Rosemount 3095MV MultiVariable™
Mass Flow Transmitter

THE PROVEN LEADER IN MULTIVARIABLE MASS FLOW MEASUREMENT.

• 1.0% of Mass Flow rate accuracy over 8:1 Flow Range
• Five year stability of ±0.125%
• Four measurements in one device
• “Real-Time” compensated Mass Flow
• Coplanar™ platform enables DP Flowmeters

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The Leader in Multivariable Mass Flow Measurement.

Rosemount delivers a tradition of excellence and technology leadership, featuring the state-of-the-art Rosemount 3095MV Multivariable Mass Flow transmitter. The Rosemount 3095MV delivers four measurements from one coplanar device with unmatched operating performance, including dynamically compensated mass flow. Engineered to combine best products with best installation practices, the fully compensated Rosemount 3095MV enables a complete offering of DP Flowmeters.

Four measurements in one device

The advanced Rosemount 3095MV measures three process variables simultaneously and dynamically calculates fully compensated mass flow. One transmitter means reduced process penetrations, inventory and installation costs.

“Real-Time” compensated Mass Flow

Fully compensated mass flow reduces sources of traditional DP flow uncertainty. Rosemount 3095MV calculates Mass Flow by measuring process pressure and temperature to perform ‘real-time’ calculation of all flow equation parameters including density, viscosity, velocity, Reynolds number, beta ratio, discharge coefficient, velocity of approach, and the gas expansion factor. Superior flow calculations yield more accurate measurements to reduce variability and increase profitability.

Coplanar platform enables DP Flowmeters

The flexible coplanar platform allows integration with the complete offering of Rosemount primary elements for any flow application. The solution arrives factory calibrated, pressure-tested, and ready to install right out of the box. Only Rosemount has a scalable coplanar transmitter design to reduce engineering and inventory costs.

1.0% of Mass Flow rate accuracy over 8:1 Flow Range

Enabled by superior sensor technology and engineered for optimal flow performance, the Rosemount 3095MV delivers unprecedented ±0.075% reference accuracy, resulting in mass flow accuracy of ±1.0% over 8:1 flow range. Superior performance means reduced variability and improved plant safety.

Five year stability of ±0.125%

Through aggressive testing, the Rosemount 3095MV has proven its ability to maintain unprecedented performance under the most demanding conditions. Superior transmitter stability decreases calibration frequency for reduced maintenance and operation costs.

Rosemount® Pressure Solutions

Rosemount 3051S Series of Instrumentation

Scaleable pressure, flow and level measurement solutions improve installation and maintenance practices. See product data sheet 00813-0100-4801.

Rosemount 305 and 306 Integral Manifolds

Factory-assembled, calibrated and seal-tested manifolds reduce on-site installation costs. See product data sheet 00813-0100-4733.

Rosemount 1195 Integral Orifice Plate and ProPlate/Mass ProPlate Flowmeters

Convenient ready-to-install assembly designed for small-bore flow measurement of any clean gas, liquid, or vapor. See product data sheet 00813-0100-4686.

Annubar® Flowmeter Series

A series of highly accurate and repeatable insertion-type flowmeters available in 2-in. to 72-in. (50.8 to 1829 mm) line sizes. See product data sheet 00813-0100-4809.

Rosemount 405 Compact Orifice

A wafer style primary element with an integral three-valve manifold. See product data sheet 00813-0100-4810.
FUNCTIONAL SPECIFICATIONS

Service
Gas, liquid, or steam

Differential Sensor

Limits
- Code 1: 0 to 25 inH2O (0 to 0.062 bar)
- Code 2: –250 to 250 inH2O (–0.622 to 0.622 bar)
- Code 3: –1000 to 1000 inH2O (–2.49 to 2.49 bar)

Absolute Sensor

Limits
- Code 3: 0.5 to 800 psia (0.0344 to 55.2 bar)
- Code 4: 0.5 to 3,626 psia (0.0344 to 250 bar)

Gage Sensor

Limits
- Code C: 0–800 psig (0–55.2 bar)
- Code D: 0–3,626 psig (0–250 bar)

Temperature Sensor

Process Temperature Range
–150 to 1500 °F (–101 to 816 °C)

Fixed Temperature Range
–459 to 3500 °F (–273 to 1927 °C)

Overpressure Limit
0 psia to two times the absolute pressure sensor range with a maximum of 3,626 psia (250 bar).

Static Pressure Limit
Operates within specifications between static line pressures of 0.5 psia and the URL of the absolute pressure sensor.

Configuration:

HART Communicator
- Performs traditional Smart transmitter functions

PC-Based Engineering Assistance (EA) software package
- Contains built-in physical property database
- Enables flow configuration, maintenance, and diagnostic functions

Primary Elements:
Supports over 25 different primary elements including:
- Annubar Averaging Pitot Tube
- Rosemount 1195 Integral Orifice Plate
- Rosemount 405 Compact Orifice
- ISO/ASME Orifice Flange Taps
- ISO/ASME Corner Taps
- Calibrated and Custom Primary Elements

Physical Properties Database:
- Maintained in Engineering Assistant Software Configurator
- Applicable physical properties for over 110 fluids
- Natural gas per AGA
- Steam and water per ASME
- Other database fluids per American Institute of Chemical Engineers (AIChE)
- Optional custom entry

Output
Two-wire 4–20 mA, user-selectable for DP, AP, GP, PT, mass flow, or totalized flow. Digital HART protocol superimposed on 4–20 mA signal, available to any host that conforms to the HART protocol.

Power Supply
External power supply required. Transmitter operates on terminal voltage of 11–55 V dc.

Zero Suppression
Can be set anywhere within the sensor limits as long as the span is greater than or equal to the minimum span, the lower range value does not exceed the lower range limit, and the upper range value does not exceed the upper range limit.

Load Limitations
Loop resistance is determined by the voltage level of the external power supply, as described by:

\[ \text{Max. Loop Resistance} = \text{Power Supply Voltage} - 11.0 \]

(1) For CSA approval, power supply must not exceed 42.4 V dc.
(2) HART protocol communication requires a loop resistance value between 250-1100 ohms, inclusive.
Temperature Limits

Process (at transmitter isolator flange for atmospheric pressures and above)
Silicone fill: –40 to 250 °F (–40 to 121 °C)
Inert fill: 0 to 185 °F (–18 to 85 °C)
(Process temperature above 185 °F (85 °C) require derating the ambient limits by a 1.5:1 ratio.)

Ambient:
-40 to 185 °F (–40 to 85 °C)
with integral meter: -4 to 175 °F (-20 to 80 °C)

Storage:
-50 to 230 °F (-46 to 110 °C)
with integral meter: -40 to 185 °F (-40 to 85 °C)

Humidity Limits
0–100% relative humidity

Failure Mode Alarm
If self-diagnostics detect a non-recoverable transmitter failure, the analog signal will be driven either below 3.75 mA or above 21.75 mA to alert the user. High or low alarm signal is user-selectable by internal jumper.

