

# Rosemount 751 Field Signal Indicator



CE

- Available with an LCD display or analog meter
- Compact, rugged, and designed for industrial environments
- Available with explosion-proof and intrinsic safety certifications
- Provides flexible mounting options

# Transcend Your Integral Meter Display with the Rosemount 751

The Rosemount 751 Field Signal Indicators provide a means of displaying important process variables. These devices operate with any two-wire transmitter that measures input variables such as pressure, flow, liquid level, or temperature. Rosemount indicators are ideal for installations where an integral meter would be difficult to view.

Rosemount 751 Indicators are designed for use in industrial environments where all-weather performance is necessary. These units are vibration- and corrosion-resistant, and explosion-proof or intrinsically safe. An LCD display meter or analog meter may be ordered to meet specific application requirements.

## LCD display meter

The LCD display meter may be configured from a 4 mA point of -999 to a 20 mA point of 9999 with a linear or square-root response. A 20-segment bar graph at the bottom of the display directly represents the 4–20 mA signal.

Changing the 4 mA and 20 mA points is easy. Just remove the housing and meter covers, and press the meter faceplate buttons. The meter can be rotated in 90-degree increments within the enclosure for convenient viewing.

## Analog meter

With the analog meter, several meter scaling options are available to suit special application requirements with  $\pm 2$  percent of calibrated span accuracy. Linear 0 to 100 percent meter scaling is adequate for the majority of measurement applications. With a flow transmitter, a logarithmic 0 to 100 percent flow scale is available. As an option, the user can specify special meter scaling for direct readout in psi, gph, °F, °C, or other convenient engineering units.

The large, 2<sup>1</sup>/<sub>4</sub>-in. diameter meter face has a 2-in. long scale for easy readability. A zero adjustment is located on the meter faceplate (accessible with the housing cover removed).

The meter can be rotated within the enclosure for convenient viewing in 90-degree increments.

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## Ordering Information

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [page 5](#) for more information on Material Selection.

**Table 1. 751 Field Signal Indicator Ordering Information**

★ The Standard offering represents the most common models and options. These options should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Model	Product description	
751	Remote Signal Indicator	
<b>Input signal</b>		
A	4–20 mA dc	★
B	10–50 mA dc (not available with LCD display meter)	★
C	40–200 mV dc (not available with LCD display meter)	★
<b>Meter scale</b>		
M1	Linear Analog Meter, 0–100% Scale	★
M2	Square Root Analog Meter, 0–100% Flow	★
M6	Square Root Analog Meter, 0–10 √	★
M4 <sup>(1)</sup>	Linear LCD display Meter, 0–100% Scale	★
M7 <sup>(1)</sup>	Special Scale LCD display Meter (specify range, mode, and engineering units)	★
M8 <sup>(1)</sup>	Square Root LCD display Meter, 0–100% Flow	★
M9 <sup>(1)</sup>	Square Root LCD display Meter, 0–10 √	★
<b>Product certificates</b>		
NA	No Approval Required	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
K2	INMETRO Flameproof, Intrinsic Safety	★
E3	NEPSI Flameproof	★
E5	FM Explosion-Proof	★
E6	CSA Explosion-Proof	★
E7	IECEX Flameproof	★
E8	ATEX Flameproof	★
I5	FM Intrinsic Safety and Non-incendive	★
I6	CSA Intrinsic Safety	★
I7	IECEX Intrinsic Safety	★
I8	ATEX Intrinsic Safety	★
N1	ATEX Type N Non-incendive	★
C6	CSA Intrinsic Safety, Non-incendive, and Explosion-proof approval combination	★
K5	FM Intrinsic Safety, Non-incendive, and Explosion-proof approval combination	★
KM	Technical Regulations Customs Union (EAC) Flameproof, Intrinsic Safety	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★
NM	Technical Regulations Customs Union (EAC) Type N	★

**Table 1. 751 Field Signal Indicator Ordering Information**

★ The Standard offering represents the most common models and options. These options should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

**Options (include with selected model number)**

<b>Mounting bracket</b>		
B	Mounting Bracket for Flat Surface or 2-in. Pipe	★
<b>Reducer</b>		
C	Stainless Steel Reducer ¾- to ½-in. for Conduit Connection (see <a href="#">Figure 1</a> for reference)	★
<b>Bar code tag</b>		
BT	Customer Specified Barcode Tag	★
<b>Extended Product warranty</b>		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
<b>Typical model number: 751 A M1 NA BC</b>		

(1) May be reconfigured in the field.

