

Type S-10, S-11 General Purpose Pressure Transmitters

Applications

- Hydraulics and pneumatics
- Test equipment
- Pump and compressor control
- Liquid level measurement

Special Features

- Standard ranges available from stock
- 4-20 mA 2-wire output signal, others available
- Highly resistant to pressure spikes and vibration
- Stainless steel case and wetted parts
- Can be assembled to diaphragm seals for special applications

Description

WIKA S-10 and S-11 pressure transmitters are precision engineered to fit most industrial pressure measurement applications. The compact, rugged design makes these instruments suitable for applications including hydraulics and pneumatics, vacuum, test equipment, liquid level measurement, press control, compressor control, pump protection and numerous other processing and control operations. A wide range of electrical connection and process connection options are available to meet almost any requirement.

Rugged construction

The S-10 features an all-welded stainless steel measuring cell for improved media compatibility. There are no internal soft sealing materials that may react with the media or deteriorate over time. The compact case is also made of stainless steel and is available with environmental protection ratings up to NEMA 6P / IP 68.



Left: S-10 with NPT process connection
Center: S-11 with flush diaphragm process connection
Right: S-11 with flush diaphragm process connection and integral cooling element

The S-11 transmitter features a flush diaphragm process connection. The S-11 is specifically designed for the measurement of viscous fluids or media containing solids that may clog a NPT process connection. Flush diaphragm pressure transmitters are available in pressure ranges from 50 InWC to 8,000 psi. For high temperature media, an integral cooling element is available on the S-11. This option increases the maximum media temperature to 302 °F.

Each instrument undergoes extensive quality control testing and calibration to achieve an accuracy of $\leq 0.25\%$ full scale. The printed circuit boards use state-of-the-art surface mount technology and are potted in silicone gel for protection against mechanical shock, vibration and moisture. Each is individually temperature compensated to assure accuracy and long-term stability even when exposed to severe ambient temperature variations.