Turn-on Time
Digital and analog measured variables will be within specifications 7–10 seconds after power is applied to transmitter.
Digital and analog flow output will be within specifications 10–14 seconds after power is applied to transmitter.

Damping
Response to step input change can be user-selectable from 0 to 29 seconds for one time constant.

Steam Flow Calculations:
- Steam densities calculated per ASME steam tables.
- Saturated steam configurable using static pressure based density calculations.

Natural Gas Flow Calculations
- Compressibility Calculations per AGA Report No 8 or ISO-12213.

PERFORMANCE SPECIFICATIONS
(Zero-based spans, reference conditions, silicone oil fill, 316 SST isolating diaphragms, 4–20 mA analog output.)

Specification Conformance
The Rosemount 3095MV maintains a specification conformance of at least 3σ.

Mass Flow
Fully compensated for pressure, temperature, density, viscosity gas expansion, discharge coefficient, and thermal correction variances over operating range.

Mass Flow Reference Accuracy
±1.0% of Mass Flow Rate over 8:1 flow range
(64:1 DP range) for liquids and gases

Totalized Mass Flow
±1.0% of Total Mass Flow

NOTE:
Assume 64:1 DP range for liquids and gases.

(Differential pressure calibrated at up to 1/10th full scale for optimum flow accuracy/rangeability.)

Differential Pressure (DP)

Range 1
0–0.5 to 0–25 inH2O (0–0,0344 to 0–0,0623 bar)
(50:1 rangeability is allowed)

Range 2
0–2.5 to 0–250 inH2O (0–6,22 to 0–622,7 mbar)
(100:1 rangeability is allowed)

Range 3
0–10 to 0–1000 inH2O (0–24,9 to 0–2490,9 mbar)
(100:1 rangeability is allowed)

Reference Accuracy (including Linearity, Hysteresis, Repeatability)

Range 1
±0.10% of span for spans from 1:1 to 15:1 of URL
For rangedowns greater than 15:1 of URL,

Accuracy = 
\[
\left[ 0.025 + 0.005 \frac{\text{URL}}{\text{Span}} \right] \% \text{ of Span}
\]

Range 2-3
±0.10% of span for spans from 1:1 to 15:1 of URL
For rangedowns greater than 15:1 of URL,

Accuracy = 
\[
\left[ 0.025 + 0.005 \frac{\text{URL}}{\text{Span}} \right] \% \text{ of Span}
\]

Ambient Temperature Effect per 50 °F (28 °C)

Range 2-3
±(0.025% of URL + 0.125% of span) for spans from 1:1 to 30:1
±(0.035% of URL – 0.175% of span) for spans from 30:1 to 100:1

Range 1
±(0.20% of URL + 0.25% of span) for spans from 1:1 to 30:1
±(0.24% of URL +0.15% of span) for spans from 30:1 to 50:1
**Static Pressure Effects**

- **Range 2-3**
  - Zero error = ±0.05% of URL per 1,000 psi (68.9 bar)
  - Span error = ±0.20% of reading per 1,000 psi (68.9 bar)

- **Range 1**
  - Zero error = ±0.05% of URL per 800 psi (55.1 bar)
  - Span error = ±0.40% of reading per 800 psi (55.1 bar)

**DP Stability**

- **Ranges 2-3**
  - ±0.125% URL for 5 years for 75°F (24°C)
  - ±50°F (28°C) ambient temperature changes, and up to 1000 psi (6.9MPa) line pressure.

- **Range 1**
  - ±0.2% of URL for 1 year

**Absolute/Gage Pressure**

- **Range 3 (absolute)/Range C (gage)**
  - 0–8 to 0–800 psia (0–0.55 to 0–55.1 bar)
  - (100:1 rangeability is allowed)

- **Range 4 (absolute) /Range D (gage)**
  - 0–36.26 to 0–3,626 psia (0–2.5 to 0–250 bar)
  - (100:1 rangeability is allowed)

**Reference Accuracy**

**(including Linearity, Hysteresis, Repeatability)**

- ±0.075% of span for spans from 1:1 to 6:1 of URL
- For rangedowns greater than 6:1 of URL,
  
  \[
  \text{Accuracy} = \left[ 0.025 + 0.005 \left( \frac{\text{URL}}{\text{Span}} \right) \right] \% \text{ of Span}
  \]

**Ambient Temperature Effect per 50 °F (28 °C)**

- ±(0.050% of URL + 0.125% of span) spans from 1:1 to 30:1
- ±(0.060% of URL – 0.175% of span) spans from 30:1 to 100:1

**Stability**

- ±0.125% URL for 5 years for 75°F (24°C)
- ±50°F (28°C) ambient temperature changes, and up to 1000 psi (6.9MPa) line pressure.

**Process Temperature (PT)**

Specification for process temperature is for the transmitter portion only. Sensor errors caused by the RTD are not included. The transmitter is compatible with any PT100 RTD conforming to IEC 751 Class B, which has a nominal resistance of 100 ohms at 0 °C and \( \propto = 0.00385 \). Examples of compatible RTDs include the Rosemount Series 68 and 78 RTD Temperature Sensors.

- **RTD Range**
  - −150 to 1,500 °F (−101 to 816 °C)

**PT Accuracy**

**(including Linearity, Hysteresis, Repeatability)**

- **For 12 and 24 ft. Cables**
  - ±1.0 °F (0.56 °C) for process temperatures from −150 to 1200 °F (−101 to 649 °C)
  - For process temperatures above 1200 °F (649 °C), add ±1.0 °F (0.56 °C) per 100 °F (38 °C)

- **For 75 ft. cables:**
  - ±2.0 °F (1.12 °C) for process temperatures from −150 to 1200 °F (−101 to 649 °C)
  - For process temperatures above 1200 °F (649 °C), add ±1.0 °F (0.56 °C) per 100 °F (38 °C)

**PT Stability**

- ±1.0 °F (0.56 °C) for 12 months

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**PHYSICAL SPECIFICATIONS**

**Security**

- Transmitter security jumper mounted on electronics board, when enabled prevents changes to transmitter configuration.
- User Engineering Assistant provides two levels of optional password security

**Electrical Connections**

\( 1/8-14 \) NPT, M20 × 1.5 (CM20), PG-13.5

**RTD Process Temperature Input**

100-ohm platinum RTD per IEC-751 Class B

**Process Connections**

Transmitter: ¼–18 NPT on 21/8-in. centers 1/2–14 NPT on 2-, 21/8-, or 21/4-in. centers with optional flange adapters

RTD: RTD dependent.

