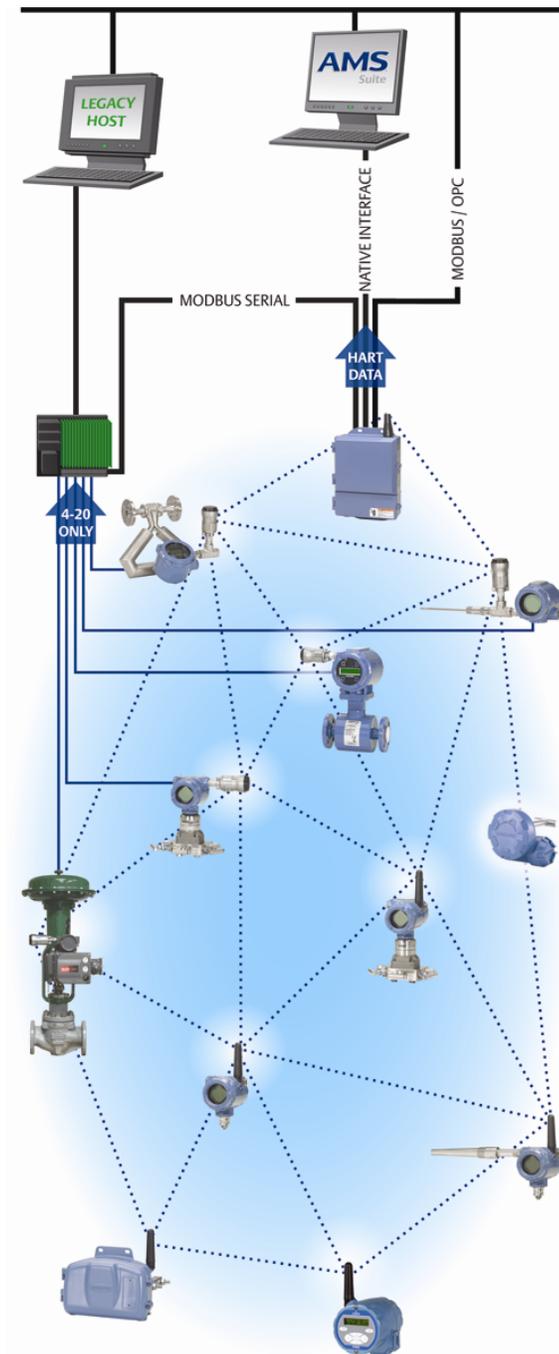


Rosemount 702 Wireless Discrete Transmitter



- An installation-ready solution that provides dual channel, discrete input, discrete output, or leak detection input options
- Discrete single or dual switch input with logic for limit contact and opposing contact applications
- Momentary inputs are continuously measured between wireless updates
- Dual channels are each configurable for discrete input or discrete output
- Self-organizing network delivers information rich data with >99% data reliability

Emerson's Smart Wireless Solution



IEC 62591 (WirelessHART®)... the industry standard

Self-organizing, adaptive mesh routing

- No wireless expertise required, network automatically finds the best communication paths
- The self-organizing, self-healing network manages multiple communication paths for any given device. If an obstruction is introduced into the network, data will continue to flow because the device already has other established paths. The network will then lay in more communication paths as needed for that device.



Emerson's Smart Wireless

Reliable wireless architecture

- Standard IEEE 802.15.4 radios
- 2.4 GHz ISM band sliced into 15 radio-channels
- Time Synchronized Channel Hopping to avoid interference from other radios, WiFi, and EMC sources and increase reliability
- Direct sequence spread spectrum (DSSS) technology delivers high reliability in challenging radio environment

SmartPower™ solutions

- Optimized Emerson instrumentation, both hardware and software, to extend power module life
- Intrinsically safe power module allows field replacements without removing the transmitter from the process, keeping personnel safe, and reducing maintenance costs.

Contents

Ordering Information 3

Specifications 6

Product Certifications 14

Dimensional Drawings 17

Ordering Information

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [page 6](#) for more information on Material Selection.

Table 1. Rosemount 702 Wireless Discrete Transmitter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Product description			
702	Discrete Transmitter		★
Transmitter type			
D	Wireless Field Mount		★
Output			
X	Wireless		★
Measurement			
32	Discrete Dual Input (Dry Contact), Detects Momentary Inputs and Counts		★
42	Discrete Dual Input or Output, Configurable		★
61 ⁽¹⁾	Liquid Hydrocarbon Detection (for use with TraceTek Fast Fuel Sensor or TraceTek sensing cable)		★
Housing			
D	Dual Compartment Housing - Aluminum		★
E	Dual Compartment Housing - SST		★
Conduit threads			
1	1/2 - 14 NPT		★
Certifications		Measurement option codes	
I5	FM Intrinsically Safe, Non-Incendive, and Dust Ignition-Proof	32, 61	★
I6	CSA Intrinsically Safe	32, 61	★
I1	ATEX Intrinsic Safety	32, 61	★
IU	ATEX Intrinsic Safety for Zone 2	32, 42	★
I7	IECEx Intrinsic Safety	32, 61	★
IY	IECEx Intrinsic Safety for Zone 2	32, 42	★
I4	TIIS Intrinsic Safety	32	★
I3	China Intrinsic Safety	32	★
N5	FM Division 2, Non-Incendive	32, 42	★
N6	CSA Division 2, Non-Incendive	32, 42	★
NA	No Approval	32, 42, 61	★

Wireless options

Wireless update rate, operating frequency and protocol			
WA3	User Configurable Update Rate, 2.4 GHz DSSS, IEC 62591 (<i>WirelessHART</i>)		★

Table 1. Rosemount 702 Wireless Discrete Transmitter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

The Expanded offering is subject to additional delivery lead time.

Omni-directional wireless antenna and SmartPower solutions		
WK1 ⁽²⁾	External Antenna, Adapter for Black Power Module (I.S. Power Module Sold separately)	★
WM1 ⁽²⁾	Extended Range, External Antenna, Adapter for Black Power Module (I.S. Power Module Sold separately)	★
WJ1 ⁽²⁾	Remote Antenna, Adapter for Black Power Module (I.S. Power Module sold separately)	
WN1 ⁽²⁾⁽³⁾	High-Gain, Remote Antenna, Adapter for Black Power Module (I.S. Power Module Sold separately)	

Other options (include with selected model number)

Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
Display		
M5 ⁽¹⁾	LCD Display	★
Mounting bracket		
B4	Universal L mounting bracket for 2-inch pipe mounting - SST bracket and bolts	★
Configuration		
C1	Factory Configure Date, Descriptor, Message Fields, and Wireless Parameters	★
Cable gland		
G2	Cable gland (7.5 mm - 11.9 mm)	★
G4 ⁽⁴⁾	Thin Wire Cable Gland (3 mm - 8 mm)	★
Switches and kits		
SS01	Universal Safety Shower/Eyewash Kit with UL Switches	★
SS02	Universal Safety Shower/Eyewash Kit for Insulated pipe with UL Switches	★
SS03	Universal Safety Shower/Eyewash Kit with CSA Switches	★
SS04	Universal Safety Shower/Eyewash Kit for Insulated Pipe with CSA Switches	★
Typical model number: 702 D X 22 D 1 NA WA3 WK1 M5		

(1) LCD Display not available for option code 61.

(2) Black Power Module must be shipped separately, order Model 701PBKKF or Part # 00753-9220-0001.

(3) Limited availability, consult factory for details.

(4) Thin wire cable gland is preferred for measurement option 61.