# Specifications

## Housing specifications

### Physical specifications

#### Material selection

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

#### Conformance to specifications [ $\pm 3\sigma$ (Sigma)]

Technology leadership, advanced manufacturing techniques, and statistical process control ensure specification conformance to at least  $\pm 3\sigma$ .

#### Materials of construction

##### Enclosure

Low-copper aluminum

##### Paint

Polyurethane

##### O-rings

Buna N

#### Meter mounting materials

GE polyphenylene oxide plastic

#### Electrical connections

3-pole terminal block with 8–32 nickel-plated brass screw terminals, with  $\frac{3}{4}$ -14 NPT conduit (stainless steel  $\frac{3}{4}$ - to  $\frac{1}{2}$ -in. reducer available as an option).

#### Enclosure rating

NEMA Type 4x. CSA Type 4x. IP66

#### Weight

Indicator only: 1.8 kg (4 lb)

Indicator with optional mounting bracket: 2.27 (5 lb)

#### Tagging

The indicator will be tagged, at no charge, in accordance with customer requirements. All tags are stainless steel. The standard tag is permanently attached to the indicator. Tag character height is  $\frac{1}{16}$  in. (1.6 mm). A wired-on tag is available upon request.

## LCD display meter specifications

### Functional specifications

#### Input signal

4–20 mA dc

#### Display

##### 4 mA point limits

–999 to 1000

##### Span limits

200 to 9999

The sum of the 4 mA point and span must not exceed 9999. Adjustments are made using non-interactive zero and span buttons.

#### Display options

Standard display response is linear with mA input. Optional square root or filtered response may be selected.

#### Overload limitations

666 mA, maximum

#### Temperature limits

##### Storage

–40 to 85 °C (–40 to 185 °F)

##### Operating

–40 to 70 °C (–40 to 185 °F)<sup>(1)</sup>

(1) For temperatures below –20 °C or above 60 °C the LCD display may not be readable, but the loop will remain intact and the LCD display will not be damaged.

#### Humidity limitation

0 to 95 percent non-condensing relative humidity

#### Update period

750 ms

#### Response time

Responds to changes in input within a maximum of two update periods. If the filter is activated, then the display responds to the change within nine update periods.

#### Voltage drop

0.7 Vdc typical, 1.0 Vdc maximum

## Performance specifications

### Digital display resolution

0.05 percent of calibrated range  $\pm$  1 digit

### Analog bar graph resolution

5.0 percent of calibrated range

### Indication accuracy

0.25 percent of calibrated range  $\pm$  1 digit

### Stability

0.1 percent calibrated range  $\pm$  1 digit per six months

### Temperature effect

0.01 percent of calibrated range per °C on zero

0.02 percent of calibrated range per °C on span over the operating temperature range

### Power interrupt

All calibration constants are stored in EEPROM memory and are not affected by power loss.

### Failure mode

LCD display meter failure will not affect transmitter operation.

### Under/Over range indication

Input current < 3.5 mA: Display blank

Input current > 22.0 mA: Display flashes 112.5 percent of full scale value or 9999, whichever is less

## Physical specification

### Meter size

2<sup>1</sup>/<sub>4</sub>-in. diameter face with four <sup>1</sup>/<sub>2</sub>-in. high characters

## Analog meter specifications

## Functional specifications

### Input signal

- 4–20 mA dc
- 10–50 mA dc
- 40–200 mV

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### Note

Maximum series resistance is ten ohms for ammeters.