**Process Wetted Parts**

- **Isolating Diaphragms**
  - 316L SST or Hastelloy C-276®. CF-8M (last version of 316 SST, material per ASTM-A743)

- **Drain/Vent Valves**
  - 316 SST or Hastelloy C®

- **Flanges**
  - Plated carbon steel, 316 SST, or Hastelloy C

- **Wetted O-rings**
  - Glass-Filled TFE

**Non-Wetted Parts**

- **Electronics Housing**
  - Low copper aluminum. NEMA 4X, CSA Enclosure Type 4X, IP 65, IP 66, IP 68

- **Bolts**
  - Plated carbon steel per ASTM A449, Grade 5 or austenitic 316 SST
Fill Fluid
Silicone or halocarbon inert oil
(Inert oil only available for gage sensor modules.)

Paint (Aluminum Housing only)
Polyurethane

O-rings
Buna-N

Weight

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight in lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosemount 3095MV Transmitter</td>
<td>6.0 (2.7)</td>
</tr>
<tr>
<td>SST Mounting Bracket</td>
<td>1.0 (0.4)</td>
</tr>
<tr>
<td>12 ft (3.66 m) RTD Shielded Cable</td>
<td>0.5 (0.2)</td>
</tr>
<tr>
<td>12 ft (3.66 m) RTD Armored Cable</td>
<td>1.1 (0.5)</td>
</tr>
<tr>
<td>24 ft (7.32 m) RTD Shielded Cable</td>
<td>1.0 (0.4)</td>
</tr>
<tr>
<td>24 ft (7.32 m) RTD Armored Cable</td>
<td>2.2 (1.0)</td>
</tr>
<tr>
<td>75 ft (22.86 m) RTD Shielded Cable</td>
<td>1.9 (0.9)</td>
</tr>
<tr>
<td>75 ft (22.86 m) RTD Armored Cable</td>
<td>7.2 (3.2)</td>
</tr>
<tr>
<td>21 in (53 cm) RTD Armored Cable</td>
<td>0.5 (0.2)</td>
</tr>
<tr>
<td>12 ft (3.66 m) RTD CENELEC Cable</td>
<td>2.1 (0.9)</td>
</tr>
<tr>
<td>24 ft (7.32 m) RTD CENELEC Cable</td>
<td>3.0 (1.4)</td>
</tr>
<tr>
<td>75 ft (22.86 m) RTD CENELEC Cable</td>
<td>7.1 (3.2)</td>
</tr>
<tr>
<td>21 in (53 cm) RTD CENELEC Cable</td>
<td>1.2 (0.5)</td>
</tr>
</tbody>
</table>
Product Certifications

Approved Manufacturing Locations
Rosemount Inc. — Chanhassen, Minnesota USA
Fisher-Rosemount GmbH & Co. — Wessling, Germany
Emerson Process Management Asia Pacific Private Limited — Singapore
Beijing Rosemount Far East Instrument Co., Limited – Beijing, China

European Directive Information
The EC declaration of conformity for all applicable European directives for this product can be found on the Rosemount website at www.rosemount.com. A hard copy may be obtained by contacting our local sales office.

ATEX Directive (94/9/EC)
Emerson Process Management complies with the ATEX Directive.

European Pressure Equipment Directive (PED) (97/23/EC)
- Models 3095F_2/3,4/D and 3095M_2/3,4/D Flow Transmitters
- QS Certificate of Assessment - EC No. PED-H-20
- Module H Conformity Assessment
- All other Model 3095_ Transmitters/Level Controller
- Sound Engineering Practice
- Transmitter Attachments: Process Flange - Manifold
- Sound Engineering Practice

Electro Magnetic Compatibility (EMC) (89/336/EEC)
- Model 3095MV Flow Transmitters
- EN 50081-1: 1992; EN 50082-2:1995;
  EN 61326-1:1997 – Industrial

Ordinary Location Certification for Factory Mutual
As standard, the transmitter has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by FM, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

Hazardous Locations Certifications

North American Certifications

Factory Mutual (FM)
A Explosion Proof for Class I, Division 1, Groups B, C, and D.
Dust-Ignition Proof for Class II/Class III, Division 1, Groups E, F, and G. Enclosure type NEMA 4X. Factory Sealed.
Provides nonincendive RTD connections for Class I, Division 2, Groups A, B, C, and D.

B Combination of Approval Code A and the following:
Intrinsically Safe for use in Class I, II and III, Division 1, Groups A, B, C, D, E, F, and G hazardous outdoor locations.
Non-incendive for Class I, Division 2, Groups A, B, C, and D.
For input parameters and installation see control drawing 03095-1020.

Canadian Standards Association (CSA) Approvals

C Explosion Proof for Class I, Division 1, Groups B, C, and D.
Dust-Ignition Proof for Class II/Class III, Division 1, Groups E, F, and G. CSA enclosure Type 4X suitable for indoor and outdoor hazardous locations. Provides nonincendive RTD connection for Class I, Division 2, Groups A, B, C, and D. Factory Sealed. Install in accordance with Rosemount Drawing 03095-1024. Approved for Class I, Division 2, Groups A, B, C, and D.

D Combination of Approval Code C and the following:
Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D when installed in accordance with Rosemount drawing 03095-1021. Temperature Code T3C.
For input parameters see control drawing 03095-1020.
European Certifications

F  ATEX Intrinsic Safety Certification
Certificate Number: BAS98ATEX1359X  II 1 G
EEx ia IIC T5 ( Tamb = –45 °C to 40 °C)
EEx ia IIC T4 ( Tamb = –45 °C to 70 °C)

G  ATEX Type N Certification
Certificate Number: BAS98ATEX3360X  II 3 G
EEx nL IIC T5 ( Tamb = –45 °C to 40 °C)
EEx nL IIC T4 ( Tamb = –45 °C to 70 °C)

Special Conditions for Safe Use
The Model 3095, when fitted with the transient terminal block (order code B), are not capable of withstanding the 500 volts insulation test required by EN50 020, Clause 6.4.12 (1994). This condition must be accounted for during installation.

TABLE 1. Connection Parameters (Power/Signal Terminals)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U_i</td>
<td>30 V</td>
</tr>
<tr>
<td>I_i</td>
<td>200 mA</td>
</tr>
<tr>
<td>P_i</td>
<td>1.0 W</td>
</tr>
<tr>
<td>C_i</td>
<td>0.012 µF</td>
</tr>
<tr>
<td>L_i</td>
<td>0</td>
</tr>
</tbody>
</table>

TABLE 2. Temperature Sensor Connection Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U_o</td>
<td>30 V</td>
</tr>
<tr>
<td>I_o</td>
<td>19 mA</td>
</tr>
<tr>
<td>P_o</td>
<td>140 mW</td>
</tr>
<tr>
<td>C_i</td>
<td>0.002 µF</td>
</tr>
<tr>
<td>L_i</td>
<td>0</td>
</tr>
</tbody>
</table>

TABLE 3. Connection Parameters for Temperature Sensor Terminals

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C_o</td>
<td>0.066 µF Gas Group IIC</td>
</tr>
<tr>
<td>C_o</td>
<td>0.560 µF Gas Group IIB</td>
</tr>
<tr>
<td>C_o</td>
<td>1.82 µF Gas Group IIA</td>
</tr>
<tr>
<td>L_o</td>
<td>96 mH  Gas Group IIC</td>
</tr>
<tr>
<td>L_o</td>
<td>365 mH Gas Group IIB</td>
</tr>
<tr>
<td>L_o/R_o</td>
<td>247 µH/ohm Gas Group IIC</td>
</tr>
<tr>
<td>L_o/R_o</td>
<td>633 µH/ohm Gas Group IIB</td>
</tr>
<tr>
<td>L_o/R_o</td>
<td>633 µH/ohm Gas Group IIA</td>
</tr>
</tbody>
</table>

Special Conditions for Safe Use
The Model 3095, when fitted with the transient terminal block (order code B), are not capable of withstanding the 500 volts insulation test required by EN50 021, Clause 9.1 (1995). This condition must be accounted for during installation.

