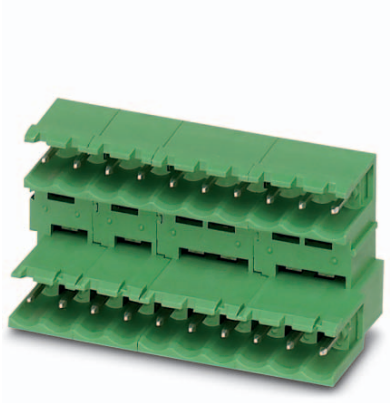
2017-11-28
Product version 03
Document revision 0

Data sheet

Order No.: 1762059

Type: MDSTB 2,5/ 3-G

Header



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

1 Main features

- No. of pos. 3
- Nominal cross section 2.5 mm²
- Color green
- Pitch 5 mm
- Mounting type Wave soldering
- Nominal current 10 A
- Nominal voltage 320 V
- Connection direction 0 °
- Type of packaging packed in cardboard

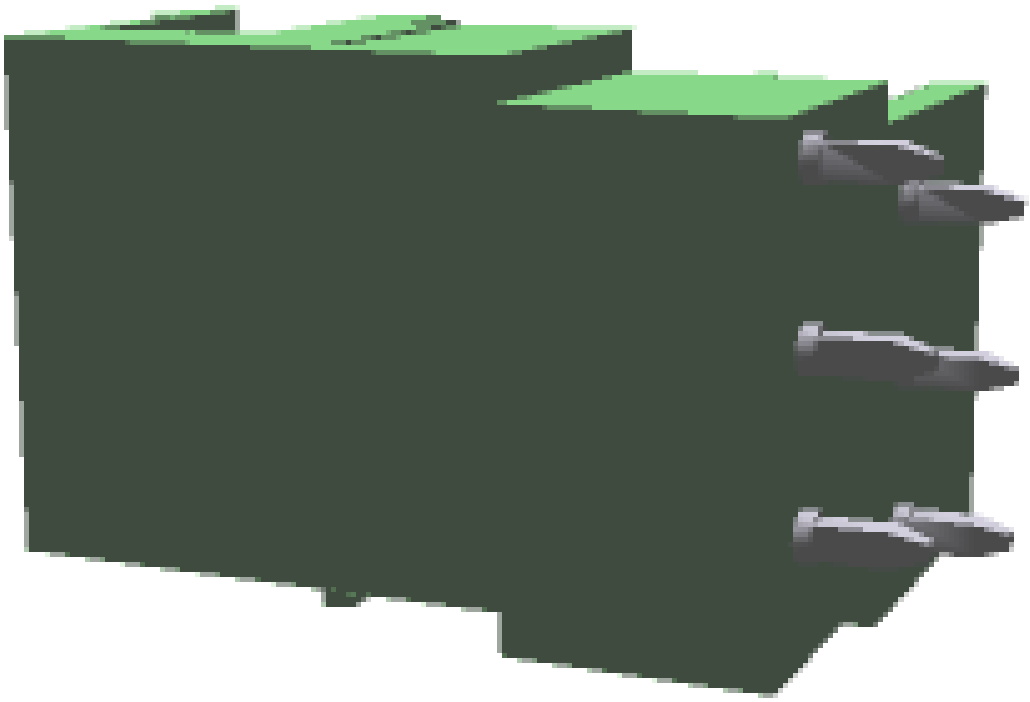
2 Your advantages

- 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
- Conductor connection on several levels enables higher contact density

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1762059

3 Table of contents

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



5 item properties

Order No.	1762059
Type	MDSTB 2,5/ 3-G
Type of contact	Male connector
Range of articles	MDSTB 2,5/..-G
Pitch	5 mm
Number of positions	3
Locking	without
Mounting type	Wave soldering
Pin layout	Linear pinning
Product note	Can be aligned! Mounting flange: Order no. 1736771, 1736768. In combination with MVSTB or FKCV plugs, both an MVSTBW (or FKCVW) and an MVSTBR plug (or FKCVR) must be used. Combination with TMSTBP plugs is not possible!

