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Gems Sensors & Controls

3100 Series and 3200 Heavy Duty Series

Compact OEM Pressure Transmitters

- Exceptional Long Term Stability
- 0-100 psi to 0-30,000 psi Ranges (0-7 bar to 0-2,200 bar)
- High Proof Pressures with All Stainless Steel Wetted Parts
- Broad Choice of Outputs, Electrical Connectors, and Pressure Ports
- Dual Pressure and Temperature Sensing option

3100 and 3200 Series offer high levels of stability and reliability with proven sputtered thin film technology and unbeatable price performance ratio in a small package size. A broad choice of electrical and pressure connections allow stock configurations to suit most applications without modification.

Specifications

Performance	
Long Term Drift	0.2% FS/YR (non-cumulative)
Accuracy	
3100	0.25% FS
3200	0.25% FS for >1000 psi (60 bar) 0.50% FS for <1000 psi (60 bar)
Thermal Error	
3100	0.83% FS/100°F (1.5% FS/100°C)
3200	2% FS/100°C for <1000 psi (60 bar)
Compensated Temperatures	-40°F to +257°F (-40°C to +125°C)
Operating Temperatures	-40°F to +257°F (-40°C to +125°C) for elec. codes B, C, E, G, 6, 8, 9, Y -5°F to +180°F (-20°C to +80°C) for elec. codes F, 3, W
Zero Tolerance	
3100	0.5% of span
3200	0.50% of span for >1000 psi (60 bar) 1.00% of span for <1000 psi (60 bar)
Span Tolerance	
3100	0.5% of span
3200	0.50% of span for >1000 psi (60 bar) 1.00% of span for <1000 psi (60 bar)
Response Time	1 ms
Fatigue Life	Designed for more than 100 M cycles
Mechanical Configuration	
Pressure Port	See under "How to Order," last page
Wetted Parts	17-4 PH Stainless Steel
Housing	304 Stainless Steel
Electrical Connection	See under "How to Order," last page
Enclosure	IP67 (IP65 for electrical codes G & W)
Vibration	40G peak to peak sinusoidal, (Random Vibration: 20 to 1000 Hz @ approx. 40G peak per MIL-STD-810E)
Shock	Withstands free fall to IEC 68-2-32 procedure 1
EMC (Radiated Immunity)	100 V/m
Approvals	CE, conforms to European Pressure Directive, Fully RoHS compliant, CRN Registered to ANSI/ASME B31.3, UL recognized files # E219842 & E174228
Weight	1.8 - 5.3 ounces (50 - 150 grams). Configuration dependent.
Voltage	
Output (3-wire)	0 V min. to 10 V max. See under "How to Order," last page
Supply Voltage	2 Volts above full scale to 30 VDC max @ 4.5 mA (6.5 mA on dual output version)
Source and Sinks	2 mA
Current	
Output (2-wire)	4-20 mA
Supply Voltage	8-30 VDC
Maximum Loop Resistance	(Supply Voltage-8) x 50 ohms
Ratiometric	
Output	0.5 to 4.5 VDC @ 4 mA (6.5 mA on dual output version)
Supply Voltage	5 VDC ±10%