H  ATEX Flameproof Certification
Certificate Number: KEMA02ATEX2320X  II 1/2 G
EEx d IIC T5 (-50°C ≤ Tamb ≤ 80°C)
EEx d IIC T6 (-50°C ≤ Tamb ≤ 65°C)

Special Conditions for Safe Use
The Model 3095, when fitted with the transient terminal block (order code B), are not capable of withstanding the 500 volts insulation test required by EN50 021, Clause 9.1 (1995). This condition must be accounted for during installation.
Dimensional Drawings

Exploded View of the Rosemount 3095MV

- Certification Label
- Terminal Block
- O-ring
- Cover
- Housing Locking Screw
- RTD Connector
- Process Adapter O-ring
- Flange Adapter O-ring
- Optional Flange Adapters
- Bolts
- Housing
- Electronics Board
- Nameplate
- Module O-ring
- Sensor Module
- Drain/Vent Valve
- Coplanar Flange
- LCD METER
Rosemount 3095MV

Mounting Configurations

NOTE: Dimensions are in inches (millimeters).
## Ordering Information

<table>
<thead>
<tr>
<th>Code</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3095M</td>
<td>Multivariable Mass Flow Transmitter</td>
</tr>
</tbody>
</table>

### Code | Output
---|------------------------------------------|
A | 4–20 mA with digital signal based on HART protocol

### Code | Differential Pressure Range
---|------------------------------------------|
1(1) | 0–0.5 to 0–25 inH₂O (0–1,25 to 0–62,3 mbar)
2 | 0–2.5 to 0–250 inH₂O (0–6,22 to 0–622,7 mbar)
3 | 0–10 to 0–1000 inH₂O (0–0,024 to 0–2,49 bar)

### Code | Static Pressure Ranges
---|------------------------------------------|
3 | 0–8 to 0–800 psia (0–0,55 to 0–55,1 bar)
4 | 0–36,26 to 0–3,626 psia (0–2,5 to 0–250 bar)
C | 0–8 to 0–800 psig (0–0,55 to 0–55,1 bar)
D | 0–36,26 to 0–3,626 psig (0–2,5 to 0–250 bar)

### Code | Isolator Material | Fill Fluid
---|------------------------------------------|
A | 316L SST | silicone
B(2) | Hastelloy C-276 | silicone
J(3) | 316L SST | inert
K(2)(3) | Hastelloy C-276 | inert

### Code | Flange Style | Material
---|------------------------------------------|
A | Coplanar | CS
B | Coplanar | SST
C | Coplanar | Hastelloy C
F(4) | Coplanar | SST, non-vented
J | DIN compliant traditional flange, SST 10 mm adapter/ manifold bolting | SST, 7/16 — 20 Bolting
0 | None (required for option code S3 or S5)

### Code | Drain/Vent Material
---|------------------------------------------|
A | SST
C(2) | Hastelloy C
0 | None (required for option code S3 or S5)

### Code | O-ring
---|------------------------------------------|
1 | Glass-filled TFE

### Code | Process Temperature Input (RTD ordered separately)
---|------------------------------------------|
0 | Fixed process temperature (no cable)
1 | RTD Input with 12 ft. (3,66 m) of Shielded cable (intended for use with conduit.)
2 | RTD Input with 24 ft. (7,32 m) of Shielded cable (intended for use with conduit.)
7 | RTD Input with 75 ft. (22,86 m) of Shielded cable
3 | RTD Input with 12 ft. (3,66 m) of Armored, Shielded cable
4 | RTD Input with 24 ft. (7,32 m) of Armored, Shielded cable
5(5) | RTD Input with 21 in. (53 cm) of Armored, Shielded cable
8 | RTD Input with 75 ft. (22,86 m) of Armored, Shielded cable
A | RTD Input with 12 ft. (3,66 m) of CENELEC Flameproof cable
B | RTD Input with 24 ft. (7,32 m) of CENELEC Flameproof cable
C | RTD Input with 75 ft. (22,86 m) of CENELEC Flameproof cable
D(5) | RTD Input with 21 in. (53 cm) of CENELEC Flameproof cable (typically ordered with Approval Code H)

(1) Available only with 3 or C sensor modules and A 316L SST/silicone, Isolator/Fill Fluid option.

(2) Materials of Construction meet NACE material recommendation per MR 01-75. Environmental limits apply to certain materials. Consult latest standard for details.

(3) Only available with C or D Gage Sensor Modules.

(4) Requires that Drain/Vent Material Code set to 0 (none).

(5) For use with Annubars with integral RTDs.
## Rosemount 3095MV

### Code | Transmitter Housing Material | Conduit Entry Size
--- | --- | ---
A | Polyurethane-covered aluminum | ½–14 NPT
B | Polyurethane-covered aluminum | M20 × 1.5 (CM20)
C | Polyurethane-covered aluminum | PG 13.5
J | SST | ½–14 NPT
K | SST | M20 × 1.5 (CM20)
L | SST | PG 13.5

### Code | Terminal Block
--- | ---
A | Standard
B | With integral transient protection

### Code | Meter
--- | ---
0 | None
1 | LCD meter

### Code | Bracket
--- | ---
0 | None
1 | Coplanar SST flange bracket for 2-in. pipe or panel mount, SST bolts
2 | Traditional Flange Bracket for 2" Pipe Mounting, CS Bolts
3 | Traditional Flange Bracket for panel Mounting, CS Bolts
4 | Traditional Flange Flat Bracket for 2" Pipe Mounting, CS Bolts
5 | Traditional Flange Bracket for 2" Pipe Mounting, 300-Series, SST Bolts
6 | Traditional Flange Bracket for panel Mounting, 300-Series, SST Bolts
7 | Traditional Flange Flat Bracket for 2" Pipe Mounting, 300-Series, SST Bolts
8 | SST Traditional Flange Bracket for 2" Pipe Mounting, 300-Series, SST Bolts
9 | SST Traditional Flange Flat Bracket for 2" Pipe Mounting, 300-Series, SST Bolts

