Product Data Sheet
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Rosemount™ 4051S Pressure Transmitter



Revolutionize how you measure pressure

With innovative features to make tasks easier, the Rosemount 4051S Pressure Transmitter gives you more—more flexibility, more performance, more insights, and more peace of mind. Emerson has designed the 4051S to simplify your day-to-day operations and help you spend less time configuring your pressure transmitter and more time focusing on the tasks that matter. The 4051S Pressure Transmitter is built to withstand the toughest processes and the harshest environments with safety built-in at its core.

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Overview

The 4051S Pressure Transmitter is built to withstand the toughest processes and the harshest environments. Users get more peace of mind knowing it will perform day after day with:

- Industry-leading 20-year warranty
- Industry-leading 20-year stability
- 40 ms time response option
- 800:1 rangedown reduces the number of unique models you need to stock.

Designed to simplify your day-to-day operations

Easier to use

Designed to simplify your day-to-day operations, the Rosemount 4051S Pressure Transmitter can help you spend less time configuring your pressure transmitter and more time focusing on the tasks that matter.

- Graphical, backlit display is larger, easier to read, and available in seven languages.
- Intuitive user interface, so it is easy to find what you are looking for.
- Simplify configuration and maintenance with Bluetooth® connectivity.
- Easily configure for level, volume, flow, or totalized flow in just a few clicks.

Advanced safety features

The 4051S Pressure Transmitter has safety built-in at its core with more ways to help keep your team and facility safe.

- Increase personnel safety and avoid entering hazardous locations with Bluetooth connectivity.
- Built-in proof testing provides reliable verification of instrument functionality to improve operational efficiency and safety.

More insights

With more information at your fingertips, you can make more confident decisions.

- Loop integrity diagnostics continuously monitors the health of the entire electrical loop to detect potential failures before they disrupt your operations.
- Ensure your output responds to process changes with plugged impulse line detection.
- Detect abnormal conditions with process intelligence and get early visibility to potential process disruptions.
- Prioritize work and avoid shutdowns with process alerts.
- Built-in calibration and diagnostic logs give you access to information when you need it.

Greater connectivity

Get connected with Bluetooth technology to enable increased productivity, reliability, and safety. Make real-time decisions with:

- Simplified operator rounds through fast and easy device connection.
- Enhanced troubleshooting and configuration by knowing which devices need attention.
- AMS Device Configurator application for a seamless experience across devices.

Reliable relay switches

Pressure switches provide enhanced asset protection and maintain system safety.

- Reduce accuracy and reliability issues that can happen with standalone switches.
- Enable discrete control capabilities for installations without a Programmable Logic Controller (PLC) or Distributed Control Systems (DCS).
- Control equipment based on pressure, flow, or level variables and know your switch is correctly configured and functioning correctly.
- SIS applications provide redundant SIS path to final control element.

Rosemount 4051S Series selection guide

For the latest information on product availability and/or options, please use the product configurator at Emerson.com/global or contact your local Emerson representative.

Rosemount 4051S Pressure Transmitter



The Rosemount 4051S Pressure Transmitter offers superior accuracy, minimal maintenance, and exceptional durability, making it a trusted choice for reliable and precise pressure measurement solutions.

- Ideal for gauge, absolute, and differential pressure applications requiring a manifold, flange, or direct process connection.
- Rosemount R305 and R306 Instrument Manifolds seamlessly integrate within the Rosemount 4051S model number.

Ordering information:

Rosemount 4051S Coplanar Pressure Transmitter

Rosemount 4051S In-line Pressure Transmitter

Rosemount 4051SLT Pressure Transmitter



Emerson's diverse remote seal offering combined with the Rosemount 4051S transmitter makes the 4051SLT Level Transmitter capable of tackling the most demanding applications.

- Ideal for pressurized and vented tank level measurement applications.
- Designed for direct mounting, remote mounting, balanced systems, and Tuned-System™ assemblies.
- Welded-repairable construction allows the seal system to be repaired.
- Use the Sizing & Selection tool to find the best solution for your application.

Ordering information:

Rosemount 4051SLT Level Transmitter

Rosemount 4051SF Differential Pressure Flow Meters



Rosemount 4051SF Differential Pressure Flow Meters are built on the reliable Rosemount 4051S platform, offering a versatile solution for flow measurement.

- Designed for accurate and reliable flow measurement, ensuring optimal performance in various process conditions.
- Arrives fully-configured, leak-tested, and ready-to-install right out of the box for fast installation.
- DP Flow Sizing & Selection Tool streamlines the configuration process considering factors like accuracy, pressure loss, and installation requirements.
- Use the sizing tool to find the best solution for your application.

Ordering information:

Rosemount 4051SFA Annubar™ Flow Meter

Rosemount 4051SFC Compact Flow Meter

Rosemount 4051SFP Integral Orifice Flow Meter

Rosemount 4051S Coplanar Pressure Transmitter



Rosemount 4051S Coplanar Pressure Transmitters are the industry leader for differential, gauge, and absolute pressure measurement. The coplanar platform allows seamless integration with manifolds, primary elements, and seal solutions. Capabilities include:

- Ultra, Ultra-For-Flow, and Classic performance
- 4–20 mA HART® protocol with two integral relay switches
- Safety certification (Option code QT)
- Advanced diagnostics
- Remote display and interface

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Specifications and options

The purchaser of the equipment must specify and select the product materials, options, and components.

Optimizing lead time

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

Required model components

Model

Code	Description	
4051S	Pressure transmitter	★

Measurement functionality

Code	Description	
1	Pressure, level, or flow (square root output)	★

Diagnostic functionality

Code	Description	
A	Device and Loop Integrity diagnostics	★
B	Enhanced SIS proof testing and logging (includes Loop Integrity diagnostic)	★
C	Process Intelligence with Plugged Impulse Line diagnostic (includes enhanced SIS and Loop Integrity)	★

Performance class

Code	Description	
1	Ultra: 0.025% span accuracy, 200:1 rangedown, 20-year stability, 20-year limited warranty	★
2(1)	Ultra-For-Flow: 0.04% reading accuracy, 200:1 turndown, 20-year stability, 20-year limited warranty	★
4	Classic: 0.035% span accuracy, 150:1 rangedown, 20-year stability	★

(1) *This option is only available with pressure measurement type CD, pressure range codes 2 and 3, 316L SST or Alloy C-276 isolating diaphragm and silicone fill fluid.*

Pressure measurement and module type

Code	Description	
CD	Differential pressure, Coplanar	★
CG	Gauge pressure, Coplanar	★
CA	Absolute pressure, Coplanar	★

Pressure range

Code	Description			
	Differential pressure	**Gauge pressure**	**Absolute pressure**	
U(1)	Universal 800:1 range: –1000 to 1000 inH_2O (–2.49 to 2.49 bar)	Universal 800:1 range: –1000 to 1000 inH_2O (–2.49 to 2.49 bar)	N/A	★
0(2)	–3 to 3 inH_2O (–7.47 to 7.47 mbar)	N/A	0 to 5 psia (0 to 0.34 bar)	★
1	–25 to 25 inH_2O (–62.16 to 62.16 mbar)	–25 to 25 inH_2O (–62.16 to 62.16 mbar)	0 to 30 psia (0 to 2.07 bar)	★
2	–250 to 250 inH_2O (–621.60 to 621.60 mbar)	–250 to 250 inH_2O (–621.60 to 621.60 mbar)	0 to 150 psia (0 to 10.34 bar)	★
3	–1000 to 1000 inH_2O (–2.49 to 2.49 bar)	–393 to 1000 inH_2O (–0.97 to 2.49 bar)	0 to 800 psia (0 to 55.16 bar)	★
4	–300 to 300 psi (–20.68 to 20.68 bar)	–14.2 to 300 psig (–0.97 to 20.68 bar)	0 to 4000 psia (0 to 275.79 bar)	★
5	–2000 to 2000 psi (–137.89 to 137.89 bar)	–14.2 to 2000 psig (–0.97 to 137.89 bar)	N/A	★

(1) *Universal range option is only available with diagnostic code A (loop integrity will be disabled). Also, universal range is not available with transmitter output protocol S.*

(2) *Pressure range code 0 is only available with SST traditional flange, 316L SST diaphragm material, glass-filled PTFE O-ring (standard), and bolting option L4.*

Isolating diaphragm material

Code	Description	
2(1)	316L SST	★
3(1)	Alloy C-276	★
4(1)	Alloy 400	
5(2)	Tantalum	

Code	Description	
6[1][3]	Gold-plated Alloy 400	
7[1]	Gold-plated 316L SST	

(1) *Materials of construction comply with metallurgical requirements highlighted within 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.*
(2) *Tantalum is not available with pressure range 1 and Q15.*
(3) *Includes a graphite-filled PTFE O-ring.*

Process temperature measurement

Code	Description	
N	No process temperature measurement input	★

Process connection type

Code	Description	
A	Integral manifold	★
G	Transmitter flange with assembled manifold	★
F	Transmitter flange	★
L	Level flange	★

Process connection style, size, and valve configuration

To select a process connection style, find the column that matches the chosen process connection type and then select the corresponding code.

Code	Description				
	Process connection type A: Integral manifold	**Process connection type G: Transmitter flange with assembled manifold**	**Process connection type F: Transmitter flange**	**Process connection type L: Level flange**	
01	R305, Coplanar ½–14 NPT female 2-valve	Coplanar flange Traditional manifold (0304 specified separately)	Coplanar flange ¼ NPT	2 in. ANSI Class 150	★
02	R305, Coplanar ½–14 NPT female 3-valve	Traditional flange Traditional manifold (0304 specified separately)	Traditional flange ¼ NPT	2 in. ANSI Class 300	★
03	R305, Coplanar ½–14 NPT female 5-valve	DIN-Traditional flange Traditional manifold (0304 specified separately)	DIN-compliant traditional flange ¼ NPT	3 in. ANSI Class 150	★
04	Alternative Rosemount manifold (specified separately)	Coplanar flange 3rd party manifold (specified separately)	Bottom vent traditional flange ¼ NPT	3 in. ANSI Class 300	★
05	Alternative 3rd party manifold (specified separately)	Traditional flange 3rd party manifold (specified separately)	Coplanar flange RC ¼	DIN DN 50 PN 40	★
06	N/A	DIN-Traditional flange 3rd party manifold (specified separately)	Traditional flange RC ¼	DIN DN 80 PN 40	★

Code	Description				
	Process connection type **A: Integral manifold**	**Process connection type** **G: Transmitter flange with assembled manifold**	**Process connection type** **F: Transmitter flange**	**Process connection type** **L: Level flange**	
07	N/A	N/A	Bottom vent traditional flange RC ¼	N/A	★

Process connection material

To select a process connection material, find the column that matches the chosen process connection type and style and then select the corresponding code.

Code	Description					
	Process connection type **A: Integral manifold**	**Process connection type** **G: Transmitter flange with assembled manifold**	**Process connection type** **F: Transmitter flange**		**Process connection type** **L: Level flange**	
	Manifold body | Valve packing	**Flange body | Drain/vent valve**	**Process connection style (01, 02, 04, 05, 06, 07)**	**Process connection style (03)**		
			Flange body | Drain/vent valve	**Flange body | Drain/vent valve | Bolting**	**Flange body | Drain/vent valve**	
N	Specified in separate model number	N/A	N/A	N/A	N/A	★
A	All 316/316L SST | PTFE	SST | 316 SST	SST | 316 SST	SST | 316 SST | 7/16 in.	SST | 316 SST	★
B	All 316/316L SST | Graphite-based	SST | C-276	SST | C-276[(1)]	SST | 316 SST | M10	SST | C-276	★
C	N/A	Alloy C-276 | C-276	Alloy C-276 | C-276[(1)]	SST | 316 SST | M12	Alloy C-276 | C-276	★
E	N/A	CS | 316 SST	CS | 316 SST	N/A	N/A	★
F	N/A	CS | C-276	CS | C-276[(1)]	N/A	N/A	★
G	N/A	Alloy 400 | Alloy 400/K-500	Alloy 400 | Alloy 400/K-500	N/A	N/A	★

(1) *Materials of Construction comply with metallurgical requirements highlighted within 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.*

Transmitter housing material

Code	Description	
A	Aluminum	★
S	Stainless steel (SST)	★

Housing conduit/cable threads

Code	Description	
1	½–14 NPT	★

Code	Description	
2	M20 x 1.5	★
3(1)	G½	★

(1) *Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided.*

Transmitter output

Code	Description	
A	4–20 mA with digital signal based on HART® protocol	★
S	4–20 mA with digital signal based on HART protocol and two integral relay switches	★

Additional options

Local wireless device access

Code	Description	
BLE	Bluetooth® configuration and maintenance	★

Display type

Code	Description	
M6	Graphical backlit LCD display with quick service buttons	★
M8(1)	Remote graphical backlit LCD display and interface, quick service buttons	★

(1) *An electronic cable must be specified if ordering a remote display.*

Electronic cabling (for remote display)

Additional cable lengths are available up to 500 ft. (152.4 m). Please consult the product configurator on Emerson.com/global or your local Emerson sales representative for more information.

Code	Description	
RA	25 ft. (7.62 m) of cable (gray color)	★
RB	50 ft. (15.2 m) of cable (gray color)	★
RC	100 ft. (30.5 m) of cable (gray color)	★
RN	25 ft. (7.62 m) of cable (blue color)	★
RP	50 ft. (15.2 m) of cable (blue color)	★
RQ	100 ft. (30.5 m) of cable (blue color)	★

Maximum static line pressure

Code	Description	
P0(1)	6170 psig (425 bar) static pressure limit	★

(1) *Requires 316L SST, Alloy C-276, or Gold-plated 316L SST diaphragm material, assemble to Rosemount 305 integral manifold or DIN-compliant traditional flange process connection, and bolting option L7 or L8. Limited to Pressure Range (Differential), ranges 2–5.*

Transmitter time response

Code	Description	
P6[1]	High-speed sensor time response	★

(1) *Only available with differential pressure range 2 or 3 and diagnostics option A (loop integrity diagnostic will be disabled).*

Bracket type, bracket material, and bolt material

Code	Description			
	Bracket type	**Bracket material**	**Bolt material**	
B4	Coplanar flange bracket for 2-in. pipe and panel	304 SST	300 SST	★
BE	Coplanar flange bracket for 2-in. pipe and panel	316 SST	316 SST	★
B1	Traditional flange bracket for 2-in. pipe mount	Carbon steel	Carbon steel	★
B2	Traditional flange bracket for panel mount	Carbon steel	Carbon steel	★
B3	Traditional flange flat bracket for 2-in. pipe mount	Carbon steel	Carbon steel	★
B7	Traditional flange bracket for 2-in. pipe mount	Carbon steel	316 SST	★
B8	Traditional flange bracket for panel mount	Carbon steel	316 SST	★
B9	Traditional flange flat bracket for 2-in. pipe mount	Carbon steel	316 SST	★
BA	Traditional flange bracket for 2-in. pipe mount	316 SST	316 SST	★
BC	Traditional flange flat bracket for 2-in. pipe mount	316 SST	316 SST	★
BD	Vertical mount bracket	316 SST	300 SST	★
BF[1]	AGCO bracket	316 SST	300 SST	★
BG[1]	AGCO bracket	316 SST	316 SST	★

(1) *Options BF and BG are only available with process connection type A and process connection style 01, 02, or 03.*

Tagging and fastener material

Code	Description	
Y2	316 SST nameplate, top tag, wire-on tag, and fasteners	★

RFID tagging

Code	Description	
Y3	RFID tag	★

Bolting material

Code	Description	
L4	Austenitic 316 SST bolts	★
L5	ASTM A193, Grade B7M bolts	★
L6	Alloy K-500 bolts	★
L7[1]	ASTM A453, Class D, Grade 660 bolts	★
L8	ASTM A193, Class 2, Grade B8M bolts	★

Code	Description	
L9	ASTM A193, Class 2, B8M, Socket head bolts	

(1) *Bolts are not considered process-wetted. In instances where NACE MR0175/ISO 15156 and NACE MR0103 conformance is required for bolting, L7 is the recommended bolting option.*

Transient protection

Code	Description	
T1	Transient terminal block	★

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Pressure testing

Code	Description	
P1	Hydrostatic testing with certificate	

Special cleaning

This is not available with graphite O-ring material, option code L2 or L3.

