**Product Data Sheet**
MS-00813-0100-6201, Rev AA
August 2025

# 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<br>½–14 NPT female<br>2-valve | Coplanar flange<br>Traditional manifold (0304 specified separately) | Coplanar flange<br>¼ NPT | 2 in. ANSI Class 150 | ★ |
| 02 | R305, Coplanar<br>½–14 NPT female<br>3-valve | Traditional flange<br>Traditional manifold (0304 specified separately) | Traditional flange<br>¼ NPT | 2 in. ANSI Class 300 | ★ |
| 03 | R305, Coplanar<br>½–14 NPT female<br>5-valve | DIN-Traditional flange<br>Traditional manifold (0304 specified separately) | DIN-compliant traditional flange<br>¼ NPT | 3 in. ANSI Class 150 | ★ |
| 04 | Alternative Rosemount manifold (specified separately) | Coplanar flange<br>3rd party manifold (specified separately) | Bottom vent traditional flange<br>¼ NPT | 3 in. ANSI Class 300 | ★ |
| 05 | Alternative 3rd party manifold (specified separately) | Traditional flange<br>3rd party manifold (specified separately) | Coplanar flange<br>RC ¼ | DIN DN 50 PN 40 | ★ |
| 06 | N/A | DIN-Traditional flange<br>3rd party manifold (specified separately) | Traditional flange<br>RC ¼ | DIN DN 80 PN 40 | ★ |

| Code | Description | | | | |
|---|---|---|---|---|---|
| | **Process connection type**<br>**A: Integral manifold** | **Process connection type**<br>**G: Transmitter flange with assembled manifold** | **Process connection type**<br>**F: Transmitter flange** | **Process connection type**<br>**L: Level flange** | |
| 07 | N/A | N/A | Bottom vent traditional flange<br>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**<br>**A: Integral manifold** | **Process connection type**<br>**G: Transmitter flange with assembled manifold** | **Process connection type**<br>**F: Transmitter flange** | | **Process connection type**<br>**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 in$H_2O$ (0 to 2.49 bar) | ★ |
| 1 | 0 to 25 in$H_2O$ (0 to 62.16 mbar) | ★ |
| 2 | 0 to 250 in$H_2O$ (0 to 621.60 mbar) | ★ |
| 3 | 0 to 1000 in$H_2O$ (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 in$H_2O$ (0 to 2.49 bar) | ★ |

| Code | Description | |
|---|---|---|
| 1 | 0 to 25 in$H_2O$ (0 to 62.16 mbar) | ★ |
| 2 | 0 to 250 in$H_2O$ (0 to 621.60 mbar) | ★ |
| 3 | 0 to 1000 in$H_2O$ (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 in$H_2O$ (0 to 2.49 bar) | ★ |

| Code | Description | |
|---|---|---|
| 1 | 0 to 25 in$H_2O$ (0 to 62.16 mbar) | ★ |
| 2 | 0 to 250 in$H_2O$ (0 to 621.60 mbar) | ★ |
| 3 | 0 to 1000 in$H_2O$ (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.