Spare Parts and Accessories

Table 2. Spare Parts and Accessories

00702-9010-0001	Universal Safety Shower/Eyewash Kit with UL Switches
00702-9010-0002	Universal Safety Shower/Eyewash Kit for Insulated pipe with UL Switches
00702-9010-0003	Universal Safety Shower/Eyewash Kit with CSA Switches
00702-9010-0004	Universal Safety Shower/Eyewash Kit for Insulated Pipe with CSA Switches

Specifications

Functional specifications

Discrete input

Single or dual SPST dry contacts, single SPDT dry contacts or leak detection. To maintain I.S. ratings, contacts must be limited to simple switches or leak detection only.

Switching threshold, measurement option code 32 and 42

Open > 100 K Ohm

Closed < 5 K Ohm

Momentary discrete input, measurement option code 32 and 42

Detects momentary discrete inputs of 10 millisecond or more duration. At each wireless update, device reports current discrete state and accumulating count of close-open cycles. Accumulating count registers from 0 to 999,999, then re-sets to 0.

Discrete output, measurement option Code 42

Maximum Rating: 26 Vdc, 100 mA

On resistance: typical 1 Ohm

Wireless output

IEC 62591 (*WirelessHART*) 2.4 GHz DSSS.

Radio frequency power output from antenna

External (WK option) antenna: Maximum of 10 mW (10 dBm) EIRP

Extended Range, External (WM option) antenna: Maximum of 18 mW (12.5 dBm) EIRP

Remote (WJ option) antenna: Maximum of 17 mW (12.3 dBm) EIRP

High Gain, Remote (WN option) antenna: Maximum of 40 mW (16 dBm) EIRP

Local display⁽¹⁾

The optional integral LCD can display discrete state and diagnostic information. Display updates at each wireless update.

(1) The option for a local display is not available with option 61, Liquid Hydrocarbon Leak Detection.

Humidity limits

0–100% relative humidity

Wireless update rate, measurement option code 32, 42

User selectable, 1 sec. to 60 min.

Wireless update rate, measurement option code 61

User selectable, 4 sec. to 60 min.

Physical specifications

Material selection

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

Electrical connections

Wireless Power Module

Replaceable, Intrinsically Safe Lithium-Thionyl Chloride power module with PBT polymer enclosure. Ten year life at one minute update rate.⁽¹⁾

(1) Reference conditions are 70 °F (21 °C), and routing data for three additional network devices.

Note: Continuous exposure to ambient temperature limits (-40 °F or 185 °F) (-40 °C or 85 °C) may reduce specified power module life by less than 20 percent.

Switch terminals

Screw terminals permanently fixed to terminal block

Field Communicator connections

Communication Terminals

Clips permanently fixed to terminal block

Materials of construction

Enclosure

Housing - Low-copper aluminum, or stainless steel

Paint - Polyurethane

Cover O-ring - Buna-N

Terminal Block and Power Module Pack

PBT

Antenna

PBT/PC integrated omni-directional antenna

Conduit entries

1/2 - 14 NPT

Weight

Low - Copper Aluminum:

702 without LCD - 4.6 lbs. (2.0 kg)

702 with M5 LCD - 4.7 lbs (2.1 kg)

Stainless Steel:

702 without LCD display- 8.0 lbs. (3.6 kg)

702 with M5 LCD display- 8.1 lbs (3.7 kg)

Enclosure ratings (702)

NEMA 4X, and IP66/67

Mounting

Transmitters may be attached directly to switch, brackets also permit remote mounting.

See “Dimensional Drawings” on page 17.

Performance specifications

ElectroMagnetic Compatibility (EMC)

All Models

Meets all relevant requirements of EN 61326-2-3:2006

Vibration effect

Wireless output unaffected when tested per the requirements of IEC60770-1 field or pipeline with high vibration level (10-60 Hz 0.21mm displacement peak amplitude/60-2000 Hz 3g).

Wireless output unaffected when tested per the requirements of IEC60770-1 field with general application or pipeline with low vibration level (10-60 Hz 0.15mm displacement peak amplitude/60-500 Hz 2g).

Temperature limits

Description	Operating limit	Storage limit
Without LCD Display	-40 to 185 °F -40 to 85 °C	-40 to 185 °F -40 to 85 °C
With LCD Display	-4 to 175 °F -20 to 80 °C	-40 to 185 °F -40 to 85 °C

Dry contact switch inputs, measurement option code 32, and 42

Terminal block connections

The Rosemount 702 Transmitter has a pair of screw terminals for each of two channels, and a pair of communication terminals. These terminals are labeled as follows:

CH1+: Channel One Positive

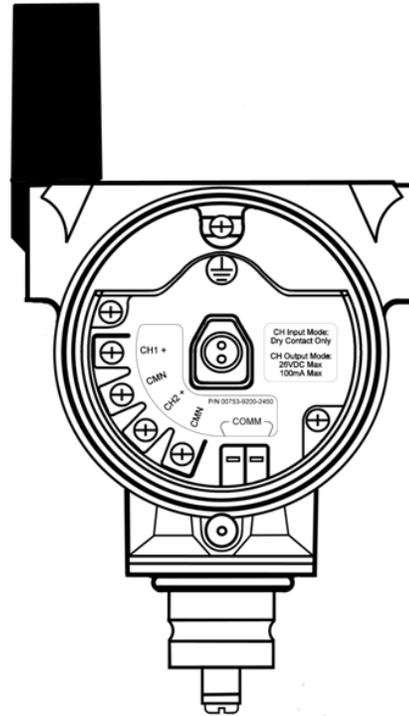
CMN: Common

CH2+: Channel Two Positive

CMN: Common

COMM: Communication Terminals

Figure 1. Rosemount 702 Terminal Block Connections



Wireless output specifications

Dry contact switch inputs, measurement option code 32, and 42

Single input or dual input independent

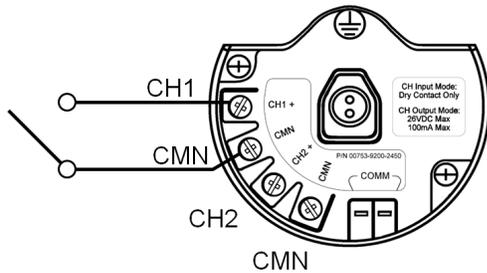
The Rosemount 702 Discrete Transmitter will accept the input from one or two single pole single throw switches on inputs CH1 and CH2. The wireless output of the transmitter will be both a primary variable (PV) and a secondary variable (SV). The PV is determined by the CH1 input. The SV is determined by the CH2 input. A closed switch drives a TRUE output. An Open switch drives a FALSE output.

Note

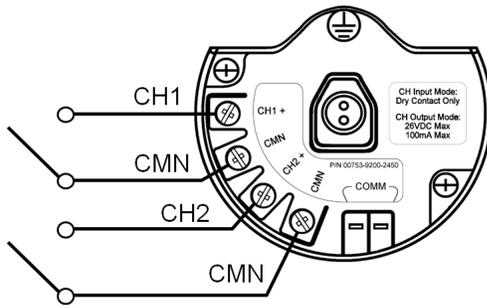
Any dry contact input can be inverted by the device, so as to give the opposite effect. This is useful, for instance, if a normally open switch is used to replace a normally closed switch.