Integral Connector Versions

Wire & Cable Options

PRESSURE TRANSDUCERS

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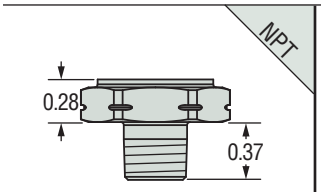
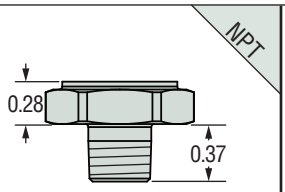
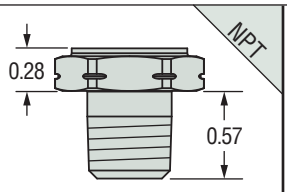
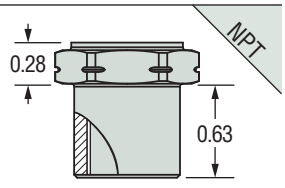
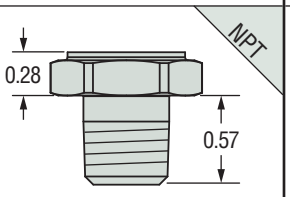
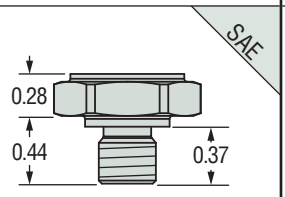
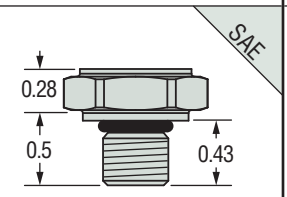
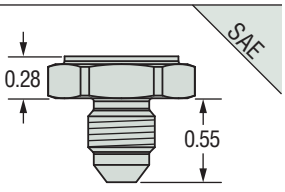
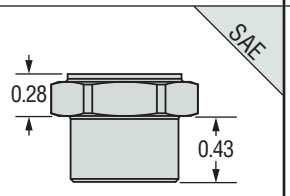
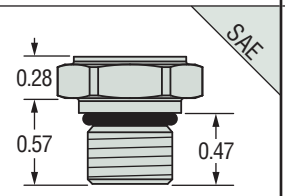
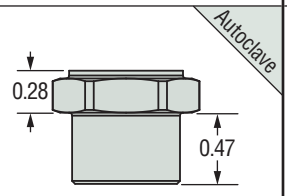
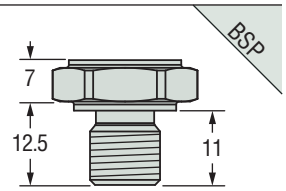
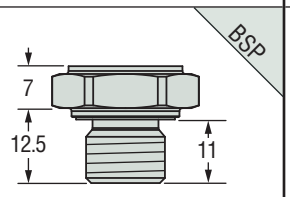
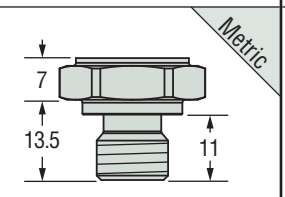
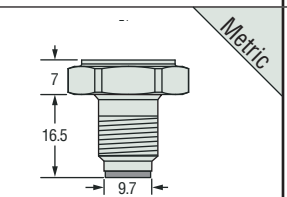
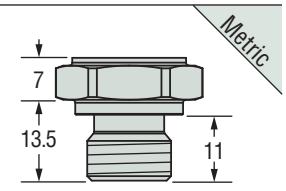
Pressure Capability

Pressure Range PSI (Bar)	Proof Pressure (x Full Scale)		Burst Pressure (x Full Scale)	
	3100	3200	3100	3200
100-300 (7-25)	3.00 x FS	3.00 x FS	40 x FS	
500-1,500 (40-100)	2.00 x FS		20 x FS	
2,000-6,000 (160-400)			10 x FS	
7,500-9,000 (600)			4 x FS	10 x FS
10,000 (700)				>60,000 PSI (4,000 bar)
15,000 (1,000)		2.50 x FS		
25,000 (1,800)	1.40 x FS		1.8 x FS	
30,000 (2,200)		—	1.5 x FS	—

Pressure Ports

NPT and SAE Dimensions in Inches. Metric and BSP Dimensions in MM.

				
Fitting Code	**08** = 1/8″-27 NPT	**4D** = 1/8″-27 NPTF Dryseal	**02** = 1/4″-18 NPT	**0E** = 1/4″-18 NPT Internal
Torque	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*	2-3 TFFT*
				
Fitting Code	**4C** = 1/4″-18 NPTF Dryseal	**4N** = 3/8″-24 UNF	**1J** = 7/16″-20 UNF	**04** = 7/16″-20 UNF with 37° Flare
Torque	2-3 TFFT*	18-20 NM	18-20 NM	15-16 NM
				
Fitting Code	**1G** = SAE 4 Female 7/16″ Schraeder	**1P** = 9/16″-18 “Heavy Duty”	**6B** = Autoclave F250C	**01** = G1/4″-19 A
Torque	18-20 NM	18-20 NM	18-20 NM	30-35 NM
				
Fitting Code	**05** = G1/4″- 19 A Integral Face-Seal	**0L** = M12 x 1.5	**2T** = M12x1.5 HP Metal Washer Seal	**4J** = M14 x 1.5
Torque	30-35 NM	28-30 NM	30-35 NM	30-35 NM

*NPT Threads 2-3 turns from finger tight. Wrench tighten 2-3 turns.

