

Roxar™ Wireless Corrosion Monitoring Transmitter (CorrLog)



Emerson's Roxar Wireless Corrosion Monitoring Transmitter (CorrLog) is a highly reliable instrument that transmits high accuracy measurement data from the probes directly to users. The transmitter provides flexible data management using the gateway, and seamlessly integrates with the Emerson AMS™ (Asset Management System), the Plantweb™ Insight Inline Corrosion application, and the Roxar Fieldwatch™ software. The Roxar transmitter can communicate metal loss data sent from the gateway to any control system.

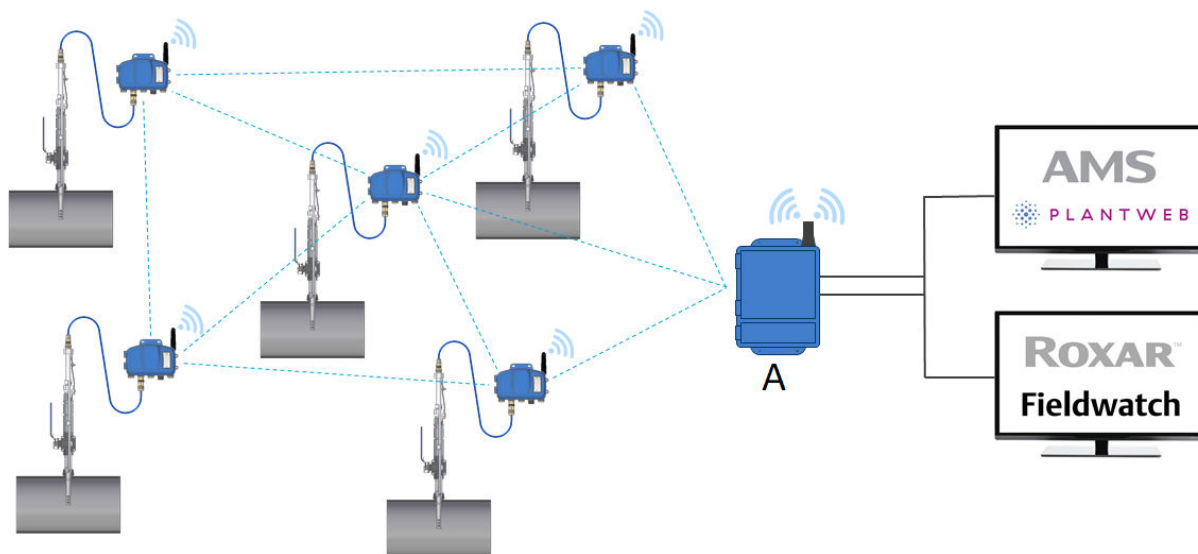
The Roxar transmitter has the following features:

- Allows for continuous, on-line monitoring from inaccessible locations at an affordable cost
- Provides an intrinsically safe design with international hazardous area certification
- Allows up to 99 transmitters in the same wireless network, depending on the gateway model
- Provides online, real time data which allows process optimization and reduces operational costs
- Provides compatibility with the existing probes of major vendors and possesses the flexibility to read corrosion probes from most major manufacturers
- Enables easy deployment so there is no need for expensive cable trays, cable runs, or junction boxes
- Eliminating site walk downs for data collection adds to a safe work environment, real time data availability, and reduced costs

Roxar is part of Emerson's global network, and provides support from wireless specialists for system assessment and architecture, as well as access to experienced crews supplying after sales support and services to avoid downtime.

Operating principle

The Roxar CorrLog Wireless Transmitter is an Emerson wireless product, and uses the same radio and power modules as other Emerson wireless products. The Roxar CorrLog Wireless Transmitter communicates via standard wireless gateways. The gateways interface with existing host systems using industry standard protocols including OPC, Modbus TCP/IP, and Modbus RTU.



A. Emerson WirelessHART Gateway

Note

The Roxar CorrLog Wireless Transmitter can be part of a general wireless solution, along with a wide range of other wireless instruments and monitors.

High accuracy corrosion monitoring

The Roxar CorrLog Wireless Corrosion Transmitter is a combination of a high resolution (24 bit) corrosion instrument with an Emerson wireless transmitter, ensuring reliable and fast corrosion monitoring data directly to the user.

