

# Rosemount 3095 *MultiVariable*<sup>™</sup> Transmitter with *MODBUS*<sup>™</sup> Protocol

**THE PROVEN LEADER IN MULTIVARIABLE MEASUREMENT.**

- Industry leading performance with  $\pm 0.05\%$  DP reading accuracy
- Ten year stability under actual process conditions
- Unprecedented reliability backed by a limited 12-year warranty
- Four outputs from one device including Mass Flow and advanced data logging
- Easy integration with MODBUS communication
- Coplanar<sup>™</sup> platform enables DP Flowmeters



## Contents

Specifications . . . . .	page 3
Product Certifications . . . . .	page 6
Dimensional Drawings . . . . .	page 7
Ordering Information . . . . .	page 11
Configuration Data Sheet	
Rosemount 3095FB . . . . .	page 14
Rosemount 3095FC . . . . .	page 16

## The Leader in *MultiVariable* Measurement

Rosemount pressure products deliver a tradition of excellence and technology leadership, featuring the state-of-the-art *MultiVariable* transmitter. The 3095FB and 3095FC use *MODBUS* communication protocol to deliver unmatched performance of process variable measurements, mass flow, and data logging.

### Industry leading performance with $\pm 0.05\%$ DP reading accuracy

Enabled by superior sensor technology and engineered for optimal flow performance, the 3095FB delivers unprecedented reference accuracy with up to 100:1 rangeability. Superior performance results in increased measurement accuracy.

### Ten year stability of 0.25%

Through aggressive testing, the 3095FB 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.

### Unprecedented reliability backed by a limited 12-year warranty

Further enhance installation practices with the most reliable platform supported by a 12-year warranty.

### Four outputs from one device

The advanced *MultiVariable* device measures three process variables simultaneously with optional calculated mass flow and advanced data logging capabilities. One device installation means reduced process penetrations, reduced inventory, and reduced installations costs.

### Easily integrated with *MODBUS* communications

Designed for easy integration with Supervisory Control and Data Acquisition units (SCADA), Distributed Control Systems (DCS), Flow Computers or Programmable Logic Controllers (PLC) and capable of multidropping up to 32 transmitters on one RS-485 bus. Easy integration reduces engineering and installation costs.

### *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.

### Advanced *PlantWeb* functionality



From multiple process variable generation to advanced compensated Mass Flow functionality and highly integrated flowmeter solutions, the 3095 reduces operational and maintenance expenditures while improving throughput and utilities management.

## Rosemount DP-Flow Solution

### Rosemount 3051S Series of Instrumentation

Scalable pressure, flow and level measurement solutions improve installation and maintenance practices.

### Rosemount 3095 Mass Flow Transmitter

Accurately measures differential pressure, static pressure and process temperature to dynamically calculate fully compensated mass flow.

### Rosemount 305 and 306 Integral Manifolds

Factory-assembled, calibrated and seal-tested manifolds reduce on-site installation costs.

### Rosemount 1199 Diaphragm Seals

Provides reliable, remote measurements of process pressure and protects the transmitter from hot, corrosive, or viscous fluids.

### Orifice Plate Primary Element Systems: Rosemount 1495 and 1595 Orifice Plates, 1496 Flange Unions and 1497 Meter Sections

A comprehensive offering of orifice plates, flange unions and meter sections that is easy to specify and order. The 1595 Conditioning Orifice provides superior performance in tight fit applications.

### *Annubar*<sup>®</sup> Flowmeter Series: Rosemount 3051SFA, 3095MFA, and 485

The state-of-the-art, fifth generation Rosemount 485 *Annubar* combined with the 3051S or 3095 *MultiVariable* transmitter creates an accurate, repeatable and dependable insertion-type flowmeter.

### Compact Orifice Flowmeter Series: Rosemount 3051SFC, 3095MFC, and 405

Compact Orifice Flowmeters can be installed between existing flanges, up to a Class 600 (PN100) rating. In tight fit applications, a conditioning orifice plate version is available, requiring only two diameters of straight run upstream.

### *ProPlate*<sup>®</sup> Flowmeter Series: Rosemount *ProPlate*, Mass *ProPlate*, and 1195

These integral orifice flowmeters eliminate the inaccuracies that become more pronounced in small orifice line installations. The completely assembled, ready to install flowmeters reduce cost and simplify installation.

## Specifications

### Functional Specifications

#### Service

Gas, Liquid, or Steam

#### Differential Sensor

##### Limits

- Code 2: -250 to 250 inH<sub>2</sub>O (-0,622 to 0,622 bar)
- Code 3: -1000 to 1000 inH<sub>2</sub>O (-2,49 to 2,49 bar)

#### Absolute Sensor

##### Limits

- Code 3: 0.5 to 800 psia (3,447 to 5516 kPa)
- Code 4: 0.5 to 3,626 psia (3,447 to 25000 kPa)

#### Gage Sensor

##### Limits

- Code C: 0 to 800 psig (0 to 5516 kPa)
- Code D: 0 to 3,626 psig (0 to 25000 kPa)

#### Over Pressure Limit

0.5 psia to two times the absolute pressure sensor range with a maximum of 3,626 psia.

#### Static Pressure Limit

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

#### Power

##### 3095FB

- Quiescent supply current 10 mA typical. Transmitting supply current not to exceed 100 mA.
- External power supply required
- Transmitter: operates on terminal voltage of 7.5 - 42 Vdc

##### 3095FC

- Transmitter: operates on terminal voltage of 8 - 28 Vdc
- Input current: 5mA nominal, 9.5 mA at 100% duty cycle (battery charging not included)
- Internal battery: rechargeable, Nominal 6.2 Vdc (2.5 Amp/hr)
- Maximum power consumption: 19 watts
- Solar panel input: nominal 8 V to 200 mA
- Solar panel output: 2 watts, 9 V nominal
- External charging input: 12 Vdc max (8 - 10 Vdc nominal)

#### RS-485 Signal Wiring

2-wire half-duplex RS-485 *MODBUS* with 8 data bits, 1 stop bit, and no parity

#### Bus Terminations

Standard RS-485 bus terminations required per EIA-485.

#### Failure Mode Alarm

If self-diagnostics detect a gross transmitter failure, non-latched status bits are set in the transmitter alarm registers.

#### Humidity Limits

##### 3095FB

- 0 - 100% relative humidity

##### 3095FC

- 0 - 95%, non condensing

#### Communications

User Interface: EIA-232 (RS-232C) format

Baud Rate: 600 to 19.2 K User selectable

Host: RS-485 / RS-232

#### User Interface Software and Hardware Requirements:

##### 3095FB

- IBM-compatible PC
- 10 MB of available hard drive space
- Microsoft® Windows® 98 or higher operating system
- CD-ROM drive
- 32 MB of RAM

##### 3095FC

- IBM-compatible PC
- 1 MB of RAM
- Pentium-grade processor: 233 MHz or faster
- Microsoft Windows 98 or higher operating system
- CD-ROM drive

#### Temperature Limits

Process (at transmitter isolator flange for atmospheric pressures and above):

##### 3095FB

- -40 to 250 °F (-40 to 121 °C)
- Inert fill sensor: 0 to 185 °F (-18 to 85 °C).
- Process temperatures above 185 °F (85 °C) requires derating the ambient limits by a 1.5:1 ratio.

##### 3095FC

- -40 to 212 °F (-40 to 100 °C)
- Inert fill sensor: 0 to 185 °F (-18 to 85 °C).
- Process temperatures above 185 °F (85 °C) requires derating the ambient limits by a 1.5:1 ratio.

