

1800 Series Pressure Transmitters

The **1800 Series Pressure Transmitters** are well suited for intrinsically safe applications or conventional transmitter installations. The 1800 Series transmitters utilize an advanced monosilicon pressure sensor and incorporate a patented encapsulation technology to achieve exceptional mechanical and thermal isolation.

All 1800 Series transmitters include external push-buttons for device setup and calibration. If ordered with the appropriate output, they can also be programmed using HART® or Modbus. Additionally, they are available with 2, 3, or 5-valve manifolds. With a standard $\pm 0.075\%$ accuracy, the SOR 1800 Series conventional transmitters are an exceptional solution for continuous pressure monitoring.

Features

- Gauge Pressure Ranges
 - 1 psi to 1 psi through -14.5 psi to 14,500 psi
 - 6 kPa to 6 kPa through -100 kPa to 100 MPa
- Differential Pressure Ranges
 - 0.87 psid to 0.87 psid through -72.5 psid to 1,450 psid
 - 6 kPa to 6 kPa through -500 kPa to 10 MPa
- Absolute Pressure Ranges
 - 0 psia to 5.8 psia through 0 psia to 1,450 psia
 - 0 kPa to 40 kPa through 0 psia to 10 MPa
- 4-20 mA with optional HART®, 1-5VDC low power or Modbus output
- $\pm 0.075\%$ accuracy (F.S.)
- Aluminum explosion proof housing
- Standard push-buttons for setup
- Optional integral LCD display
- EMC (EMI/RFI) protection
- ATEX / IECEx certified for intrinsically safe and flameproof applications
- CSA certified for explosion proof applications
- 3 year warranty



1800PT
Conventional
Gauge/Absolute
Pressure



1800PR
Piezoresistive
Gauge Pressure



1800DM
Differential Pressure with
Direct Mount Diaphragm Seal



1800DP
Differential
Pressure



1800RM
Differential Pressure
with Remote Mount
Diaphragm Seals

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1800 Series Pressure Transmitters

Product Specifications 1800PT



Product Specifications - 1800PT

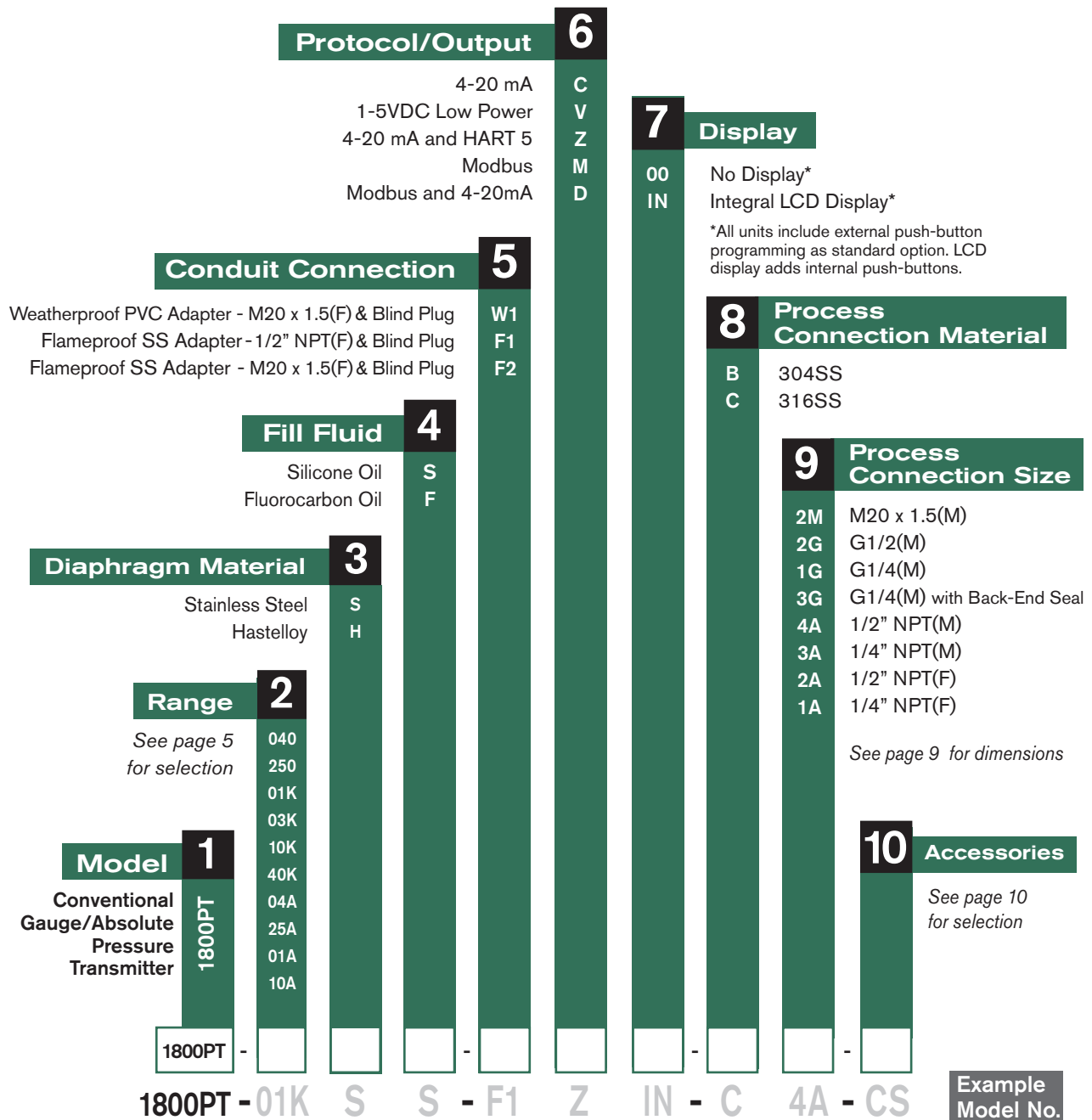
Output	4-20mA 1-5VDC Low Power HART 5 (Optional) Modbus	Long Term Stability	≤ ±0.2% URL per 5 years
		Response Time	≤ 200 ms
		Damping Time	0-100 s (Configurable)
		Startup Time	≤ 6 s
Accuracy	(Linearity, Hysteresis and Repeatability) Turndown ≤ 10:1 ±0.075% URL 10:1 < TD ≤ 20:1 ±(0.075 x TD)% URL	Supply Voltage	
		4-20mA	10.5-55 VDC
		1-5VDC Low Power	9-32 VDC
		HART® with 250 Ω load	16.5-55 VDC
		Modbus	5-32 VDC
		Modbus with 4-20mA	12-30 VDC
Temperature Effect	± (0.075 + (0.015xTD))% URL per 50°F Change @ -4 to 176°F	Loop Resistance	0-2119 Ω
Temperature Range		HART® Protocol	250-600 Ω
Compensated	-4 to 176°F	Circuit Protection	Reverse Polarity and EMC (EMI/RFI) protected
Ambient (Limited by both Approvals and Display)		Power Consumption	≤ 500 mW @ 24 VDC, 20.8 mA
No Approvals or Display	-40 to 185°F	Power Supply Effects	< ±0.005% URL/V
With Integral LCD Display (No Approvals)	-4 to 158°F	Mounting Position Effect	≤ 0.06 psi Can be corrected by re-zeroing
Intrinsically Safe	-40 to 140°F	Vibration Effect	< 0.1% URL IEC61928-3 tests
Flameproof	-13 to 140°F	Relative Humidity	5-100% R.H. @ 104°F
Process		Construction	Aluminum Ex-Pf Housing
Silicone Oil Fill Fluid	-40 to 248°F	IP Rating	IP67
Fluorocarbon Oil Fill Fluid	-40 to 185°F	Weight (No Adapters or Brackets)	3.44 lbs
Flameproof	Limits Max Temperature to 176°F	Warranty	3 years
Intrinsically Safe	Limits Max Temperature to 248°F		
Storage			
No Display	-40 to 230°F		
With Integral LCD Display	-40 to 185°F		

Design and specifications are subject to change without notice. For latest revision, see SORInc.com.

How to Order

Below is the SOR quick select model number tree that provides you with all the options to configure and order a product for your application.

- You must select a designator for each component
- Reference tables, charts and additional information are provided throughout the catalog to help you make your selections, see pages noted in the tree.



See page 32 for agency and options.

1800 Series Pressure Transmitters

**Ranges
1800PT**

Ranges - PT

Designator	LRL	URL	Smallest Possible Span	Maximum Turndown	Over Pressure
040	-5.8 psi (-40 kPa)	5.8 psi (40 kPa)	0.29 psi (2 kPa)	20:1	145 psi (1 MPa)
250	-14.5 psi (-100 kPa)	36.3 psi (250 kPa)	1.81 psi (12.5 kPa)	20:1	580 psi (4 MPa)
01K	-14.5 psi (-100 kPa)	145 psi (1 MPa)	7.25 psi (50 kPa)	20:1	870 psi (6 MPa)
03K	-14.5 psi (-100 kPa)	435 psi (3 MPa)	21.8 psi (150 kPa)	20:1	2175 psi (15 MPa)
10K	-14.5 psi (-100 kPa)	1450 psi (10 MPa)	72.5 psi (500 kPa)	20:1	2900 psi (20 MPa)
40K	-14.5 psi (-100 kPa)	5802 psi (40 MPa)	725 psi (5 MPa)	8:1	11603 psi (80 MPa)
04A	0 psia (0 kPa)	5.8 psia (40 kPa)	0.29 psia (2 kPa)	20:1	145 psi (1 MPa)
25A	0 psia (0 kPa)	36.3 psia (250 kPa)	1.81 psia (12.5 kPa)	20:1	580 psi (4 MPa)
01A	0 psia (0 kPa)	145 psia (1 MPa)	7.25 psia (50 kPa)	20:1	870 psi (6 MPa)
10A	0 psia (0 kPa)	1450 psia (10 MPa)	72.5 psi (500 kPa)	20:1	2900 psi (20 MPa)

To determine if desired Measuring Range is achievable for a specific range option:

1. Lower End of Measuring Range $\geq$ LRL
2. Upper End of Measuring Range $\leq$ URL
3. Measuring Range Span = Upper End – Lower End $\geq$ Smallest Possible Span

1800 Series Pressure Transmitters

Product Specifications 1800PR



Product Specifications - 1800PR

Output	4-20mA	Response Time	≤ 200 ms
	1-5VDC Low Power		
	HART 5 (Optional)	Damping Time	0-100 s (Configurable)
	Modbus		
Accuracy	(Linearity, Hysteresis and Repeatability)	Startup Time	≤ 6 s
	± 0.2% URL		
Temperature Effect	± (0.1 + (0.1xTD))% URL per 50°F Change	Supply Voltage	
	@ -4 to 176°F		
Temperature Range		4-20mA	10.5-55 VDC
Compensated	-4 to 176°F	1-5VDC Low Power	9-32 VDC
Ambient (Limited by both Approvals and Display)		HART® with 250 Ω load	16.5-55 VDC
No Approvals or Display	-40 to 185°F	Modbus	5-32 VDC
With Integral LCD Display	-4 to 158°F	Modbus with 4-20mA	12-30 VDC
	(No Approvals)		
Intrinsically Safe	-40 to 140°F	Loop Resistance	0-2119 Ω
Flameproof	-13 to 140°F	HART® Protocol	250-600 Ω
Process		Circuit Protection	Reverse Polarity and EMC (EMI/RFI) protected
Silicone Oil Fill Fluid	-40 to 248°F	Power Consumption	≤ 500mW @ 24VDC, 20.8mA
Fluorocarbon Oil Fill Fluid	-40 to 185°F	Power Supply Effects	< ±0.005% URL/V
Flameproof	Limits Max Temperature to 176°F	Mounting Position Effect	≤ 0.06 psi
Intrinsically Safe	Limits Max Temperature to 248°F	Vibration Effect	Can be corrected by re-zeroing
Storage		Relative Humidity	< 0.1% URL
No Display	-40 to 230°F	Construction	IEC61928-3 tests
With Integral LCD Display	-40 to 185°F	IP Rating	5-100% R.H. @ 104°F
Long Term Stability	≤ ±0.1% URL per year	Weight (No Adapters or Brackets)	Aluminum Ex-Pf Housing
		Warranty	IP67
			3.18 lbs
			3 years