### Code | Bolts
--- | ---
0 | CS bolts
1 | Austenitic 316 SST bolts
N | None (Required for Option Code S3 or S5)

### Code | Approvals
--- | ---
0 | None
A | Factory Mutual (FM) Explosion-proof approval
B | Factory Mutual (FM) Explosion-proof approval and non-incendive/intrinsic safety approval combination
C | Canadian Standards Association (CSA) Explosion-proof approval
D | Canadian Standards Association (CSA) Explosion-proof approval and non-incendive/intrinsic safety approval combination
F | ATEX Intrinsic safety certification
G | ATEX Type N certification
H | ATEX flameproof certification

### Code | Engineered Measurement Solution (EMS)
--- | ---
B | Mass Flow and Measured Variables (DP, P, and T)

### Code | Options
--- | ---
C2 | Custom Flow Configuration (Requires completed Configuration Data Sheet 00806-0100-4716.)
S3 | Assembly with Rosemount 405 Compact Orifice (requires compact orifice model number, see 00813-0100-4810)
S4(1) | Assembly with Rosemount Annubar Averaging Pitot Tubes or Rosemount 1195 Integral Orifice Plates
(requires corresponding model number, see 00813-0100-4809, 00813-010004760, or 00813-0100-4686)
S5 | Assembly with Rosemount 305 Integral Manifold (Requires integral manifold model number – see 00813-0100-4733)
S6 | Assembly with Rosemount 309 Hookups (Required traditional Flange Style Options J, K, or L)
P1 | Hydrostatic Testing
P2 | Cleaning for Special Services
Q4 | Inspection Certificate for Calibration Data
Q8(2) | Material Inspection Certificate per EN 10204 3.1B
DF(3) | Flange Adapters — Adapter Type Determined by Selected Flange Material: Plated CS, SST, Hastelloy C

### Typical Model Number
3095M A 2 3 A A 1 3 A B 0 1 1 0 B

(1) With a primary element installed, the maximum operating pressure will be the lesser of either the transmitter or the primary element.

(2) This option is available for the sensor module housing, Coplanar and Coplanar flange adapters.

(3) Not available with assembly to Rosemount 1195 Integral Orifice Option Code S4.
OPTIONS

Standard Configuration

Unless otherwise specified, transmitter is shipped as follows:

In addition, transmitter is shipped as follows:
The three process variables are digitally trimmed to the specified upper and lower range values.

For Mass Flow and Measured Variables (EMS Code B), process variable output order is set to Flow, DP, AP/GP, PT.

Flow is configured to measure air via ASME Orifice: Flange Tap, with a primary element minimum diameter of 0.5 in. (SST material), meter tube diameter of 2 in. (carbon steel material), flow range configured from 0–8,262 SCFH, 10–100 psia operating pressure range, and 50–100 °F operating temperature range.

Custom Configuration (Option Code C2)

If Option Code C2 is ordered, the customer specifies the custom flow configuration parameters in addition to the standard configuration parameters. (See page 15)

Fixed Process Temperature

If process temperature input code is set to 0, the fixed process temperature is set to 68 °F unless specified during order entry.

Tagging

Three customer tagging options are available:

- Standard SST tag is wired to the transmitter. Tag character height is 0.125 in. (3.18 mm), 85 characters maximum.
- Tag may be permanently stamped on transmitter nameplate upon request. Tag character height is 0.0625 in. (1.59 mm), 65 characters maximum.
- Tag may be stored in transmitter memory. Software tag (8 characters maximum) is left blank unless specified.

Assembly with Primary Elements (Option Code S3 or S4)

Rosemount 3095MV Flow Transmitters and either Annubar Averaging Pitot Tubes or Rosemount 1195 Integral Orifice Plates are fully assembled and calibrated by the factory.

Primary Element Product Data Sheets are listed below:

<table>
<thead>
<tr>
<th>Annubar Flowmeter Series Includes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosemount 3051SFA Probar</td>
</tr>
<tr>
<td>Rosemount 3095MFA Mass Probar</td>
</tr>
<tr>
<td>Rosemount 485 Annubar Primary Element</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proplate Flowmeter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass Proplate Flowmeter</td>
</tr>
<tr>
<td>Rosemount 1195 Integral Orifice Plate</td>
</tr>
<tr>
<td>Rosemount 405P Compact Orifice</td>
</tr>
<tr>
<td>Rosemount 1495 Orifice Plate</td>
</tr>
<tr>
<td>Rosemount 1496 Flange Union</td>
</tr>
<tr>
<td>Rosemount 1497 Meter Section</td>
</tr>
</tbody>
</table>

Optional Rosemount 305 Integral Manifolds

Rosemount 3095MV Transmitter and 305AC (305BC) Integral Manifold are fully assembled, calibrated, and seal tested by the factory. Refer to PDS 00813-0100-4733 for additional information.

Temperature Sensors and Assemblies

Rosemount offers many types of temperature sensors and assemblies.
ACCESSORIES

Rosemount 333 HART Tri-Loop™
HART-to-Analog Signal Converter

The Rosemount 333 HART Tri-Loop can be installed with the 3095MV without disrupting existing device wiring. The Tri-Loop provides up to three additional analog outputs for monitoring or other controlling purposes without additional penetrations into the pipe.

The HART Tri-Loop accepts the 3095MV digital signal and converts it to three independent isolated 4–20 mA analog signals. Any of the 3095MV process variables (DP, AP, GP, PT, or flow) can be provided via the Tri-Loop.

Rosemount 333 HART Tri-Loop Converter

Model | Product Description
--- | ---
333 | HART Tri-Loop (standard configuration)

Code | Alarm Option
--- | ---
U | High Alarm
D | Low Alarm

Code | Configuration Option
--- | ---
(no code) | Standard Configuration
C2 | Custom Configuration. Requires a completed Configuration Data Sheet (00806-0100-4754)

Typical Model Number: 333 U

HART Tri-Loop Converter Accessories

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HART Modem and Cables Only</td>
<td>03095-5105-0001</td>
</tr>
</tbody>
</table>

For best performance of the EA Software, the following computer hardware and software is recommended:

Optional Software Code W
- DOS-based 386 personal computer or above
- 640K Base RAM memory with 8 MB extended
- Mouse or other pointing device
- 4 MB of available hard disk space
- Color computer display
- DOS 5.0 or higher
- Windows™ 3.1, Windows for Workgroups 3.11, Windows 95

Option Code N:
- Pentium, 800MHz personal computer or above
- 512 MB RAM
- 350 MB of available hard disk space
- Mouse or other pointing device
- Color computer display
- Windows 98, NT, 2000 or XP

Engineering Assistant Software Packages

<table>
<thead>
<tr>
<th>Code</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>EA MV Engineering Assistant Software program</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Diskette Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EA Rev. 4.0, 3.5-inch diskettes (2)</td>
</tr>
<tr>
<td>2</td>
<td>EA Rev. 5, CD-ROM (includes HART Tri-Loop Configurator Software)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>English</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>HART Modem and Connecting Cables</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>None</td>
</tr>
<tr>
<td>H</td>
<td>HART Modem and Cables included</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Operating Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>Windows Version 3.1, Windows Workgroup 3.11, or Windows 95</td>
</tr>
<tr>
<td>N</td>
<td>EA Rev. 5 (3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>License</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Single PC license</td>
</tr>
<tr>
<td>2</td>
<td>Site license</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Additional Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
</tbody>
</table>

Typical Model Number: EA1E0W10

(1) Must be ordered with Code W Operating Software.
(2) Must be ordered with Code N Operating Software.
(3) Revision 5.2 supports Windows 98, NT, or 2000.
Revision 5.3 supports Windows NT, 2000, or XP and upgrades only on Windows 98.
Configuration Data Sheet

Complete this form to define a Custom Flow Configuration for the Rosemount 3095MV. Unless Specified, the 3095MV will ship with the default values identified by the ★ symbol. For technical assistance in filling out this CDS, contact your local Rosemount representative.

