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MECHAN CONTROLS
safety systems & switches

RSS-Series

Installation Guide for RDNK, RSSO, RSSR, RSSK & RSSG Safety Switches

Description:

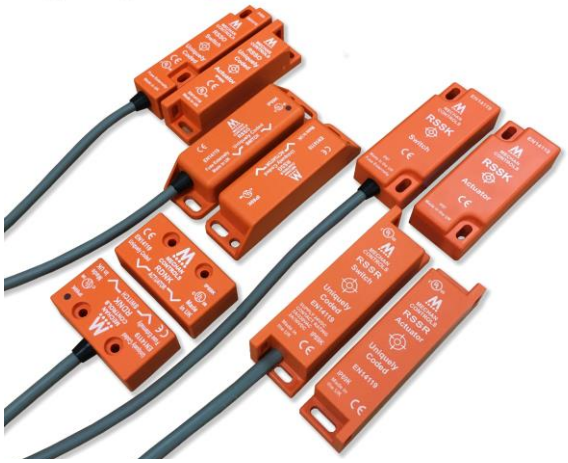
The RSS series safety switches applies radio frequency identification technology (RFID) in a variety of housings.

The non-contact operation makes the RSS easy to install and tolerant to misalignment. They are individually coded for high security applications providing a simple more reliable solution to machine guard interlocking.

The RSSR and RSSG safety switches are designed to work with any safety relay on the market. Whereas the RDNK, RSSO and RSSK are designed to be connected to a safety control circuit which has less than 0.5 Amps inrush current.

The RSS series provides additional security with up to **4 billion unique codes** achieving type 4 high level coding according to EN 14119 safety standard.

These safety switches are available in 5 sizes, the RDNK, RSSO, RSSK, RSSR and RSSG and are rated to IP67 & IP69K for use in wet or dusty environments.



Technical Specifications	RDNK	RSSO	RSSR	RSSK	RSSG
Supply Nominal Voltage	24Vdc (+/-15 %)	24Vdc (+/-15 %)	24Vdc (+/-15 %)	24Vdc (+/-15 %)	24Vdc (+/-15 %)
Power Consumption	3W	3W	3W	3W	3W
Contacts	2 x N/O 1 x N/C	2 x N/O 1 x N/C	2 x N/O 1 x N/C	2 x N/O 1 x N/C	2 x N/O 1 x N/C
Safety Contact Rating	24Vdc / 500mA	24Vdc / 500mA	24Vdc / 3 Amps	24Vdc / 500mA	24Vdc / 3 Amps
Safety Contact Switching	10mm ON / 15mm OFF	10mm ON / 15mm OFF	10mm ON / 15mm OFF	10mm ON / 15mm OFF	10mm ON / 15mm OFF
Misalignment Actuator	8mm (Max)	8mm (Max)	8mm (Max)	8mm (Max)	8mm (Max)
Auxiliary Contact Rating (Max)	24Vdc / 500mA	24Vdc / 500mA	24Vdc / 3 Amps	24Vdc / 500mA	24Vdc / 3 Amps
Auxiliary Contact Switching	10mm OFF / 15mm ON	10mm OFF / 15mm ON	10mm OFF / 15mm ON	10mm OFF / 15mm ON	10mm OFF / 15mm ON
External Fuse Fast Acting (Customer supplied)	300 mA Fast Acting	300 mA Fast Acting	2.5 Amps Fast Acting	300 mA Fast Acting	2.5 Amps Fast Acting
Construction	Orange ABS, Resin	Orange ABS, Resin	Orange ABS, Resin	Orange ABS, Resin	Orange ABS, Resin
Indication	DUAL COLOR LED	DUAL COLOR LED	DUAL COLOR LED	DUAL COLOR LED	DUAL COLOR LED
Coding	Individually Coded	Individually Coded	Individually Coded	Individually Coded	Individually Coded
Operating Temperature	-10°C to +60°C	-10°C to +60°C	-25°C to +60°C	-10°C to +60°C	-25°C to +60°C
Storage Temperature	-20°C to +70°C	-20°C to +70°C	-25°C to +70°C	-20°C to +70°C	-25°C to +70°C
IP Rating	IP67 / IP69K	IP67 / IP69K	IP67 / IP69K	IP67 / IP69K	IP67 / IP69K
Fixing	M4 Torx security screws tightening Torque 1.0NM	M4 Torx security screws tightening Torque 1.0NM	M4 Torx security screws tightening Torque 1.0NM	M4 Torx security screws tightening Torque 1.0NM	M4 Torx security screws tightening Torque 1.0NM
Shock / Vibration	30g/11ms 10…55HZ amplitude 1 mm	30g/11ms 10…55HZ amplitude 1 mm	30g/11ms 10…55HZ amplitude 1 mm	30g/11ms 10…55HZ amplitude 1 mm	30g/11ms 10…55HZ amplitude 1 mm
Connection	Pre-wired & M12 Quick Disconnect	Pre-wired & M12 Quick Disconnect	Pre-wired & M12 Quick Disconnect	Pre-wired & M12 Quick Disconnect	Pre-wired & M12 Quick Disconnect

