MEASUREMENT AND CONTROL

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 ±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
- ±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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Product Specifications - 1800PT

Output	**4-20mA**
	1-5VDC Low Power
	HART 5 (Optional)
	Modbus
Accuracy	**(Linearity, Hysterisis and Repeatability)**
	Turndown ≤ 10:1 ±0.075% URL
	10:1 < TD ≤ 20:1 ±(0.0075 x TD)% URL
Temperature Effect	**± (0.075 + (0.015xTD))% URL per 50°F Change @ -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	**-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**

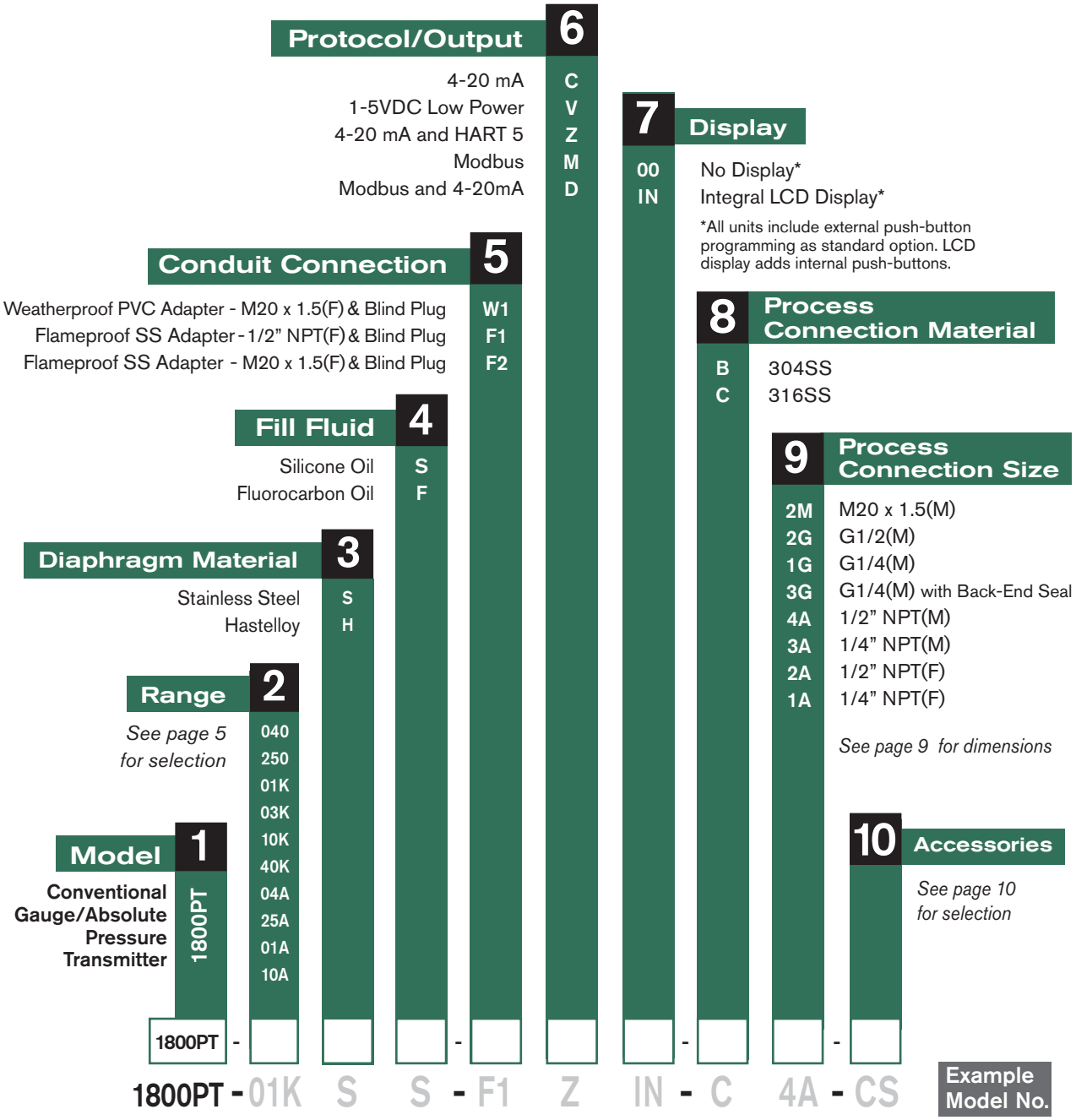
Long Term Stability	**≤ ±0.2% URL per 5 years**
Response Time	**≤ 200 ms**
Damping Time	**0-100 s (Configurable)**
Startup Time	**≤ 6 s**
Supply Voltage	
4-20mA	**10.5-55 VDC**
1-5VDC Low Power	**9-32 VDC**
HART® with 250 Ω load	**16.5-55 VDC**
Modbus	**5-32 VDC**
Modbus with 4-20mA	**12-30 VDC**
Loop Resistance	**0-2119 Ω**
HART® Protocol	**250-600 Ω**
Circuit Protection	**Reverse Polarity and EMC (EMI/RFI) protected**
Power Consumption	**≤ 500 mW @ 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 (No Adapters or Brackets)	**3.44 lbs**
Warranty	**3 years**

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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.

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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 ≥ LRL
2. Upper End of Measuring Range ≤ URL
3. Measuring Range Span = Upper End – Lower End ≥ Smallest Possible Span



Product Specifications - 1800PR

Output	4-20mA 1-5VDC Low Power HART 5 (Optional) Modbus
Accuracy	(Linearity, Hysterisis and Repeatability) ± 0.2% URL
Temperature Effect	± (0.1 + (0.1xTD))% URL per 50°F Change @ -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	-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	≤ ±0.1% URL per year

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	≤ 500mW @ 24VDC, 20.8mA
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 (No Adapters or Brackets)	3.18 lbs
Warranty	3 years

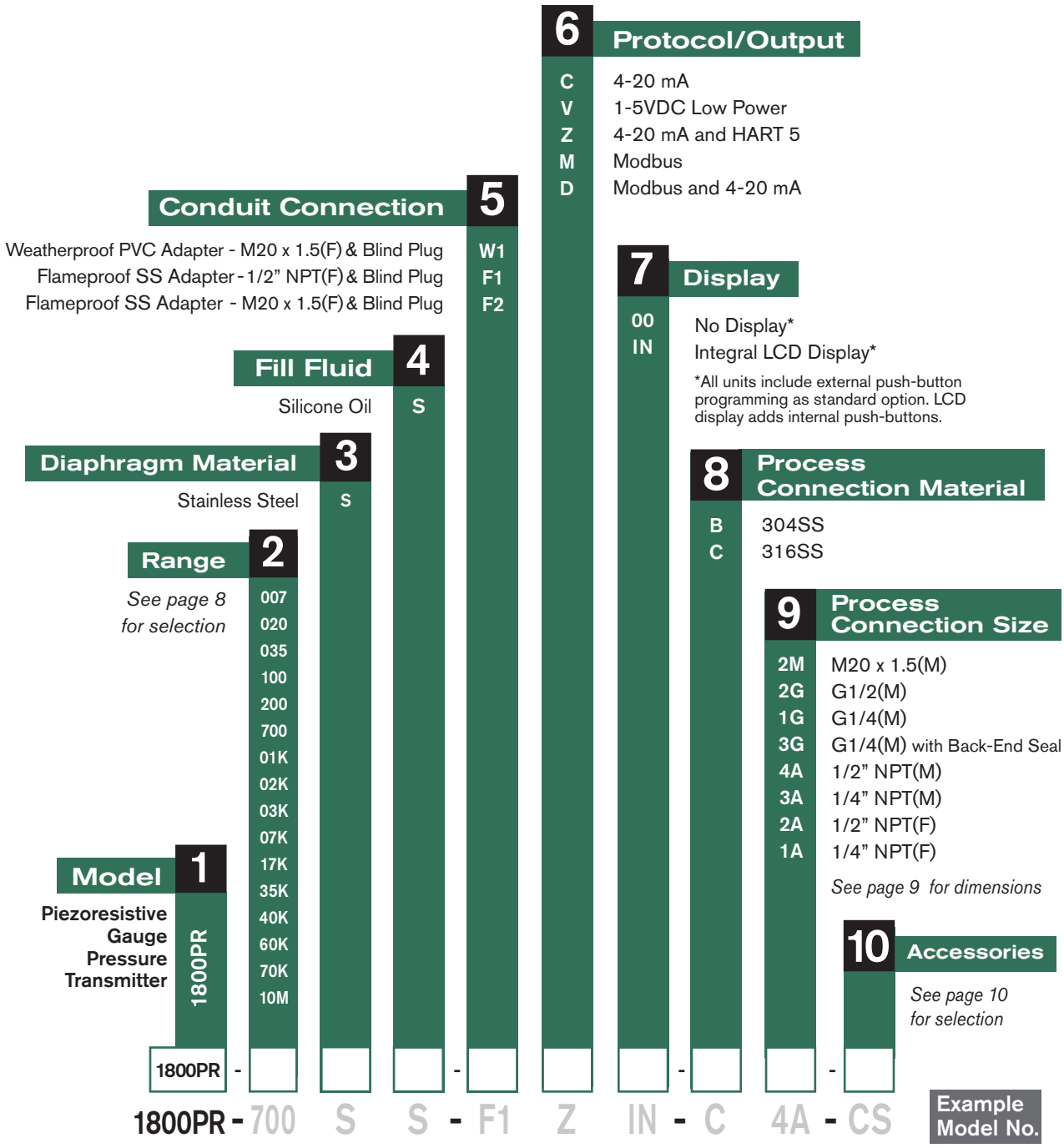
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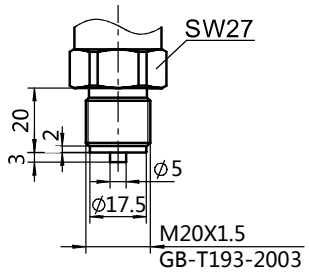
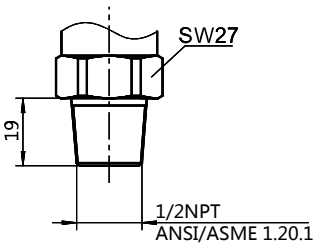
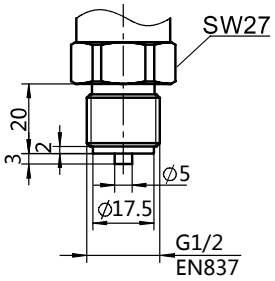
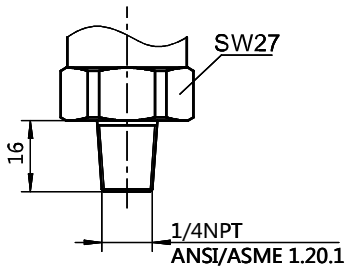
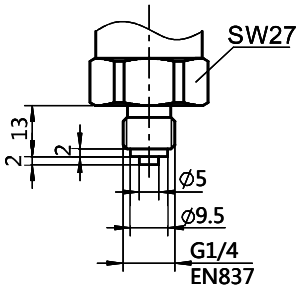
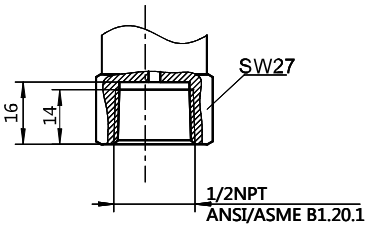
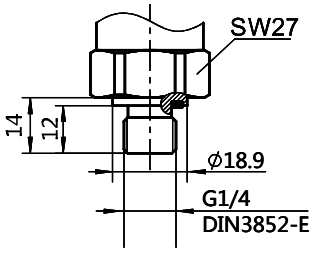
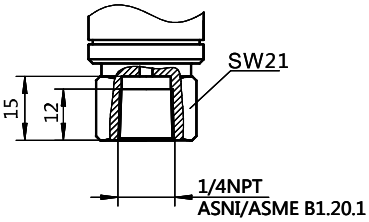
Ranges