Note: Any missing information will be processed with the indicated default values.

Customer Information

Customer_____________________________________  P.O. No ______________________________________
Customer Line Item______________________________  Model No. (1)___________________________________

Tag Type

☐ SST Wire-on Tag (85 characters maximum)  ☐ Stamped on Nameplate (65 characters maximum)

Tag Information_________________________________

Transmitter Information (Optional)

Software Tag |__|__|__|__|__|__|__|__|__|__|__|__|__|__|(8 characters)
Descriptor |__|__|__|__|__|__|__|__|__|__|__|__|__|__|(16 characters maximum)
Message |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|(32 characters)
Date |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|(dd)  (MMM)  (yy)

Flow Configuration (required)

Select units for each Process Variable, then enter sensor Lower Trim Value (LTV) and sensor Upper Trim Value (UTV). Note: LTV and UTV must be within the range limits.

Differential Pressure

DP Units

☐ inH2O-68 °F  ☐ inH2O-0 °C  ☐ ftH2O-68 °F  ☐ mmH2O-68 °F
☐ mmH2O-0 °C  ☐ psi  ☐ bar  ☐ mbar
☐ g/SqCm  ☐ Kg/SqCm  ☐ Pa  ☐ kPa
☐ torr  ☐ Atm  ☐ inH2O-60 °F

Trim Values

LTV_____________________(0 ★)  UTV_____________________________(URL in H2O-68 °F ★)

Static Pressure

Static Units

☐ inH2O-68 °F ★  ☐ inH2O-0 °C  ☐ ftH2O-68 °F  ☐ mmH2O-68 °F
☐ mmH2O-0 °C  ☐ psi  ☐ bar  ☐ mbar
☐ g/SqCm  ☐ Kg/SqCm  ☐ Pa  ☐ kPa
☐ torr  ☐ Atm  ☐ inH2O-60 °F

Trim Values (1)

LTV_____________________(0 ★)  UTV_____________________________(URL psi ★)

Process Temperature

PT Units

☐ °F ★  ☐ °C

Trim Values

LTV_____________________(−300 ★)  UTV_____________________________(1500 °F★)

Flow Rate

Flow Units

☐ StdCuft/s  ☐ StdCuft/min  ☐ StdCuft/h  ☐ StdCuft/d
☐ StdCum/h  ☐ StdCum/d  ☐ lbs/sec  ☐ lbs/min
☐ lbs./hour ★  ☐ lbs/day  ☐ grams/sec  ☐ grams/min
☐ grams/hour  ☐ kg/sec  ☐ kg/min  ☐ kg/hour
☐ NmCuM/hour  ☐ NmCuM/day  ☐ Special (see Flow Rate Special Units)

Flow Rate Special (use if “Special” is checked in Flow Rate above)

NOTE: Flow Rate Special Units = Base Flow Unit multiplied by Conversion Factor.

Base Flow Units (select from above Flow Rate units)______________________________
Conversion Factor______________________________
Display As|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|(available units A-Z, 0-9)

Continued on Next Page
### Flow Configuration (required) Continued

**Flow Rate Output**

<table>
<thead>
<tr>
<th>Low PV (4 mA)</th>
<th>High PV (20 mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0.00 ★)</td>
<td></td>
</tr>
</tbody>
</table>

*Note: If absolute pressure module, then lower static pressure values must be ≥ 0.5 psia (34.5 mbar)*

**Flow Total**

<table>
<thead>
<tr>
<th>Flow Units</th>
<th>Grams</th>
<th>Kilograms</th>
<th>Metric Tons</th>
<th>Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short Tons</th>
<th>Long Tons</th>
<th>Ounces</th>
<th>NmlCuM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Normal Liters</th>
<th>StdCuM</th>
<th>StdCuFt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special (see Flow Total Special Units)</th>
</tr>
</thead>
</table>

**Flow Total Special (use if “Special” is checked in Flow Total above)**

*NOTE: Flow Rate Special Units = Base Flow Unit multiplied by Conversion Factor.*

<table>
<thead>
<tr>
<th>Base Flow Units (select from above Flow Total units)</th>
<th>Conversion Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Display As [ ] [ ] [ ] [ ]</th>
<th>(available units A-Z, 0-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fluid Type (Select One)**

<table>
<thead>
<tr>
<th>Gas</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fluid Information (Complete one section only)**

- [ ] Steam (ASME Saturated and/or Superheated)
- [ ] Natural Gas *Note: If you selected Natural Gas, complete the Compressibility Factor Information on page 17*
- [ ] Gas or Liquid from AIChE database: Circle ONE fluid name below:

<table>
<thead>
<tr>
<th>Acetic Acid</th>
<th>Cyclopropane</th>
<th>Isopropanol</th>
<th>n-Heptane</th>
<th>1-Dodecanol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>Divinyl Ether</td>
<td>Methane</td>
<td>n-Hexane</td>
<td>1-Heptanol</td>
</tr>
<tr>
<td>Acetonitrile</td>
<td>Ethane</td>
<td>Methanol</td>
<td>n-Octane</td>
<td>1-Hexene</td>
</tr>
<tr>
<td>Acetylene</td>
<td>Ethanol</td>
<td>Methyl Acrylate</td>
<td>n-Pentane</td>
<td>1-Hexene</td>
</tr>
<tr>
<td>Acrylonitrile</td>
<td>Ethylamine</td>
<td>Methyl Ethyl Ketone</td>
<td>Oxygen</td>
<td>1-Hexadecanol</td>
</tr>
<tr>
<td>Air</td>
<td>Ethylene</td>
<td>Methyl Vinyl Ether</td>
<td>Pentafluorothane</td>
<td>1-Octanol</td>
</tr>
<tr>
<td>Allyl Alcohol</td>
<td>Ethylene GlycolEthylene</td>
<td>m-Chloronitrobenzene</td>
<td>Phenol</td>
<td>1-Octene</td>
</tr>
<tr>
<td>Ammonia</td>
<td>Oxide</td>
<td>Neon</td>
<td>Propadiene</td>
<td>1-Nonanol</td>
</tr>
<tr>
<td>Benzene</td>
<td>Fluorene</td>
<td>Meopentane</td>
<td>Pyrene</td>
<td>1-Pentadecanol</td>
</tr>
<tr>
<td>Benzaldehyde</td>
<td>Furan</td>
<td>Nitric Acid</td>
<td>Propylene</td>
<td>1-Pentanol</td>
</tr>
<tr>
<td>Benzyl Alcohol</td>
<td>Helium-4</td>
<td>Nitric Oxide</td>
<td>Styrene</td>
<td>1-Pentene</td>
</tr>
<tr>
<td>Biphenyl</td>
<td>Hydrazine</td>
<td>Nitrobenzene</td>
<td>Sulfur Dioxide</td>
<td>1-Undecanol</td>
</tr>
<tr>
<td>Carbon Dioxide</td>
<td>Hydrogen</td>
<td>Nitroethane</td>
<td>Toluene</td>
<td>1,2,4-Trichlorobenzene</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>Hydrogen Chloroide</td>
<td>Nitrogen</td>
<td>Trichloroethylene</td>
<td>1,1,2-Trichloroethane</td>
</tr>
<tr>
<td>Carbon Tetrachloride</td>
<td>Hydrogen Cyanide</td>
<td>Nitromethane</td>
<td>Vinyl Acetate</td>
<td>1,1,2,2-Tetrafluoroethene</td>
</tr>
<tr>
<td>Chlorine</td>
<td>Hydrogen Peroxide</td>
<td>Nitrous Oxide</td>
<td>Vinyl Chloride</td>
<td>1,2-Butadiene</td>
</tr>
<tr>
<td>Chlorotrifluoroethylene</td>
<td>Hydrogen Sulfide</td>
<td>n-Butane</td>
<td>Vinyl Cyclohexane</td>
<td>1,3-Butadiene</td>
</tr>
<tr>
<td>Chloroprene</td>
<td>Isobutane</td>
<td>n-Butanol</td>
<td>Water</td>
<td>1,2,5-Trichlorobenzene</td>
</tr>
<tr>
<td>Cycloheptane</td>
<td>Isobuten</td>
<td>n-Butyraldehyde</td>
<td>1-Butene</td>
<td>1,4-Dioxane</td>
</tr>
<tr>
<td>Cyclehexane</td>
<td>Isobutilbenzene</td>
<td>n-Butyronitride</td>
<td>1-Decene</td>
<td>1,4-Hexadiene</td>
</tr>
<tr>
<td>Cyclopentane</td>
<td>Isopentane</td>
<td>n-Decane</td>
<td>1-Decanal</td>
<td>2-Methyl-1-Pentane</td>
</tr>
<tr>
<td>Cyclopentene</td>
<td>Isoprene</td>
<td>n-Dodecane</td>
<td>1-Decanol</td>
<td>2,2-Dimethylbutane</td>
</tr>
</tbody>
</table>

- [ ] Custom Gas or Liquid

Enter your custom fluid name

*NOTE: If you are defining a custom fluid, complete the density and viscosity information on page 18*
## Required For Natural Gas Only

Compressibility Factor Information

Choose desired characterization method, and only enter values for that method:

<table>
<thead>
<tr>
<th>Characterization Method</th>
<th>Mole</th>
<th>Valid Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Detail Characterization Method (AGA8 1992)</td>
<td>%</td>
<td>0-100 percent</td>
</tr>
<tr>
<td>CH4 Methane mole percent</td>
<td>%</td>
<td>0-100 percent</td>
</tr>
<tr>
<td>N2 Nitrogen mole percent</td>
<td>%</td>
<td>0-100 percent</td>
</tr>
<tr>
<td>CO2 Carbon Dioxide mole percent</td>
<td>%</td>
<td>0-100 percent</td>
</tr>
<tr>
<td>C2H6 Ethane mole percent</td>
<td>%</td>
<td>0-100 percent</td>
</tr>
<tr>
<td>C3H8 Propane mole percent</td>
<td>%</td>
<td>0-12 percent</td>
</tr>
<tr>
<td>H2O Water mole percent</td>
<td>%</td>
<td>0-Dew Point</td>
</tr>
<tr>
<td>H2S Hydrogen Sulfide mole percent</td>
<td>%</td>
<td>0-100 percent</td>
</tr>
<tr>
<td>H2 Hydrogen mole percent</td>
<td>%</td>
<td>0-100 percent</td>
</tr>
<tr>
<td>CO Carbon Monoxide mole percent</td>
<td>%</td>
<td>0-3.0 percent</td>
</tr>
<tr>
<td>O2 Oxygen mole percent</td>
<td>%</td>
<td>0-21 percent</td>
</tr>
<tr>
<td>C4H10 i-Butane mole percent</td>
<td>%</td>
<td>0-6 percent(2)</td>
</tr>
<tr>
<td>C4H10 n-Butane mole percent</td>
<td>%</td>
<td>0-6 percent(2)</td>
</tr>
<tr>
<td>C5H12 i-Pentane mole percent</td>
<td>%</td>
<td>0-4 percent(3)</td>
</tr>
<tr>
<td>C5H12 n-Pentane mole percent</td>
<td>%</td>
<td>0-4 percent(3)</td>
</tr>
<tr>
<td>C6H16 Hexane mole percent</td>
<td>%</td>
<td>0-Dew Point</td>
</tr>
<tr>
<td>C7H16 n-Heptane mole percent</td>
<td>%</td>
<td>0-Dew Point</td>
</tr>
<tr>
<td>C8H18 n-Octane mole percent</td>
<td>%</td>
<td>0-Dew Point</td>
</tr>
<tr>
<td>C9H20 n-Nonane mole percent</td>
<td>%</td>
<td>0-Dew Point</td>
</tr>
<tr>
<td>C10H22 n-Decane mole percent</td>
<td>%</td>
<td>0-Dew Point</td>
</tr>
<tr>
<td>He Helium mole percent</td>
<td>%</td>
<td>0-3.0 percent</td>
</tr>
<tr>
<td>Ar Argon mole percent</td>
<td>%</td>
<td>0-1.0 percent</td>
</tr>
</tbody>
</table>

□ Gross Characterization Method, Option 1 (AGA8 Gr-Hv-Co2)  
Specific gravity at 14.73 psia and 60 °F | 0.554-0.87 |
Volumetric Gross Heating Value at Base Conditions | BTU/SCF 477-1150 BTU/SCF |
Carbon Dioxide mole percent | % | 0-30 percent |
Hydrogen mole percent | % | 0-10 percent |
Carbon Monoxide mole percent | % | 0-3 percent |

□ Gross Characterization Method, Option 2 (AGA8 Gr-CO2-N2)  
Specific gravity at 14.73 psia and 60 °F | 0.554-0.87 |
Carbon Dioxide mole percent | % | 0-30 percent |
Nitrogen mole percent | % | 0-50 percent |
Hydrogen mole percent | % | 0-10 percent |
Carbon Monoxide mole percent | % | 0-3 percent |

