

# Rosemount™ 708 Wireless Acoustic Transmitter



WirelessHART IEC CE

- Improve energy efficiency and environmental compliance with acoustic monitoring of steam traps and pressure relief valves
- Gain instant visibility to all of your critical steam traps and PRVs through a non-intrusive, WirelessHART® monitoring system
- Backed by proven experience in wireless field instrumentation and expert technical support from Emerson™

# Emerson's Wireless Solution

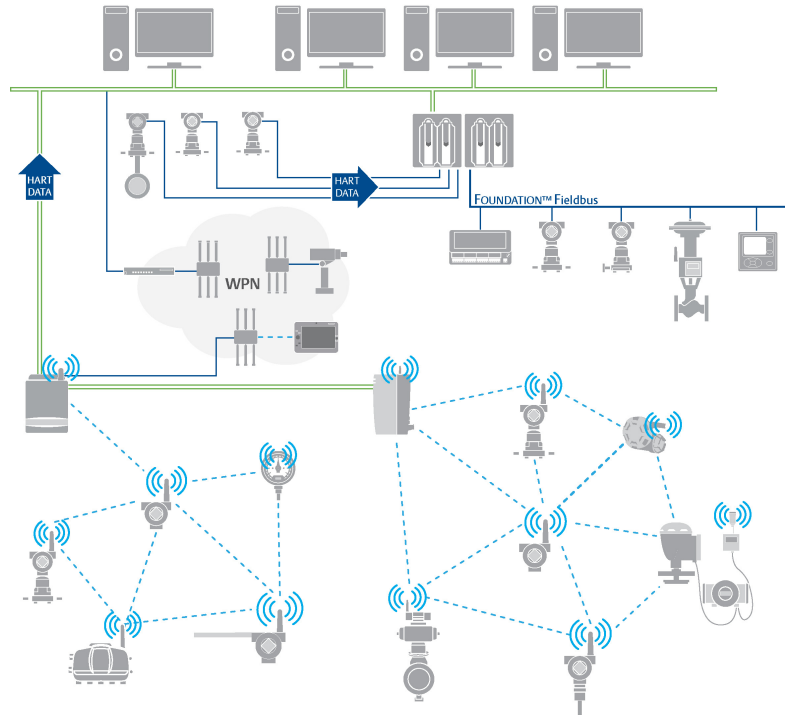
## IEC 62591 (WirelessHART)... The industry standard

### Self-organizing, adaptive mesh routing

- Know you are 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 will continue to flow because the device already has other established paths.

### Reliable wireless architecture

- Standard IEEE 802.15.4 radios
- 2.4 GHz ISM band sliced into 15 radio-channels
- Time Synchronized Channel Hopping
- Direct sequence spread spectrum (DSSS) technology delivers high reliability in challenging radio environment



## 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® TCP/IP, Modbus 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- User based login and enforced password strength. Password strength monitoring, user based log in, password reset requirements, automatic lockout, password expiration requirements. Based on guidelines from ISA99.03.03 standard approved level two.

### SmartPower™ solutions

- Optimized Emerson instrumentation, both hardware and software, to extend power module life
- SmartPower technologies enable predictable power life

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# Rosemount 708 Wireless Acoustic Transmitter

## Ultrasonic acoustic event detection

- Reliably detects and transmits information about acoustic events such as leaks
- Transmitter output includes acoustic level (0 to 255 counts) and temperature (-40 to 260 °C)
- Transmitter communicates process variable and status information via the wireless network for integration into existing host systems

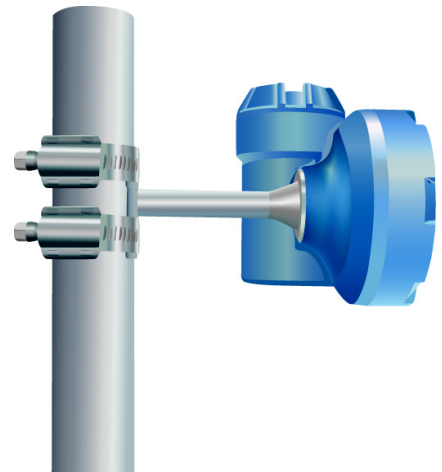


## Monitor steam traps

- Steam Trap Monitoring application provides critical, real-time information on the condition of your monitored steam trap population
- Real-time monitoring provides instantaneous feedback for system maintenance and optimization

## Monitor pressure relief valves or pressure safety valves

- Turbulence generated by a leaky valve can be detected using the acoustic transmitter
- Notification when release is occurring and when the release has stopped
- Emerson Wireless network provides timestamped information to the host
- Automated data enables reporting of a tamper-proof data log



## Mounting flexibility

The wireless acoustic transmitter can be directly mounted to process piping without cutting pipes or changing pipe configurations allowing for a flexible, easy installation.