Code	Description	
P2	Cleaning for special services	
P3	Cleaning for special services with testing for < 1 PPM chlorine/fluorine	

Software configuration

Code	Description	
C1	Custom software configuration (requires Configuration Data Sheet)	★

Alarm limit

Code	Description	
C4	NAMUR alarm and saturation levels, high alarm	★
C5	NAMUR alarm and saturation levels, low alarm	★
C6(1)	Custom alarm and saturation signal levels, high alarm	★
C7(1)	Custom alarm and saturation signal levels, low alarm	★
C8	Low alarm (standard Rosemount alarm and saturation levels)	★

(1) *Option C6 and C7 require C1 and a configuration data sheet.*

Flange adapter

The flange adapter material will match the material selected in the process connection size.

Code	Description	
D2	Flange adapter(s)	★

Ground screw

Code	Description	
X1	External ground screw assembly	★

Drain/vent valve

Code	Description	
D5	Remove transmitter drain/vent valves and install plugs	★
D7	SST coplanar flange without drain/vent ports	★
D8	Ceramic drain/vent valves	★
DC	Traditional flange-ports left open	★

Additional drain/vent options

This option is only available with process connection type A and process connection style 01, 02, or 03.

Code	Description	
DM	Drain/vent plug, same as manifold body material	★

Sensor fill fluid

Only available on differential and gauge measurement types. Silicone fill fluid is standard.

Code	Description	
L1	Inert sensor fill fluid	★

O-ring

Glass-filled PTFE O-ring is standard.

Code	Description	
L2	Graphite-filled PTFE O-ring	★
L3	All graphite gasket	★

Conduit plug

Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard aluminum conduit plug.

Code	Description	
DO	316 SST conduit plug	★

Conduit electrical connector

This is not available with explosion-proof or flameproof approvals.

Code	Description	
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★
GB	M20 ATEX-certified cable gland and plug	★

Cold temperature

This is only available on pressure ranges 1–5, with silicone sensor fill fluid and SST or C-276 isolating diaphragms and classic performance.

Code	Description	
BR5	–58 °F (–50 °C) cold temperature operation	★
BR6	–76 °F (–60 °C) cold temperature operation	★

Process wetted thread sealant

Code	Description	
Z1	High temperature liquid thread sealant [–65 °F to 400 °F (–54 °C to 204 °C) temperature rating]	★
Z2	Liquid thread sealant [–63 °F to 302 °F (–53 °C to 150 °C) temperature rating]	★
Z3	Anaerobic PTFE paste	★
Z4	GraFoil® thread sealant	★
Z5	Loctite® 580 thread sealant	★

Custody transfer

Code	Description	
D3	Measurement Canada accuracy approval	★

Drinking water approval

Code	Description	
DW	NSF drinking water approval	★

Shipboard approvals

Code	Description	
SBS	American Bureau of Shipping	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyd's Register (LR) Type Approval	★

Calibration certification

Code	Description	
Q4	Calibration certificate	★
QP	Calibration certificate and tamper evident seal	★

Material traceability certification

Code	Description	
Q8	Material traceability certification per EN 10204 3.1	★

Positive material identification (PMI)

PMI verification and certificate requires Q8.

Code	Description	
Q76	PMI verification and certificate	★

Quality certification for safety

Code	Description	
QT	Safety-certified to IEC 61508 with certificate of FMEDA data	★

NACE® certificate

Materials of construction comply with metallurgical requirements highlighted within NACE MR 0175/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 MR 0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

Code	Description	
Q15	Certificate of compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of compliance to NACE MR0103/ISO 17945 for wetted materials	★

Material recommendation for NACE®

This option is only available with process connection type A and process connection style 01, 02, or 03.

Code	Description	
SG	Sour gas (meets NACE MR0175/ISO 15156, MR0103/ISO 17945)	★

Product certifications

Code	Description	
K1	ATEX Flameproof, Intrinsic Safety, Zone 2 Increased Safety, Dust	★
E1	ATEX Flameproof, Dust	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Zone 2 Increased Safety	★

Code	Description	
K5	USA Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E5	USA Explosion-proof, Dust, Division 2	★
I5	USA Intrinsic Safety, Non-incendive	★
K6	Canada Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E6	Canada Explosion-proof, Dust, Division 2	★
I6	Canada Intrinsic Safety, Non-incendive	★
K7	IECEx Flameproof, Dust, Intrinsic Safety, Zone 2 Increased Safety	★
E7	IECEx Flameproof, Dust	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Zone 2 Increased Safety	★
KS	USA, Canada, IECEx and ATEX Flameproof, Intrinsic Safety, Dust, Zone 2 Increased Safety, Division 2	★
KL	USA, Canada, IECEx, ATEX Intrinsic Safety	★

Rosemount 4051S In-line Pressure Transmitter



Rosemount 4051S In-line Pressure Transmitters are the industry leader for gauge and absolute pressure measurement. The in-line, compact design allows the transmitter to be connected directly to a process for quick, easy, and cost effective installation. Capabilities include:

- Ultra and Classic performance
- 4–20 mA HART® protocol with two integral relay switches
- Safety certification (Option code QT)
- Advanced diagnostics
- Remote display and interface

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Specifications and options

The purchaser of the equipment must specify and select the product materials, options, and components.

Optimizing lead time

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

Required model components

Model

Code	Description	
4051S	Pressure transmitter	★

Measurement functionality

Code	Description	
1	Pressure, level, or flow (square root output)	★

Diagnostic functionality

Code	Description	
A	Device and Loop Integrity diagnostics	★
B	Enhanced SIS proof testing and logging (includes Loop Integrity diagnostic)	★
C	Process Intelligence with Plugged Impulse Line diagnostic (includes enhanced SIS and Loop Integrity)	★

Performance class

Code	Description	
1	Ultra: 0.025% span accuracy, 200:1 rangedown, 20-year stability, 20-year limited warranty	★
4	Classic: 0.035% span accuracy, 150:1 rangedown, 20-year stability	★

Pressure measurement

Code	Description	
TG	Gauge pressure, In-line	★
TA	Absolute pressure, In-line	★

Pressure range

Code	Description		
	Gauge pressure	Absolute pressure	
1	–14.7 to 30 psig (–1.01 to 2.06 bar)	0 to 30 psia (0 to 2.06 bar)	★
2	–14.7 to 150 psig (–1.01 to 10.34 bar)	0 to 150 psia (0 to 10.34 bar)	★
3	–14.7 to 800 psig (–1.01 to 55.15 bar)	0 to 800 psia (0 to 55.15 bar)	★
4	–14.7 to 4000 psig (–1.01 to 275.79 bar)	0 to 4000 psia (0 to 275.79 bar)	★
5	–14.7 to 10000 psig (–1.01 to 689.47 bar)	0 to 10000 psia (0 to 689.47 bar)	★

Isolating diaphragm material

Code	Description	
2	316L SST	★
3	Alloy C-276	★

Process temperature measurement

Code	Description	
N	No process temperature measurement input	★

Process connection type

Code	Description	
A	Integral manifold	★
T	In-line direct connection	★

Process connection style, size, and valve configuration

To select a process connection style, find the column that matches the chosen process connection type and then select the corresponding code.

Code	Description		
	Integral manifold	In-line direct connection	
01	R306, In-line, ½–14 NPT female, 2-valve	½–14 NPT female	★

Code	Description		
	Integral manifold	**In-line direct connection**	
02	R306, In-line, ½–14 NPT male, 2-valve	Non-threaded instrument flange (I-flange)	★
03	R306, In-line, ¾–14 NPT male, 2-valve	G½ A DIN 16288 male	★
04	R306, In-line, ½–14 NPT male, block and bleed	Coned and threaded, compatible and autoclave type F-250-C (absolute pressure, range 5 only)	★
05	Alternative Rosemount manifold (specified separately)	N/A	★
06	Alternative third party manifold (specified separately) with ½–14 NPT female	N/A	★
07	Alternative third party manifold (specified separately) with G½ A DIN 16288 male	N/A	★

Process connection material

To select a process connection material, find the column that matches the chosen process connection type and style and then select the corresponding code.

Code	Description		
	Integral manifold	**In-line direct connection**	
	Manifold body | Valve packing		
N	Specified in separate model number	N/A	★
A	All 316/316L SST | PTFE	Material will match transmitter isolating diaphragm.	★
B	All 316/316L SST | Graphite-based	N/A	★

Transmitter housing material

Code	Description	
A	Aluminum	★
S	Stainless steel (SST)	★

Housing conduit/cable threads

Code	Description	
1	½–14 NPT	★
2	M20 x 1.5	★
3(1)	G½	★

(1) *Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided.*

Transmitter output

Code	Description	
A	4–20 mA with digital signal based on HART® protocol	★
S	4–20 mA with digital signal based on HART protocol and two integral relay switches	★

Additional options

Local wireless device access

Code	Description	
BLE	Bluetooth® configuration and maintenance	★

Display type

Code	Description	
M6	Graphical backlit LCD display with quick service buttons	★
M8(1)	Remote graphical backlit LCD display and interface, quick service buttons	★

(1) *An electronic cable must be specified if ordering a remote display.*

Electronic cabling (for remote display)

Additional cable lengths are available up to 500 ft. (152.4 m). Please consult the product configurator on Emerson.com/global or your local Emerson sales representative for more information.

Code	Description	
RA	25 ft. (7.62 m) of cable (gray color)	★
RB	50 ft. (15.2 m) of cable (gray color)	★
RC	100 ft. (30.5 m) of cable (gray color)	★
RN	25 ft. (7.62 m) of cable (blue color)	★
RP	50 ft. (15.2 m) of cable (blue color)	★
RQ	100 ft. (30.5 m) of cable (blue color)	★

Bracket type, bracket material, and bolt material

Code	Description	
B4	Inline bracket, 304 SST, 300 SST	★
BE	Inline bracket, 316 SST, 316 SST	★

Tagging and fastener material

Code	Description	
Y2	316 SST nameplate, top tag, wire-on tag, and fasteners	★

RFID tagging

Code	Description	
Y3	RFID tag	★

Transient protection

Code	Description	
T1	Transient terminal block	★

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Pressure testing

Code	Description	
P1	Hydrostatic testing with certificate	

Special cleaning

This is not available with graphite O-ring material, option code L2 or L3.

Code	Description	
P2	Cleaning for special services	
P3	Cleaning for special services with testing for < 1 PPM chlorine/fluorine	

Software configuration

Code	Description	
C1	Custom software configuration (requires Configuration Data Sheet)	★

Alarm limit

Code	Description	
C4	NAMUR alarm and saturation levels, high alarm	★
C5	NAMUR alarm and saturation levels, low alarm	★
C6(1)	Custom alarm and saturation signal levels, high alarm	★
C7(1)	Custom alarm and saturation signal levels, low alarm	★
C8	Low alarm (standard Rosemount alarm and saturation levels)	★

(1) *Option C6 and C7 require C1 and a configuration data sheet.*

Swivel gauge adapter

This option is only available with process connection type A and process connection style 01, 02, or 03.

Code	Description	
SW	Swivel gauge adapter	★

Ground screw

Code	Description	
X1	External ground screw assembly	★

Sensor fill fluid

Code	Description	
L1	Inert sensor fill fluid	★

Conduit plug

Code	Description	
DO	316 SST conduit plug	★

Conduit electrical connector

This is not available with explosion-proof or flameproof approvals.

Code	Description	
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★
GB	M20 ATEX-certified cable gland and plug	★

Cold temperature

This is only available on pressure ranges 1–5, with silicone sensor fill fluid and SST or C-276 isolating diaphragms and classic performance.

Code	Description	
BR5	–58 °F (–50 °C) cold temperature operation	★
BR6	–76 °F (–60 °C) cold temperature operation	★

Process wetted thread sealant

Code	Description	
Z1	High temperature liquid thread sealant [–65 °F to 400 °F (–54 °C to 204 °C) temperature rating]	★
Z2	Liquid thread sealant [–63 °F to 302 °F (–53 °C to 150 °C) temperature rating]	★
Z3	Anaerobic PTFE paste	★
Z4	GraFoil® thread sealant	★
Z5	Loctite® 580 thread sealant	★

Custody transfer

Code	Description	
D3	Measurement Canada accuracy approval	★

Drinking water approval

Code	Description	
DW	NSF drinking water approval	★

Shipboard approvals

Code	Description	
SBS	American Bureau of Shipping	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyd's Register (LR) Type Approval	★

Calibration certification

Code	Description	
Q4	Calibration certificate	★
QP	Calibration certificate and tamper evident seal	★

Material traceability certification

Code	Description	
Q8	Material traceability certification per EN 10204 3.1	★

Positive material identification (PMI)

PMI verification and certificate requires Q8.

Code	Description	
Q76	PMI verification and certificate	★

Quality certification for safety

Code	Description	
QT	Safety-certified to IEC 61508 with certificate of FMEDA data	★

NACE® certificate

Materials of construction comply with metallurgical requirements highlighted within NACE MR 0175/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 MR 0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

Code	Description	
Q15	Certificate of compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of compliance to NACE MR0103/ISO 17945 for wetted materials	★

Material recommendation for NACE®

This option is only available with process connection type A and process connection style 01, 02, or 03.

Code	Description	
SG	Sour gas (meets NACE MR0175/ISO 15156, MR0103/ISO 17945)	★

Product certifications

Code	Description	
K1	ATEX Flameproof, Intrinsic Safety, Zone 2 Increased Safety, Dust	★
E1	ATEX Flameproof, Dust	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Zone 2 Increased Safety	★
K5	USA Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E5	USA Explosion-proof, Dust, Division 2	★
I5	USA Intrinsic Safety, Non-incendive	★
K6	Canada Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E6	Canada Explosion-proof, Dust, Division 2	★
I6	Canada Intrinsic Safety, Non-incendive	★
K7	IECEx Flameproof, Dust, Intrinsic Safety, Zone 2 Increased Safety	★
E7	IECEx Flameproof, Dust	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Zone 2 Increased Safety	★
KS	USA, Canada, IECEx and ATEX Flameproof, Intrinsic Safety, Dust, Zone 2 Increased Safety, Division 2	★
KL	USA, Canada, IECEx, ATEX Intrinsic Safety	★

Rosemount 4051SF Differential Pressure Flow Meters



Rosemount 4051SF Flow Meters integrate the Rosemount 4051S with industry leading primary elements. Capabilities include:

- Flow meters are factory configured to meet your application needs (DP Flow Configuration Data Sheet required)
- 4–20 mA HART® protocol with two integral relay switches
- Ultra-For-Flow for improved flow performance across wider flow ranges
- Advanced diagnostics
- Direct or remote mount configurations available

Specifications and options

The purchaser of the equipment must specify and select the product materials, options, and components.

Optimizing lead time

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

Sizing and selection

All Rosemount flow meters can be sized to meet your application specific requirements in the DP Flow sizing and selection tool. This tool will verify if a selected product meets your application requirements, provide a comparison between different primary elements, and generate a detailed accuracy comparison graph.

Once a sizing is completed, the configuration tool will help create a complete and valid model code to match your requirements and include any additional options or approvals.

