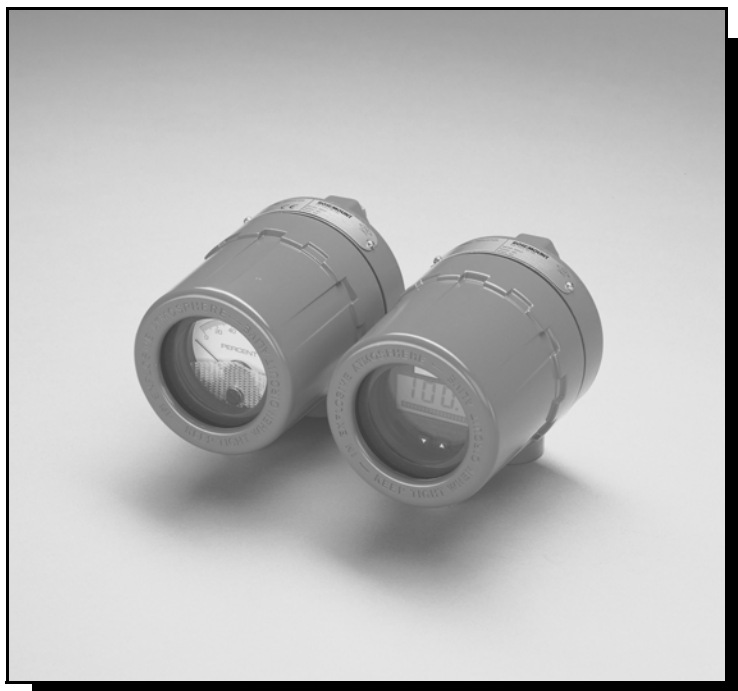


Rosemount 751 Field Signal Indicator



Rosemount 751 Field Signal Indicator

NOTICE

Read this manual before working with the product. For personal and system safety, and for optimum product performance, make sure you thoroughly understand the contents before installing, using, or maintaining this product.

Within the United States, Rosemount Inc. has two toll-free assistance numbers:

Customer Central

Technical support, quoting, and order-related questions.

1-800-999-9307 (7:00 am to 7:00 pm CST)

North American Response Center

Equipment service needs.

1-800-654-7768 (24 hours—includes Canada)

Outside of the United States, contact your local Emerson Process Management representative.

⚠ CAUTION

The products described in this document are NOT designed for nuclear-qualified applications. Using non-nuclear qualified products in applications that require nuclear-qualified hardware or products may cause inaccurate readings.

For information on Rosemount nuclear-qualified products, contact your local Emerson Process Management Sales Representative.

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Section 1 Introduction

LCD Meter	page 1-1
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Product Recycling/Disposal	page 1-2

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.

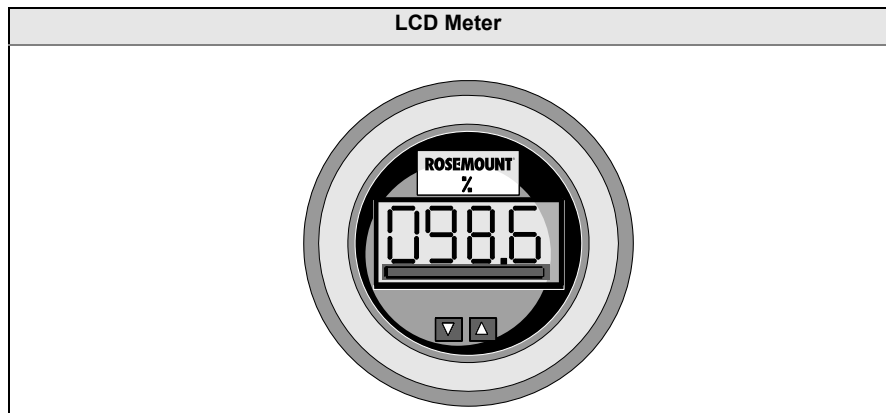
Rosemount 751 Indicators are designed for use in industrial environments where all-weather performance is necessary. These units are vibration- and corrosion-resistant, and explosion-proof or intrinsically safe. An LCD meter or analog meter may be ordered to meet specific application requirements.

LCD METER

The LCD meter requires an analog 4–20 mA dc output from a two-wire transmitter. It may be configured from a 4 mA point of –999 to 1000 and a 20 mA point of -999 to 9999. The sum of the 4 mA point and the span must not exceed 9999. The decimal point can be placed in any of three positions (X.X.X.X) or not used. Calibration adjustments are made using noninteractive zero and span buttons. The scaled meter may be labelled with the appropriate engineering units. A twenty-segment bar graph, on the bottom of the meter faceplate, represents the 4–20 mA signal directly.

The large 2¼-inch meter face has ½-inch-high characters for easy readability as shown in Figure 1-1. The 4 and 20 mA points may be changed by pressing the buttons on the meter faceplate. The meter can be rotated in 90-degree increments within the enclosure for convenient viewing.

Figure 1-1. LCD Meter

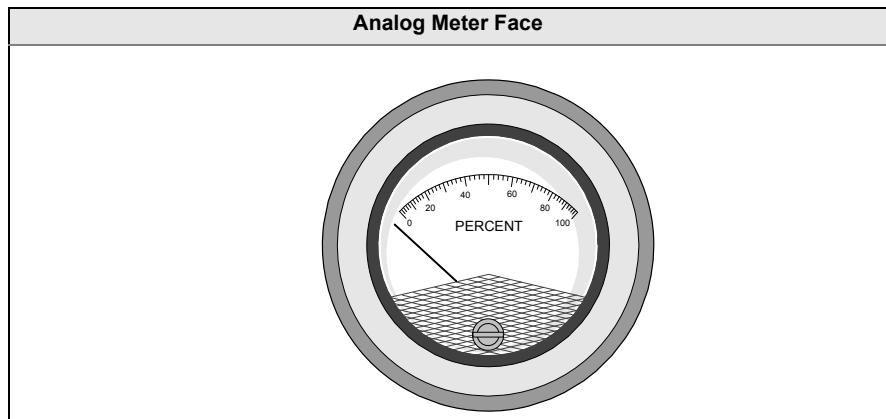


ANALOG METER

The analog meter requires an analog 4–20 mA dc, 10–50 mA dc, or 40–200 mV dc transmitter output from a two-wire transmitter. Several meter calibration options are available to suit the requirements of a particular application. Linear 0 to 100 percent meter scaling is adequate for the majority of applications. A logarithmic 0 to 100 percent scale is available for use with flow transmitters. 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 2¹/₄-inch diameter meter face has a two-inch long scale for easy readability as shown in Figure 1-2. A meter-zero adjustment is located on the meter faceplate. The meter can be rotated in 90° increments within the enclosure for convenient viewing.

Figure 1-2. Analog Meter



SERVICE SUPPORT

To expedite the return process outside of the United States, contact the nearest Emerson Process Management representative.

Within the United States, call the Emerson Process Management Instrument and Valves Response Center using the 1-800-654-RSMT (7768) toll-free number. This center, available 24 hours a day, will assist you with any needed information or materials.

The center will ask for product model and serial numbers, and will provide a Return Material Authorization (RMA) number. The center will also ask for the process material to which the product was last exposed.

⚠ CAUTION

Individuals who handle products exposed to a hazardous substance can avoid injury if they are informed of and understand the hazard. If the product being returned was exposed to a hazardous substance as defined by OSHA, a copy of the required Material Safety Data Sheet (MSDS) for each hazardous substance identified must be included with the returned goods.

Emerson Process Management Instrument and Valves Response Center representatives will explain the additional information and procedures necessary to return goods exposed to hazardous substances.

PRODUCT RECYCLING/DISPOSAL

Recycling of equipment and packaging should be taken into consideration and disposed of in accordance with local and national legislation/regulations.

