

# Rosemount™ 802 Wireless Multi Discrete I/O Transmitter



- Features eight discrete channels, each configurable for discrete input or discrete output.
- Versatile power options with Emerson 701P SmartPower™ module or 10-30 Vdc external power. SmartPower module provides up to seven-year maintenance-free operation and field replacement without transmitter removal.
- Momentary inputs are continuously measured between wireless updates.
- Self-organizing network delivers information-rich data with > 99 percent data reliability.

# Emerson wireless solution

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

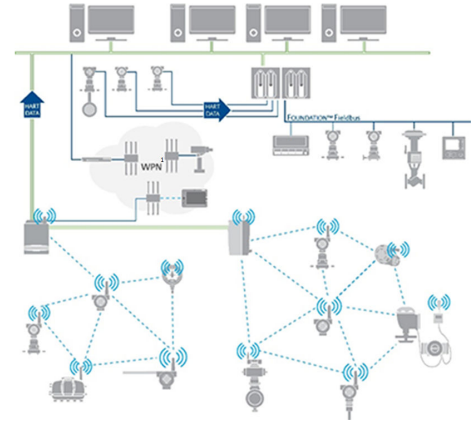
### Self-organizing, adaptive mesh routing

- 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, then data will continue 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
- Direct Sequence Spread Spectrum (DSSS) technology delivers high reliability in challenging radio environment

Figure 1: Web plant network



## Emerson's wireless

- Seamless integration to 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, and password expiration requirements.

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# Ordering information

[VIEW PRODUCT >](#)

## Specifications and options

The purchaser of the equipment must specify and select the product materials, options, or components.

## Model codes

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**

<b>802 X 42 08 D 5A NA WA3 WK7</b>	<b>B6 G1</b>
1	2

1. Required model components <sup>(1)</sup>
2. Additional options <sup>(2)</sup>

## Optimizing lead time

The starred offerings (★) represent the most common options and should be selected for the fastest delivery times. The non-starred offerings are subject to additional delivery lead time.

## Required model components

### Model

Code	Description	
802	Wireless Multi Discrete I/O Transmitter	★

### Transmitter output

Code	Description	
X	Wireless	★

(1) Choices available on most.  
 (2) Variety of features and functions that may be added to products.

## Measurement type

Code	Description	
42	Discrete input or output, user-configurable	★

## Discrete channels

Code	Description	
08	8 channel	★

## Housing

Code	Description	
D	Aluminum compartment housing	★

## Conduit threads

Code	Description	
5A	5 conduit, ½-14 NPT, conduit entries not sealed	★

## Certification

Code	Description	
N5	USA Division 2 Non-Incendive	★
N6	Canada Division 2 Non-Incendive	★
NA	No approval	★

## 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

Black power module must be shipped separately, order Model 701PBKKE

Code	Description	
WK7	External antenna, adapter for black power module (intrinsically safe [IS] power module sold separately) or for use with 10-30 Vdc external power	★
WM7	Extended range, external antenna, adapter for black power module (IS power module sold separately) or for use with 10-30 Vdc external power	★

## Additional options

### Extended product warranty

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

### Mounting bracket

Code	Description	Common option
B6	Mounting bracket for 2-in. pipe mounting, stainless steel (SST) bracket and bolts	★

### Configuration

Code	Description	
C1	Custom software configuration (Configuration Data Sheet must be completed)	★

### Standard cable gland

Code	Description	
G1	1 cable gland (0.3 - 0.5 in. [6.5-11.9 mm])	★
G2	2 cable glands (0.3 - 0.5 in. [6.5-11.9 mm])	★
G3	3 cable glands (0.3 - 0.5 in. [6.5-11.9 mm])	★
G4	4 cable glands (0.3 - 0.5 in. [6.5-11.9 mm])	★
G5	5 cable glands (0.3 - 0.5 in. [6.5-11.9 mm])	★