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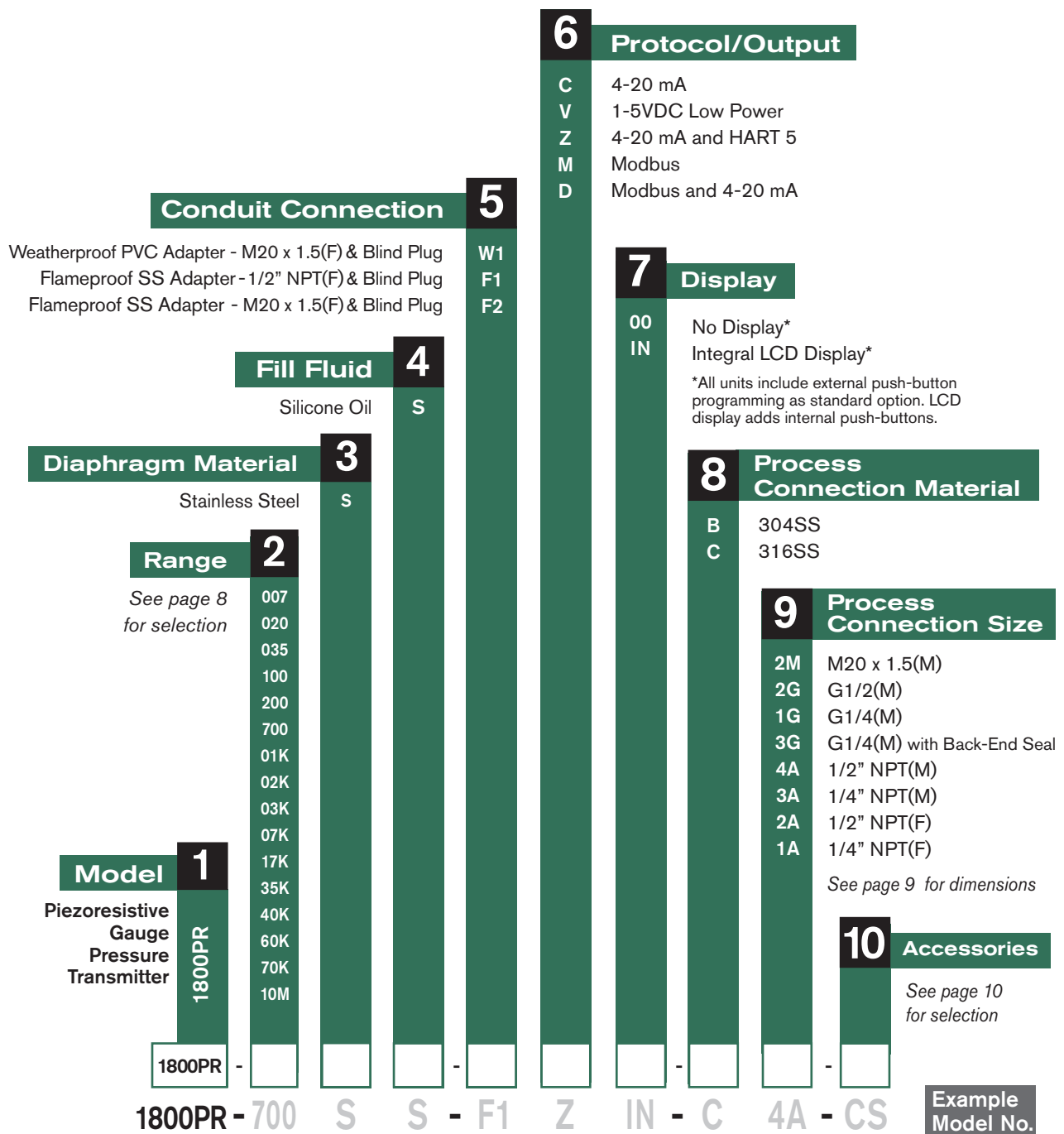
1800 Series Pressure Transmitters

How to Order 1800PR

How to Order

Below is the SOR quick select model number tree that provides you with all the options to configure and order a product for your application.

- You must select a designator for each component
- Reference tables, charts and additional information are provided throughout the catalog to help you make your selections, see pages noted in the tree.



See page 32 for agency and options.

1800 Series Pressure Transmitters

**Ranges
1800PR**

Ranges

Designator	LRL	URL	Smallest Possible Span	Maximum Turndown	Over Pressure
007	-1 psi (-7 kPa)	1 psi (7 kPa)	0.73 psi (5 kPa)	1.4:1	1.52 psi (10.5 kPa)
020	-2.9 psi (-20 kPa)	2.9 psi (20 kPa)	1.45 psi (10 kPa)	2:1	4.35 psi (30 kPa)
035	-5.08 psi (-35 kPa)	5.08 psi (35 kPa)	2.9 psi (20 kPa)	1.7:1	7.61 psi (52.5 kPa)
100	-14.5 psi (-100 kPa)	14.5 psi (100 kPa)	5.08 psi (35 kPa)	2.8:1	21.8 psi (150 kPa)
200	-14.5 psi (-100 kPa)	29 psi (200 kPa)	14.5 psi (100 kPa)	2:1	43.5 psi (300 kPa)
700	-14.5 psi (-100 kPa)	101.5 psi (700 kPa)	29 psi (200 kPa)	3.5:1	152 psi (1050 kPa)
01K	-14.5 psi (-100 kPa)	145 psi (1 MPa)	72.5 psi (500 kPa)	2:1	217.5 psi (1.5 MPa)
02K	-14.5 psi (-100 kPa)	246.6 psi (1.7 MPa)	145 psi (1 MPa)	1.7:1	369.8 psi (2.55 MPa)
03K	-14.5 psi (-100 kPa)	507.6 psi (3.5 MPa)	246.6 psi (1.7 MPa)	2:1	761.4 psi (5.25 MPa)
07K	-14.5 psi (-100 kPa)	1015 psi (7 MPa)	507.6 psi (3.5 MPa)	2:1	1523 psi (10.5 MPa)
17K	-14.5 psi (-100 kPa)	2465 psi (17 MPa)	1015 psi (7 MPa)	2.4:1	3698 psi (25.5 MPa)
35K	-14.5 psi (-100 kPa)	5076 psi (35 MPa)	2465 psi (17 MPa)	2:1	7614 psi (52.5 MPa)
40K	-14.5 psi (-100 kPa)	5801 psi (40 MPa)	2900 psi (20 MPa)	2:1	8702 psi (60 MPa)
60K	-14.5 psi (-100 kPa)	8702 psi (60 MPa)	4351 psi (30 MPa)	2:1	13053 psi (90 MPa)
70K	-14.5 psi (-100 kPa)	10153 psi (70 MPa)	5076 psi (35 MPa)	2:1	15229 psi (105 MPa)
10M	-14.5 psi (-100 kPa)	14504 psi (100 MPa)	7252 psi (50 MPa)	2:1	21756 psi (150 MPa)

To determine if desired Measuring Range is achievable for a specific range option:

1. Lower End of Measuring Range $\geq$ LRL
2. Upper End of Measuring Range $\leq$ URL
3. Measuring Range Span = Upper End – Lower End $\geq$ Smallest Possible Span

1800 Series Pressure Transmitters

Process Connections 1800PT/PR

Process Connections

Designator	Dimensions = mm	Designator	Dimensions = mm
2M M20 x 1.5(M)		4A 1/2" NPT(M)	
2G G1/2(M)		3A 1/4" NPT(M)	
1G G1/4(M)		2A 1/2" NPT(F)	
3G G1/4(M) with Back-End Seal		1A 1/4" NPT(F)	

1800 Series Pressure Transmitters

Accessories 1800PT/PR

Accessories

Description	Designator
Pipe Mounting Kit (U-Shaped Bracket for 2" Pipe) <i>Dimension drawing below.</i>	PK
Customer-Specified Display Settings ^{1, 6}	SC
ATEX / IECEx Flameproof Ex db IIC T6 Gb, Ex tb IIIC T80°C Db ^{1, 2}	CL
CSA Explosion Proof Class I, II, III, Div. 1, Grps. A, B, C, D, T6; Grps. E, F, G, T80°C ^{2, 3}	CS
ATEX / IECEx Intrinsically Safe Ex ia IIC T4 Ga ¹	CK
CE Certificate	CE
Degrease Treatment of Wetted Parts	BB
Electropolishing Treatment of Wetted Parts	CC
Coiled Tube Heat Exchange Connector <i>Dimension drawing below.</i>	ET
Finned Heat Exchange Connector <i>Dimension drawing below.</i>	FE
Calibration Certificate	C1
Welding Adapter M20 x 1.5(M) 304SS ⁴ <i>Dimension drawing below.</i>	WM
Welding Adapter G1/2(F) 304SS ⁵ <i>Dimension drawing below.</i>	WG
Compliance to NACE Certification MR0 175/ISO 15156	NC
Password protected settings menu lockout	LK
Compliance/Conformance	C4
Typical Material of Wetted Parts	C8
Certificate of Origin	D1
Manufacturer's Certificate	D2

¹ Requires Display option IN

² Requires Conduit Connection option F1 or F2

³ Not available with ATEX / IECEx Approvals

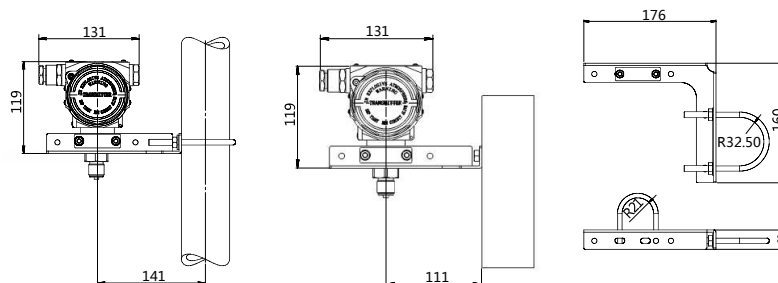
⁴ Requires 2M Process Connection Size

⁵ Requires 2G Process Connection Size

⁶ Form 1835_1800 Series SC Accessory Data Sheet must be completed and submitted with order

Dimensions = mm

PK - Pipe Mounting Kit



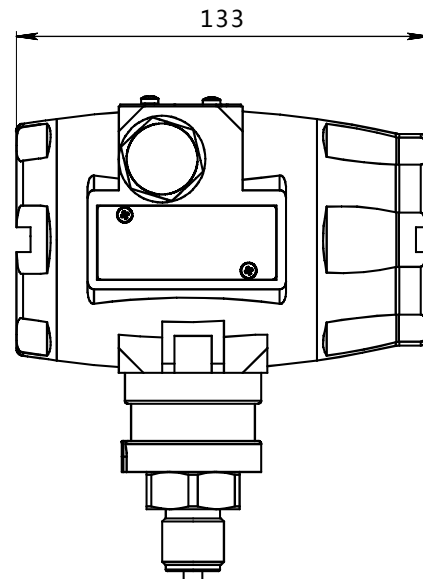
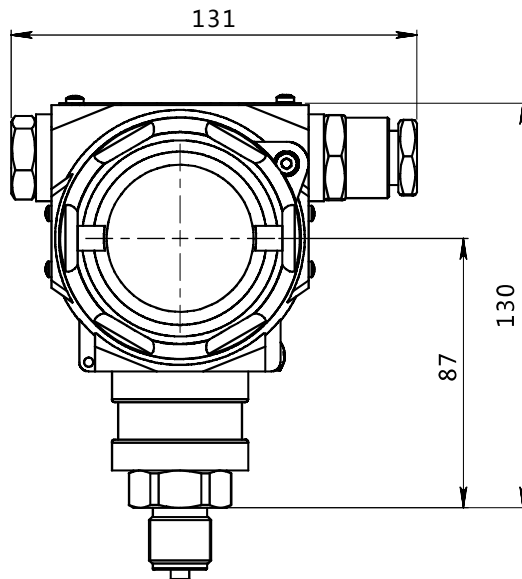
ET - Coiled Tube Heat Exchange Connector	FE - Finned Heat Exchange Connector	WM - Welding Adapter M20 x 1.5(M)	WG - Welding Adapter G1/2(F)

1800 Series Pressure Transmitters

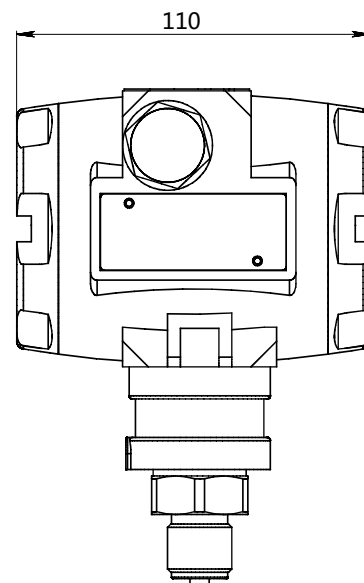
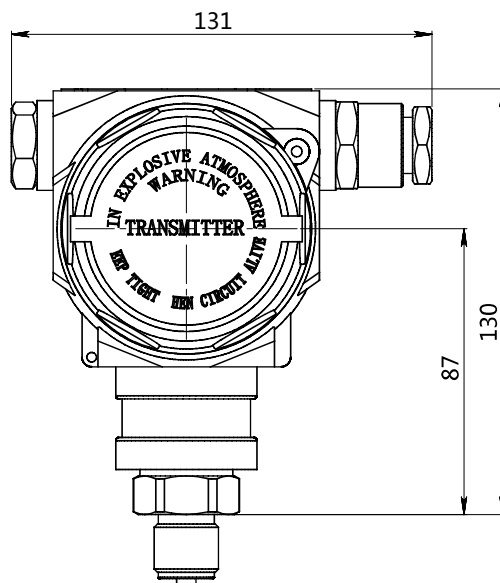
Dimensions 1800PT/PR

