

Rosemount™ Wireless WT210 Corrosion Transmitter

with Rosemount Permasense™ Technology



Rosemount Wireless Corrosion Transmitters provide direct measurement of wall thickness, which is the most accurate indication of asset integrity. The transmitter utilizes patented signal processing to handle internal surface roughness caused by some corrosion mechanisms and best-in-class material and temperature compensation. These features combine to offer industry-leading measurement repeatability and sensitivity in field conditions.

- Simple to deploy and maintain, being non-intrusive with wireless data delivery.
- Provides facilities with continuous corrosion and erosion monitoring for improved decision making.
- Patented waveguide technology allows measurement on pipes and vessels up to 1112 °F (600 °C).
- *WirelessHART*® technology ensures reliable, robust, and secure data retrieval from the plant devices to a remote office location.

Emerson wireless solution

IEC 62591 (*WirelessHART*[®]) ... the industry standard

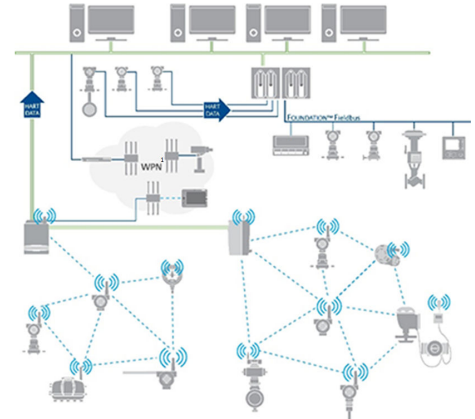
Self-organizing, adaptive mesh routing

- 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[®] 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.

Contents

Emerson wireless solution.....	2
Rosemount Wireless WT210 Corrosion Transmitter.....	3
Ordering information.....	4
Specifications.....	7
Product certifications.....	9
Dimensional drawing.....	10

Rosemount Wireless WT210 Corrosion Transmitter

Corrosion and erosion monitoring

- May be used on metal with continuous service temperatures up to 1112 °F (600 °C).
- Transmitter communicates process variable and status information via the wireless network for integration into existing host systems.

Reliable data in challenging environments

- Plantweb Insight™ software application provides long term pipe thickness status and trending. This allows for proactive maintenance with actionable alerts based on pipe condition.
- Built-in thermocouple monitors pipe surface temperature and allows compensation in the thickness measurement for the most reliable measurement, even in high temperature environments.



Mounting flexibility

- Rosemount Wireless WT210 corrosion monitoring sensors can be installed using studs welded to the pipe or vessel.
- [Rosemount Sensor Clamps 200](#) can be used as an alternative to stud welding up to 570 °F (300 °C).
- [Universal Mount for Rosemount Wireless WT210](#) can be used as alternative to stud welding for installation of a sensor up to 797 °F (425 °C).

Reliable transmitter performance

- Rugged and robust design of the transmitter ensures reliable performance in harsh environments.
- *WirelessHART*® creates a self-forming and self-managing wireless mesh, delivering continuous wall thickness measurements of the highest integrity and accuracy.



Ordering information

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

XXX X XXX X X XX	XXX XXX XX
1	2

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

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

Specification and selection of product materials, options, and/or components must be made by the purchaser of the equipment.

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	
WT210	Corrosion Transmitter	★

Transmitter output

Code	Description	
X	Wireless	★

Measurement type

Code	Description	
1	Insight	★

Product certifications

Code	Description	
NA	No approval	★
I1	ATEX Intrinsic Safety	★
I2	Brazil Intrinsic Safety	★
I3	China Intrinsic Safety	★
I4	Japan Intrinsic Safety	★
I5	USA Intrinsically Safe	★
I6	Canada Intrinsically Safe	★
I7	IECEX Intrinsic Safety	★
IM	EAC Intrinsic Safety	★
IP	Korea Intrinsic Safety	★
IT	Taiwan Intrinsic Safety	★
IV	South Africa Intrinsic Safety	★
IW	India Intrinsic Safety	★

Wireless update rate, operating frequency and protocol

Code	Description	
WA3	User configurable update rate, 2.4 GHz, <i>WirelessHART</i> ®	★

Omni-directional wireless antenna and SmartPower™ solutions

Code	Description	
WP6	Internal antenna, compatible with corrosion power module (standard power module included)	★