Safety Related Data			
B10d	2,000,000	PFH	6.52×10^{-8}
TM (Mission Time)	> 20 Years	DC	99%
PFHd	4.3×10^{-8} See Note 1	SFF	99%
MTTFd	High > 100 Years (Based on usage rate of 360 Days/Year, 24 Hours/Day, 10 Operations/Hour)		
Note 1	Based on dual channel wiring according to CAT 4. Diagnostic coverage provided by downstream control logic. DC - High, MTTFd = 100 Years. Suitable for performance level applications PLe according to ISO 13849-1. (SIL 3 according to IEC 62061)		

Safety Standards	
Approvals	CE Complies with all relevant sections of the CE Marking Directive
	UL 508 Industrial Control TUV Approved
European Directives	Machinery Directive 2006/42/EC, Low Voltage Directive 2006/95/EC; EMC Directive 2014/30/EU, RoHS Directive 2011/65/EC
European Standards	BS EN 12100 Safety of Machinery. General principles for design.
	BS EN ISO 14119 Safety of Machinery. Interlocking devices associated with guards. Principles for design and selection. BS EN ISO 13849 Safety of Machinery. Safety related parts of control systems.
	BS EN ISO 62061 Safety of Machinery. Functional safety of safety related electrical, electronic and programmable electronic control systems
	BS EN 60204 Safety of Machinery. Electrical equipment of machines.
	BS EN 60947-5-1 Low-voltage switchgear and controlgear.
	BS EN 60947-5-3 Low-voltage switchgear and controlgear.