### Thin wire cable gland

Code	Description	
R1	1 cable gland (0.1 - 0.3 in. [3.2 - 8 mm])	★
R2	2 cable glands (0.1 - 0.3 in. [3.2 - 8 mm])	★
R3	3 cable glands (0.1 - 0.3 in. [3.2 - 8 mm])	★
R4	4 cable glands (0.1 - 0.3 in. [3.2 - 8 mm])	★
R5	5 cable glands (0.1 - 0.3 in. [3.2 - 8 mm])	★

## Spare parts and accessories

Part number	Description
00848-4350-2001	Mounting bracket for 2-in. pipe mount - stainless steel (SST) bracket and bolts
00648-9010-0001	Kit, spares, cable gland, ½ NPT, 0.3 - 0.5 in. (7.5 - 11.9 mm) (quantity 1)
00649-9010-0003	Kit, spares, cable gland, ½ NPT, 0.1 - 0.3 in. (3 - 8 mm) (quantity 1)
00849-1605-0001	Kit, spares, cable gland adapter, M20 (quantity 4)

## Specifications

### Functional specifications

#### Discrete input

Suitable for SPST dry contacts. To maintain intrinsically safe (IS) ratings, contacts must be limited to simple switches.

#### Switching threshold

Open > 100 K Ohm

Closed < 5 K Ohm

#### Momentary discrete input

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 rollover value is configurable between 1 to 1,000,000. Once the transmitter hits the rollover value, it resets to zero.

#### Note

Default rollover value is 1,000,000.

#### Discrete output

**Maximum rating** 28 Vdc, 100 mA

**On resistance** Typical 1 Ohm

#### External power only

All eight channels have a third **PWR OUT** (power out) terminal that outputs continuous voltage, which can be up to 2 Vdc less than the supplied external power to the Rosemount 802. (For example, 28 Vdc into the 802, power terminal outputs 26 Vdc.)

#### Wireless output

IEC 62591 (*WirelessHART*®) 2.4 GHz

#### 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

#### Humidity limits

0 to 100 percent relative humidity

#### Wireless update rate

User-selectable, 1 second to 60 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

#### Rosemount 802 power input

The transmitter can be powered by a replaceable, intrinsically safe Emerson 701P SmartPower™ Module - Black (ordered separately) or by 10 - 30 Vdc external power.

#### Power Module

The 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 polybutylene terephthalate (PBT) enclosure.

The transmitter has a power module lifetime rating of seven 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 or +185 °F; -40 or +85 °C) may reduce specified life by up to 20 percent.

<b>DC external power</b>	Input voltage: 10 - 30 Vdc Input current (maximum): 805 mA Power supply must be isolated from AC mains and provide transient free DC input power to the transmitter.
<b>Sensor terminals</b>	Screw terminals permanently fixed to terminal block

### Communication device terminal connections

**Communication terminals**      Clips permanently fixed to terminal block, designated by the text COMM

### Materials of construction

Enclosure

<b>Housing</b>	Low-copper aluminum
<b>Paint</b>	Polyurethane
<b>Cover O-ring</b>	Silicone
<b>Terminal and power module pack</b>	PBT
<b>Antenna</b>	PBT/PC integrated omni-directional antenna

**Conduit entries****Quantity** Five conduit entries**Thread type** ½ - 14 NPT**Weight**

Low-copper aluminum

**802** 5.13 lb. (2.33 kg)**Enclosure ratings**

NEMA® 4X and IP66

**Mounting**

Transmitters can be panel-mounted or be mounted onto a 2-in. pipe stand (with option code B6). Sensors must be remotely mounted, as transmitter conduit entries are not designed for direct sensor mounting.

## Performance specifications

**Electromagnetic compatibility (EMC)**

Meets all industrial environmental requirements of EN61326. Maximum deviation > 1 percent span during EMC disturbance.<sup>(3)</sup>

**Vibration effect**

Wireless output unaffected when tested per the requirements of IEC60770-1 field with general application or pipeline with low vibration level (10-60 Hz, 0.006 in. [0.15 mm] displacement peak amplitude/60-500 Hz 2 g).