##### Ambient:

##### 3095FB

- -40 to 185 °F (-40 to 85 °C)
- with integral meter: -4 to 175 °F (-20 to 75 °C)

##### 3095FC

- -40 to 167 °F (-40 to 75 °C)
- with integral meter: -4 to 167 °F (-20 to 75 °C)

##### Storage:

##### 3095FB

- -50 to 212 °F (-46 to 100 °C)
- with integral meter: -40 to 185 °F (-40 to 85 °C)

##### 3095FC

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

## Turn-on Time

Process variables will be within specifications less than 4 seconds after power is applied to transmitter.

## Damping (3095FB only)

Response to step input change can be user-selectable from 0.1 to 30 seconds for one time constant. This is in addition to sensor response time of 0.2 seconds.

## Real Time Clock (3095FC only)

- Year / month / day / hour / minute / second
- Battery backed

## Performance Specifications

(Zero-based spans, reference conditions, silicone oil fill, 316 SST isolating diaphragms, and digital trim values equal to the span end points.)

### Specification Conformance

The Rosemount 3095 maintains a specification conformance of measured variables to at least  $3\sigma$ .

## Differential Pressure

### Range 2

- 0–2.5 to 0–250 inH<sub>2</sub>O (0–6,2 to 0–622,7 mbar)  
(100:1 rangeability is allowed)

### Range 3

- 0–10 to 0–1000 inH<sub>2</sub>O (0–0,0249 to 0–2,49 bar)  
(100:1 rangeability is allowed)

### Accuracy (including Linearity, Hysteresis, Repeatability)

Range 2-3: 3095FB Ultra for Flow (Option U3)<sup>(1)</sup>

- $\pm 0.05\%$  DP reading for rangedown from 1:1 to 3:1 of URL
- For rangedown greater than 3:1 of URL
- Accuracy =  $\pm \left[ 0.05 + 0.0145 \left( \frac{URL}{Reading} \right) \right] \% \text{ Reading}$

Range 2-3: 3095FB and 3095FC

- $\pm 0.075\%$  of span for spans from 1:1 to 10:1 URL
- For spans less than 10:1 rangedown

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

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

Range 2-3: 3095FB Ultra for Flow (Option U3)<sup>(1)</sup>

- $\pm 0.130\%$  reading for rangedown from 1:1 to 3:1 of URL
- $\pm [0.05 + 0.0345 (URL/Reading)] \% \text{ Reading} > 3:1$  to 100:1 of URL

Range 2-3: 3095FB and 3095FC

- $\pm (0.025\% \text{ URL} + 0.125\% \text{ span})$  spans from 1:1 to 30:1
- $\pm (0.035\% \text{ URL} + 0.175\% \text{ span})$  spans from 30:1 to 100:1

## Static Pressure Effects

- Zero error =  $\pm 0.05\%$  of URL per 1000 psi (68,9 bar)
- Span error =  $\pm 0.20\%$  of reading per 1000 psi (68,9 bar)

## Stability

Range 2-3: 3095FB Ultra for Flow (Option U3)<sup>(1)</sup>

- $\pm 0.25\%$  of URL for 10 years for  $\pm 50$  °F (28 °C) temperature changes, up to 1000 psi (68,9 bar) line pressure

Range 2-3: 3095FB and 3095FC

- $\pm 0.125\%$  URL for five years for  $\pm 50$  °F (28 °C) ambient temperature changes, and up to 1000 psi (68,9 bar) line pressure.

## Absolute/Gage Pressure (AP)(GP)

### Absolute (100:1 rangeability allowed)

#### Range 3

0.5–8 to 0.5–800 psia (3,447–55,16 to 3,447–5516 kPa)

#### Range 4

0.5–36.26 to 0.5–3,626 psia (3,447–250 to 3,447–25000 kPa)

### Gage (100:1 rangeability allowed)

#### Range C

0–8 to 0–800 psig (0–55,16 to 0–5516 kPa)

#### Range D

0–36.26 to 0–3,626 psig (0–250 to 0–25000 kPa)

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

- $\pm (0.05\% \text{ URL} + 0.125\% \text{ of span})$  spans from 1:1 to 30:1
- $\pm (0.06\% \text{ URL} - 0.175\% \text{ of span})$  spans from 30:1 to 100:1

## Stability

$\pm 0.125\%$  URL for five years for  $\pm 50$  °F (28 °C) ambient temperature changes.

### Accuracy (including Linearity, Hysteresis, Repeatability)

- $\pm 0.075\%$  of span for spans from 1:1 to 10:1 of URL
- For spans less than 10:1 rangedown,

$$\text{Accuracy} = \left[ 0.03 + 0.0075 \left( \frac{URL}{Span} \right) \right] \% \text{ of span}$$

## Process Temperature (RTD)

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  $\alpha = 0.00385$ . Examples of compatible RTDs include the Rosemount Series 68 and 78 RTD Temperature Sensors.

(1) Ultra for Flow (Option U3) applicable for DP ranges 2 and 3 with SST isolator material and silicone fill fluid only.

# Product Data Sheet

00813-0100-4738, Rev GB  
Catalog 2006 - 2007

# Rosemount 3095

## Sensing Range

3095FB

- -40 to 1200 °F (-40 to 649 °C)

3095FC

- -40 to 464 °F (-40 to 240°C)

## Accuracy (including Linearity, Hysteresis, Repeatability)

±1.0 °F (0.56 °C)

## Ambient Temperature Effects per 50 °F (28 °C)

3095FB

- ±0.72 °F (0.40 °C) for process temperatures from -40 to 185 °F (-40 to 85°C)
- (±1.28 °F (0.72 °C) + 0.16% of reading) for process temperatures from 185 to 1200 °F (85 to 649 °C)

3095FC

- ±0.90 °F (0.50 °C) for process temperatures from -40 to 464°F (-40 to 240°C)

## Stability

±1.0 °F (0.56 °C) for one year

## Physical Specifications

### Electrical Connections

- ½-14 NPT, M20 x 1.5 (CM20), PG-13.5
- ¾-14 NPT (3095FC only)

### RTD Process Temperature Input:

100-ohm platinum RTD per IEC-751 Class B

### Process Connections

- Transmitter: ¼-18 NPT on 2<sup>1</sup>/<sub>8</sub>-in. centers
- RTD: RTD dependent (see ordering information)

### Radiated/Conducted Transmissions

Meets requirements of IEC 61326

### Process Wetted Parts

Isolating Diaphragms

- 316L SST or *Hastelloy C-276*®

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

Bolts

- Plated carbon steel per ASTM A449, Grade 5; or austenitic 316 SST

Fill Fluid

- Silicone oil
- Inert oil (available for gage pressure ranges only)

Paint

- Polyurethane

O-rings

- Buna-N

Battery (3095FC only)

- Lead-acid, rechargeable

## Weight

Components	Weight in lb. (kg)	
	3095FB	3095FC
3095 Transmitter	6.0 (2.7)	11.5 (5.2)
LCD Meter	0.5 (0.2)	0.6 (0.3)
SST Mounting Bracket	1.0 (0.5)	1.0 (0.5)
12 ft. (3.66 m) RTD Shielded Cable	0.5 (0.2)	user provided
12 ft. (3.66 m) RTD Armored Cable	1.1 (0.5)	user provided
24 ft. (7.32 m) RTD Shielded Cable	1.0 (0.5)	user provided
24 ft. (7.32 m) RTD Armored Cable	2.2 (1.0)	user provided
Battery / Solar panel	–	2.0 (0.9)
Battery Backup	–	1.3 (0.6)

## 3095FC Memory Specifications

### Programmable Memory

2 MB x 8 flash EPROM

### Data Memory

512 kB SRAM

### Boot Memory

128 kB flash EPROM

### History Database

The history database archives measured and calculated values for on-demand viewing or saving to a file. Each point in the historical database can be configured to archive the current value, average value, totalized value, or accumulated value.