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 ≥ LRL
2. Upper End of Measuring Range ≤ URL
3. Measuring Range Span = Upper End – Lower End ≥ Smallest Possible Span

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)	

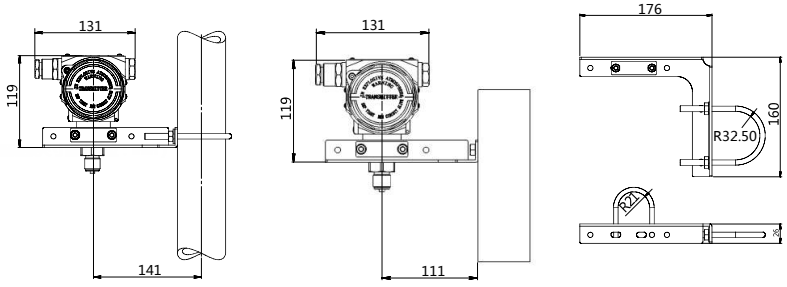
Accessories

Description	Designator
Pipe Mounting Kit (U-Shaped Bracket for 2" Pipe) *Dimension drawing below.*	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 *Dimension drawing below.*	ET
Finned Heat Exchange Connector *Dimension drawing below.*	FE
Calibration Certificate	C1
Welding Adapter M20 x 1.5(M) 304SS [4] *Dimension drawing below.*	WM
Welding Adapter G1/2(F) 304SS [5] *Dimension drawing below.*	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

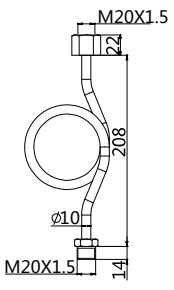
[1] Requires Display option IN
[2] Requires Conduit Connection option F1 or F2
[3] Not available with ATEX / IECEx Approvals
[4] Requires 2M Process Connection Size
[5] Requires 2G Process Connection Size
[6] Form 1835_1800 Series SC Accessory Data Sheet must be completed and submitted with order

Dimensions = mm

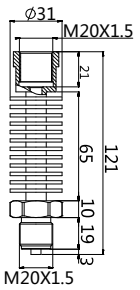
PK - Pipe Mounting Kit



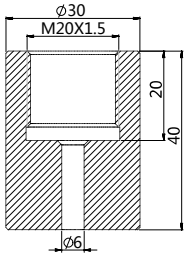
ET- Coiled Tube Heat Exchange Connector



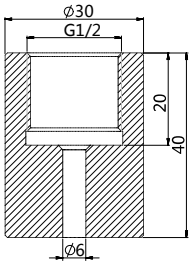
FE - Finned Heat Exchange Connector



WM - Welding Adapter M20 x 1.5(M)



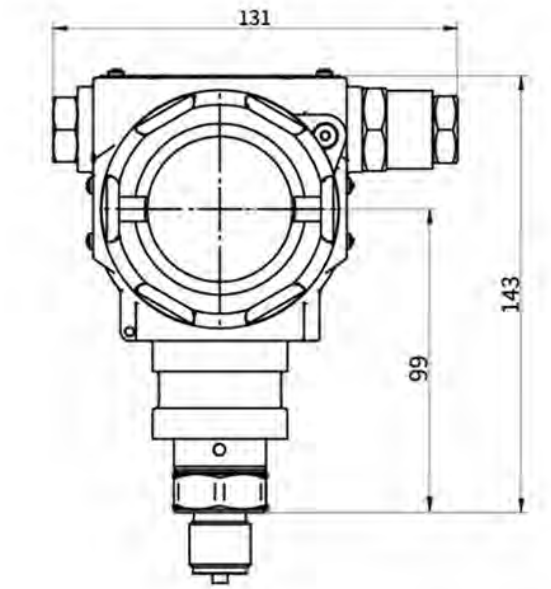
WG - Welding Adapter G1/2(F)

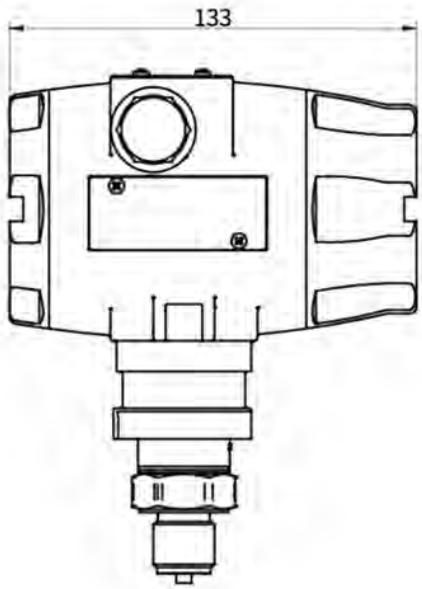


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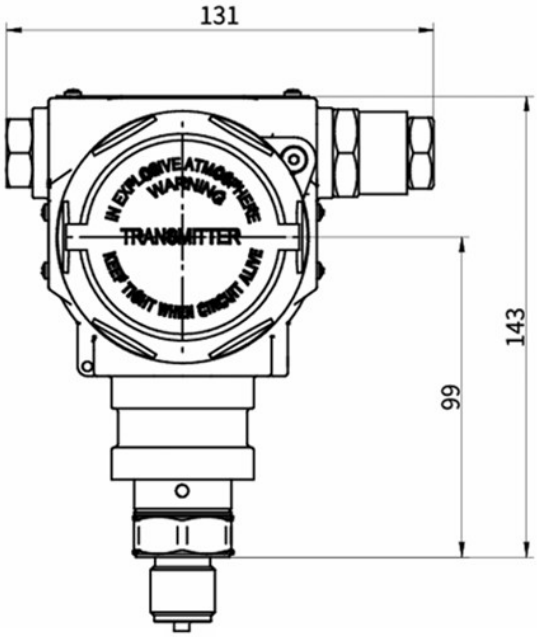
Dimensions shown are for reference only.
Dimensions = mm

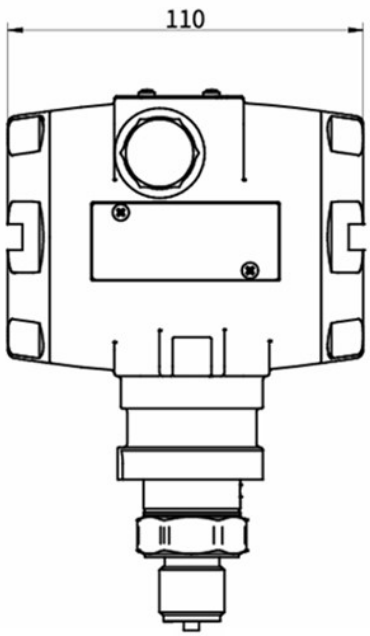
With Integral LCD Display (option IN)





Without Display (option 00)





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Product Specifications - 1800DP

Output	**4-20mA**
	Linear (default) or Square Root
	1-5VDC Low Power
	HART 5 (Optional)
	Modbus
Accuracy	**(Linearity, Hysterisis and Repeatability)**
	Turndown ≤ 10:1 ±0.075% URL
	10:1 < TD ≤ 100:1 ±(0.0075 x TD)% 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	**-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	**≤ ±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	**≤ 500mW @ 24VDC, 20.8mA**
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 (No Adapters or Brackets)	**8.82 lbs**
Warranty	**3 years**

