Product Data Sheet
February 2017
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Rosemount™ 2051 Pressure Transmitter

- Rosemount Coplanar™ platform enables integration of primary elements, manifolds, and remote seal solutions
- Best in Class performance with up to 0.05% high accuracy option
- IEC 62591 (*Wireless*HART®) Protocol enables cost effective installations
- Local Operator Interface (LOI) offers easy to use configuration capabilities at the transmitter
- Protocols available include HART® 4–20 mA, FOUNDATION™ Fieldbus, PROFIBUS® PA, HART 1–5 Vdc Low Power
- Selectable HART Revision prepares your plant for the latest HART capabilities while ensuring seamless integration with today's systems
- SIL2/3 safety certification to IEC 61508 is available with the full 4–20 mA HART offering to simplify compliance

EMERSON

Rosemount 2051 Pressure Transmitter product offering

Foundation of reliable measurement

- Differential, gage, and absolute pressure measurement
- Select from an extensive offering of DP Flowmeters, liquid level, manifolds and flanges
- Available with variety of protocols and materials

Best-in-class capabilities extended to IEC 62591 (*Wireless*HART)

- Cost effectively implement wireless on the industry's most proven platform
- Optimize safety with the industry's only intrinsically safe power module
- Eliminate wiring design and construction complexities to lower costs by 40–60 percent
- Quickly deploy new pressure, level, and flow measurements in 70 percent less time

Innovative, integrated DP Flowmeters

- Fully assembled and leak tested for out-of-the-box installation
- Reduce straight pipe requirements, lower permanent pressure loss, and achieve accurate measurement in small line sizes
- Up to two percent volumetric flow accuracy at 5:1 turndown

Proven, reliable, and innovative DP Level technologies

- Connect to virtually any process with a comprehensive offering of process connections, fill fluids, direct mount or capillary connections and materials.
- Quantify and optimize total system performance with QZ option.
- Optimize level measurement with cost efficient Tuned-System™ Assemblies

Instrument manifolds — quality, convenient, and easy

- Designed and engineered for optimal performance with Rosemount transmitters
- Save installation time and money with factory assembly
- Offers a variety of styles, materials, and configurations

Contents

Rosemount 2051C Coplanar Pressure Transmitter

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Configuration	Transmitter output code
4–20 mA HART Rosemount 2051 Rosemount 2051 with Selectable HART(1)	A
Lower Power Rosemount 2051 Rosemount 2051 with Selectable HART(1)	M
FOUNDATION Fieldbus	F
PROFIBUS	W
Wireless	X

1. The 4-20 mA with Selectable HART device can be ordered with transmitter output option code A plus any of the following options codes: M4, QT, DZ, CR, CS, CT, HR5, HR7.

Additional information

Specifications: page 47
Certifications: page 59
Dimensional Drawings: page 69

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment.

See page 56 for more information on material selection.

Table 1. Rosemount 2051C Coplanar Pressure Transmitters Ordering Information

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Model	Transmitter type		
2051C	Coplanar Pressure Transmitter		
Measurement type			
D	Differential		★
G	Gage		★
Pressure range			
	Rosemount 2051CD	**Rosemount 2051CG**	
1	–25 to 25 inH_2O (–62,2 to 62,2 mbar)	–25 to 25 inH_2O (–62,2 to 62,2 mbar)	★
2	–250 to 250 inH_2O (–623 to 623 mbar)	–250 to 250 inH_2O (–623 to 623 mbar)	★
3	–1000 to 1000 inH_2O (–2,5 to 2,5 bar)	–393 to 1000 inH_2O (–0,98 to 2,5 bar)	★
4	–300 to 300 psi (–20,7 to 20,7 bar)	–14.2 to 300 psi (–0,98 to 20,7 bar)	★
5	–2000 to 2000 psi (–137,9 to 137,9 bar)	–14.2 to 2000 psi (–0,98 to 137,9 bar)	★

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Transmitter output				
A[1]	4–20 mA with digital signal based on HART Protocol			★
F	FOUNDATION Fieldbus Protocol			★
W	PROFIBUS PA Protocol			★
X	Wireless			★
M	Low Power, 1–5 Vdc with digital signal based on HART Protocol			
Materials of construction				
	Process flange type	**Flange material**	**Drain/vent**	
2	Coplanar	SST	SST	★
3[2]	Coplanar	Cast C-276	Alloy C-276	★
5	Coplanar	Plated CS	SST	★
7[2]	Coplanar	SST	Alloy C-276	★
8[2]	Coplanar	Plated CS	Alloy C-276	★
0	Alternate process connection			★
Isolating diaphragm				
2[2]	316L SST			★
3[2]	Alloy C-276			★
5[3][4]	Tantalum			
O-ring				
A	Glass-filled PTFE			★
B	Graphite-filled PTFE			★
Sensor fill fluid				
1	Silicone			★
2[4]	Inert			★
Housing material			**Conduit entry size**	
A	Aluminum		1/2–14 NPT	★
B	Aluminum		M20 × 1.5	★
J	SST		1/2–14 NPT	★
K[5]	SST		M20 × 1.5	★
P[6]	Engineered polymer		No conduit entries	★
D	Aluminum		G1/2	
M[5]	SST		G1/2	