Figure 2. Single, Dual Input

Single Input



Dual Input



Single or dual input, no logic			
Switch input	Wireless output	Switch input	Wireless output
CH1	PV	CH2	SV
Closed	TRUE (1.0)	Closed	TRUE (1.0)
Open	FALSE (0.0)	Open	FALSE (0.0)

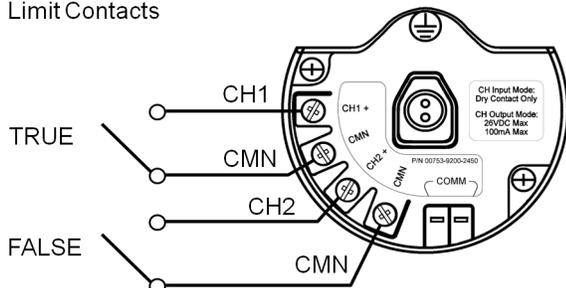
Dual input, limit contact logic

When configured for Limit Contact Logic, the Rosemount 702 Discrete Transmitter will accept the input from two single pole single throw switches on inputs CH1 and CH2, and will use limit contact logic for the determination of the wireless outputs.

Figure 3. Dual Input, Limit Contacts

Dual Input

Limit Contacts



Dual input, limit contact logic			
Switch inputs		Wireless outputs	
CH1	CH2	PV	SV
Open	Open	TRAVEL (0.5)	TRAVEL (0.5)
Open	Closed	FALSE (0.0)	FALSE (0.0)
Closed	Open	TRUE (1.0)	TRUE (1.0)
Closed	Closed	FAULT(NaN)	FAULT(NaN)

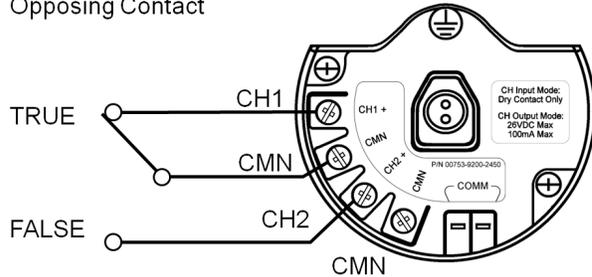
Dual input, opposing contact logic

When configured for Opposing Contact Logic, the Rosemount 702 Discrete Transmitter will accept the input from a double pole single throw switch on inputs CH1 and CH2, and will use opposing contact logic for the determination of the wireless outputs.

Figure 4. Dual Input, Opposing Contact

Dual Input

Opposing Contact



Dual input, opposing contact logic			
Switch inputs		Wireless outputs	
CH1	CH2	PV	SV
Open	Open	FAULT(NaN)	FAULT(NaN)
Open	Closed	FALSE (0.0)	FALSE (0.0)
Closed	Open	TRUE (1.0)	TRUE (1.0)
Closed	Closed	FAULT(NaN)	FAULT(NaN)

Momentary discrete inputs, measurement option code 32 and 42

The Rosemount 702 Wireless Discrete Transmitter is capable of detecting momentary discrete inputs of 10 millisecond or more in duration, regardless of the wireless update rate. At each wireless update, the device reports current discrete state along with an accumulating count of close-open cycles for each input channel.

Figure 5. Momentary Inputs and Accumulating Count

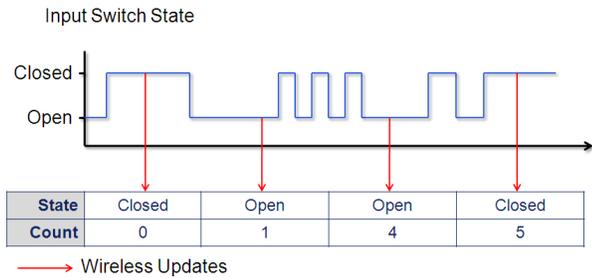
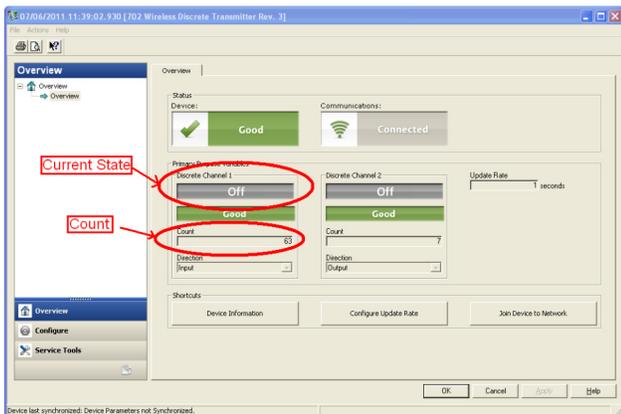


Figure 6. Reporting of Current Discrete State and Count in AMS® Device Manager



Variable reporting and mapping

The Rosemount 702 transmitter will report variables exactly like the previous version of the device (measurement option code 22). In the Enhanced variable reporting mode, the Rosemount 702 transmitter will provide both current state of the discrete channels, and a count of the discrete state change cycles. Following is a table that shows the variable mapping for both cases. Variable Reporting can be set in AMS Device Manager by going to Configure > Manual Setup > HART®.

Table 3. Variable Mapping

Variable reporting	Variable mapping			
	PV	SV	TV	QV
Enhanced – Discrete State with Count	CH1 State	CH2 State	CH1 Count	CH2 Count

Discrete output circuits, measurement option code 42

The Rosemount 702 Wireless Discrete Transmitter has two channels that can each be configured for discrete input or output. Inputs must be dry contact switch inputs and these were described in a preceding section of this document. Outputs are a simple switch closure to activate an output circuit. The Rosemount 702 output does not provide any voltage or current, the output circuit must have power of its own. The Rosemount 702 output has maximum switch capacity per channel of 26 volts DC and 100 milliamps. A typical power supply for powering an output circuit can be 24 volts or lower.

Note

It is very important that the polarity of the output circuit is as shown in the wiring diagrams, with the positive (+) side of the circuit wired to the CH1+ or the CH2 + terminal, and the negative (-) side of the circuit wired to the CMN terminal. If the output circuit is wired backwards, it will remain active (switch closed) regardless of the state of the output channel.

Discrete output switch functionality

The discrete output of the Rosemount 702 Transmitter is driven by the host control system, through the Smart Wireless Gateway, and out to the Rosemount 702 Transmitter. The time required for this wireless communication from the Gateway to the Rosemount 702 Transmitter is dependent on many factors, including the size and topology of the network and the total amount of downstream traffic on the wireless network. For a network that is constructed to our best practices, typical delays in communication of a discrete output from the Gateway to the Rosemount 702 Transmitter are 15 seconds or less. Remember that this delay is only part of the latency that will be observed in a control loop.

Note

The output switch functionality of the Rosemount 702 transmitter requires that the network is managed by a version 3 Smart Wireless Gateway with v3.9.7 firmware, or a version 4 Gateway with v4.3 or higher firmware installed.