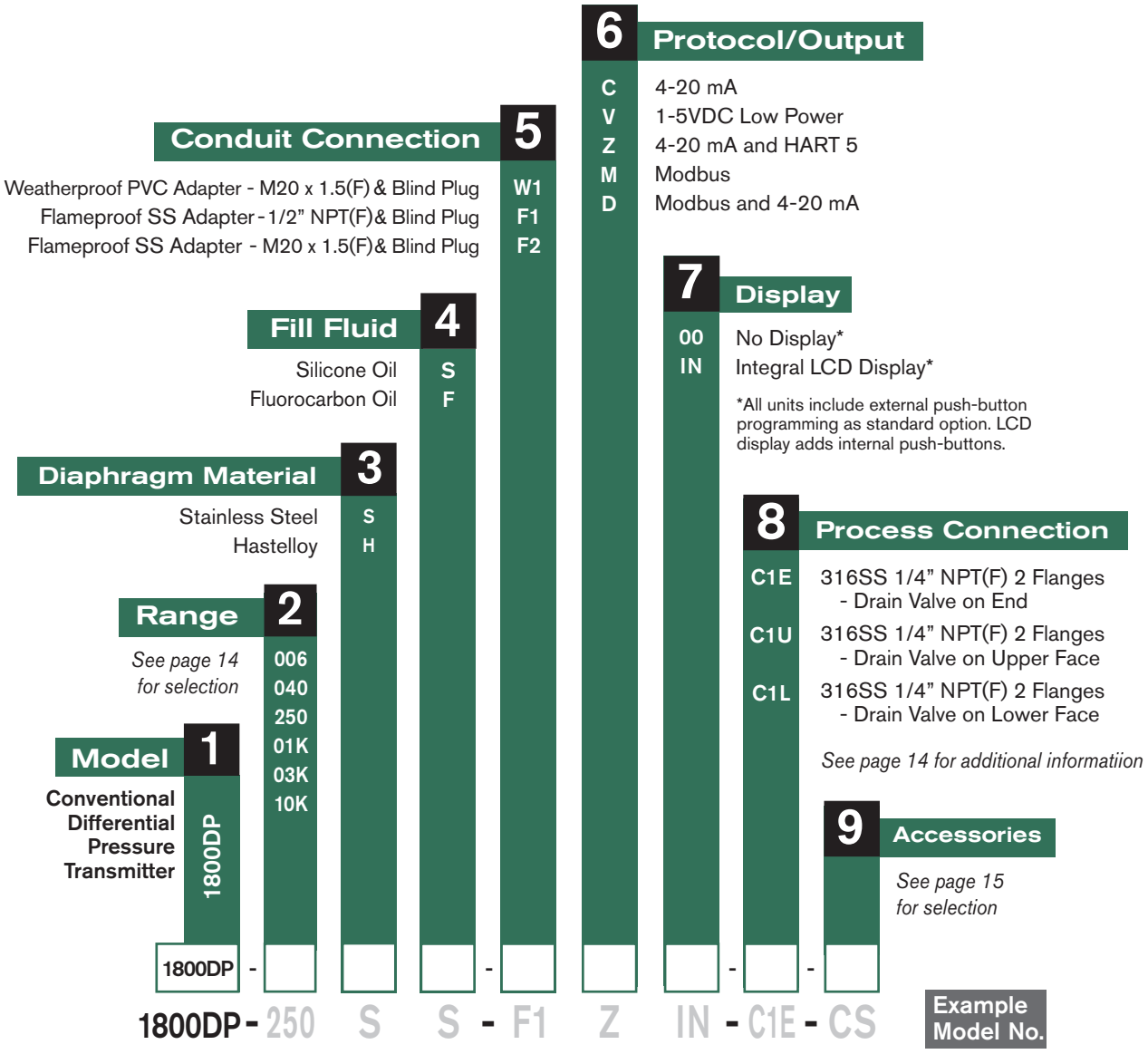
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See page 32 for agency and options.

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 ≥ LRL
2. Upper End of Measuring Range ≤ URL
3. Measuring Range Span = Upper End – Lower End ≥ 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
		

Form 1906 (07.26) ©SOR Inc.

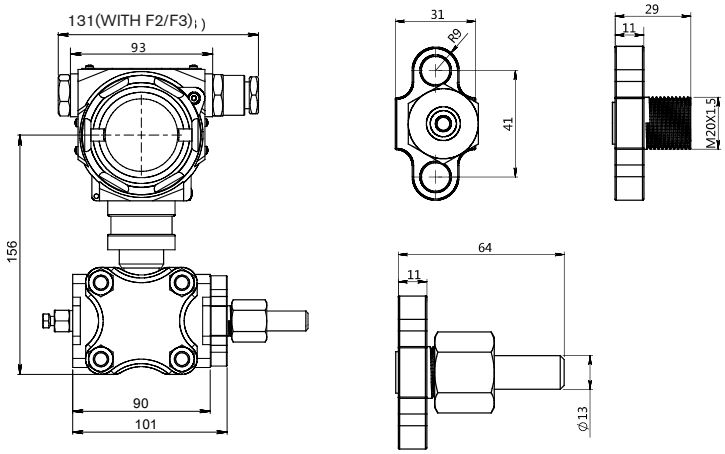
Accessories

Description	Designator
Process Connection Adapter M20 x 1.5(M) 304SS *Dimension drawing below.*	CM
Process Connection Adapter 1/2" NPT(F) 304SS *Dimension drawing page 16.*	CN
Pipe Mounting Kit (Stainless Steel Bent Bracket for 2" Pipe) *Dimension drawing page 16.*	PK
Plate Mounting Kit (Carbon Steel Bent Bracket) *Dimension drawing page 16.*	PL
Pipe Mounting Kit (Stainless Steel Flat Bracket for 2" Pipe) *Dimension drawing page 16.*	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

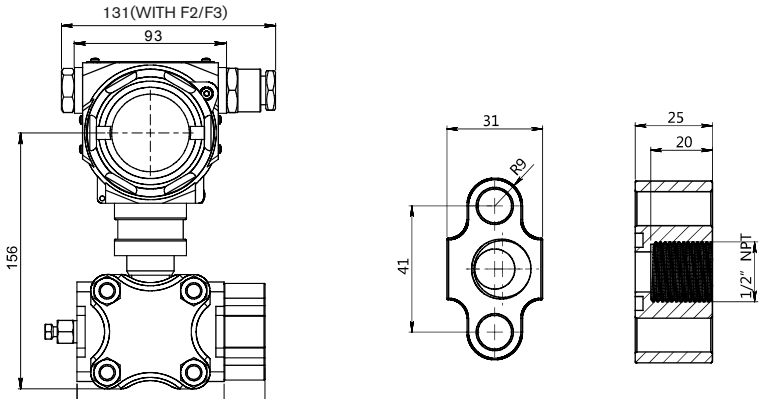
Dimensions = mm

CM
Process
Connection Adapter
M20 x 1.5(M) 304SS

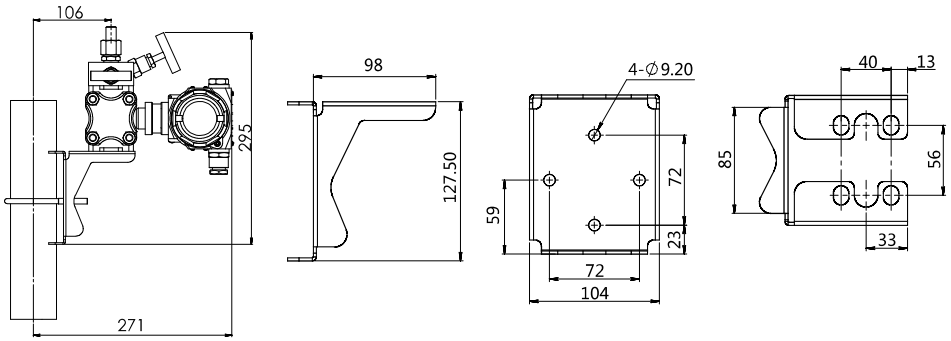


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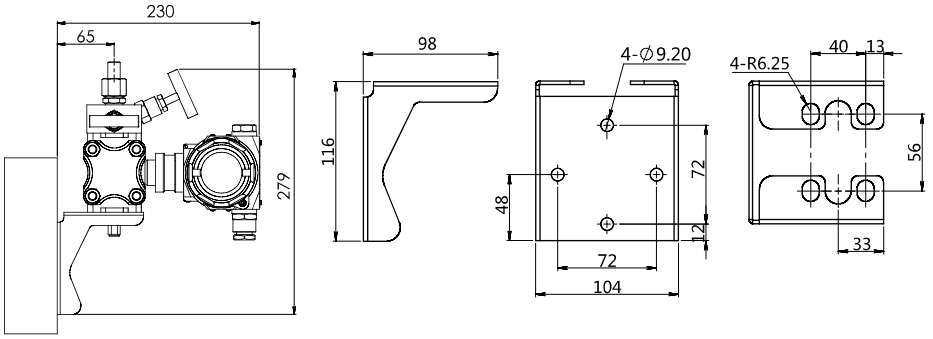
CN
Process Connection Adapter 1/2" NPT(F) 304SS



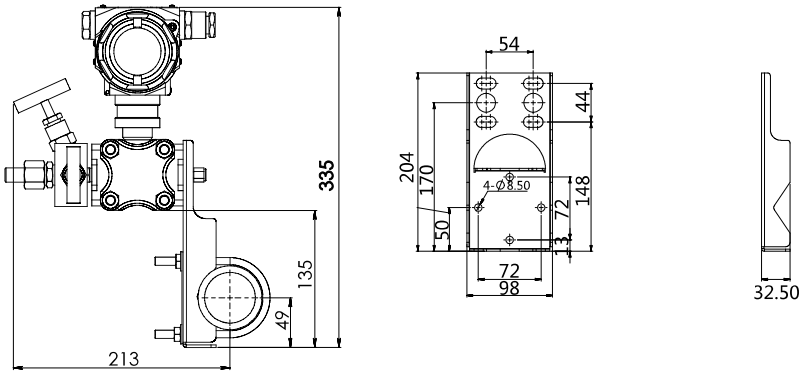
PK
Pipe Mounting Kit (Stainless Steel Bent Bracket for 2" Pipe)



PL
Plate Mounting Kit (Carbon Steel Bent Bracket)



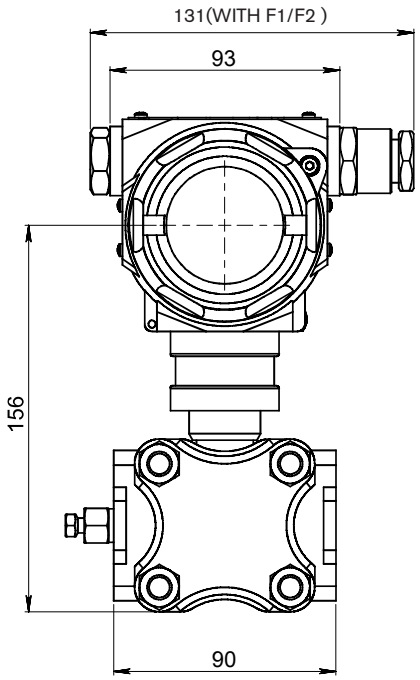
PM
Pipe Mounting Kit (Stainless Steel Flat Bracket for 2" Pipe)

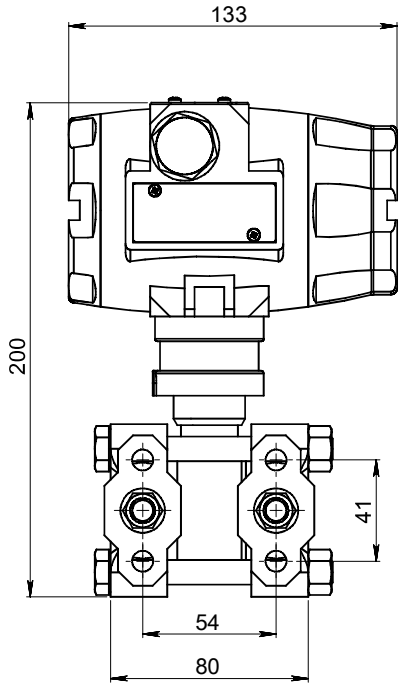


Form 1906 (07.26) ©SOR Inc.