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### Meter indication

0 to 100 percent linear scale

0 to 100 percent flow scale

Special optional ranges

### Overload limitation

150 percent of rated end scale value for two minutes

### Temperature limits

-40 to 65 °C (-40 to 150 °F)

### Humidity limits

0 to 100 percent relative humidity

### Zero adjustment

Adjustment screw on face of meter

## Performance specifications

### Indication accuracy

$\pm$ 2 percent of calibrated span

### Temperature effect

Less than 2 percent of full scale at any point within the temperature limits

## Physical specification

### Meter size

2<sup>1</sup>/<sub>4</sub>-in. diameter face with 2-in. long scale

# Product Certifications

## Approved manufacturing locations

Rosemount Inc. — Chanhassen, Minnesota USA

Emerson Process Management GmbH & Co. — Wessling, Germany

Emerson Process Management Asia Pacific Private Limited — Singapore

Emerson Process Management India PVT LTD - Daman, India

## European directive information

The EC declaration of conformity can be found on 00825-0100-4378. The most recent revision can be found at [www.rosemount.com](http://www.rosemount.com).

## Ordinary location certification for FM approvals

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

## Electro Magnetic Compatibility (EMC)

EN 61326:2006

## ATEX Directive (94/9/EC)

Emerson Process Management complies with the ATEX Directive.

## Hazardous locations certifications

### North American certifications

#### Factory Mutual (FM) approvals

**E5** Certificate Number: 0T2H8.AE  
Standards: FM3600-1989, FM3615-1989  
Explosion-Proof for Class I, Division 1, Groups B, C, and D.  
Dust-Ignition Proof for Class II, Division 1, Groups E, F, and G.  
Dust-ignition Proof Class III, Division 1  
Indoor and outdoor use, NEMA Type 4X

**I5** Certificate Number: 0T9H2.AX  
Standards: FM3600-1989, FM3610-1988, FM3611-1986, FM3810-1989  
Intrinsically safe for Class I, Division 1, Groups A, B, C, and D; Class II, Division 1, Groups E, F, and G; Class III, Division 1.  
Nonincendive for Class I, Division 2, Groups A, B, C, and D.

Entity Parameters:

$V_{\max} = 40 \text{ V}$

$I_{\max} = 165 \text{ mA}$

$I_{\max} = 225 \text{ mA}$

$C_i = 0$

$L_i = 0$

#### Special Condition for Safe Use (X):

- When connected per Rosemount drawing 01151-0214 (I.S.).

**K5** Combination of E5 and I5  
NEMA Enclosure Type 4X

#### Canadian Standards Association (CSA) approvals

Certificate Number: 1718395

**E6** Explosion-Proof for Class I, Division 1, Groups C and D; Standards: C22.2 No. 25-1966, C22.2 No. 30-M1986, C22.2 No. 94-M1991, C22.2 No. 142-M1987  
Class I, Division 2, Groups A, B, C, and D;  
Class II, Division 1, Groups E, F, and G; Dust-Ignition Proof for Class III, Division 1, Groups A, B, C, and D.  
CSA Enclosure type 4X

**I6** Intrinsically safe  
Standards: C22.2 No. 157-1992, C22.2 No. 213-M1987,  
Class I, Division 1, Groups A, B, C, and D  
CSA enclosure type 4X

#### Special Condition for Safe Use (X):

- When connected per Rosemount drawing 00751-0068 with approved barrier system (I.S.).

**C6** CSA: Explosion-proof; Intrinsically Safe  
Combination of E6 and I6

#### International certifications

**E7** *IECEx Flameproof*  
Certification IECEx DEK 11.0082X  
Standards: IEC 60079-0:2007, IEC 60079-1:2007  
Ex d IIC T5/T6 Gb  
T5 ( $-20 \text{ °C} \leq T_{\text{amb}} \leq 70 \text{ °C}$ )  
T6 ( $-20 \text{ °C} \leq T_{\text{amb}} \leq 40 \text{ °C}$ )  
IP66  
 $V_{\max} = 60 \text{ V}$

#### Special Condition for Safe Use (X):

- Transmitters have an NPT cable entry thread; A certified flameproof thread adapter or cable gland must be used to maintain type of protection. Contact manufacturer for flame path dimensions. Cable glands and wiring must be suitable for greater than 80 °C.