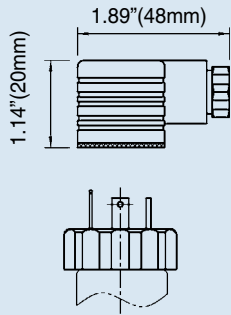
Specifications		Type S-10, S-11							
Pressure range	50 InWC	5 psi	10 psi	25 psi	30 psi	60 psi	100 psi	160 psi	200 psi
Maximum pressure*	14 psi	29 psi	58 psi	145 psi	145 psi	240 psi	500 psi	1,160 psi	1,160 psi
Burst pressure**	29 psi	35 psi	69 psi	170 psi	170 psi	290 psi	600 psi	1,390 psi	1,390 psi
Pressure range	300 psi	500 psi	1,000 psi	2,000 psi	3,000 psi	5,000 psi	8,000 psi	10,000 psi ¹	15,000 psi ¹
Maximum pressure*	1,160 psi	1,160 psi	1,740 psi	4,600 psi	7,200 psi	11,600 psi	17,400 psi	17,400 psi	21,750 psi
Burst pressure**	1,390 psi	5,800 psi	7,970 psi	14,500 psi	17,400 psi	24,650 psi	34,800 psi	34,800 psi	43,500 psi
<small>{vacuum, gauge pressure, compound ranges, and absolute pressure references are available}</small>									
<small>¹ Ranges only available with Model S-10</small>									
<small>² For Model S-11 the burst pressure is limited to 21,000psi unless the pressure seal is accomplished by using the sealing ring underneath the hex.</small>									
<small>*Pressure applied up to the maximum rating will cause no permanent change in specifications but may lead to zero and span shifts</small>									
<small>**Exceeding the burst pressure may result in destruction of the transmitter and possible loss of media</small>									
Materials									
<ul style="list-style-type: none"> ■ Wetted parts ➢ Type S-10 ➢ Type S-11 		(other materials see WIKA diaphragm seal program)							
<ul style="list-style-type: none"> ■ Case 		Stainless steel							
Internal transmission fluid ⁴⁾		Synthetic oil {Halocarbon [®] oil for oxygen applications} ⁵⁾ {Listed by FDA for food applications}							
<small>³ O-ring made of Viton[®] or EPDM for type S-11 with integral cooling element.</small>									
<small>⁴ Not available with type S-10 in pressure ranges >300 psi.</small>									
<small>⁵ Media temperature for oxygen version: -4 ... +140 °F (-20...+60°C). Oxygen version is not available in vacuum and absolute pressure ranges or with S-11 > 500 psi</small>									
Power supply U _B ⁶⁾	U _B in DC V	10 < U _B ≤ 30 (14 ... 30 with signal output 0 ... 10 V)							
Signal output and maximum load R _A	R _A in Ohm	4 ... 20 mA, 2-wire		R _A ≤ (U _B - 10 V) / 0.02 A					
		0 ... 20 mA, 3-wire		R _A ≤ (U _B - 3 V) / 0.02 A					
		{0 ... 5 V, 3-wire}		R _A > 5000					
		{0 ... 10 V, 3-wire}		R _A > 10,000 {other signal outputs available}					
Adjustability zero/span	%	± 5 using potentiometers inside the instrument							
Response time (10 ... 90 %)	ms	≤ 1 (≤ 10 ms at media temperatures below -22°F (-30°C) for ranges < 300 psi or with flush diaphragm process connection)							
Isolation voltage	DC V	500							
<small>⁶⁾ NEC Class 02 power supply (low voltage and low current max. 100 VA even under fault conditions)</small>									
Accuracy ⁷⁾	% of span	≤ 0.25 (0.125) ⁸⁾ (BFSL)							
	% of span	≤ 0.5 {0.25} ⁸⁾ (limit point calibration)							
<small>⁷⁾ Including linearity, hysteresis and repeatability.</small>									
<small>Limit point calibration performed in vertical mounting position with pressure connection facing down.</small>									
<small>⁸⁾ Improved accuracy is available for pressure ranges ≥ 100 InWC</small>									
Non-repeatability	% of span	≤ 0.1							
1-year stability	% of span	≤ 0.2 (at reference conditions)							
Permissible temperature of									
<ul style="list-style-type: none"> ■ Medium ⁹⁾ 		-22 ... +212 °F {-40 ... +257 °F}				-30 ... +100 °C {-40 ... +125 °C}			
<ul style="list-style-type: none"> ■ Ambient ⁹⁾ 		S-11 with cooling element: -4 ... +302 °F				S-11 with cooling element: -20 ... +150 °C			
<ul style="list-style-type: none"> ■ Storage ⁹⁾ 		-4 ... +176 °F				-20 ... +80 °C			
		S-11 with cooling element: -4 ... +176 °F				S-11 with cooling element: -20 ... +80 °C			
		-40 ... +212 °F				-40 ... +100 °C			
		S-11 with cooling element: -4 ... +212°F				S-11 with cooling element: -20 ... +100 °C			
<small>⁹⁾ Also complies with EN 50178, Tab. 7, Type C, Class 4KH Operation, 1K4 Storage, 1K3 Transport</small>									
Compensated temperature range		32 ... +176 °F				0 ... +80 °C			
Temperature coefficients (TC) within compensated temp range:									
<ul style="list-style-type: none"> ■ Mean TC of zero 		% of span	≤ 0.2 / 10 K (< 0.4 for pressure range ≤ 100 InWC)						
<ul style="list-style-type: none"> ■ Mean TC of range 		% of span	≤ 0.2 / 10 K						
CE - conformity									
<ul style="list-style-type: none"> ■ Pressure equipment directive ■ EMC directive 		97/23/EC 2004/108/EEC, EN 61 326 Emission Group (Group 1, Class B) and Immunity) industrial locations							
Shock resistance	g	1000 according to IEC 60068-2-27 (mechanical shock)							
Vibration resistance	g	20 according to IEC 60068-2-6 (vibration under resonance)							
Wiring protection		Protected against reverse polarity, overvoltage and short circuit							
Weight	lb	Approx. 0.4							

{ } Items in curved brackets { } are optional extras for additional price.