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**	**Housing**
Insulating material	PBT	
CTI according to IEC 60112	225	
Flammability rating according to UL 94	V0	
Color	green (6021)	

6 Dimensions

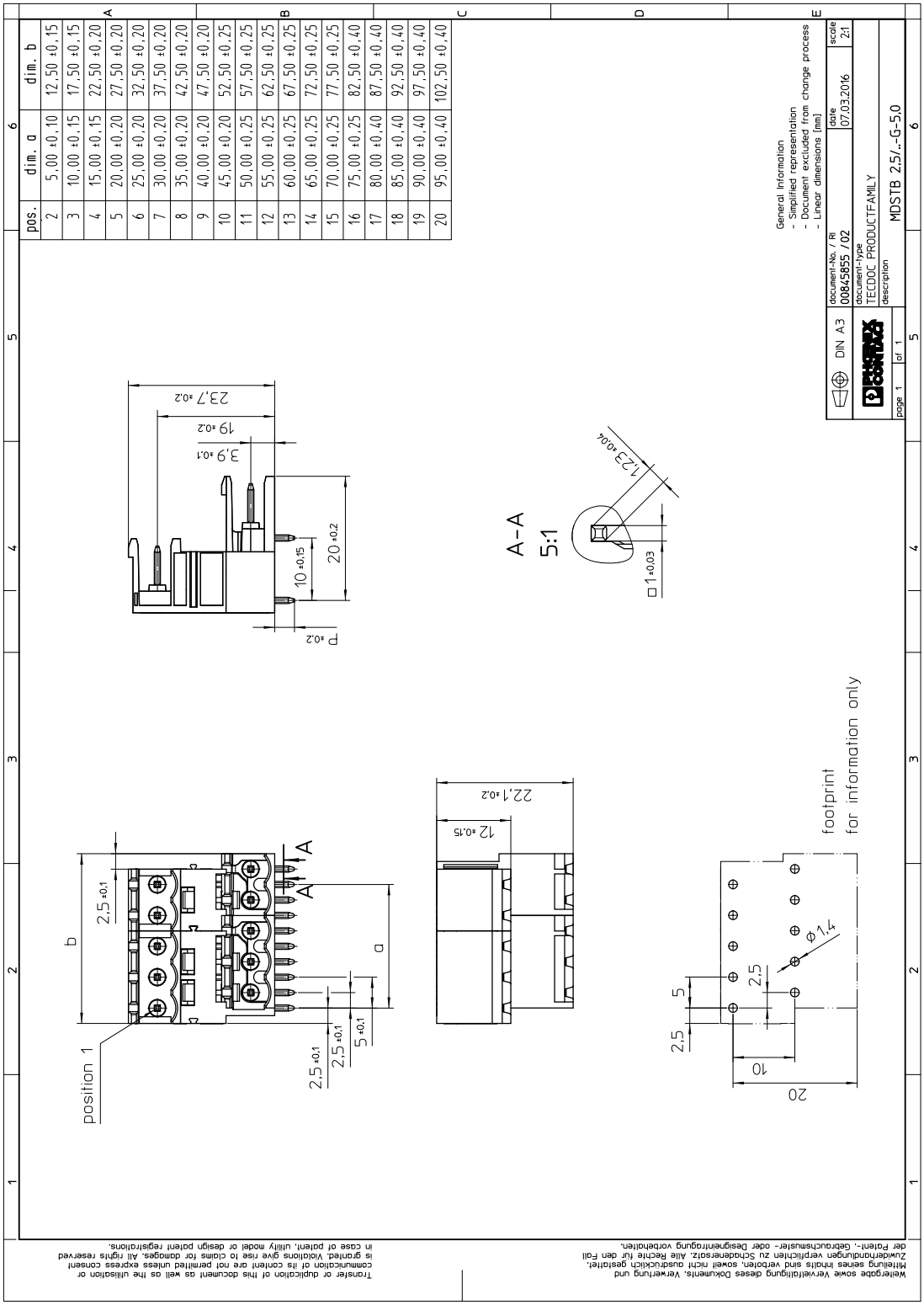
6.1 Dimensions for the product

Length	22.1 mm
Width	17.5 mm
Height (without solder pin)	24 mm
Total height	26.9 mm
Solder pin [P]	3.2 mm
Dimension a	10 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	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.	39 N