Rosemount 4051SFA Annubar™ Flow Meter



- Rosemount Annubar Flow Meters reduce permanent pressure loss by creating less blockage in the pipe
- Ideal for large line size installations when cost, size, and weight of the flow meter are concerns

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

VIEW PRODUCT >

Required model components

Model

Code	Description	
4051SFA	Annubar™ Flow Meter	★

Measurement functionality

Code	Description	
1	Flow (square root output)	★

Diagnostic functionality

Code	Description	
A	Device and Loop Integrity diagnostics	★
B	Enhanced SIS proof testing and logging (includes Loop Integrity diagnostic)	★
C	Process Intelligence with Plugged Impulse Line diagnostic (includes enhanced SIS and Loop Integrity)	★

Performance class

Code	Description	
1	Ultra: 0.95% flow rate accuracy, 8:1 flow turndown, 20-year stability, 20-year limited warranty	★
2	Ultra-For-Flow: 0.80% flow rate accuracy,14:1 flow turndown, 20-year stability, 20-year limited warranty	★
4	Classic: 1.25% flow rate accuracy, 8:1 flow turndown, 20-year stability	★

Fluid type

Code	Description	
L	Liquid	★
G	Gas	★
S	Steam	★

Line size

Code	Description	
020	2 in. (50 mm)	★
025	2 ½ in. (63.5 mm)	★
030	3 in. (80 mm)	★
035	3 ½ in. (89 mm)	★
040	4 in. (100 mm)	★
050	5 in. (125 mm)	★
060	6 in. (150 mm)	★
070	7 in. (175 mm)	★
080	8 in. (200 mm)	★
100	10 in. (250 mm)	★
120	12 in. (300 mm)	★
140	14 in. (350 mm)	★
160	16 in. (400 mm)	★
180	18 in. (450 mm)	★
200	20 in. (500 mm)	★
240	24 in. (600 mm)	★
300	30 in. (750 mm)	★
360	36 in. (900 mm)	★
420	42 in. (1066 mm)	★
480	48 in. (1210 mm)	★
600	60 in. (1520 mm)	★
720	72 in. (1820 mm)	★
780	78 in. (1950 mm)	★
840	84 in. (2100 mm)	★
900	90 in. (2250 mm)	★
960	96 in. (2400 mm)	★

Pipe Inside Diameter (ID) range

Code	Description	
Z	Custom manufactured for customer-supplied pipe ID	★

Pipe material and mounting assembly material

Code	Description	
C	Carbon steel (A105)	★
S	316 SST	★
G	Chrome-Moly Grade F-11	★
N	Chrome-Moly Grade F-22	★
J	Chrome-Moly Grade F-91	★
0	No mounting (customer-supplied)	★

Piping orientation

Code	Description	
H	Horizontal piping	★
D	Vertical piping with downwards flow	★
U	Vertical piping with upwards flow	★

Annubar™ type

Code	Description	
P	Pak-Lok	★
F	Flanged with opposite side support	★
L	Flange-Lok	★
G	Gear-Drive Flo-Tap	★
M	Manual Flo-Tap	★

Sensor material

Code	Description	
S	316 SST	★
H	Alloy C-276	★

Sensor size

Code	Description	
1	Sensor size 1 — Line sizes 2 in. (50 mm) to 8 in. (200 mm)	★
2	Sensor size 2 — Line sizes 6 in. (150 mm) to 96 in. (2400 mm)	★
3	Sensor size 3 — Line sizes greater than 12 in. (300 mm)	★

Mounting type

Code	Description	
T1	Compression/threaded connection	★
A1	Class 150 RF ASME B16.5	★
A3	Class 300 RF ASME B16.5	★

Code	Description	
A6	Class 600 RF ASME B16.5	★
A9	Class 900 RF ASME B16.5	★
AF	Class 1500 RF ASME B16.5	★
AT	Class 2500 RF ASME B16.5	★
D1	DN PN16 flange	★
D3	DN PN40 flange	★
D6	DN PN100 flange	★
R1	Class 150 RTJ flange	★
R3	Class 300 RTJ flange	★
R6	Class 600 RTJ flange	★
R9	Class 900 RTJ flange	★
RF	Class 1500 RTJ flange	★
RT	Class 2500 RTJ flange	★

Opposite side support and packing gland

Code	Description			
0	No opposite side support or packing gland(1)			
Opposite side support(2)				
C	NPT threaded opposite support assembly - extended tip			
D	Welded opposite support assembly - extended tip			
A	NPT threaded opposite support assembly - original (for retrofit)			
B	Welded opposite support assembly - original (for retrofit)			
Packing gland(3)				
Code	**Packing gland material**	**Rod material**	**Packing material**	
J	Stainless steel packing gland/cage nipple	Carbon steel	PTFE	
K	Stainless steel packing gland/cage nipple	Stainless steel	PTFE	
L	Stainless steel packing gland/cage nipple	Carbon steel	Graphite	
N	Stainless steel packing gland/cage nipple	Stainless steel	Graphite	
R	Alloy C-276 packing gland/cage nipple	Stainless steel	Graphite	

(1) *Required for Pak-Lok and Flange-Lok models.*
(2) *Required for flanged models.*
(3) *Required for Flo-Tap models.*

Isolation valve for Flo-tap models

Code	Description	
1	Gate valve, carbon steel	★
2	Gate valve, stainless steel	★
3	Gate valve, Alloy C-276	★
5	Ball valve, carbon steel	★
6	Ball valve, stainless steel	★

Code	Description	
7	Ball valve, Alloy C-276	★
0	Not applicable or customer-supplied	★

Transmitter connection platform

Code	Description	
3	Direct-mount, integral 3-valve manifold	★
5	Direct-mount, 5-valve manifold	★
6	Direct-mount, high temperature 5-valve manifold	★
7	Remote-mount NPT connections	★
8	Remote-mount SW connections	★

Pressure measurement

Code	Description	
CD	Differential pressure, Coplanar	★

Pressure range

Code	Description	
U	Universal 28:1 flow turndown: 0 to 1000 inH_2O (0 to 2.49 bar)	★
1	0 to 25 inH_2O (0 to 62.16 mbar)	★
2	0 to 250 inH_2O (0 to 621.60 mbar)	★
3	0 to 1000 inH_2O (0 to 2.49 bar)	★

Isolating diaphragm material

Code	Description	
2(1)	316L SST	★
3(1)	Alloy C-276	★
4(1)	Alloy 400	
5(2)	Tantalum	
6(1)(3)	Gold-plated Alloy 400	
7(1)	Gold-plated 316L SST	

(1) *Materials of construction comply with metallurgical requirements highlighted within 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.*
(2) *Tantalum is not available with pressure range 1 and Q15.*
(3) *Includes a graphite-filled PTFE O-ring.*

Process temperature measurement

Code	Description	
N	No process temperature measurement input	★

Transmitter housing material

Code	Description	
A	Aluminum	★
S	Stainless steel (SST)	★

Housing conduit/cable threads

Code	Description	
1	½–14 NPT	★
2	M20 x 1.5	★
3(1)	G½	★

(1) *Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided.*

Transmitter output

Code	Description	
A	4–20 mA with digital signal based on HART® protocol	★
S	4–20 mA with digital signal based on HART protocol and two integral relay switches	★

Additional options

Surface finish

Code	Description	
RL	Surface finish for low pipe Reynolds number in gas and steam	★
RH	Surface finish for high pipe Reynolds number in liquid	★

Installed in flanged pipe spool section

Code	Description	
H3	Class 150 flanged connection with Rosemount standard length and schedule	
H4	Class 300 flanged connection with Rosemount standard length and schedule	
H5	Class 600 flanged connection with Rosemount standard length and schedule	

Special shipment

Code	Description	
Y1	Mounting hardware shipped separately	★

Special dimensions

Code	Description	
VM	Variable mounting	
VT	Variable tip	
VS	Variable length spool section	

Manifold for remote mount option

Code	Description	
F2	3-valve manifold, stainless steel	★
F3	3-valve manifold, Alloy C-276	★
F6	5-valve manifold, stainless steel	★
F7	5-valve manifold, Alloy C-276	★

Instrument connections for remote mount option

Code	Description	
G1	Needle valves, carbon steel	★
G2	Needle valves, stainless steel	★
G3	Needle valves, Alloy C-276	★
G5	Outside Screw and Yoke (OS&Y) gate valve, carbon steel	★
G6	OS&Y gate valve, stainless steel	★
G7	OS&Y gate valve, Alloy C-276	★

Material testing

Code	Description	
V1	Dye penetrant exam	

Material examination

Code	Description	
V2	Radiographic examination	

Flow calibration

Code	Description	
W1	Flow calibration (average K)	
W2	Special calibration	

Special inspection

Code	Description	
QC1	Visual and dimensional inspection with certificate	★
QC2	Inspection and performance certificate	★

Code conformance

Code	Description	
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	

Country certification

Code	Description	
J1	Canadian Registration	★
J6	European Pressure Equipment Directive (PED)	★
J8	Chinese Certificate of Special Equipment Type Test	★

Local wireless device access

Code	Description	
BLE	Bluetooth® configuration and maintenance	★

Display type

Code	Description	
M6	Graphical backlit LCD display with quick service buttons	★
M8(1)	Remote graphical backlit LCD display and interface, quick service buttons	★

(1) *An electronic cable must be specified if ordering a remote display.*

Electronic cabling (for remote display)

Additional cable lengths are available up to 500 ft. (152.4 m). Please consult the product configurator on Emerson.com/global or your local Emerson sales representative for more information.

Code	Description	
RA	25 ft. (7.62 m) of cable (gray color)	★
RB	50 ft. (15.2 m) of cable (gray color)	★
RC	100 ft. (30.5 m) of cable (gray color)	★
RN	25 ft. (7.62 m) of cable (blue color)	★
RP	50 ft. (15.2 m) of cable (blue color)	★
RQ	100 ft. (30.5 m) of cable (blue color)	★

Transmitter time response

Code	Description	
P6(1)	High-speed sensor time response	★

(1) *Only available with differential pressure range 2 or 3 and diagnostics option A (loop integrity diagnostic will be disabled).*

Tagging and fastener material

Code	Description	
Y2	316 SST nameplate, top tag, wire-on tag, and fasteners	★

Custom tagging

Code	Description	
D6	Customer-specified barcode tag	★

RFID tagging

Code	Description	
Y3	RFID tag	★

Transient protection

Code	Description	
T1	Transient terminal block	★

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Pressure testing

Code	Description	
P1	Hydrostatic testing with certificate	★
PX	Extended hydrostatic testing	★

Special cleaning

Code	Description	
P2	Cleaning for special services	

Alarm limit

Code	Description	
C4	NAMUR alarm and saturation levels, high alarm	★
C5	NAMUR alarm and saturation levels, low alarm	★
C6(1)	Custom alarm and saturation signal levels, high alarm	★
C7(1)	Custom alarm and saturation signal levels, low alarm	★
C8	Low alarm (standard Rosemount alarm and saturation levels)	★

(1) *Option C6 and C7 require C1 and a configuration data sheet.*

Ground screw

Code	Description	
X1	External ground screw assembly	★

Sensor fill fluid

Code	Description	
L1	Inert sensor fill fluid	★

O-ring

Glass-filled PTFE O-ring is standard.

Code	Description	
L2	Graphite-filled PTFE O-ring	★
L3	All graphite gasket	★

Conduit plug

Code	Description	
DO	316 SST conduit plug	★

Conduit electrical connector

This is not available with explosion-proof or flameproof approvals.

Code	Description	
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★
GB	M20 ATEX-certified cable gland and plug	★

Cold temperature

This is only available on pressure ranges 1–5, with silicone sensor fill fluid and SST or C-276 isolating diaphragms and classic performance.

Code	Description	
BR5	–58 °F (–50 °C) cold temperature operation	★
BR6	–76 °F (–60 °C) cold temperature operation	★

Shipboard approvals

Code	Description	
SBS	American Bureau of Shipping	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyd's Register (LR) Type Approval	★

Calibration certification

Code	Description	
Q4	Calibration certificate	★
QP	Calibration certificate and tamper evident seal	★

Material traceability certification

Code	Description	
Q8	Material traceability certification per EN 10204 3.1	★

Positive material identification (PMI)

PMI verification and certificate requires Q8.

Code	Description	
Q76	PMI verification and certificate	★

Quality certification for safety

Code	Description	
QT	Safety-certified to IEC 61508 with certificate of FMEDA data	★

NACE® certificate

Materials of construction comply with metallurgical requirements highlighted within NACE MR 0175/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 MR 0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

Code	Description	
Q15	Certificate of compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of compliance to NACE MR0103/ISO 17945 for wetted materials	★

Product certifications

Code	Description	
K1	ATEX Flameproof, Intrinsic Safety, Zone 2 Increased Safety, Dust	★
E1	ATEX Flameproof, Dust	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Zone 2 Increased Safety	★
K5	USA Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E5	USA Explosion-proof, Dust, Division 2	★
I5	USA Intrinsic Safety, Non-incendive	★
K6	Canada Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E6	Canada Explosion-proof, Dust, Division 2	★
I6	Canada Intrinsic Safety, Non-incendive	★
K7	IECEx Flameproof, Dust, Intrinsic Safety, Zone 2 Increased Safety	★
E7	IECEx Flameproof, Dust	★

Code	Description	
I7	IECEx Intrinsic Safety	★
N7	IECEx Zone 2 Increased Safety	★
KS	USA, Canada, IECEx and ATEX Flameproof, Intrinsic Safety, Dust, Zone 2 Increased Safety, Division 2	★
KL	USA, Canada, IECEx, ATEX Intrinsic Safety	★

Rosemount 4051SFC Compact Flow Meter



- Compact conditioning flow meters reduce straight piping requirements to 2D upstream and 2D downstream from most flow disturbances
- Simple installation of compact flow meters between any existing raised-face flanges

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Required model components

Model

Code	Description	
4051SFC	Compact Flow Meter	

Measurement functionality

Code	Description	
1	Flow (square root output)	★

Diagnostic functionality

Code	Description	
A	Device and Loop Integrity diagnostics	★
B	Enhanced SIS proof testing and logging (includes Loop Integrity diagnostic)	★
C	Process Intelligence with Plugged Impulse Line diagnostic (includes enhanced SIS and Loop Integrity)	★

Performance class

Code	Description	
1	Ultra: 0.9% flow rate accuracy, 8:1 flow turndown, 20-year stability, 20-year limited warranty	★
2	Ultra-For-Flow: 0.75% flow rate accuracy, 14:1 flow turndown, 20-year stability, 20-year limited warranty	★
4	Classic: 1.1% flow rate accuracy, 8:1 flow turndown, 20-year stability	★

Primary element technology

Code	Description	
C	Conditioning orifice plate	★
P	Orifice plate	★

Material type

Code	Description	
S	316 SST	★

Line size

Code	Description	
005	½ in. (15 mm)	★
010	1 in. (25 mm)	★
015	1 ½ in. (40 mm)	★
020	2 in. (50 mm)	★
030	3 in. (80 mm)	★
040	4 in. (100 mm)	★
060	6 in. (150 mm)	★
080	8 in. (200 mm)	★
100	10 in. (250 mm)	★
120	12 in. (300 mm)	★

Primary element style

Code	Description	
N	Square edged	★

Primary element type

Code	Description	
040	0.40 Beta ratio	★
050	0.50 Beta ratio	★
065	0.65 Beta ratio	★

Transmitter connection platform

Code	Description	
3	Direct mount, integral 3-valve manifold	★
7	Remote-mount, NPT connections	★

Pressure measurement

Code	Description	
CD	Differential pressure, Coplanar	★

Pressure range

Code	Description	
U	Universal 28:1 flow turndown: 0 to 1000 inH_2O (0 to 2.49 bar)	★

Code	Description	
1	0 to 25 inH_2O (0 to 62.16 mbar)	★
2	0 to 250 inH_2O (0 to 621.60 mbar)	★
3	0 to 1000 inH_2O (0 to 2.49 bar)	★

Isolating diaphragm material

Code	Description	
2(1)	316L SST	★
3(1)	Alloy C-276	★
4(1)	Alloy 400	
5(2)	Tantalum	
6(1)(3)	Gold-plated Alloy 400	
7(1)	Gold-plated 316L SST	

(1) *Materials of construction comply with metallurgical requirements highlighted within 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.*
(2) *Tantalum is not available with pressure range 1 and Q15.*
(3) *Includes a graphite-filled PTFE O-ring.*

Process temperature measurement

Code	Description	
N	No process temperature measurement input	★

Transmitter housing material

Code	Description	
A	Aluminum	★
S	Stainless steel (SST)	★

Housing conduit/cable threads

Code	Description	
1	½–14 NPT	★
2	M20 x 1.5	★
3(1)	G½	★

(1) *Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided.*

Transmitter output

Code	Description	
A	4–20 mA with digital signal based on HART® protocol	★
S	4–20 mA with digital signal based on HART protocol and two integral relay switches	★

Additional options

Installation accessories

Code	Description	
AB	ANSI alignment ring (Class 150)(1)	★
AC	ANSI alignment ring (Class 300)(1)	★
AD	ANSI alignment ring (Class 600)(1)	★
DG	DIN alignment ring (PN 16)	★
DH	DIN alignment ring (PN 40)	★
DJ	DIN alignment ring (PN 100)	★
JB	JIS alignment ring (10K)	★
JR	JIS alignment ring (20K)	★
JS	JIS alignment ring (40K)	★

(1) *Only required for 10-in. (250 mm) and 12-in. (300 mm) line sizes.*

Remote adapters

Code	Description	
FE	Flange adapters 316 SST (½ in. NPT)	★

High temperature application

Code	Description	
HT	Graphite valve packing (T_{max} = 850 °F [454 °C])	

Manifold for remote mount option

Code	Description	
F2	3-valve manifold, stainless steel	★
F6	5-valve manifold, stainless steel	★

Flow calibration

Code	Description	
WC	Flow calibration, 3-point, conditioning option C (all pipe schedules)	
WD	Flow calibration, 10-point, conditioning option C (all schedules)	

Special inspection

Code	Description	
QC1	Visual and dimensional inspection with certificate	★
QC7	Inspection and performance certificate	★

Code conformance

Code	Description	
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	

Country certification

Code	Description	
J1	Canadian Registration	★
J8	Chinese Certificate of Special Equipment Type Test	★

Local wireless device access

Code	Description	
BLE	Bluetooth® configuration and maintenance	★

Display type

Code	Description	
M6	Graphical backlit LCD display with quick service buttons	★
M8(1)	Remote graphical backlit LCD display and interface, quick service buttons	★

(1) *An electronic cable must be specified if ordering a remote display.*

Electronic cabling (for remote display)

Additional cable lengths are available up to 500 ft. (152.4 m). Please consult the product configurator on Emerson.com/global or your local Emerson sales representative for more information.