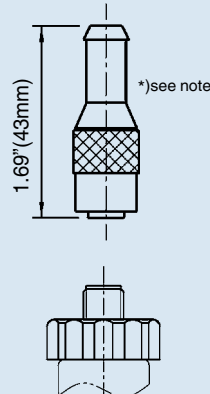
Dimensions in inches(mm)

Electrical connections

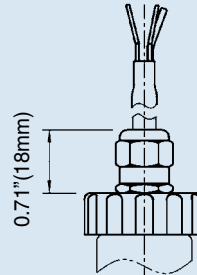
L-connector, DIN EN 175301-803, Form A (DIN 43 650) for conductor cross section up to max. 1.5 mm², conductor outer diameter 0.3" (6-8 mm), NEMA 5 / IP 65
Order code: A4



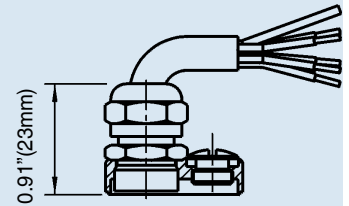
Circular connector M 12x1, 5 pin, NEMA 4 / IP 67
Order code: M5



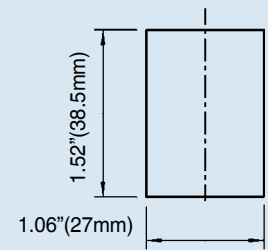
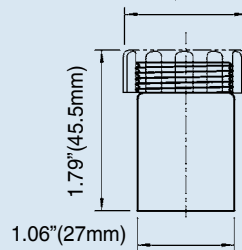
Cable with free ends conductor cross section up to max. 0.5 mm² / AWG 20 with end splices, conductor outer diameter 6.8 mm, NEMA 4 / IP 67
Order code: DL



Cable with free ends, adjustable zero and span conductor cross section up to max. 0.5 mm² / AWG 20 with end splices, conductor outer diameter 6.8 mm, NEMA 6 P / IP 68
Order code: XM

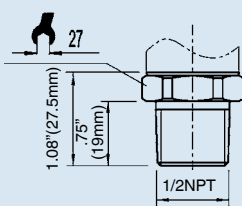


Case

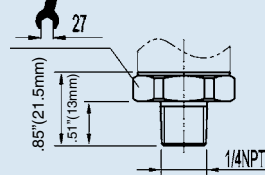


S-10 pressure connections (others available)

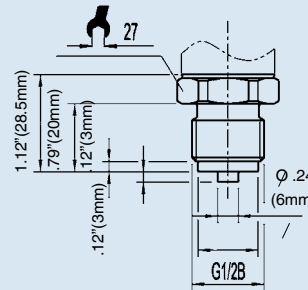
1/2 NPT male
Order code: ND



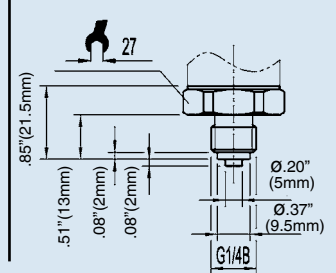
1/4 NPT male
Order code: NB



G1/2B male
Order code: GD

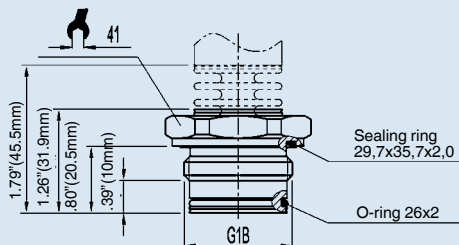


G1/4B male
Order code: GB

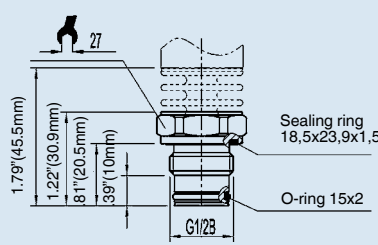


S-11 flush diaphragm pressure connections

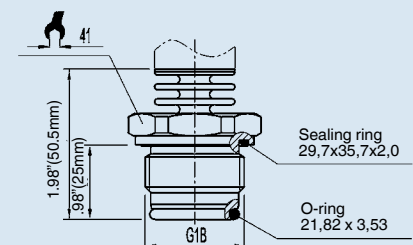
G 1 B
with or without cooling element
50 InWC to 25 psi
Order code: 85