Self-organizing

- The Roxar CorrLog Wireless Monitoring Transmitter does not require wireless expertise. The network automatically finds the best communication paths.
- 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 already has other established paths. The network locates additional communication paths, as needed, for the device.

Reliable wireless architecture

- Standard IEEE 802.15.4 radios
- 2.4 GHz ISM band sliced into 15 radio-channels
- Allows for time synchronized channel hopping in order to avoid interference from other radios, Wi-Fi, and EMC sources, thereby increasing reliability
- Delivers high reliability in challenging radio environments using Direct Sequence Spread Spectrum (DSSS) technology

Layered Security Keeps Your Network Safe

- Ensures that data transmissions are received only by the wireless gateway
- Implements industry standards for encryption, authentication, verification, anti-jamming, and key management for network devices
- Provides third-party security verification, including Achilles and FIPS197

System flexibility

- Allows up to 20 meter cable between the probe and the transmitter
- Allows for installation at locations most beneficial for wireless signal routing, in order to avoid shadows where radio communication would be difficult
- Supports convenient retrieval or replacement of probes when instrument removal is not required at the same time
- Reads corrosion probes from most common manufacturers

Data management

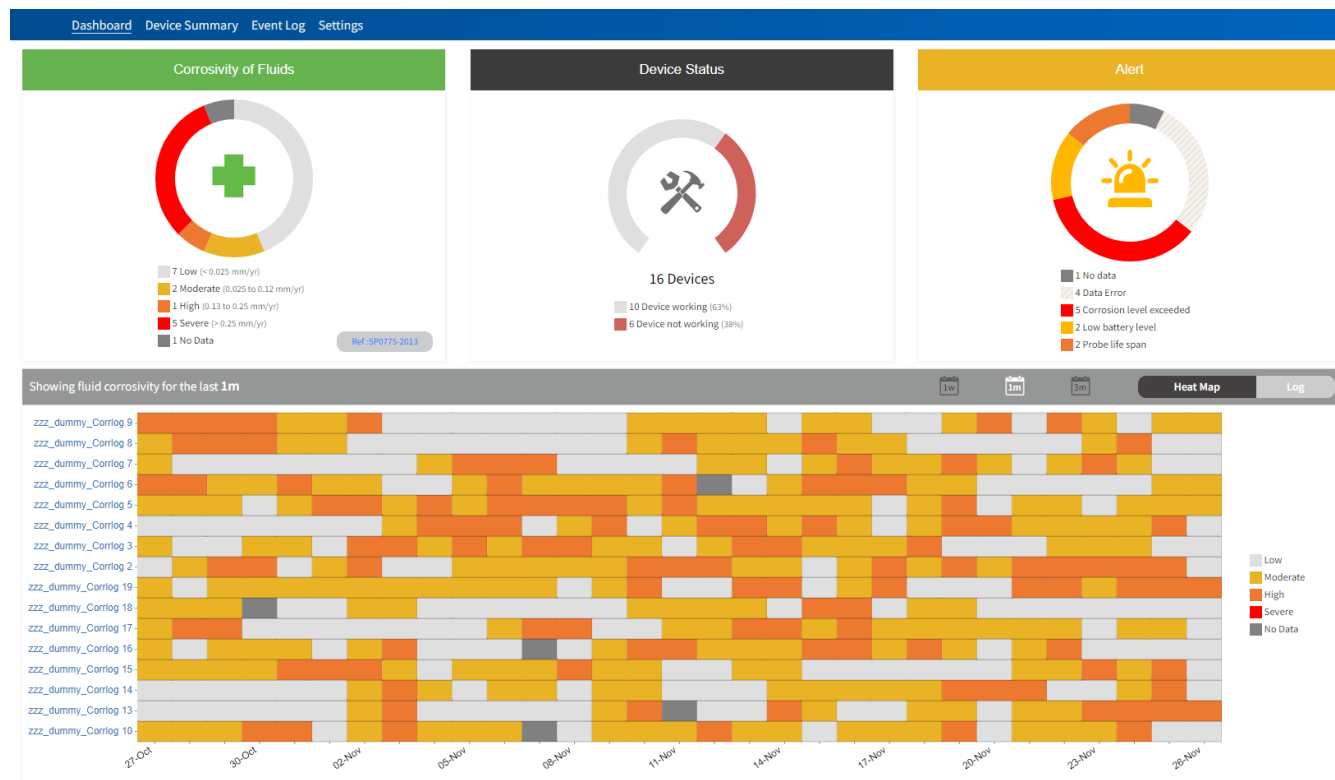
The data format (calculated metal loss data, corrosion rates or probe raw data) is user selectable from the HART terminal, or Emerson Asset Management System (AMS). The raw data can be transmitted to the Fieldwatch server for data storage, analysis and reporting. The key data provided is sent to the main control system using Modbus or OPC protocol.