Code	Description	
RA	25 ft. (7.62 m) of cable (gray color)	★
RB	50 ft. (15.2 m) of cable (gray color)	★
RC	100 ft. (30.5 m) of cable (gray color)	★
RN	25 ft. (7.62 m) of cable (blue color)	★
RP	50 ft. (15.2 m) of cable (blue color)	★
RQ	100 ft. (30.5 m) of cable (blue color)	★

Transmitter time response

Code	Description	
P6(1)	High-speed sensor time response	★

(1) *Only available with differential pressure range 2 or 3 and diagnostics option A (loop integrity diagnostic will be disabled).*

Tagging and fastener material

Code	Description	
Y2	316 SST nameplate, top tag, wire-on tag, and fasteners	★

Custom tagging

Code	Description	
D6	Customer-specified barcode tag	★

RFID tagging

Code	Description	
Y3	RFID tag	★

Transient protection

Code	Description	
T1	Transient terminal block	★

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Pressure testing

Code	Description	
P1	Hydrostatic testing with certificate	

Special cleaning

Code	Description	
P2	Cleaning for special services	

Alarm limit

Code	Description	
C4	NAMUR alarm and saturation levels, high alarm	★
C5	NAMUR alarm and saturation levels, low alarm	★
C6(1)	Custom alarm and saturation signal levels, high alarm	★
C7(1)	Custom alarm and saturation signal levels, low alarm	★
C8	Low alarm (standard Rosemount alarm and saturation levels)	★

(1) *Option C6 and C7 require C1 and a configuration data sheet.*

Ground screw

Code	Description	
X1	External ground screw assembly	★

Sensor fill fluid

Code	Description	
L1	Inert sensor fill fluid	★

O-ring

Code	Description	
L2	Graphite-filled PTFE O-ring	★

Conduit plug

Code	Description	
DO	316 SST conduit plug	★

Conduit electrical connector

This is not available with explosion-proof or flameproof approvals.

Code	Description	
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★
GB	M20 ATEX-certified cable gland and plug	★

Cold temperature

This is only available on pressure ranges 1–5, with silicone sensor fill fluid and SST or C-276 isolating diaphragms and classic performance.

Code	Description	
BR5	–58 °F (–50 °C) cold temperature operation	★
BR6	–76 °F (–60 °C) cold temperature operation	★

Shipboard approvals

Code	Description	
SBS	American Bureau of Shipping	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyd's Register (LR) Type Approval	★

Calibration certification

Code	Description	
Q4	Calibration certificate	★
QP	Calibration certificate and tamper evident seal	★

Material traceability certification

Code	Description	
Q8	Material traceability certification per EN 10204 3.1	★

Positive material identification (PMI)

PMI verification and certificate requires Q8.

Code	Description	
Q76	PMI verification and certificate	★

Quality certification for safety

Code	Description	
QT	Safety-certified to IEC 61508 with certificate of FMEDA data	★

NACE® certificate

Materials of construction comply with metallurgical requirements highlighted within NACE MR 0175/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 MR 0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

Code	Description	
Q15	Certificate of compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of compliance to NACE MR0103/ISO 17945 for wetted materials	★

Product certifications

Code	Description	
K1	ATEX Flameproof, Intrinsic Safety, Zone 2 Increased Safety, Dust	★
E1	ATEX Flameproof, Dust	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Zone 2 Increased Safety	★
K5	USA Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E5	USA Explosion-proof, Dust, Division 2	★
I5	USA Intrinsic Safety, Non-incendive	★
K6	Canada Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E6	Canada Explosion-proof, Dust, Division 2	★
I6	Canada Intrinsic Safety, Non-incendive	★
K7	IECEx Flameproof, Dust, Intrinsic Safety, Zone 2 Increased Safety	★
E7	IECEx Flameproof, Dust	★

Code	Description	
I7	IECEx Intrinsic Safety	★
N7	IECEx Zone 2 Increased Safety	★
KS	USA, Canada, IECEx and ATEX Flameproof, Intrinsic Safety, Dust, Zone 2 Increased Safety, Division 2	★
KL	USA, Canada, IECEx, ATEX Intrinsic Safety	★

Rosemount 4051SFP Integral Orifice Flow Meter



- Precision honed pipe section for increased accuracy in small line sizes
- Self-centering plate design prevents alignment errors that magnify measurement inaccuracies in small line sizes

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

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Required model components

Model

Code	Description	
4051SFP	Integral Orifice Flow Meter	★

Measurement functionality

Code	Description	
1	Flow (square root output)	★

Diagnostic functionality

Code	Description	
A	Device and Loop Integrity diagnostics	★
B	Enhanced SIS proof testing and logging (includes Loop Integrity diagnostic)	★
C	Process Intelligence with Plugged Impulse Line diagnostic (includes enhanced SIS and Loop Integrity)	★

Performance class

Code	Description	
1	Ultra: 1.25% flow rate accuracy, 8:1 flow turndown, 20-year stability, 20-year limited warranty	★
2	Ultra-For-Flow: 1.05% flow rate accuracy, 14:1 flow turndown, 20-year stability, 20-year limited warranty	★
4	Classic: 1.35% flow rate accuracy, 8:1 flow turndown, 20-year stability	★

Body material and type

Code	Description	
F	316 SST, 4-bolt	★

Line size

Code	Description	
005	½ in. (15 mm)	★
010	1 in. (25 mm)	★
015	1 ½ in. (40 mm)	★

Process connection (primary)

Code	Description	
T1	NPT female body (not available with thermowell and RTD)	
S1	Socket weld body (not available with thermowell and RTD)	
P1	Pipe ends: NPT threaded	
P2	Pipe ends: beveled	
A1	Pipe ends: flanged, RF, ASME B16.5 Class 150, slip-on	
A3	Pipe ends: flanged, RF, ASME B16.5 Class 300, slip-on	
A6	Pipe ends: flanged, RF, ASME B16.5 Class 600, slip-on	
D1	Pipe ends: flanged, RF, DIN PN16, slip-on	
D2	Pipe ends: flanged, RF, DIN PN40, slip-on	
D3	Pipe ends: flanged, RF, DIN PN100, slip-on	
W1	Pipe ends: flanged, RF, ASME B16.5 Class 150, weld-neck	
W3	Pipe ends: flanged, RF, ASME B16.5 Class 300, weld-neck	
W6	Pipe ends: flanged, RF, ASME B16.5 Class 600, weld-neck	
W9	Pipe ends: flanged, RF, ASME B16.5 Class 900, weld-neck	
R1	Pipe ends: flanged, RTJ , ASME B16.5 Class 150, slip-on	
R3	Pipe ends: flanged, RTJ , ASME B16.5 Class 300, slip-on	
R6	Pipe ends: flanged, RTJ , ASME B16.5 Class 600, slip-on	
R9	Pipe ends: flanged, RTJ , ASME B16.5 Class 900, weld-neck	

Orifice plate material

Code	Description	
S	316/316L SST	★
H	Alloy C-276	★
M	Alloy 400	★

Bore size option

Code	Description	
0010	0.010 in. (0.25 mm) for ½-in. pipe	★
0014	0.014 in. (0.36 mm) for ½-in. pipe	★
0020	0.020 in. (0.51 mm) for ½-in. pipe	★
0034	0.034 in. (0.86 mm) for ½-in. pipe	★

Code	Description	
0066	0.066 in. (1.68 mm) for ½-in. pipe	★
0109	0.109 in. (2.77 mm) for ½-in. pipe	★
0150	0.150 in. (3.81 mm) for 1-in. pipe	★
0160	0.160 in. (4.06 mm) for ½-in. pipe	★
0196	0.196 in. (4.98 mm) for ½-in. pipe	★
0250	0.250 in. (6.35 mm) for 1-in. pipe	★
0260	0.260 in. (6.60 mm) for ½-in. pipe	★
0295	0.295 in. (7.49 mm) for 1½-in. pipe	★
0340	0.340 in. (8.64 mm) for ½-in. pipe	★
0345	0.345 in. (8.76 mm) for 1-in. pipe	★
0376	0.376 in. (9.55 mm) for 1½-in. pipe	★
0500	0.500 in. (12.70 mm) for 1-in. pipe	★
0512	0.512 in. (13.00 mm) for 1½-in. pipe	★
0630	0.630 in. (16.00 mm) for 1-in. pipe	★
0748	0.748 in. (19.00 mm) for 1½-in. pipe	★
0800	0.800 in. (20.32 mm) for 1-in. pipe	★
1022	1.022 in. (25.96 mm) for 1½-in. pipe	★
1184	1.184 in. (30.07 mm) for 1½-in. pipe	★
XXXX	Special bore size (X.XXX in.)	★

Transmitter connection platform

Code	Description	
D3	Direct-mount, 3-valve manifold, SST	★
D4	Direct-mount, 3-valve manifold, Alloy C-276	★
D5	Direct-mount, 5-valve manifold, SST	★
D6	Direct-mount, 5-valve manifold, Alloy C-276	★
R3	Remote-mount, 3-valve manifold, SST	★
R4	Remote-mount, 3-valve manifold, Alloy C-276	★
R5	Remote-mount, 5-valve manifold, SST	★
R6	Remote-mount, 5-valve manifold, Alloy C-276	★

Pressure measurement

Code	Description	
CD	Differential pressure, Coplanar	★

Pressure range

Code	Description	
U	Universal 28:1 flow turndown: 0 to 1000 inH_2O (0 to 2.49 bar)	★

Code	Description	
1	0 to 25 inH_2O (0 to 62.16 mbar)	★
2	0 to 250 inH_2O (0 to 621.60 mbar)	★
3	0 to 1000 inH_2O (0 to 2.49 bar)	★

Isolating diaphragm material

Code	Description	
2(1)	316L SST	★
3(1)	Alloy C-276	★
4(1)	Alloy 400	
5(2)	Tantalum	
6(1)(3)	Gold-plated Alloy 400	
7(1)	Gold-plated 316L SST	

(1) *Materials of construction comply with metallurgical requirements highlighted within 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.*
(2) *Tantalum is not available with pressure range 1 and Q15.*
(3) *Includes a graphite-filled PTFE O-ring.*

Process temperature measurement

Code	Description	
N	No process temperature measurement input	★

Transmitter housing material

Code	Description	
A	Aluminum	★
S	Stainless steel (SST)	★

Housing conduit/cable threads

Code	Description	
1	½–14 NPT	★
2	M20 x 1.5	★
3(1)	G½	★

(1) *Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided.*

Transmitter output

Code	Description	
A	4–20 mA with digital signal based on HART® protocol	★
S	4–20 mA with digital signal based on HART protocol and two integral relay switches	★

Additional options

Transmitter/body bolt material

Code	Description	
GT	Extended temperature gaskets, studs, and nuts (850 °F [454 °C])	

Optional connection

Code	Description	
G1	DIN 19213 transmitter connection	★

Material testing

Code	Description	
V1	Dye penetrant exam	

Material examination

Code	Description	
V2	Radiographic examination	

Flow calibration

Code	Description	
WD	Discharge coefficient verification	

Special inspection

Code	Description	
QC1	Visual and dimensional inspection with certificate	★
QC7	Inspection and performance certificate	★

Code conformance

Code	Description	
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	

Country certification

Code	Description	
J1	Canadian Registration	★
J6	European Pressure Equipment Directive (PED)	★

Local wireless device access

Code	Description	
BLE	Bluetooth® configuration and maintenance	★

Display type

Code	Description	
M6	Graphical backlit LCD display with quick service buttons	★
M8(1)	Remote graphical backlit LCD display and interface, quick service buttons	★

(1) *An electronic cable must be specified if ordering a remote display.*

Electronic cabling (for remote display)

Additional cable lengths are available up to 500 ft. (152.4 m). Please consult the product configurator on Emerson.com/global or your local Emerson sales representative for more information.

Code	Description	
RA	25 ft. (7.62 m) of cable (gray color)	★
RB	50 ft. (15.2 m) of cable (gray color)	★
RC	100 ft. (30.5 m) of cable (gray color)	★
RN	25 ft. (7.62 m) of cable (blue color)	★
RP	50 ft. (15.2 m) of cable (blue color)	★
RQ	100 ft. (30.5 m) of cable (blue color)	★

Transmitter time response

Code	Description	
P6(1)	High-speed sensor time response	★

(1) *Only available with differential pressure range 2 or 3 and diagnostics option A (loop integrity diagnostic will be disabled).*

Tagging and fastener material

Code	Description	
Y2	316 SST nameplate, top tag, wire-on tag, and fasteners	★

Custom tagging

Code	Description	
D6	Customer-specified barcode tag	★

RFID tagging

Code	Description	
Y3	RFID tag	★

Transient protection

Code	Description	
T1	Transient terminal block	★

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Pressure testing

Code	Description	
P1	Hydrostatic testing with certificate	

Special cleaning

Code	Description	
P2	Cleaning for special services	

Alarm limit

Code	Description	
C4	NAMUR alarm and saturation levels, high alarm	★
C5	NAMUR alarm and saturation levels, low alarm	★
C6[(1)]	Custom alarm and saturation signal levels, high alarm	★
C7[(1)]	Custom alarm and saturation signal levels, low alarm	★
C8	Low alarm (standard Rosemount alarm and saturation levels)	★

(1) *Option C6 and C7 require C1 and a configuration data sheet.*

Ground screw

Code	Description	
X1	External ground screw assembly	★

Sensor fill fluid

Code	Description	
L1	Inert sensor fill fluid	★

O-ring

Glass-filled PTFE O-ring is standard.

Code	Description	
L2	Graphite-filled PTFE O-ring	★
L3	All graphite gasket	★

Conduit plug

Code	Description	
DO	316 SST conduit plug	★

Conduit electrical connector

This is not available with explosion-proof or flameproof approvals.

Code	Description	
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★
GB	M20 ATEX-certified cable gland and plug	★

Cold temperature

This is only available on pressure ranges 1–5, with silicone sensor fill fluid and SST or C-276 isolating diaphragms and classic performance.

Code	Description	
BR5	–58 °F (–50 °C) cold temperature operation	★
BR6	–76 °F (–60 °C) cold temperature operation	★

Shipboard approvals

Code	Description	
SBS	American Bureau of Shipping	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyd's Register (LR) Type Approval	★

Calibration certification

Code	Description	
Q4	Calibration certificate	★
QP	Calibration certificate and tamper evident seal	★

Material traceability certification

Code	Description	
Q8	Material traceability certification per EN 10204 3.1	★

Positive material identification (PMI)

PMI verification and certificate requires Q8.

Code	Description	
Q76	PMI verification and certificate	★

Quality certification for safety

Code	Description	
QT	Safety-certified to IEC 61508 with certificate of FMEDA data	★

NACE® certificate

Materials of construction comply with metallurgical requirements highlighted within NACE MR 0175/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 MR 0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

Code	Description	
Q15	Certificate of compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of compliance to NACE MR0103/ISO 17945 for wetted materials	★

Product certifications

Code	Description	
K1	ATEX Flameproof, Intrinsic Safety, Zone 2 Increased Safety, Dust	★
E1	ATEX Flameproof, Dust	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Zone 2 Increased Safety	★
K5	USA Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E5	USA Explosion-proof, Dust, Division 2	★
I5	USA Intrinsic Safety, Non-incendive	★
K6	Canada Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E6	Canada Explosion-proof, Dust, Division 2	★
I6	Canada Intrinsic Safety, Non-incendive	★
K7	IECEx Flameproof, Dust, Intrinsic Safety, Zone 2 Increased Safety	★
E7	IECEx Flameproof, Dust	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Zone 2 Increased Safety	★
KS	USA, Canada, IECEx and ATEX Flameproof, Intrinsic Safety, Dust, Zone 2 Increased Safety, Division 2	★
KL	USA, Canada, IECEx, ATEX Intrinsic Safety	★

Rosemount 4051SLT Level Transmitter



Rosemount 4051SLT Level Transmitters combine the features and benefits of a high-performance Rosemount 4051S with the durability and reliability of diaphragm seals all in a single model number.

Product features and capabilities include:

- Variety of process connections including flanged, threaded, and hygienic seals
- Quantified performance for the entire transmitter/seal assembly (QZ option)
- 4–20 mA HART® protocol with two integral relay switches

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

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Specifications and options

The purchaser of the equipment must specify and select the product materials, options, and components.