Section 2 Installation

Assembly	page 2-1
Wiring Diagrams	page 2-3
LCD Meter Configuration	page 2-5

ASSEMBLY

The Rosemount 751 Field Signal Indicator is comprised of the components shown in Figure 2-1. The housing may contain an analog or LCD meter. Both meters are independent of component parts and are completely interchangeable. Both meters plug into the terminal screws on the housing, as shown in Figure 2-1.

The meter subassembly contains the components shown in Figure 2-2.

Figure 2-1. Rosemount 751 Exploded View

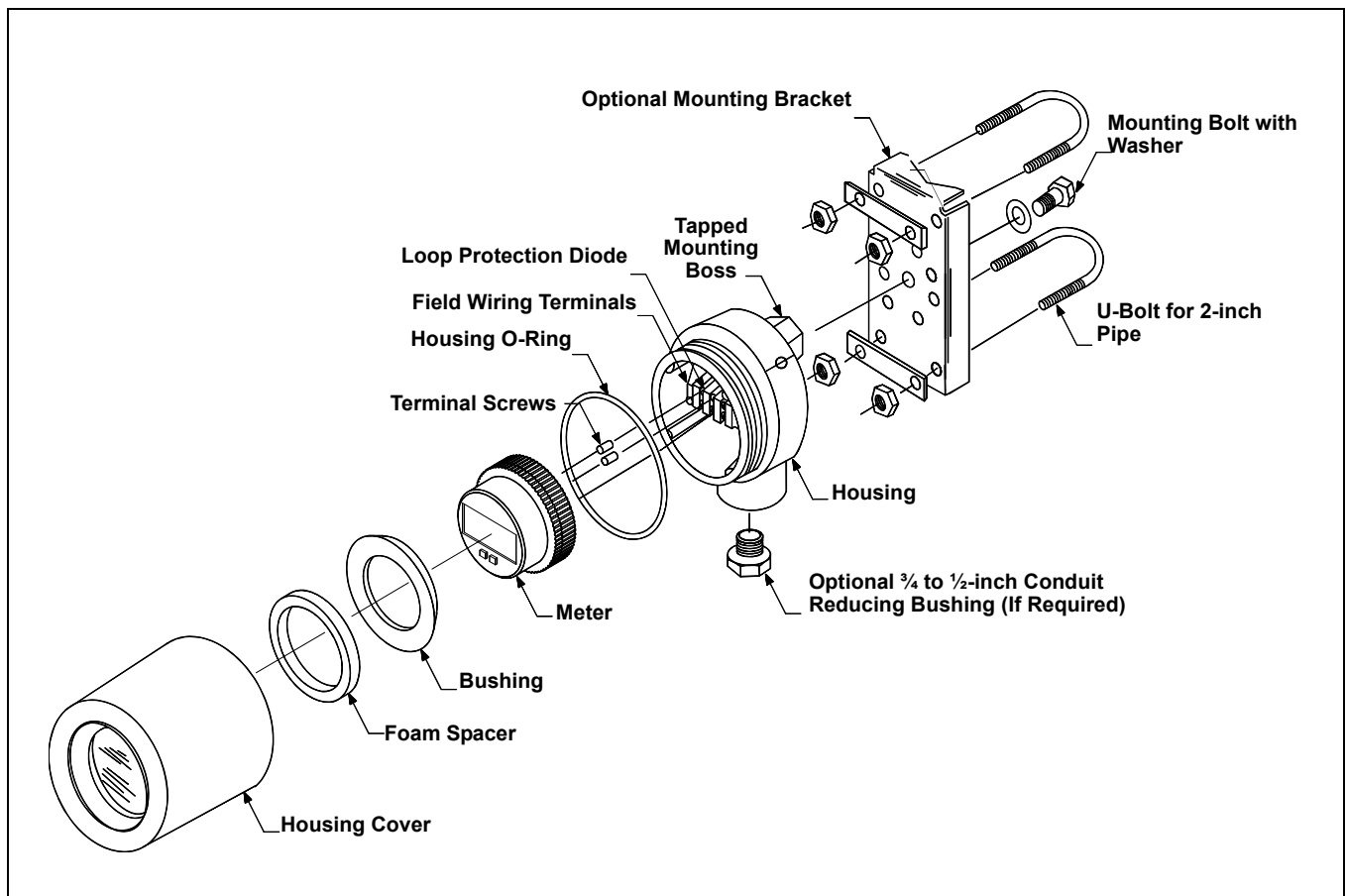
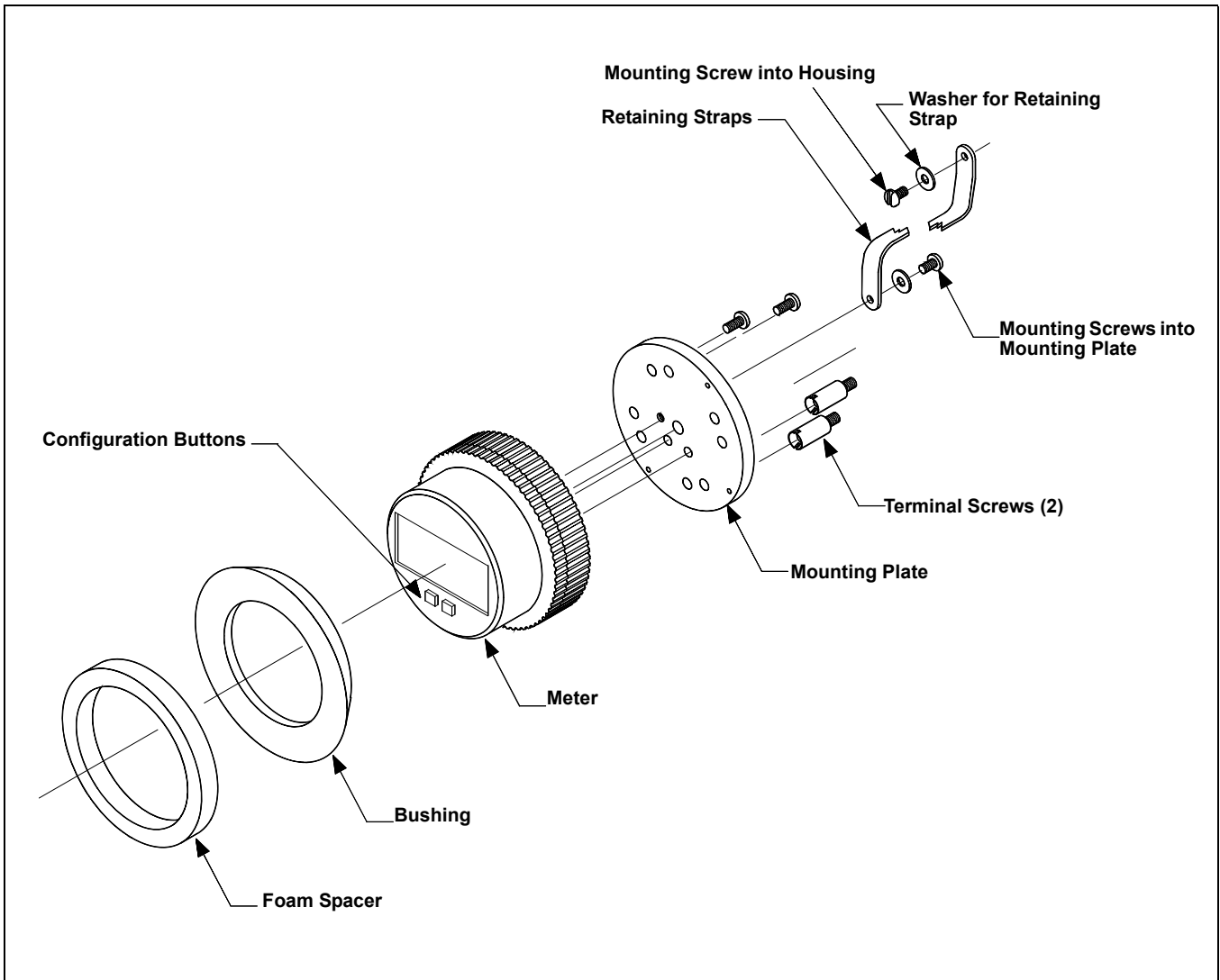