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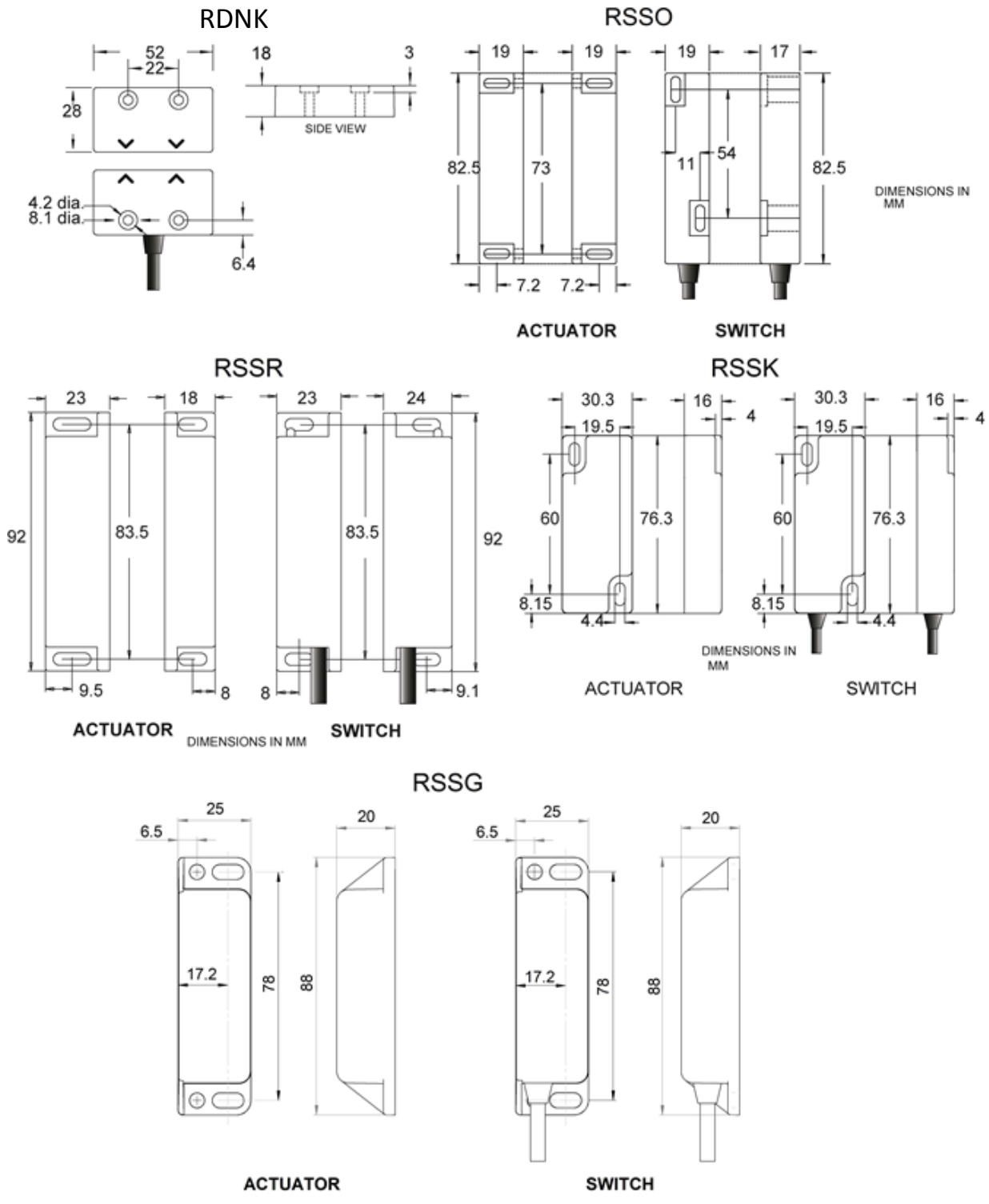
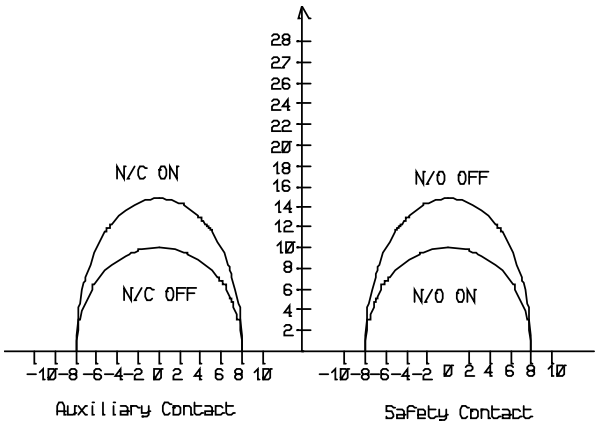
Dimensions