Up to 35 standard history points provided, with archiving of min/max (for today and yesterday), minute (for last 60 minutes), hourly and daily values (for last 35 days). The first 8 of these are non-configurable.

Up to 15 extended history points provided with archiving of up to 5040 entries at 1, 2, 3, 4, 5, 10, 12, 15, 20, 30, or 60 minute intervals.

### Memory Logging

- 240 alarms before rollover
- 240 events before rollover

## 3095FC Flow Specifications

Flow Calculation:

- Computed in accordance with ANSI/API 2530-92 (AGA 3, 1992), API 14.2 (AGA 8, 1992), and API 21.1. Detail, Gross I, Gross II.

## Product Certifications

### Approved Manufacturing Locations

Rosemount Inc. — Chanhassen, Minnesota USA

### 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](http://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)

3095F\_2/3,4/D Flow Transmitters — QS Certificate of Assessment - EC No. PED-H-20 Module H Conformity Assessment

All other 3095\_ Transmitters/Level Controller — Sound Engineering Practice

Transmitter Attachments: Process Flange - Manifold — Sound Engineering Practice

#### Electro Magnetic Compatibility (EMC) (89/336/EEC)

3095F Flow Transmitters — EN 50081-1: 1992; EN 50082-2:1995; EN 61326-1:1997 – Industrial

#### Ordinary Location Certification for Factory Mutual

As standard, the Rosemount 3095FB 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

##### FM Approvals

- A** 3095FB  
Explosion Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition Proof for Class II/III, Division 1, Groups E, F, and G, hazardous locations. Factory Sealed. Provides non-incendive RTD connections for Class I, Division 2, Groups A, B, C, and D. Install per Rosemount drawing 03095-1025. Enclosure Type 4X.

##### Canadian Standards Association (CSA) - Canada only

- C** 3095FB  
Explosion-Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition Proof for Class II/III, Division 1, Groups E, F, and G, hazardous locations. CSA enclosure Type 4X. Factory Sealed. Provides a non-incendive RTD Connection for Class I, Division 2, Groups A, B, C, and D. Suitable for use in Class I, Division 2, Groups A, B, C, and D. Install in accordance with Rosemount Drawing 03095-1024.


##### Canadian Standards Association (CSA) - U.S. and Canada

- M** 3095FC  
Explosion-Proof for Class I, Division 1, Groups C and D including optional solar panel: mast option: Suitable for use in Class I, Division 2, Groups A, B, C, D, and T3. CSA Enclosure Type 4.

### European Certifications

#### H ATEX Flameproof

3095FB

Certificate Number: KEMA02ATEX2320X  II 1/2 G  
EEx d IIC T5 (-50°C ≤ T<sub>amb</sub> ≤ 80°C)  
T6 (-50°C ≤ T<sub>amb</sub> ≤ 65°C)


V<sub>max</sub> = 55V dc

 1180

#### Special Conditions for Safe Use (x):

The device contains a thin wall diaphragm. Installation, maintenance, and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.

3095FC

Certificate Number: LCIE05ATEX6057X  II 2 G

EEx d IIB T5

V<sub>max</sub> = 28V dc

IP66

 1180


#### Special Conditions for Safe Use (x):

Operating ambient temperature: -40°C to 75°C

The users have to make sure that the thermal fluid transfer doesn't overheat the equipment to a temperature corresponding to the spontaneous combustion temperature of surrounding gas.

#### P ATEX Dust

3095FB

Certificate Number: KEMA02ATEX2321  II 1 D T90°C

Ambient Temp (-50°C ≤ T<sub>amb</sub> ≤ 80°C)