**I7** *IECEx Intrinsic Safety*  
Certification IECEx BAS 11.0064X

Standards: IEC 60079-0:2007-10, IEC 60079-11:2006

Ex ia IIC T5/T6 Ga

T5 (-60 °C ≤ T<sub>amb</sub> ≤ 80 °C)

T6 (-60 °C ≤ T<sub>amb</sub> ≤ 40 °C)

IP66

Entity Parameters:

U<sub>i</sub> = 60 V

I<sub>i</sub> = 200 mA

L<sub>i</sub> = 0

C<sub>i</sub> = 0

**Special Condition for Safe Use (X):**

1. The enclosure is made of aluminum and finished with a protective paint finish; care should be taken to protect it from impact or abrasion when installed in a zone 0 environment.

**European certifications**

**E8 ATEX Flameproof**

Certificate Number: DEKRA11ATEX0240X

Standards: EN60079-0:2008, EN60079-1:2009,

Ex II 2 G Ex d IIC T5/T6 Gb

T5 (-60 °C to 80 °C) |

T6 (-60 °C ≤ T<sub>amb</sub> ≤ 40 °C)

IP66

V<sub>max</sub> = 60 V

**Special Condition for Safe Use (X):**

1. Transmitters have an NPT cable entry thread; A certified flameproof thread adapter or cable gland must be used to maintain type of protection. Contact manufacturer for flame path dimensions. Cable glands and wiring must be suitable for greater than 80 °C.

**I8 ATEX Intrinsic Safety**

Certificate Number: Baseefa03ATEX0448X

Standards: EN60079-0:2009, EN60079-11:2007

Ex II 1 G Ex ia IIC T5/T6

T5 (-60 °C ≤ T<sub>amb</sub> ≤ 80 °C);

T6 (-60 °C ≤ T<sub>amb</sub> ≤ 40 °C)

IP66

Input Parameters:

U<sub>i</sub> = 60 V

I<sub>i</sub> = 200 mA

L<sub>i</sub> = 0

C<sub>i</sub> = 0

**Special Condition for Safe Use (X):**

1. The enclosure is made of aluminum and finished with a protective paint finish; care should be taken to protect it from impact or abrasion when installed in a zone 0 environment.

**N1 ATEX Type N**

Certificate Number: Baseefa03ATEX0454

Standards: EN60079-0:2009, EN60079-15:2010

Ex II 3G Ex nA II T6 Gc

T6 (-40 °C ≤ T<sub>amb</sub> ≤ 70 °C)

IP66

Rated Voltage = 5 V

**Technical Regulations Customs Union (EAC)**

EM, IM, EM, NM Contact an Emerson Process Management representative for additional information

**Brazilian approvals**

**E2 Brazil INMETRO Flameproof**

Certificate number: NCC 5486.09X

Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC

60079-1:2009

Ex d IIC T6 Gb

IP65

Input parameters:

U<sub>n</sub> = 12-45 Vcc

U<sub>max</sub> = 60 Vcc

I<sub>n</sub> = 4-20 mA

I<sub>max</sub> = 666 mA

**Special Condition for Safe Use (X):**

1. Transmitters have an NPT cable entry thread; A certified flameproof thread adapter or cable gland must be used to maintain type of protection.

**I2 Brazil INMETRO Intrinsic Safety**

Certificate number: NCC 7013.10X

Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC

60079-11:2009, ABNT NBR IEC 60079-26:2008

Ex ia IIC T5/T6 Ga

T5 (-60 °C ≤ T<sub>amb</sub> ≤ 80 °C);

T6 (-60 °C ≤ T<sub>amb</sub> ≤ 40 °C)

Input Parameters:

U<sub>i</sub> = 60 V

I<sub>i</sub> = 200 mA

P<sub>i</sub> = 2.4 W

L<sub>i</sub> = 0

C<sub>i</sub> = 0



**Special Condition for Safe Use (X):**

1. The enclosure is made of aluminum and finished with a protective paint finish; care should be taken to protect it from impact or abrasion when installed in a zone 0 environment.