General Notes:
1. The diameter of all cans is 19 mm (0.748″)
2. Hex is 22 mm (0.866″) Across Flats (A/F) for deep socket mounting
3. O-Ring material, where applicable, is Viton® unless otherwise specified.

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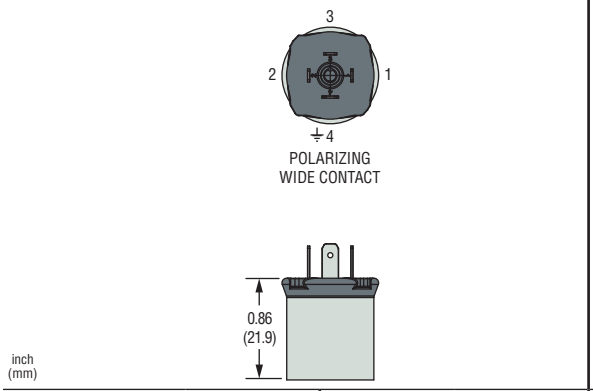
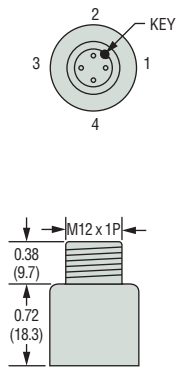
Integral Connector Versions

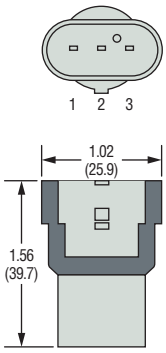
DIN 9.4 mm



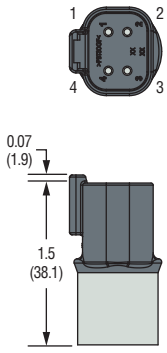
M12 x 1P



Amp Superseal 1.5

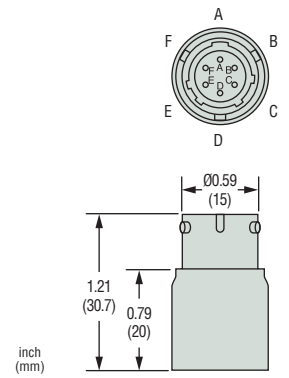


Deutsch DT04-4P

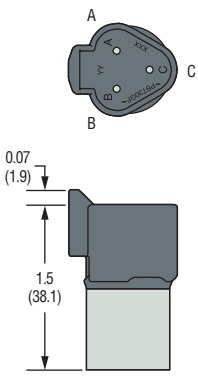


	Code B		Code R		Code E		Code 6		Code 8	
Pin #	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode
1	$V_{out}1$ (pressure)	Do Not Connect	+IN	+IN	+IN	+IN	V_{out}	Do Not Connect	0V	0V
2	+IN	+IN	0V	0V	$V_{out}1$ (pressure)	Do Not Connect	0V	0V	+IN	+IN
3	PE or $V_{out}2$ (temp)*	PE	V_{out}	Do Not Connect	0V	0V	+IN	+IN	PE or $V_{out}2$ (temp)*	PE
4	0V	0V	PE	PE	PE or $V_{out}2$ (temp)*	PE	—	—	$V_{out}1$ (pressure)	Do Not Connect

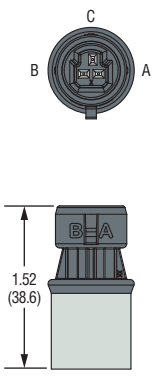
Mil-C 10-6P (26482)



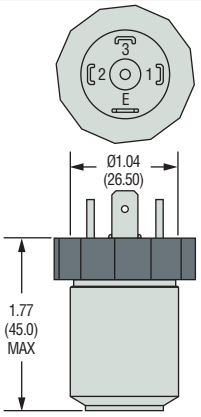
Deutsch DT04-3P



Packard MetriPack



DIN 43650A



	Code C		Code Y		Code 9			Code G	
Pin ID	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Voltage Mode	Current Mode	Pin #	Voltage Mode	Current Mode
A	+IN	+IN	+IN	+IN	0V	0V	1	+IN	+IN
B	$V_{out}1$ (pressure)	0V	0V	0V	+IN	+IN	2	0V	0V
C	0V	Do Not Connect	V_{out}	Do Not Connect	V_{out}	Do Not Connect	3	$V_{out}1$ (pressure)	Do Not Connect
E	PE or $V_{out}2$ (temp)*	PE	—	—	—	—	E	PE or $V_{out}2$ (temp)*	PE

*This pin is used for temperature sensing output when this option is utilized. Otherwise, the pin is used for PE.