VIEW PRODUCT >

## 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 in$H_2O$ (62.16 to 62.16 mbar) | –25 to 25 in$H_2O$ (–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 in$H_2O$ (–621.60 to 621.60 mbar) | –250 to 250 in$H_2O$ (–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 in$H_2O$ (–2.49 to 2.49 bar) | –393 to 1000 in$H_2O$ (–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<br>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<br>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<br>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<br>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:**<br>**A: ASME B16.5 \| ASME B1.20.1**<br>**G: HG20615 (China Standard based on ASME B16.5)** | **Industry Standard Code:**<br>**D: EN 1092-1 \| EN 10226-1/ISO 228-1**<br>**K: HG20592 (China Standard based on EN 1092-1)**<br>**T: GOST 33259-15** | **Industry Standard Code:**<br>**J: JIS B2220 (Japanese Industrial Standard)** | **Industry Standard Code:**<br>**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:**<br>**A: ASME B16.5 \| ASME B1.20.1**<br>**G: HG20615 (China Standard based on ASME B16.5)** | **Industry Standard Code:**<br>**D: EN 1092-1 \| EN 10226-1/ISO 228-1**<br>**K: HG20592 (China Standard based on EN 1092-1)**<br>**T: GOST 33259-15** | **Industry Standard Code:**<br>**J: JIS B2220 (Japanese Industrial Standard)** | **Industry Standard Code:**<br>**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:**<br>**A: ASME B16.5 \| ASME B1.20.1**<br>**G: HG20615 (China Standard based on ASME B16.5)** | | **Industry Standard Code:**<br>**D: EN 1092-1 \| EN 10226-1/ISO 228-1**<br>**K: HG20592 (China Standard based on EN 1092-1)**<br>**T: GOST 33259-15** | **Industry Standard Code:**<br>**J: JIS B2220 (Japanese Industrial Standard)** | **Industry Standard Code:**<br>**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)<br>Gauge pressure (4051S_CG)** | | | |
|---|---|---|---|
| **Range** | **Ultra** | **Classic** | **Ultra-For-Flow(1)** |
| Range 0 | ±0.09% of span;<br>For spans less than 2:1, ±0.045% of URL | ±0.10% of span;<br>For spans less than 2:1, ±0.05% of URL | N/A |
| Range 1 | ±0.09% of span;<br>For spans less than 15:1, ±(0.015 + 0.005[URL/Span])% of span | ±0.10% of span;<br>For spans less than 15:1, ±(0.025 + 0.005[URL/Span])% of span | N/A |
| Ranges 2–4 | ±0.025% of span;<br>For spans less than 10:1, ±(0.005 + 0.0035[URL/Span])% of span | ±0.035% of span;<br>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;<br>±(0.04 + 0.0023[URL/Reading])% of reading to 200:1 DP turndown from URL |
| Range 5 | ±0.05% of span;<br>For spans less than 10:1, ±(0.005 + 0.0045[URL/Span])% of span | ±0.065% of span;<br>For spans less than 10:1, ±(0.015 + 0.005[URL/Span])% of span | N/A |
| Range U | ±0.025% of span;<br>For spans from 10:1 and 200:1, ±(0.005 + 0.0035[URL/Span])% of span<br>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;<br>For spans less than 5:1, ±(0.025 + 0.01[URL/Span])% of span | ±0.075% of span;<br>For spans less than 5:1, ±(0.025 + 0.01[URL/Span])% of span | |
| Ranges 1–4 | ±0.025% of span;<br>For spans less than 10:1, ±(0.004[URL/Span])% of span | ±0.035% of span;<br>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)**<br>**Gauge pressure (4051S_TG)** | | |
|---|---|---|
| **Range** | **Ultra** | **Classic** |
| Ranges 1–4 | ±0.025% of span<br>For spans less than 10:1, ±(0.004[URL/Span])% of span | ±0.035% of span<br>For spans less than 10:1, ±(0.0065[URL/Span])% of span |
| Ranges 5 | ±0.04% of span;<br>For spans less than 10:1 ±0.004% of URL | ±0.065% of span;<br>For spans less than 10:1 ±0.0065% of URL |

**Table 3: Level Transmitter**

| **Gauge pressure (4051SLT_CG), (4051SLT_TG)**<br>**Absolute pressure (4051SLT_CA), (4051SLT_TA)**<br>**Differential pressure (4051SLT_CD)** | | |
|---|---|---|
| **Range** | **Ultra** | **Classic** |
| Ranges 1–5 | ±0.055% of span<br>For spans less than 10:1, ±(0.015 + 0.005[URL/Span])% of span | ±0.065% of span<br>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<br>For ±50 °F (28 °C) temperature changes; 0–100% relative humidity, from 1:1 to 5:1 rangedown | ±0.14% of span<br>For ±50 °F (28 °C) temperature changes, 0–100% relative humidity, from 1:1 to 5:1 rangedown | ±0.15% of reading<br>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<br>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**<br>**4051SF** | **4051S_T** |
|---|---|---|
| Standard | DP Ranges 2–5: 80 ms<br>Range 1: 255 ms<br>Range 0: 700 ms<br>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**<br>**4051S_T**<br>**4051SF**<br>**4051SLT** |
|---|---|
| Standard | 40 ms |
| High-speed time response (option P6) | 20 ms |