Dimensions shown are for reference only.
Dimensions = mm

With Integral LCD Display (option IN)



Without Display (option 00)



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1800 Series Differential Pressure Transmitter

Product Specifications 1800DP



Product Specifications - 1800DP

Output	4-20mA	
	Linear (default) or Square Root	
	1-5VDC Low Power	
	HART 5 (Optional)	
	Modbus	
Accuracy	(Linearity, Hysteresis and Repeatability)	
	Turndown $\leq 10:1$ $\pm 0.075\%$ URL	
	$10:1 < TD \leq 100:1$ $\pm (0.0075 \times TD)\%$ URL	
	*Square Root Output Accuracy	
	= 1.5 x Linear Output Accuracy	
Static Pressure Effects		
Effect on Zero	$\pm (0.15 \times TD)\%$ URL/580 psi	
Effect on Full Scale	$\pm 0.2\%$ URL/580 psi	
Temperature Effect	$\pm (0.1 + (0.15 \times TD)\%)$ URL	
	@ -4 to 176°F	
Temperature Range		
Compensated	-4 to 176°F	
Ambient (Limited by both Approvals and Display)		
No Approvals or Display	-40 to 185°F	
With Integral LCD Display	-4 to 158°F	
(No Approvals)		
Intrinsically Safe	-40 to 140°F	
Flameproof	-13 to 140°F	
Process		
Silicone Oil Fill Fluid	-40 to 248°F	
Fluorocarbon Oil Fill Fluid	-40 to 185°F	
Flameproof	Limits Max Temperature to 176°F	
Intrinsically Safe	Limits Max Temperature to 248°F	
Storage		
No Display	-40 to 230°F	
	With Integral LCD Display	-40 to 185°F
	Long Term Stability	$\leq \pm 0.2\%$ URL per 5 years
	Response Time	≤ 200 ms
	Damping Time	0-100 s (Configurable)
	Startup Time	≤ 6 s
	Supply Voltage	
	4-20mA	10.5-55 VDC
	1-5VDC Low Power	9-32 VDC
	HART® with 250 Ω load	16.5-55 VDC
	Modbus	5-32 VDC
	Modbus with 4-20mA	12-30 VDC
	Loop Resistance	0-2119 Ω
	HART® Protocol	250-600 Ω
	Circuit Protection	Reverse Polarity and EMC (EMI/RFI) protected
	Power Consumption	≤ 500 mW @ 24VDC, 20.8mA
	Power Supply Effects	$< \pm 0.005\%$ URL/V
	Mounting Position Effect	≤ 0.06 psi
		Can be corrected by re-zeroing
	Vibration Effect	$< 0.1\%$ URL
		IEC61928-3 tests
	Relative Humidity	5-100% R.H. @ 104°F
	Construction	Aluminum Ex-Pf Housing
	IP Rating	IP67
	Weight (No Adapters or Brackets)	8.82 lbs
	Warranty	3 years

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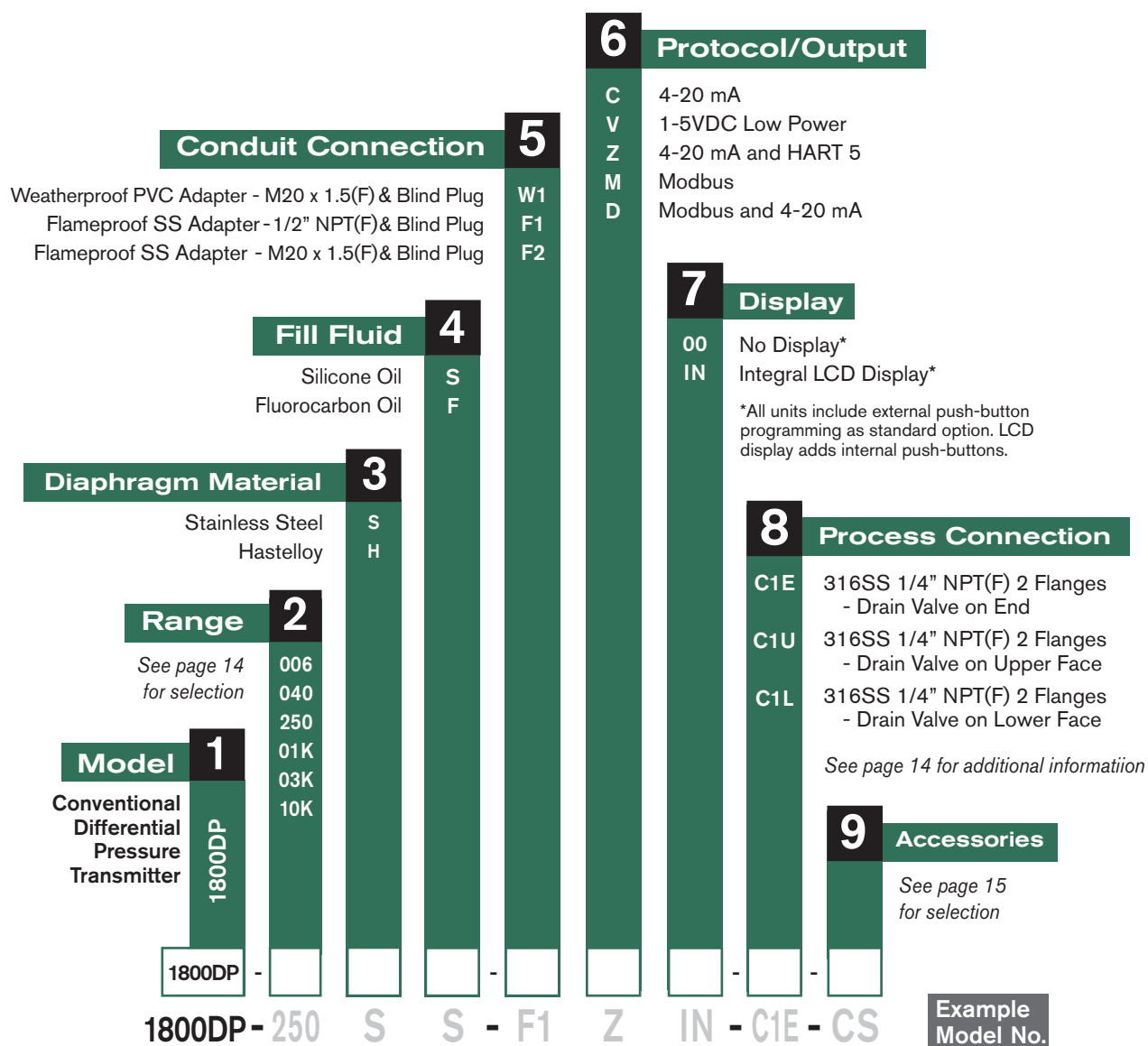
1800 Series Differential Pressure Transmitter

How to Order 1800DP

How to Order

Below is the SOR quick select model number tree that provides you with all the options to configure and order a product for your application.

- You must select a designator for each component
- Reference tables, charts and additional information are provided throughout the catalog to help you make your selections, see pages noted in the tree.



See page 32 for agency and options.

Ranges

Designator	LRL	URL	Smallest Possible Span	Maximum Turndown	Max Static Pressure	Hi-Side Over Pressure	Lo-Side Over Pressure
006	-0.87 psid (-6 kPa) (-24 inH2O)	0.87 psid (6 kPa) (24 inH2O)	0.03 psid (200 Pa)	30:1	3626 psi (25 MPa)	2321 psid (16 MPa)	2321 psid (16 MPa)
040	-5.8 psid (-40 kPa) (-161 inH2O)	5.8 psid (40 kPa) (161 inH2O)	0.06 psid (400 Pa)	100:1	5801 psi (40 MPa)	2321 psid (16 MPa)	2321 psid (16 MPa)
250	-36.3 psid (-250 kPa) (-1,006 inH2O)	36.3 psid (250 kPa) (1,006 inH2O)	0.36 psid (2.5 kPa)	100:1	5801 psi (40 MPa)	2321 psid (16 MPa)	2321 psid (16 MPa)
01K	-72.5 psid (-500 kPa) (-2,009 inH2O)	145 psid (1 MPa) (4,018 inH2O)	1.45 psid (10 kPa)	100:1	5801 psi (40 MPa)	2321 psid (16 MPa)	2321 psid (16 MPa)
03K	-72.5 psid (-500 kPa) (-2,009 inH2O)	435 psid (3 MPa) (12,053 inH2O)	4.35 psid (30 kPa)	100:1	5801 psi (40 MPa)	2321 psid (16 MPa)	2321 psid (16 MPa)
10K	-72.5 psid (-500 kPa) (-2,009 inH2O)	1450 psid (10 MPa) (40,174 inH2O)	14.5 psid (100 kPa)	100:1	5801 psi (40 MPa)	2321 psid (16 MPa)	2321 psid (16 MPa)

To determine if desired Measuring Range is achievable for a specific range option:

1. Lower End of Measuring Range $\geq$ LRL
2. Upper End of Measuring Range $\leq$ URL
3. Measuring Range Span = Upper End – Lower End $\geq$ Smallest Possible Span

Process Connections

C1E Drain Valve on Flange End	C1U Drain Valve on Flange Upper Face	C1L Drain Valve on Flange Lower Face
		

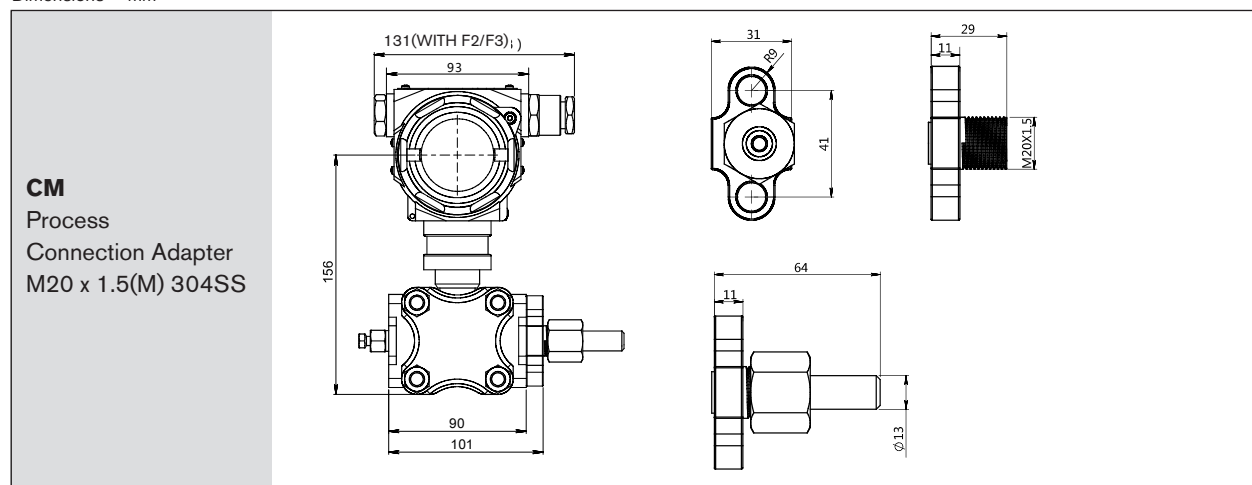
Accessories

Description	Designator
Process Connection Adapter M20 x 1.5(M) 304SS <i>Dimension drawing below.</i>	CM
Process Connection Adapter 1/2" NPT(F) 304SS <i>Dimension drawing page 16.</i>	CN
Pipe Mounting Kit (Stainless Steel Bent Bracket for 2" Pipe) <i>Dimension drawing page 16.</i>	PK
Plate Mounting Kit (Carbon Steel Bent Bracket) <i>Dimension drawing page 16.</i>	PL
Pipe Mounting Kit (Stainless Steel Flat Bracket for 2" Pipe) <i>Dimension drawing page 16.</i>	PM
Customer-Specified Display Settings ^{1, 4}	SC
ATEX / IECEx Flameproof Ex db IIC T6 Gb, Ex tb IIIC T80°C Db ^{1, 2}	CL
CSA Explosion Proof Class I, II, III, Div. 1, Grps. A, B, C, D, T6; Grps. E, F, G, T80°C ^{2, 3}	CS
ATEX / IECEx Intrinsically Safe Ex ia IIC T4 Ga ¹	CK
CE Certificate	CE
Degrease Treatment of Wetted Parts	BB
Electropolishing Treatment of Wetted Parts	CC
Calibration Certificate	C1
Compliance to NACE Certification MR0 175/ISO 15156	NC
Password protected settings menu lockout	LK
Compliance/Conformance	C4
Typical Material of Wetted Parts	C8
Certificate of Origin	D1
Manufacturer's Certificate	D2

¹ Requires Display option IN ² Requires Conduit Connection option F1 or F2 ³ Not available with ATEX / IECEx Approvals