PRESSURE TRANSDUCERS

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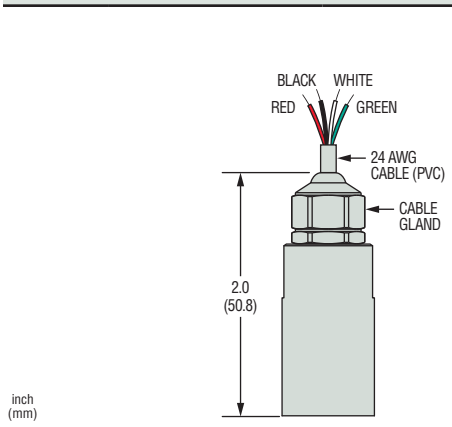
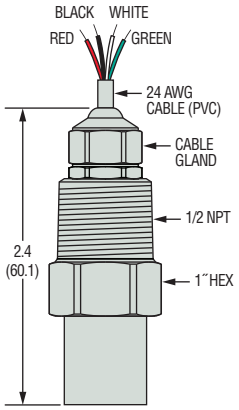
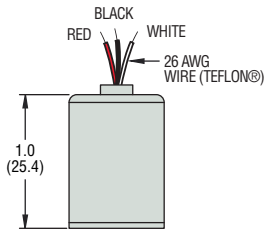
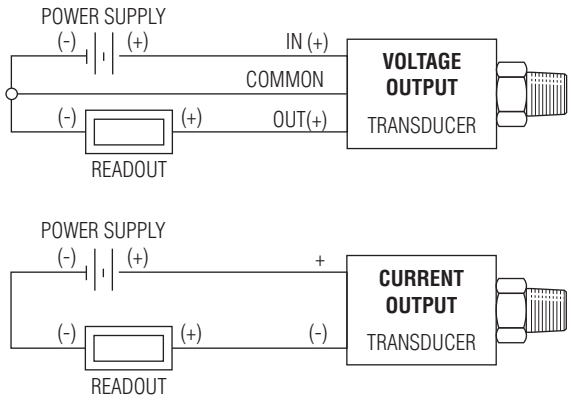
Wire & Cable Options

Cable	1/2˝ Conduit Connection	Flying Lead
		

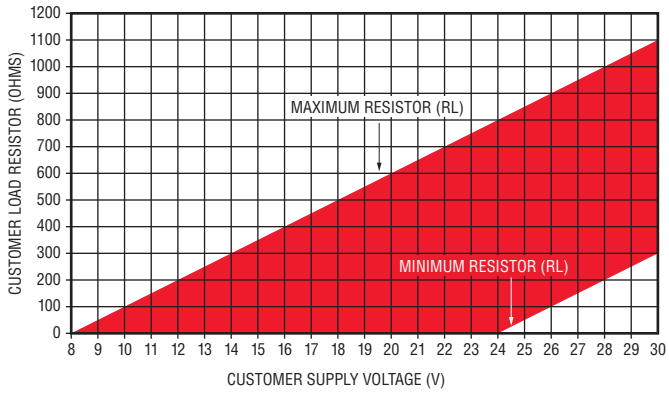
	Code F		Code 3		Code W	
Wire Color	**Voltage Mode**	**Current Mode**	**Voltage Mode**	**Current Mode**	**Voltage Mode**	**Current Mode**
Red	+IN	+IN	+IN	+IN	+IN	+IN
Black	0V	0V	0V	0V	0V	0V
White	$V_{out}1$ (pressure)	Do Not Connect	$V_{out}1$ (pressure)	Do Not Connect	V_{out}	Do Not Connect
Green	PE or $V_{out}2$ (temp)*	PE	PE or $V_{out}2$ (temp)*	PE	—	—

*This pin is used for temperature sensing output when this option is utilized. Otherwise, the pin is used for PE.

Wiring Diagram



Current Output Mode (Load Resistor Range)



Minimum Resistor Value = 50*(+V – 24) for +V > 24V
Maximum Resistor Value = 50*(+V – 8) for +V > 8V

Note: Mating connectors available upon request - contact factory.