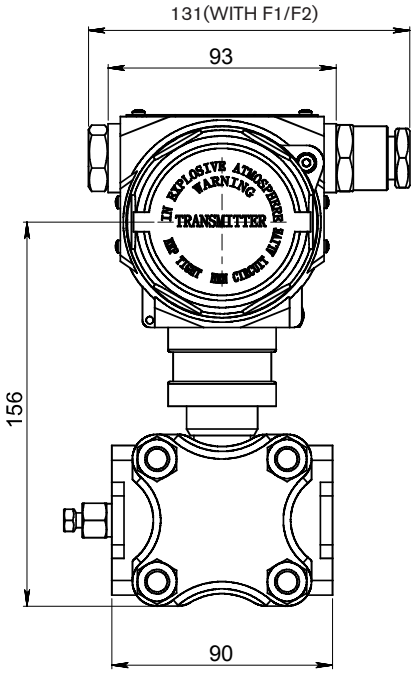
Dimensions shown are for reference only.
Dimensions = mm

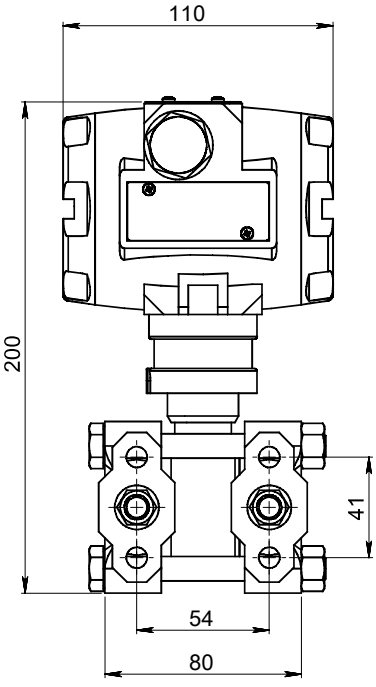
With Integral LCD Display (option IN)





Without Display (option 00)





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



Product Specifications - 1800DM

Output	4-20mA Linear (default) or Square Root HART 5 (Optional) Modbus
Accuracy	(Linearity, Hysterisis 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/580 psi @ -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	10.5-55 VDC
HART® with 250 Ω load	16.5-55 VDC
Modbus	5-32 VDC
Loop Resistance	0-2119 Ω
HART® Protocol	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	
2" Flange	17.9 lbs
3" Flange	23.1 lbs
Warranty	3 years

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

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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.

1 Model

1800DM – Differential Pressure Transmitter with Direct Mount Diaphragm Seal

2 Range

See page 20 for selection

- 040
- 250
- 01K

3 Conduit Connection

- W1 – Weatherproof PVC Adapter - M20 x 1.5(F) & Blind Plug
- F1 – Flameproof SS Adapter - 1/2" NPT(F) & Blind Plug
- F2 – Flameproof SS Adapter - M20 x 1.5(F) & Blind Plug

4 Protocol/Output

- C – 4-20 mA
- Z – 4-20 mA and HART 5
- M – Modbus

5 Display

- 00 – No Display*
- IN – Integral LCD Display*

*All units include external push-button programming as standard option. LCD display adds internal push-buttons.

6 Hi-Side Diaphragm Seal

- HL – Hi-Side Diaphragm Seal, Direct Mount, 304SS Capillary, 316SS Wetted Parts
  Lo-Side 1/4" NPT(F), 316SS Wetted Parts

7 Hi-Side Capillary Length

- XX – Capillary length in 1 meter increments (00-10 meters). Include leading zero when applicable.

8 Hi-Side Fill Fluid

- S – Silicone Oil
- T – Hi-Temp Silicone Oil
- U – Hygienic NEOBEE® M-20

9 Hi-Side Connection Material

- S – 316SS

10 Hi-Side Diaphragm Material

- S – 316LSS

11 Hi-Side Connection

- 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

12 Hi-Side Insert Tube

- 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

13 Accessories

See page 21 for selection

1800DM	-			-			-							-			-	
1800DM	-	01K	F1	-	Z	IN	-	HL	03	S	S	S	-	C2C	D0	-	CS	

See page 32 for agency and options.

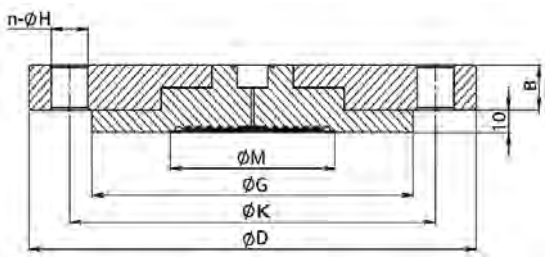
Ranges

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 ≥ LRL
2. Upper End of Measuring Range ≤ URL
3. Measuring Range Span = Upper End – Lower End ≥ Smallest Possible Span

Process Connnection Dimensions

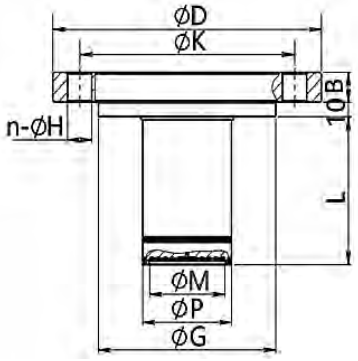
No Insert Tube



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

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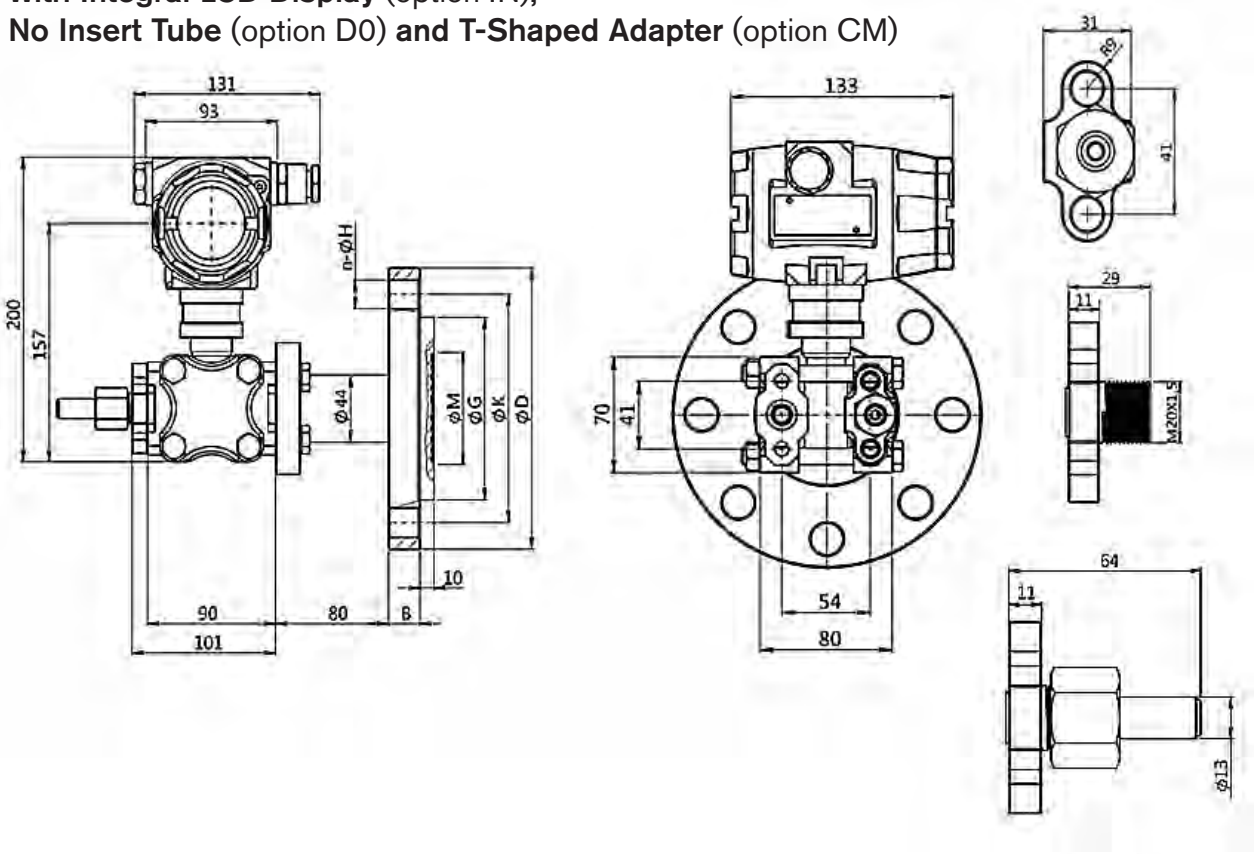
Accessories