Figure 2-2. Meter Exploded View

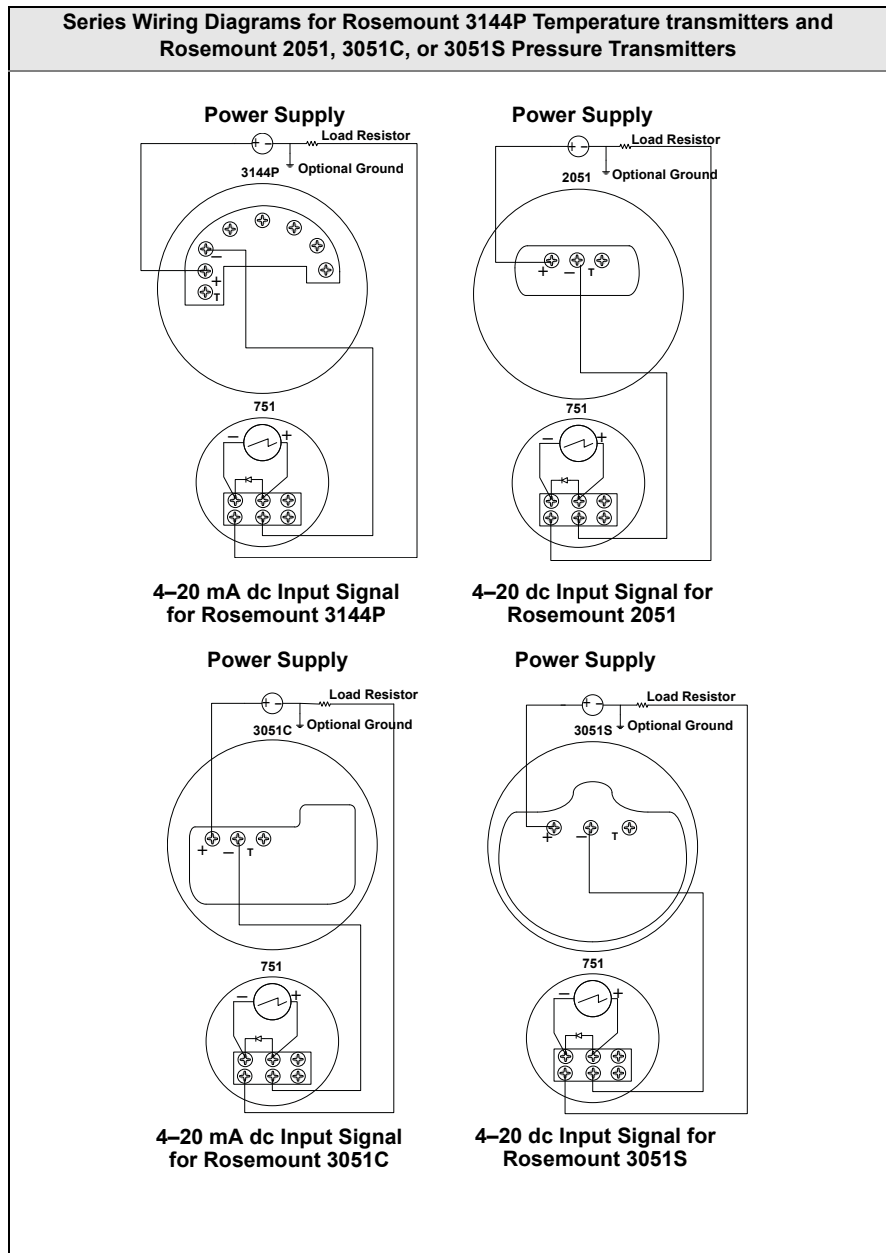


WIRING DIAGRAMS

Use the following wiring diagrams to wire the Rosemount 751 Field Signal Indicator, in series or in parallel, with Rosemount transmitters. Use shielded cable for best results in electrically noisy environments.

It is recommended that the 751 indicator be wired in a series configuration when the 4-20 mA transmitter does not contain a test terminal. The 751 is designed so the analog or LCD meter can be removed from the housing without impacting the integrity of the 4-20 mA loop. Removal of the entire 751 device from the series configuration will disrupt the loop.

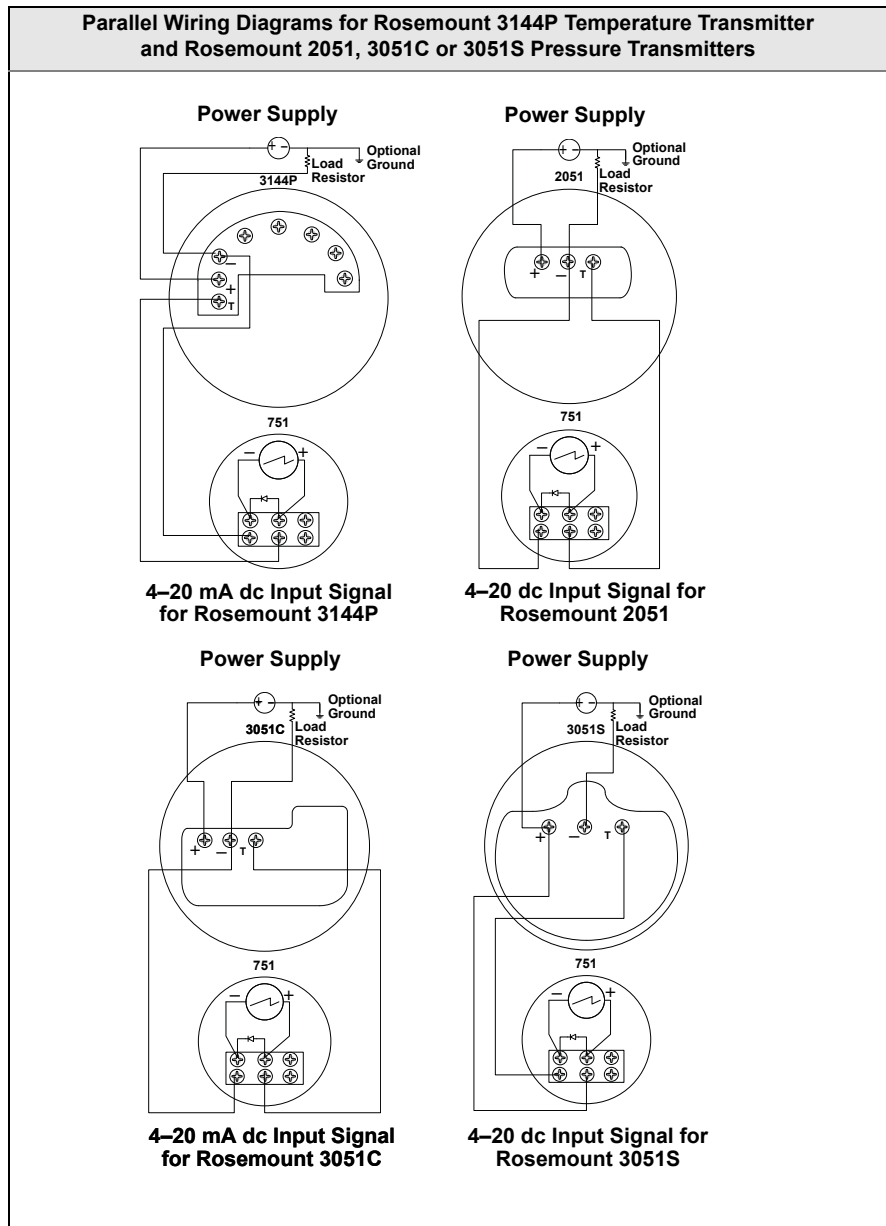
Figure 2-3. Rosemount 751 Series Wiring Diagrams



It is recommended that the 751 indicator be wired in a parallel configuration when the 4-20 mA transmitter includes a test terminal. Utilization of the test terminal is required in a parallel configuration. Connecting the 751 indicator across the positive and negative terminals of the 4-20 mA transmitter could impact the loop.