⁴ Form 1835_1800 Series SC Accessory Data Sheet must be completed and submitted with order

Dimensions = mm



1800 Series Differential Pressure Transmitter

Accessories 1800DP

Dimensions = mm

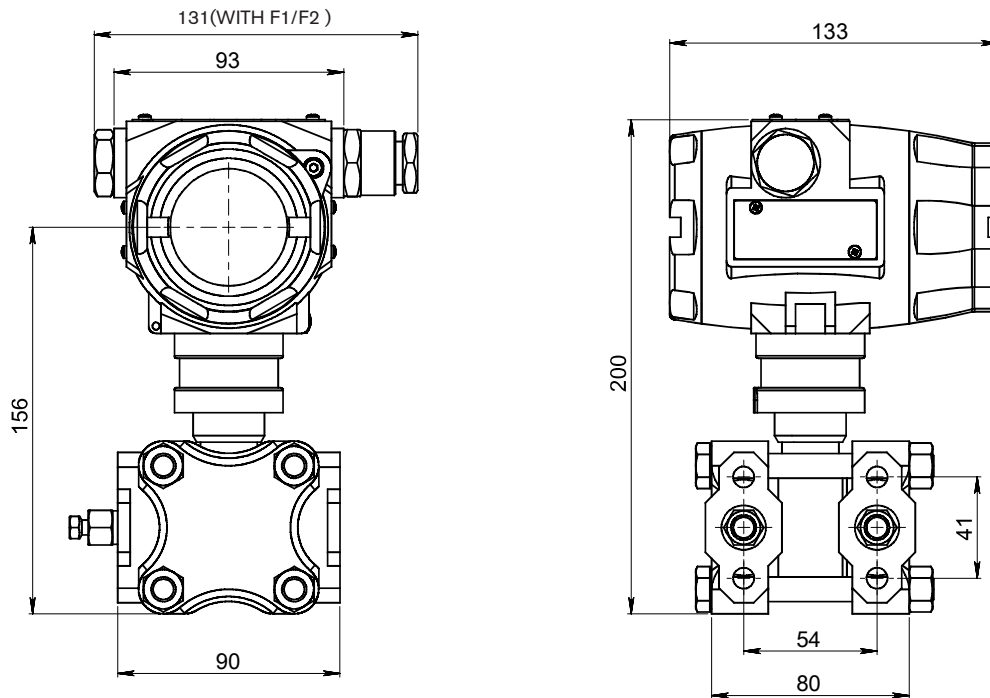
CN Process Connection Adapter 1/2" NPT(F) 304SS	
PK Pipe Mounting Kit (Stainless Steel Bent Bracket for 2" Pipe)	
PL Plate Mounting Kit (Carbon Steel Bent Bracket)	
PM Pipe Mounting Kit (Stainless Steel Flat Bracket for 2" Pipe)	

1800 Series Differential Pressure Transmitter

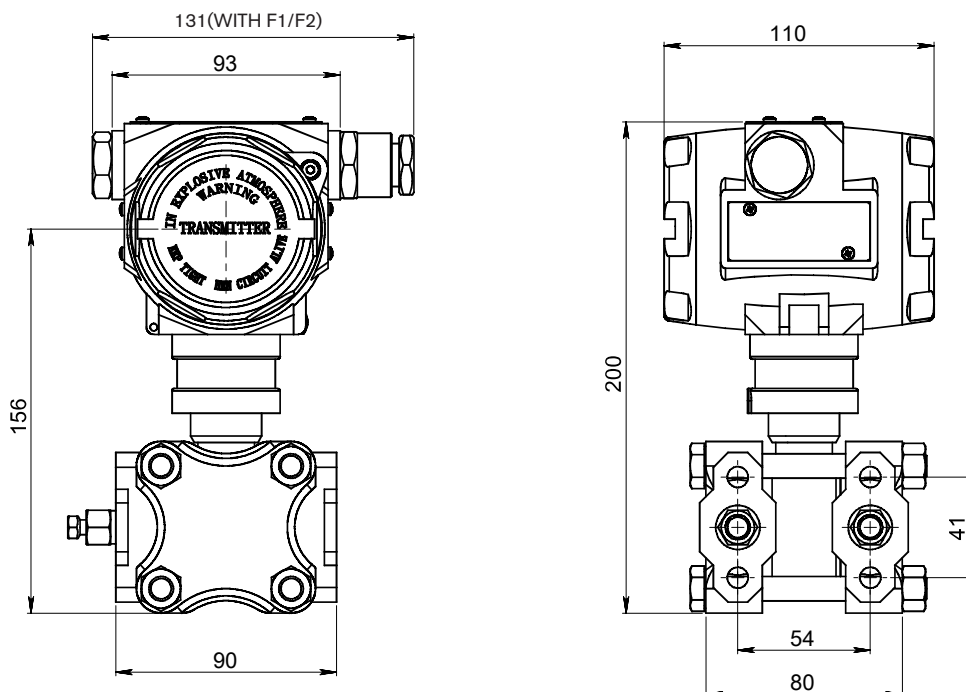
Dimensions
1800DP

Dimensions shown are for reference only.
Dimensions = mm

With Integral LCD Display (option IN)



Without Display (option 00)



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1800 Series Differential Pressure Transmitter

Product Specifications 1800DM

Product Specifications - 1800DM



Output	4-20mA Linear (default) or Square Root HART 5 (Optional) Modbus	
Accuracy	(Linearity, Hysteresis and Repeatability) $\pm 0.2\%$ URL *Square Root Output Accuracy = 1.5 x Linear Output Accuracy	Long Term Stability $\leq \pm 0.2\%$ URL per 5 years Response Time ≤ 200 ms Damping Time 0-100 s (Configurable) Startup Time ≤ 6 s
Static Pressure Effects		Supply Voltage
Effect on Zero	$\pm (0.15 \times \text{TD})\%$ URL/580 psi	4-20mA 10.5-55 VDC
Effect on Full Scale	$\pm 0.2\%$ URL/580 psi	HART® with 250 Ω load 16.5-55 VDC
Temperature Effect	$\pm (0.1 + (0.15 \times \text{TD}))\%$ URL/580 psi @ -4 to 176°F	Modbus 5-32 VDC
Temperature Range		Loop Resistance 0-2119 Ω HART® Protocol 250-600 Ω
Compensated	-4 to 176°F	Circuit Protection Reverse Polarity and EMC (EMI/RFI) protected
Ambient (Limited by both Approvals and Display)		Power Consumption ≤ 500 mW @ 24 VDC, 20.8 mA
No Approvals or Display	-40 to 185°F	Power Supply Effects $< \pm 0.005\%$ URL/V
With Integral LCD Display (No Approvals)	-4 to 158°F	Mounting Position Effect ≤ 0.06 psi Can be corrected by re-zeroing
Intrinsically Safe	-40 to 140°F	Vibration Effect $< 0.1\%$ URL IEC61928-3 tests
Flameproof	-13 to 140°F	Relative Humidity 5-100% R.H. @ 104°F
Process		Construction Aluminum Ex-Pf Housing
Silicone Oil Fill Fluid	-49 to 401°F	IP Rating IP67
Hi-Temp Silicone Oil Fill Fluid	32 to 599°F	Weight
Hygienic NEOBEE® M-20 Fill Fluid	14 to 356°F	2" Flange 17.9 lbs
Flameproof	Limits Max Temperature to 176°F	3" Flange 23.1 lbs
Intrinsically Safe	Limits MaxTemperature to 248°F	Warranty 3 years
Storage		
No Display	-40 to 230°F	
With Integral LCD Display	-40 to 185°F	

Design and specifications are subject to change without notice. For latest revision, see SORInc.com.

1800 Series Pressure Transmitters

How to Order 1800DM

How to Order

Below is the SOR quick select model number tree that provides you with all the options to configure and order a product for your application.

- You must select a designator for each component
- Reference tables, charts and additional information are provided throughout the catalog to help you make your selections, see pages noted in the tree.

Model 1		Range 2		Conduit Connection 3		Protocol/Output 4		Display 5		Hi-Side Diaphragm Seal 6		Hi-Side Capillary Length 7		Hi-Side Fill Fluid 8		Hi-Side Connection Material 9		Hi-Side Diaphragm Material 10		Hi-Side Connection 11		Hi-Side Insert Tube 12		Accessories 13	
Differential Pressure Transmitter with Direct Mount Diaphragm Seal		See page 20 for selection		Weatherproof PVC Adapter - M20 x 1.5(F) & Blind Plug Flameproof SS Adapter - 1/2" NPT(F) & Blind Plug Flameproof SS Adapter - M20 x 1.5(F) & Blind Plug		4-20 mA 4-20 mA and HART 5 Modbus		No Display* Integral LCD Display*		Hi-Side Diaphragm Seal, Direct Mount, 304SS Capillary, 316SS Wetted Parts Lo-Side 1/4" NPT(F), 316SS Wetted Parts		Capillary length in 1 meter increments (00-10 meters). Include leading zero when applicable.		Silicone Oil Hi-Temp Silicone Oil Hygienic NEOBEE® M-20		316SS		316LSS		C1R DN50 PN10 RF C5R DN80 PN10 RF Flange C6R DN100 PN10 RF Flange C2C 2" 150# RF Flange C3C 3" 150# RF Flange C2E 2" 600# RF Flange See page 20 for dimensions		D0 No Hi-Side Insert D1 Hi-Side Insert Tube, Ø 66mm x 50mm Long D2 Hi-Side Insert Tube, Ø 66mm x 100mm Long D3 Hi-Side Insert Tube, Ø 66mm x 150mm Long See page 20 for dimensions		See page 21 for selection	
1800DM		040 250 01K		W1 F1 F2		C Z M		00 IN		HL		XX		S T U		S		S		S		DO D1 D2 D3			
1800DM		- 01K		- F1		- Z		- IN		- HL		03		S		S		S		- C2C		DO		- CS	

See page 32 for agency and options.

1800 Series Pressure Transmitters

Ranges & Connection 1800DM

Ranges

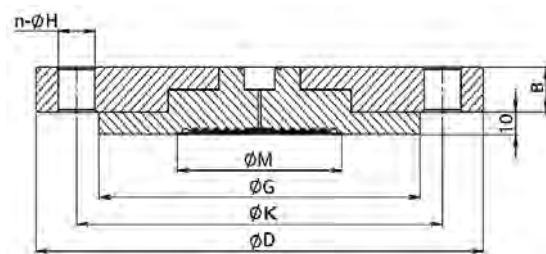
Designator	LRL	URL	Smallest Possible Span	Maximum Turndown	Max Static Pressure	Hi-Side Over Pressure	Lo-Side Over Pressure
	psid (kPa)	psid (kPa)	psid (kPa)		psi (MPa)	psid (MPa)	psid (MPa)
040	-5.8 (-40) (-161 inH ₂ O)	5.8 (40) (161 inH ₂ O)	1.45 (10)	4:1	5801 (40)	3626 (25)	2321 (16)
250	-36.3 (-250) (-1,006 inH ₂ O)	36.3 (250) (1,006 inH ₂ O)	3.63 (25)	10:1	5801 (40)	3626 (25)	2321 (16)
01K	-72.5 (-500) (-2,009 inH ₂ O)	145 (1000) (4,018 inH ₂ O)	14.5 (100)	10:1	5801 (40)	3626 (25)	2321 (16)

To determine if desired Measuring Range is achievable for a specific range option:

1. Lower End of Measuring Range $\geq$ LRL
2. Upper End of Measuring Range $\leq$ URL
3. Measuring Range Span = Upper End – Lower End $\geq$ Smallest Possible Span

Process Connection Dimensions

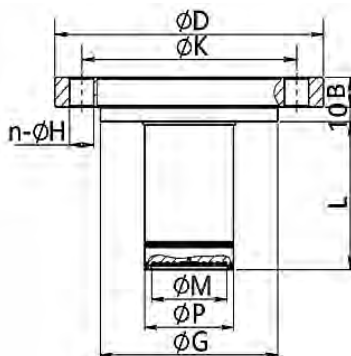
No Insert Tube



All units in mm.