Figure 7. Output Circuit Wiring

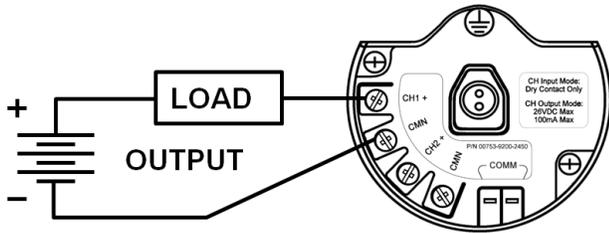
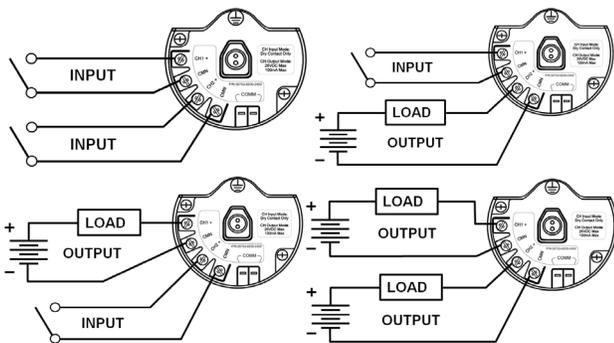


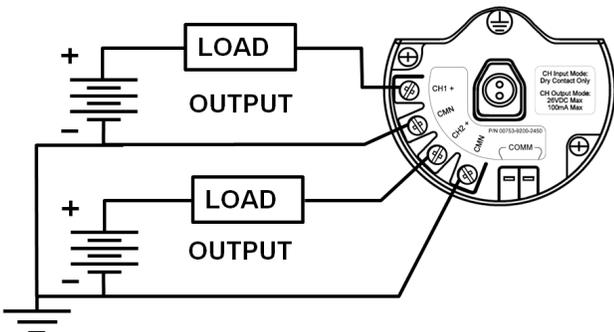
Figure 8. Possible Configurations for Both Channel 1 and Channel 2



Special considerations for dual output circuits

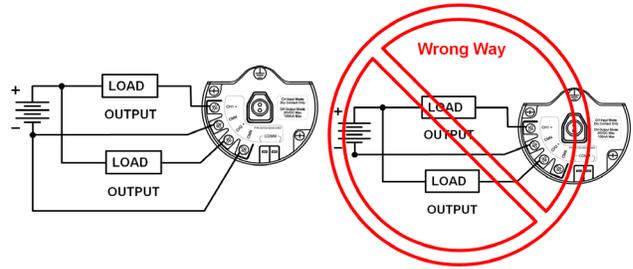
If both channels are connected to output circuits, it is very important that the CMN terminal of each circuit be at the same voltage. Employing a common ground for both output circuits is one way to ensure that both circuits have CMN terminals at the same voltage.

Figure 9. Dual Output Circuits with a Common Ground



If two output circuits are connected to a single Rosemount 702 Transmitter with a single power supply, both CH + and CMN terminals must be connected to each output circuit. The negative power supply wires must be at the same voltage and connected to both CMN terminals.

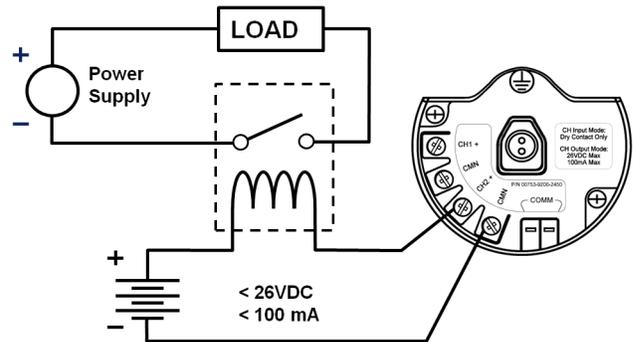
Figure 10. Dual Output Circuits with One Power Supply



Switching greater currents or voltages

It is important to note that the maximum output switching capacity is 26 volts DC and 100 milliamps. If a greater voltage or current is to be switched, an interposing relay circuit can be used. Figure 11 shows an example of a circuit to switch higher currents or voltages.

Figure 11. Wiring an Interposing Relay to Switch Greater Currents or Voltages



Leak sensors, liquid hydrocarbon detection, measurement option code 61

Terminal block connections

The Liquid Hydrocarbon Detection configuration is intended for use with the Pentair Trace Tek® Fast Fuel Sensor, or TraceTek sensing cable.

Figure 12. Fuel Sensor Terminal Diagram

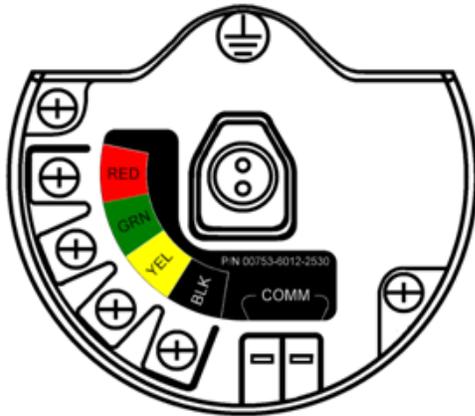
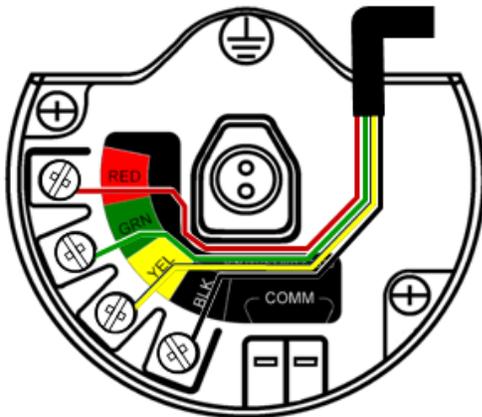


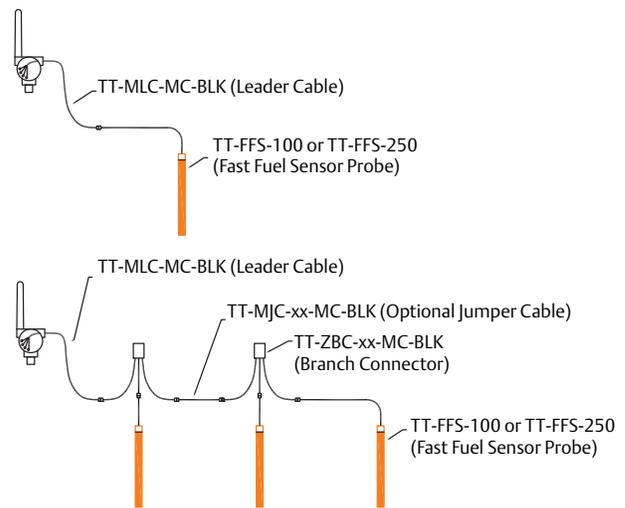
Figure 13. Fuel Sensor Connection Diagram



The connections to the Fast Fuel Sensor TraceTek sensing cable are made by matching the appropriately colored wires to the matching colored termination lugs.

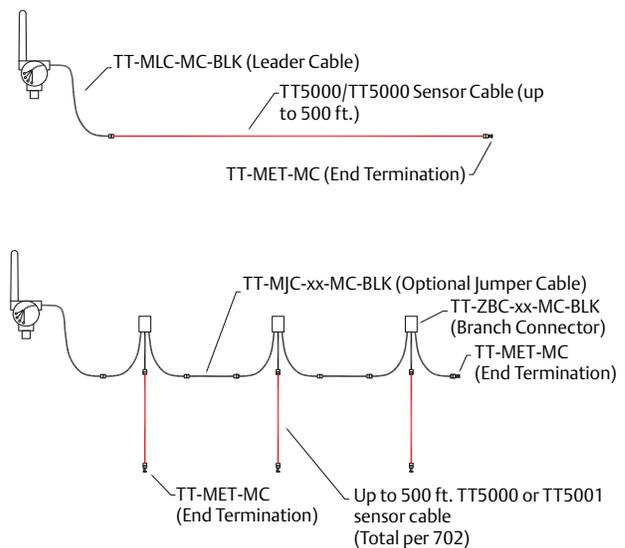
- The Emerson Smart Wireless 702 Discrete Transmitter can support up to 3 Fast Fuel sensors. These Fast Fuel sensors are connected using TraceTek Modular Leader Cable (TT-MLC-MC-BLK), optional modular jumper cables (TT-MJC-xx-MC-BLK) and branching connectors (TT-ZBC-MC-BLK) as suggested in Figure 14.