11 Electrical tests

11.1 Electrical data

Rated current / conductor cross section	10 A / 2.5 mm²
Rated insulation voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
Contact resistance	1.6 mΩ
Degree of pollution	2

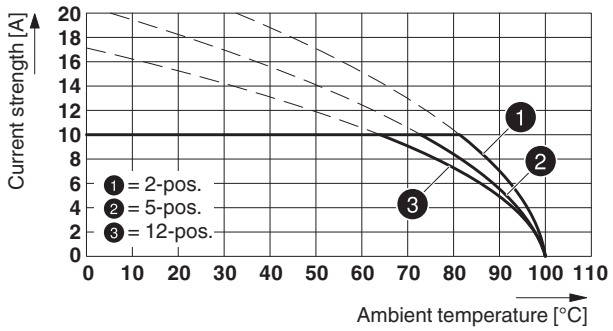
11.2 Air and creepage distances

Component	Header		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	IIIa		
Comparative tracking index (IEC 60112:2003-01)	CTI 225		
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	4 mm	4 mm	4 mm

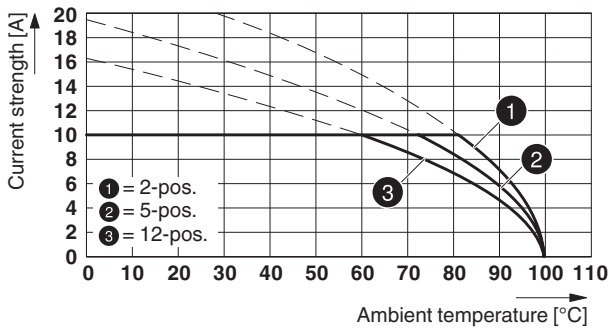
12 Current carrying capacity/derating curves

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	

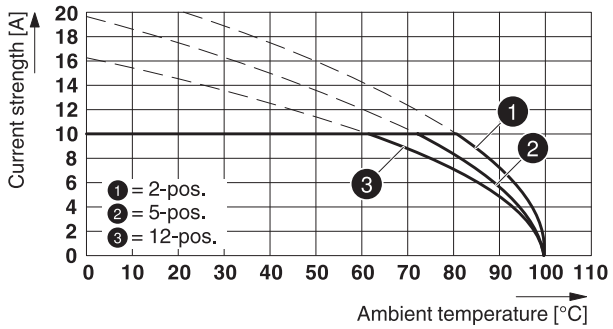
Type: MSTBT 2,5/...-ST with MDSTB 2,5/...-G



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

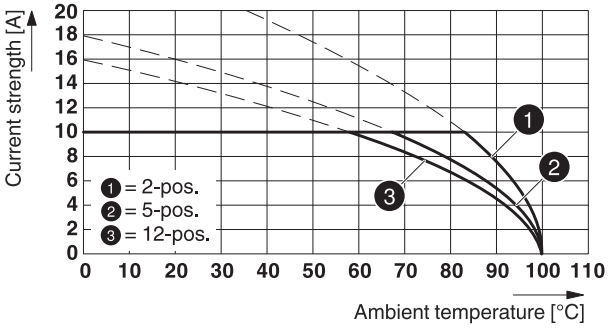


Type: MSTBP 2,5/...-ST with MDSTB 2,5/...-G



1762059 MDSTB 2,5/ 3-G

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



Type: FKCS 2,5/...-ST with MDSTB 2,5/...-G

88325_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	15 A	15 A		
VDE Gutachten mit Fertigungsüberwachung				
mm²/AWG/kcmil				
Voltage	250 V			
Current	10 A			
IECEE CB Scheme				
mm²/AWG/kcmil				
Voltage	250 V			
Current	10 A			
cULus Recognized				
Use group	B	D		
mm²/AWG/kcmil				
Voltage	300 V	300 V		
Current	15 A	10 A		
EAC				