Option	C1R	C5R	C6R
Outer Diameter (ØD)	165	200	200
Thickness (B)	19	20	20
Hole Circumference (ØK)	125	160	160
Raised Face Diameter (ØG)	102	138	158
Hole Diameter (ØH)	18	18	18
Number (n)	4	8	8
Corrugation Size (ØM)	56	71	71

Option C5R with Insert Tube



Option	D1	D2	D3
Outer Diameter (ØD)	200	200	200
Thickness (B)	20	20	20
Hole Circumference (ØK)	160	160	160
Raised Face Diameter (ØG)	138	138	138
Hole Diameter (ØH)	18	18	18
Number (n)	8	8	8
Corrugation Size (ØM)	42	42	42
Insert Tube Diameter (ØP)	66	66	66
Insert Tube Length (L)	50	100	150

1800 Series Pressure Transmitters

Accessories 1800DM

Accessories

Description	Designator
304SS T-Shaped M20 x 1.5(M) Adapter for Lo-Side	CM
304SS U-Shaped 1/2" NPT Adapter for Lo-Side	CN
Customer-Specified Display Settings ^{1, 4}	SC
CSA Explosion Proof Class I, II, III, Div. 1, Grps. A, B, C, D, T6; Grps. E, F, G, T80°C ^{2, 3}	CS
CE Certificate	CE
Degrease Treatment of Wetted Parts	BB
Electropolishing Treatment of Wetted Parts	CC
Calibration Certificate	C1
Password Protected Setting Menu Lockout	LK
Compliance/Conformance	C4
Typical Material of Wetted Parts	C8
Certificate of Origin	D1
Manufacturer's Certificate	D2

¹ Requires Display option IN ² Requires Conduit Connection option F1 or F2 ³ Not available with ATEX / IECEx Approvals

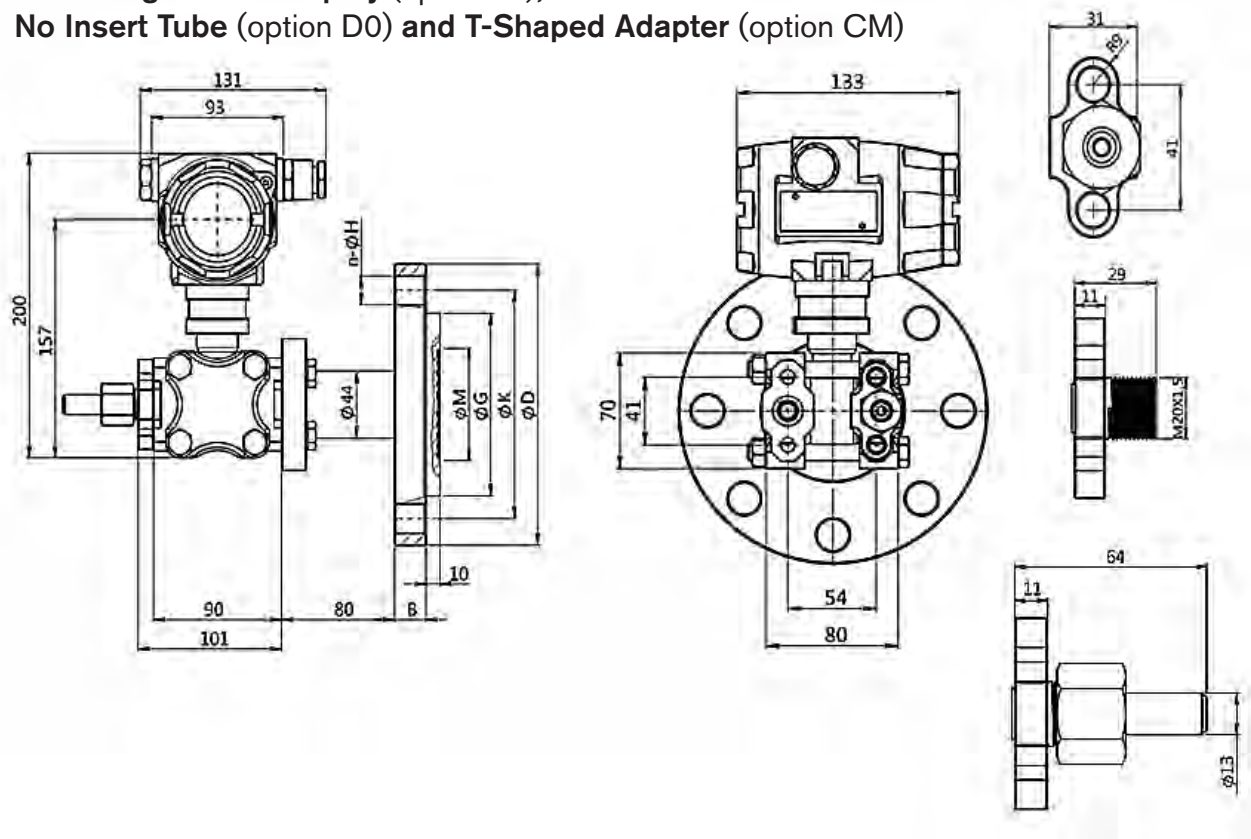
⁴ Form 1835_1800 Series SC Accessory Data Sheet must be completed and submitted with order

1800 Series Differential Pressure Transmitter

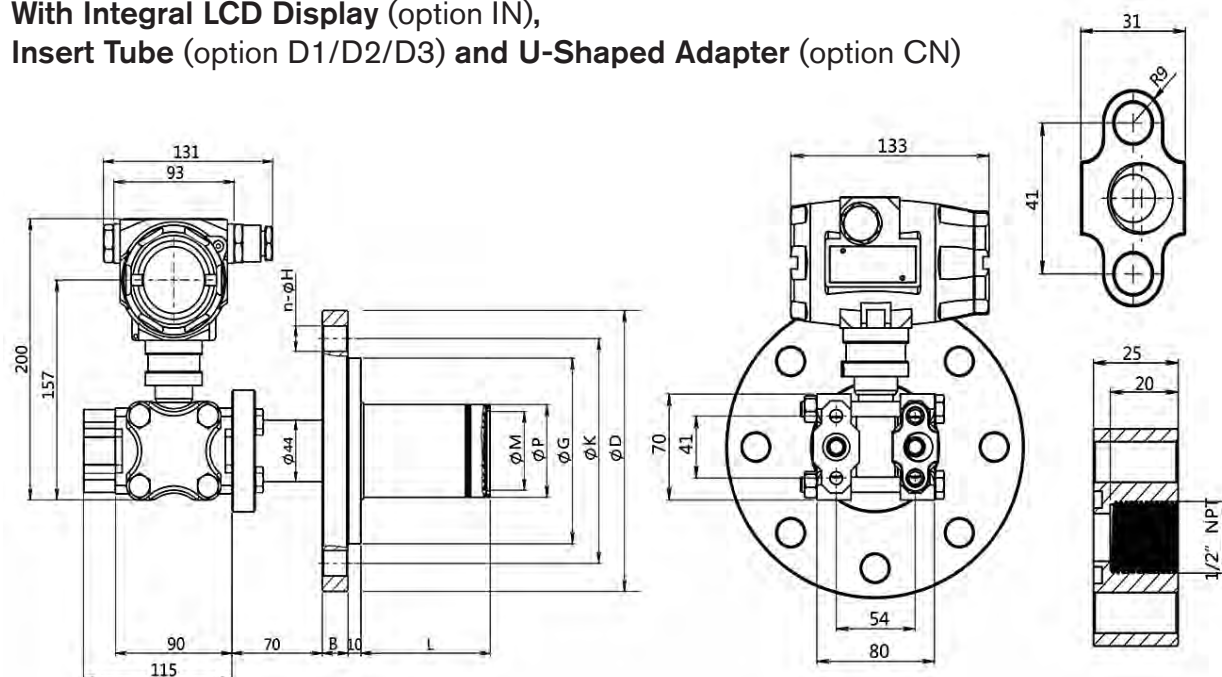
Dimensions
1800DM

Dimensions shown are for reference only.
Dimensions = mm

**With Integral LCD Display (option IN),
No Insert Tube (option D0) and T-Shaped Adapter (option CM)**



**With Integral LCD Display (option IN),
Insert Tube (option D1/D2/D3) and U-Shaped Adapter (option CN)**



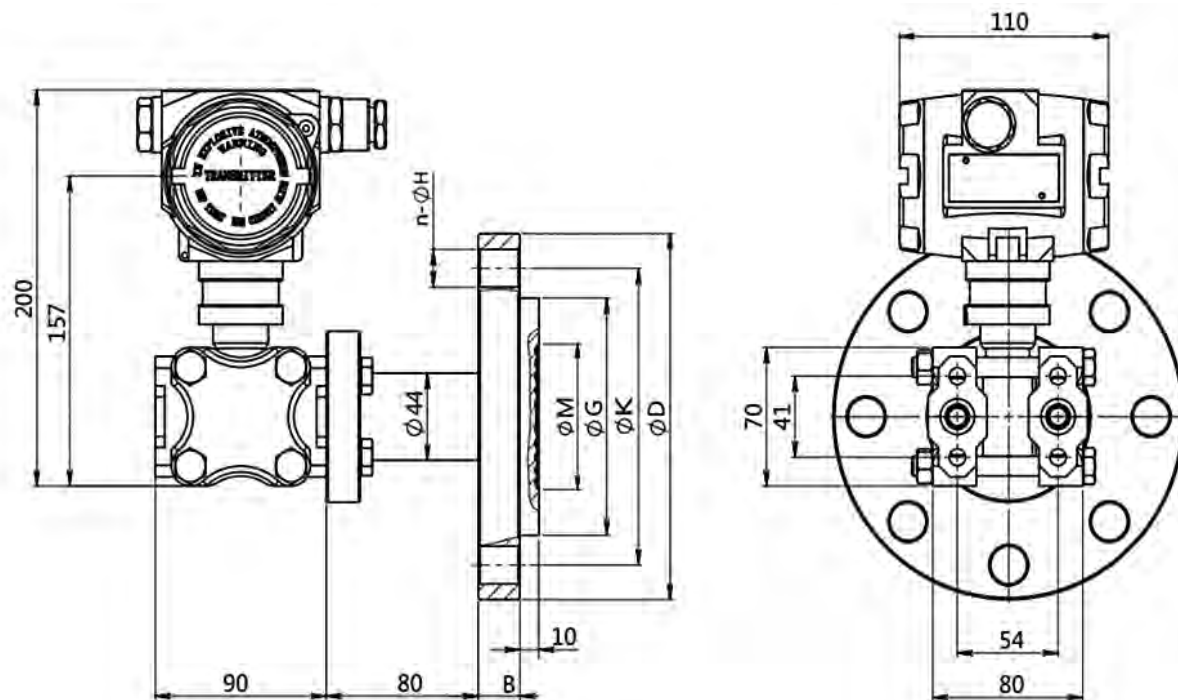
Design and specifications are subject to change without notice. For latest revision, see SORInc.com.

1800 Series Differential Pressure Transmitter

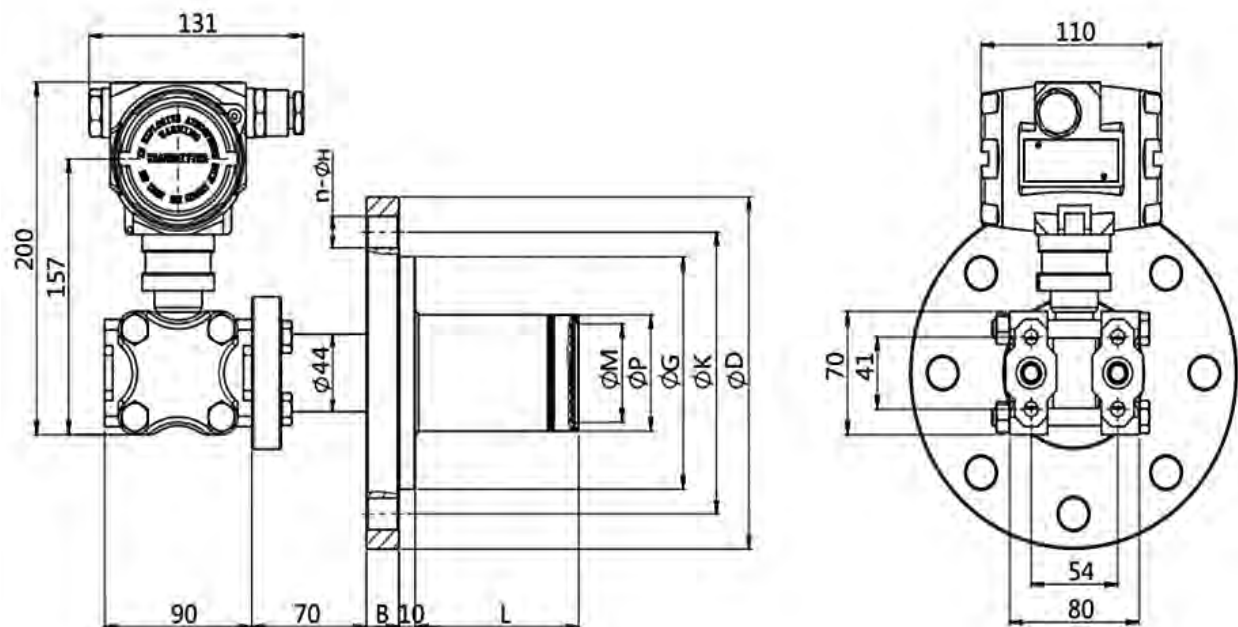
Dimensions 1800DM

Dimensions shown are for reference only.
Dimensions = mm

Without Display (option 00) and No Insert Tube (option D0)



Without Display (option 00) and Insert Tube (option D1/D2/D3)