A parallel configuration will allow the removal of the 751 indicator without affecting the integrity of the 4-20 mA loop. Additionally, spare 751 indicators can be added without disrupting the loop.

Figure 2-4. Rosemount 751 Parallel Wiring Diagrams



**LCD METER
 CONFIGURATION**

The 20-segment bar graph is factory calibrated and represents 4–20 mA directly, but the end points of the LCD meter are user-definable. The meter requires a current between 4 and 20 mA in order to be scaled, but the actual value of the current is not significant.

Remove the Cover

⚠ WARNING
Explosions can result in death or serious injury. Do not remove the instrument cover in explosive environments when the circuit is alive.

1. Unscrew and remove the transparent housing cover from the LCD meter body.

NOTE

The LCD meter time-out is approximately 16 seconds. If you do not press the configuration buttons within 16 seconds, the indicator will revert to reading the current signal.

**Position the Decimal
 Point and Select the
 Meter Function**

2. Press the left and right configuration buttons simultaneously and release them immediately.
3. To move the decimal point to the desired location, press the left configuration button. Note that the decimal point wraps around.
4. To scroll through the mode options, press the right configuration button repeatedly until the meter displays the desired mode (See Table 2-1).

Table 2-1. LCD Meter Mode Options

Options	Relationship between Input Signal and Digital Display
L in	Linear
LinF	Linear with five-second filter
Srt	Square root
SrtF	Square root with five-second filter
<p>Square root function only relates to the digital display. The bar graph output remains linear with the current signal.</p> <p>Square root response The digital display will be proportional to the square root of the input current where 4 mA = 0 and 20 mA = 1.0, scaled per the calibration procedure. The transition point from linear to square root is at 25 percent of full scale flow.</p> <p>Filter response operates upon “present input” and “input received in the previous five second interval” in the following manner: $Display = (0.75 \times \text{previous input}) + (0.25 \times \text{present input})$ This relationship is maintained provided that the previous reading minus the present reading is less than 25 percent of full scale.</p>	

Rosemount 751

Store the Information

5. Press both configuration buttons simultaneously for two seconds. Note that the meter displays “- -” for approximately 7.5 seconds while the information is being stored.

Set the Display Equivalent to a 4 mA Signal

6. Press the left configuration button for two seconds.
7. To decrease the display numbers, press the left configuration button. To increase the numbers, press the right configuration button. Set the numbers between -999 and 1000.
8. To store the information, simultaneously press both configuration buttons for two seconds.

Set the Display Equivalent to a 20 mA Signal

9. Press the right configuration button for two seconds.
10. To decrease the display numbers, press the left configuration button. To increase the numbers, press the right configuration button. Set the numbers between -999 and 9999. The sum of the 4 mA point and the span must not exceed 9999.
11. To store the information, simultaneously press both configuration buttons for two seconds. The LCD meter is now configured.

Replace the Cover

12. Make sure the rubber gasket is seated properly, and thread the transparent housing cover onto the LCD meter body.

Appendix A Reference Data

Housing Specifications	page A-1
LCD Meter Specifications	page A-2
Analog Meter Specifications	page A-3
Dimensional Drawings	page A-5
Ordering Information	page A-6

HOUSING SPECIFICATIONS

Physical Specifications

Materials of Construction

Enclosure

Low-copper aluminum

Paint

Polyurethane

O-rings

Buna N

Meter Mounting Materials

Noryl® plastic

Electrical Connections

3-pole terminal block with 8–32 nickel-plated brass screw terminals, with 3/4–14 NPT conduit. (Stainless steel 3/4- to 1/2-inch 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 kg (5 lb)

LCD METER SPECIFICATIONS

Functional Specifications

Input Signal

4–20 mA dc

Display

4 mA Point Limits

–999 to 1000

20 mA Point Limits

–999 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 158 °F)⁽¹⁾

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

Humidity Limitation

0 to 95% 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% of calibrated range \pm 1 digit

Analog Bar Graph Resolution

0.5% of calibrated range

Indication Accuracy

0.25% of calibrated range \pm 1 digit

Stability

0.1% calibrated range \pm 1 digit per six months

Temperature Effect

0.01% of calibrated range per °C on zero

0.02% 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 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% of full scale value or 9999, whichever is less

Physical Specification

Meter Size

2¹/₄-inch diameter face with four ¹/₂-inch high characters

ANALOG METER SPECIFICATIONS

Functional Specifications

Input Signal

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

NOTE:

Maximum series resistance is ten ohms for ammeters.

Meter Indication

0 to 100% linear scale

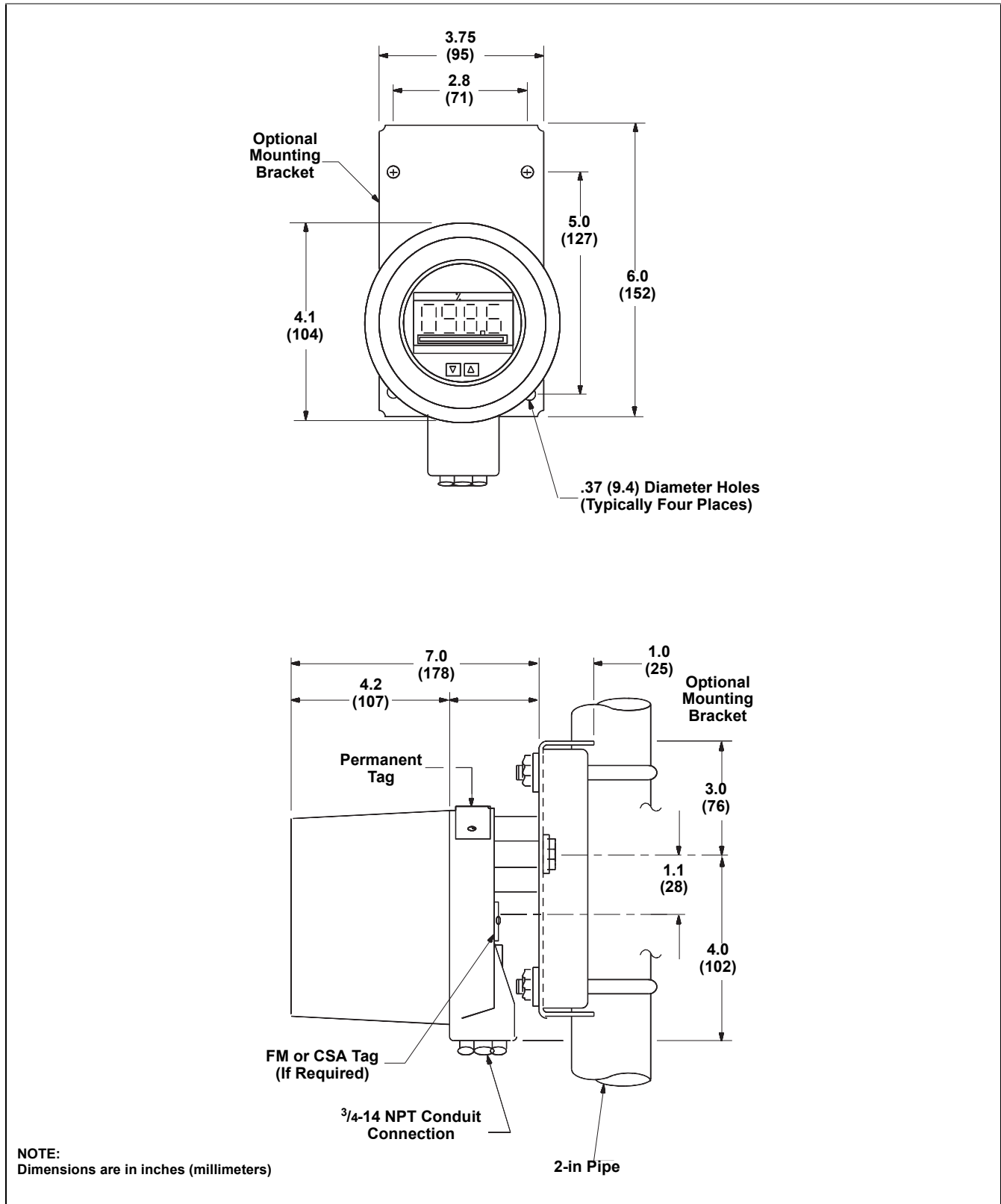
0 to 100% flow scale

Special optional ranges

	Overload Limitation 150% of rated end scale value for two minutes
	Temperature Limits -40 to 65 °C (-40 to 150 °F)
	Humidity Limits 0 to 100% relative humidity
	Zero Adjustment Adjustment screw on face of meter
Performance Specifications	Indication Accuracy ±2% of calibrated span
	Temperature Effect Less than 2% of full scale at any point within the temperature limits
Physical Specification	Meter Size 2 ¹ / ₄ -inch diameter face with 2-inch long scale