Switching Characteristics

The chart shows the switching points in millimetres



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Mounting

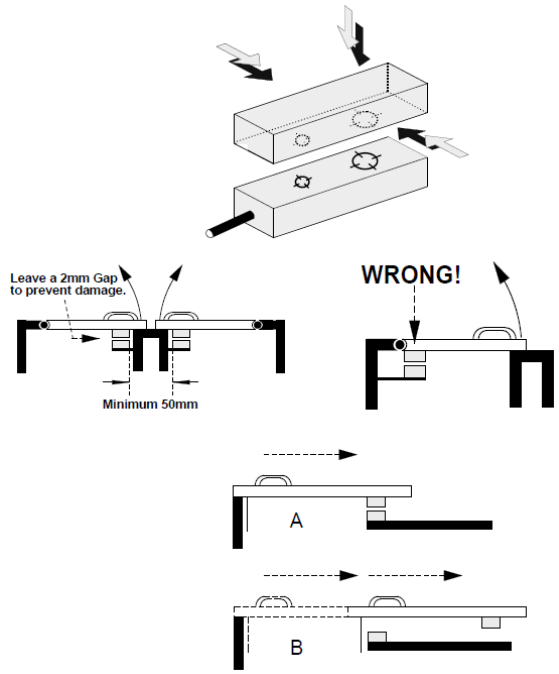
The RSS range of safety switches can approach each other from most angles. When the guard is closed the targets on the printed face of the switch and actuator must be aligned.

Mount the switch on to the machine frame and the actuator on to the opening edge of the door.

Use the tamper proof screws provided to make the installation more secure.

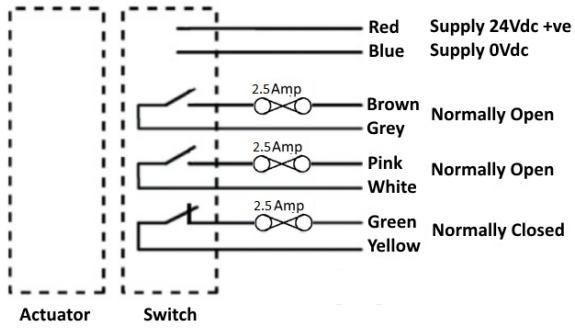
Do not use the safety switch as a door stop. Leave a minimum of 50 mm between any adjacent switches.

EN 14119
Provides some mounting suggestions, see example opposite.

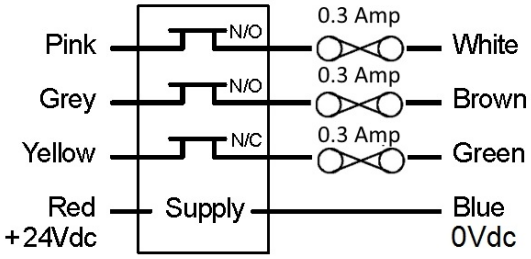


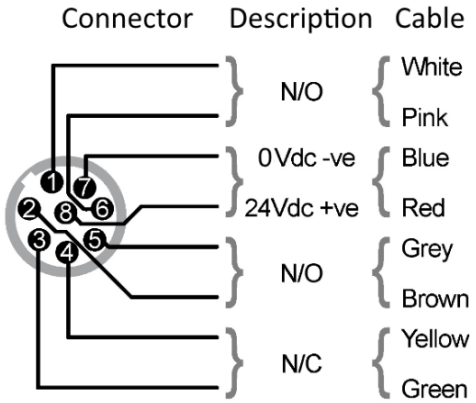
Connections & Fuses

RSSR & RSSG
Contacts 2NO + 1NC



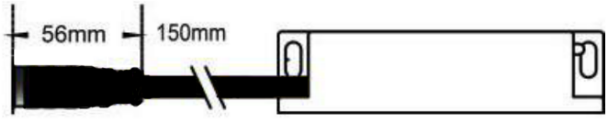
RSSO, RSSK & RDNK
Contacts 2NO + 1NC





***All RSS-Series Safety Switches are available with M12 leaded quick disconnect**

M12 Leaded quick disconnect with 150mm connecting lead to the switch



Connector
150mm Lead, M12
8 Pole, Single Key Way

The RSS are available with an IP69K, 6" (150mm), 8 pole 'Pig Tail' connector.
Connector specification: 8-pin, Micro Single Key-way, M12.