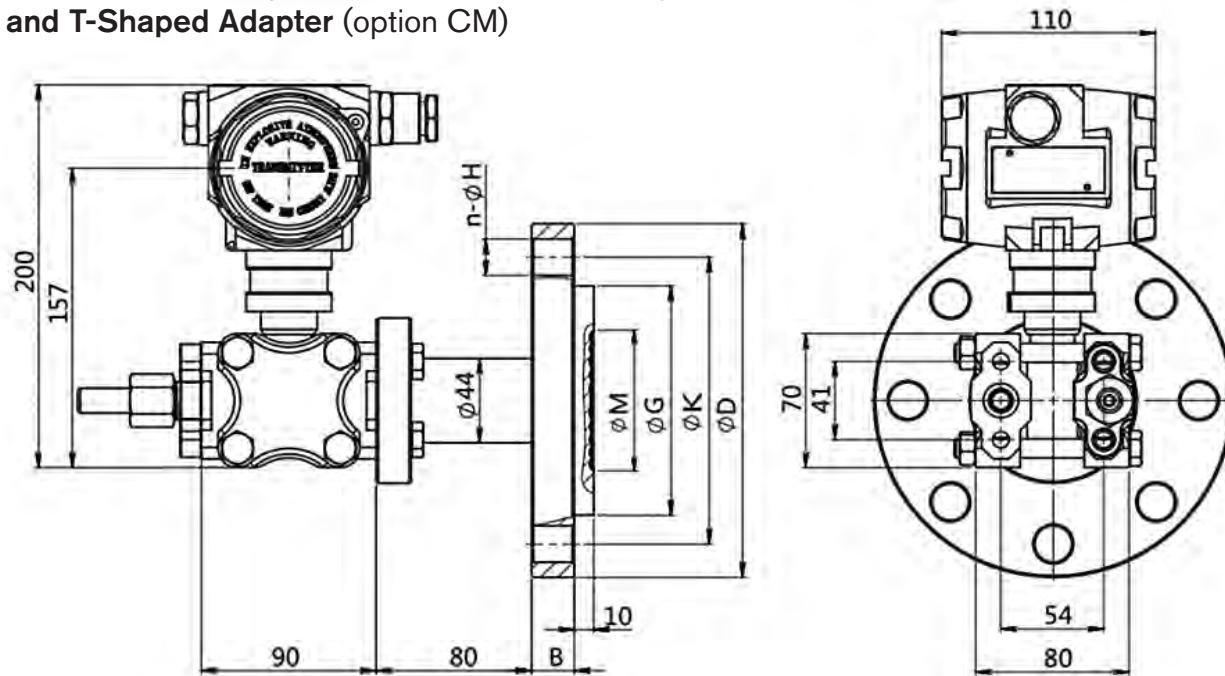


1800 Series Differential Pressure Transmitter

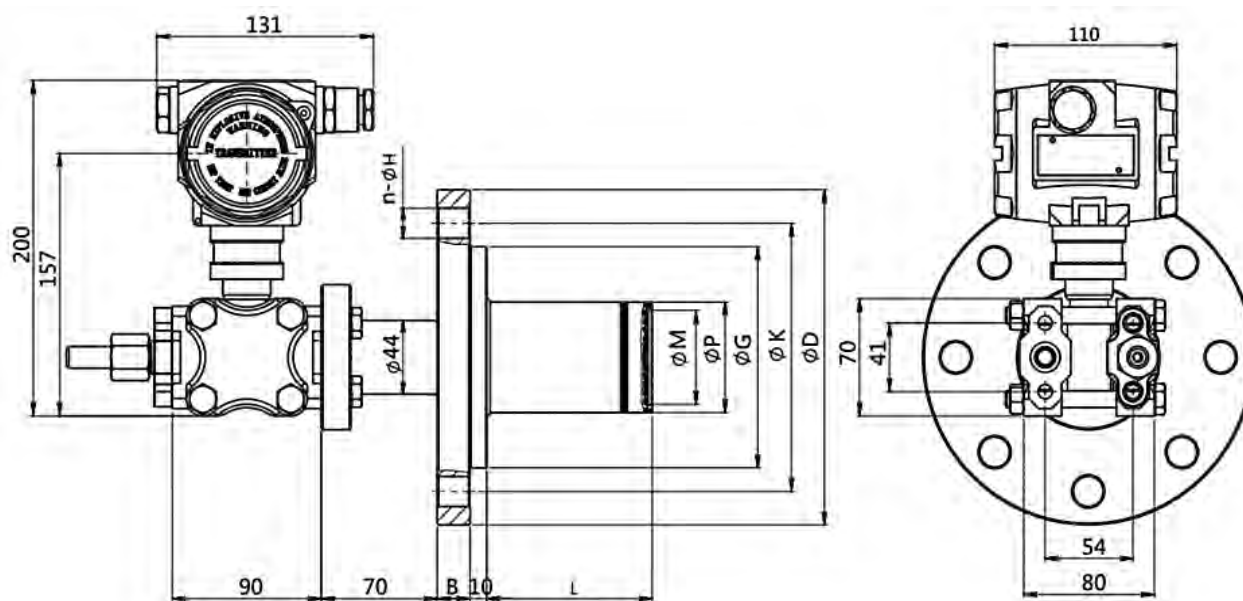
Dimensions 1800DM

Dimensions shown are for reference only.
Dimensions = mm

Without Display (option 00), **No Insert Tube** (option D0)
and **T-Shaped Adapter** (option CM)



Without Display (option 00), **Insert Tube** (option D0)
and **T-Shaped Adapter** (option CM)



1800 Series Differential Pressure Transmitter

Product Specifications 1800RM

Product Specifications - 1800RM

Output	4-20mA Linear (default) or Square Root HART 5 (Optional) Modbus		
Accuracy	(Linearity, Hysteresis and Repeatability) ± 0.2% URL *Square Root Output Accuracy = 1.5 x Linear Output Accuracy		
Static Pressure Effects			
Effect on Zero	± (0.15 x TD)% URL/580 psi		
Effect on Full Scale	± 0.2% URL/580 psi		
Temperature Effect	± (0.1 + (0.15 x TD))% URL @ -4 to 176°F		
Temperature Range			
Compensated	-4 to 176°F		
Ambient (Limited by both Approvals and Display)			
No Approvals or Display	-40 to 185°F		
With Integral LCD Display (No Approvals)	-4 to 158°F		
Intrinsically Safe	-40 to 140°F		
Flameproof	-13 to 140°F		
Process			
Silicone Oil Fill Fluid	-49 to 401°F		
Hi-Temp Silicone Oil Fill Fluid	32 to 599°F		
Hygienic NEOBEE® M-20 Fill Fluid	14 to 356°F		
Flameproof	Limits Max Temperature to 176°F		
Intrinsically Safe	Limits MaxTemperature to 248°F		
Storage			
No Display	-40 to 230°F		
With Integral LCD Display	-40 to 185°F		
Long Term Stability	≤ ±0.2% URL per 5 years		
Response Time	≤ 200 ms		
Damping Time	0-100 s (Configurable)		
Startup Time	≤ 6 s		
Supply Voltage	4-20mA HART® with 250 Ω load Modbus	10.5-55 VDC 16.5-55 VDC 5-32 VDC	
Loop Resistance	HART® Protocol	0-2119 Ω 250-600 Ω	
Circuit Protection		Reverse Polarity and EMC (EMI/RFI) protected	
Power Consumption		≤ 500 mW @ 24 VDC, 20.8 mA	
Power Supply Effects		< ±0.005% URL/V	
Mounting Position Effect		≤ 0.06 psi Can be corrected by re-zeroing	
Vibration Effect		< 0.1% URL IEC61928-3 tests	
Relative Humidity		5-100% R.H. @ 104°F	
Construction		Aluminum Ex-Pf Housing	
IP Rating		IP67	
Weight			
Tri-Clamp with No Brackets			14.0 lbs
2" Flange (One Side)			17.9 lbs
2" Flanges (Both Sides)			25.1 lbs
3" Flange (One Side)			23.1 lbs
3" Flanges (Both Sides)			35.7 lbs
Warranty			3 years

Design and specifications are subject to change without notice. For latest revision, see SORInc.com.

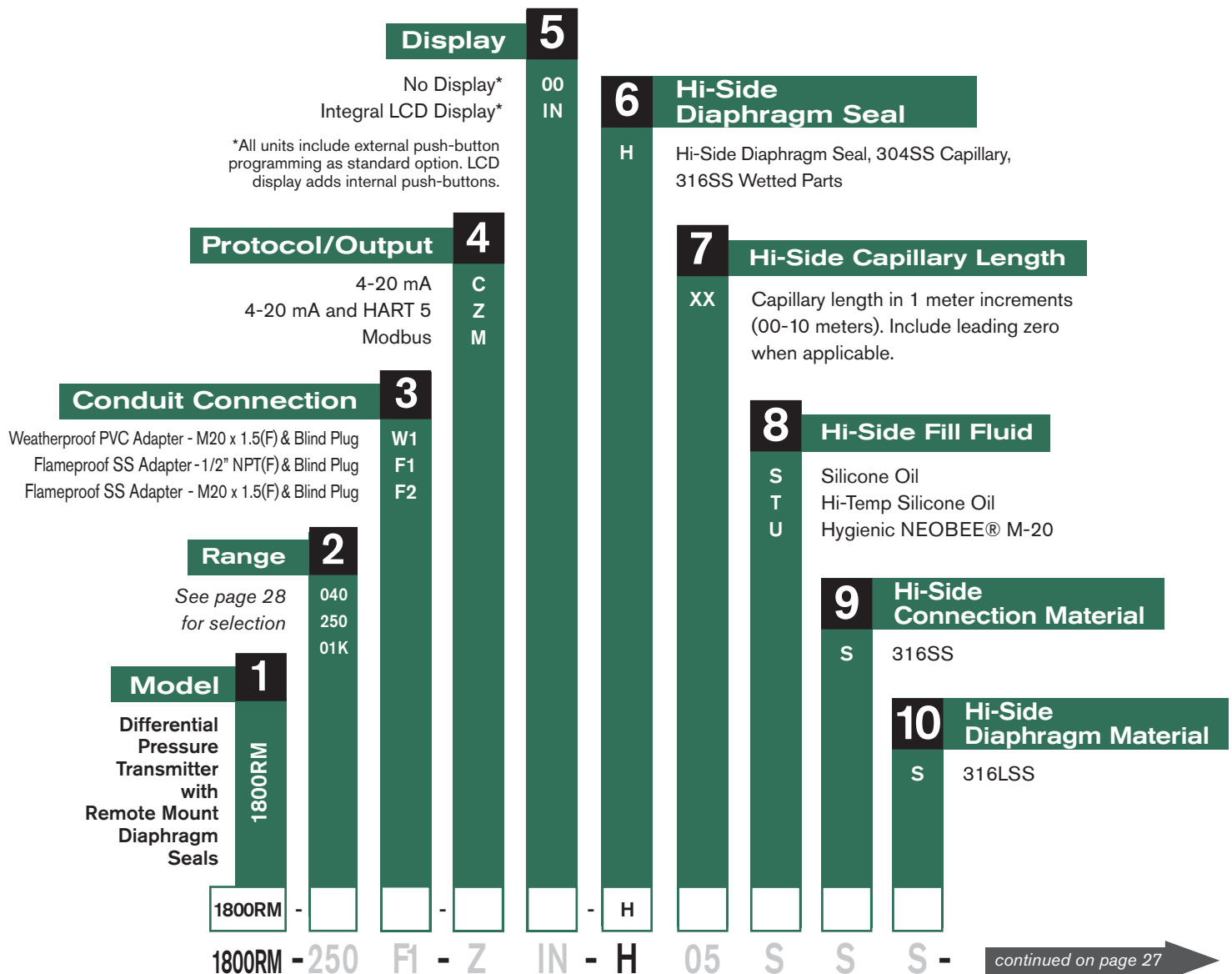
1800 Series Pressure Transmitters

How to Order
1800RM

How to Order

Below is the SOR quick select model number tree that provides you with all the options to configure and order a product for your application.

- You must select a designator for each component
- Reference tables, charts and additional information are provided throughout the catalog to help you make your selections, see pages noted in the tree.



See page 32 for agency and options.