Optimizing lead time

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

Required model components

Model

Code	Description	
4051SLT	Level Transmitter	★

Measurement functionality

Code	Description	
1	Pressure, level, or flow (square root output) with remote seal	★

Diagnostic functionality

Code	Description	
A	Device and Loop Integrity diagnostics	★
B	Enhanced SIS proof testing and logging (includes Loop Integrity diagnostic)	★
C	Process Intelligence with Plugged Impulse Line diagnostic (includes enhanced SIS and Loop Integrity)	★

Performance class

Code	Description	
1	Ultra: 0.025% span accuracy, 200:1 rangedown, 20-year stability, 20-year limited warranty	★
4	Classic: 0.035% span accuracy, 150:1 rangedown, 20-year stability	★

Pressure measurement and module type

Code	Description	
CD	Differential pressure, Coplanar	★
CG	Gauge pressure, Coplanar	★
TG	Gauge pressure, In-line	★
TA	Absolute pressure, In-line	★
CA	Absolute pressure, Coplanar	★

Pressure range

Code	Description					
	Differential pressure Coplanar	**Gauge pressure Coplanar**	**Gauge pressure In-line**	**Absolute pressure In-line**	**Absolute pressure Coplanar**	
1	–25 to 25 inH_2O (62.16 to 62.16 mbar)	–25 to 25 inH_2O (–62.16 to 62.16 mbar)	–14.7 to 30 psig (–1.01 to 2.06 bar)	0 to 30 psia (0 to 2.06 bar)	0 to 30 psia (0 to 2.07 bar)	★
2	–250 to 250 inH_2O (–621.60 to 621.60 mbar)	–250 to 250 inH_2O (–621.60 to 621.60 mbar)	–14.7 to 150 psig (–1.01 to 10.34 bar)	0 to 150 psia (0 to 10.34 bar)	0 to 150 psia (0 to 10.34 bar)	★
3	–1000 to 1000 inH_2O (–2.49 to 2.49 bar)	–393 to 1000 inH_2O (–0.97 to 2.49 bar)	–14.7 to 800 psig (–1.01 to 55.15 bar)	0 to 800 psia (0 to 55.15 bar)	0 to 800 psia (0 to 55.16 bar)	★
4	–300 to 300 psi (–20.68 to 20.68 bar)	–14.2 to 300 psig (–0.97 to 20.68 bar)	–14.7 to 4000 psig (–1.01 to 275.79 bar)	0 to 4000 psia (0 to 275.79 bar)	0 to 4000 psia (0 to 275.79 bar)	★
5	–2000 to 2000 psi (–137.89 to 137.89 bar)	–14.2 to 2000 psig (–0.97 to 137.89 bar)	–14.7 to 10000 psig (–1.01 to 689.47 bar)	0 to 10000 psia (0 to 689.47 bar)	N/A	★

Transmitter isolating diaphragm material

Code	Description	
2	316L SST	★
3	Alloy C-276	★

Process temperature measurement

Code	Description	
N	No process temperature measurement input	★

Process connection type

Code	Description	
B	Remote seal	★

Code	Description	
S	Remote seal — Thermal range expander (Silicone 200 secondary fill fluid)	★
U	Remote seal — Thermal range expander (SYLTHERM™ XLT secondary fill fluid)	★
V	Remote seal — Thermal range expander (Tri-Therm 300 secondary fill fluid)	★

Process connection style

Code	Description	
One seal system		
01	One remote seal, welded-repairable	★
02	One remote seal, all-welded	★
Two seal system		
03	Tuned system, welded-repairable	★
04	Tuned system, all-welded	★
05	Balanced system, welded-repairable	★
06	Balanced system, all-welded	★
Assemble-to		
07	Assemble to one Rosemount remote seal (specified separately)(1)	★
08	Assemble to two Rosemount remote seals (specified separately)(2)	★

(1) *Have to build one other model which specifies high or low.*
(2) *Have to build two other models which specifies high or low.*

Process connection material

Code	Description	
N	Material specified with diaphragm and flange remote seal options	★

Transmitter housing material

Code	Description	
A	Aluminum	★
S	Stainless steel (SST)	★

Housing conduit/cable threads

Code	Description	
1	½–14 NPT	★
2	M20 x 1.5	★
3(1)	G½	★

(1) *Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided.*

Transmitter output

Code	Description	
A	4–20 mA with digital signal based on HART® protocol	★
S	4–20 mA with digital signal based on HART protocol and two integral relay switches	★

Fill fluid

Code	Description	
-	Not applicable	★
D(3)	Silicone 200	★
F(2)	Silicone 200 for vacuum applications	★
J(1)(3)	Tri-Therm 300	★
Q(1)(2)	Tri-Therm 300 for vacuum applications	★
H(2)	Inert (Halocarbon)	★
L(3)	Silicone 704	★
C(2)	Silicone 704 for vacuum applications	★
R(3)	Silicone 705	★
V(2)	Silicone 705 for vacuum applications	★
A(2)	SLYTHERM™ XLT	★
N(1)(2)	Neobee® M-20	★
P(1)(3)	Propylene glycol and Water	★
G(1)(3)	Gylcerin and water	★

(1) *This is a food grade fill fluid.*
(2) *For use in vacuum applications below 14.7 psia (1 bar-a), refer to vapor pressure curves in Rosemount DP Level Fill Fluid Specification Technical Note*
(3) *Not suitable for vacuum applications*

High side or inline connection

Code	Description	
---	Not applicable	★
000	No seal connection	★
Direct mount connections		
D00	Direct mount, no extension	★
D02	Direct mount, 2-in. (50 mm) extension	★
D04	Direct mount, 4-in. (100 mm) extension	★
D05	Direct mount, thermal optimizer	★
Capillary lengths(1)		
Exx	1- to 50-ft., 5-ft. increments Example: 5-ft. = E05, 50-ft. = E50	★
Mxx	0.5- to 4-m, 0.5-m increments; 4- to 30-m with 1-m increments Example: 1-m = M01, 15-m = M15; exception: 0.5 = M50, 1.5-m = M51, 2.5-m = M52, 3.5-m = M53	

(1) *Capillary lengths below 25 feet (8 meters) are common options and should be selected for best delivery.*

Low side connection

Code	Description	
---	Not applicable	★
000	No seal connection	★
Direct mount connections		
D00	Direct mount, no extension	★
D02	Direct mount, 2-in. (50 mm) extension	★
D04	Direct mount, 4-in. (100 mm) extension	★
Capillary lengths(1)		
Exx	1- to 50-ft., 5-ft. increments Example: 5-ft. = E05, 50-ft. = E50	
Mxx	0.5- to 4-m, 0.5-m increments; 4- to 30-m with 1-m increments Example: 1-m = M01, 15-m = M15; exception: 0.5 = M50, 1.5-m = M51, 2.5-m = M52, 3.5-m = M53	

(1) *Capillary lengths below 25 feet (8 meters) are common options and should be selected for best delivery.*

Industry standard

Code	Description	
-	Not applicable	★
A	ASME B16.5/ASME B1.20.1	★
D	EN 1092-1/EN 10226-1/ISO 228-1	★
G	HG20615 (China Standard based on ASME B16.5)	★
K	HG20592 (China Standard based on EN 1092-1)	★
T	GOST 33259-15	★
B	ISA Threaded, B1.20.1 per ISA 82.03	★
J	JIS B2220 (Japanese Industrial Standard)	★

Process connection size

Code	Description				
	Industry Standard Code: **A: ASME B16.5 | ASME B1.20.1** **G: HG20615 (China Standard based on ASME B16.5)**	**Industry Standard Code:** **D: EN 1092-1 | EN 10226-1/ISO 228-1** **K: HG20592 (China Standard based on EN 1092-1)** **T: GOST 33259-15**	**Industry Standard Code:** **J: JIS B2220 (Japanese Industrial Standard)**	**Industry Standard Code:** **B: ISA Threaded, B1.20.1 per ISA 82.03**	
-	Not applicable	Not applicable	Not applicable	Not applicable	★
A	½ in.	N/A	N/A	N/A	★
B	¾ in.	DN 10	10A	N/A	★
C	N/A	DN 15	15A	N/A	★
D	N/A	DN 20	20A	N/A	★
E	1 in.	DN 25	25A	N/A	★
F	1½ in.	DN 40	40A	N/A	★

Code	Description				
	Industry Standard Code: **A: ASME B16.5 | ASME B1.20.1** **G: HG20615 (China Standard based on ASME B16.5)**	**Industry Standard Code:** **D: EN 1092-1 | EN 10226-1/ISO 228-1** **K: HG20592 (China Standard based on EN 1092-1)** **T: GOST 33259-15**	**Industry Standard Code:** **J: JIS B2220 (Japanese Industrial Standard)**	**Industry Standard Code:** **B: ISA Threaded, B1.20.1 per ISA 82.03**	
G	2 in.	DN 50	50A	N/A	★
H	3 in.	DN 80	80A	N/A	★
J	4 in.	DN 100	100A	N/A	★
K	¼–18 FNPT	Tapered R½ per ISO 7/1 female threaded	N/A	N/A	★
L	⅜–18 FNPT	G½ (EN 837-1) female threaded	N/A	¼–18 FNPT	★
M	½–14 FNPT	N/A	N/A	⅜–18 FNPT	★
N	¾–14 FNPT	N/A	N/A	½–14 FNPT	★
P	1–11.5 FNPT	N/A	N/A	¾–14 FNPT	★
Q	1¼–11.5 FNPT	N/A	N/A	1–11.5 FNPT	★
R	1½–11.5 FNPT	N/A	N/A	1¼–11.5 FNPT	★

Flange/pressure rating

Code	Description					
	Industry Standard Code: **A: ASME B16.5 | ASME B1.20.1** **G: HG20615 (China Standard based on ASME B16.5)**		**Industry Standard Code:** **D: EN 1092-1 | EN 10226-1/ISO 228-1** **K: HG20592 (China Standard based on EN 1092-1)** **T: GOST 33259-15**	**Industry Standard Code:** **J: JIS B2220 (Japanese Industrial Standard)**	**Industry Standard Code:** **B: ISA Threaded, B1.20.1 per ISA 82.03**	
	Process connection size code: A, B, E, F, G, H, and J	**Process connection size code: K, L, M, N, P, Q, R, S, T, and U**				
-	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	★
0	No flange	N/A	No flange	N/A	N/A	★
1	Class 150	800 psi (55.2 bar)	PN 6	10K	1700 psi (117.2 bar)	★
2	Class 300	2500 psi (34.5 bar)	PN 10/16	20K	6800 psi (468.8 bar)	★
3	Class 600	5000 psi (344.7 bar)	PN 40	40K	10200 psi (703.3 bar)	★
4	Class 900	10000 psi (689.5 bar)	PN 63	N/A	13700 psi (944.6 bar)	★
5	Class 1500	8700 psi (599.8 bar)	PN 100	N/A	N/A	★
6	Class 2500	1500 psi (103.4 bar)	PN 160	N/A	N/A	★

Flange material

Code	Description	
-	Not applicable	★
N	No flange	★
C[1]	Carbon steel	★
S[2]	316 SST	★

(1) *Not available with one-piece design when ordered with 316 SST diaphragm (alternate design option code M2).*
(2) *For use with spiral wound metallic gaskets when ordered with 316 SST diaphragm.*

Seal diaphragm material

Code	Description	
-	Not applicable	★
S	316L SST	★
H	Alloy C-276	★
T	Tantalum	★
D	Duplex 2205 SST	★
M	Alloy 400	★
B[1][2][3]	Tantalum (brazed)	★
A	304L SST	★
E	321 SST	★
F	Alloy B	★
G	Alloy C-22	★
J	Alloy 20	★
K	Alloy 600	★
L	Alloy 625	★
V	Duplex 2507 SST	★
W	Nickel 201	★
P	Titanium Grade 2	★
Q[4]	Titanium Grade 4	★
R[4]	Zirconium 702	★

(1) *Not available with one-piece design (alternate design option code M2).*
(2) *For use with spiral wound metallic gaskets.*
(3) *Only available for process connections G and H.*
(4) *Operating temperature limited to 302 °F (150 °C).*

Lower housing, flushing ring, and seal extension length

Code	Description	
-	Not applicable	★
N	No lower housing, flushing ring, or seal extension length	★
Lower housing/flushing ring materials		
P	Plated carbon steel	★

Code	Description	
S	316L SST	★
H	Alloy C-276	★
T	Tantalum lined 316L SST	★
A	304L SST	★
D	Duplex 2205 SST	★
M	Alloy 400	★
Q	Titanium grade 4	★
Assemble-to		
Y	Assemble to 319 lower with valves, 319 specified separately	★
Seal length extensions(1)		
0	0-in. (0 mm) Extension length	★
1	1-in. (25 mm) Extension length	★
2	2-in. (50 mm) Extension length	★
3	3-in. (75 mm) Extension length	★
4	4-in. (100 mm) Extension length	★
5	5-in. (125 mm) Extension length	★
6	6-in. (150 mm) Extension length	★
7	7-in. (175 mm) Extension length	★
8	8-in. (200 mm) Extension length	★
9	9-in. (225 mm) Extension length	★

(1) *Extension length options are valid with Extended Flanged Seals only.*

Other seal specific options

Intermediate gasket material

Code	Description	
G0	None — user-supplied intermediate gasket	★
G2	C-4401	★
G3	KLINGER® Top-Chem 2000 PTFE	★
G4	Barium Sulfate-filled PTFE	★
G5	GraFoil®	★
G6	Ethylene Propylene	★

Flushing connection

Code	Description	
F0	No flushing connection	★
F1	One (¼–18 NPT)	★
F2	Two (¼–18 NPT)	★
F4	One (½–14 NPT)	★
F5	Two (½–14 NPT)	★

Flushing plugs/vents

Code	Description	
FB	316 SST plugs	★
FC	316 SST drain/vent valves	★
FD	Alloy C-276 plugs	★

Flushing ring alignment clamp

Code	Description	
FA	Flushing ring alignment clamp	★

Extension diameter

Extension diameter options are valid with Extended Flanged Seals only.

Code	Description			
	English	Metric	Process connection size	
E145	1.45 in.	37 mm	1½ in.	★
E190	1.90 in.	48 mm	2 in.	★
E258	2.58 in.	66 mm	3 in. schedule 80	★
E285	2.85 in.	72 mm	3 in. schedule 40	★
E287	2.87 in.	73 mm	3 in. headbox	★
E299	2.99 in.	76 mm	3 in.	★
E350	3.50 in.	89 mm	4 in. schedule 80	★
E370	3.70 in	94 mm	4 in. schedule to 40	★
E378	3.78 in.	96 mm	4 in. headbox	★

Extension and gasket surface material

Extension and gasket surface material options are valid with Extended Flanged Seals only.

Code	Description	
E0	Same as diaphragm material	★
E8	316L SST	★
E9	Alloy C-276	★

Fractional extension length — English/Metric

Fractional extension length options are valid with Extended Flanged Seals only.

Code	Description	
A1	⅛-in. Additional extension	★
A2	¼-in. Additional extension	★
A3	⅜-in. (5 mm) Additional extension	★
A4	½-in. (10 mm) Additional extension	★
A5	⅝-in. (15 mm) Additional extension	★
A6	¾-in. (20 mm) Additional extension	★
A7	⅞-in. Additional extension	★

Alternate capillary ID

Code	Description	
T2	0.03-in. (0.711 mm) ID	★
T3	0.075-in. (1.905 mm) ID	★

Capillary construction

Code	Description	
T4	PVC coated capillary	★
T5	PVC coated capillary with environmental corrosion protection for capillary welds	★
T8	4-in. (101.6 mm) Support tube, PVC coated capillary	★
T9	4-in. (101.6 mm) Support tube	★

Extra fill for cold temperature

Code	Description	
P4	Extra fill for cold temperature application	★

Radial capillary connection

Code	Description	
P5	Radial capillary connection	★

Material traceability

Code	Description	
Q8	Material traceability certification per EN 10204:2004 3.1B	★

NACE® certificate

Materials of construction comply with metallurgical requirements highlighted within NACE MR 0175/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 MR 0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

Code	Description	
Q15	Certificate of compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of compliance to NACE MR0103/ISO 17945 for wetted materials	★

Positive material identification (PMI)

PMI verification and certificate requires Q8.