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

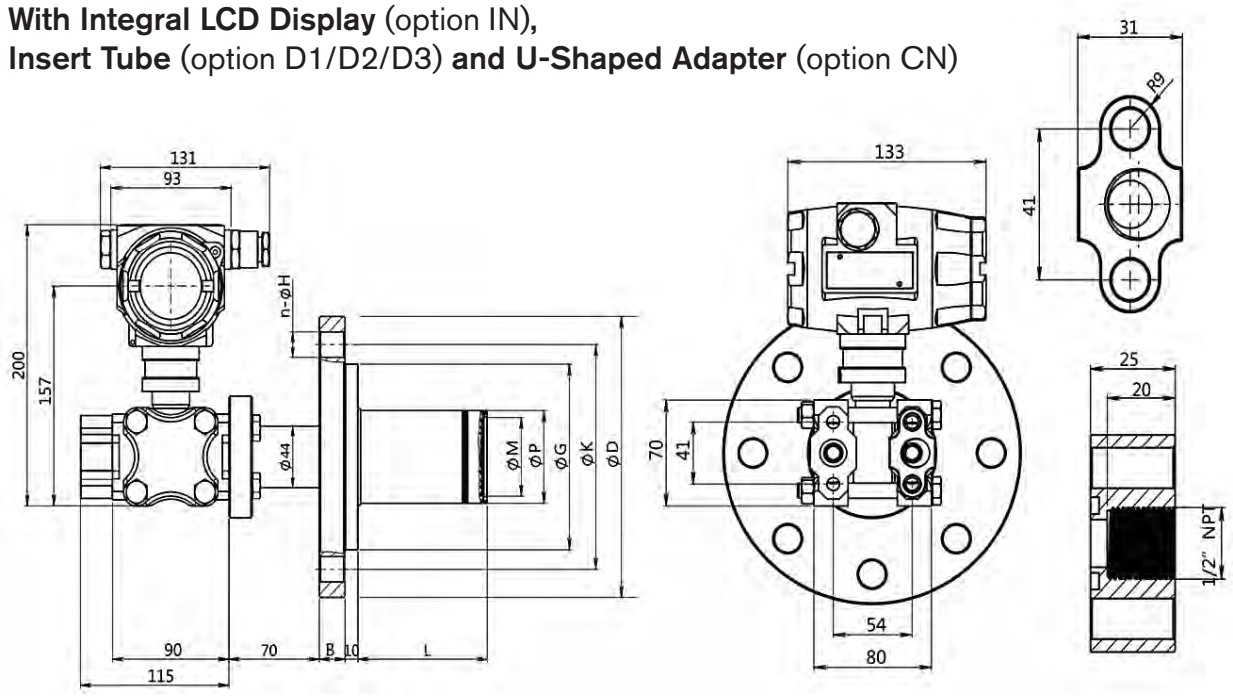
[1] Requires Display option IN [2] Requires Conduit Connection option F1 or F2 [3] Not available with ATEX / IECEx Approvals
[4] Form 1835_1800 Series SC Accessory Data Sheet must be completed and submitted with order

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)



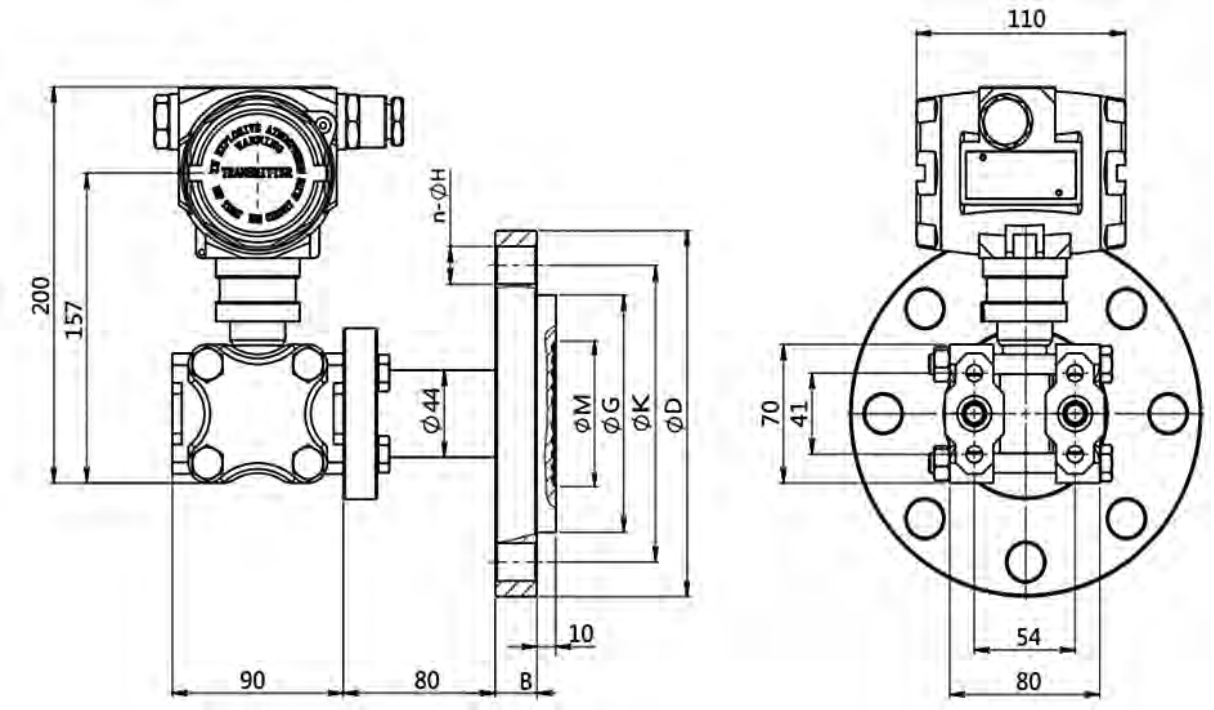
With Integral LCD Display (option IN),
Insert Tube (option D1/D2/D3) **and U-Shaped Adapter** (option CN)



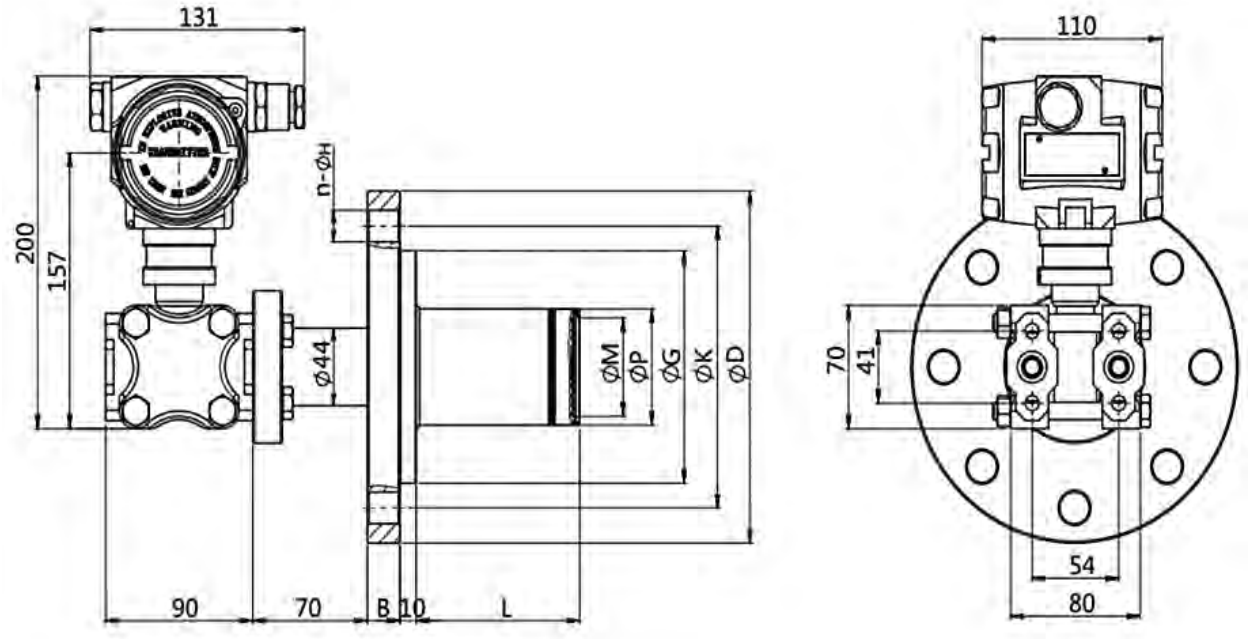
Design and specifications are subject to change without notice. For latest revision, see SORInc.com.

Dimensions shown are for reference only.
Dimensions = mm

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

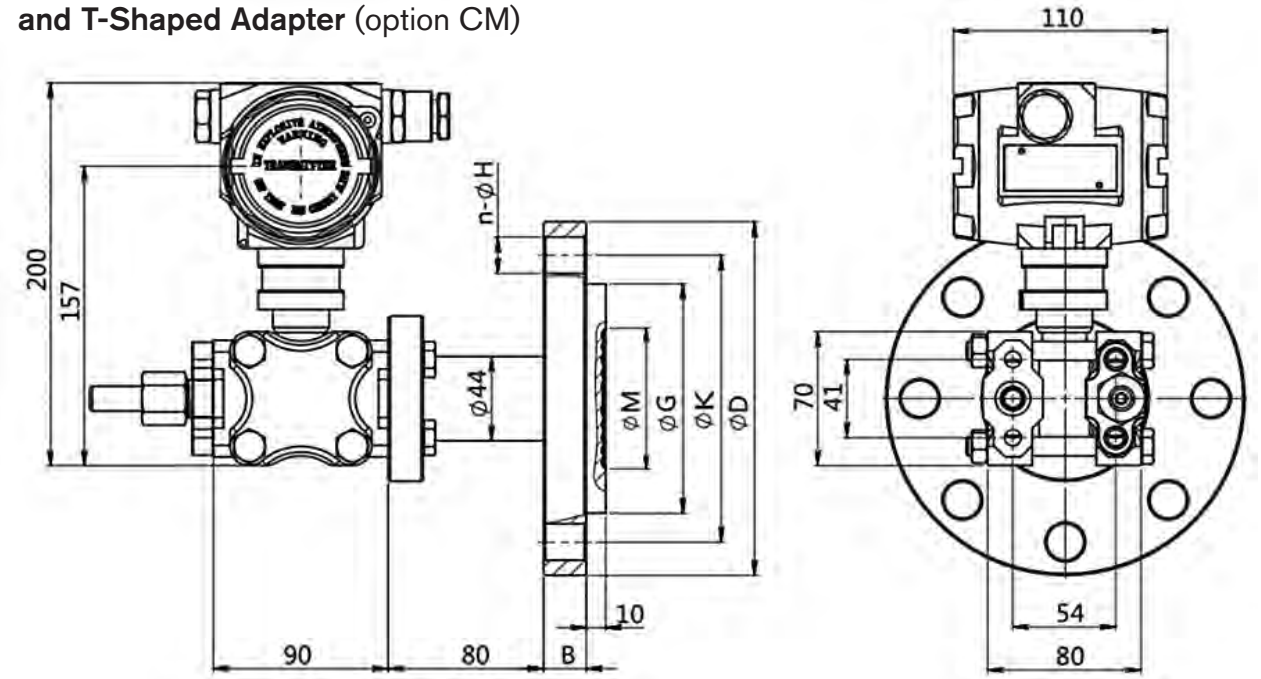


Without Display (option 00) **and Insert Tube** (option D1/D2/D3)