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How to Order

Use the **bold** characters from the chart below to construct a product code

3100 B 200PG 02 B R 01

Series
- **3100 / 3200** - Pressure Transducer Combination Pressure and Temperature[1]
- **3101 / 3201** - Temp. Output Range -40°C to 125°C
- **3102 / 3202** - Temp. Output Range 0°C to 100°C
- **3103 / 3203** - Temp. Output Range 0°C to 80°C

Output
- **B** - 4-20 mA
- **C** - 1-6 V
- **H** - 1-5 V
- **N** - 0.5-4.5 V
- **R** - 0-5 V[2]
- **S** - 0-10 V[2]
- **T** - 0.5-4.5 V Ratiometric

Pressure Range – psi
- **100PG** - 0-100 psiG
- **150PG** - 0-150 psiG
- **200PG** - 0-200 psiG
- **300PG** - 0-300 psiG
- **500PG** - 0-500 psiG[3]
- **600PG** - 0-600 psiG
- **750PG** - 0-750 psiG
- **10CPG** - 0-1,000 psiG
- **15CPS** - 0-1,500 psiS
- **20CPS** - 0-2,000 psiS
- **25CPS** - 0-2,500 psiS
- **30CPS** - 0-3,000 psiS
- **35CPS** - 0-3,500 psiS
- **40CPS** - 0-4,000 psiS
- **50CPS** - 0-5,000 psiS
- **60CPS** - 0-6,000 psiS
- **75CPS** - 0-7,500 psiS
- **10KPS** = 0-10,000 psiS
- **15KPS** - 0-15,000 psiS[4]
- **20KPS** - 0-20,000 psiS[4]
- **25KPS** - 0-25,000 psiS[4]
- **32KPS** - 0-32,000 psiS[4]

Pressure Range - bar
- **0007G** - 0-7 barG
- **0010G** - 0-10 barG
- **0016G** - 0-16 barG
- **0025G** - 0-25 barG
- **0040G** - 0-40 barG
- **0060G** - 0-60 barG
- **0100S** - 0-100 barS
- **0160S** - 0-160 barS
- **0250S** - 0-250 barS
- **0400S** - 0-400 barS
- **0600S** - 0-600 barS
- **1000S** - 1,000 barS[4]
- **1600S** - 1,600 barS[4]
- **2200S** - 2,200 barS[4]

Notes:
1. Temperature outputs are for voltage output pressure sensors only (applies to codes **-C**, **-H**, **-N**, and **-T** only) and limited to electrical codes **-B**, **-C**, **-E**, **-F**, **-G**, **-3**, and **-8**. Accuracy is 3.5% of temperature span. Requires additional 2mA of power.
2. For use with pull-up or pull-down resistors, contact factory.
3. **500PG** - 0-500 psiG not available as 3200 Series in output code **-B** - 4-20 mA.
4. Ranges 15,000 psi (1,000 bar) and above available with **-2T** & **-6B** pressure ports only.
5. Pressure ports **0E**, **6B**, and **1G** are not available with the **-R** Restrictor option.
6. For electrical codes **F** & **3**, specify cable length in meters.

Cable Length (For electrical connections F & 3 only)
- **00** - No Cable
- **01** - 1 meter
- **02** - 2 meters
- **03** - 3 meters
- **04** - 4 meters
- **05** - 5 meters

Optional Restrictor (3200 only)
- **R** - Restrictor
- **0** - No Restrictor

Electrical Connection[6]
- **B** - Industrial DIN 9.4 mm (mating connector not supplied)
- **C** - Mil-C 10-6P (26482)
- **E** - M12 x 1P (4-Pin)
- **F** - Cable version
- **G** - Large DIN
- **R** - Industrial DIN 9.4 mm (alternate pin out)
- **W** - Flying lead (12 inches/300mm)
- **Y** - Deutsch DT04-3P
- **3** - 1/2˝ NPT Male Conduit
- **6** - Amp - Superseal 1.5 Series
- **8** - Deutsch DT04-4P
- **9** - Packard MetriPack

Pressure Port[5]
- **08** - 1/8-27 NPT External
- **02** - 1/4-18 NPT External
- **04** - 7/16-20 External (SAE #4, J514)
- **0E** - 1/4˝-18 NPT Internal
- **1G** - Schrader SAE #4, 7/16˝ Internal
- **1J** - 7/16-20 External (SAE #4, J1926-2)
- **1P** - SAE 6 (9/16˝-18 UNF 2A)
- **4C** - 1/4-18 NPTF External (Dryseal)
- **4D** - 1/8-27 NPTF External (Dryseal)
- **4N** - 3/8-24 UNF External (SAE J1926)
- **6B** - Autoclave 250C Internal (15,000 psi, >1000 bar)