Figure 14. Fuel Sensor Wiring



- The Emerson Smart Wireless 702 Discrete Transmitter can support up to 500 feet of TraceTek hydrocarbon or solvent sensor cable (TT5000 or TT5001 series). The total amount of sensor cable connected to a single 702 transmitter is not to exceed 500 ft. However leader cable, jumper cables (if used), and branch connectors are not included in the 500 foot (150 m) limit. See Figure 15 for typical configurations.

Figure 15. Fuel Sensor Cable Wiring



Safety Shower and Eye Wash Monitoring

The Rosemount 702 Transmitter can be used to monitor safety showers and eye wash stations by using switch kits provided by TopWorx®, an Emerson company. These kits are ordered as a part of the Rosemount 702 model code and are available for both insulated and un-insulated pipes. These kits contain the switches, brackets and cables that are necessary to install the Rosemount 702 to monitor both the safety shower and the eye wash in a single station. Because each has two input channels, one Rosemount 702 Transmitter can be used to monitor both a safety shower and an eye wash.

Each Safety Shower Monitoring kit contains:

- Two TopWorx GO® Switch magnetic proximity switches
- Two cables, one six foot and one 12 foot
- Two black polymer cable glands
- Mounting kit for safety shower and eye wash

UL and CSA switches

Safety shower and eye wash monitoring kits are available with either UL or CSA switches. This designation refers to the ordinary location certification of the GO Switch in the kit. These are not hazardous locations certificates. The Go Switch is regarded as a simple apparatus and does not require its own hazardous locations certificate. Either GO Switch is suitable for installation in hazardous locations when wired to the Rosemount 702 Transmitter with an appropriate hazardous locations certificate. The CSA GO Switch is for applications in Canada, the UL GO Switch is for applications in all other world areas.

Installation drawings and instructions

Installation drawings and instructions for safety shower and eye wash kits are included in the Rosemount 702 Transmitter Reference Manual, Appendix D (document 00809-0200-4702, Rev CA). This manual can be downloaded at the Rosemount 702 Transmitter product page:

<http://www2.emersonprocess.com/en-US/brands/rosemount/Wireless/702-Discrete>

Safety shower monitoring

When the shower valve is activated (valve open) by pulling down on the handle, the TopWorx switch is activated (closed switch) and the 702 Transmitter senses that switch closure. This switch state is then transmitted by the 702 Transmitter to the Gateway, which then sends that information to the control host or alert system. When the shower valve is closed, the switch remains in the activated state until it is reset by a technician. The switch can be re-set only by placing a ferrous metal object on the far side of the sensing area of the switch.

Figure 16. TopWorx Switch Installed on Safety Shower



Figure 17. Detail of Switch Installation on Safety Shower



Figure 18. Safety Shower Valve in Activated Position

Eye wash monitoring

When the eye wash valve is activated (valve open) by pushing down on the hand paddle, the TopWorx switch is activated (closed switch) and the 702 Transmitter senses that switch closure. This switch state is then transmitted by the 702 Transmitter to the Gateway, which then sends that information to the control host or alert system. When the eye wash valve is closed, the switch remains in the activated state until it is reset by a technician. The switch can be re-set only by placing a ferrous metal object on the far side of the sensing area of the switch.

Figure 19. TopWorx Switch Installed on Eye Wash Station**Figure 20. Eye Wash in Activated Position**

Product Certifications

European Union Directive Information

A copy of the EC Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EC Declaration of Conformity can be found at www.rosemount.com.

Telecommunication Compliance

All wireless devices require certification to ensure that they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification. Emerson is working with governmental agencies around the world to supply fully compliant products and remove the risk of violating country directives or laws governing wireless device usage.

FCC and IC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation. This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

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).

Installing in North American

The US National Electrical Code (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions. The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

USA

- I5** FM Intrinsic Safety (IS) and Nonincendive (NI)
Certificate: 3031506
Standards: FM Class 3600 – 1998, FM Class 3610 – 2010, FM Class 3611 – 2004, FM Class 3810 – 2005, ANSI/NEMA 250 - 2003
Markings: IS CLI, DIV 1, GP 1, A, B, C, D; CL II, DIV 1, GPE, F, G; Class III; Class 1, Zone 0 AEx ia IIC T4; NI CL I, DIV 2, GPA, B, C, D T4;
T4(-50°C □Ta □+70°C) when installed per Rosemount drawing 00702-1000; Type 4X; IP66;

Special Conditions of Certification:

1. The Model 702 transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.
2. The surface resistivity of the polymeric antenna is greater than 1 GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
3. For use only with the Model 701P or Rosemount 753-9220-XXXX Smart Power Battery Module.

Sensor terminal parameters (option code 32)	Fuel sensor terminal parameters (option code 61)
U _o = 6.51 V	U _o = 7.8 V
I _o = 13.37 mA	I _o = 92 mA
P _o = 21.76 mW	P _o = 180 mW
C _o = 21.77 uF	C _o = 9.2 uF
L _o = 198 mH	L _o = 50 mH

- N5** FM Nonincendive
Certificate: 3031506
Standards: FM Class 3600 – 1998, FM Class 3611 – 2004, FM Class 3810 – 2005, ANSI/NEMA 250 – 2003
Markings: NI CL I, DIV 2, GP A, B, C, D T4;
T4(-50°C □Ta □+70°C) when installed per Rosemount drawing 00702-1000;
Type 4X; IP66;

Special Condition of Certification:

1. For use only with the Model 701P or Rosemount P/N 753-9220-XXXX SmartPower Battery Module.

Canada

- I6** CSA Intrinsically Safe
Certificate: 1143113
Standards: CAN/CSA Std. 22.2 No. 0-10, CSA Std. 22.2 No. 142-M1987, CAN/CSA Std. 22.2 No. 157-92, CSA Std. 22.2 No. 60529:05
Markings: Intrinsically Safe Class I, Division 1; suitable for Class 1, Zone 0, IIC, T3C; when connected per Rosemount drawing 00702-1020; Type 4X
- N6** CSA Class I Division 2
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 60529:05
Markings: Suitable for Class 1, Division 2, Groups A, B, C, and D, T3C; Cl. I, Zone 2, IIC, T3C;

Europe

- I1** ATEX Intrinsic Safety
 Certificate No.: Baseefa 07ATEX0239X
 Standards: IEC 60079-0: 2011, EN60079-11: 2012
 Markings: Ⓔ II 1 G Ex ia IIC T4 Ga, T4(-60°C □Ta □+70°C)
 Ex ia IIC T5 Ga, T5(-60°C □Ta □+40°C)

For use with Rosemount SmartPower power module part number 753-9220-0001, or for use with Emerson SmartPower option 701PBKKF.