**Table 6: Sensor Update Rate**

| | **4051S_C**<br>**4051S_T**<br>**4051SF**<br>**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<br>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<br>±(0.018% URL + 0.08% span) from > 10:1 to 200:1 | ±(0.0125% URL + 0.0625% span) from 1:1 to 5:1<br>±(0.025% URL + 0.125% span) from > 5:1 to 150:1 | ±0.13% reading ≤ 8:1 DP turndown from URL<br>±(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<br>±(0.018% URL + 0.08% span) from > 10:1 to 200:1<br>±(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<br>±(0.025% URL + 0.125% span) from > 5:1 to 100:1 | ±(0.0125% URL + 0.0625% span) from 1:1 to 5:1<br>±(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<br>±(0.018% URL + 0.08% span) from > 10:1 to 200:1 | ±(0.0125% URL + 0.0625% span) from 1:1 to 5:1<br>±(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<br>±(0.025% URL + 0.125% span) from > 5:1 to 100:1 | ±(0.0125% URL + 0.0625% span) from 1:1 to 5:1<br>±(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<br>±(0.025% URL + 0.125% span) from > 5:1 to 200:1 | ±(0.0125% URL + 0.0625% span) from 1:1 to 5:1<br>±(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<br>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<br>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 in$H_2O$ (3.11 mbar), which can be zeroed span: no effect |
| 4051S_CA or 4051S_T | | Zero shifts to ±2.5 in$H_2O$ (6.22 mbar), which can be zeroed span: no effect |
| 4051SF | DP Sensor | Zero shifts up to ±1.25 in$H_2O$ (3.11 mbar), which can be zeroed span: no effect |
| 4051SLT | | With liquid level diaphragm in vertical plane, zero shift of up to ±1 in$H_2O$ (2.49 mbar). With diaphragm in vertical plane, zero shift of up to ±5 in$H_2O$ (12.43 mbar) plus extension length on extended units. All zero shifts can be zeroed.<br>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<br>(11.49 mbar) | 0.167 psia<br>(11.49 mbar) | 5.0 psia<br>(0.34 bar) | 0 psia<br>(0 bar) |
| 1 | 0.3 psia<br>(20.68 mbar) | 0.3 psia<br>(20.68 mbar) | 30 psia<br>(2.07 bar) | 0 psia<br>(0 bar) |
| 2 | 0.75 psia<br>(68.95 mbar) | 1.0 psia<br>(68.95 mbar) | 150 psia<br>(10.34 bar) | 0 psia<br>(0 bar) |
| 3 | 4.0 psia<br>(275.79 mbar) | 5.33 psia<br>(367.72 mbar) | 800 psia<br>(55.16 bar) | 0 psia<br>(0 bar) |
| 4 | 20 psia<br>(1.38 bar) | 26.67 psia<br>(1.84 bar) | 4000 psia<br>(275.79 bar) | 0 psia<br>(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**

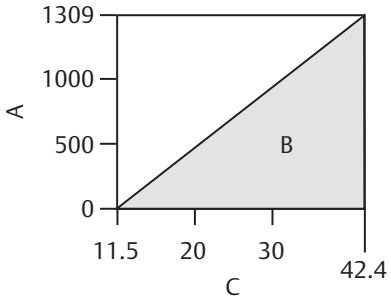
External power supply required. Standard transmitter (4–20 mA) operates on 11.5 to 42.4 Vdc with no load.

**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<br>■ Loop integrity<br>■ Logging capabilities | ■ Basic transmitter diagnostics<br>■ Loop integrity<br>■ Logging capabilities<br>■ Enhanced SIS proof testing with in-situ | ■ Basic transmitter diagnostics<br>■ Loop integrity<br>■ Logging capabilities<br>■ Enhanced SIS proof testing with in-situ<br>■ Process intelligence<br>■ 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<br>or 20 to 264 Vac 50/60 Hz | Voltage: 20 to 60 Vdc or<br>20 to 250 Vac 50/60 Hz<br>Current: 5 A max resistive load | Voltage: 20 to 60 Vdc or<br>20 to 250 Vac 50/60 Hz<br>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 in$H_2O$ (62.2 mbar) | 2000 psi (137.9 bar) |
| 2 | 150 psi (10.3 bar) | 150 psi (10.3 bar) | 250 in$H_2O$ (621.6 mbar) | 3626 psi (250.0 bar) |
| 3 | 800 psi (55.2 bar) | 800 psi (55.2 bar) | 1000 in$H_2O$ (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) |

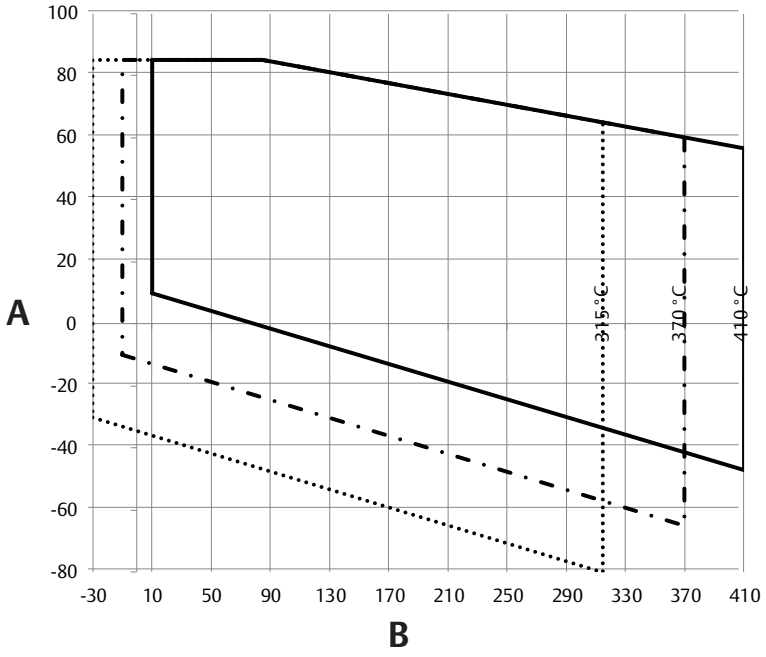
(1) LCD display may not be readable and LCD updates will be slower at temperatures below –13°F (–25°C).

**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) |

MS-00813-0100-6201
Rev. AA
August 2025

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