## Reliable transmitter performance

The rugged and robust design of the transmitter ensures reliable performance in harsh environments.

# Ordering Information

**Table 1. Rosemount Product Ordering Information**

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

Model	Product description	
708	Acoustic Transmitter	★
<b>Output protocol</b>		
X	Wireless	★
<b>Measurement</b>		
1	Steam Traps with Steam Trap Monitoring Software (order with 7001X)	★
2	Other measurements	★
<b>Housing</b>		
P	Engineered polymer	★
<b>Waveguide configuration</b>		
A1	Acoustic waveguide	★
<b>Product certifications</b>		
NA	No hazardous location approval	★
I1	ATEX Intrinsic Safety	★
I2	INMETRO Intrinsic Safety	★
I3	China Intrinsic Safety	★
I4	TIIS Intrinsic Safety	★
I5	USA Intrinsically Safe	★
I6	Canada Intrinsically Safe	★
I7	IECEx Intrinsic Safety	★
IM	EAC Intrinsically Safe	★
IP	Korea Intrinsically Safe	★
<b>Mounting hardware</b>		
NA00	No mounting hardware	★
HC01	Stainless steel mounting band, nominal pipe size 1/2- to 2 1/2-in.	★
HC02	Stainless steel mounting band, nominal pipe size 3- to 4-in.	★
HC03	Stainless steel mounting band, nominal pipe size 4- to 10-in.	★
HT01	High temperature stainless steel mounting hardware, nominal pipe size 1/2- to 1 1/4-in. (260 to 550 °C)	

**Table 1. Rosemount Product Ordering Information**

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

**Wireless options (include with selected model number)**

<b>Extended product warranty</b>		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
<b>Wireless update rate, operating frequency and protocol</b>		
WA3	User configurable update rate, 2.4 GHz DSSS, IEC 62591 ( <i>WirelessHART</i> )	★
<b>Omni-directional wireless antenna and SmartPower solutions<sup>(1)</sup></b>		
WP5	Internal antenna, compatible with green power module (I.S. power module sold separately)	★
<b>Configuration</b>		
C1	Factory configure date, descriptor, message fields and wireless parameters	★
<b>Typical model number: 708 X 1 P A1 NA HC01 WA3 WP5</b>		

1. Power module must be shipped separately, order 701PGNKF.

**Table 2. Spare Parts and Accessories**

00708-9010-0001	High temperature mounting hardware	★
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# Specifications

## Functional specifications

### Output

IEC 62591 (WirelessHART) 2.4 GHz DSSS

### Humidity limits

0–100 percent relative humidity

### Transmit rate

User selectable 1 second to 60 minutes

### Radio frequency power output from antenna

Internal (WP option) antenna:  
Maximum of 10 mW (10 dBm) EIRP

## 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. 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

- Replaceable, non-rechargeable, Intrinsically Safe Lithium-Thionyl Chloride power module
- Ten-year power module life at reference conditions<sup>(1)</sup>

### Field Communicator connections

Communication Terminals - Clips permanently fixed to power module

## Materials of construction

### Housing

PBT/PC

### Cover O-ring

Silicone

### Power module housing

PBT/PC

### Wave guide

Machined 316L SST

### Mounting

Transmitters are directly attached to process piping using two stainless steel mounting bands. High temperature mounting hardware should be used when process temperatures exceed 260 °C (500 °F).

### Weight

Rosemount 708 with power module –1.31 lb (0.595 kg)  
Rosemount 708 without power module –0.98 lb (0.445 kg)

### Enclosure ratings

NEMA® 4X and IP66/67

## Performance specifications

### Vibration effect

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).

### Temperature limits

Ambient limit: –40 to 85 °C (–40 °F to 185 °F)  
Storage limit: –40 to 85 °C (–40 °F to 185 °F)  
Heat from the process is transferred to the transmitter housing. If the process temperature is high, the ambient temperature will need to be lower to account for heat transferred to the transmitter housing. (see [Table 3 on page 7](#))

1. Reference conditions are 70 °F (21 °C), transmit rate of once per minute, and routing data for three additional network devices.