16 Commercial Data

Order No.	1762059
Type	MDSTB 2,5/ 3-G
Pieces per package	50
Net weight	4.359 g
GTIN	4017918030971
	Information that applies locally, see link on page 1
Country of origin	Information that applies locally, see link on page 1

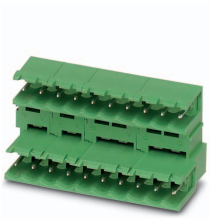
17 corresponding plugs

Order No.	Type
1713842	TVFKC 1,5/ 3-ST
1715934	TVFKCL 1,5/ 3-ST
1717974	QC 1,5/ 3-ST
1754465	MSTB 2,5/ 3-ST
1765784	MSTBP 2,5/ 3-ST
1768778	SMSTB 2,5/ 3-ST
1779424	FRONT-MSTB 2,5/ 3-ST
1792029	MVSTBR 2,5/ 3-ST
1792537	MVSTBW 2,5/ 3-ST
1909728	FKCVR 2,5/ 3-ST
1910047	FKCVW 2,5/ 3-ST
1910364	FKC 2,5/ 3-ST
1921683	QC 1/ 3-ST-BUS
1974740	FKCS 2,5/ 3-ST

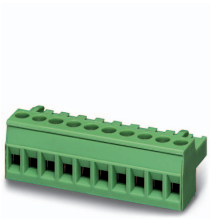
18 Accessories

Description	Order No.	Type
Keying cap, for forming sections, plugs onto header pin, green insulating material	1755477	MSTB-BL
Coding section, inserted into the recess in the header or the inverted plug, red insulating material	1734401	CR-MSTB
	0804183	SK 5/3,8:FORTL.ZAHLEN
Side element, for lateral sealing of MSTB headers, 2.54 mm thick, color: green	1786679	MDSTB-SE
Ejectors, for assembly on each side of the header	1806588	MDSTB 2,5-AS
	1736771	MDSTB 2,5/ 2-GFL-5,08
	1736768	MDSTB 2,5/ 2-GFR-5,08

19 Combination tests



MDSTB 2,5/..-G



MSTBT 2,5/..-ST

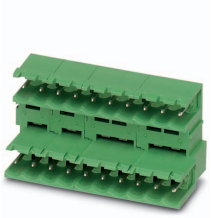
FRONT-MSTB 2,5/ ..-ST

MSTBP 2,5/..-ST

MSTB 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	1.6 mΩ	1.9 mΩ	1.8 mΩ	1.8 mΩ
Insertion/withdrawal cycles	25	25	25	25
Contact resistance R_2	1.6 mΩ	1.9 mΩ	1.7 mΩ	1.8 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	> 50 GΩ	> 10 GΩ	> 0.1 TΩ	> 80 GΩ
Thermal tests (C)				
Tested number of positions	12	12	12	12
Tested conductor cross section	2.5 mm²	2.5 mm²	2.5 mm²	2.5 mm²
Test current	10 A	10 A	10 A	10 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

1762059 MDSTB 2,5/ 3-G



MDSTB 2,5/..-G	FKCS 2,5/..-ST
Specification	IEC 61984
Mechanical tests (A)	
Insertion/withdrawal force per position	approx. 8 N / 6 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	1.3 mΩ
Insertion/withdrawal cycles	25
Contact resistance R_2	1.4 mΩ
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	4.8 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	2.21 kV
Insulation resistance Requirements > 5 MΩ	> 0.2 TΩ
Thermal tests (C)	
Tested number of positions	12
Tested conductor cross section	2.5 mm²
Test current	
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 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
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	2.21 kV
Environmental and endurance tests (E)	
Specification	IEC 61984:2008-10
Degree of protection	Finger safety with IP20 test finger