The Roxar Fieldwatch software provides superior tools for data analysis and verification, as well as an overview of all corrosion monitoring locations onsite. The calculated metal loss is transmitted directly to and displayed in the Emerson AMS system. The calculated metal loss can also be transmitted to any control system provided by a client for general data management.

Plantweb™ Insight Inline Corrosion application

The Plantweb Insight Inline Corrosion application is designed for the continuous analysis of critical data and corrosion-monitoring trends for installed wireless corrosion probes. The application delivers an insight to instrument health and provide alerts on preset thresholds for severe corrosivity, probe life span, low battery level, and more. An intuitive heatmap is displayed with intelligence on the corrosivity of fluid levels based on the NACE standard.

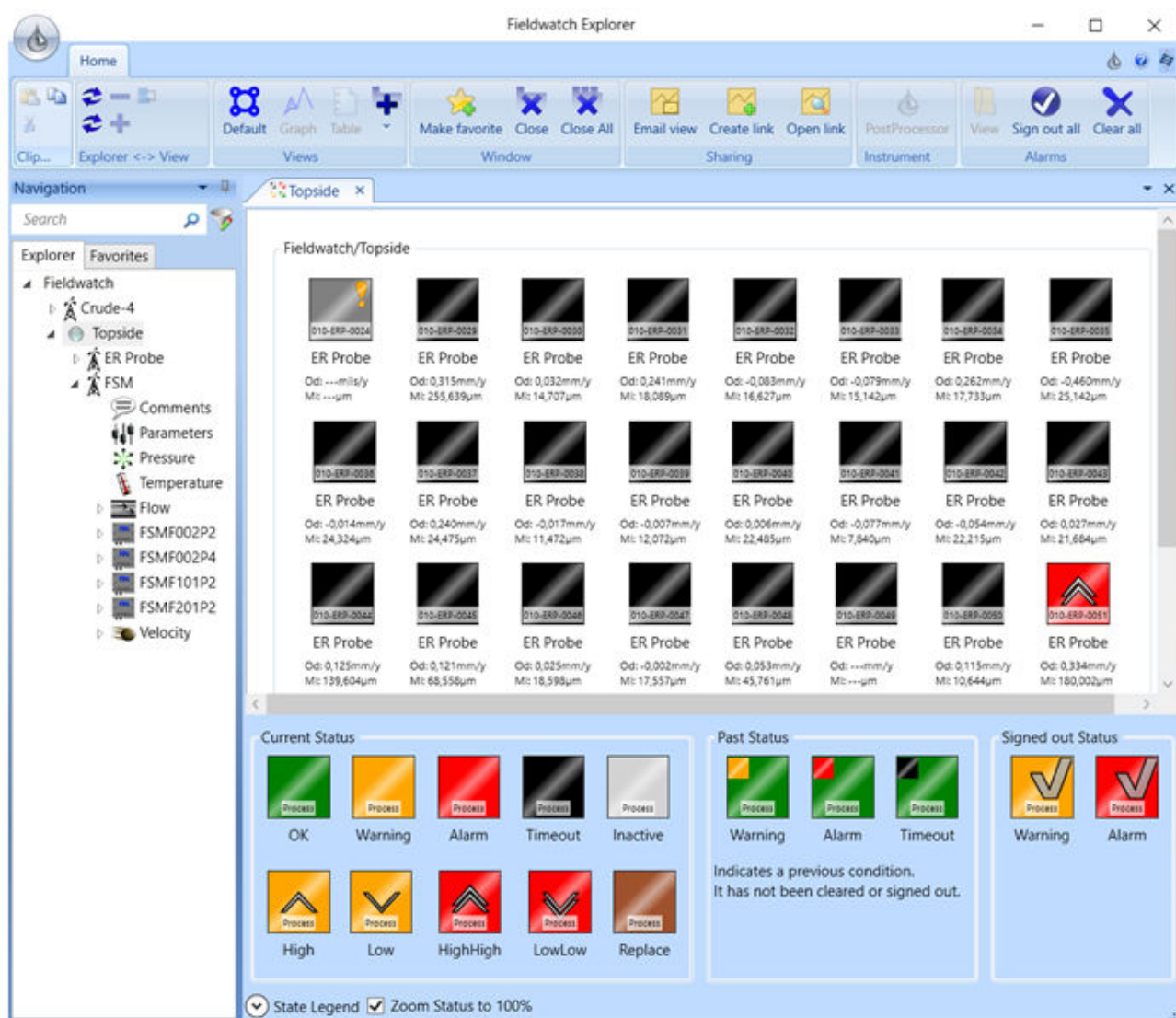
Figure 1: Plantweb Insight Inline Corrosion application dashboard