Code	Description	
Q76	PMI verification and certificate	★

Diaphragm coating

Code	Description	
H1	PTFE coated diaphragm for nonstick purposes only	★
H2	0.0002-in. (5 µm) gold-plated diaphragm	★
H5	Corrosion Shield PFA coated diaphragm	★

Diaphragm diameter

Code	Description	
D9	4.1 in. (104 mm) diaphragm diameter	★

Diaphragm thickness

Code	Description	
DA	0.002 in. (50 µm) Diaphragm thickness	★
DB	0.006 in. (150 µm) Diaphragm thickness	★

Remote seal bolt material

Code	Description	
S2	316 SST bolts	★
S3	316 SST bolts - studs not included	★
S4	304 SST bolts	★

Alternate design

Code	Description	
M1	Solid faceplate (same as diaphragm material)	★
M2	One-piece design	★

Modified flanged connection

Code	Description	
V1	Ring Type Joint flanged connection	★

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Seal system performance reports

Code	Description	
QZ	Remote seal system performance calculation report	★

Additional options

Local wireless device access

Code	Description	
BLE	Bluetooth® configuration and maintenance	★

Display type

Code	Description	
M6	Graphical backlit LCD display with quick service buttons	★
M8(1)	Remote graphical backlit LCD display and interface, quick service buttons	★

(1) *An electronic cable must be specified if ordering a remote display.*

Electronic cabling (for remote display)

Additional cable lengths are available up to 500 ft. (152.4 m). Please consult the product configurator on Emerson.com/global or your local Emerson sales representative for more information.

Code	Description	
RA	25 ft. (7.62 m) of cable (gray color)	★
RB	50 ft. (15.2 m) of cable (gray color)	★
RC	100 ft. (30.5 m) of cable (gray color)	★
RN	25 ft. (7.62 m) of cable (blue color)	★
RP	50 ft. (15.2 m) of cable (blue color)	★
RQ	100 ft. (30.5 m) of cable (blue color)	★

Bracket type, bracket material, and bolt material

Code	Description	
B4	Coplanar flange bracket for 2-in. pipe and panel, 304 SST, 300 SST	★
BE	Coplanar flange bracket for 2-in. pipe and panel, 316 SST, 316 SST	★

Tagging and fastener material

Code	Description	
Y2	316 SST nameplate, top tag, wire-on tag, and fasteners	★

RFID tagging

Code	Description	
Y3	RFID tag	★

Bolting material

Code	Description	
L4	Austenitic 316 SST bolts	★
L5	ASTM A193, Grade B7M bolts	★
L6	Alloy K-500 bolts	★
L7[(1)]	ASTM A453, Class D, Grade 660 bolts	★
L8	ASTM A193, Class 2, Grade B8M bolts	★

(1) *Bolts are not considered process-wetted. In instances where NACE MR0175/ISO 15156 and NACE MR0103 conformance is required for bolting, L7 is the recommended bolting option.*

Transient protection

Code	Description	
T1	Transient terminal block	★

Pressure testing

Code	Description	
P1	Hydrostatic testing with certificate	

Special cleaning

This is not available with graphite O-ring material, option code L2 or L3.

Code	Description	
P2	Cleaning for special services	
P3	Cleaning for special services with testing for < 1 PPM chlorine/fluorine	

Software configuration

Code	Description	
C1	Custom software configuration (requires Configuration Data Sheet)	★

Alarm limit

Code	Description	
C4	NAMUR alarm and saturation levels, high alarm	★

Code	Description	
C5	NAMUR alarm and saturation levels, low alarm	★
C6[1]	Custom alarm and saturation signal levels, high alarm	★
C7[1]	Custom alarm and saturation signal levels, low alarm	★
C8	Low alarm (standard Rosemount alarm and saturation levels)	★

(1) *Option C6 and C7 require C1 and a configuration data sheet.*

Flange adapter

The flange adapter material will match the material selected in the process connection size.

Code	Description	
D2	Flange adapter(s)	★

Ground screw

Code	Description	
X1	External ground screw assembly	★

Drain/vent valve

Code	Description	
D5	Remove transmitter drain/vent valves (install plugs)	★
D8	Ceramic drain/vent valves	★
FJ	Low side drain/vent (Coplanar transmitter with one remote seal)	

Sensor fill fluid

Code	Description	
L1	Inert sensor fill fluid	★

O-ring

Glass-filled PTFE O-ring is standard.

Code	Description	
L2	Graphite-filled PTFE O-ring	★
L3	All graphite gasket	★

Conduit plug

Code	Description	
DO	316 SST conduit plug	★

Conduit electrical connector

This is not available with explosion-proof or flameproof approvals.

Code	Description	
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★
GB	M20 ATEX-certified cable gland and plug	★

Cold temperature

This is only available on pressure ranges 1–5, with silicone sensor fill fluid and SST or C-276 isolating diaphragms and classic performance.

Code	Description	
BR5	–58 °F (–50 °C) cold temperature operation	★
BR6	–76 °F (–60 °C) cold temperature operation	★

Process wetted thread sealant

Code	Description	
Z1	High temperature liquid thread sealant [–65 °F to 400 °F (–54 °C to 204 °C) temperature rating]	★
Z2	Liquid thread sealant [–63 °F to 302 °F (–53 °C to 150 °C) temperature rating]	★
Z3	Anaerobic PTFE paste	★
Z4	GraFoil® thread sealant	★
Z5	Loctite® 580 thread sealant	★

Custody transfer

Code	Description	
D3	Measurement Canada accuracy approval	★

Shipboard approvals

Code	Description	
SBS	American Bureau of Shipping	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyd's Register (LR) Type Approval	★

Calibration certification

Code	Description	
Q4	Calibration certificate	★
QP	Calibration certificate and tamper evident seal	★

Quality certification for safety

Code	Description	
QT	Safety-certified to IEC 61508 with certificate of FMEDA data	★

Product certifications

Code	Description	
K1	ATEX Flameproof, Intrinsic Safety, Zone 2 Increased Safety, Dust	★
E1	ATEX Flameproof, Dust	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Zone 2 Increased Safety	★
K5	USA Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E5	USA Explosion-proof, Dust, Division 2	★
I5	USA Intrinsic Safety, Non-incendive	★
K6	Canada Explosion-proof, Dust, Intrinsic Safety, Division 2	★
E6	Canada Explosion-proof, Dust, Division 2	★
I6	Canada Intrinsic Safety, Non-incendive	★
K7	IECEx Flameproof, Dust, Intrinsic Safety, Zone 2 Increased Safety	★
E7	IECEx Flameproof, Dust	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Zone 2 Increased Safety	★
KS	USA, Canada, IECEx and ATEX Flameproof, Intrinsic Safety, Dust, Zone 2 Increased Safety, Division 2	★
KL	USA, Canada, IECEx, ATEX Intrinsic Safety	★

Specifications

Performance specifications

Conformance to specification

Technology leadership, advanced manufacturing techniques, and statistical process control ensure pressure measurement specification conformance to ±3σ or better.

Reference accuracy

Stated reference accuracy equations include terminal based linearity, hysteresis, repeatability, and setability.

Table 1: Transmitter with Coplanar Sensor Module

Differential pressure (4051S_CD) Gauge pressure (4051S_CG)			
Range	**Ultra**	**Classic**	**Ultra-For-Flow(1)**
Range 0	±0.09% of span; For spans less than 2:1, ±0.045% of URL	±0.10% of span; For spans less than 2:1, ±0.05% of URL	N/A
Range 1	±0.09% of span; For spans less than 15:1, ±(0.015 + 0.005[URL/Span])% of span	±0.10% of span; For spans less than 15:1, ±(0.025 + 0.005[URL/Span])% of span	N/A
Ranges 2–4	±0.025% of span; For spans less than 10:1, ±(0.005 + 0.0035[URL/Span])% of span	±0.035% of span; For spans less than 10:1, ±(0.015 + 0.005[URL/Span])% of span	±0.04% of reading up to 8:1 DP turndown from URL; ±(0.04 + 0.0023[URL/Reading])% of reading to 200:1 DP turndown from URL
Range 5	±0.05% of span; For spans less than 10:1, ±(0.005 + 0.0045[URL/Span])% of span	±0.065% of span; For spans less than 10:1, ±(0.015 + 0.005[URL/Span])% of span	N/A
Range U	±0.025% of span; For spans from 10:1 and 200:1, ±(0.005 + 0.0035[URL/Span])% of span For spans less than 200:1, ±(0.615 + 0.0005[URL/Span])% of span	N/A	N/A
Absolute pressure (4051S_CA)			
Range	**Ultra**	**Classic**	
Ranges 0	±0.075% of span; For spans less than 5:1, ±(0.025 + 0.01[URL/Span])% of span	±0.075% of span; For spans less than 5:1, ±(0.025 + 0.01[URL/Span])% of span	
Ranges 1–4	±0.025% of span; For spans less than 10:1, ±(0.004[URL/Span])% of span	±0.035% of span; For spans less than 10:1, ±(0.0065[URL/Span])% of span	

(1) *Ultra-For-Flow is only applicable for Rosemount 4051S_CD ranges 2–3 only. For calibrated spans from 1:1 to 2:1 of URL, add ±0.005% of span analog output error.*

Table 2: Transmitter with In-Line Sensor Module

Absolute pressure (4051S_TA) **Gauge pressure (4051S_TG)**		
Range	**Ultra**	**Classic**
Ranges 1–4	±0.025% of span For spans less than 10:1, ±(0.004[URL/Span])% of span	±0.035% of span For spans less than 10:1, ±(0.0065[URL/Span])% of span
Ranges 5	±0.04% of span; For spans less than 10:1 ±0.004% of URL	±0.065% of span; For spans less than 10:1 ±0.0065% of URL

Table 3: Level Transmitter

Gauge pressure (4051SLT_CG), (4051SLT_TG) **Absolute pressure (4051SLT_CA), (4051SLT_TA)** **Differential pressure (4051SLT_CD)**		
Range	**Ultra**	**Classic**
Ranges 1–5	±0.055% of span For spans less than 10:1, ±(0.015 + 0.005[URL/Span])% of span	±0.065% of span For spans less than 10:1, ±(0.015 + 0.005[URL/Span])% of span

Transmitter total performance

Total performance is based on combined errors of reference accuracy, ambient temperature effects, and line pressure effects at normal operating conditions (70% of span typical reading, 740 psi [51 bar] line pressure). For performance of ranges not listed, please contact the factory.

Models	**Range**	**Ultra**	**Classic**	**Ultra-For-Flow**
4051S_CD	Ranges 2–3	±0.1% of span For ±50 °F (28 °C) temperature changes; 0–100% relative humidity, from 1:1 to 5:1 rangedown	±0.14% of span For ±50 °F (28 °C) temperature changes, 0–100% relative humidity, from 1:1 to 5:1 rangedown	±0.15% of reading For ±50 °F (28 °C) temperature changes, 0-100% relative humidity, over 8:1 DP turndown from URL
4051S_CG	Ranges 2–5			
4051S_T	Ranges 2–4			
4051S_CA	Ranges 2–4			

Flow performance

Note
These flow measurement accuracies assume a constant density, viscosity, and expansibility factor.

Note
Range 1 flow meters experience an additional uncertainty up to 0.9%. Consult your Emerson representative for exact specifications.

Note
Consult the DP Flow Sizing and Selection Tool for performance specifications related to Universal Range flow meters.

Flow performance specifications assume the device only uses DP readings without pressure and temperature compensation.

Models	**Ultra**	**Classic**	**Ultra-For-Flow**
Annubar™ flow meter (4051SFA)			
Ranges 2–3	±0.95% of flow rate at 8:1 flow turndown	±1.25% of flow rate at 8:1 flow turndown	±0.80% of flow rate at 14:1 flow turndown

Compact conditioning orifice flow meter (4051SFC_C)			
Ranges 2–3			
β = 0.4	±0.90% of flow rate at 8:1 flow turndown	±1.10% of flow rate at 8:1 flow turndown	±0.75% of flow rate at 14:1 flow turndown
β = 0.50, 0.65	±1.25% of flow rate at 8:1 flow turndown	±1.40% of flow rate at 8:1 flow turndown	±1.15% of flow rate at 14:1 flow turndown
Compact orifice flow meter (4051SFC_P)(1)			
Ranges 2–3	±1.35% of flow rate at 8:1 flow turndown	±1.80% of flow rate at 8:1 flow turndown	±1.30% of flow rate at 14:1 flow turndown
Integral orifice flow meter (4051SFP)			
Ranges 2–3			
Bore < 0.160	±2.65% of flow rate at 8:1 flow turndown	±2.70% of flow rate at 8:1 flow turndown	±2.60% of flow rate at 14:1 flow turndown
0.160 ≤ Bore < 0.500	±1.70% of flow rate at 8:1 flow turndown	±1.80% of flow rate at 8:1 flow turndown	±1.60% of flow rate at 14:1 flow turndown
0.500 ≤ Bore ≤ 1.000	±1.25% of flow rate at 8:1 flow turndown	±1.35% of flow rate at 8:1 flow turndown	±1.15% of flow rate at 14:1 flow turndown
1.000 < Bore	±1.70% of flow rate at 8:1 flow turndown	±1.80% of flow rate at 8:1 flow turndown	±1.60% of flow rate at 14:1 flow turndown

(1) *For line sizes less than 2 in. (50 mm) or greater than 8 in. (200 mm), add an additional 5% uncertainty.*

Long term stability

Models	Range	Ultra	Classic	Ultra-For-Flow
4051S_CA	Ranges 1–4	±0.10% URL for 20 years	±0.15% URL for 20 years	±0.10% URL for 20 years
4051S_CG	Ranges 2–5			
4051S_CD	Ranges 2–5			
4051S_T	Ranges 1–3	±0.10% URL for 20 years	±0.15% URL for 20 years	±0.10% URL for 20 years

Warranty

Note

Warranty details can be found in Emerson Terms and Conditions of Sale.

Models	Ultra and Ultra-For-Flow(1)	Classic(2)	Optional extended warranty(3)
All Rosemount 4051S Products	20-year limited warranty	1-year limited warranty	WR3: 3-year limited warranty WR5: 5-year limited warranty

(1) *Rosemount Ultra and Ultra-For-Flow transmitters have a limited warranty of 20 years from date of shipment. All other provisions of Emerson standard limited warranty remain the same.*

(2) *Goods are warranted for 12 months from the date of initial installation or 18 months from the date of shipment by seller, whichever period expires first.*

(3) *Rosemount extended warranties have a limited warranty of three or five years from date of shipment.*

Dynamic performance

Table 4: Total Time Response at 75 °F (24 °C), Includes Dead Time

Consult Instrument the Sizing and Selection Tool™ for transmitter configurations with remote seals including Rosemount 4051SLT.

	4051S_C **4051SF**	**4051S_T**
Standard	DP Ranges 2–5: 80 ms Range 1: 255 ms Range 0: 700 ms Range U: 80 ms	80 ms
High-speed time response (option P6)	DP Ranges 2-3: 40 ms	N/A

Table 5: Dead Time

	4051S_C **4051S_T** **4051SF** **4051SLT**
Standard	40 ms
High-speed time response (option P6)	20 ms

Table 6: Sensor Update Rate

	4051S_C **4051S_T** **4051SF** **4051SLT**
Standard	48 updates per second
High-speed time response (option P6)	167 updates per second

Ambient temperature effect

Table 7: Ambient Temperature Effect

Model(s)	**Range(s)**	**Ultra [per 50 °F (28 °C)]**	**Classic [(per 50 °F (28 °C)]**	**Ultra-For-Flow**
4051S_CD 4051S_CG	0	±(0.25% URL + 0.05% span) from 1:1 to 30:1	±(0.25% URL + 0.05% span) from 1:1 to 30:1	N/A
	1	±(0.1% URL + 0.25% span) from 1:1 to 50:1	±(0.1% URL + 0.25% span) from 1:1 to 50:1	N/A
	2–5	±(0.009% URL + 0.025% span) from 1:1 to 10:1 ±(0.018% URL + 0.08% span) from > 10:1 to 200:1	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1 ±(0.025% URL + 0.125% span) from > 5:1 to 150:1	±0.13% reading ≤ 8:1 DP turndown from URL ±(0.0187% URL + 0.13% reading) > 8:1 and ≤ 100:1 DP turndown from URL

Table 7: Ambient Temperature Effect *(continued)*

Model(s)	Range(s)	Ultra [per 50 °F (28 °C)]	Classic [(per 50 °F (28 °C)]	Ultra-For-Flow
	U	±(0.009% URL + 0.025% span) from 1:1 to 10:1 ±(0.018% URL + 0.08% span) from > 10:1 to 200:1 ±(0.0024% URL + 3.205% span) from > 200:1 to 800:1	N/A	N/A
4051S_T	1	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1 ±(0.025% URL + 0.125% span) from > 5:1 to 100:1	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1 ±(0.025% URL + 0.125% span) from > 5:1 to 100:1	N/A
	2–4	±(0.009% URL + 0.025% span) from 1:1 to 10:1 ±(0.018% URL + 0.08% span) from > 10:1 to 200:1	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1 ±(0.025% URL + 0.125% span) from > 5:1 to 150:1	
	5	±(0.05% URL + 0.075% span) from 1:1 to 10:1	±(0.05% URL + 0.075% span) from 1:1 to 5:1	
4051S_CA	0	±(0.1% URL + 0.25% span) from 1:1 to 30:1	±(0.1% URL + 0.25% span) from 1:1 to 30:1	N/A
	1	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1 ±(0.025% URL + 0.125% span) from > 5:1 to 100:1	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1 ±(0.025% URL + 0.125% span) from > 5:1 to 100:1	
	2–4	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1 ±(0.025% URL + 0.125% span) from > 5:1 to 200:1	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1 ±(0.025% URL + 0.125% span) from > 5:1 to 150:1	

Table 8: Ambient Temperature Effect for Liquid Level Transmitter

Rosemount 4051SLT	
Ultra	**Classic**
See Sizing and Selection Tool.	

