

# Rosemount™ 702 Wireless Discrete Transmitter



IEC CE **WirelessHART**

- An installation-ready solution that provides dual channel, discrete input, or discrete output 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 percent data reliability.

# Emerson wireless solution

## IEC 62591 (*WirelessHART*<sup>®</sup>) ... the industry standard

### Self-organizing, adaptive mesh routing

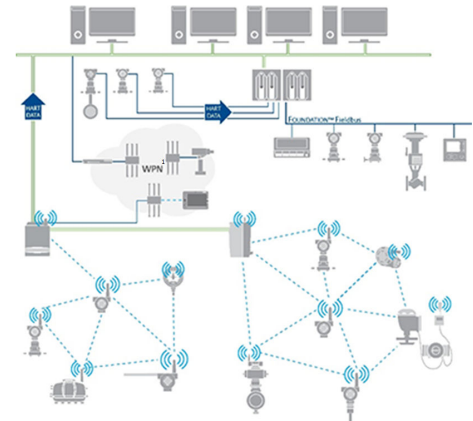
- Backed by Emerson’s proven experience in wireless field instrumentation and expert technical support.
- The self-organizing, self-healing network manages multiple communication paths for any given device. If an obstruction is introduced into the network, data continues to flow because the device has other established paths.

### Reliable wireless architecture

- Standard Institute of Electrical and Electronics Engineers (IEEE) 802.15.4 radios
- 2.4 GHz Industrial, Scientific, and Medical (ISM) band sliced into 15 radio channels
- Time-synchronized channel hopping

*WirelessHART*<sup>®</sup> technology delivers high reliability in challenging radio environment.

**Figure 1: Web Plant Network**



## Emerson's wireless

- Seamless integration with all existing host systems.
- Native integration into DeltaV™ and Ovation™ is transparent and seamless.
- Gateways interface with existing host systems using industry standard protocols including OPC, Modbus<sup>®</sup> Transmission Control Protocol/Internet Protocol (TCP/IP), Modbus Remote Terminal Unit (RTU), and EtherNet/IP™.

## Layered security keeps your network safe

- Ensures data transmissions are received only by the wireless gateway.
- Network devices implement industry standard encryption, authentication, verification, anti-jamming, and key management.
- Third-party security verification including Achilles and FIPS197, with:
  - Password strength monitoring
  - User-based login
  - Password reset requirements
  - Automatic lockout
  - Password expiration requirements

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# Ordering information

CONFIGURE >
VIEW PRODUCT >

## Online product configurator

Many products are configurable online using our product configurator.

Select the **Configure** button or visit [Emerson.com/global](https://emerson.com/global) to start. With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

## Specifications and options

The purchaser of the equipment must specify and select:

- Product materials
- Options
- Components

## Model code

Model codes contain the details related to each product. Exact model codes will vary; an example of a typical model code is shown in [Figure 2](#).

**Figure 2: Model Code Example**



1. Required model components (choices available on most)
2. Additional options (variety of features and functions that may be added to products)

## Required model components

### Model

Code	Description	
702	Discrete transmitter	★

### Transmitter type

Code	Description	
D	Wireless field mount	★

## Output

Code	Description	
X	Wireless	★

## Measurement

Code	Description	
32	Discrete dual input (dry contact), detects momentary inputs and counts	★
42	Discrete dual input or output, configurable	★
52	Plunger arrival detection (for use with ETC Cyclops™ Plunger Arrival Sensor)	★

## Housing

Code	Description	
D	Dual compartment housing – aluminum	★
E	Dual compartment housing – stainless steel	★