DIMENSIONAL DRAWINGS

Figure 1. Dimensional Drawing



Rosemount 751

ORDERING INFORMATION

Model	Product Description
751	Remote Signal Indicator
Input Signal	
A	4–20 mA dc
B	10–50 mA dc (Not Available with LCD Meter)
C	40–200 mV dc (Not Available with LCD Meter)
Meter Scale	
M1	Linear Analog Meter, 0–100% Scale
M2	Square Root Analog Meter, 0–100% Flow
M6	Square Root Analog Meter, 0–10 $\sqrt{\quad}$
M4 ⁽¹⁾	Linear LCD Meter, 0–100% Scale
M7 ⁽¹⁾	Special Scale LCD Meter (specify range, mode, and engineering units)
M8 ⁽¹⁾	Square Root LCD Meter, 0–100% Flow
M9 ⁽¹⁾	Square Root LCD Meter, 0–10 $\sqrt{\quad}$
Product Certificates	
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
Options	
Mounting Bracket	
B	Mounting Bracket for Flat Surface or 2-inch Pipe
Reducer	
C	Stainless Steel Reducer 3/4- to 1/2-in. for Conduit Connection (See Figure 1 for reference.)
Bar Code Tag	
BT	Customer Specified Barcode Tag
Typical Model Number: 751 A M1 NA BC	

(1) May be reconfigured in the field.

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 1/16 in. (1.6 mm). A wired-on tag is available upon request.

Appendix B Approvals

Rosemount 751 Product Certifications	page B-1
Hazardous Locations Certifications	page B-1

ROSEMOUNT 751 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.

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

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 CONDITIONS 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 1, Groups C and D;
Class II, Division 1, Groups E, F, and G; Dust-Ignition Proof for Class III, Division 1; Suitable 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, C22.2 No. 142-M1987
Class I, Division 1, Groups A, B, C, and D
CSA enclosure type 4X.

SPECIAL CONDITIONS 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: 2009, IEC 60079-1:2007
Ex d IIC T5/T6 Gb
 $T5 (-20 \text{ }^\circ\text{C} \leq T_{amb} \leq 70 \text{ }^\circ\text{C})$
 $T6 (-20 \text{ }^\circ\text{C} \leq T_{amb} \leq 40 \text{ }^\circ\text{C})$
IP 66
 $V_{max} = 60 \text{ V}$

SPECIAL CONDITIONS FOR SAFE USE (X):

Transmitters have an NPT cable entry thread; A certified flameproof thread adaptor 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_{amb} ≤ 80 °C)
T6 (-60 °C ≤ T_{amb} ≤ 40 °C)
IP66
Entity Parameters:
U_i = 60 V
I_i = 200 mA
L_i = 0
C_i = 0
-

SPECIAL CONDITIONS FOR SAFE USE (X):

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 II2 G Ex d IIC T5/T6 Gb
T5 (-20 °C ≤ T_{amb} ≤ 70 °C)
T6 (-20 °C ≤ T_{amb} ≤ 40 °C)
IP66
V_{max} = 60 V
-

SPECIAL CONDITIONS FOR SAFE USE (X):

Transmitters have an NPT cable entry thread; A certified flameproof thread adaptor 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 1G Ex ia IIC T5/T6 Ga
T5 (-60 °C ≤ T_{amb} ≤ 80 °C)
T6 (-60 °C ≤ T_{amb} ≤ 40 °C)
IP66
Input Parameters:
U_i = 60 V
I_i = 200 mA
L_i = 0
C_i = 0

SPECIAL CONDITIONS FOR SAFE USE (X)

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 II3G Ex na II T6 Gc
T6 Gc ($-40\text{ }^{\circ}\text{C} \leq T_{\text{amb}} \leq 70\text{ }^{\circ}\text{C}$)
IP66
Rated Voltage = 5 V

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:
 $U_n = 12-45\text{ Vcc}$
 $U_{\text{max}} = 60\text{ Vcc}$
 $I_n = 4-20\text{ mA}$
 $I_{\text{max}} = 666\text{ mA}$

SPECIAL CONDITIONS FOR SAFE USE (X):

Transmitters have an NPT cable entry thread; A certified flameproof thread adaptor 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
T5 ($-60\text{ }^{\circ}\text{C} \leq T_{\text{amb}} \leq 80\text{ }^{\circ}\text{C}$);
T6 ($-60\text{ }^{\circ}\text{C} \leq T_{\text{amb}} \leq 40\text{ }^{\circ}\text{C}$)
Input Parameters:
 $U_i = 60\text{ V}$
 $I_i = 200\text{ mA}$
 $P_i = 2.4\text{ W}$
 $L_i = 0$
 $C_i = 0$

SPECIAL CONDITIONS FOR SAFE USE (X):

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

SPECIAL CONDITIONS FOR SAFE USE (X):

Transmitters have an NPT cable entry thread; A certified flameproof thread adaptor 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 CONDITIONS FOR SAFE USE (X):

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

Appendix C Approval Drawings

This section contains the following drawings:

- Rosemount Drawing 00751-0068, Rev. A, 2 sheets: Rosemount 751 CSA Intrinsic Safety Approval Configuration Installation.
- Rosemount Drawing 01151-0214, Rev. V, 6 sheets: Index of Intrinsically Safe Barrier Systems and Entity Parameters for 444, 1135, 1144, 1151, and 3051 Transmitters and 751 Field Signal Indicators.

You must follow the installation guidelines presented by these drawings in order to maintain certified ratings for installed instruments.

<p style="font-size: small;">PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY BY DATE</p>	REVISIONS										
<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th style="width: 10%;">REV</th> <th style="width: 55%;">DESCRIPTION</th> <th style="width: 15%;">CHG. NO.</th> <th style="width: 10%;">APP'D</th> <th style="width: 10%;">DATE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A</td> <td>NEW RELEASE</td> <td style="text-align: center;">663712</td> <td style="text-align: center;">J.D.J.</td> <td style="text-align: center;">01/06/95</td> </tr> </tbody> </table>	REV	DESCRIPTION	CHG. NO.	APP'D	DATE	A	NEW RELEASE	663712	J.D.J.	01/06/95	
REV	DESCRIPTION	CHG. NO.	APP'D	DATE							
A	NEW RELEASE	663712	J.D.J.	01/06/95							

TO ASSURE AN INTRINSICALLY SAFE SYSTEM, THE TRANSMITTER AND BARRIER MUST BE WIRED IN ACCORDANCE WITH THE BARRIER MANUFACTURER'S FIELD WIRING INSTRUCTIONS. THE DIAGRAMS SHOWN ARE EXAMPLES OF INTRINSICALLY SAFE INSTALLATIONS USING A ROSEMOUNT MODEL 751 FIELD INDICATOR WITH SOME COMMON ROSEMOUNT TRANSMITTERS. THE ROSEMOUNT MODEL 751 CAN BE USED WITH OTHER INTRINSICALLY SAFE TRANSMITTERS NOT SHOWN HERE.