European Threads
- **01** - G1/4 A External
- **05** - G1/4 A External Soft Seal
- **0L** - M12 x 1.5 (<1,000 bar, 15,000 psi)
- **2T** - M12 x 1.5 (6g) (≥1,000 bar, 15,000 psi)
- **4J** - M14 x 1.5 Straight

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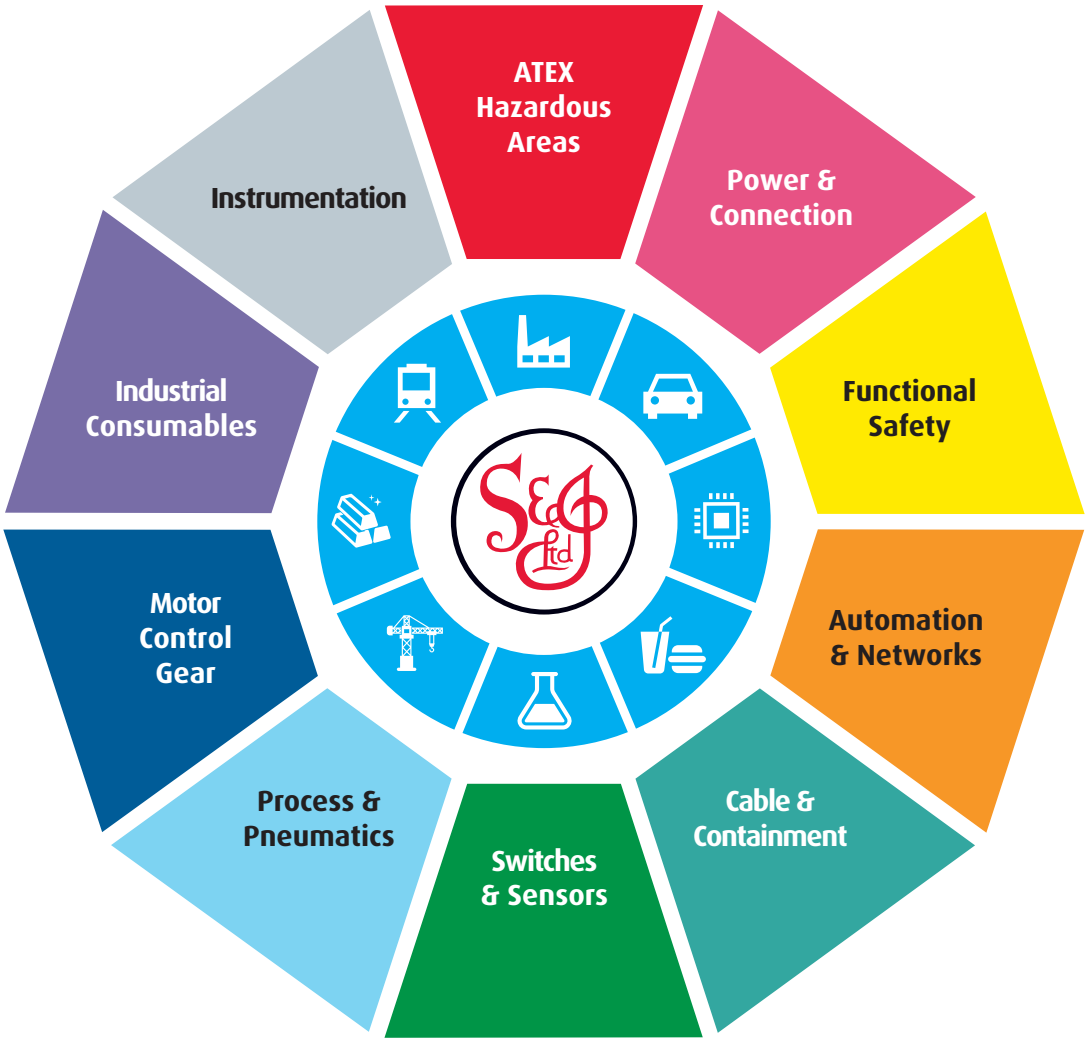

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