**Table 3. Temperature Derating — Direct Mount**

Process temperature (°C)	Max ambient (°C)
260	41
240	45
220	49
200	53
180	57
160	61
140	64
120	68
100	72
85	75

**Table 4. High Temperature — High Temperature Mounting Option**

Process temperature (°C)	Max ambient (°C)
550	41
520	45
490	47
460	49
430	51
400	53
370	56
340	58
310	60
280	62
260	63

**Electro Magnetic Compatibility (EMC)**

Meets all relevant requirements of EN 61326-2-3:2013

**Wireless output specifications****Acoustic output**

0 to 255 counts

**Temperature output**

-40 to 260 °C (-104 to 500 °F)

# Product Certifications

Rev 2.1

## European Union Directive Information

A copy of the EU Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EU Declaration of Conformity can be found at [Emerson.com/Rosemount](http://Emerson.com/Rosemount).

## 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

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

## Installing in North America

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** U.S.A. Intrinsically Safe (IS)  
 Certificate: (FM) 3043245  
 Standards: FM Class 3600 – 1998, FM Class 3610 – 2010, FM Class 3810 – 2005, NEMA 250 – 2003, ANSI/IEC 60529 – 2004  
 Markings: IS CL I, DIV 1, GP A, B, C, D T4;  
 CL 1, Zone 0 AEx ia IIC T4;  
 T4(–40 °C ≤ T<sub>a</sub> ≤ +70 °C) when installed per Rosemount drawing 00708-1000; Type 4X

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

1. The Rosemount 708 Wireless Acoustic Transmitter shall only be used with the 701PGNKF Rosemount SmartPower battery pack.
2. Potential Electrostatic charging Hazard – See instructions.

## Canada

- I6** Canada Intrinsically Safe  
 Certificate: (CSA) 2439890  
 Standards: CAN/CSA C22.2 No. 0-M91, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 157-92, CSA Std C22.2 No. 60529:05  
 Markings: I.S. CL I, DIV 1, GP A, B, C, D when installed per Rosemount drawing 00708-1001; T3C; Type 4X

## Europe

- I1** ATEX Intrinsic Safety  
 Certificate: Baseefa 11ATEX0174X  
 Standards: EN 60079-0: 2012, EN 60079-11: 2012  
 Markings: Ⓜ II 1 G Ex ia IIC T4 Ga, T4 (–40 °C ≤ T<sub>a</sub> ≤ +70 °C)

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

1. The plastic enclosure of the Rosemount 708 may constitute a potential electrostatic ignition risk and must not be rubbed or cleaned with a dry cloth.
2. The Model 701PGNKF Power Module may be replaced in a hazardous area. The power module has a surface resistivity greater than 1GΩ 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: IECEx BAS 11.0091X  
 Standards: IEC 60079-0:2011, IEC 60079-11:2011  
 Markings: Ex ia IIC T4 Ga, T4(-40 °C ≤ T<sub>a</sub> ≤ +70 °C)

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

1. The plastic enclosure of the Rosemount 708 may constitute a potential electrostatic ignition risk and must not be rubbed or cleaned with a dry cloth.

## Brazil

- I2** INMETRO Intrinsic Safety  
 Certificate: UL-BR 16.0128X  
 Standards: ABNT NBR IEC 60079-0:2008 + Errata 1:2011, ABNT NBR IEC 60079-11:2009  
 Markings: Ex ia IIC T4 Ga, T4(-40 °C ≤ T<sub>a</sub> ≤ +70 °C)

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

1. See certificate for special conditions.

## China

- I3** China Intrinsic Safety  
 Certificate: GYJ13.1445X  
 Standards: GB3836.1-2010, GB3836.4-2010, GB3836.20-2010  
 Markings: Ex ia IIC Ga T4, -40 ~ +70 °C

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

1. See certificate for special conditions.

## Japan

- I4** TIIS Intrinsically Safe  
 Certificate: TC20395  
 Markings: Ex ia IIC T4 X (-20 ~ +60 °C)

## EAC - Belarus, Kazakhstan, Russia

- IM** Technical Regulation Customs Union (EAC) Intrinsic Safety  
 Certificate: RU C-US.Gb05.B.00643  
 Markings: 0Ex ia IIC T4 Ga X  
 T4 (-40 °C ≤ T<sub>a</sub> ≤ +70 °C)