Spare parts and accessories

Part number	Description	
BP20E-5100-0001	BP20E Power Module, SGSus-c	★
BP20E-5100-0002	BP20E Power Module, ATEX, IECEX	★
BP20E-5100-0003	BP20E Power Module, EAC EX	
BP20E-5100-0004	BP20E Power Module, Japan	
BP20E-5100-0005	BP20E Power Module, Brazil	
BP20E-5100-0006	BP20E Power Module, Korea	
BP20E-5100-0007	BP20E Power Module, China	

Part number	Description	
IK220-2000-0101	Commissioning kit (SGSus-c)	
IK220-2000-0102	Commissioning kit (ATEX, IECEX, IA)	
IK220-2000-0103	Commissioning kit (EAC)	
IK220-2000-0104	Commissioning kit (CML)	
IK220-2000-0105	Commissioning kit (Brazil)	
IK220-2000-0107	Commissioning kit (China)	
PERMA-2000-0001	Spare Stainless Steel Safety Lanyard, 6.6 ft. (2 m)	
PERMA-2001-0001	Spare heatshield for WT210	
PERMA-2002-0001	Spare Nord Lock Washers	
PERMA-2003-0001	Spare Smart Band Buckle	
PERMA-2004-0001	Spare Smart Band Strap (3.5 m lengths)	
PERMA-2006-0003	Replacement Strap for Universal mount 59.06 in. (1.5 m)	
PERMA-2008-0001	Alternative Sensors Shoe NPS2 - NPS3 pipes	
PERMA-2008-0002	Spare Sensors Shoe - standard	
PERMA-2009-0001	Universal Mount for WT210	

Specifications

Functional specification

Output

IEC 62591 (*WirelessHART*[®]) 2.4 GHz

Humidity limits

0-100 percent relative humidity

Transmit rate

Every 12 hours by default

Radio frequency power output from antenna

Internal (WP option) antenna: Less than 10 mW (10 dBm) EIRP

Thickness Measurement

Measurement repeatability: 0.0001-in. (2.5 μm)⁽¹⁾

Resolution: 0.00004-in. (1 μm)⁽²⁾

Surface temperature

Accuracy: 10 °C (18 °F)

Repeatability: Within 1 °C (2 °F)

Physical specifications

Application requirements

Wall Thickness Minimum 0.125-in. (3 mm) Maximum 4-in. (100 mm)

Maximum insulation thickness: 8-in. (200 mm)

Compatible pipe materials: All metals

Material selection

Emerson provides a variety of Rosemount products with various product options and configurations. This includes 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, or 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

- Replaceable, non-rechargeable, Intrinsically Safe Lithium-Thionyl Chloride power module
- Nine-year power module life at reference conditions with BP20E module⁽³⁾

(1) Repeatability is defined as the standard deviation of repeated thickness measurements at a location experiencing no metal loss and at constant temperature over the measurements.

(2) Resolution is defined as the resolution of the thickness measurement stored in the software.

Field Communicator connections

Commission the WT210 using CC21 with BP20E not installed

Materials of construction

Housing [PBT/PC]

Power module housing [PBT/PC]

Waveguide and Thermocouple Sheath

Stainless steel

Potting compound

Epoxy

Sensor type

Waveguide based, dual probe arrangement (no couplant required)

Mounting

Transmitters are directly attached to process piping or vessel by welded stainless steel studs and can withstand pipe operating temperature up to +1112 °F (up to +600 °C).

Alternative methods include mount the transmitter using clamps up to 570 °F (300 °C) or Universal mount up to 797 °F (425 °C).

Weight

WT210 with BP20E power module: 2.1 lb. (0.97 kg)

WT210 without power module: 1.3 lb. (0.61 kg)

Enclosure ratings

IP67⁽⁴⁾

Performance specifications

Temperature limits

Ambient limit: -40 to 167 °F (-40 to 75 °C)

Storage limit: -58 to 167 °F (-50 to 75 °C)

Electro Magnetic Compatibility (EMC)

Meets all relevant requirements of EN 61326-1: 2013

Wireless output specifications

Range

Up to 160 ft. (50 m) line of sight

(3) Reference conditions are 68 °F (20 °C), transmit rate of twelve hours, and routing data for three additional network devices.