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Recommended Safety Control Unit

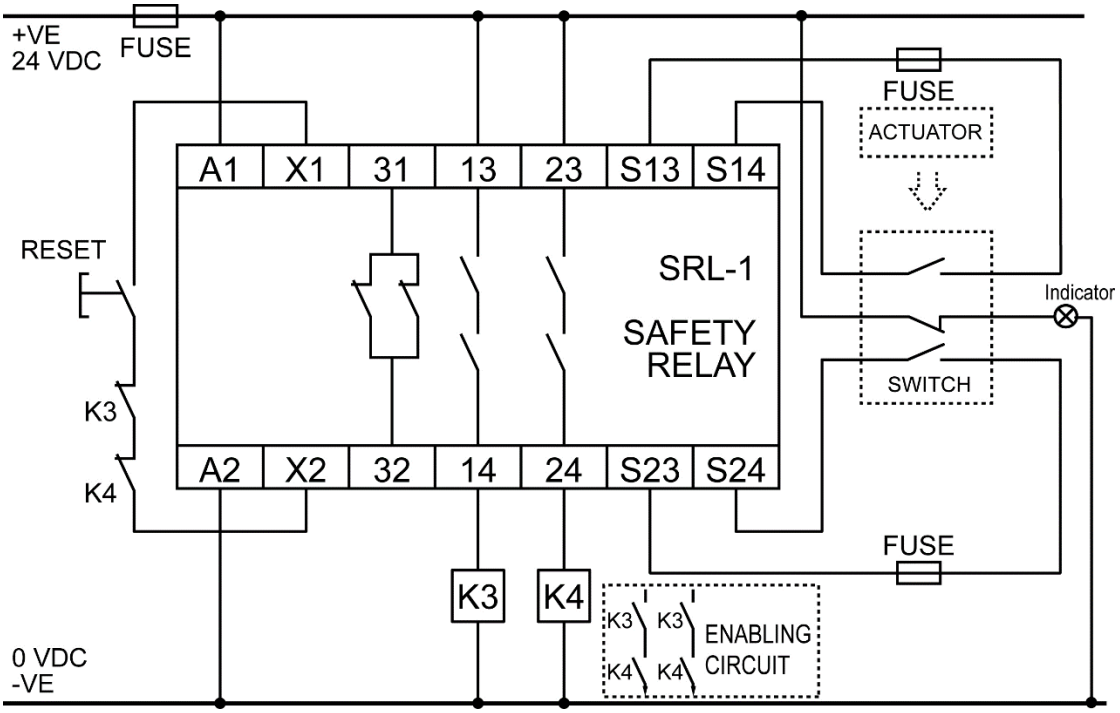
CONNECTION TO A SAFETY RELAY

The RSSR & RSSG non-contact safety switches are **designed work with any safety relay on the market.**

The RDNK, RSSO and RSSK are **designed to be connected to a safety control circuit which has less than 0.5 Amps inrush current.**

All control contacts should be externally fused.

Recommended Safety Control Unit Mechan Part Number: SRL-1 24VAC/DC



IMPORTANT

Maintenance

It is recommended to check the safe operation of the switches and look for signs of damage or excessive wear on a weekly basis. Damaged units should be replaced or returned to the manufacturer for repair where practical.

Declaration of Conformity

Mechan Controls declares that the products shown conform to the Essential Health and Safety Requirements of the European Machinery Directive. The above products have been third party tested to conform to the requirements of EN-13849-1 and EN 62061. Full declaration of conformity can be downloaded from the Mechan Controls web site www.mechancontrols.co.uk or by contacting Mechan directly Tel: + 44 1695 722264

Notes

In the interest of product development specifications are subject to change without notice. It is the responsibility of the user to ensure compliance with any acts or by-laws in place. All information regarding Mechan equipment is believed to be accurate at the time of printing. Responsibility cannot be accepted for errors or omissions.