**K2** INMETRO: Flameproof; Intrinsic Safety

Combination of E2 and I2

**Chinese approvals****E3** China (NEPSI) Flameproof

Certificate Number: GY071011

Standards: GB3836.1-2000, GB3836.2-2000

Ex ia IIC T5/T6 (except acetylene)

Ex ia IIC T5/T6

T6 ( $-20\text{ °C} \leq T_{\text{amb}} \leq 60\text{ °C}$ )

**Special Condition for Safe Use (X):**

1. Transmitters have an NPT cable entry thread; A certified flameproof thread adapter or cable gland must be used to maintain type of protection. Contact manufacturer for flame path dimensions. The earth connection should be connected reliably.

**I3** China (NEPSI) Intrinsic Safety

Certificate number: GY091234X

Standards: GB3836.1-2000, GB3836.4-2000

Ex ia IIC T5/T6

T5 ( $-60\text{ °C} \leq T_{\text{amb}} \leq 80\text{ °C}$ );

T6 ( $-60\text{ °C} \leq T_{\text{amb}} \leq 70\text{ °C}$ )

Input Parameters:

$U_i = 60\text{ V}$

$I_i = 200\text{ mA}$

$C_i = 0$

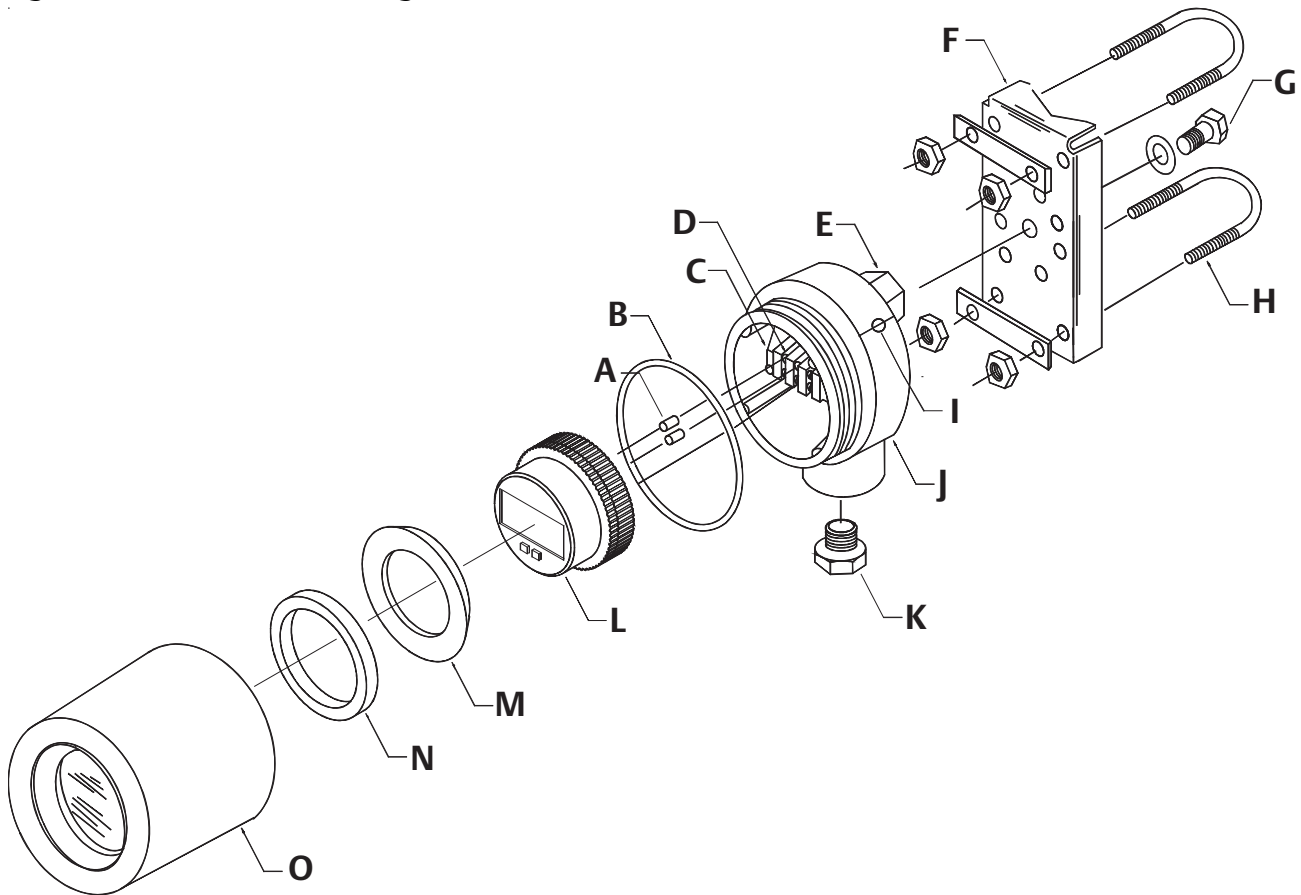
$L_i = 0$