V = 55 Vdc MAX

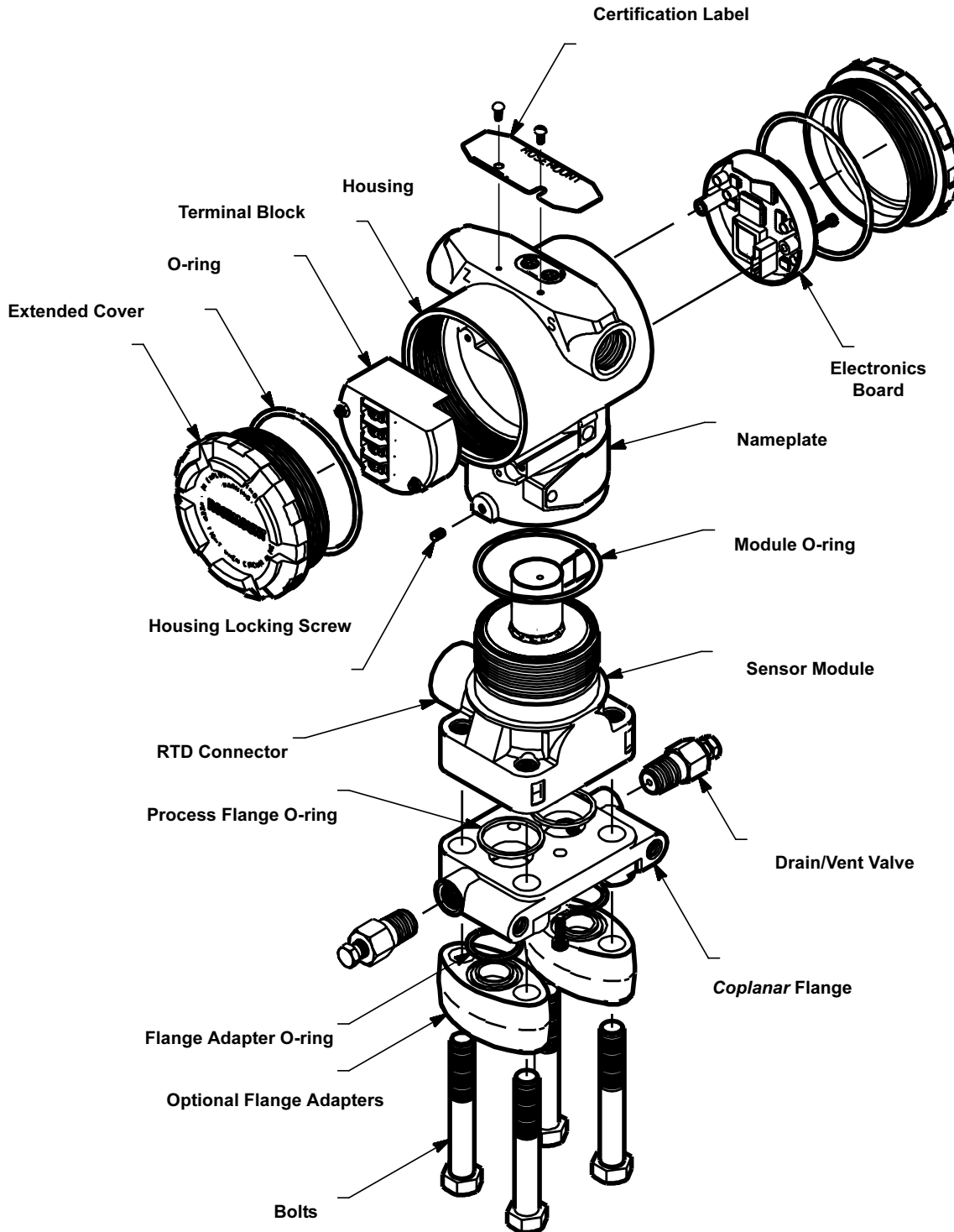
I = 23 mA MAX

IP66

 1180

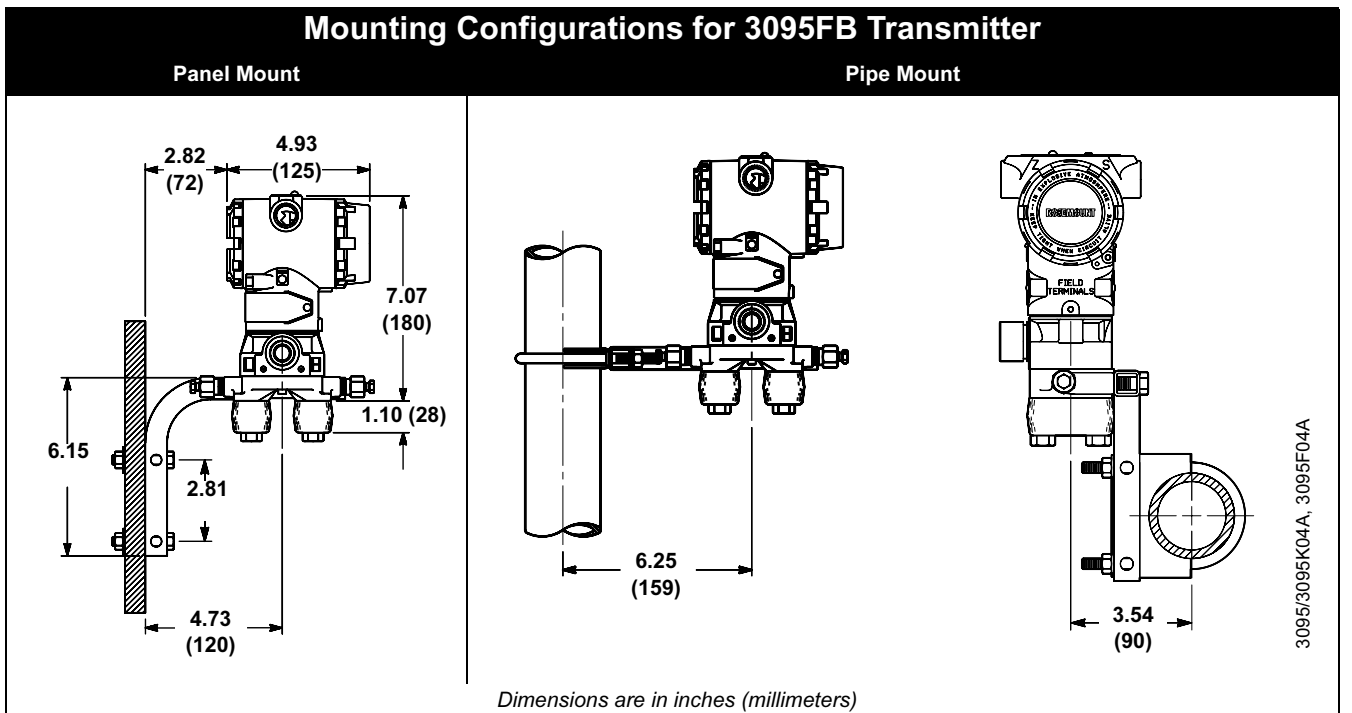
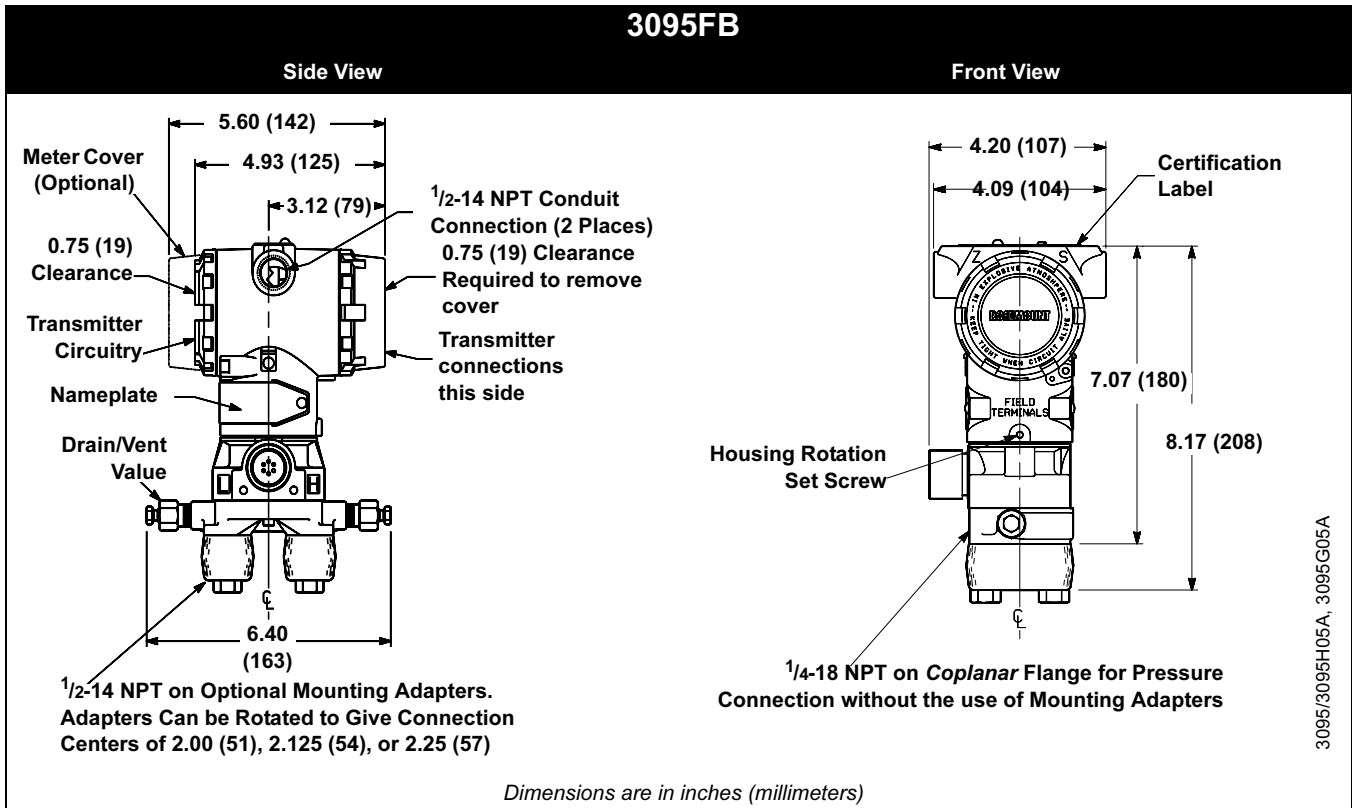
## Dimensional Drawings