Sensor terminal parameters (option code 32)	Fuel sensor terminal parameters (option code 61)
U _o = 6.51 V	U _o = 7.8 V
I _o = 13.37 mA	I _o = 92 mA
P _o = 21.76 mW	P _o = 180 mW
C _i = 0.216 uF	C _i = 10 nF
Co _{IIC} = 21.78 uF	Co _{IIC} = 9.2 uF
Co _{IIB} = 549.78 uF	Co _{IIB} = 129 uF
Co _{IIA} = 1000 uF	Co _{IIA} = 1000 uF
Li=0	Li=0
Lo _{IIC} = 200 mH	Lo _{IIC} = 4.2 mH
Lo _{IIB} = 800 mH	Lo _{IIB} = 16.8 mH
Lo _{IIA} = 1000 mH	Lo _{IIA} = 33.6 mH

Special Condition for Safe Use (X):

- The surface resistivity of the antenna is greater than 1 GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
- IU** ATEX Intrinsic Safety for Zone 2
 Certificate: Baseefa12ATEX0122X
 Standards: IEC 60079-0: 2011, EN60079-11: 2012
 Markings: Ⓔ II 3G Ex ic IIC T4 Gc, T4(-60 °C ≤ Ta ≤ +70 °C)
 Ex ic IIC T5 Gc, T5(-60 °C ≤ Ta ≤ +40 °C)

Sensor terminal parameters (input)	Switch terminal parameters (output)
U _o = 6.6 V	U _i = 26V
I _o = 13.4 mA	I _i = 100mA
P _o = 21.8 mW	P _i = 0.65W
Co = 10.9 uF	-
Lo = 25 uF	-

Special Conditions for Safe Use (X):

- The surface resistivity of the antenna is greater than 1 GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
- The Model 701PB Power Module may be replaced in a hazardous area. The Power Module has surface resistivity greater than 1 GΩ and must be properly installed in the wireless device enclosure. Care must be taken during transportation to and from the point of installation to prevent electrostatic charge build-up.

International

- I7** IECEx Intrinsic Safety
 Certificate No.: IECEx BAS 07.0082X
 Standards: IEC 60079-0: 2011, IEC 60079-11: 2011
 Markings: Ex ia IIC T4 Ga, T4 (-40°C □Ta □+70°C)
 Ex ia IIC T5 Ga, T5 (-40°C □Ta □+40°C)

Switch terminal parameters (option code 32)	Fuel sensor terminal parameters (option code 61)
U _o = 6.51 V	U _o = 7.8 V
I _o = 13.37 mA	I _o = 92 mA
P _o = 21.76 mW	P _o = 180 mW
C _i = 0.216 uF	C _i = 10 nF
Co _{IIC} = 21.78 uF	Co _{IIC} = 9.2 uF
Co _{IIB} = 549.78 uF	Co _{IIB} = 129 uF
Co _{IIA} = 1000 uF	Co _{IIA} = 1000 uF
Li=0	Li=0
Lo _{IIC} = 200 mH	Lo _{IIC} = 4.2 mH
Lo _{IIB} = 800 mH	Lo _{IIB} = 16.8 mH
Lo _{IIA} = 1000 mH	Lo _{IIA} = 33.6 mH

Special Conditions for Safe Use (X):

- The surface resistivity of the antenna is greater than 1 GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
 - The Model 701PB Power Module may be replaced in a hazardous area. The Power Module has surface resistivity greater than 1 GΩ and must be properly installed in the wireless device enclosure. Care must be taken during transportation to and from the point of installation to prevent electrostatic charge build-up.
 - The 702 enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a Zone 0 area.
- IY** IECEx Intrinsic Safety for Zone 2
 Certificate: IECEx BAS 12.0082X
 Standards: IEC 60079-0: 2011, IEC 60079-11: 2011
 Markings: Ex ic IIC T4 Gc, T4 (-40°C □Ta □+70°C)
 Ex ic IIC T5 Gc, T5 (-40°C □Ta □+40°C)

Sensor terminal parameter (input)	Switch terminal parameters (output)
U _o = 6.6 V	U _i = 26 V
I _o = 13.4 mA	I _i = 100 mA
P _o = 21.8 mW	P _i = 0.65 W
Co = 10.9 uF	-
Lo = 25 uF	-

Special Conditions for Safe Use:

- The surface resistivity of the antenna is greater than 1 GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

- The Model 701PB Power Module may be replaced in a hazardous area. The Power Module has surface resistivity greater than 1 GΩ and must be properly installed in the wireless device enclosure. Care must be taken during transportation to and from the point of installation to prevent electrostatic charge build-up.
- The 702 enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a Zone 0 area.

Brazil

I2 INMETRO Intrinsic Safety
 Certificate: NCC 12.0817X
 Standards: ABNT NBR IEC60079-0:2008, ABNT NBR IEC60079-11:2009
 Markings: Ex ia IIC T4 Ga, T4(-40°C □Ta □+70°C)

Special Conditions for Safe Use (X):

See certificate for special conditions

China

I3 China Intrinsic Safety
 Certificate: GYJ13.1238X
 Standards: GB3836.1-2010, GB3836.4-2010, GB3836.20-2010
 Markings: (option 32, 61): Ex ia IIC T4/T5 Ga, T4(-60 ~ +70°C)/T5(-60 ~ +40°C)
 (option 32, 42): Ex ic IIC T4/T5 Gc, T4(-60 ~ +70°C)/T5(-60 ~ +40°C)

Switch terminal parameters (option code 32)	Terminal parameters (option code 42)		Fuel sensor terminal parameters (option code 61)
	Sensor	Switch	
U _o = 6.6 V	U _o = 6.6 V	U _i = 26 V	U _o = 7.8 V
I _o = 13.4 mA	I _o = 13.4 mA	I _i = 100 mA	I _o = 92 mA
P _o = 21.8 mW	P _o = 21.8 mW	P _i = 650 mW	P _o = 180 mW
CO _{IIC} = 21.78 uF	Co = 21.78 uF	Li=0	Co = 9.29 uF
CO _{IIB} = 499.78 uF	-	-	-
CO _{IIA} = 1000 uF	-	-	-
LO _{IIC} = 200 mH	Lo = 0.025 mH	-	Lo=2 mH
LO _{IIB} = 800 mH	-	-	-
LO _{IIA} = 1000 mH	-	-	-

Special Conditions for Safe Use (X):

See certificate for special conditions

Japan

I4 TIIS Intrinsic Safety
 Certificates: TC20395
 Markings: Ex ia IIC T4 (-20 ~ +60°C)
 Markings (options 32, 42): Option

Technical Regulation Customs Union (EAC)

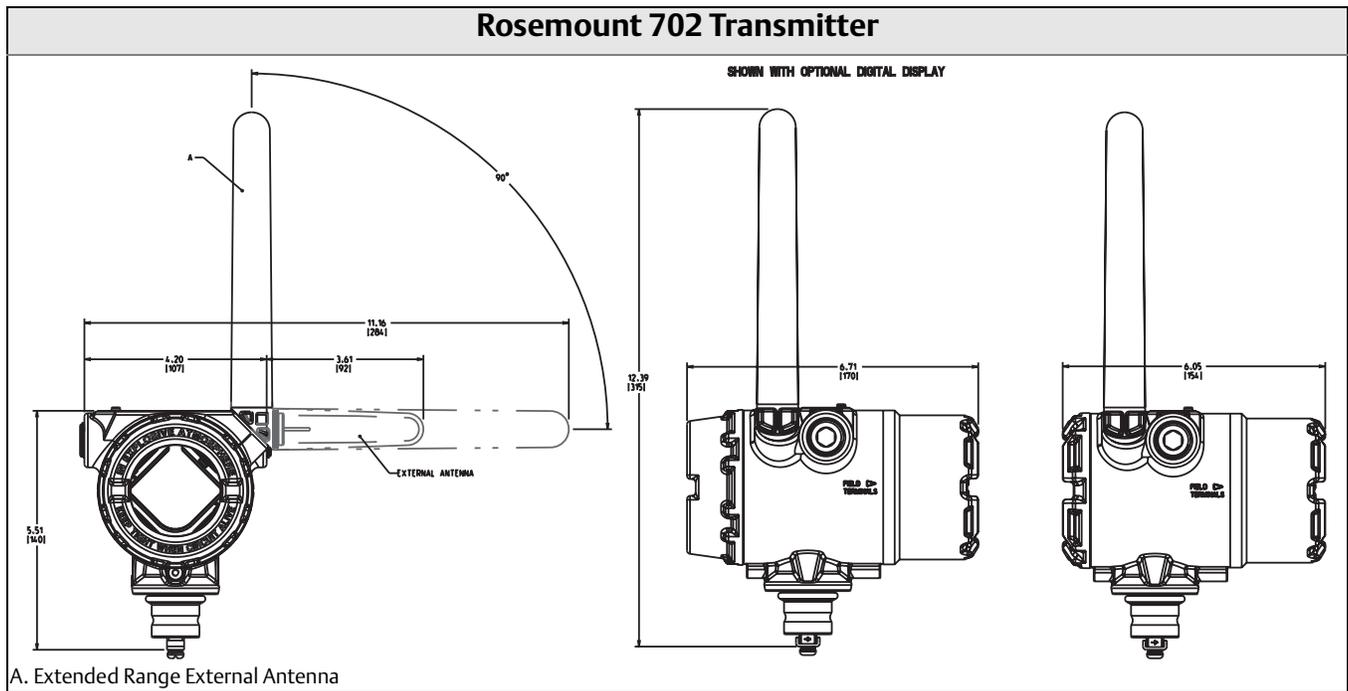
IM EAC Intrinsic Safety
 Certificate: RU C-US.Gb05.B.00578
 Markings: (option 32, 61): 0Ex ia IIC T4/T5 X, T4 (-60°C □Ta □+70°C)/T5(-60°C □Ta □+40°C)
 (option 32, 42): 2Ex ic IIC T4/T5 X, T4 (-60°C □Ta □+70°C)/T5(-60°C □Ta □+40°C)