**Special Condition for Safe Use (X):**

1. The transmitter must be installed to minimize the risk of impact or friction with other metal surfaces.

# Dimensional Drawings

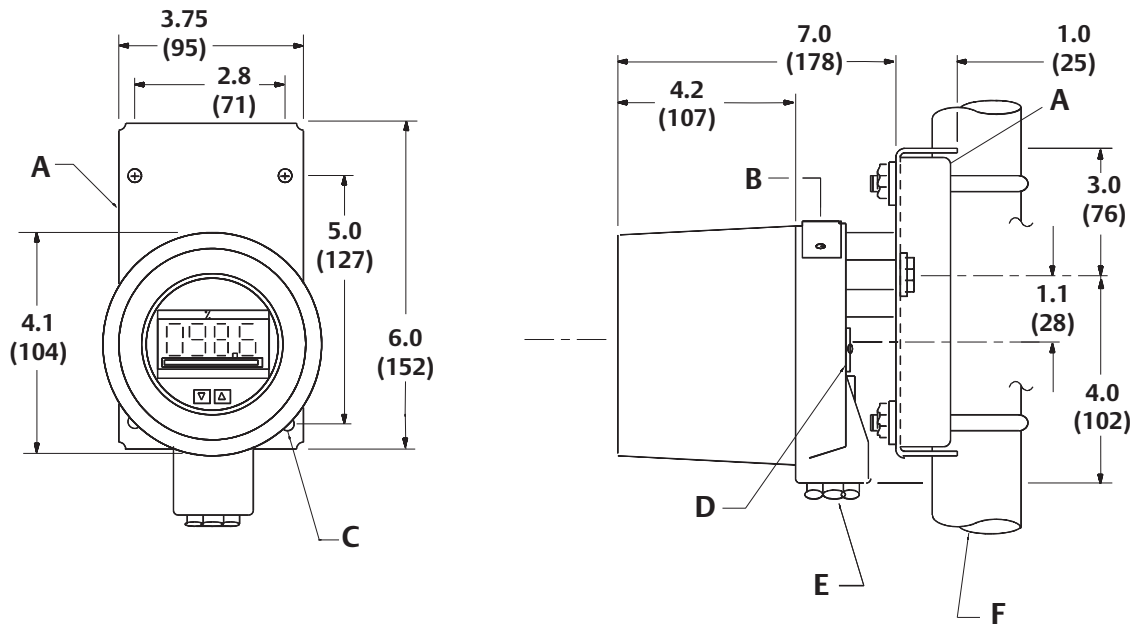
Figure 1. Rosemount 751 Field Signal Indicator



- A. Terminal Screws
- B. Housing O-Ring
- C. Field Wiring Terminals
- D. Loop Protection Diode
- E. Mounting Boss (tapped)
- F. Mounting Bracket (optional)
- G. Mounting Bolt with Washer
- H. U-Bolt for 2-In. Pipe

- I. Cover Clamp
- J. Housing
- K. Optional 3/4- to 1/2-In. Conduit Reducing Bushing (if required)
- L. Meter
- M. Cover Bushing
- N. Cover Foam Spacer
- O. Housing Cover

Figure 2. Rosemount 751 Dimensional Drawing



Dimensions are in inches (millimeters).

- A. Optional Mounting Bracket
- B. Permanent Tag
- C. 0.37 (9.4) Diameter Holes (typically four places)

- D. FM or CSA Tag (if required)
- E. 3/4-14 NPT Conduit Connection
- F. 2-in. Pipe

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