1800 Series Pressure Transmitters

How to Order 1800RM

Lo-Side Fill Fluid 15 Silicone Oil Hi-Temp Silicone Oil Hygienic NEOBEE® M-20		S T U
Lo-Side Capillary Length 14 Capillary length in 1 meter increments (00-10 meters). Include leading zero when applicable.		XX
Lo-Side Diaphragm Seal 13 Lo-Side Diaphragm Seal, 304SS Capillary, 316SS Wetted Parts		L
Hi-Side Insert Tube 12 No Hi-Side Insert Tube Hi-Side Insert Tube, Ø 66mm x 50mm Long Hi-Side Insert Tube, Ø 66mm x 100mm Long Hi-Side Insert Tube, Ø 66mm x 150mm Long <i>See page 28 for dimensions</i>		D0 D1 D2 D3
Hi-Side Connection 11 DN50 PN40 RF Flange DN80 PN10 RF Flange DN100 PN10 RF Flange 1-1/2" Tri-Clamp 2" Tri-Clamp 2" 150# ANSI RF Flange 3" 150# ANSI RF Flange 2" 600# ANSI RF Flange <i>See page 28 for dimensions</i>		C1R C5R C6R C1T C2T C2C C3C C2E
Lo-Side Connection Material 16 316SS		S
Lo-Side Diaphragm Material 17 316LSS		S
Lo-Side Connection 18 C1R DN50 PN40 RF Flange C5R DN80 PN10 RF Flange C6R DN100 PN10 RF Flange C1T 1-1/2" Tri-Clamp C2T 2" Tri-Clamp C2C 2" 150# ANSI RF Flange C3C 3" 150# ANSI RF Flange C2E 2" 600# ANSI RF Flange <i>See page 28 for dimensions</i>		
Lo-Side Insert Tube 19 D0 No Lo-Side Insert Tube D1 Lo-Side Insert Tube, Ø 66mm x 50mm Long D2 Lo-Side Insert Tube, Ø 66mm x 100mm Long D3 Lo-Side Insert Tube, Ø 66mm x 150mm Long <i>See page 28 for dimensions</i>		
Accessories 20 <i>See page 29 for selection</i>		
continued from page 26		
Example Model No.		

See page 32 for agency and options.

Ranges

Designator	LRL	URL	Smallest Possible Span	Maximum Turndown	Max Static Pressure	Hi-Side Over Pressure	Lo-Side Over Pressure
	psid (kPa)	psid (kPa)	psid (kPa)		psi (MPa)	psid (MPa)	psid (MPa)
040	-5.8 (-40) (-161 inH2O)	5.8 (40) (161 inH2O)	1.45 (10)	4:1	5801 (40)	3626 (25)	2321 (16)
250	-36.3 (-250) (-1,006 inH2O)	36.3 (250) (1,006 inH2O)	3.63 (25)	10:1	5801 (40)	3626 (25)	2321 (16)
01K	-72.5 (-500) (-2,009 inH2O)	145 (1000) (4,018 inH2O)	14.5 (100)	10:1	5801 (40)	3626 (25)	2321 (16)

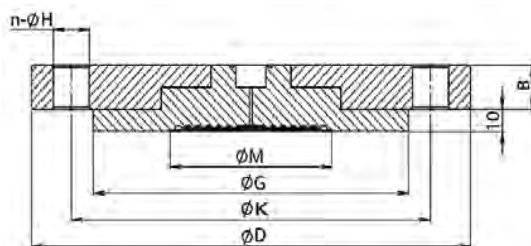
To determine if desired Measuring Range is achievable for a specific range option:

1. Lower End of Measuring Range $\geq$ LRL
2. Upper End of Measuring Range $\leq$ URL
3. Measuring Range Span = Upper End – Lower End $\geq$ Smallest Possible Span

Process Connection Dimensions

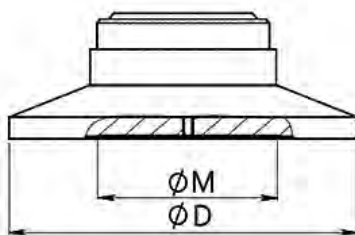
No Insert Tube

All units in mm.



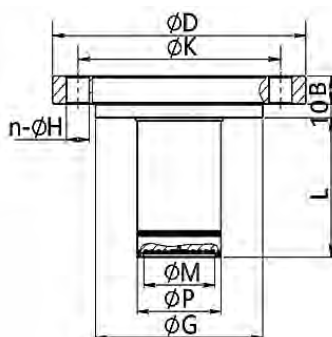
Option	C1R	C5R	C6R
Outer Diameter (ØD)	165	200	200
Thickness (B)	19	20	20
Hole Circumference (ØM)	125	160	160
Raised Face Diameter (ØG)	102	138	158
Hole Diameter (ØH)	18	18	18
Number (n)	4	8	8
Corrugation Size (ØM)	56	71	71

Tri-Clamp



Option	C1T	C2T
Size (ØD)	165	200
Corrugation Size (ØM)	56	71

Option C5R with Insert Tube



Option	D1	D2	D3
Outer Diameter (ØD)	200	200	200
Thickness (B)	20	20	20
Hole Circumference (ØM)	160	160	160
Raised Face Diameter (ØG)	138	138	138
Hole Diameter (ØH)	18	18	18
Number (n)	8	8	8
Corrugation Size (ØM)	42	42	42
Insert Tube Diameter (ØP)	66	66	66
Insert Tube Length (L)	50	100	150

Accessories

Description	Designator
Pipe Mounting Kit (Stainless Steel Bent Bracket for 2" Pipe) <i>Dimension drawing below.</i>	PK
Plate Mounting Kit (Carbon Steel Bent Bracket) <i>Dimension drawing page 30.</i>	PL
Pipe Mounting Kit (Stainless Steel Flat Bracket for 2" Pipe) <i>Dimension drawing page 30.</i>	PM
Clamp for 1-1/2" Tri-Clamp, One Side ¹ <i>Dimension drawing page 30.</i>	F1
Clamp for 2" Tri-Clamp, One Side ² <i>Dimension drawing page 30.</i>	F2
Clamps for 1-1/2" Tri-Clamps, Both Sides ³ <i>Dimension drawing page 30.</i>	F3
Clamps for 2" Tri-Clamps, Both Sides ⁴ <i>Dimension drawing page 30.</i>	F4
Gasket for 1-1/2" Tri-Clamp, One Side ¹ <i>Dimension drawing page 30.</i>	G1
Gasket for 2" Tri-Clamp, One Side ² <i>Dimension drawing page 30.</i>	G2
Gaskets for 1-1/2" Tri-Clamps, Both Sides ³ <i>Dimension drawing page 30.</i>	G3
Gaskets for 2" Tri-Clamps, Both Sides ⁴ <i>Dimension drawing page 30.</i>	G4
Welding Adapter for 1-1/2" Tri-Clamp, One Side ¹ <i>Dimension drawing page 30.</i>	W1
Welding Adapter for 2" Tri-Clamp, One Side ² <i>Dimension drawing page 30.</i>	W2
Welding Adapters for 1-1/2" Tri-Clamps, Both Sides ³ <i>Dimension drawing page 30.</i>	W3
Welding Adapters for 2" Tri-Clamps, Both Sides ⁴ <i>Dimension drawing page 30.</i>	W4
Customer-Specified Display Settings ^{5, 6}	SC
CSA Explosion Proof Class I, II, III, Div. 1, Grps. A, B, C, D, T6; Grps. E, F, G, T80°C ^{7, 8}	CS
CE Certificate	CE
Degrease Treatment of Wetted Parts	BB
Electropolishing Treatment of Wetted Parts	CC
Calibration Certificate	C1
Password Protected Setting Menu Lockout	LK
Compliance/Conformance	C4
Typical Material of Wetted Parts	C8
Certificate of Origin	D1
Manufacturer's Certificate	D2

¹ Requires C1T for Hi and/or Lo-Side Flange

² Requires C2T for Hi and/or Lo-Side Flange

³ Requires C1T for both Hi and Lo-Side Flange

⁴ Requires C2T for both Hi and Lo-Side Flange

⁵ Requires Display option IN

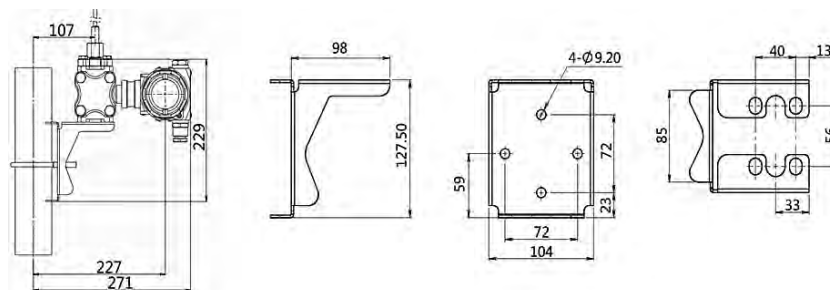
⁶ Form 1835_1800 Series SC Accessory Data Sheet must be completed and submitted with order

⁷ Requires Conduit Connection option F1 or F2

⁸ Not available with ATEX / IECEx Approvals

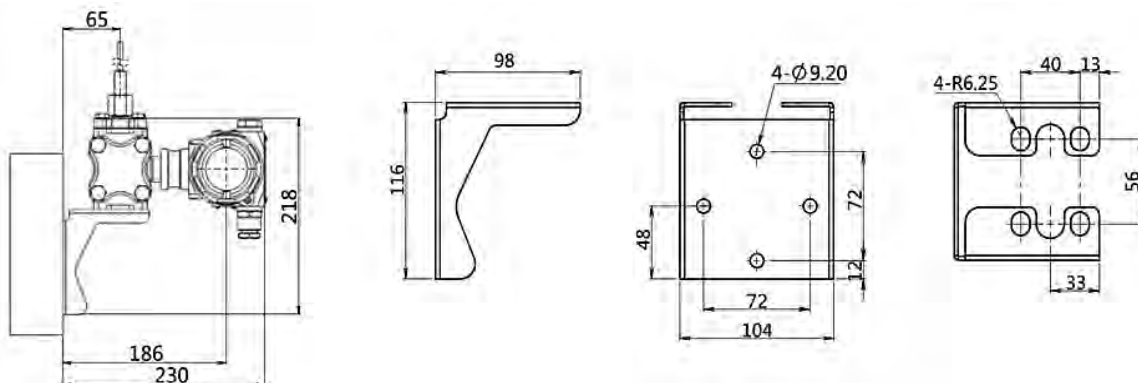
Dimensions = mm

PK - Pipe Mounting Kit (Stainless Steel Bent Bracket for 2" Pipe)

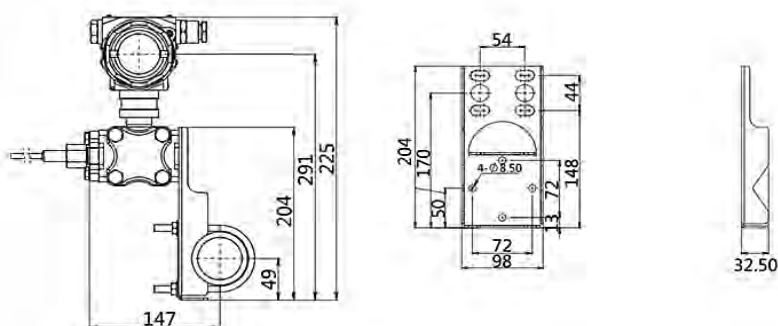


Dimensions = mm

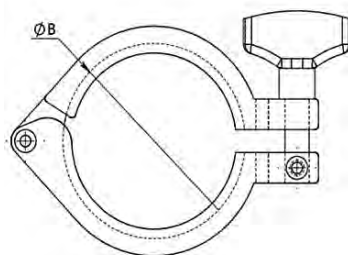
PL - Plate Mounting Kit (Carbon Steel Bent Bracket)



PM - Pipe Mounting Kit (Stainless Steel Flat Bracket for 2" Pipe)

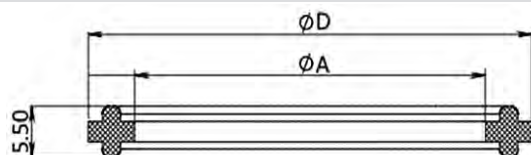


F1/F2/F3/F4 - Tri-Clamp



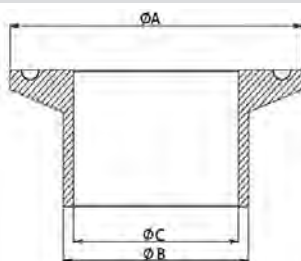
Option	F1/F3 (1-1/2" Clamp)	F2/F4 (2" Clamp)
Size (ØB)	53.9	67.4