Wireless output unaffected when tested per the requirements of IEC60770-1 field or pipeline with high vibration level (10-60 Hz, 0.008 in. [0.21 mm] displacement peak amplitude/60-2000 Hz 3 g).

**Temperature limits**

Operating limit	Storage limit
-40 to +185 °F -40 to +85 °C	-40 to +185 °F -40 to +85 °C

## Product certifications

Refer to the *Rosemount 802 Wireless Multi Discrete I/O Transmitter Quick Start Guide* for product certification information.

(3) During surge event, device may exceed maximum EMC deviation limit or reset; however, device will self-recover and return to normal operation within specified start-up time.

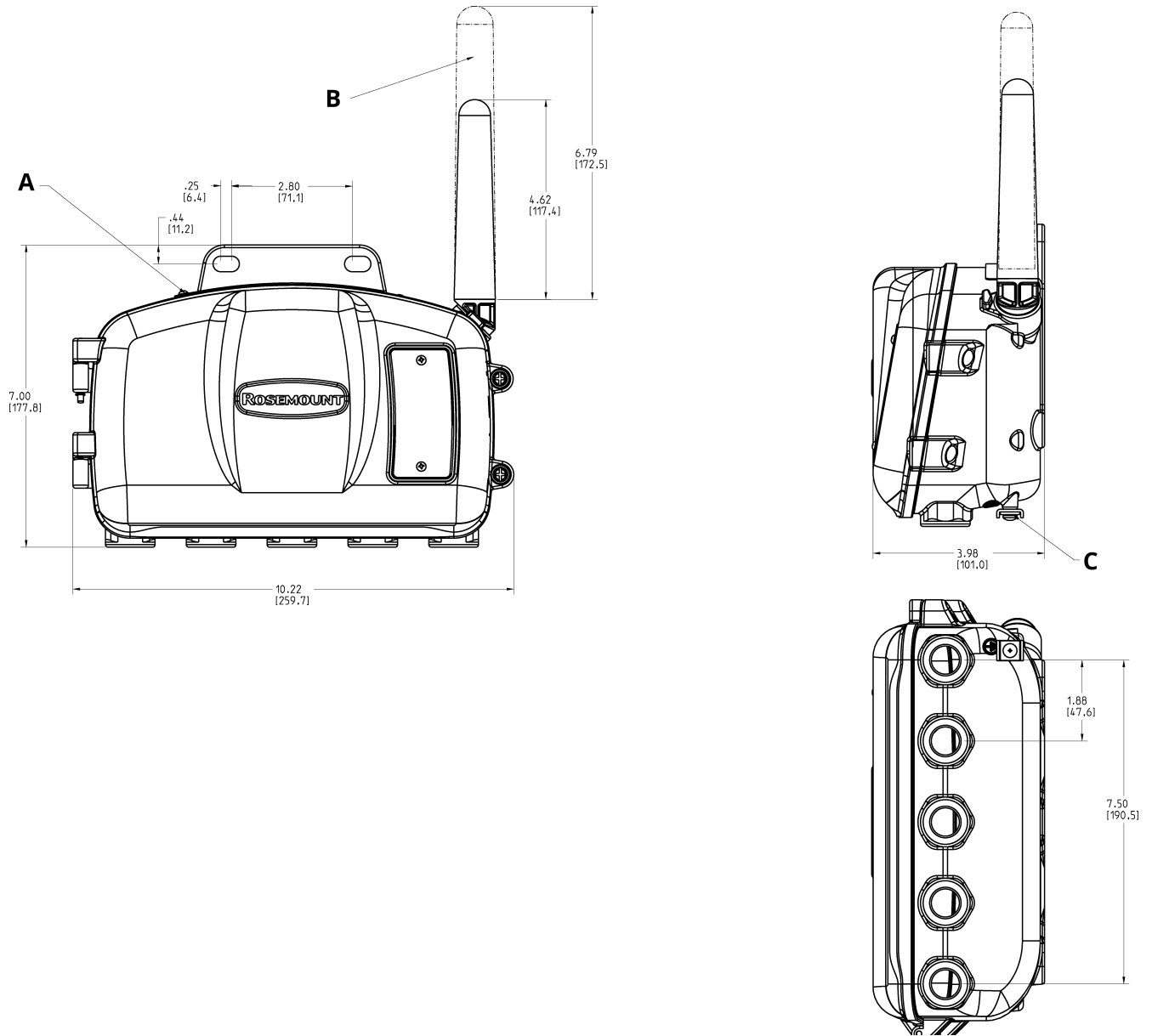


# Dimensional drawings

**Note**

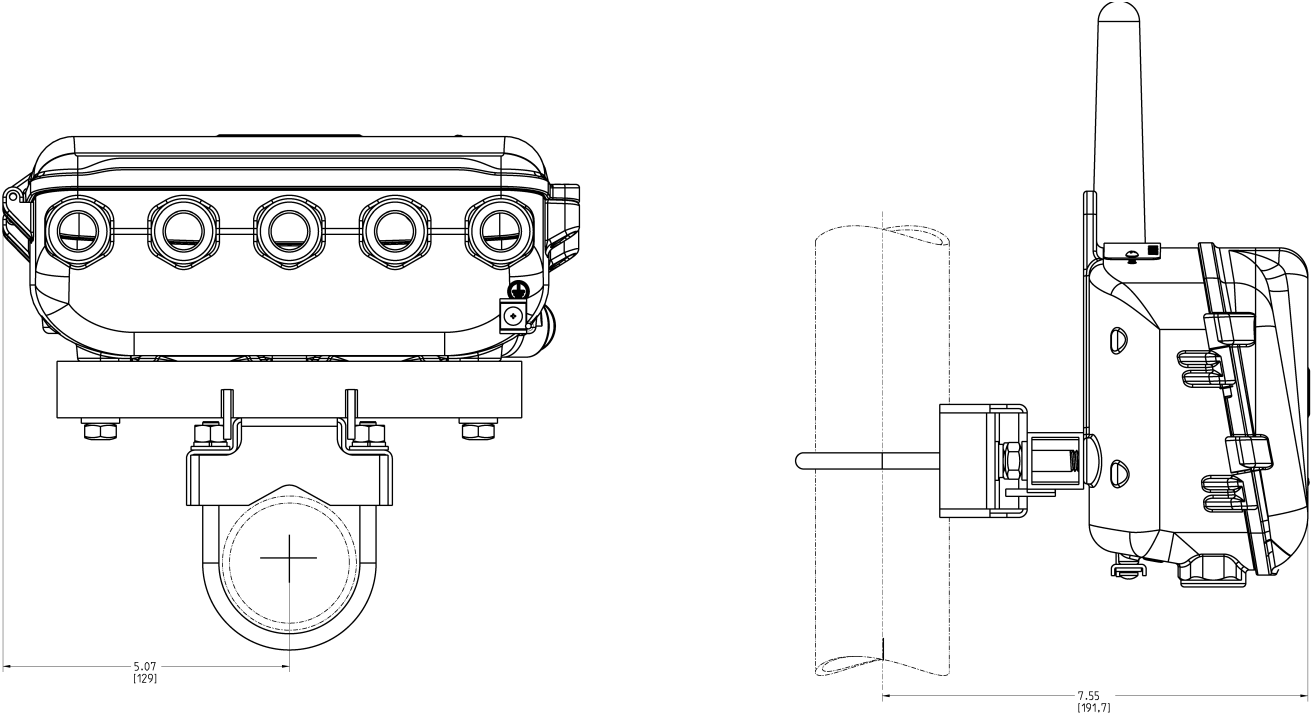
Dimensions are in inches [millimeters].

**Figure 3: Rosemount 802 Wireless Multi Discrete I/O Transmitter**



- A. Certification label
- B. 2.4 GHz WirelessHART® extended range antenna
- C. Grounding lug

Figure 4: Mount on vertical pipe (model option B6)





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