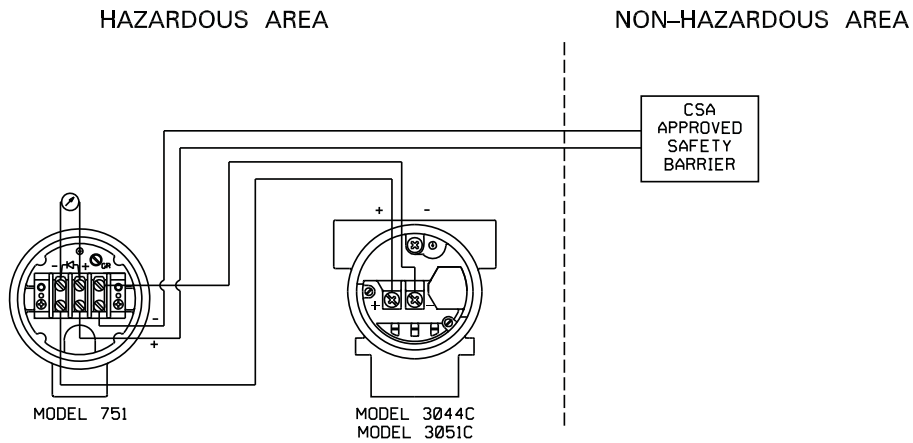
HAZARDOUS AREA

NON-HAZARDOUS AREA

THIS DRAWING WAS CREATED ON CAD. DRAWING IS ARCHIVED ON MAGNETIC TAPE FOR ECO CHANGES.

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES. REMOVE ALL BURRS AND SHARP EDGES, MACHINE SURFACE FINISH 125</p> <p style="text-align: center;">- TOLERANCES -</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">DECIMALS</td> <td style="width: 50%;">FRACTIONS</td> </tr> <tr> <td>.X ± .1</td> <td>± 1/32</td> </tr> <tr> <td>.XX ± .02</td> <td>ANGLES</td> </tr> <tr> <td>.XXX ± .010</td> <td>± 2°</td> </tr> </table> <p>DO NOT SCALE PRINT</p>	DECIMALS	FRACTIONS	.X ± .1	± 1/32	.XX ± .02	ANGLES	.XXX ± .010	± 2°	<p>CONTRACT NO.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DR. D. BROKKE</td> <td style="width: 50%;">11/23/94</td> </tr> <tr> <td>CHK'D</td> <td></td> </tr> <tr> <td>APP'D.</td> <td></td> </tr> <tr> <td>APP'D. GOVT.</td> <td></td> </tr> </table>	DR. D. BROKKE	11/23/94	CHK'D		APP'D.		APP'D. GOVT.		<p style="font-size: large; font-weight: bold; margin-bottom: 5px;">ROSEMOUNT®</p> <p style="font-size: x-small; margin-bottom: 5px;">Measurement Control Analytical Valves</p> <p style="font-size: x-small; margin-bottom: 5px;">Rosemount Inc. 12001 Technology Drive Eden Prairie, MN 55344 USA</p> <p style="text-align: center; font-weight: bold; font-size: large;">TITLE</p> <p style="text-align: center; font-weight: bold; font-size: large;">INSTALLATION DRAWING 751 CSA INTRINSIC SAFETY APPROVAL CONFIGURATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">SIZE</td> <td style="width: 25%;">FSCM NO</td> <td style="width: 25%;">DWG NO.</td> <td style="width: 25%;"></td> </tr> <tr> <td style="text-align: center;">A</td> <td></td> <td style="text-align: center; font-size: large;">00751-0068</td> <td></td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">SCALE</td> <td style="width: 25%;">N/A</td> <td style="width: 25%;">WT.</td> <td style="width: 25%;">SHEET 1 OF 2</td> </tr> </table>	SIZE	FSCM NO	DWG NO.		A		00751-0068		SCALE	N/A	WT.	SHEET 1 OF 2
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SCALE	N/A	WT.	SHEET 1 OF 2																											

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
A		663712		



WARNING - EXPLOSION HAZARD
 DO NOT DISCONNECT EQUIPMENT UNLESS
 POWER HAS BEEN SWITCHED OFF OR THE
 AREA IS KNOWN TO BE NON-HAZARDOUS.

AVERTISSEMENT - RISQUE D'EXPLOSION
 AVANT DE DÉCONNECTER L'ÉQUIPEMENT,
 COUPER LE COURANT OU S'ASSURER QUE
 L'EMPLACEMENT EST DÉSIGNÉ NON-DANGEREUX.

INTRINSICALLY SAFE/SECURITE INTRINSEQUE		
DEVICE	PARAMETERS	APPROVED FOR CLASS I, DIV. 1
CSA APPROVED SAFETY BARRIER	30 V OR LESS 330 OHMS OR MORE 28 V OR LESS 300 OHMS OR MORE 25 V OR LESS 200 OHMS OR MORE 22V OR LESS 180 OHMS OR MORE	GROUPS A, B, C, & D
CSA APPROVED SAFETY BARRIER	30 V OR LESS 150 OHMS OR MORE	GROUPS C, & D

Rosemount Inc.
 1200 Technology Drive
 Eden Prairie, MN 55344 USA

THIS DRAWING WAS CREATED ON CAD. DRAWING IS
 ARCHIVED ON MAGNETIC TAPE FOR ECO CHANGES.

DR. D. BROKKE	SIZE A	FSCM NO.	DWG NO. 00751-0068
ISSUED	SCALE N/A	WT. ———	SHEET 2 OF 2

REVISIONS					
LTR	DESCRIPTION	ECO NO	REV BY	APPR	DATE
P	Change entity parameters (Fm on re-exam) correct 444 CI	637376	WCR	WCR	9/24/90
R	Add 1151 Low Power Barrier System, Model 751 LI to 0	638105		WCR	11/27/90
T	1135, 1144, 1151 Li TO ϕ	639039	SVC	WCR	1/23/91
U	1151 Li TO 20; Ci .01 AND .034	651426	SVC	WCR	12/11/92
V	751 Li TO ϕ	662242		QSE	11/17/94

CONTENTS	
ENTITY APPROVALS	SHEETS 2 THRU 4
APPROVED PARAMETERS	SHEETS 2 THRU 3
CONNECTION DIAGRAMS	SHEET 4

MASTER

APPROVED SOURCES OF SUPPLY	
MFG	MFG PART NO

Material purchased to this Rosemount Specification Control Drawing shall be required to meet all the specifications of this drawing. Any mention of manufacturer's part number within this drawing is for reference only. This is necessary to ensure design control of Rosemount's end product. It is Rosemount's intent to purchase your standard material whenever possible.

SPECIFICATION CONTROL DRAWING

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES: DECIMALS FRACTIONS .X ± .1 ± 1/32 .XX ± .02 ANGLES .XXX ± .010 ± 2°	PREPARED BY: <i>Nancy Nix</i>	DATE: 9/28/90	ROSEMOUNT [®] Measurement Control Analytical Valves		
	CHECKED BY: <i>WCR</i>				
	APPROVED BY Q.C. _____	TITLE INDEX OF INTRINSICALLY SAFE BARRIER SYSTEMS & ENTITY PARAMETERS FOR 444, 1135, 1144, 1151, & 2051 TRANSMITTERS AND 751 FIELD INDICATORS			
	APPROVED BY ENG. <i>M.C. Ramot</i>	APPROVED BY PURCH. _____	SIZE A	CODE IDENT NO 04274	DRAWING NO 01151-0214
	FINAL APPROVAL ES _____	SCALE None	U/M: Each	SHEET 1 OF 2	

ENTITY CONCEPT APPROVALS

The entity concept allows interconnection of intrinsically safe apparatus to associated apparatus not specifically examined in combination as a system. The approved values of maximum open circuit voltage (V_{OC} or V_T) and maximum short circuit current (I_{SC} or I_T) for the associated apparatus must be less than or equal to the maximum safe input voltage (V_{MAX}) and input current (I_{MAX}) of the intrinsically safe apparatus. In addition, the approved maximum allowable connected capacitance (C_A) and inductance (L_A) of the associated apparatus must be greater than the maximum unprotected internal capacitance (C_I) and inductance (L_I) of the intrinsically safe apparatus. The approved entity concept parameters are as follows:

Model 444

Class I, Div. 1, Groups A and B

$V_{MAX} = 40V$
 $I_{MAX} = 165\text{ mA}$
 $C_I = 0.044\mu F$
 $L_I = 0$

V_{OC} or V_T is less than or equal to 40V
 I_{SC} or I_T is less than or equal to 165 mA
 C_A is greater than 0.0441F
 L_A is greater than 0

Class I, Div. 1, Groups C and D

$V_{MAX} = 40V$
 $I_{MAX} = 225\text{ mA}$
 $C_I = 0.044\mu F$
 $L_I = 0$

V_{OC} or V_T is less than or equal to 40V
 I_{SC} or I_T is less than or equal to 225 mA
 C_A is greater than 0.0441F
 L_A is greater than 0

Model 751

Class I, Div. 1, Groups A and B

$V_{MAX} = 40V$
 $I_{MAX} = 165\text{ mA}$
 $C_I = 0$
 $L_I = 0$

V_{OC} or V_T is less than or equal to 40V
 I_{SC} or I_T is less than or equal to 165 mA
 C_A is greater than 0
 L_A is greater than 0

Class I, Div. 1, Groups C and D

$V_{MAX} = 40V$
 $I_{MAX} = 225\text{ mA}$
 $C_I = 0$
 $L_I = 0$

V_{OC} or V_T is less than or equal to 40V
 I_{SC} or I_T is less than or equal to 225 mA
 C_A is greater than 0
 L_A is greater than 0

MASTER

Rosemount Inc. MINNEAPOLIS, MINNESOTA		SIZE A	FSCM. NO.	DRAWING NO. 01151-0214
DR.		SCALE: NONE	WT.	SHEET 2 OF 6
ISSUE				

MASTER

Model and 1151

Class I, Div. 1, Groups A and B

$V_{MAX} = 40V$
 $I_{MAX} = 165 \text{ mA}$
 $C_I(1151 \text{ Std}) = 0$
 $C_I(\text{Smart } 1151) = 0.024\mu F$
 $C_I(1151 \text{ Std w/R Option}) = 0.010\mu F$
 $C_I(1151 \text{ Smart w/R_Option}) = 0.034\mu F$
 $L_I(1151 \text{ Std}) = 0$
 $L_I(1151 \text{ w/R_Option}) = 20\mu H$

V_{OC} or V_T is less than or equal to 40V
 I_{SC} or I_T is less than or equal to 165 mA
 C_A is greater than 0
 C_A is greater than $0.024\mu F$
 C_A is greater than $0.010\mu F$
 C_A is greater than $0.034\mu F$
 L_A is greater than 0
 L_A is greater than $20\mu H$

Class I, Div. 1, Groups C and D

$V_{MAX} = 40V$
 $I_{MAX} = 225 \text{ mA}$
 $C_I(1151 \text{ Std}) = 0$
 $C_I(\text{Smart } 1151) = 0.024\mu F$
 $C_I(1151 \text{ Std w/R Option}) = 0.010\mu F$
 $C_I(1151 \text{ Smart w/R_Option}) = 0.034\mu F$
 $L_I(1151 \text{ Std}) = 0$
 $L_I(1151 \text{ w/R_Option}) = 20\mu H$

V_{OC} or V_T is less than or equal to 40V
 I_{SC} or I_T is less than or equal to 225 mA
 C_A is greater than 0
 C_A is greater than $0.024\mu F$
 C_A is greater than $0.010\mu F$
 C_A is greater than $0.034\mu F$
 L_A is greater than 0
 L_A is greater than $20\mu H$

Model 2051

Class I, Div. 1, Groups A and B

$V_{MAX} = 40V$
 $I_{MAX} = 165 \text{ mA}$
 $C_I = 0.012\mu F$
 $L_I = 480\mu H$

V_{OC} or V_T is less than or equal to 40V
 I_{SC} or I_T is less than or equal to 165 mA
 C_A is greater than $0.012\mu F$
 L_A is greater than $480\mu H$

Class I, Div. 1, Groups C and D

$V_{MAX} = 40V$
 $I_{MAX} = 225 \text{ mA}$
 $C_I = 0.012\mu F$
 $L_I = 480\mu H$

V_{OC} or V_T is less than or equal to 40V
 I_{SC} or I_T is less than or equal to 225 mA
 C_A is greater than $0.012\mu F$
 L_A is greater than $480\mu H$

Rosemount Inc. MINNEAPOLIS, MINNESOTA		SIZE A	FSCM. NO.	DRAWING NO. 01151-0214
DR.		SCALE: NONE	WT.	SHEET 3 OF 6
ISSUE				

Model 1135

Class I, Div. 1, Groups A and B

$V_{MAX} = 40V$

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

$C_I = 0.008\mu F$

$L_I = 0$

V_{OC} or V_T is less than or equal to 40V

I_{SC} or I_T is less than or equal to 165 mA

C_A is greater than 0.0081F

L_A is greater than 0

Class I, Div. 1, Groups C and D

$V_{MAX} = 40V$

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

$C_I = 0.008\mu F$

$L_I = 0$

V_{OC} or V_T is less than or equal to 40V

I_{SC} or I_T is less than or equal to 225 mA

C_A is greater than 0.0081F

L_A is greater than 0

Model 1144

Class I, Div. 1, Groups A and B

$V_{MAX} = 40V$

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

$C_I = 0$

$L_I = 0$

V_{OC} or V_T is less than or equal to 40V

I_{SC} or I_T is less than or equal to 165 mA

C_A is greater than 0

L_A is greater than 0

Class I, Div. 1, Groups C and D

$V_{MAX} = 40V$

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

$C_I = 0$

$L_I = 0$

V_{OC} or V_T is less than or equal to 40V

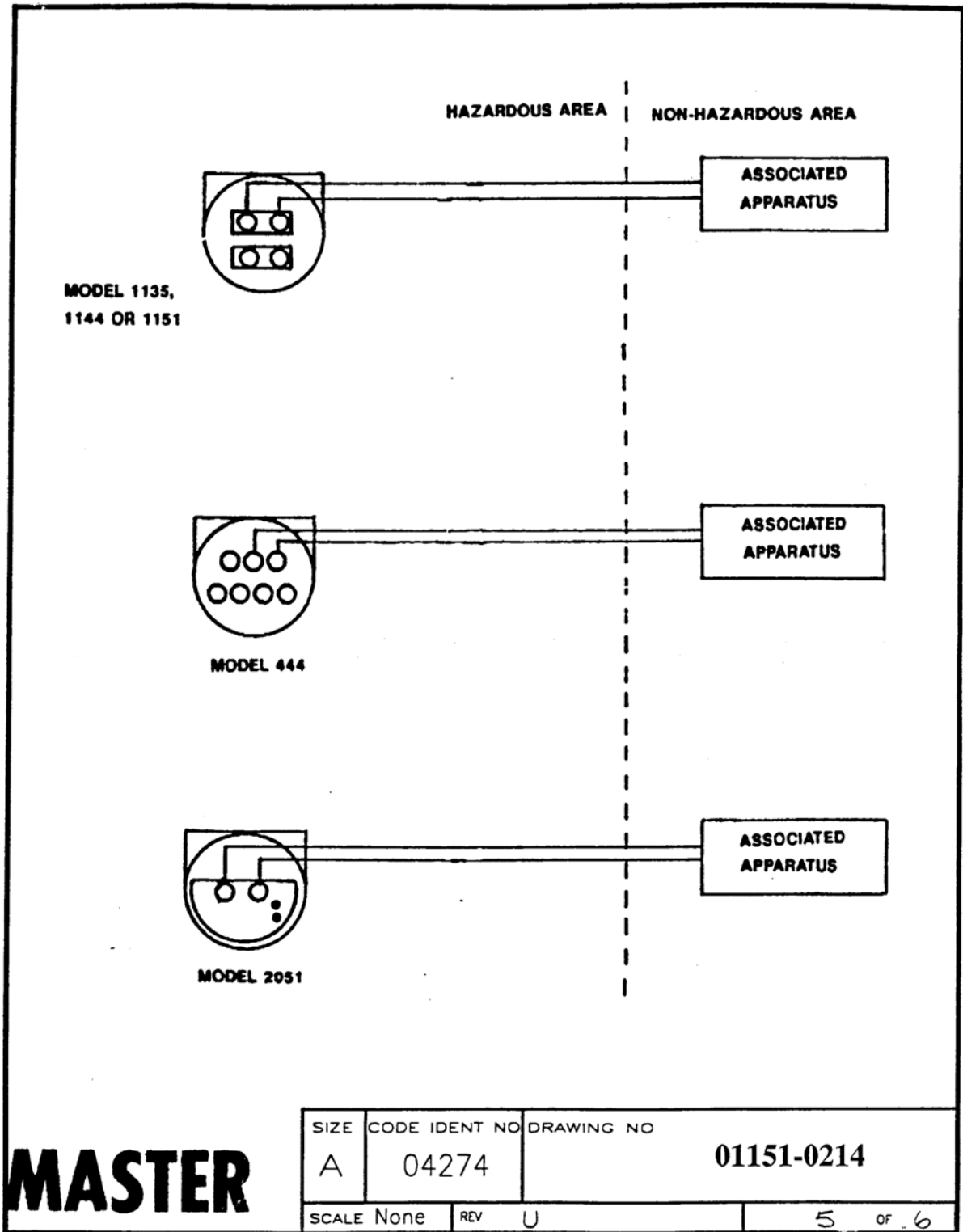
I_{SC} or I_T is less than or equal to 225 mA