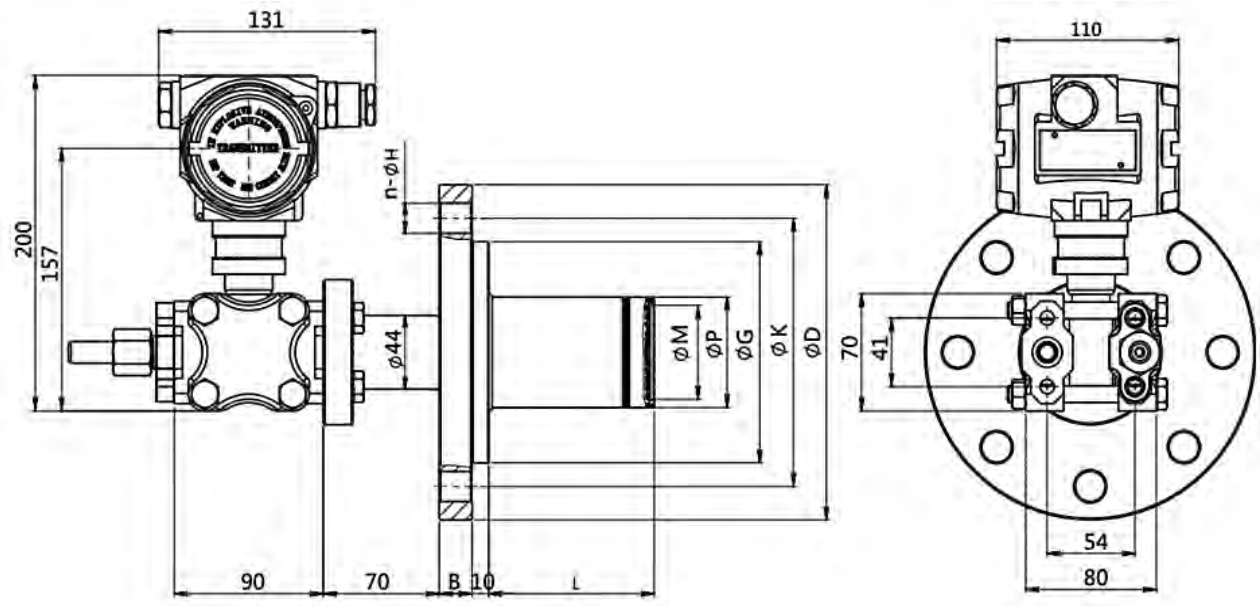


Dimensions shown are for reference only.
Dimensions = mm

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)



Product Specifications - 1800RM



Output	**4-20mA** **Linear (default) or Square Root** **HART 5 (Optional)** **Modbus**
Accuracy	**(Linearity, Hysterisis 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	**10.5-55 VDC**
HART® with 250 Ω load	**16.5-55 VDC**
Modbus	**5-32 VDC**
Loop Resistance	**0-2119 Ω**
HART® Protocol	**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.

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.

1 Model

1800RM — Differential Pressure Transmitter with Remote Mount Diaphragm Seals

2 Range

See page 28 for selection

040
250
01K

3 Conduit Connection

W1 — Weatherproof PVC Adapter - M20 x 1.5(F) & Blind Plug
F1 — Flameproof SS Adapter - 1/2" NPT(F) & Blind Plug
F2 — Flameproof SS Adapter - M20 x 1.5(F) & Blind Plug

4 Protocol/Output

C — 4-20 mA
Z — 4-20 mA and HART 5
M — Modbus

5 Display

00 — No Display*
IN — Integral LCD Display*

*All units include external push-button programming as standard option. LCD display adds internal push-buttons.

6 Hi-Side Diaphragm Seal

H — Hi-Side Diaphragm Seal, 304SS Capillary, 316SS Wetted Parts

7 Hi-Side Capillary Length

XX — Capillary length in 1 meter increments (00-10 meters). Include leading zero when applicable.

8 Hi-Side Fill Fluid

S — Silicone Oil
T — Hi-Temp Silicone Oil
U — Hygienic NEOBEE® M-20

9 Hi-Side Connection Material

S — 316SS

10 Hi-Side Diaphragm Material

S — 316LSS

1800RM - [ ] [ ] - [ ] [ ] - [ ] H [ ] [ ] [ ] [ ]

1800RM - 250 F1 - Z IN - H 05 S S S -

continued on page 27

See page 32 for agency and options.

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15 Lo-Side Fill Fluid

Silicone Oil	S
Hi-Temp Silicone Oil	T
Hygienic NEOBEE® M-20	U

14 Lo-Side Capillary Length

Capillary length in 1 meter increments (00-10 meters). Include leading zero when applicable.

XX

13 Lo-Side Diaphragm Seal

Lo-Side Diaphragm Seal, 304SS Capillary, 316SS Wetted Parts

L

12 Hi-Side Insert Tube

No Hi-Side Insert Tube	D0
Hi-Side Insert Tube, Ø 66mm x 50mm Long	D1
Hi-Side Insert Tube, Ø 66mm x 100mm Long	D2
Hi-Side Insert Tube, Ø 66mm x 150mm Long	D3

See page 28 for dimensions

11 Hi-Side Connection

DN50 PN40 RF Flange	C1R
DN80 PN10 RF Flange	C5R
DN100 PN10 RF Flange	C6R
1-1/2" Tri-Clamp	C1T
2" Tri-Clamp	C2T
2" 150# ANSI RF Flange	C2C
3" 150# ANSI RF Flange	C3C
2" 600# ANSI RF Flange	C2E

See page 28 for dimensions

16 Lo-Side Connection Material

S 316SS

17 Lo-Side Diaphragm Material

S 316LSS

18 Lo-Side Connection

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

See page 28 for dimensions

19 Lo-Side Insert Tube

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

See page 28 for dimensions

20 Accessories

See page 29 for selection

continued from page 26

C2C	D0	-	L	05	S	S	S	-	C2C	D0 - CS

Example Model No.

See page 32 for agency and options.

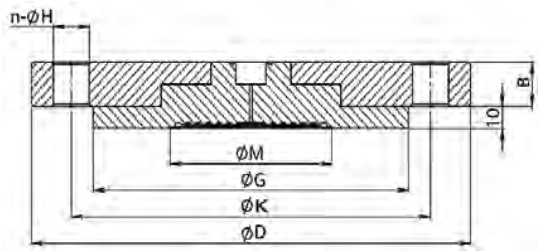
Ranges

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 ≥ LRL
2. Upper End of Measuring Range ≤ URL
3. Measuring Range Span = Upper End – Lower End ≥ Smallest Possible Span

Process Connnection Dimensions

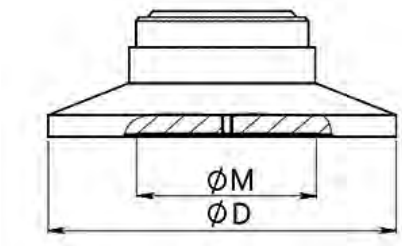
No Insert Tube



All units in mm.

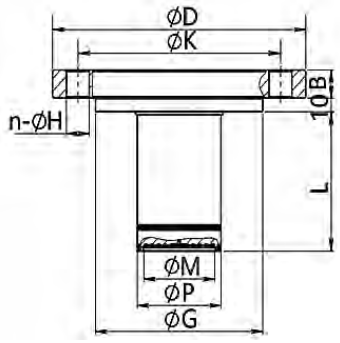
Option	C1R	C5R	C6R
Outer Diameter (ØD)	165	200	200
Thickness (B)	19	20	20
Hole Circumference (ØK)	125	160	160
Raised Face Diameter (ØG)	102	138	158
Hole Diameter (ØH)	18	18	18
Number (n)	4	8	8
Corrugation Size (ØM)	56	71	71

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 (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