G 1/2 B
with or without cooling element
30 psi to 8000 psi
Order code: 86



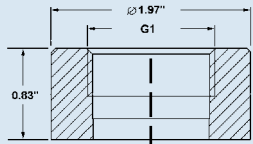
G1B according to EHEDG **)
with cooling element, up to 302°F (150°C)
100 InWC to 250 psi
Order code: 84



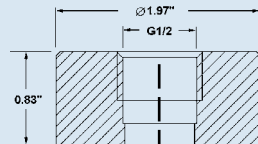
*) Mating connector not included

** European Hygienic Equipment Design Group

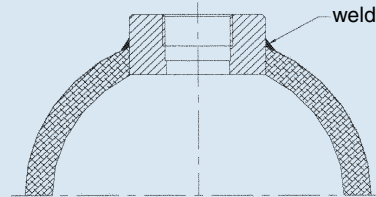
Matching P-1 weld insert adapters for S-11 pressure transmitters



P-1 G1 weld insert adapter
Part # 1206974
for pressure ranges ≤ 30 psi



P-1 G1/2 weld insert adapter
Part # 1097008
for pressure ranges ≥ 50 psi



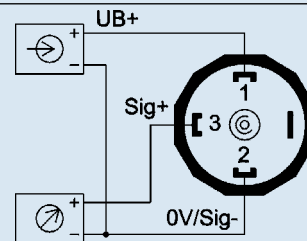
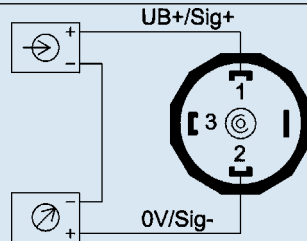
Cross section view of P-1 adapter installed in pipe.

Wiring

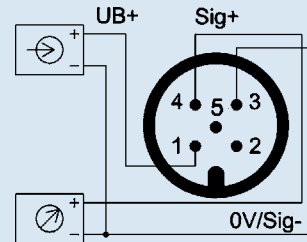
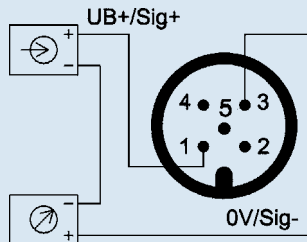
2-wire system

3-wire system

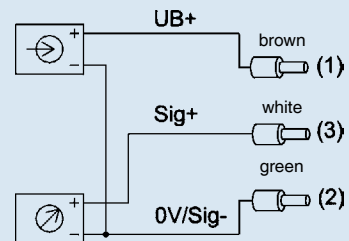
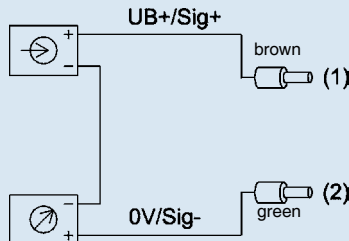
L-Connector,
DIN EN 175301-803, Form A
(DIN 43 650)



M12x1 Circular connector
5 pin



Vented cable with free ends



Legend:

	power supply	Sig+ output signal positive
	load (e.g. display)	UB+ power supply positive
		0V power supply negative
		Sig- output signal negative

Type S-10 General Purpose Pressure Transmitters

Standard Features

- **Signal output:** 4-20 mA 2-wire
- **Supply voltage:** 10-30 VDC
- **Process connection:** 1/2 NPT male
- **Electrical connection:** DIN EN 175301-803 (DIN 43 650) with plug connector



Gauge Ranges	
Description	
Range	Part #
0-50 InWC	8367656
0-100 InWC	8341481
0-5 psi	8415072
0-10 psi	8642885
0-15 psi	8643628
0-25 psi	8341995
0-30 psi	8643636
0-50 psi	8348868
0-60 psi	8643644
0-100 psi	8643652
0-160 psi	8341155
0-200 psi	8644918
0-250 psi	8341163
0-300 psi	8341732
0-400 psi	8341953
0-500 psi	8341740
0-600 psi	8347128
0-750 psi	4294930
0-1,000 psi	8610007
0-1,500 psi	8341219
0-2,000 psi	8353098
0-3,000 psi	8342275
0-5,000 psi	8340638
0-8,000 psi	8341864
0-10,000 psi	8347242
0-15,000 psi	8359143