Line pressure effect

4051S_CD 4051SF (DP measurement only)	Ultra and Ultra-For-Flow	Classic
Zero error[1]		
Range 2–3	± 0.025% URL per 1000 psi (68.95 bar)	± 0.05% URL per 1000 psi (68.95 bar)
Range U	± 0.0125% URL per 1000 psi (68.95 bar)	N/A
Range 0	± 0.125% URL per 100 psi (6.89 bar)	± 0.125% URL per 100 psi (6.89 bar)
Range 1	± 0.25% URL per 1000 psi (68.95 bar)	± 0.25% URL per 1000 psi (68.95 bar)
Span error[2]		
Range 2–3	± 0.1% of reading per 1000 psi (68.95 bar)	± 0.1% of reading per 1000 psi (68.95 bar)
Range 0	± 0.15% of reading per 100 psi (6.89 bar)	± 0.15% of reading per 100 psi (6.89 bar)

4051S_CD 4051SF (DP measurement only)	Ultra and Ultra-For-Flow	Classic
Range 1	± 0.40% of reading per 1000 psi (68.95 bar)	± 0.40% of reading per 1000 psi (68.95 bar)

(1) *Zero error can be removed by performing a zero trim at line pressure.*
(2) *Specifications for option code P0 are two times those shown above.*

Mounting position effect

Models		Ultra, Ultra-For-Flow, Classic, and Classic MV
4051S_CD or CG		Zero shifts up to ±1.25 inH_2O (3.11 mbar), which can be zeroed span: no effect
4051S_CA or 4051S_T		Zero shifts to ±2.5 inH_2O (6.22 mbar), which can be zeroed span: no effect
4051SF	DP Sensor	Zero shifts up to ±1.25 inH_2O (3.11 mbar), which can be zeroed span: no effect
4051SLT		With liquid level diaphragm in vertical plane, zero shift of up to ±1 inH_2O (2.49 mbar). With diaphragm in vertical plane, zero shift of up to ±5 inH_2O (12.43 mbar) plus extension length on extended units. All zero shifts can be zeroed. Span: no effect

Vibration effect

For housing style code A: Less than ±0.1 percent of URL when tested per the requirements of IEC61298-3 field or pipeline with high vibration level (10–1000 Hz, 0.7 mm displacement peak amplitude, 5 g).

For housing style code S: Less than ±0.1 percent of URL when tested per the requirements of IEC61298-3 field with general application or pipeline with low vibration level (10–1000 Hz, 0.7 mm displacement peak amplitude, 2 g).

Power supply effect

Less than ±0.005 percent of calibrated span per volt change in voltage at the transmitter terminals.

Electromagnetic compatibility (EMC)

Meets all industrial environment requirements of EN61326 and NAMUR NE-21. Maximum deviation is less than 1 percent (< 1%) span during EMC disturbance.

Note
During surge event, device may exceed maximum EMC deviation limit or reset; however, device will self-recover and return to normal operation within specified start-up time.

Transient protection

Tested in accordance with IEEE C62.41.2-2002, Location Category B

- 6 kV crest, 100 kHz (0.5 µs)
- 3 kA crest (8 × 20 µs)
- 6 kV crest (1.2 × 50 µs)

External ground screw assembly

Table 9: External Ground Screw Assembly

Option code	External ground screw assembly included?
I1, K5, I5, K6, E6, I6, I7, KL	No - Order Option X1

Table 9: External Ground Screw Assembly *(continued)*

Option code	External ground screw assembly included?
K1, E1, N1, ND, K7, E7 ,N7, KS	Yes

Functional specifications

Range and sensor limits

Table 10: Transmitter with Coplanar Differential and Gauge Sensor Modules

Range	Minimum span		Sensor limits		
	Ultra	Classic	Upper (URL)	Lower (LRL)	
				4051S_CD[1]	4051S_CG[2]
0	0.1 inH_2O (0.25 mbar)	0.1 inH_2O (0.25 mbar)	3.0 inH_2O (7.46 mbar)	–3.0 inH_2O (–7.46 mbar)	N/A
1	0.5 inH_2O (1.24 mbar)	0.5 inH_2O (1.24 mbar)	25 inH_2O (62.16 mbar)	–25 inH_2O (–62.16 mbar)	–25 inH_2O (–62.16 mbar)
2	1.25 inH_2O (3.11 mbar)	1.67 inH_2O (4.14 mbar)	250 inH_2O (621.6 mbar)	–250 inH_2O (–621.6 mbar)	–250 inH_2O (–621.6 mbar)
3	5.0 inH_2O (12.43 mbar)	6.67 inH_2O (16.58 mbar)	1000 inH_2O (2.49 bar)	–1000 inH_2O (–2.49 bar)	0.5 psia (34.47 mbar)
4	1.5 psi (103.42 mbar)	2.0 psi (137.9 mbar)	300 psi (20.68 bar)	–300 psi (–20.7 bar)	0.5 psia (34.47 mbar)
5	10.0 psi (689.48 mbar)	13.33 psi (919.3 mbar)	2000 psi (137.9 bar)	–2000 psi (–137.9 bar)	0.5 psia (34.47 mbar)
U	1.25 inH_2O (3.11 mbar)	1.25 inH_2O (3.11 mbar)	1000 inH_2O (2,49 bar)	–1000 inH_2O (–2.49 bar)	N/A

(1) *The Lower Range Limit (LRL) is 0 inH_2O (0 mbar) for Ultra-For-Flow Performance Class and Rosemount 4051SF Flow Meters.*
(2) *Assumes atmospheric pressure of 14.7 psia (1 bar).*

Table 11: Transmitter with In-Line Sensor Modules

Range	Minimum span		Sensor limits		
	Ultra	Classic	Upper (URL)	Lower (LRL)	
				Absolute[1]	Gauge
1	0.3 psi (20.68 mbar)	0.3 psi (20.68 mbar)	30 psi (2.07 bar)	0 psia (0 bar)	–14.7 psig (–1.01 bar)
2	0.75 psi (51.71 mbar)	1.0 psi (68.95 mbar)	150 psi (10.34 bar)	0 psia (0 bar)	–14.7 psig (–1.01 bar)
3	4.0 psi (275.79 mbar)	5.33 psi (367.72 mbar)	800 psi (55.16 bar)	0 psia (0 bar)	–14.7 psig (–1.01 bar)
4	20 psi (1.38 bar)	26.67 psi (1.84 bar)	4000 psi (275.79 bar)	0 psia (0 bar)	–14.7 psig (–1.01 bar)
5[2]	1000 psi (68.95 bar)	2000 psi (137.9 bar)	10000 psi (689.48 bar)	0 psia (0 bar)	–14.7 psig (–1.01 bar)

(1) *Assumes atmospheric pressure of 14.7 psia (1 bar-a).*

(2) *Range 5 gage is offered as a sealed gage only using the absolute sensor.*

Table 12: Transmitter with Coplanar Absolute Sensor Modules

Range	Minimum Span		Sensor limits	
	Ultra	Classic	Upper (URL)	Lower (LRL)
0	0.167 psia (11.49 mbar)	0.167 psia (11.49 mbar)	5.0 psia (0.34 bar)	0 psia (0 bar)
1	0.3 psia (20.68 mbar)	0.3 psia (20.68 mbar)	30 psia (2.07 bar)	0 psia (0 bar)
2	0.75 psia (68.95 mbar)	1.0 psia (68.95 mbar)	150 psia (10.34 bar)	0 psia (0 bar)
3	4.0 psia (275.79 mbar)	5.33 psia (367.72 mbar)	800 psia (55.16 bar)	0 psia (0 bar)
4	20 psia (1.38 bar)	26.67 psia (1.84 bar)	4000 psia (275.79 bar)	0 psia (0 bar)

Service

Rosemount 4051S and 4051SF

Liquid, gas, and vapor applications

Rosemount 4051SLT

Liquid level applications

4–20 mA HART® protocol

Zero and span adjustment

Zero and span values can be set anywhere within the range. Span must be greater than or equal to the minimum span.

Output

The 2-wire 4–20 mA is user-selectable for linear or square root output. Digital process variable superimposed on 4–20 mA signal is available to any host that conforms to the HART protocol.

Power supply

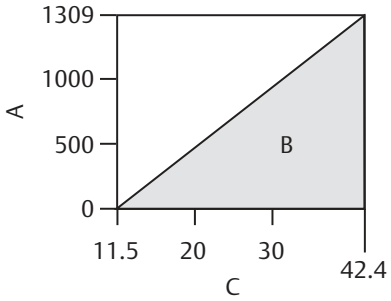
External power supply required. Standard transmitter (4–20 mA) operates on 11.5 to 42.4 Vdc with no load.

Load limitations

Maximum loop resistance is determined by the voltage level of the external power supply described by:

Maximum loop resistance = 42.37 × (power supply voltage – 11.5)

Communication requires a minimum loop resistance of 250 Ω.



A. Load (ohms)
B. Operating region
C. Voltage (Vdc)

Indication

The graphical backlit LCD display provides a 128 x 128 pixel display with a backlight. The backlight can be enabled and disabled via HART. The LCD display module can be rotated via software controls but cannot be repositioned physically on the unit.

The display also functions as an LOI, with two configuration buttons provided for the user to navigate menus.

The display also has a number of additional configuration parameters that can be set up: Add a GP/AP unit label, setting of the decimal separator between either a comma or period, ability to customize the number of significant digits shown, and set the display language. The languages include:

- English
- Chinese
- French
- German
- Italian
- Portuguese
- Spanish

The remote digital display includes a 4-wire communication cable that carries signal and power lines between the two terminal blocks in the remote meter system.

Configuration buttons

Quick service buttons included with the digital display allow for straightforward commissioning using a simple menu underneath the housing cover. The quick service buttons allow users to zero, re-range their device, perform a loop test, view configuration, and rotate the graphical LCD display screen in the field.

Analog zero and span included with the digital display changes analog value and can be used to re-range the transmitter with an applied pressure.

Bluetooth® Connectivity

Typical range: At least 50 ft. (15 m) line of sight. Maximum communication range will vary depending on orientation, obstacles (person, metal, wall, etc.), or electromagnetic environment.

Advanced diagnostics

Advanced diagnostics on the 4051S provide complete coverage from the process to control room. The diagnostic capabilities progressively enhance from option A to option B, culminating in the most advanced features available in option C.

The **Loop Integrity** diagnostic proactively detects and notifies you of changes in the electrical loop before they affect your process operation. Example loop problems that can be detected include, corrosion of terminals, water in the terminal compartment, and unstable power supplies.

The **Enhanced SIS and proof testing** capability provides improved usability when performing partial and comprehensive proof tests. The user interface of the transmitter includes guided methods to make performing proof tests quick and easy. In addition, the in-situ partial proof test provides expanded partial proof test coverage without the need for an external pressure source. Proof test logs are also included so historical information can be accessed at any time.

The **Plugged Impulse Line** diagnostic uses statistical processing technology to detect plugging in impulse piping that may prevent the transmitter from obtaining an accurate process reading. It can also detect and alert you to other process connection issues, such as plugged Annubar™ or orifice plate process taps.

The **Process Intelligence** diagnostic also uses statistical processing technology by monitoring the standard deviation and coefficient of variation which can then be used to detect process and process equipment anomalies including but not limited to:

- Furnace flame instability
- Pump cavitation
- Distillation column flooding
- Fluid composition change
- Entrained air
- Agitation loss
- Process leak

Option Code A includes:	Option Code B includes:	Option Code C includes:
■ Basic transmitter diagnostics ■ Loop integrity ■ Logging capabilities	■ Basic transmitter diagnostics ■ Loop integrity ■ Logging capabilities ■ Enhanced SIS proof testing with in-situ	■ Basic transmitter diagnostics ■ Loop integrity ■ Logging capabilities ■ Enhanced SIS proof testing with in-situ ■ Process intelligence ■ Plugged impulse line

Relay switch functionality (available with output protocol code S)

The 4051S Pressure Transmitter supports two integral high voltage, high current double pole changeover (DPCO) switches connected directly to the transmitter. An integral relay switch takes the traditional pressure relay switch and embeds it into the transmitter. On the 4051S, the relay switches are located in the transmitter terminal block (transient protection included). The relays are controlled by the transmitter measurement and are configured using the process alert functionality.

Relay power

The relay switches must be powered separately than the transmitter power. There are separate dedicated terminals for the relay power. The power supplied to the relays must be able to sufficiently power both switches if using two switches. If using DC power, the terminals are polarity sensitive. If using AC power, there is no polarity sensitivity. The table below shows the power requirements for the relay power and load power.

Transmitter power	Relay power	Relay 1 load power	Relay 2 load power
11.5 to 42.4 Vdc	21.5 to 60 Vdc or 20 to 264 Vac 50/60 Hz	Voltage: 20 to 60 Vdc or 20 to 250 Vac 50/60 Hz Current: 5 A max resistive load	Voltage: 20 to 60 Vdc or 20 to 250 Vac 50/60 Hz Current: 5 A max resistive load

Overpressure limits

Transmitters withstand the following limits without damage:

Table 13: Maximum Overpressure Limits

The pressure that can be applied to the process input (single side) without damage to the transmitter.

Range	4051S_TG/4051S_TA	4051S_CA	4051S_CG	4051S_CD(1)
0	N/A	60 psia (4.1 bar)	N/A	750 psi (51.7 bar)
1	750 psi (51.7 bar)	750 psi (51.7 bar)	2000 psi (137.9 bar)	2000 psi (137.9 bar)
2	1500 psi (103.4 bar)	1500 psi (103.4 bar)	3626 psi (250.0 bar)	3626 psi (250.0 bar)
3	1600 psi (110.3 bar)	1600 psi (110.3 bar)	3626 psi (250.0 bar)	3626 psi (250.0 bar)
4	6000 psi (413.7 bar)	6000 psi (413.7 bar)	3626 psi (250.0 bar)	3626 psi (250.0 bar)
5	15000 psi (1034.2 bar)	N/A	3626 psi (250.0 bar)	3626 psi (250.0 bar)
U	N/A	N/A	2000 psi (137.9 bar)	2000 psi (137.9 bar)

(1) *The overpressure limit of a DP Sensor with the P0 option is 6170 psig (425.4 bar).*

Liquid level transmitter (Rosemount 4051SLT)

Overpressure limit is dependent on the flange rating or sensor rating (whichever is lower). Use the Sizing and Selection Tool to ensure the seal system meets all pressure and temperature limits.

Static pressure limits

Table 14: Static Pressure Limits

Operates within specifications between static line pressures of:

Range	4051S_CD(1)
0	0.5 psia to 750 psig (0.03 bar to 51.71 bar)
1	0.5 psia to 2000 psig (0.03 bar to 137.90 bar)
2	0.5 psia to 3626 psig (0.03 bar to 250.00 bar)
3	0.5 psia to 3626 psig (0.03 bar to 250.00 bar)
4	0.5 psia to 3626 psig (0.03 bar to 250.00 bar)
5	0.5 psia to 3626 psig (0.03 bar to 250.00 bar)
U	0.5 psia to 2000 psig (0.03 bar to 137.90 bar)

(1) *The static pressure limit of a DP Sensor with the P0 option is 6170 psig (425.4 bar).*

Maximum working pressure limits

Maximum working pressure is the maximum pressure allowed for normal transmitter operation. For a differential pressure transmitter, the maximum working pressure is the static line pressure under which the transmitter can safely operate. If one side of the transmitter is exposed to the full static line pressure due to mis-valving, the transmitter will experience an output shift and must be re-zeroed. For a gauge or absolute pressure transmitter, the maximum working pressure is the same as the Upper Range Limit (URL). The maximum working pressure of transmitters with assemble-to options is limited by the lowest maximum pressure rating of the individual components.