## Conduit threads

Code	Description	
1	½–14 NPT	★

## Certification

Code	Description	Measurement option code	
I1	ATEX intrinsically safe	32, 52	★
I2	INMETRO intrinsically safe	32, 52	★
I3	China intrinsically safety	32	★
I4	TIIS intrinsically safe	32, 42, 52	★
I5	USA intrinsically safe, Non-incendive, and Dust ignition- proof	32, 52	★
I6	Canada intrinsically safe	32, 52	★
I7	IECEX intrinsically safe	32, 52	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	32	★
IP	Korea intrinsically safe		★
IU	ATEX intrinsically safe for Zone 2	32, 42, 52	★
IY	IECEX intrinsically safe for Zone 2	32, 42, 52	★
IZ	INMETRO intrinsically safe for Zone 2	42	★
KQ	USA, Canada, ATEX Intrinsic Safety Combination	32	★
N5	U.S.A. Division 2, Non-incendive	32, 42, 52	★
N6	Canada Division 2, Non-incendive	32, 42, 52	★
NA	No approval	32, 42, 52	★
NM	ATEX Intrinsic Safety for Mining	32, 52	★

## Wireless options

### Wireless update rate, operating frequency, and protocol

Code	Description	
WA3	User configurable update rate, 2.4 GHz, IEC 62591 ( <i>WirelessHART</i> <sup>®</sup> protocol)	★

### Omni-directional wireless antenna and SmartPower™ Solutions

#### Note

Power module must be shipped separately, order Model **701PBKKF** or **A0701PBU**.

#### Note

For more information on the blue power module, refer to the [Emerson™ Wireless SmartPower™ Solutions Product Data Sheet](#).

Code	Description	
WK1	External antenna, adapter for black power module (IS Power module sold separately)	★
WM1	Extended range, external antenna, adapter for black power module (IS Power module sold separately)	★
WJ1	Remote antenna, adapter for black power module (IS Power module sold separately)	
WN1 <sup>(1)</sup>	High-gain, remote antenna, adapter for black power module (IS Power module sold separately)	

(1) *Limited availability, consult factory for details.*

## Additional options

### Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

### Display

Code	Description	
M5	LCD display	★

### Mounting bracket

Code	Description	
B4	Universal L mounting bracket for two inch pipe mounting – 304 SST bracket and bolts	★

### Configuration

Code	Description	
C1	Factory configure date, descriptor, message fields, and wireless parameters	★

## Cable gland

Code	Description	
G2	Cable gland (7.5–11.9 mm)	★
G4	Thin wire cable gland (3–8 mm)	★

## Switches and kits

Code	Description	
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	★

## Spare parts and accessories

Part number	Description
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
03151-9270-0003	Mounting Bracket Kit, 316 SST

# Specifications

## Functional specifications

### Discrete input

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

### Switching threshold, measurement option code 32 and 42

Open > 100 Kilo-Ohms

Closed < 5 Kilo-Ohms

### 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 zero.

### Discrete output, measurement option Code 42

Maximum rating: 26 Vdc, 100 mA

On resistance: typical 1 Ohm

### Wireless output

IEC 62591 (*WirelessHART*<sup>®</sup>) 2.4 GHz

### Radiated output power (EIRP)

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

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

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#### Note

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

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### Humidity limits

0–100 percent relative humidity

### Wireless update rate, measurement option code 32, 42, 52

User selectable, 1 second to 60 minutes

## Wireless latching time, measurement option code 32, 42, 52

User selectable, 1 second to 10 minutes

## 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 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 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

#### Power module

The Emerson SmartPower™ Power Module is field replaceable, featuring keyed connections that eliminate the risk of incorrect installation.

The power module is an intrinsically safe solution, containing Lithium-thionyl chloride with a polybutadine terephthalate (PBT) enclosure.

The transmitter has power module life time rating<sup>(1)</sup> of 10 years with a one-minute update rate, at reference conditions.

#### Note

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

Continuous exposure to ambient temperature limits [-40 °F (-40 °C) or +185 °F (+85 °C)] may reduce specified life by up to 20 percent.

#### Sensor terminals

Screw terminals permanently fixed to terminal block

#### Field Communicator terminal connections

Clips permanently fixed to terminal block, designated by the text COMM.

## Materials of construction

### Enclosure

<b>Housing</b>	Low-copper aluminum, or stainless steel
<b>Paint</b>	Polyurethane
<b>Cover O-ring</b>	Buna-N
<b>Terminal and power module pack</b>	Polybutadine terephthalate (PBT)

(1) Power module life time rating is estimated using the 701P SmartPower Module Black.