Vacuum & Compound Ranges	
Description	
Range	Part #
30"-0 HgVac	8642850
30"-0-30 psi	8415080
30"-0-60 psi	8415099
30"-0-100 psi	8648646
30"-0-160 psi	9796881
30"-0-200 psi	8985538

Absolute Pressure Ranges	
Description	
Range	Part #
0-15 psia	8587582
0-25 psia	8358503
0-50 psia	8347854
0-100 psia	9734538
0-250 psia	9734589
0-500 psia	9767164

NOTE: Standard part numbers shown in **bold, blue** print.

S-10 Smart Codes for Custom Order Configurations

Field no.	Code	Feature
1	Signal output	
	A	4... 20 mA, 2-wire
	B	0... 20 mA, 3-wire
	F	0... 10 V, 3-wire (supply 14-30 V)
	G	0... 5 V, 3-wire
	W	0.5 ... 4.5 V 3-wire ratiometric
	?	Other - please specify
2	Unit	
	P	psi
	N	InWC
	3	psi absolute (from 15 psi to 250 psi absolute)
?	Other - please specify	
3	Pressure range	
	CA	-30 inHg ... 0
	CD	-30 inHg ... 30 psi
	CF	-30 inHg ... 60 psi
	CH	-30 inHg ... 100 psi
	CK	-30 inHg ... 160 psi
	CL	-30 inHg ... 200 psi
	GG	0 InWC ... 50 InWC
	GU	0 InWC ... 100 InWC
	CN	0 psi ... 5 psi
	CP	0 psi ... 10 psi
	BC	0 psi ... 15 psi (0 psi ... 15 psi absolute)
	CQ	0 psi ... 25 psi (0 psi ... 25 psi absolute)
	BD	0 psi ... 30 psi
	DA	0 psi ... 50 psi (0 psi ... 50 psi absolute)
	BE	0 psi ... 60 psi
	BF	0 psi ... 100 psi (0 psi ... 100 psi absolute)
	BG	0 psi ... 160 psi
	BH	0 psi ... 200 psi
	DG	0 psi ... 250 psi (0 psi ... 250 psi absolute)
	BI	0 psi ... 300 psi
	BK	0 psi ... 400 psi
	DI	0 psi ... 500 psi
	BL	0 psi ... 600 psi
	DJ	0 psi ... 750 psi
	BN	0 psi ... 1,000 psi
	BO	0 psi ... 1,500 psi
	BP	0 psi ... 2,000 psi
	BQ	0 psi ... 3,000 psi
	BS	0 psi ... 5,000 psi
	DS	0 psi ... 8,000 psi
	BT	0 psi ... 10,000 psi
BU	0 psi ... 15,000 psi	
??	Other - up to maximum specified pressure range	

S-10 Smart Codes for Custom Order Configurations (cont')

Field no.	Code	Feature
Process connection		
4	NB	1/4" NPT
	ND	1/2" NPT
	NH	1/8" NPT
	GB	G 1/4 B
	GD	G 1/2 B
	NP	1/4" NPT female
	NQ	1/2" NPT female
	NR	1/8" NPT female
	UA	7/16-20 UNF SAE #4 J514 male
	UB	7/16-20 UNF SAE #4 J514 female
	UE	9/16-18 UNF SAE #6 J514 male
	UF	9/16-18 UNF SAE #6 J514 female
	UC	3/4-16 UNF SAE #8 J514 male
	UD	3/4-16 UNF SAE #8 J514 female
	CS	Diaphragm seal
??	Other - please specify	
Special design features		
5	Z	Without
	A	Oxygen, oil and grease free ¹⁾
	?	Other - please specify
Accuracy		
6	G	+/- 0.25% B.F.S.L.
	K	+/- 0.125% B.F.S.L. (≥ 100 lnWC)
Electrical connection		
7	A4	4 Pin L-plug DIN 43 650 with pg 9 (NEMA 5 / IP 65)
	AX	4 Pin L-plug DIN 43 650 w / 1/2" NPT female conduit (NEMA 5/IP 65)
	M5	M12 x 1, 5 pin circular connector
	DL	Cable with free ends (NEMA 4 / IP 67)
	2X	1/2" NPT male conduit with cable
	XM	Submersible cable (NEMA 6 / IP 68)
	O4	4 Pin MIL plug PT02E-8-4P (NEMA 5 / IP 65)
	C6	6 Pin MIL plug PT02E-10-6P (NEMA 5 / IP 65)
	??	Other - please specify
	Cable length	
8	Z	Without (always with plug connection)
	Y	5 feet
	1	10 feet
	2	20 feet
	3	30 feet
	4	40 feet
	5	50 feet
	?	Other - please specify

