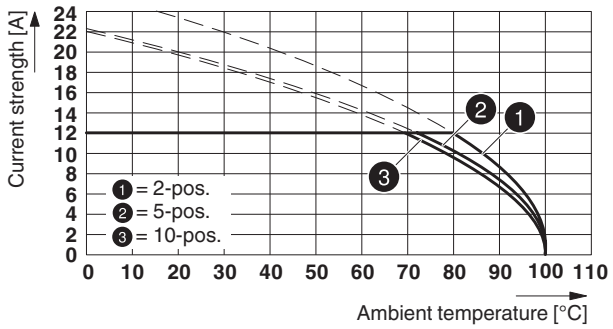
Type: MVSTB(R/W) 2,5/...-ST with MDSTBVA 2,5/...-G-5,08



Type: FRONT-MSTB 2,5/...-ST-5,08 with MSTB 2,5/...-G-5,08



Type: TMSTBP 2,5/...-ST-5,08 with MSTB 2,5/...-G-5,08



1759088 MSTB 2,5/ 9-G-5,08

Type: TVMSTB 2,5/...-ST-5,08 with MSTB 2,5/...-G-5,08

86006_1000_en

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
Protection against electric shock	Not encapsulated - touch-proof when inserted
Protection class	
Protective conductor	without PE
Lock	no

15 Approvals

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

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

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

cULus Recognized				
Use group	B	D		
mm²/AWG/kcmil				
Voltage	300 V	150 V		
Current	15 A	15 A		

EAC				

16 Commercial Data

Order No.	1759088
Type	MSTB 2,5/ 9-G-5,08
Pieces per package	100
Net weight	3.239 g
GTIN	4017918030551
	Information that applies locally, see link on page 1
Country of origin	Information that applies locally, see link on page 1

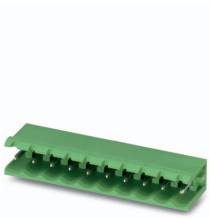
17 corresponding plugs

Order No.	Type
1719079	TVMSTB 2,5/ 9-ST-5,08
1734207	MSTBT 2,5/ 9-ST-5,08
1754636	FKCN 2,5/ 9-ST-5,08
1757080	MSTB 2,5/ 9-ST-5,08
1764316	MSTB 2,5/ 9-STZ-5,08
1769081	MSTBP 2,5/ 9-ST-5,08
1777358	FRONT-MSTB 2,5/ 9-ST-5,08
1792317	MVSTBR 2,5/ 9-ST-5,08
1792825	MVSTBW 2,5/ 9-ST-5,08
1808887	MSTBC 2,5/ 9-ST-5,08
1809572	MSTBC 2,5/ 9-STZ-5,08
1824191	MSTBU 2,5/ 9-STD-5,08
1824421	MSTBU 2,5/ 9-ST-5,08-FL
1826351	SMSTB 2,5/ 9-ST-5,08
1831388	MSTBVK 2,5/ 9-ST-5,08
1833881	UMSTBVK 2,5/ 9-ST-5,08
1853081	TMSTBP 2,5/ 9-ST-5,08
1873126	FKC 2,5/ 9-ST-5,08
1873728	FKCVW 2,5/ 9-ST-5,08
1874028	FKCVR 2,5/ 9-ST-5,08
1883323	QC 1/ 9-ST-5,08
1902181	FKCT 2,5/ 9-ST-5,08
1962671	TFKC 2,5/ 9-ST-5,08
1975147	FKCS 2,5/ 9-ST-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
Mounting flange, for fixing both ends of the header onto the PCB, green insulating material, with M 2 x 14 screws and nuts.	1759981	MSTB-BF
Keying cap, for forming sections, plugs onto header pin, green insulating material	1755477	MSTB-BL
	0804293	SK 5,08/3,8:FORTL.ZAHLEN
	0805085	SK 5,08/3,8:SO
	0805412	SK 5,08/3,8:UNBEDRUCKT
Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm	1051993	B-STIFT

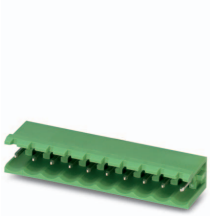
19 Combination tests





	MSTB 2,5/..-G	MSTB 2,5/..-ST	MSTBU 2,5/..-STD	MSTBP 2,5/..-ST	SMSTB 2,5/..-ST
Specification		IEC 61984	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. 8 N / 6 N	approx. 8 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		1.4 mΩ	2.5 mΩ	1.3 mΩ	2.4 mΩ
Insertion/withdrawal cycles		25	25	25	25
Contact resistance R_2		1.4 mΩ	2.5 mΩ	1.4 mΩ	2.4 mΩ
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)		4.8 kV	4.8 kV	4.8 kV	4.8 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)		2.21 kV	2.21 kV	2.21 kV	2.21 kV
Insulation resistance Requirements > 5 MΩ		> 0.3 TΩ	> 0.5 TΩ	> 50 GΩ	> 0.1 TΩ
Thermal tests (C)					
Tested number of positions		24	24	24	24
Tested conductor cross section		2.5 mm^2	2.5 mm^2	2.5 mm^2	2.5 mm^2
Test current		12 A	12 A	12 A	12 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)		4.8 kV	4.8 kV	4.8 kV	4.8 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)		2.21 kV	2.21 kV	2.21 kV	2.21 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