**Antenna** PBT/PC integrated omni-directional antenna

## Conduit entries

½-14 NPT

## Weight

**Rosemount 702 without LCD display** Low-copper aluminum: 4.6 lb. (2.0 kg)  
Stainless steel: 8.0 lb. (3.6 kg)

**Rosemount 702 with M5 LCD display** Low-copper aluminum: 4.7 lb. (2.1 kg)  
Stainless steel: 8.1 lb. (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](#) for more information.

## Performance specifications

### Electromagnetic compatibility (EMC)

Meets all industrial environment requirements of EN61326 and NAMUR NE-21. Maximum deviation <1% span during EMC disturbance.

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#### Note

During surge event, device may exceed maximum EMC deviation limit or reset. Within specified start-up time, device self-recovers and returns to normal operation.

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### Vibration effect

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

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

### Temperature limits

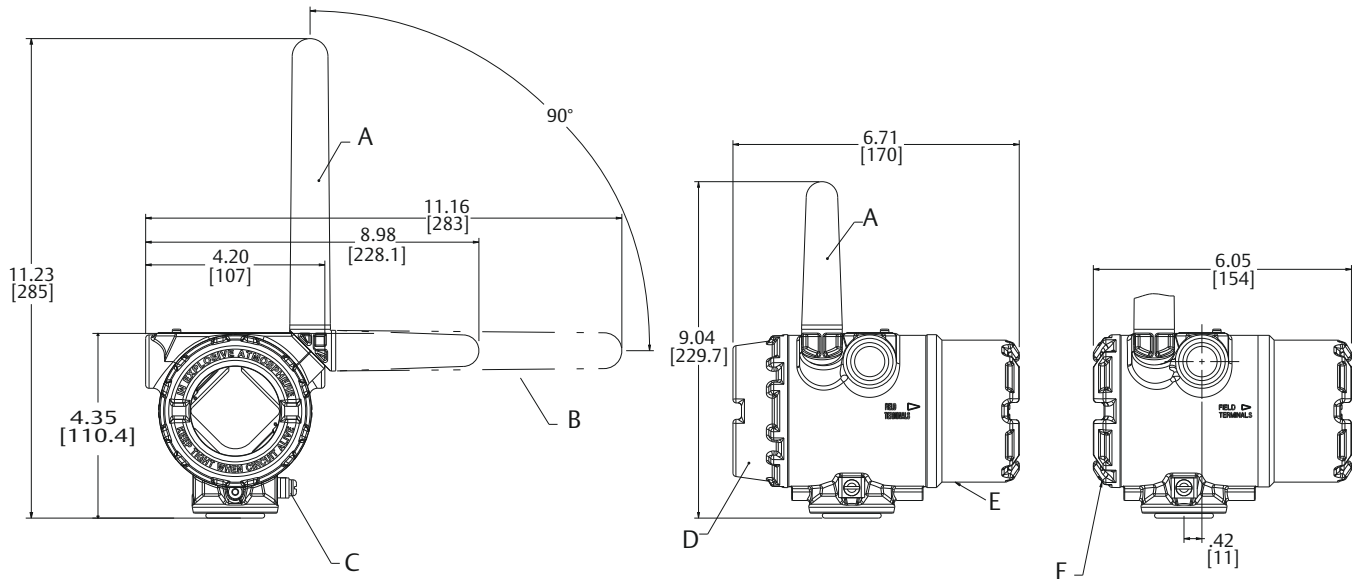
Description	Operating limit	Storage limit
Without LCD display	-40 °F to +185 °F (-40 °C to +85 °C)	-40 °F to +185 °F (-40 °C to +85 °C)
With LCD display	-4 °F to +175 °F (-20 °C to +80 °C)	-40 °F to +185 °F (-40 °C to +85 °C)

## Product certification

Refer to the [Rosemount 702 Wireless Discrete Transmitter Quick Start Guide](#) for product certification information.