### Exploded View of 3095FB Transmitter

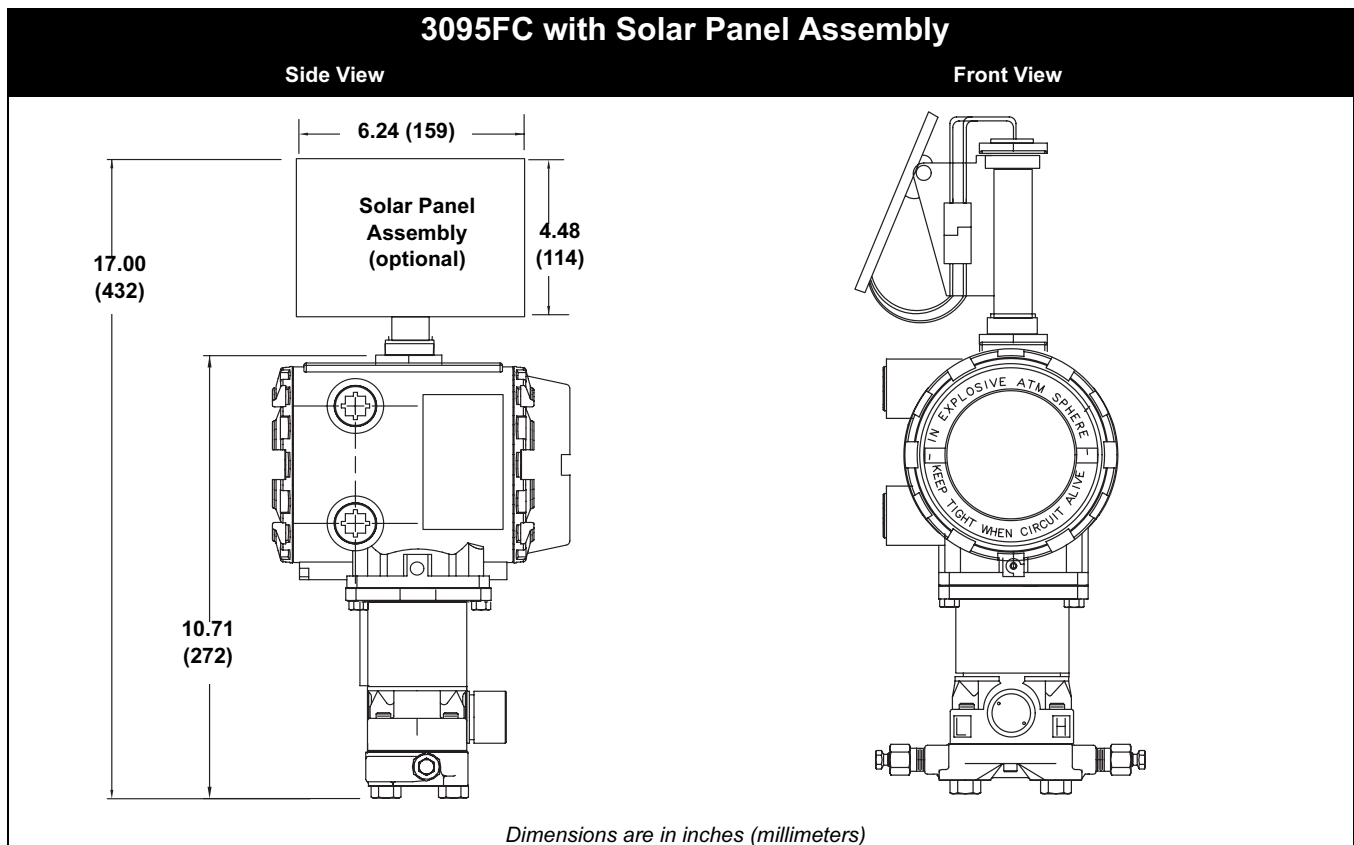
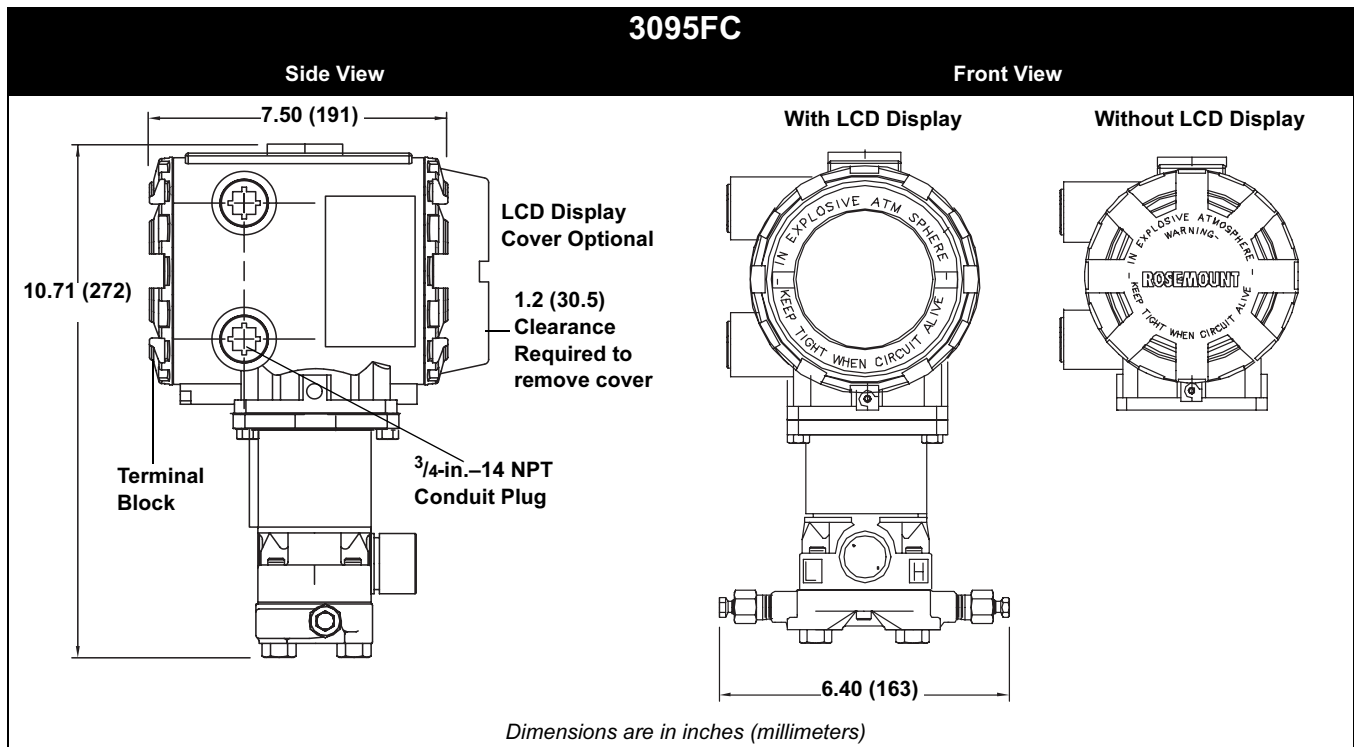