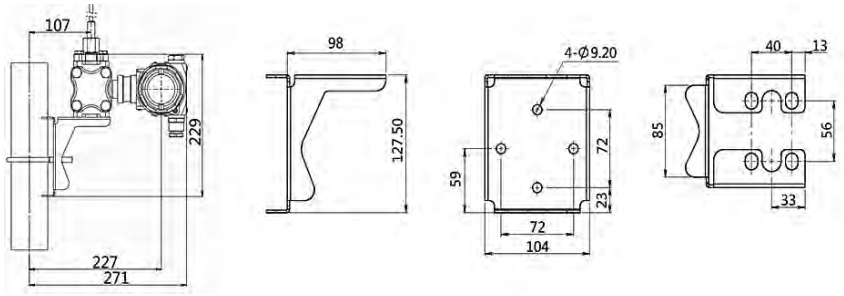
Accessories

Description	Designator
Pipe Mounting Kit (Stainless Steel Bent Bracket for 2" Pipe) *Dimension drawing below.*	PK
Plate Mounting Kit (Carbon Steel Bent Bracket) *Dimension drawing page 30.*	PL
Pipe Mounting Kit (Stainless Steel Flat Bracket for 2" Pipe) *Dimension drawing page 30.*	PM
Clamp for 1-1/2" Tri-Clamp, One Side [1] *Dimension drawing page 30.*	F1
Clamp for 2" Tri-Clamp, One Side [2] *Dimension drawing page 30.*	F2
Clamps for 1-1/2" Tri-Clamps, Both Sides [3] *Dimension drawing page 30.*	F3
Clamps for 2" Tri-Clamps, Both Sides [4] *Dimension drawing page 30.*	F4
Gasket for 1-1/2" Tri-Clamp, One Side [1] *Dimension drawing page 30.*	G1
Gasket for 2" Tri-Clamp, One Side [2] *Dimension drawing page 30.*	G2
Gaskets for 1-1/2" Tri-Clamps, Both Sides [3] *Dimension drawing page 30.*	G3
Gaskets for 2" Tri-Clamps, Both Sides [4] *Dimension drawing page 30.*	G4
Welding Adapter for 1-1/2" Tri-Clamp, One Side [1] *Dimension drawing page 30.*	W1
Welding Adapter for 2" Tri-Clamp, One Side [2] *Dimension drawing page 30.*	W2
Welding Adapters for 1-1/2" Tri-Clamps, Both Sides [3] *Dimension drawing page 30.*	W3
Welding Adapters for 2" Tri-Clamps, Both Sides [4] *Dimension drawing page 30.*	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

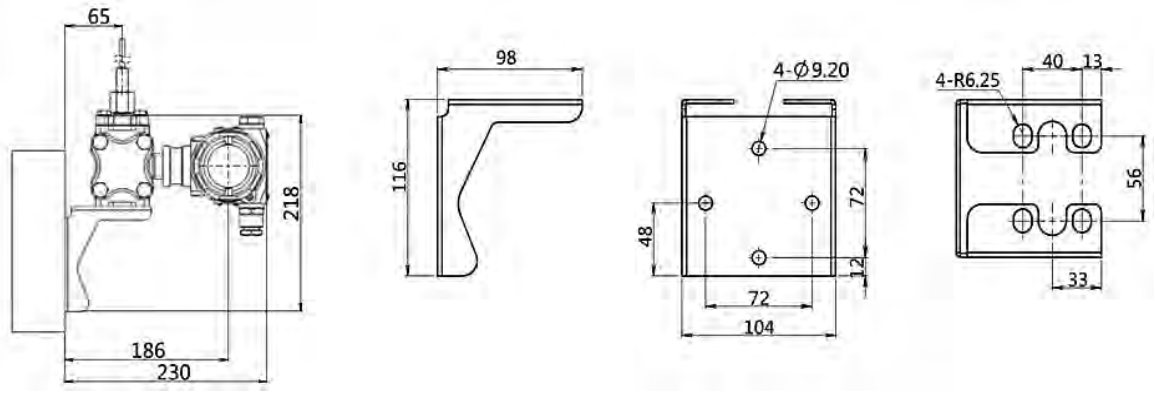
Dimensions = mm

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

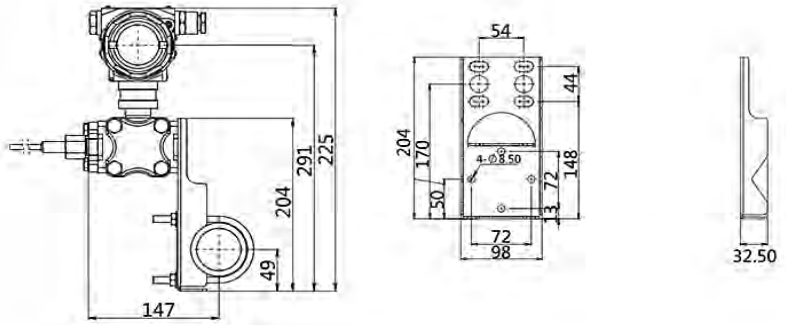


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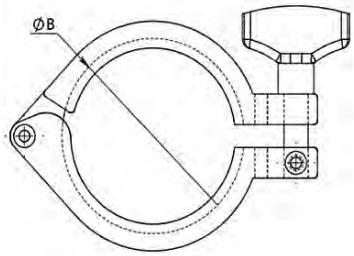
PL - Plate Mounting Kit (Carbon Steel Bent Bracket)



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

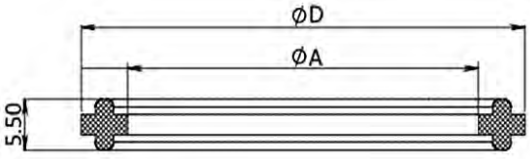


F1/F2/F3/F4 - Tri-Clamp



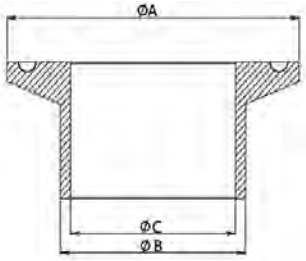
Option	F1/F3 (1-1/2" Clamp)	F2/F4 (2" Clamp)
Size (ØB)	53.9	67.4

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

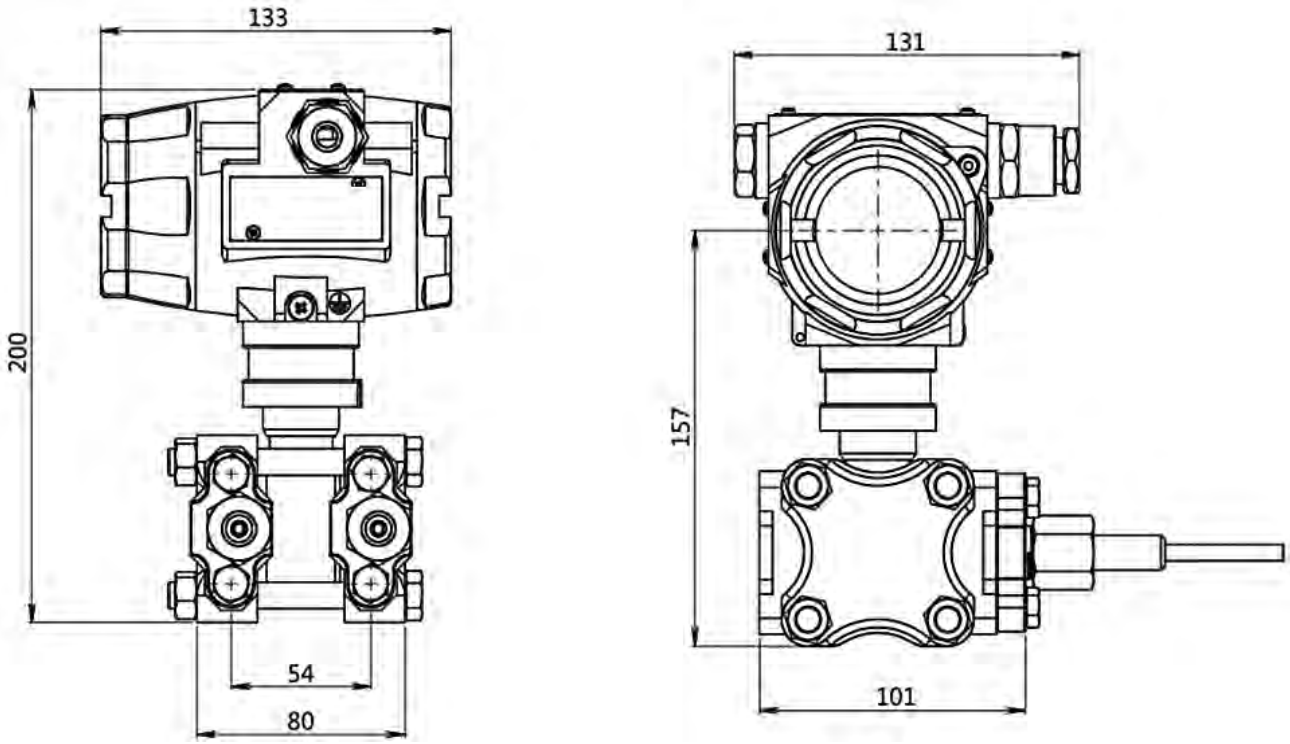


Option	W1/W3 (1-1/2" Clamp)	W2/W4 (2" Clamp)
Size (ØA)	50.5	64
Size (ØB)	38	51
Size (ØC)	35.6	48.6

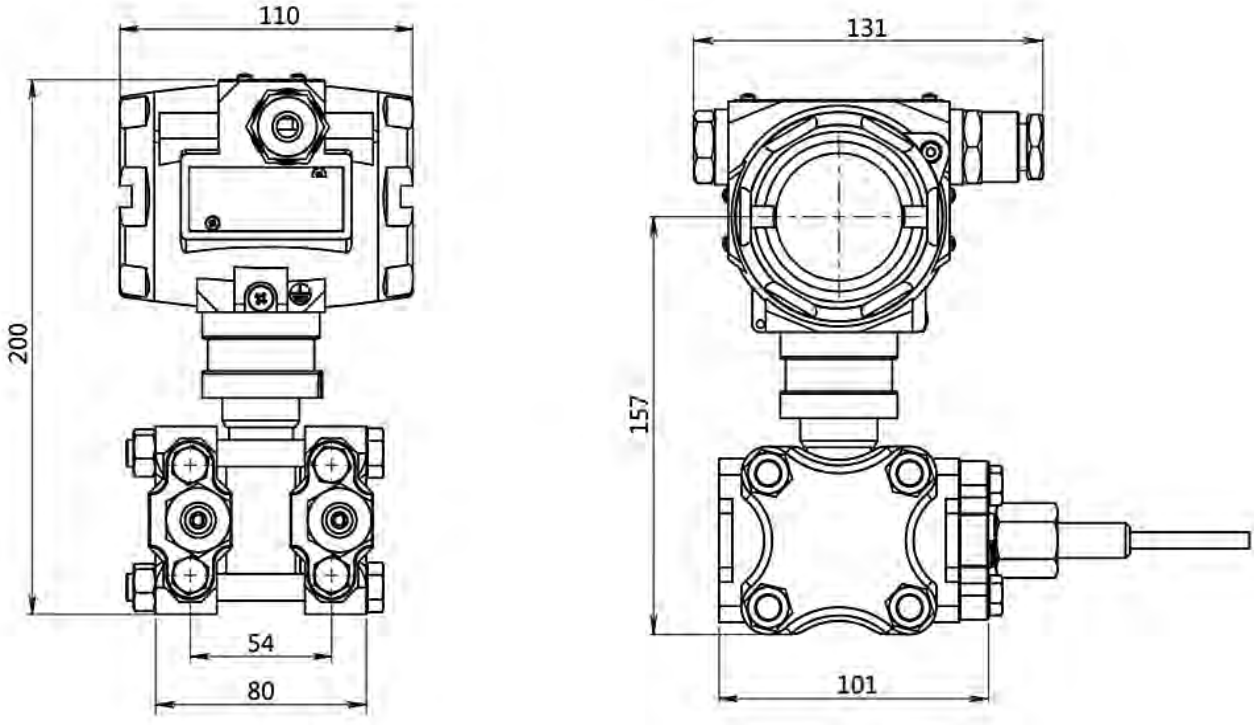
Form 1906 (07.26) ©SOR Inc.

