

Rosemount™ Wireless ET210 Corrosion and Erosion Transmitter



Rosemount Wireless Corrosion and Erosion Transmitters provide direct measurement of wall thickness, 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
- Uses unique ultrasonic technology enabling ultra-fast installation and measurement through external coatings
- *WirelessHART*® technology ensures reliable, robust, and secure data retrieval from the plant devices to a remote office location

Emerson's Wireless solution

IEC 62591 (*Wireless*HART®) ... 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 will continue to flow because the device 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™

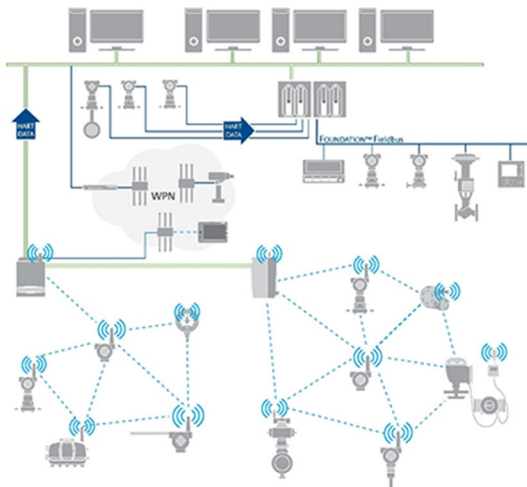
Layered security keeps your network safe

- Ensures data transmissions are received only by the wireless gateway.
- Network devices implement industry standard
 - Encryption
 - Authentication
 - Verification
 - Anti-jamming
 - Key management
- Third-party security verification including Achilles and FIPS197 with:
 - User-based login
 - Automatic lockout
 - Password strength monitoring
 - Password reset requirements

Contents

Emerson's Wireless solution.....	2
Rosemount Wireless ET210 Corrosion and Erosion Transmitter.....	3
Ordering information.....	5
Specifications.....	8
Product certifications.....	10
Dimensional drawing.....	11

— Password expiration requirements



Rosemount Wireless ET210 Corrosion and Erosion Transmitter

Corrosion and erosion monitoring

- Reliably detects thinning wall thickness in piping through external coatings using an ultrasonic transmitter.
- May be used on metal with continuous service temperatures up to 248 °F (120 °C).

Reliable data in challenging environments

- Plantweb Insight™ software application provides long-term pipe-thickness status and trending, allowing 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

- Directly mount to process piping without cutting pipes or changing pipe configurations - allowing for a flexible installation.
- Magnetic design with a stabilization strap means deployment is safe and easy in challenging locations.
- For larger vessels, a magnetic mount can be used for quick and easy installation.

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

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 the product materials, options, and components.

Optimizing lead time

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

Required model components

Model

Code	Description	
ET210	Rosemount Wireless Corrosion and Erosion 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	★

Code	Description	
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	★
IX	ECAS Ex 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	
BP20E-5100-0014	Bp20E Power Module, India	
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	

Part number	Description	
PERMA-2004-0001	Spare Smart Band Strap, 11.5 ft. (3.5 m) lengths	
PERMA-2005-0005	Magnetic Vessel Mount for Rosemount ET210/ET310	
PERMA-2006-0003	Replacement Strap for Universal mount 59.06 in. (1.5 m)	
PERMA-2008-0001	Alternative Transmitter Shoe NPS2 - NPS3 pipes	
PERMA-2008-0002	Spare Transmitter Shoe - standard	

Specifications

Functional specifications

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⁽¹⁾	0.0004 in. (10 µm)
	Resolution⁽²⁾	0.00004 in. (1 µm)
Surface temperature	Accuracy	18 °F (10 °C)
	Repeatability	within 4 °F (within 2 °C)

(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.*

Physical specifications

Pipe diameter	Minimum NPS 2 (nominal 2 in. pipe) on straight pipe or outside of an elbow	
Wall thickness	Minimum	0.16 in. (4 mm)
	Maximum⁽¹⁾	1.96 in. (50 mm)
Compatible pipe materials	■ Carbon steel ■ Duplex stainless steel ■ Super duplex stainless steel	
External coating thickness	Maximum .040 in. (1 mm)	
Compatible external coating materials	■ Common coatings, including zinc coatings, etc. ■ Consult factory for special coating compatibility.	

(1) *For wall thickness greater than 2 in. (50 mm), parameter adjustment at installation is required.*

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 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⁽¹⁾

Field Communicator connections

Commission the ET210 using CC21 with BP20E not installed

Materials of construction

Transmitter housing PBT/PC

Power module housing PBT/PC

Transmitter type

Single electro-magnetic acoustic transducer (no couplant required)

Mounting

Transmitters are directly attached to process piping. A 11.5 ft. (3.5 m) strap is included to secure the transmitter to the pipe.