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Wireless options (requires wireless output code X and engineered polymer housing code P)

Wireless transmit rate, operating frequency and protocol		
WA3	User configurable transmit rate, 2.4 GHz *Wireless*HART	★
Antenna and SmartPower™		
WP5	Internal antenna, compatible with green power module (I.S. power module sold separately)	★

Options (include with selected model number)

Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
HART revision configuration(18)		
HR5(7)	Configured for HART Revision 5	★
HR7(8)	Configured for HART Revision 7	★
PlantWeb control functionality		
A01	FOUNDATION Fieldbus advanced control function block suite	★
Alternate flange(9)		
H2	Traditional flange, 316 SST, SST drain/vent	★
H3(2)	Traditional flange, Cast C-276, Alloy C-276 drain/vent	★
H7(2)	Traditional flange, 316 SST, Alloy C-276 drain/vent	★
HJ	DIN compliant traditional flange, SST, 7/16-in. adapter/manifold bolting	★
FA	Level flange, SST, 2-in., ANSI Class 150, vertical mount	★
FB	Level flange, SST, 2-in., ANSI Class 300, vertical mount	★
FC	Level flange, SST, 3-in., ANSI Class 150, vertical mount	★
FD	Level flange, SST, 3-in., ANSI Class 300, vertical mount	★
FP	DIN level flange, SST, DN 50, PN 40, vertical mount	★
FQ	DIN level flange, SST, DN 80, PN 40, vertical mount	★
Alternate flange(9)		
HK(10)	DIN compliant traditional flange, SST, 10 mm adapter/manifold bolting	
HL	DIN compliant traditional flange, SST, 12 mm adapter/manifold bolting	
Manifold assembly(10)(11)		
S5	Assemble to Rosemount 305 Integral Manifold	★
S6	Assemble to Rosemount 304 Manifold or connection system	★
Integral mount primary element(10)(11)		
S4(12)	Assemble to Rosemount 405A, 485, or 585 Annubar™ Primary Element or 1195 Integral Orifice Primary Element	★
S3	Assemble to Rosemount 405C or 405P Compact Orifice Plate	★

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Seal assemblies[11]		
S1[13]	Assemble to one Rosemount 1199 Diaphragm Seal	★
S2[14]	Assemble to two Rosemount 1199 Diaphragm Seals	★
Mounting brackets		
B1	Traditional flange bracket for 2-in. pipe mounting, CS bolts	★
B2	Traditional flange bracket for panel mounting, CS bolts	★
B3	Traditional flange flat bracket for 2-in. pipe mounting, CS bolts	★
B4	Coplanar flange bracket for 2-in. pipe or panel mounting, all SST	★
B7	B1 bracket with Series 300 SST bolts	★
B8	B2 bracket with Series 300 SST bolts	★
B9	B3 bracket with Series 300 SST bolts	★
BA	SST B1 bracket with Series 300 SST bolts	★
BC	SST B3 bracket with Series 300 SST bolts	★
Product certifications		
E1[5]	ATEX Flameproof	★
E2[5]	INMETRO Flameproof	★
E3[5]	China Flameproof	★
E4[5]	TIIS Flameproof	★
E5	USA Explosion-proof, Dust Ignition-proof	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
E7[5]	IECEx Flameproof	★
EW	India (CCOE) Flameproof Approval	★
I1[5]	ATEX Intrinsic Safety	★
I2[5]	INMETRO Intrinsically Safe	★
I3[5]	China Intrinsic Safety	★
I4[5][6]	TIIS Intrinsic Safety	★
I5	USA Intrinsically Safe, Division 2	★
I6	Canada intrinsically Safe	★
I7[5]	IECEx Intrinsic Safety	★
IA[15]	ATEX FISCO Intrinsic Safety	★
IE[15]	USA FISCO Intrinsically Safe	★
IF[15]	Canada FISCO Intrinsically Safe	★
IG[15]	IECEx FISCO Intrinsically Safe	★
IW[5]	India (CCOE) Intrinsically Safe	★
K1[5]	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K2	INMETRO Flameproof and Intrinsic Safety	★

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K5	USA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K7[5]	IECEx Flameproof, Intrinsic Safety, Type n and Dust	★
KA[5]	ATEX and Canada Flameproof, Intrinsically Safe, Division 2	★
KB	USA and Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC[5]	USA and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[5]	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe	★
N1[5]	ATEX Type n	★
N7[5]	IECEx Type n	★
ND[5]	ATEX Dust	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof and Intrinsic Safety	★
Drinking water approval		
DW[16]	NSF drinking water approval	★
Shipboard approvals[4]		
SBS	American Bureau of Shipping (ABS) type approval	★
SBV	Bureau Veritas (BV) type approval	★
SDN	Det Norske Veritas (DNV) type approval	★
SLL	Lloyds Register (LR) type approval	★
Bolting materials		
L4	Austenitic 316 SST bolts	★
L5	ASTM A 193, Grade B7M bolts	★
L6	Alloy K-500 bolts	★
L8	ASTM A 193 Class 2, Grade B8M bolts	★
Display and interface options		
M4[17]	LCD display with local operator interface	★
M5	LCD display	★
Hardware adjustments		
D4[18]	Zero and span configuration buttons	★
DZ[19]	Digital zero trim	★
Flange adapters[20]		
DF	1/2–14 NPT flange adapters	★
Conduit plug[4][21]		
DO	316 SST conduit plug	★