Dimensions shown are for reference only.
Dimensions = mm

With Integral LCD Display (option IN)



Without Display (option 00)



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.



MF2 2-Valve



MF3 3-Valve

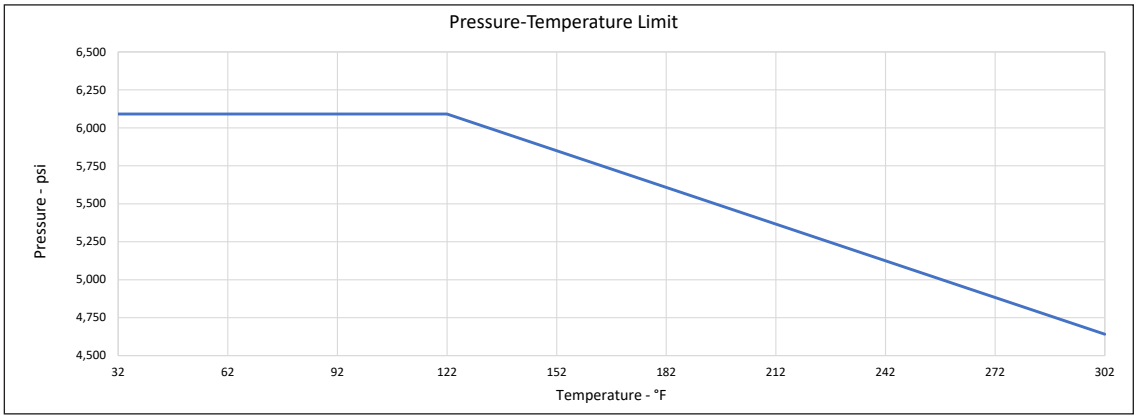


MF5 5-Valve

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.

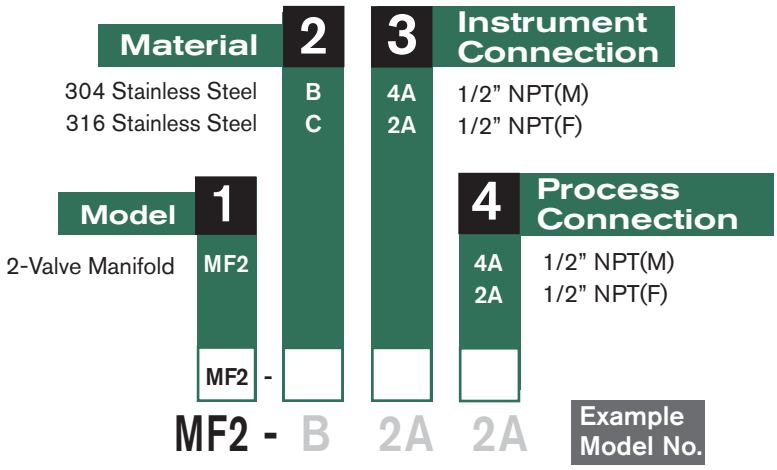


Form 1906 (07.26) ©SOR Inc.

How to Order

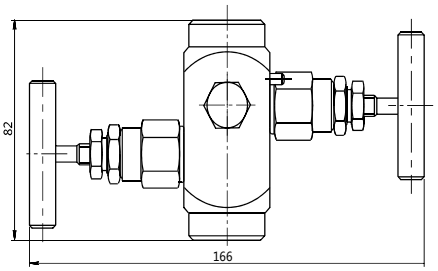
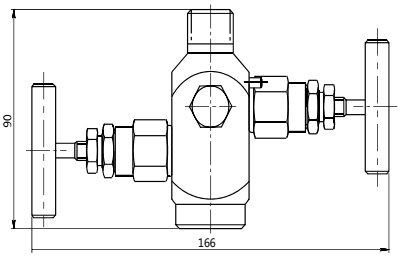
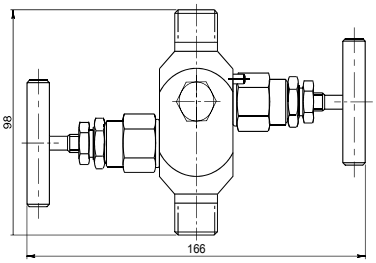
Below is the SOR quick select model number tree that provides you with all the options to configure and order a product for your application.

- You must select a designator for each component



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

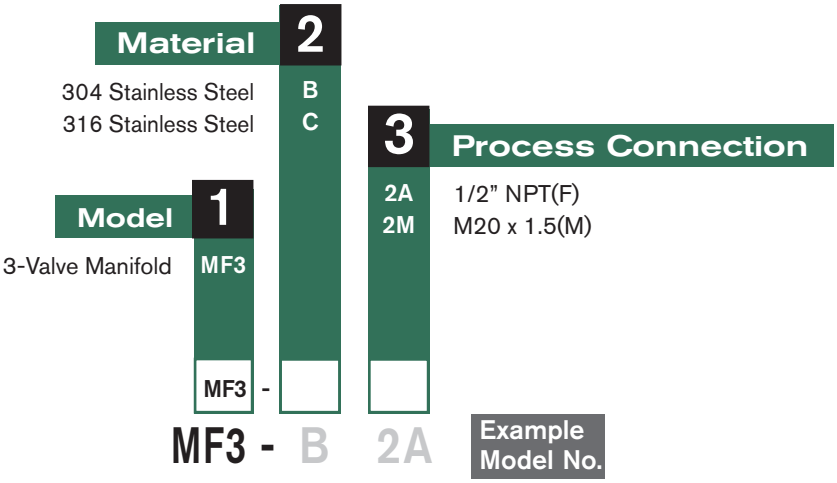
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Connections	
Instrument - 1/2" NPT(F) Process - 1/2" NPT(F)	
Instrument - 1/2" NPT(M) Process - 1/2" NPT(F)	
Instrument - 1/2" NPT(M) Process - 1/2" NPT(M)	

How to Order

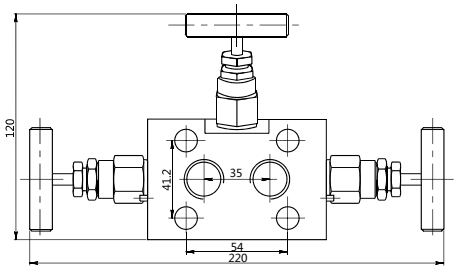
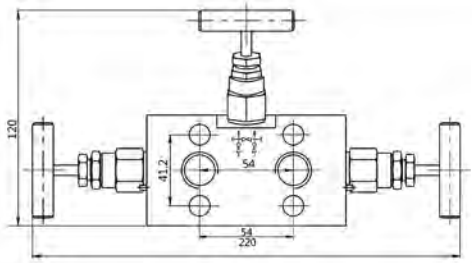
Below is the SOR quick select model number tree that provides you with all the options to configure and order a product for your application.

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Dimensions = mm

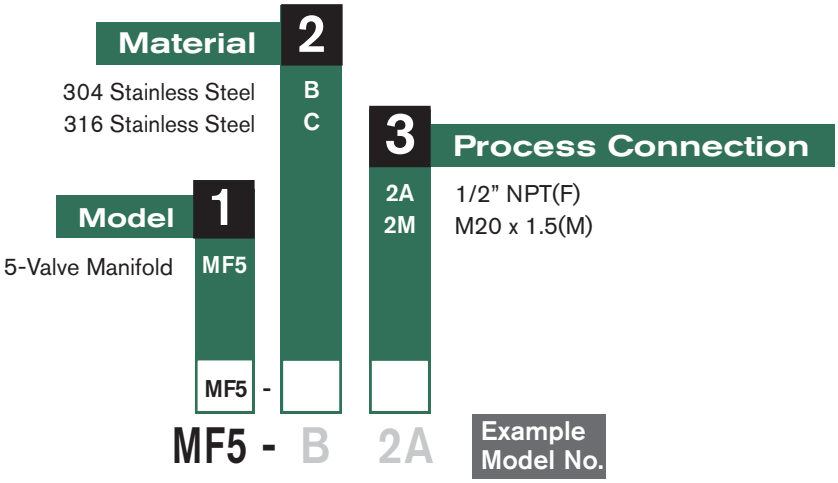
Process Connections	
Instrument Connections	

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How to Order

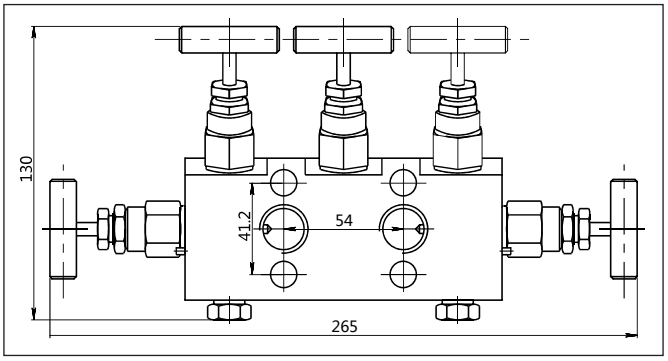
Below is the SOR quick select model number tree that provides you with all the options to configure and order a product for your application.

- You must select a designator for each component



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

Dimensions = mm





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