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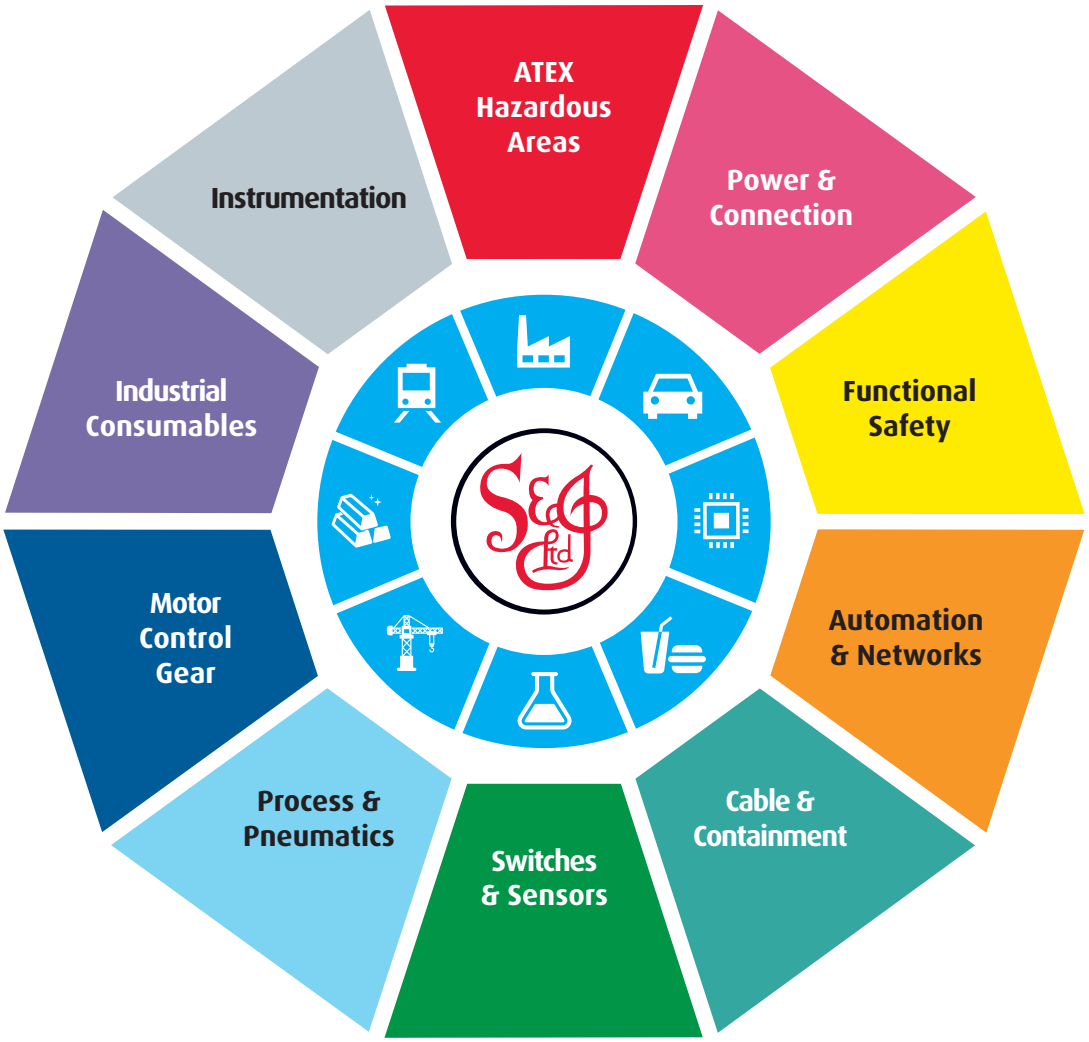

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