Switch terminal parameters (option code 32)	Terminal parameters (option code 42)		Fuel sensor terminal parameters (option code 61)
	Sensor	Switch	
U _o = 6.6 B	U _o = 6.6 B	U _i B = 26 B	U _o = 7.8 B
I _o = 13.4 mA	I _o = 13.4 mA	I _i = mA = 100 mA	I _o = 92 mA
P _o = 21.8 mB _T	P _o = 21.8 mB _T	P _i , B _T = 650 mB _T	P _o = 180 mB _T
Gi = 216 H Φ	Gi = 216 H Φ	-	-
CO _{IIC} = 23.78MK Φ	CO _{IIC} = 23.78MK Φ	-	-
CO _{IIB} = 549.78MK Φ	CO _{IIB} = 549.78MK Φ	-	-
CO _{IIA} = 1000MK Φ	CO _{IIA} = 1000MK Φ	-	-
Li = 0	Li = 0	Li = 0	Li = 0
LO _{IIC} = 200M I ⁻ H	LO _{IIC} = 200M I ⁻ H	-	-
LO _{IIB} = 800M I ⁻ H	LO _{IIB} = 800M I ⁻ H	-	-
LO _{IIA} = 1000M I ⁻ H	LO _{IIA} = 1000M I ⁻ H	-	-

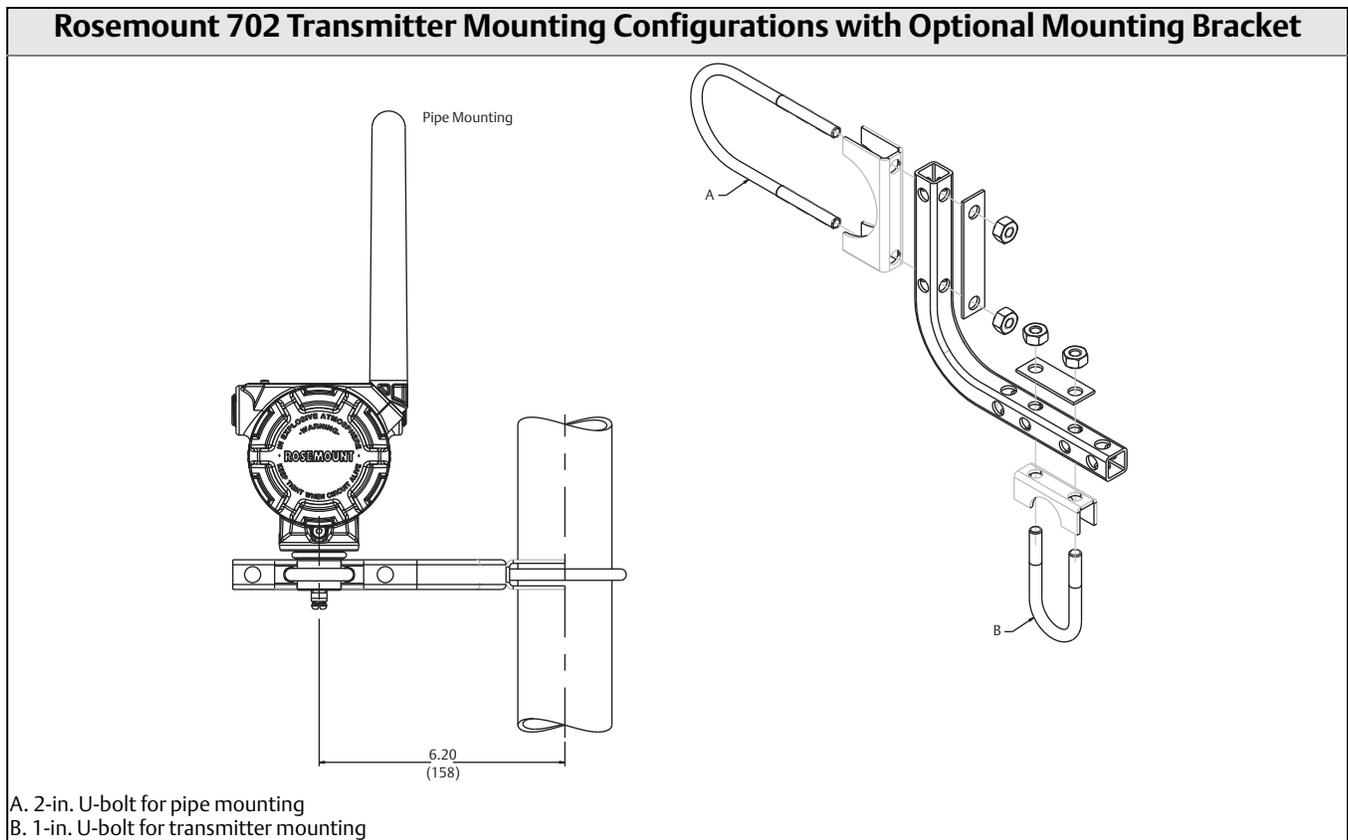
Special Conditions for Safe Use (X):