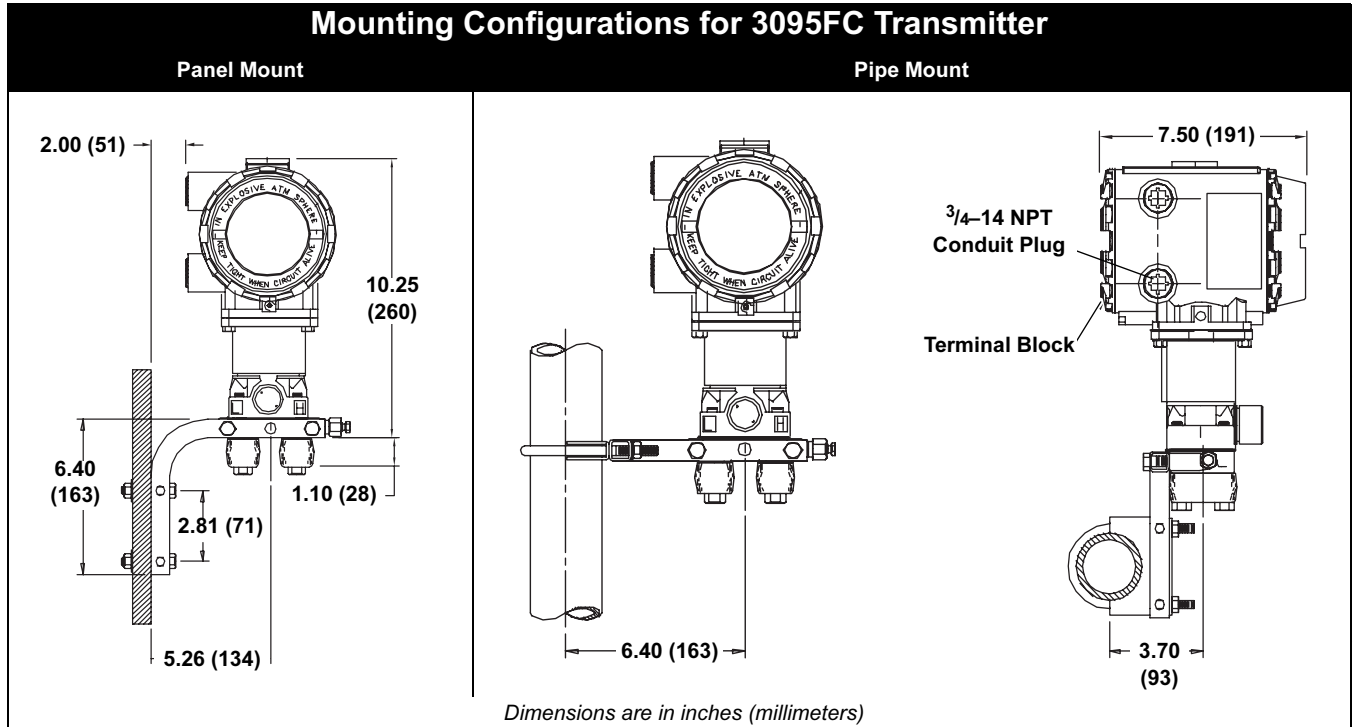
Dimensions are in inches (millimeters)

3095/3095a08d









3095/3095J04E, 3095J04F, 3095J04G

## Ordering Information

• Available  
— Not available  
3095FB 3095FC

Code	Product Description		
3095F	MultiVariable Transmitter	•	•
Code	Output		
B	Process Variable Measurement: <i>Modbus</i> RS-485	•	—
C	Process Variable Measurement: Mass Flow and Data Logging: <i>Modbus</i> RS-485	—	•
Code	Differential Pressure Range		
2	0 – 2.5 to 0 – 250 inH <sub>2</sub> O (0 – 6,22 to 0 – 622,7 mbar)	•	•
3	0 – 10 to 0 – 1000 inH <sub>2</sub> O (0 – 0,0249 to 0 – 2,49 bar)	•	•
Code	Absolute/Gage Pressure Ranges		
3	0.5–8 to 0.5–800 psia (3,447–55,16 to 3,447–5516 kPa)	•	•
4	0.5–36.26 to 0.5–3,626 psia (3,447–250 to 3,447–25000 kPa)	•	•
C	0–8 to 0–800 psig (0–55,16 to 0–5516 kPa)	•	•
D	0–36.26 to 0–3,626 psig (0–250 to 0–25000 kPa)	•	•
Code	Isolator Material	Fill Fluid	
A	316L Stainless Steel (SST)	Silicone	• •
B <sup>(1)</sup>	Hastelloy C-276	Silicone	• •
J <sup>(2)</sup>	316L SST	Inert	• •
K <sup>(1)(2)</sup>	Hastelloy C-276	Inert	• •
Code	Flange Style	Material	
A	<i>Coplanar</i>	CS	• •
B	<i>Coplanar</i>	SST	• •
C	<i>Coplanar</i>	Hastelloy C <sup>(2)</sup>	• •
J	DIN Compliant Traditional Flange	SST, <sup>7</sup> / <sub>16</sub> - 20 Bolting	• •
0	None (Required for Option Codes S3 or S5)		• •
Code	Drain/Vent Material		
A	SST	•	•
C <sup>(1)</sup>	Hastelloy C	•	•
0	None (Required for Option Codes S3 or S5)	•	•
Code	O-ring		
1	Glass-filled TFE	•	•
Code	Process Temperature Input (RTD ordered separately)		
0	No RTD Cable (required for 3095FC)	•	•
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)	•	—
3	RTD Input with 12 ft. (3,66 m) of Armored, Shielded Cable (intended for use with conduit)	•	—
4	RTD Input with 24 ft. (7,32 m) of Armored, Shielded Cable	•	—
7	RTD Input with 75 ft. (22,86 m) of Shielded Cable (intended for use with conduit)	•	—
8	RTD Input with 75 ft. (22,86 m) of Armored, Shielded Cable	•	—
A	RTD Input with 12 ft. (3,66 m) of ATEX Flameproof Cable (typically ordered with Product Certificate code H)	•	—
B	RTD Input with 24 ft. (7,32 m) of ATEX Flameproof Cable (typically ordered with Product Certificate code H)	•	—
C	RTD Input with 75 ft. (22,86 m) of ATEX Flameproof Cable (typically ordered with Product Certificate code H)	•	—
Code	Transmitter Housing Material	Conduit	
A	Polyurethane-covered Aluminum	<sup>1</sup> / <sub>2</sub> –14 NPT	• Adapter
E	Polyurethane-covered Aluminum	<sup>3</sup> / <sub>4</sub> –14 NPT	— •
B	Polyurethane-covered Aluminum	M20 x 1.5 (CM20)	• Adapter
C	Polyurethane-covered Aluminum	PG 13.5	• Adapter
J	SST	<sup>1</sup> / <sub>2</sub> –14 NPT	• —
K	SST	M20 x 1.5 (CM20)	• —
L	SST	PG 13.5	• —