(2) The summation of i-Butane and n-Butane cannot exceed 6 percent.
(3) The summation of i-Pentane and n-Pentane cannot exceed 4 percent.
### Gas Compressibility and Viscosity Information

1. Fill in the following operating pressures and operating temperatures. Min and max values must match values entered under Process Operating Conditions.

\[
\begin{align*}
(1) &\quad \text{min} & (5) &\quad \text{min} & (8) &\quad \left(\frac{1}{3}(\text{max-min})\right)+\text{min} \\
(2) &\quad \left(\frac{1}{3}(\text{max-min})\right)+\text{min} & (6) &\quad \left(\frac{1}{2}(\text{max-min})\right)+\text{min} & (9) &\quad \left(\frac{2}{3}(\text{max-min})\right)+\text{min} \\
(3) &\quad \left(\frac{2}{3}(\text{max-min})\right)+\text{min} & (7) &\quad \text{max} \\
(4) &\quad \text{max}
\end{align*}
\]

2. Transfer the values from the above section to the numbered lines below.

3. Check one Density/Compressibility box, then enter the 12 values for each pressure/temperature range.

4. Check one Viscosity box, then enter values for each temperature. (At least one viscosity value is required.)

5. Enter values for molecular weight, isentropic exponent, and standard density (or standard compressibility).

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Temp</th>
<th>Compressibility</th>
<th>Temp.</th>
<th>Viscosity</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(5)</td>
<td></td>
<td>(5)</td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td>(5)</td>
<td></td>
<td>(8)</td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td>(5)</td>
<td></td>
<td>(9)</td>
<td></td>
</tr>
<tr>
<td>(4)</td>
<td>(5)</td>
<td></td>
<td>(7)</td>
<td></td>
</tr>
<tr>
<td>(1)</td>
<td>(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td>(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td>(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4)</td>
<td>(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1)</td>
<td>(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td>(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td>(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4)</td>
<td>(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Molecular Weight: __________

Isentropic Exponent: __________ 1.4 ★

Standard density/compressibility: __________
(at standard reference conditions specified on page 21)

___NOTE: Custom Gas Configuration order will be delayed if any fields on this page are left blank.___
### Required for Custom Liquid Only

**Liquid Density and Viscosity Information**

**NOTE:** Only fill out this page if you have selected a custom liquid.

1. Fill in the following operating temperatures. (Min and max values must match values entered under Process Operating Conditions)

   **Operating Temperatures**
   
   (a) ____________ min
   
   (b) ____________ \( \frac{1}{3}(\text{max-min}) + \text{min} \)
   
   (c) ____________ \( \frac{2}{3}(\text{max-min}) + \text{min} \)
   
   (d) ____________ max

2. Transfer the values from the above section to the lettered lines below.

3. Check one Density box, then enter values for each temperature and the standard density.

4. Check one Viscosity box, then enter values for each temperature. (At least one viscosity value is required.)

<table>
<thead>
<tr>
<th>Temp.</th>
<th>Density in Lbs/CuFt</th>
<th>Compressibility</th>
<th>Temp.</th>
<th>Viscosity in Centipoise</th>
<th>Viscosity in Lbs/Ft Sec</th>
<th>Viscosity in Pascal Sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td></td>
<td></td>
<td>(a)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td></td>
<td></td>
<td>(b)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td></td>
<td></td>
<td>(c)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d)</td>
<td></td>
<td></td>
<td>(d)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Standard density/compressibility ___________________
(at standard reference conditions specified on page 21)

**NOTE:** Custom Liquid Configuration order will be delayed if any fields on this page are left blank.

★ = Indicates default value
Primary Element Information

Select Differential Producer (Select One)

- □ 405__ Compact Orifice
- □ 1195 Integral Orifice
- □ Annubar/Mass Probar ★
- □ Orifice, Long Radious Wall Taps, ASME
- □ Orifice, Long Radious Wall Taps, ISO
- □ Nozzle, ISA 1932, ISO
- □ Orifice, 2.5D & 8D Taps
- □ Orifice, Corner Taps, ASME
- □ Orifice, Corner Taps, ASME
- □ Orifice, D & D/2 Taps, ISO

Selecting Area Averaging Meter, V-Cone®, or calibrated primary element requires a constant value for discharge coefficient: ___________ .

- □ Area Averaging Meter
- □ V-Cone
- □ Calibrated Venturi

Primary Element Minimum Diameter (d) _______________

at ___________ □ °F □ °C in. at 68 °F ★

or

Sensor Series No. _________________________ Enter series designation

Differential Producer

Material (Select One)

- □ Carbon Steel
- □ Hastelloy C ★
- □ Monel

Pipe Tube Diameter (Pipe ID) (D) ________________________

at ___________ □ °F □ °C in. at 68 °F ★

Pipe Tube Material (Select One)

- □ Carbon Steel
- □ Hastelloy C ★
- □ Monel

Process Operating Conditions

Operating Pressure Range _______________ to _______________

- □ psia
- □ psig
- □ kPa (absolute)
- □ kPa (gage)

Operating Temperature Range _______________ to _______________ □ °F □ °C

For fixed process temperatures (Model Code = 0), enter value ______________________

Valid range: -459 to 3500 °F (-273 to 1927 °C)

NOTE: For steam applications, temperatures must be equal to or greater than the saturation temperature at the given pressures.
Atmospheric Pressure

Atmospheric Pressure = _________________________ □ psia □ kPa (absolute) □ Bar 14.696 psia ★

Standard Reference Conditions

NOTE: The information is only required if any of the following flow units were selected: StdCuft/s, StdCuft/min, StdCuft/h, StdCuft/d, StdCum/h, StdCum/d

Standard Reference Conditions:

Standard Pressure = _________________________ □ psia □ Bar 14.696 psia ★
(gas/steam only) □ kPa (absolute)
Standard Temperature = _________________________ □ °F ★ □ °C 60 °F ★ (For steam, 212 °F ★)

Transmitter Information (Required)

Failure Mode Alarm Direction (select one) □ Alarm High ★ □ Alarm Low

LCD Meter Configuration

Process variables displayed on LCD:

☐ Absolute Pressure □ Flow Total
☐ Analog Output Current □ Gauge Pressure
☐ Differential Pressure □ Percent of Range
☐ Flow □ Process Temperature

Number of seconds to display each variable: ____________________________
(available ranges from 2-10 seconds, in one second increments)

Burst Mode

☐ Disabled ☐ Enabled If the transmitter is to be used with Rosemount Rosemount 333, burst mode must be enabled.

For RMD Internal Use Only

House Order No.: __________________________
Line Item No.: __________________________
Transmitter Serial No.: __________________________
RCC Tech.: __________________________

(1) A complete model number is required before Rosemount Inc. can process this custom configuration order.