1759088 MSTB 2,5/ 9-G-5,08



MSTB 2,5/..-G

MVSTBW 2,5/..-ST

FRONT-MSTB 2,5/ ..-ST

TMSTBP 2,5/..-ST

TVMSTB 2,5/..-ST

Specification	IEC 61984	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. 8 N / 6 N	approx. 8 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	2.6 mΩ	1.6 mΩ	1.1 mΩ	1.1 mΩ
Insertion/withdrawal cycles	25	25	25	25
Contact resistance R_2	2.6 mΩ	1.6 mΩ	1.1 mΩ	1.2 mΩ
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	4.8 kV	4.8 kV	4.8 kV	4.8 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	2.21 kV	2.21 kV	2.21 kV	2.21 kV
Insulation resistance Requirements > 5 MΩ	> 0.2 TΩ	> 0.3 TΩ	> 0.4 TΩ	> 0.5 TΩ
Thermal tests (C)				
Tested number of positions	24	24	10	10
Tested conductor cross section	2.5 mm²	2.5 mm²	2.5 mm²	2.5 mm²
Test current	12 A	12 A	12 A	12 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)	4.8 kV	4.8 kV	4.8 kV	4.8 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	2.21 kV	2.21 kV	2.21 kV	2.21 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

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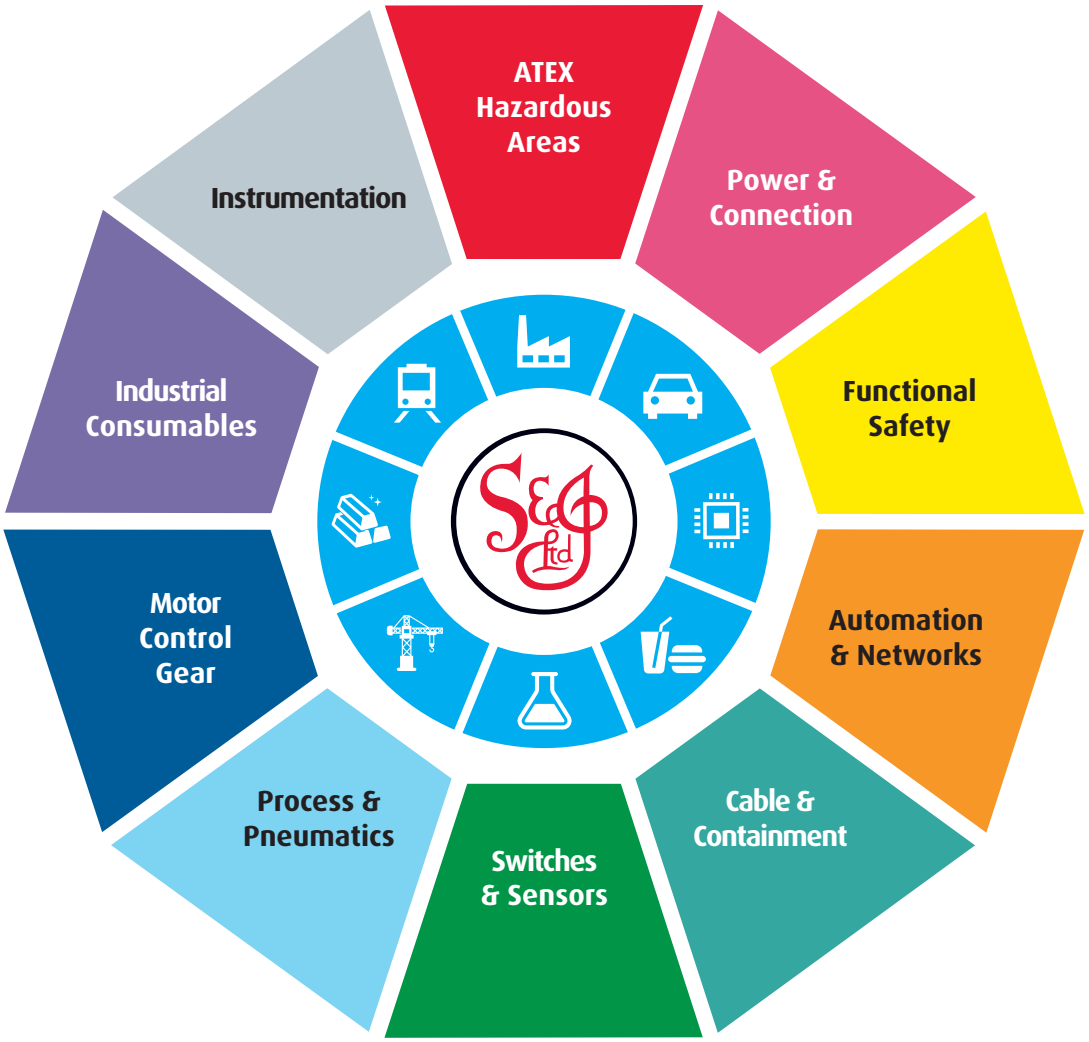

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