G1/G2/G3/G4 - Tri-Clamp Gasket



Option	G1/G3 (1-1/2" Clamp)	G2/G4 (2" Clamp)
Size (ØD)	50.5	64
Size (ØA)	35	47.8

W1/W2/W3/W4 - Tri-Camp Welding Adapter



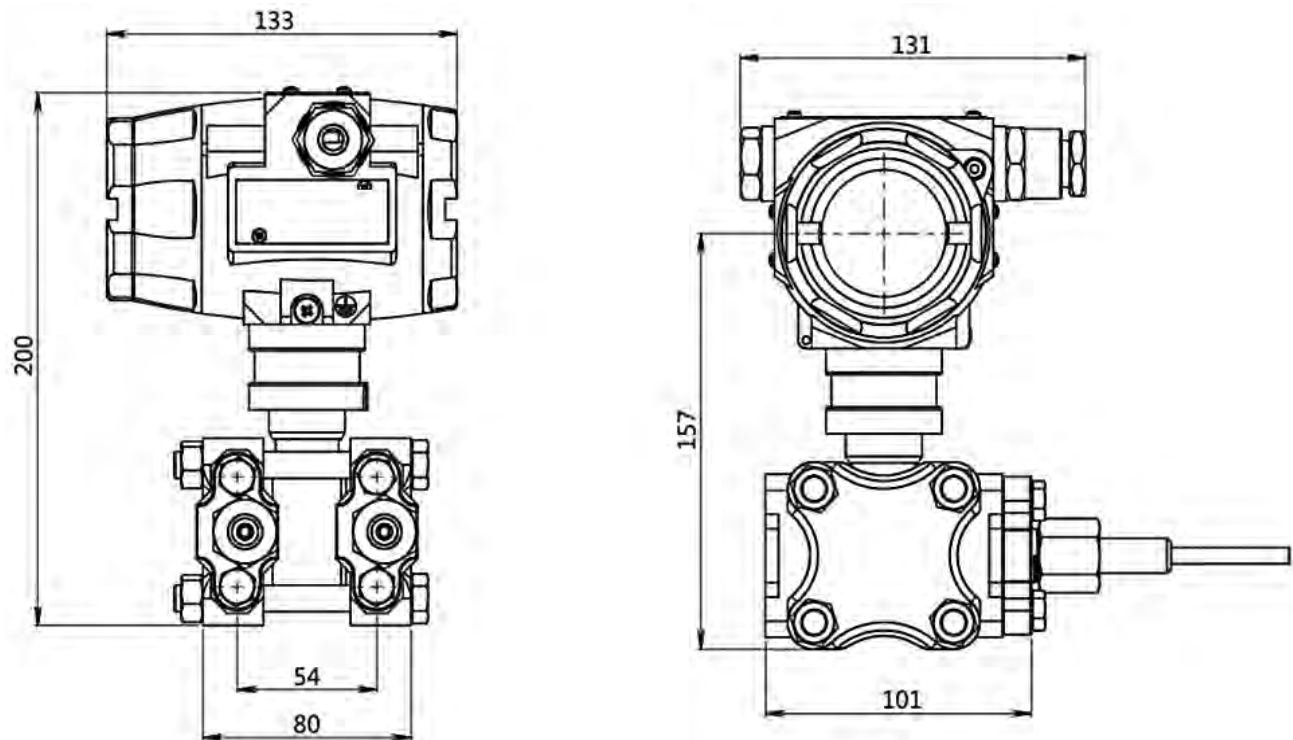
Option	W1/W3 (1-1/2" Clamp)	W2/W4 (2" Clamp)
Size (ØA)	50.5	64
Size (ØB)	38	51
Size (ØC)	35.6	48.6

1800 Series Differential Pressure Transmitter

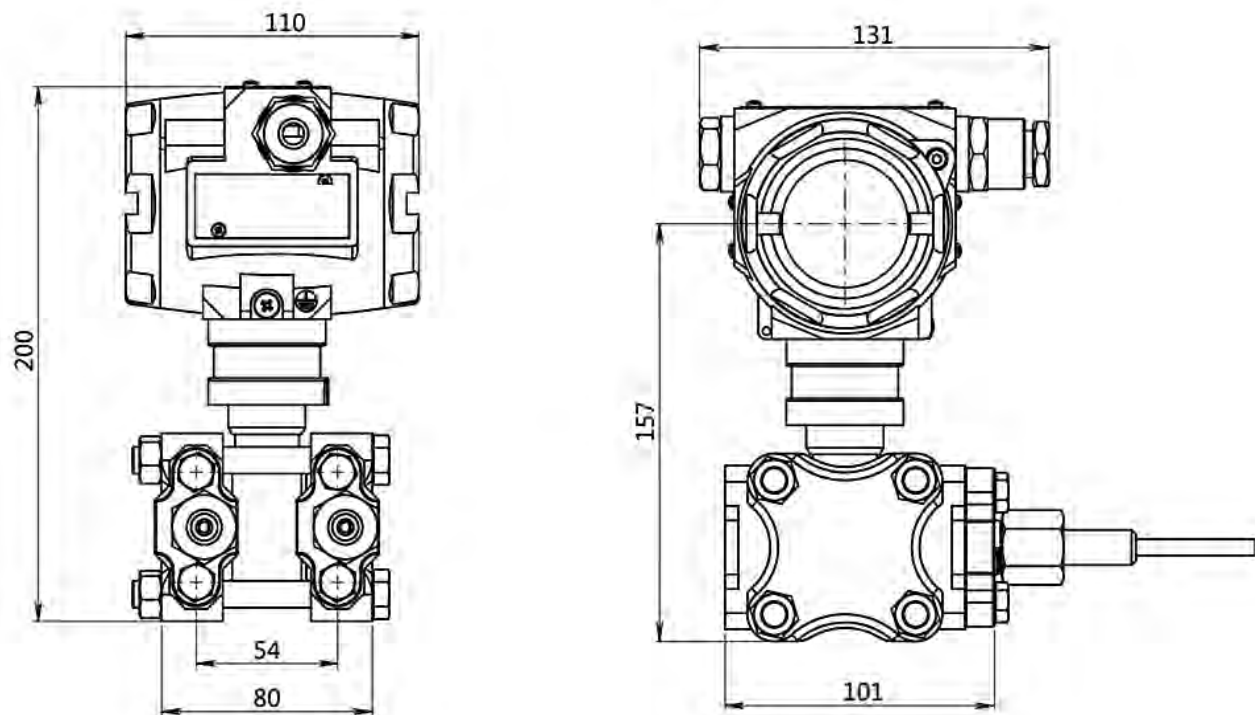
Dimensions
1800RM

Dimensions shown are for reference only.
Dimensions = mm

With Integral LCD Display (option IN)



Without Display (option 00)



1800 Series Pressure Transmitters

Agency and Options

Agency Approvals

Approved	Safety Method	Approval
ATEX / IECEx	Intrinsically Safe	EX ia IIC T4 Ga
	Flameproof	Ex db IIC T6 Gb Ex tb IIIC T80°C Db
CSA (U.S. and Canada)	Explosion Proof	Class I, II, III; Division 1 Groups A-D; T6 Groups E-G; T80°C

Manifolds

The 1800 Series Conventional Pressure Transmitters are available with two, three, or five-valve manifolds. The information in the Product Specifications table and Pressure-Temperature Limit chart below applies to all manifold models.

Product Specifications

Materials of Construction

Valve Body	304SS or 316SS
Valve Seat	Stainless Steel
Valve Tip	Duplex Stainless Steel
Stop Pin	Stainless Steel
Packing	PTFE

Process Temperature ≤ 302°F

Ambient Temperature -22 to 199°F

*Design and specifications are subject to change without notice.
For latest revision, see SORInc.com.*



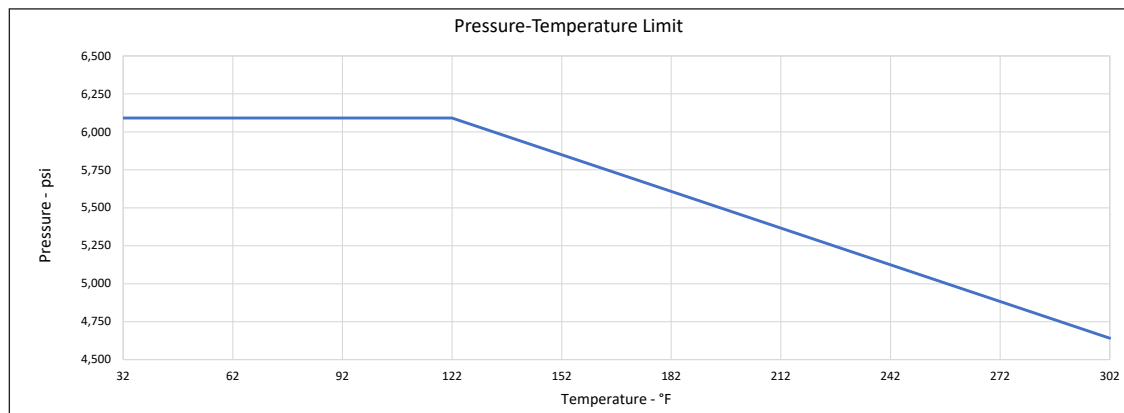
MF2 2-Valve



MF3 3-Valve



MF5 5-Valve



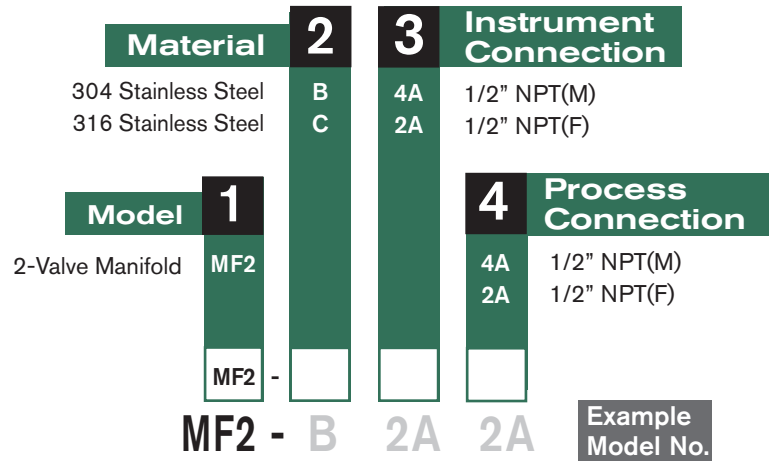
1800 Series Pressure Transmitters

2-Valve Manifold

How to Order

Below is the SOR quick select model number tree that provides you with all the options to configure and order a product for your application.

- You must select a designator for each component



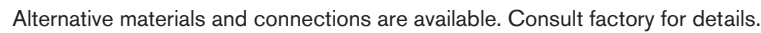
Alternative materials and connections are available. Consult factory for details.

Dimensions = mm

Connections	
Instrument - 1/2" NPT(F) Process - 1/2" NPT(F)	
Instrument - 1/2" NPT(M) Process - 1/2" NPT(F)	
Instrument - 1/2" NPT(M) Process - 1/2" NPT(M)	

3-Valve Manifold

- You must select a designator for each component



The image displays two technical drawings of the 3500 Series 1/2" NPT 3-Port Solenoid Valve in its closed position. The top drawing, labeled 'Process Connections', shows the valve with its two main ports (1 and 2) and a central port (3). The bottom drawing, labeled 'Instrument Connections', shows the valve with its two main ports (1 and 2) and a central port (3) for instrument connections. Both drawings include dimensions: a vertical dimension of 120, a horizontal dimension of 220, and a central port diameter of 35. The valve body is shown in a cross-section view, and the solenoid coil is indicated by a dashed line.

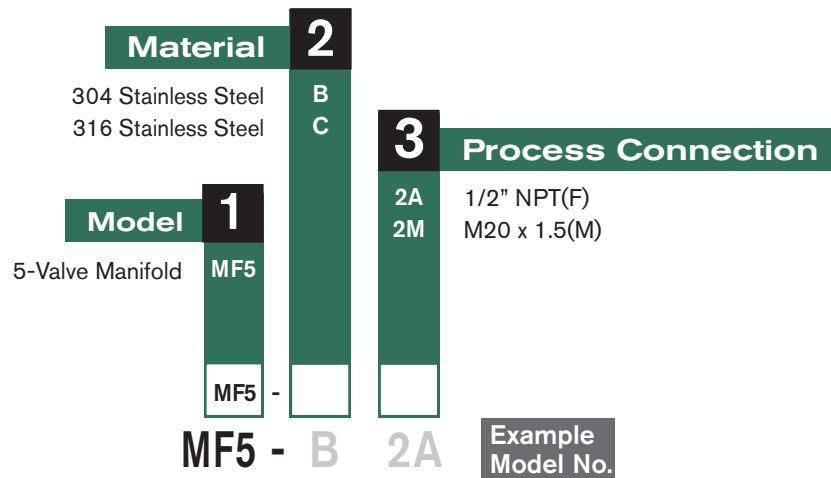
1800 Series Pressure Transmitters

5-Valve Manifold

How to Order

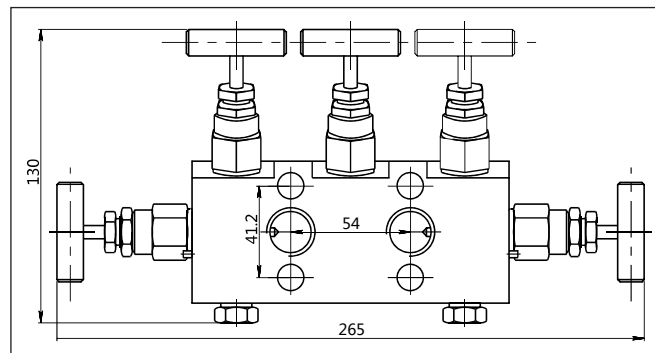
Below is the SOR quick select model number tree that provides you with all the options to configure and order a product for your application.

- You must select a designator for each component



Alternative materials and connections are available. Consult factory for details.

Dimensions = mm





MEASUREMENT AND CONTROL

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