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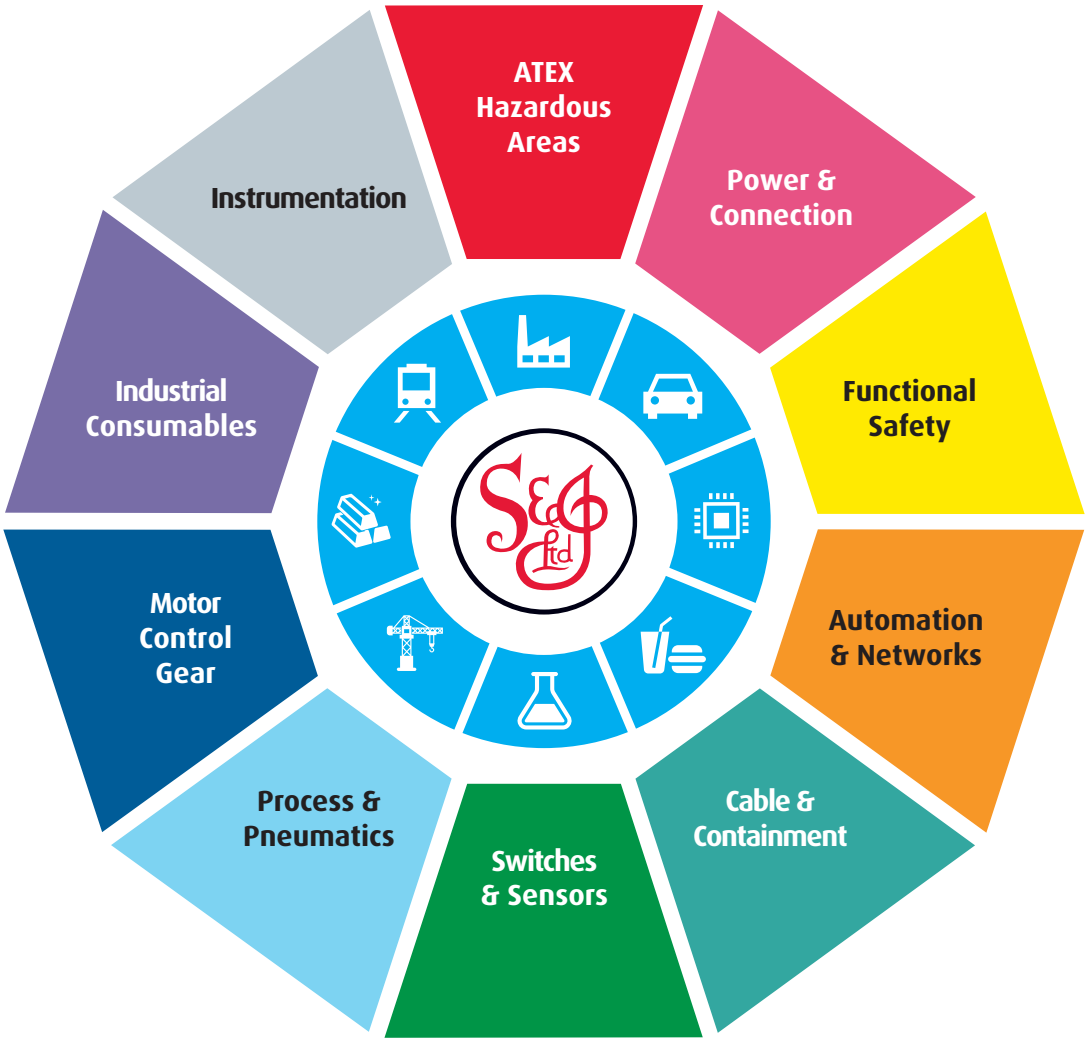

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