Roxar Fieldwatch software

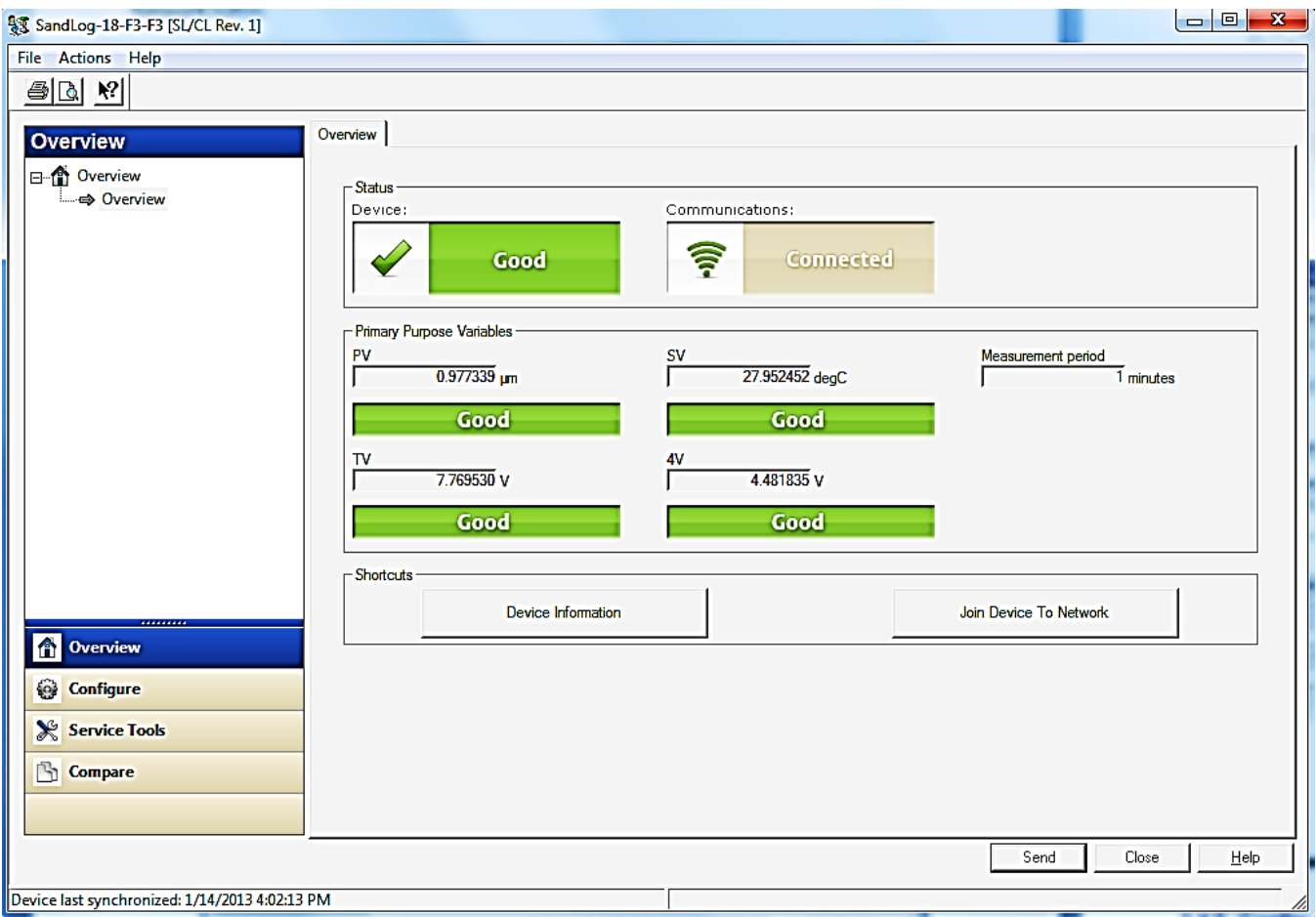
The Roxar Fieldwatch software provides the ability to integrate with other monitoring functions like sand monitoring (acoustic or erosion based), non-intrusive corrosion monitoring (FSM technology) and acoustic pig detectors. The calculated metal loss is transmitted directly and displayed in the Emerson AMS system.