Weight

Rosemount ET210 with BP20E power module 1.8 lb. (805 g)

Rosemount ET210 without BP20E power module 1 lb. (450 g)

Enclosure ratings

IP67⁽²⁾

Performance specifications

Temperature limits

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

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

Application continuous temperature up to 248 °F (120 °C)

Electro Magnetic Compatibility (EMC)

Meets all relevant requirements of EN 61326-1: 2013

(1) Reference conditions are 68 °F (20 °C), transmit rate of 12 hours, and routing data for three additional network devices.

(2) When mated to the power module.

Wireless output specifications

Range

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

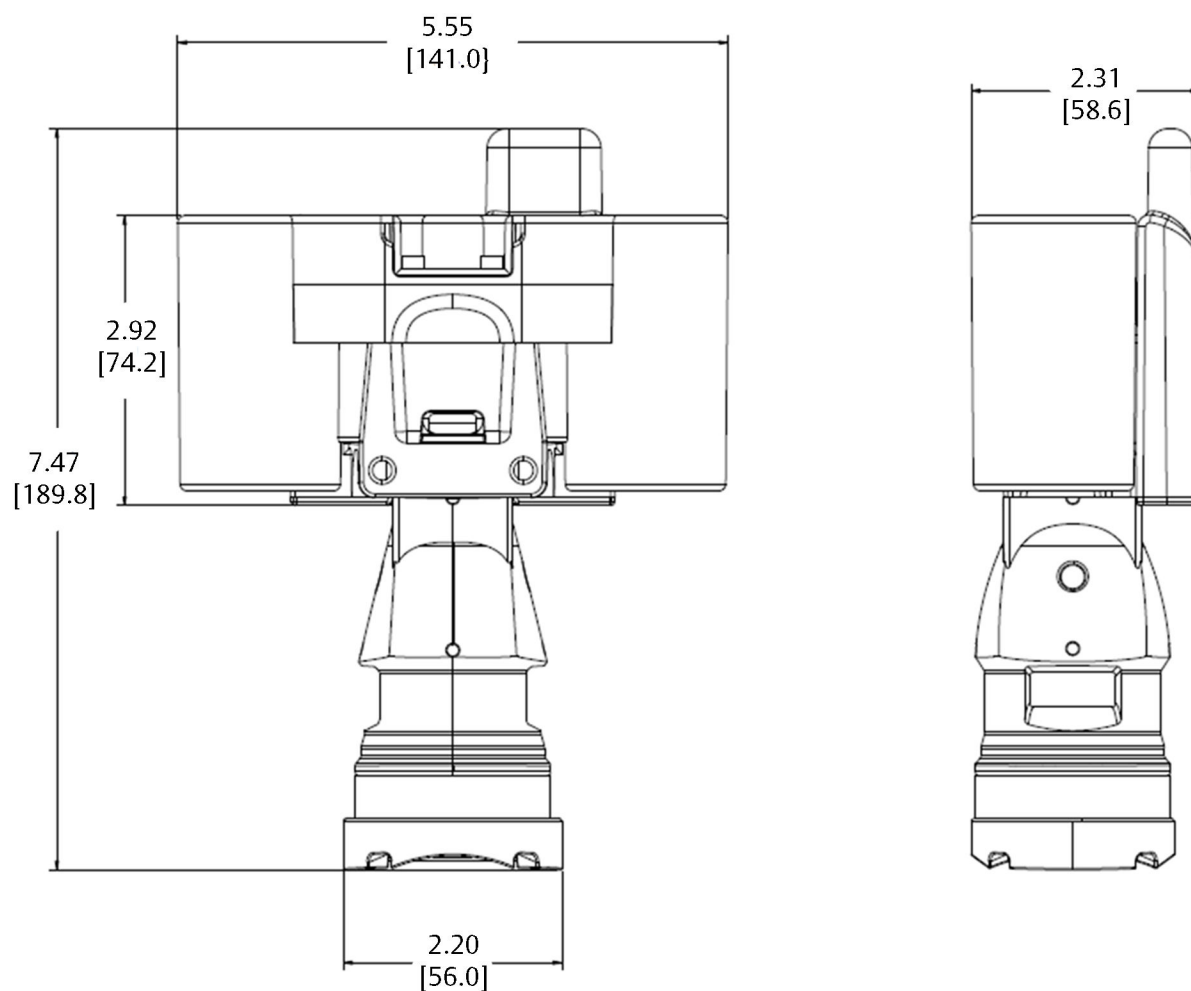
Product certifications

For product certification information, refer to [Rosemount ET210 Corrosion and Erosion Transmitter Quick Start Guide](#).

Dimensional drawing

Note

Dimensions are in inches (millimeters).



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

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