C_A is greater than 0

L_A is greater than 0

MASTER

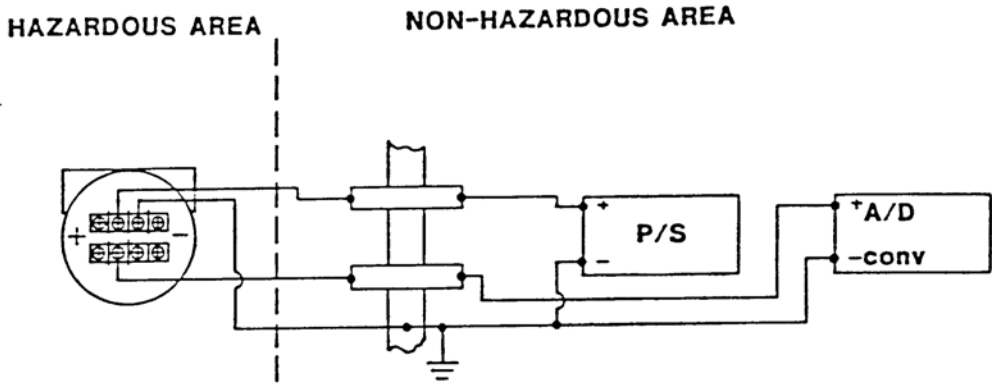
Rosemount Inc. MINNEAPOLIS, MINNESOTA		SIZE A	FSCM. NO.	DRAWING NO. 01151-0214
DR.		SCALE: NONE	WT.	SHEET 4 OF 6
ISSUE				



MASTER

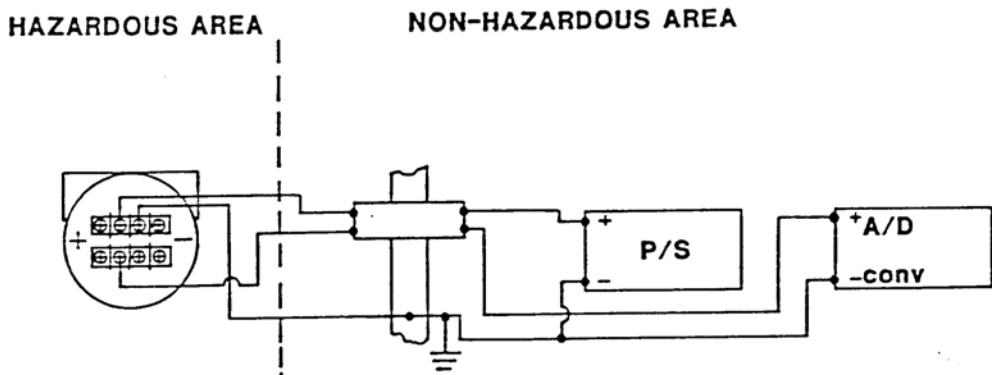
SIZE	CODE IDENT NO	DRAWING NO
A	04274	01151-0214
SCALE None	REV U	5 of 6

1151 --- L & M CIRCUIT CONNECTION WITH INTRINSIC SAFETY BARRIERS



Two Single Channel Barriers

CIRCUIT DIAGRAM 1
 (ONLY FOR USE WITH BARRIERS APPROVED IN THIS CONFIGURATION)



One Dual Channel Barrier

CIRCUIT DIAGRAM 2

MASTER

SIZE	CODE IDENT NO	DRAWING NO
A	04274	01151-0214
SCALE NONE	REV U	6 OF 6



EC Declaration of Conformity

No: RMD 1012 Rev. E

We,

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317-9685
USA

declare under our sole responsibility that the product,

Model 751 Field Signal Indicator

manufactured by,

Rosemount Inc.
12001 Technology Drive
Eden Prairie, MN 55344-3695
USA

and

8200 Market Boulevard
Chanhassen, MN 55317-9687
USA

to which this declaration relates, is in conformity with the provisions of the European Community Directives, including the latest amendments, as shown in the attached schedule.

Assumption of conformity is based on the application of the harmonized standards and, when applicable or required, a European Community notified body certification, as shown in the attached schedule.

(signature)

Vice President, Quality
(function- printed)

Timothy J. Layer
(name-printed)

March 1, 2012
(date of issue)



Schedule

EC Declaration of Conformity RMD 1012 Rev. E



EMC Directive (2004/108/EC)

Harmonized Standards: EN 61326-1:2006

ATEX Directive (94/9/EC)

Baseefa03ATEX0448X Intrinsic Safety

Equipment Group II Category 1 G; Ex ia IIC T5 or T6 Ga,
T5(-60°C ≤ Ta ≤ +80°C), T6 (-60°C ≤ Ta ≤ +40°C);
Harmonized Standards Used:
EN60079-0:2009; EN60079-11:2007

Baseefa03ATEX0454X Type n

Equipment Group II Category 3 G; Ex nA IIC Gc T6 (-40°C ≤ Ta ≤ +70°C);
Harmonized Standards Used:
EN60079-0:2009; EN60079-15:2010

DEKRA11ATEX0240X Flameproof

Equipment Group II Category 2 G; Ex d IIC T5 or T6 Gb,
T5(-20°C ≤ Ta ≤ +70°C), T6(-20°C ≤ Ta ≤ +40°C)
Harmonized Standards Used:
EN60079-0:2009; EN60079-1:2007



ROSEMOUNT

Schedule

EC Declaration of Conformity RMD 1012 Rev. E



ATEX Notified Bodies for EC Type Examination Certificate

DEKRA Certification B.V.
[Notified Body Number: 0344]
Utrechtseweg 310, 6812 AR
Arnhem, The Netherlands

Baseefa. [Notified Body Number: 1180]
Rockhead Business Park
Staden Lane
Buxton, Derbyshire
SK17 9RZ United Kingdom

ATEX Notified Body for Quality Assurance

Baseefa. [Notified Body Number: 1180]
Rockhead Business Park
Staden Lane
Buxton, Derbyshire
SK17 9RZ United Kingdom



Reference Manual

00809-0100-4378, Rev CC

April 2012

Rosemount 751

Standard Terms and Conditions of Sale can be found at www.rosemount.com/terms_of_sale

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Emerson Process Management

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