S-10 Smart Codes for Custom Order Configurations (cont')

Field no.	Code	Feature
Temperature range of medium		
9	A	-30 ... +100 °C (-22 ... +212 °F)
	B	-40 ... +125 °C (-40 ... +257 °F)
	X	Changed because of diaphragm seal attachment (only with process connection CS)
Approvals		
10	Z	Without
	G	GL, BV, ABS, RINA, DNV, Class NK
	?	Other - please specify
Quality certificates		
11	Z	Without
	I	NIST Certificate of Calibration (always with 0.125% accuracy)
Digital display		
12	Z	Without
	1	Digital display (order separately)
Additional order details		
13	Z	Without
	T	Additional order details

1) Maximum media temperature is -24 ... +140°F (-20 ... +60°C) for pressure ranges 100 InWC to 300 psi. (Field 5, Code A)

Order Code:

S-10 - ¹ - ² ³ - ⁴ - ⁵ ⁶ ⁷ ⁸ ⁹ ¹⁰ - ¹¹ ¹² ^{13*}

*Additional order details _____

Type S-11 Flush Diaphragm Pressure Transmitter

Standard Features

- **Signal output:** 4-20 mA 2-wire
- **Supply voltage:** 10-30 VDC
- **Electrical connection:** DIN EN 175301-803 (DIN 43 650) with plug connector
- **Process connection:** G1B or G1/2B depending upon pressure range



Gauge Ranges	
Description	
Range	Part #
0-50 InWC ¹	9739640
0-100 InWC ¹	8341473
0-5 psi ¹	4204051
0-10 psi ¹	8341074
0-15 psi ¹	8345726
0-25 psi ¹	8395736
0-30 psi ¹	8395746
0-50 psi	8395766
0-60 psi	8351312
0-100 psi	8341724
0-160 psi	8643407
0-200 psi	8641064
0-250 psi	8341961
0-300 psi	8341171
0-400 psi	8342003
0-500 psi	8341197
0-600 psi	8345745
0-750 psi	8352865
0-1,000 psi	9777517
0-1,500 psi	8366706
0-2,000 psi	8640823
0-3,000 psi	8341758
0-5,000 psi	8340646
0-8,000 psi	9749581

Vacuum & Compound Ranges	
Description	
Range	Part #
30"-0 HgVac ¹	8395706
30"-0-30 psi	9796058
30"-0-60 psi	8345622
30"-0-100 psi	8340242
30"-0-200 psi	8342118

NOTE: Standard part numbers shown in **bold, blue** print.

NOTES:

¹Pressure ranges from 50 InWC to 25 psi are supplied with G1B flush process connections; see datasheet for details