Figure 2: Fieldwatch status display of monitoring positions in plants and offshore platforms



The Roxar CorrLog Wireless Transmitter can be configured either by using the AMS Trex Communicator or the Emerson Asset Management System (AMS). The AMS Trex Communicator is used in cases where data is sent using the wireless gateway to a generic control system, or when communicating with the Roxar Fieldwatch software (see [Figure 3](#)).

Figure 3: Example screenshot of AMS communicating with CorrLog Wireless



When used with the Emerson Asset Management System (AMS), a two-way communication with the Roxar CorrLog Wireless Transmitter is possible. This means that the transmitter can be configured directly from AMS, and that changes can be done from a PC at any time; for example, changing measurement frequency without the need for field connection using the AMS TREX communicator.

Specifications: Roxar CorrLog Wireless

Item	Description
General	For connection with Intrusive Corrosion Probes
Connection	Connected to probe through a probe cable - maximum 65 ft (20 m)
Humidity limits	0 - 100% relative humidity
Measurement	Measurement frequency to be set; recommended between every 15 minutes to 24 hours. Contact Emerson for more information.
RF output power (based on the maximum device output power of 6.3 mW)	CorrLog wireless: Extended range antenna / Long range antenna Nominal gain: 4.5 dBi / 2.0 dBi Maximum EIRP: 17.8 mW / 10 mW
Communication	WirelessHART® 2.4 GHz DSSS (Discrete Sequential Spread Spectrum)
Instrument resolution	24 bit (0.06 ppm of probe element thickness)
ER probe - actual accuracy	10-100 ppm of probe element thickness, depending on probe type, measurement frequency, and environmental conditions
LPR probe - actual accuracy	1% of measured current and voltage
Ambient temperature limits	-40 °F (-40.0 °C) to 158 °F (70.0 °C)
Battery capacity	Normally, 1-6 years, depending on the environmental conditions, measurement frequency, and number of probe elements
Power module	Black power module, type 701PBKKF. Replaceable, non-rechargeable. Intrinsically safe Lithium-Thionyl Chloride power module pack with PBT/PC enclosure. 7.2 V See the Power module replacement for the Black power module, type 701PBKKF.
Housing	Painted aluminum or stainless steel (AISI 316-L), IP 66, NEMA 4x
Dimensions	Approximate (not square shape): 226 mm (9 in) X 122 mm (5 in) X 71 mm (3 in)
Weight	Painted aluminum: 5.5 lb (2.5 kg) 316L Stainless steel: 5.9 lb (2.7 kg)
Trade compliance	ECN: 5A002.a.1 ECCN (US Re-export): 5A991.b 5A002.a.1

Hazardous area classifications

Approvals and certifications

Type	Approval or certification
ATEX	II 1 G Ex ia IIC/IIB/IIA T4 Ga, Presafe 16 ATEX 8698X
CSA	Canada: Ex ia IIC/IIB/IIA T4 Ga, Class I, Division 1, Groups A,B/C/D; T4 USA: Class I, Zone 0 AEx ia IIC/IIB/IIA T4 Ga, Class I, Division 1, Groups A,B/C/D; T4 Certificate 80008985
IECEX	Ex ia IIC/IIB/IIA T4 Ga, IECEX PRE 16.0058X

Type	Approval or certification
INMETRO	Ex ia IIC/IIB/IIA T4 Ga, DNV 19.0147 X
EAC	0Ex ia IIC T4 Ga X, TC RU C-RO.MIO62.B.05134