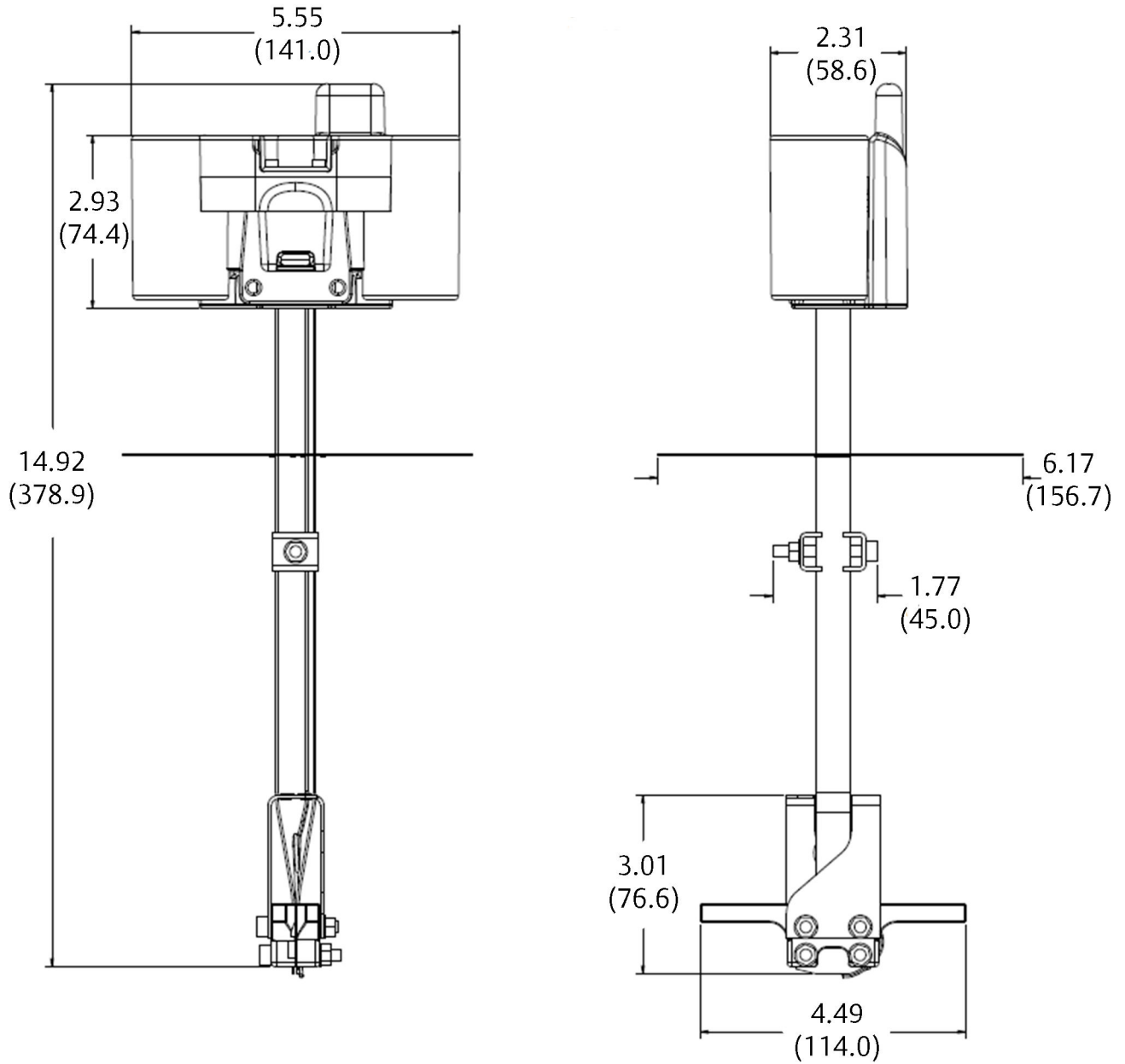
(4) When mated to the power module.

Product certifications

Refer to [WT210 Corrosion Transmitter Quick Start Guide](#) for information concerning product certification.

Dimensional drawing

Figure 3: Rosemount WT210 with BP20E Power Module



Dimensions are in inches (millimeters).

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

©2024 Emerson. All rights reserved.

Emerson Terms and Conditions of Sale are available upon request. The Emerson logo is a trademark and service mark of Emerson Electric Co. Rosemount is a mark of one of the Emerson family of companies. All other marks are the property of their respective owners.

ROSEMOUNT™