See certificate for special conditions

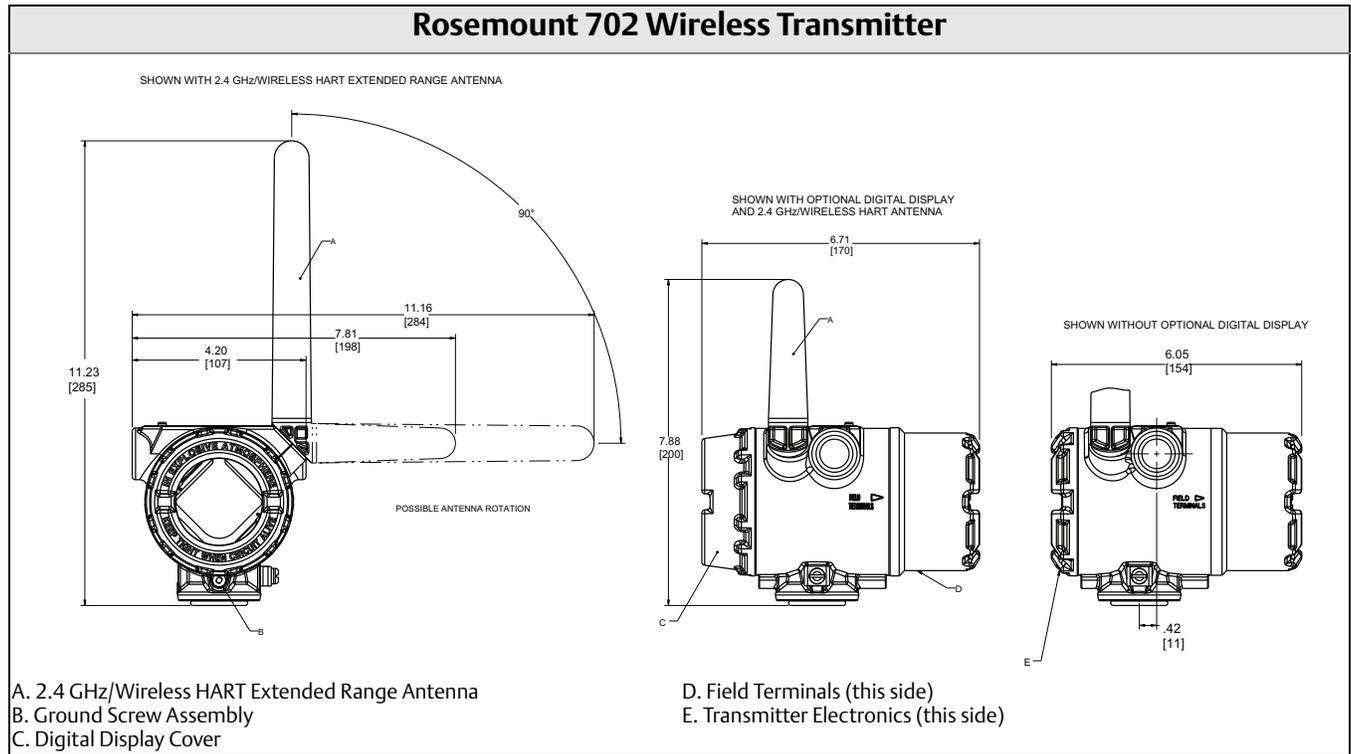
Dimensional Drawings



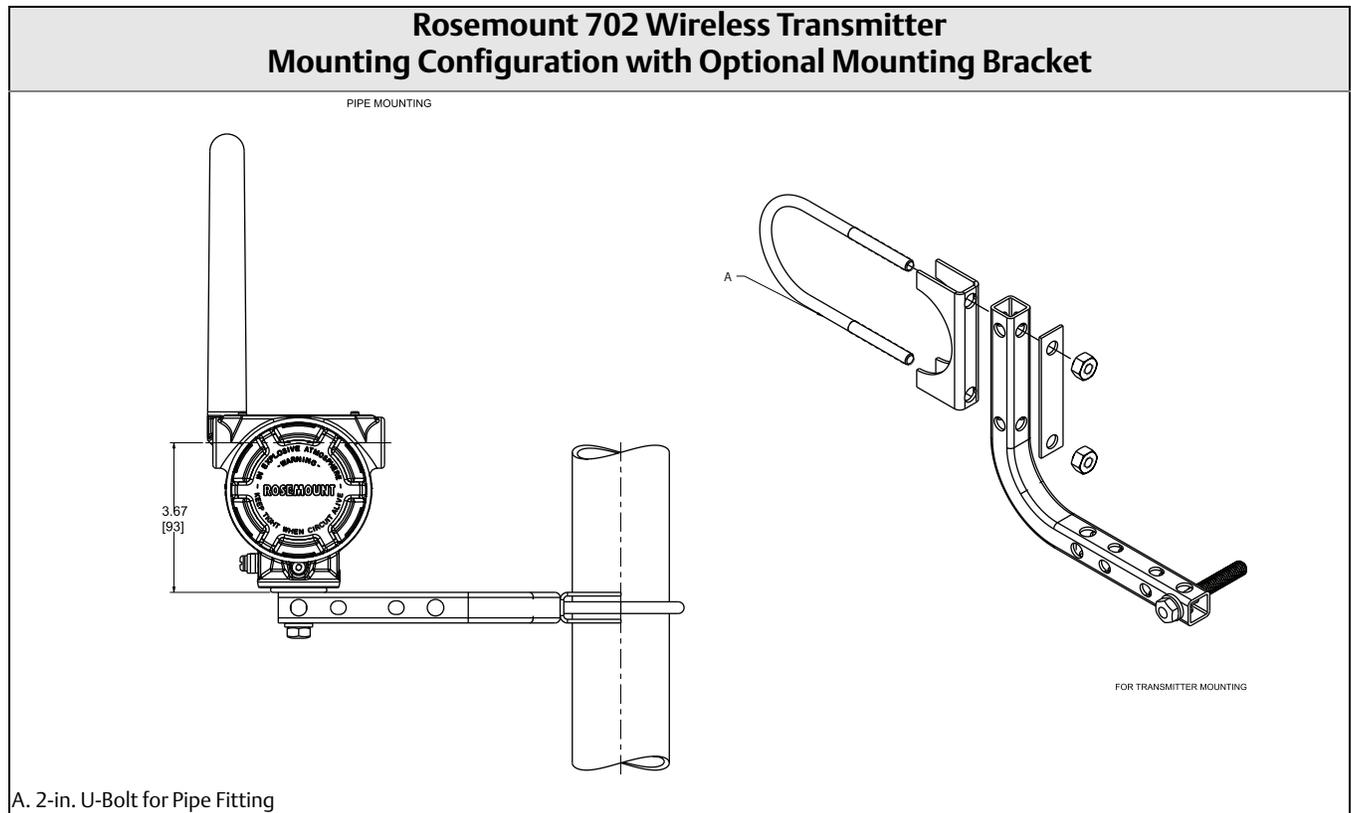
Dimensions are in inches (millimeters).



Dimensions are in inches (millimeters).



Dimensions are in inches (millimeters).



Dimensions are in inches (millimeters).

Emerson Process Management

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317 USA
T (U.S.) 1-800-999-9307
T (International) (952) 906-8888
F (952) 906-8889
www.rosemount.com

Emerson Process Management

Blegistrasse 23
P.O. Box 1046
CH 6341 Baar
Switzerland
T +41 (0) 41 768 6111
F +41 (0) 41 768 6300
www.rosemount.com

Emerson Process Management

Asia Pacific Pte Ltd
1 Pandan Crescent
Singapore 128461
T +65 6777 8211
F +65 6777 0947
Service Support Hotline: +65 6770 8711
Email: Enquiries@AP.EmersonProcess.com
www.rosemount.com

Emerson Process Management

Latin America
1300 Concord Terrace, Suite 400
Sunrise, Florida 33323 USA
Tel + 1 954 846 5030

Standard Terms and Conditions of Sale can be found at www.rosemount.com/terms_of_sale
The Emerson logo is a trade mark and service mark of Emerson Electric Co.
AMS, SmartPower, Rosemount, and the Rosemount logotype are registered trademarks of Rosemount Inc.
TopWorx and GO Switch are registered trademarks of one of the Emerson Process Management group of companies.
HART and *Wireless*HART are registered trademarks of the HART Communication Foundation.
All other marks are the property of their respective owners.
© 2014 Rosemount Inc. All rights reserved.