# Dimensional drawings

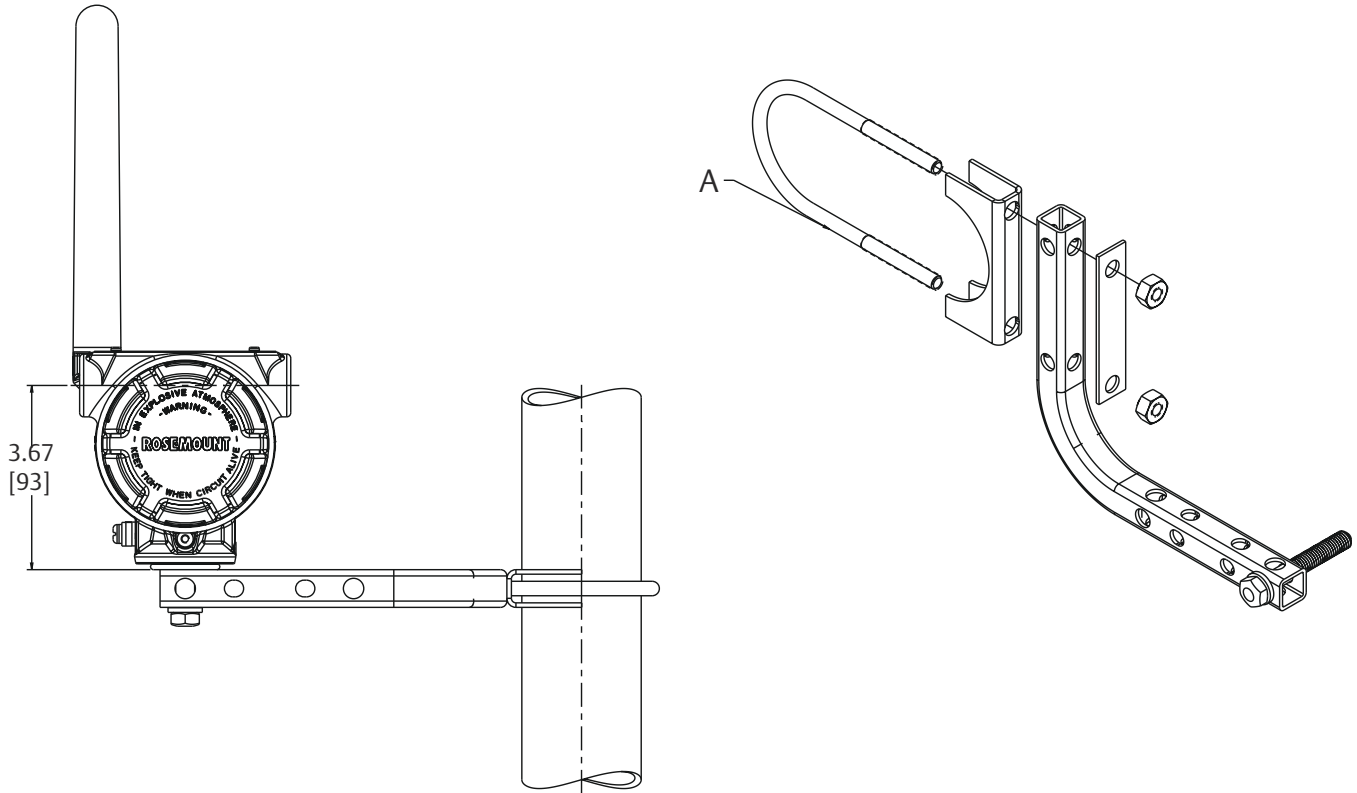
**Figure 3: Rosemount 702 Wireless Discrete Transmitter**



- A. 2.4 GHz/WirelessHART® extended range antenna
- B. Possible antenna rotation
- C. Ground screw assembly
- D. Digital display cover
- E. Field terminals (this side)
- F. Transmitter electronics (this side), no display cover

Dimensions are in inches (millimeters).

**Figure 4: Mounting Configuration with Optional Mounting Bracket**



A. 2-inch U-bolt for pipe fitting  
Dimensions are in inches (millimeters).

For more information: [Emerson.com/global](https://emerson.com/global)

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