# Rosemount 3095

## Product Data Sheet

00813-0100-4738, Rev GB

Catalog 2006 - 2007

• Available  
 — Not available  
**3095FB 3095FC**

Code	Terminal Block		
A	Standard	•	—
B	With Integral Transient Protection	•	•
C	CE MARK/ Compliant with EMC - Transient Protection Included	•	—
Code	Display		
0	None	•	•
1	LCD Display	•	•
Code	Bracket		
0	None (required for option code S3 or S5)	•	•
1	Coplanar SST Flange Bracket for 2-in. Pipe or Panel Mount, SST Bolts	•	•
2	Traditional Flange Bracket for 2-in. Pipe Mounting, CS Bolts	•	•
3	Traditional Flange Bracket for Panel Mounting, CS Bolts	•	•
4	Traditional Flange Flat Bracket for 2-in. Pipe Mounting, CS Bolts	•	•
5	Traditional Flange Bracket for 2-in. Pipe Mounting, 300 Series, SST Bolts	•	•
6	Traditional Flange Bracket for Panel Mounting, 300 Series, SST Bolts	•	•
7	Traditional Flange Flat Bracket for 2-in. Pipe Mounting, 300 Series, SST Bolts	•	•
8	SST Traditional Flange Bracket for 2-in. Pipe Mounting, 300 Series, SST Bolts	•	•
9	SST Traditional Flange Flat Bracket for 2-in. Pipe Mounting, 300 Series, SST Bolts	•	•
Code	Bolts		
0	CS bolts	•	•
1	Austenitic 316 SST bolts	•	•
N	None (required for Options code S5)	•	•
Code	Product Certifications		
0	None	•	•
A	FM Approvals Explosion-Proof	•	—
C	Canadian Standards Associate (CSA) Explosion Proof	•	—
H	ATEX Flame-proof	•	•
M	Canadian Standards Association (CSA) US and Canada Explosion-Proof	—	•
P	ATEX Dust	•	—
Code	Engineered Measurement Solution (EMS)		
N	Process Variable Measurement: <i>MODBUS</i>	•	—
C	Mass Flow with Process Variable Measurement and Data Logging: <i>MODBUS</i> (required for 3095FC)	—	•
Code	Options		
Performance Class			
U3 <sup>(3)</sup>	Ultra for Flow: ±0.05% DP reading accuracy, up to 100:1 rangedown, 10 year stability, limited 12 year warranty	•	—
S3	Assembly with 405 Compact Orifice (requires compact orifice model number, see 00813-0100-4810)	•	—
S4 <sup>(4)</sup>	Assembly with <i>Anubar</i> Averaging Pitot Tubes or 1195 Integral Orifice Plates (requires corresponding model number, see 00813-0100-4809, 00813-0100-4760, or 00813-0100-4686)	•	—
S5	Assemble to 305 Integral Manifold (requires integral manifold model number)	•	•
C1	Custom Flow Configuration (requires completed Configuration Data Sheet)	•	•
A3	Mast with Solar Panel Assembly and 12 Vdc Batteries	—	•
P1	Hydrostatic testing with certificate	•	•
P2	Cleaning for Special Services	•	•
Q4	Calibration Certificate	•	•
Q8	Material Traceability Certification per EN 10204 3.1B	•	•
DF <sup>(5)</sup>	1/2-14 NPT Flange Adapter, Carbon Steel, Stainless Steel, Hastelloy C	•	•
A1	Additional RS-232 Communication Board	—	•
A2	12 Vdc System with Batteries	—	•
Typical Model Number: 3095F B 2 3 A B A 1 1 A B 0 1 0 A N			

(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.

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

(3) Ultra for Flow (Option U3) applicable for DP ranges 2 and 3 with SST isolator material and silicone fill fluid only.

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

(5) Material determined by Flange Style material selection (Not available with S4 option).

## OPTIONS

### Standard Configuration

Unless otherwise specified, the transmitter is shipped as follows:

#### Engineering units:

Differential	inH <sub>2</sub> O
Absolute/gage	psi
Output:	<i>MODBUS</i> RTU protocol signal
Flange type:	Specified model code option
Flange material:	Specified model code option
O-ring material:	Specified model code option
Drain/vent:	Specified model code option
Flow Configuration Parameters:	Factory default
Software tag:	(Blank)

### Custom Configuration (Option Code C1)

If Option Code C1 is ordered, the user-specified information and standard configuration parameters are factory configured. Unspecified parameters will remain at the factory default settings.

### 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 marked 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 is left blank unless specified.
- Software tag is left blank unless specified.

### Optional 305 Integral Manifolds

The Rosemount MultiVariable transmitters with 305R Integral Manifold are fully assembled, calibrated, and seal tested by the factory. Refer to PDS 00813-0100-4733 for additional information.

## ACCESSORIES

### 3095 User Interface Software Packages

The User Interface software package is available with or without the converter and connecting cables. All configurations are packaged separately.

#### Windows 98 or higher

##### 3095FB

- Part Number 03095-5130-0003: Windows User Interface Software—Single PC License, Converter, and Cable.
- Part Number 03095-5125-0004: Windows User Interface Software—Single PC License.
- Part Number 03095-5125-0005: Windows User Interface Software— Site License.
- Part Number 03095-5106-0002: RS-485 Converter and Cable.

##### 3095FC

- Part Number 03095-5136-0001: Windows User Interface Software—Single PC License, and Cable.
- Part Number 03095-5135-0001: Windows User Interface Software—Single PC License.
- Part Number 03095-5135-0002: Windows User Interface Software— Site License.
- Part Number 03095-5106-0003: 10 foot (3.05 m) 9-pin Serial Cable

### Additional Information

Rosemount transmitters are available as fully assembled and factory calibrated flowmeters. Flowmeter Product Data Sheets are listed below:

- *Annubar* Flowmeter Series:00813-0100-4809  
Rosemount 3051SFA *ProBar*  
Rosemount 3095MFA Mass *ProBar*  
Rosemount 485 *Annubar* Primary Element
- *Proplate* Flowmeter Series: 00813-0100-4686  
Rosemount 3051SFP *Proplate*  
Rosemount 3095MFP Mass *Proplate*  
Rosemount 1195 Integral Orifice Primary Element
- Compact Orifice Flowmeter Series: 00813-0100-4810  
Rosemount 3051SFC Flowmeter  
Rosemount 3095MFC Mass Flowmeter  
Rosemount 405 Compact Orifice Primary
- Orifice Plate Primary Element Systems: 00813-0100-4792  
Rosemount 1495 Orifice Plate  
Rosemount 1496 Flange Union  
Rosemount 1497 Meter Section





## ROSEMOUNT 3095FC

★ = Default

### Information

Customer:	Contact Name:
Customer Phone:	Customer Fax:
Customer Approval Sign-Off:	Customer PO:
Model No <sup>(1)</sup>	

### Tag Information (optional)

Wired Tag: \_\_\_\_\_  
 (5 lines of 17 characters)  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Permanent \_\_\_\_\_  
 (3 lines of 25 characters):  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Meter I.D. (10 characters) \_\_\_\_\_

Meter Description (30 characters) \_\_\_\_\_  
 \_\_\_\_\_

### Transmitter Information

<b>Engineering Units</b>	<input type="checkbox"/> U.S. ★	<input type="checkbox"/> Metric
Differential Pressure:	inH <sub>2</sub> O at 60 °F★	kPa
Static Pressure:	psi ★	kPa
Process Temperature:	°Fahrenheit ★	°Celsius
Flow	Foot <sup>3</sup> / hour ★	Meter <sup>3</sup> / hour

Station Name (20 characters) (3095FC ★) \_\_\_\_\_

Meter Address \_\_\_\_\_ 1 ★ (1 – 255)

Group \_\_\_\_\_ 2 ★ (1 – 255)

Baud Rate \_\_\_\_\_ (600, 1200, 2400, 4800, 9600 ★, 19.2K)

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



★ = Default

**Meter Setup**

Pipe ID: \_\_\_\_\_ ( in / mm ) at \_\_\_\_\_ reference temperature ( °F / °C )  
 Pipe Material:  Carbon Steel ★  SST  Monel  
 Orifice Plate ID: \_\_\_\_\_ ( in / mm ) at \_\_\_\_\_ reference temperature °F / °C )  
 Orifice Material:  Carbon Steel  SST ★  Monel  
 Low Flow Cutoff: \_\_\_\_\_ ( inH<sub>2</sub>O / kPa )  
 Averaging Technique:  Flow Dependent Linear ★  Flow Weighted Linear  
 Flow Dependent Formulaic  Flow Weighted Formulaic

Choose desired characterization method and only enter values for that method.