S-11 Smart Codes for Custom Order Configurations

Field no.	Code	Feature
1	Signal output	
	A	4 ... 20 mA, 2-wire
	B	0 ... 20 mA, 3-wire
	F	0 ... 10 V, 3-wire (Supply 14-30 V)
	G	0 ... 5 V, 3-wire
	W	0.5 ... 4.5 V 3-wire ratiometric
	?	Other - please specify
2	Unit	
	P	psi
	N	InWC
	3	psi absolute (from 15 psi to 250 psi absolute)
	?	Other - please specify
3	Pressure range	
	CA	-30 inHg ... 0
	CD	-30 inHg ... 30 psi
	CF	-30 inHg ... 60 psi
	CH	-30 inHg ... 100 psi
	CK	-30 inHg ... 160 psi
	CL	-30 inHg ... 200 psi
	GG	0 InWC ... 50 InWC
	GU	0 InWC ... 100 InWC
	CN	0 psi ... 5 psi
	CP	0 psi ... 10 psi
	BC	0 psi ... 15 psi (0 psi ... 15 psi absolute)
	CQ	0 psi ... 25 psi (0 psi ... 25 psi absolute)
	BD	0 psi ... 30 psi
	DA	0 psi ... 50 psi (0 psi ... 50 psi absolute)
	BE	0 psi ... 60 psi
	BF	0 psi ... 100 psi (0 psi ... 100 psi absolute)
	BG	0 psi ... 160 psi
	BH	0 psi ... 200 psi
	DG	0 psi ... 250 psi (0 psi ... 250 psi absolute)
	BI	0 psi ... 300 psi
	BK	0 psi ... 400 psi
	DI	0 psi ... 500 psi
	BL	0 psi ... 600 psi
	DJ	0 psi ... 750 psi
	BN	0 psi ... 1,000 psi
	BO	0 psi ... 1,500 psi
BP	0 psi ... 2,000 psi	

S-11 Smart Codes for Custom Order Configurations (cont'd)

Field no.	Code	Feature
Pressure range continued		
3	BQ	0 psi ... 3,000 psi
	BS	0 psi ... 5,000 psi
	DS	0 psi ... 8,000 psi
	??	Other - please specify
Process connection		
4	85	G 1 B, flush diaphragm with O-ring (up to 25 psi)
	86	G 1/2 B, flush diaphragm with O-ring (≥ 30 psi)
	??	Other - please specify
Material of wetted parts		
5	1	Stainless steel, NBR O-Ring ¹⁾
	L	Stainless steel, Viton® O-Ring
	A	PFA Teflon® coated diaphragm, Viton® O-ring
	?	Other - please specify
Special design features		
6	Z	Without
	G	Suitable for food
	A	Oxygen, oil and grease free ²⁾
	?	Other - please specify
Accuracy		
7	G	+/- 0.25% B.F.S.L.
	K	+/- 0.125% B.F.S.L. (≥ 100 InWC)
Electrical connection		
8	A4	4 Pin L-plug DIN 43 650 with pg 9 (NEMA 5 / IP 65)
	AX	4 Pin L-plug DIN 43 650 with 1/2" NPT female conduit (NEMA 5 / IP 65)
	DL	Cable with free ends (NEMA 4 / IP 67)
	2X	1/2" male conduit with cable
	XM	Submersible cable (NEMA 6 / IP 68)
	O4	4 Pin MIL Plug PT02E-8-4P (NEMA 5 / IP 65)
	C6	6 Pin MIL Plug PT02E-10-6P (NEMA 5 / IP 65)
	??	Other - please specify
Cable length		
9	Z	Without (always with plug connection)
	Y	5 feet
	1	10 feet
	2	20 feet
	3	30 feet
	4	40 feet
	5	50 feet
	?	Other - please specify

S-11 Smart Codes for Custom Order Configurations (cont'd)

Field no.	Code	Feature
Temperature range of medium		
10	A	-30 ... +100 °C (-22 ... +212 °F)
	B	-40 ... +125 °C (-40 ... +257 °F)
	C	-20 ... +150 °C (-4 ... +302 °F) with cooling element
Approvals		
11	Z	Without
	?	Other - please specify
Quality certificates		
12	Z	Without
	I	NIST Certificate of Calibration (always with 0.125% accuracy)
	?	Other - please specify
Digital display		
13	Z	Without
	1	Digital display (order separately)
Additional order details		
14	Z	Without
	T	Additional order details

1) Not available with cooling element option (Field 10, Code C)

2) Maximum media temperature is -4 ... +140°F (-20 ... +60°C) for pressure ranges 100 InWC to 500 psi. (Field 6, Code A)

Order Code: 1 2 3 4 5 6 7 8 9 10 11 12 13 14*

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*Additional order details _____