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RC 1/4 RC 1/2 process connection[22]		
D9	RC 1/4 flange with RC 1/2 flange adapter - SST	
Ground screw[4][23]		
V5	External ground screw assembly	★
Performance[24]		
P8	High performance option	★
Transient protection[4][25]		
T1	Transient protection terminal block	★
Software configuration[19]		
C1	Custom Software Configuration (Completed Rosemount 2051 Configuration Data Sheet or Rosemount 3051 Configuration Data Sheet for Wireless required with order)	★
Alarm limit[18]		
C4[26]	NAMUR alarm and saturation levels, high alarm	★
CN[26]	NAMUR alarm and saturation levels, low alarm	★
CR	Custom Alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
CS	Custom Alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
CT	Low Alarm (standard Rosemount alarm and saturation levels)	★
Pressure testing		
P1	Hydrostatic testing with certificate	
Cleaning process area		
P2	Cleaning for special service	
P3	Cleaning for < 1 PPM Chlorine/Flourine	
Maximum static line pressure		
P9	4500 psig (310 bar) static pressure limit (2051CD Ranges 2–5 only)	★
Calibration certification		
Q4	Calibration certificate	★
QG	Calibration certificate and GOST verification certificate	★
QP	Calibration certification and tamper evident seal	★
Material traceability certification		
Q8	Material traceability certification per EN 10204 3.1	★
Quality certification for safety[27]		
QS	Prior-use certificate of FMEDA data	★

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QT	Safety certified to IEC 61508 with certificate of FMEDA	★
Surface finish		
Q16	Surface finish certification for sanitary remote seals	★
Toolkit total system performance reports		
QZ	Remote seal system performance calculation report	★
Conduit electrical connection(4)		
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★
NACE certificate(28)		
Q15	Certificate of compliance to NACE® MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of compliance to NACE MR0103 for wetted materials	★
Typical model number: 2051C D 2 A 2 2 A 1 A B4 M5		

1. HART Revision 5 is the default HART output. The Rosemount 2051 with Selectable HART can be factory or field configured to HART Revision 7. To order HART Revision 7 factory configured, add option code HR7.
2. Materials of Construction comply with recommendations per NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.
3. Available in Ranges 2–5 only.
4. Not available with output code X.
5. Not available with low power output code M.
6. Only available with output code X.
7. Configures the HART output to HART Revision 5. The device can be field configured to HART Revision 7 if needed.
8. Configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 if needed.
9. Requires 0 code in Materials of Construction for alternate process connection.
10. Not valid with optional code P9 for 4500 psi static pressure.
11. "Assemble-to" items are specified separately and require a completed model number.
12. Process flange limited to coplanar (codes 2, 3, 5, 7, 8) or traditional (H2, H3, H7).
13. Not valid with optional code D9 for RC1/2 adapters.
14. Not valid with optional codes DF or D9 for adapters.
15. Only valid with FOUNDATION Fieldbus output code F.
16. Not available with Alloy C-276 isolator (3 code), tantalum isolator (5 code), all cast C-276 flanges, all plated CS flanges, all DIN flanges, all Level flanges, assemble-to manifolds (S5 and S6 codes), assemble-to seals (S1 and S2 codes), assemble-to primary elements (S3 and S4 codes), surface finish certification (Q16 code), and remote seal system report (QZ code).
17. Not available with FOUNDATION Fieldbus output code F or wireless output code X.
18. Only Available with HART 4–20 mA (output codes A and M).
19. Only available with HART 4–20 mA output(output codes A) and wireless output (code X).
20. Not valid with alternate process connection options S3, S4, S5, S6.
21. Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard carbon steel conduit plug.
22. Not available with alternate process connection: DIN flanges and Level flanges.
23. The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
24. Available with 4–20 mA HART output code A, wireless output code X, FOUNDATION Fieldbus output code F, Rosemount 2051C Ranges 2–5 or Rosemount 2051T Ranges 1–4, SST and Alloy C 276 diaphragms and silicone fill fluid. High performance option includes 0.05% reference accuracy, and five year stability. See Performance specifications for details.
25. The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO product certification codes IA and IE.
26. NAMUR-Compliant operation is pre-set at the factory and cannot be changed to standard operation in the field.
27. Only available with HART 4–20 mA output (code A).
28. NACE-Compliant wetted materials are identified by Footnote 2.