<input type="checkbox"/> Detail Characterization Method (AGA8 1992) ★			Default Value ★
N <sub>2</sub>	Nitrogen mole percent	_____ %	1
CO <sub>2</sub>	Carbon Dioxide mole percent	_____ %	0
C1	Methane mole percent	_____ %	96
C2	Ethane mole percent	_____ %	3
C3	Propane mole percent	_____ %	0
nC4	n-Butane mole percent	_____ %	0
iC4	i-Butane mole percent	_____ %	0
nC5	n-Pentane mole percent	_____ %	0
iC5	i-Pentane mole percent	_____ %	0
C6	Hexane	_____ %	0
C7	Heptane	_____ %	0
C8	Octane	_____ %	0
C9	Nonane	_____ %	0
C10	Decane	_____ %	0
H <sub>2</sub> S	Hydrogen Sulfide mole percent	_____ %	0
H <sub>2</sub> O	Water mole percent	_____ %	0
He	Helium	_____ %	0
O <sub>2</sub>	Oxygen mole percent	_____ %	0
CO	Carbon monoxide mole percent	_____ %	0
H <sub>2</sub>	Hydrogen mole percent	_____ %	0

Gross Characterization Method, Option Code 1 (AGA8 Gr-Hv-CO<sub>2</sub>)

Specific Gravity	<input type="checkbox"/> Auto Calculate ★	<input type="checkbox"/> Specific Value _____
Heating Value	<input type="checkbox"/> Auto Calculate ★	<input type="checkbox"/> Specific Value _____
Units	<input type="checkbox"/> BTU/Lb ★	<input type="checkbox"/> BTU/CF
Basis	<input type="checkbox"/> Dry ★	<input type="checkbox"/> Wet
CO <sub>2</sub> Mole %	_____ %	
H <sub>2</sub> Mole %	_____ %	
CO Mole %	_____ %	

Gross Characterization Method, Option Code 2 (AGA8 Gr-CO<sub>2</sub>-N<sub>2</sub>)

Specific Gravity	<input type="checkbox"/> Auto Calculate ★	<input type="checkbox"/> Specific Value _____
Heating Value	<input type="checkbox"/> Auto Calculate ★	<input type="checkbox"/> Specific Value _____
Units	<input type="checkbox"/> BTU/Lb ★	<input type="checkbox"/> BTU/CF
Basis	<input type="checkbox"/> Dry ★	<input type="checkbox"/> Wet
N <sub>2</sub> Mole %	_____ %	
CO <sub>2</sub> Mole %	_____ %	
H <sub>2</sub> Mole %	_____ %	
CO Mole %	_____ %	

# Rosemount 3095

★ = Default

### Pressure Tap

- Gauge ★                       Upstream ★  
 Absolute                       Downstream

### Base Conditions

- Base Pressure: \_\_\_\_\_ (14.73 psi / 101.56 kPa ★)  
Base Temperature: \_\_\_\_\_ (60 °F / 15.56 °C ★)  
Elevation: \_\_\_\_\_ (500 feet / 152.4 meters ★)  
Latitude: \_\_\_\_\_ (35 degrees ★)  
Viscosity: \_\_\_\_\_ (0.010268 Cp ★)  
Sp Heat Ratio: \_\_\_\_\_ (1.3 ★)

### Atmospheric Pressure

- Calculate based on entered parameters  
 Enter ★ \_\_\_\_\_ (14.45 psi / 99.63 kPa ★)

### Flow Alarms

- Disable ★  
 Enable  
Low Alarm \_\_\_\_\_ (MCF/day / km<sup>3</sup>/day)  
High Alarm \_\_\_\_\_ (MCF/day / km<sup>3</sup>/day)

### PV Fault Values

- DP:     Last Good Value ★                       User-Specified Fault Value \_\_\_\_\_  
SP:     Last Good Value ★                       User-Specified Fault Value \_\_\_\_\_  
T:       Last Good Value ★                       User-Specified Fault Value \_\_\_\_\_

### History

Contract Hour: \_\_\_\_\_ (0 – 24 integer) (0 = midnight ★)

Logged Parameters (Select any number of variables. Selected parameters apply to both daily logs and variable logs.)

- |  |  |                                       |
|--|--|---------------------------------------|
| <input type="checkbox"/> Total Flow ★                    | <input type="checkbox"/> Minimum Static Pressure                             | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Total Flow Time ★               | <input type="checkbox"/> Average Process Temperature ★                       | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Total Energy ★                  | <input type="checkbox"/> Average Heating Value                               | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Average Flow Rate               | <input type="checkbox"/> Average Compressibility Factor                      | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Average Energy Rate             | <input type="checkbox"/> Average Integral Value                              | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Average Differential Pressure ★ | <input type="checkbox"/> Average C Prime or Integral Multiplier Value (IMV)★ | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Maximum Differential Pressure   | <input type="checkbox"/> Specific Gravity (Relative Density)                 | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Minimum Differential Pressure   | <input type="checkbox"/> Maximum Process Temperature                         | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Average Static Pressure ★       | <input type="checkbox"/> Minimum Process Temperature                         | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Maximum Static Pressure         | <input type="checkbox"/> Uncorrected Flow Rate★                              |                                       |

# Product Data Sheet

00813-0100-4738, Rev GB  
 Catalog 2006 - 2007

# Rosemount 3095

**LCD Display Information (Only enter if LCD meter ordered.)**

Display Parameters (Select any number of variables.)

- |   |  |                                       |
|---|--|---------------------------------------|
| <input type="checkbox"/> Flow Rate ★              | <input type="checkbox"/> Totalized Energy Yesterday          | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Differential Pressure ★  | <input type="checkbox"/> Mole Percent CO <sub>2</sub>        | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Totalized Flow Today     | <input type="checkbox"/> Mole Percent N <sub>2</sub>         | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Totalized Flow Yesterday | <input type="checkbox"/> Orifice Bore at 68 °F               | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Static Pressure ★        | <input type="checkbox"/> Date and Time ★                     | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Temperature ★            | <input type="checkbox"/> Heating Value                       | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Energy Flow Rate ★       | <input type="checkbox"/> Specific Gravity (Relative Density) | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Totalized Energy Today   |  |                                       |

**Special Calibration (Optional)**

Default values indicate standard calibration. Enter lower trim and upper trim values if special calibration is desired:

Trim Value	<u>Lower (LTV)</u>	<u>Upper (UTV)</u>	<u>Default Values</u>
Differential Pressure:	_____	_____	0, URL ★
Static Pressure:	_____	_____	0, URL ★
Process Temperature (fixed):	-40	464	°F ★

**For Rosemount Use Only**

S.O.:	LI
CHAMP:	DATE:
	ADMIN:

**3095FC Flow Transmitter Range Units**

Units	Differential Pressure Range 2 Span		Units	Absolute Pressure Range 3 Span		Absolute Pressure Range 4 Span	
	min	max		min	max	min	max
in H <sub>2</sub> O	2.5	250	psia	150	800	40	4000
kPa	0.62161	62.1606	MPa	0.05516	5.51581	0.275791	27.5790
in H <sub>2</sub> O <sup>(1)</sup>	10	1000					
kPa <sup>(1)</sup>	2.48	248.64					

(1) Range 3.

# Rosemount 3095

**Product Data Sheet**  
00813-0100-4738, Rev GB  
Catalog 2006 - 2007

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