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

1. See certificate for special conditions.

## Korea

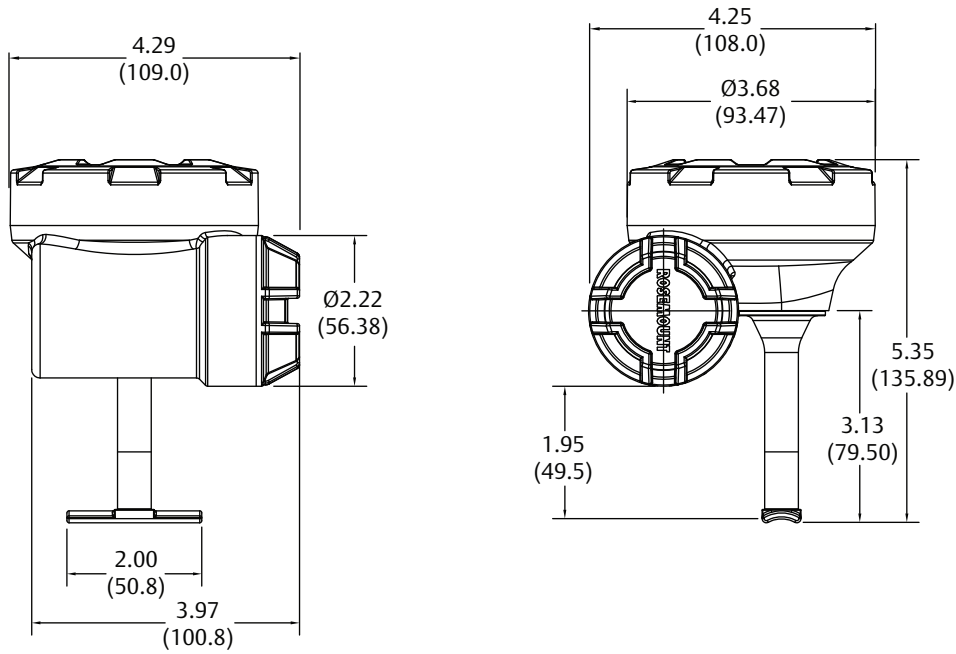
- IP** Korea Intrinsic Safety  
 Certificate: 13-KB4BO-0145X  
 Markings: Ex ia IIC T4  
 T4 (-40 °C ≤ T<sub>a</sub> ≤ +70 °C)

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

1. See certificate for special conditions.

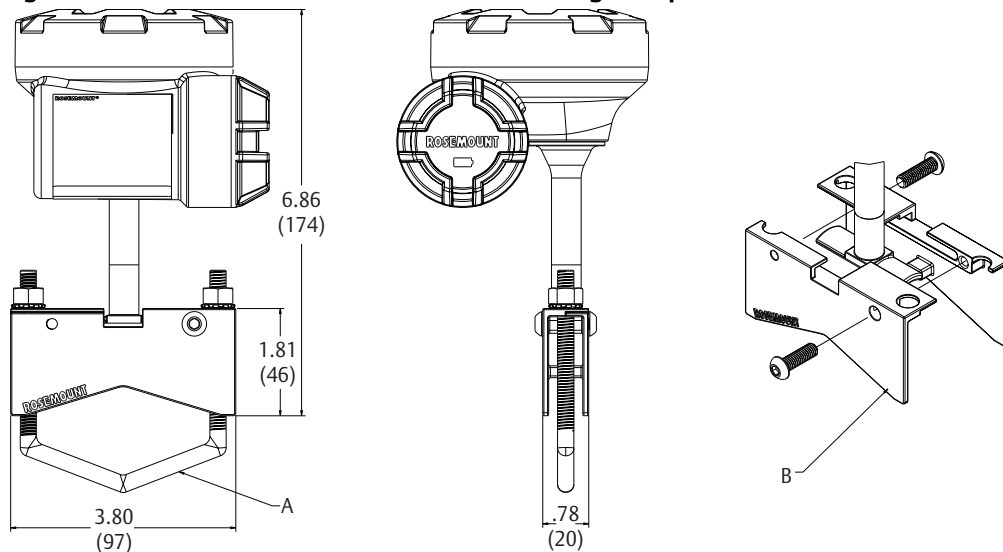
# Dimensional Drawings

Figure 1. Rosemount 708 Direct Mount



Dimensions are in inches (millimeters).

Figure 2. Rosemount 708 Acoustic Transmitter with High Temperature Standoff and Fastener Kit



A. For nominal pipe sizes 0.5- to 1<sup>1</sup>/<sub>4</sub>-in.  
 B. Bracket mounting  
 Dimensions are in inches (millimeters).



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