Table 15: Rosemount 4051S Maximum Working Pressure

Range	TG/TA	CA	CG	CD
0	N/A	5 psia (0.34 bar)	N/A	750 psi (51.7 bar)
1	30 psi (2.1 bar)	30 psi (2.1 bar)	25 inH_2O (62.2 mbar)	2000 psi (137.9 bar)
2	150 psi (10.3 bar)	150 psi (10.3 bar)	250 inH_2O (621.6 mbar)	3626 psi (250.0 bar)
3	800 psi (55.2 bar)	800 psi (55.2 bar)	1000 inH_2O (2.5 bar)	3626 psi (250.0 bar)

Table 15: Rosemount 4051S Maximum Working Pressure *(continued)*

Range	TG/TA	CA	CG	CD
4	4000 psi (275.8 bar)	4000 psi (275.8 bar)	300 psi (20.7 bar)	3626 psi (250.0 bar)
5	10000 psi (689.5 bar)	N/A	2000 psi (137.9 bar)	3626 psi (250.0 bar)
U	N/A	N/A	2000 psi (137.9 bar)	2000 psi (137.9 bar)

Burst pressure limits

Coplanar sensor module (4051S_C, 4051SF, 4051SLT_G, or A)

10000 psig (689.47 bar)

DP range 2-4, static pressure range 5

16400 psi (1130.74 bar)

In-line sensor module (4051S_T, 4051SLT)

- Ranges 1–4: 11000 psi (758.42 bar)
- Range 5: 26000 psi (1792.64 bar)

Temperature limits

Ambient

–40 to 185 °F (–40 to 85 °C)

With display(1): –40 to 185 °F (–40 to 85 °C)

With option code P0: –20 to 185 °F (–28 to 85 °C)

With option code BR6: –76 to 185 °F (–60 to 85 °C)

Storage

–50 to 185 °F (–46 to 85 °C)

With display: –40 to 185 °F (–40 to 85 °C)

With option code BR6: –76 to 185 °F (–60 to 85 °C)

Table 16: Process Temperature Limits

At atmospheric pressures and above:

Coplanar sensor module 4051S_C, 4051SF	
Silicone fill sensor	N/A
with coplanar flange(1)	–40 to 250 °F (–40 to 121 °C)(2)
with traditional flange(3)	–40 to 300 °F (–40 to 149 °C)(2)(4)
with level flange(3)	–40 to 300 °F (–40 to 149 °C)(2)
with Rosemount 305 integral manifold(1)	–40 to 300 °F (–40 to 149 °C)(2)(4)
Inert fill sensor(1)	–40 to 185 °F (–40 to 85 °C)(5)(6)
with Option Code BR6, coplanar flange	–76 to 250 °F (–60 to 121 °C)(2)
with Option Code BR6, traditional flange	–75 to 300 °F (–60 to 149 °C)(2)

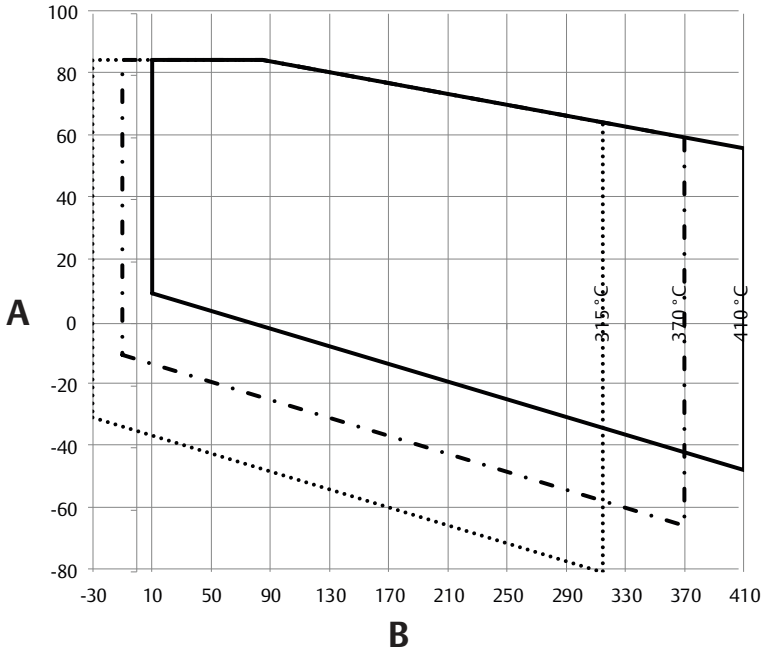
(1) LCD display may not be readable and LCD updates will be slower at temperatures below –13°F (–25°C).

Table 16: Process Temperature Limits *(continued)*

In-line sensor module 4051S_T	
Silicone fill sensor(1)	–40 to 250 °F (–40 to 121 °C)(2)
with Option Code BR6	–76 to 250 °F (–60 to 121 °C)(2)
Inert fill sensor(1)	–22 to 250 °F (–30 to 121 °C)(2)
4051SLT Level Transmitter	
Silicone 704(7)	32 to 599 °F (0 to 315 °C)
Silicone 705(7)	68 to 698 °F (20 to 370 °C)
UltraTherm™ 805	770 °F (410 °C) with 850 °F (454 °C) design(8)
Silicone 200	–49 to 401 °F (–45 to 205 °C)
Tri-Therm 300	–40 to 401 °F (–40 to 205 °C)
Inert (Halocarbon)	–49 to 320 °F (–45 to 160 °C)
Glycerin and water(9)(10)	5 to 203 °F (–15 to 95 °C)
Neobee® M-20(9)	5 to 437 °F (–15 to 225 °C)
Propylene glycol and water(9)(10)	5 to 203 °F (–15 to 95 °C)

(1) *The maximum ambient temperature is reduced by 1.5 °F for every degree by which the process fluid temperature exceeds 185 °F (85 °C).*
(2) *220 °F (104 °C) limit in vacuum service; 130 °F (54 °C) for pressures below 0.5 psia.*
(3) *The maximum ambient temperature is reduced by 1.0 °F for every degree by which the process fluid temperature exceeds 185 °F (85 °C) for all traditional flanges and vertical mount level flanges.*
(4) *–20 °F (–29 °C) is the lower process temperature limit with option code P0.*
(5) *160 °F (71 °C) limit in vacuum service.*
(6) *Not available for 3051S_CA.*
(7) *Only available with Seal Connection Type/Capillary ID, Description Codes C, D, F, G, J, K, N, and P.*
(8) *UltraTherm 805 supports a maximum design temperature of 850 °F (454 °C). Design temperature rating is for non-continuous use with a cumulative exposure time less of than 12 hours. Continuous use temperature is rated to 770 °F (410 °C).*
(9) *This is a food grade fill fluid.*
(10) *Not suitable for vacuum applications.*

Thermal Range Expander temperature operating range



···· Silicone 704

·-·-· Silicone 705

— UltraTherm 805

A. Ambient temperature (°C)
B. Process temperature (°C)

Humidity limits

0–100 percent relative humidity

Turn-on time

When power is applied to the transmitter during startup, performance will be within a maximum turn-on time of 5 seconds.

Volumetric displacement

For 4051SC, it is less than 0.005 in^3 (0.08 cm^3).

For 4051ST, it is less than 0.0005 in^3 (0.008 cm^3).

Damping

Analog output response time to a step change is user-selectable from 0 to 60 seconds for one time constant.

Failure mode alarm

If self-diagnostics detect a gross transmitter failure, the analog signal will be driven offscale to alert the user. Rosemount standard (default), NAMUR, and custom alarm levels are available. (See Table 17).

High or low alarm signal is software-selectable or hardware-selectable via the optional switch.

Table 17: Alarm Configuration

Configuration	High alarm	Low alarm
Default	22.5 mA	3.725 mA
NAMUR compliant(1)	22.5 mA	3.575 mA
Custom levels(2)	20.2 to 23.0 mA	3.57 to 3.8 mA

(1) *Analog output levels are compliant with NAMUR recommendation NE 43, see option codes C4 or C5.*
(2) *Low alarm must be 0.1 mA less than low saturation and high alarm must be 0.1 mA greater than high saturation.*

NAMUR recommendations

The Rosemount 4051S meets the following NAMUR recommendations:

- NE 21 - Electromagnetic compatibility (EMC) for Process and Laboratory Apparatus
- NE 43 - Standard on the signal level breakdown information of digital transmitters
- NE 53 - Revision controlled labeling for software and hardware changes
- NE 107 - Self-Monitoring and Diagnosis of Field Devices

Physical specifications

Material selection

Emerson provides a variety of Rosemount products with various product options and configurations, including materials of construction that can be expected to perform well in a wide range of applications.

The product information presented is intended as a guide for the purchaser to make an appropriate selection for the application. It is the purchaser's sole responsibility to make a careful analysis of all process parameters (such as all chemical components, temperature, pressure, flow rate, abrasives, contaminants, etc.), when specifying product, materials, options, and components for the particular application. Emerson is not in a position to evaluate or guarantee the compatibility of the process fluid or other process parameters with the product, options, configuration, or materials of construction selected.

Electrical connections

½–14 NPT, G½, and M20 × 1½ conduit. HART® interface connections fixed to terminal block.

Process connections

Coplanar sensor module (Rosemount 4051S_C and 4051SF)	
Standard	¼–18 NPT on 2⅛ in. centers
Flange Adapters	½–14 NPT and RC½ on 2 in. (50.8 mm), 2⅛ in. (54.0 mm), or 2¼ in. (57.2 mm) centers
In-line sensor module (Rosemount 4051S_T)	
½–14 NPT female	
Non-threaded instrument flange (available in SST for sensor ranges 1–4 only)	
G½ A DIN 16288 male (available in SST for sensor ranges 1–4 only)	
Autoclave type F-250C (Pressure relieved 9⁄16–18 gland thread; ¼ OD high pressure tube 60° cone; available in SST for sensor range 5 only)	

Level transmitter (Rosemount 4051SLT)
Refer to Process connection size.

Process-wetted parts

Process isolating diaphragms

Coplanar sensor module (4051S_C)
316L SST (UNS S31603), Alloy C-276 (UNS N10276), Alloy 400 (UNS N04400), Tantalum (UNS R05440), Gold-Plated Alloy 400, Gold-plated 316L SST
In-line sensor module (4051S_T)
316L SST (UNS S31603), Alloy C-276 (UNS N10276)
Level transmitter (Rosemount 4051SLT)
Refer to Seal diaphragm material.

Drain/vent valves

316 SST, Alloy C-276, or Alloy 400/K-500 material

(Drain vent seat: Alloy 400, Drain vent stem: Alloy K-500)

Note
Alloy 400/K-500 is not available with Rosemount 4051SLT.

Process flanges and flange adapters

Plated carbon steel

SST: CF-8M (Cast 316 SST) per ASTM A743

Cast C-276: CW-12MW per ASTM A494

Alloy 400: M-30C per ASTM A494

Wetted O-rings

Glass-filled PTFE

Rosemount 4051SLT mounting flange

Zinc-cobalt plated CS or 316 SST

Rosemount 4051SLT seal extension

CF-3M (Cast 316L SST, material per ASTM A743) or CW-12MW (Cast C-276, material per ASTM A494)

Non-wetted parts

Electronics housing

Low-copper aluminum alloy or CF-8M (Cast 316 SST)

Enclosures meet Type 4X, IP66, and IP68 [66 ft. (20 m) for 168 hours] when properly installed.

Coplanar sensor module housing

SST: CF-3M (Cast 316L SST)

Bolts

Plated carbon steel per ASTM A449, Type 1

Austenitic 316 SST per ASTM F593

ASTM A453, Class D, Grade 660 SST

ASTM A193, Grade B7M alloy steel

ASTM A193, Class 2, Grade B8M SST

Alloy K-500

Sensor module fill fluid

Silicone is standard.

Inert is available as option code.

Note
Inert is not available with Rosemount 4051S_CA.

Inert for in-line series uses Fluorinert™ FC-43.

Inert for coplanar series uses Halocarbon.

Seal fill fluid (liquid level only)

Rosemount 4051SLT: Silicone 200, Tri-Therm 300, Silicone 704, Silicone 705, UltraTherm™ 805, inert, SYLTHERM™ XLT, Neobee® M-20, glycerin and water, propylene glycol and water

Paint for aluminum housing

Polyurethane

Cover O-rings

Buna-N

Shipping weights

Table 18: Transmitter Weights

Fully functional transmitter with module, terminal bock, standard covers, and connector board, if applicable.

Complete transmitter weights(1) (without options)	Weight
4051S_C	6.8 lb. (3.08 kg)
4051S_T	5.0 lb. (2.27 kg)
4051S_C (SST)	12.3 lb. (5.58 kg)
4051S_T (SST)	10.5 lb. (4.76 kg)

(1) *Fully functional transmitters with module, housing, terminal block, standard covers, and connector board if applicable. These weights do not include the flange.*

Table 19: Optional Item Weights

Optional item weights	Weight
B1 with U-bolt and bolts	1.71 lb. (0.77 kg)
B2 with U-bolt and bolts	1.282 lb. (0.58 kg)
B3 with U-Bolt and bolts	1.668 lb. (0.76 kg)
B4 (S_C) bracket with U-bolt and bolts	1.186 lb. (0.54 kg)
B4 (S_C with manifold) with U-bolt and bolts	1.544 lb. (0.70 kg)
B4 (S_T) with U-bolt and bolts	1.322 lb. (0.60 kg)
B7 (B1 with SST U-bolt and bolts)	1.716 lb. (0.78 kg)
B8 (B2 with SST U-bolt and bolts)	1.282 lb. (0.58 kg)

Table 19: Optional Item Weights *(continued)*

Optional item weights	Weight
B9 (B3 with SST U-bolt and bolts)	1.676 lb. (0.76 kg)
BA with U-bolt and bolts	1.526 lb. (0.69 kg)
BC with U-bolt and bolts	1.562 lb. (0.71 kg)
SST traditional flange	2.700 lb. (1.23 kg)
SST traditional flange with carbon steel mounting bolts	3.052 lb. (1.384 kg)
SST traditional flange with SST mounting bolts	3.056 lb. (1.39 kg)
DP – Alloy C-276 drain/vent (x2)	0.196 lb. (0.09 kg)
DP – SST drain/vent (x2)	0.176 lb. (0.08 kg)
GP – SST drain/vent (x1) and SST plug (x2)	0.116 lb. (0.05 kg)
GP – Alloy C-276 drain/vent (x1) and SST plug (x2)	0.128 lb. (0.06 kg)
Traditional flange (Alloy C-276)	3.034 lb. (1.38 kg)
SST coplanar flange with carbon steel mounting bolts	1.722 lb. (0.78 kg)
SST coplanar flange with SST mounting bolts	1.726 lb. (0.78 kg)
Traditional flange (Alloy 400)	3.010 lb. (1.37 kg)
Traditional flange (SST with 2 Alloy C-276 D/V)	2.896 lb. (1.31 kg)
Level flange – 3 in., Class 150	12.618 lb. (5.72 kg)
Level flange – 3 in., Class 300	15.920 lb. (7.22 kg)
Level flange – 2 in., Class 150	6.772 lb. (3.07 kg)
Level flange – 2 in., Class 300	8.248 lb. (3.74 kg)
DIN Level flange, SST, DN 50, PN 40	7.818 lb. (3.55 kg)
DIN Level flange, SST, DN 80, PN 40	12.950 lb. (5.87 kg)

Table 20: Individual Item Weights

Individual item weights	Weight
Aluminum standard cover	0.53 lb. (0.24 kg)
SST standard cover	1.53 lb. (0.69 kg)
Aluminum meter cover assembly	0.88 lb. (0.40 kg)
SST meter cover assembly	2.11 lb. (0.97 kg)
LCD with screws	0.16 lb. (0.07 kg)
Terminal block	0.15 lb. (0.07 kg)
Output board/feature board (no screws)	0.14 lb. (0.06 kg)
Housing, Aluminum	1.52 lb. (0.69 kg)
Housing, SST	4.56 lb. (2.07 kg)
Top tag, Aluminum	0.006 lb. (0.003 kg)
Top tag, SST	0.025 lb. (0.011 kg)
Wrap-around nameplate	0.056 lb. (0.025 kg)
Housing with electronics only	3.67 lb. (1.664 kg)

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