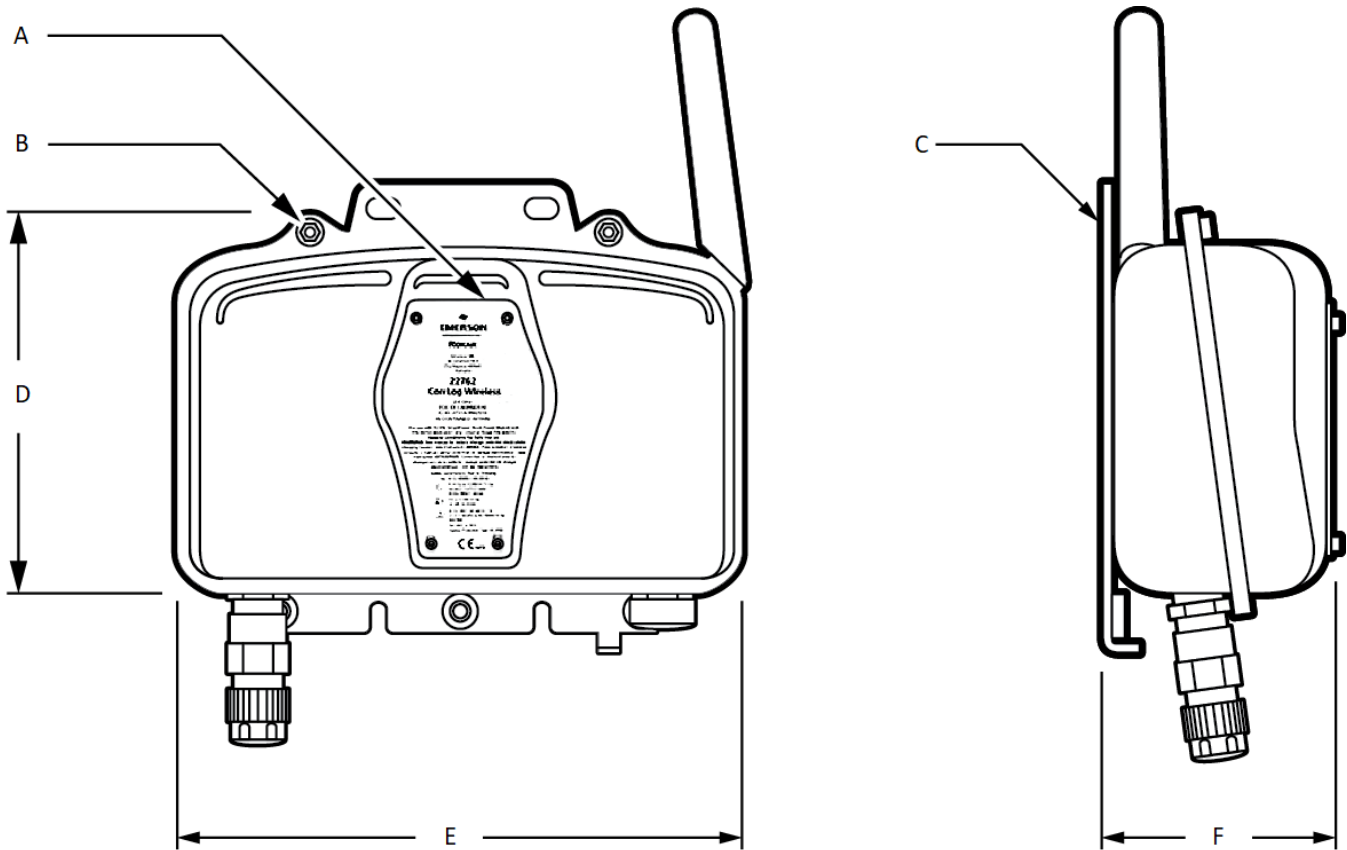
European directive information

A copy of the EU Declaration of Conformity can be found at the back of the *Roxar CorrLog and SandLog Wireless Transmitter User Manual*.

Power module life in estimated years

To simulate the power module life span, please refer to the power module life estimator calculator here: [Power Module Life Estimator](#).

CorrLog Wireless system components



- A. Product identification plate
- B. Cover mounting screw
- C. Instrument mounting bracket
- D. 175 mm
- E. 280 mm
- F. 100 mm

Model code numbering system

Product description

Model	Product description
CORRLOGW	Wireless Corrosion Monitor, IS

Communication protocol

Code	Communication protocol
50	WirelessHART extended range antenna
51	WirelessHART long range antenna

Enclosure material

Code	Enclosure material
A	Stainless steel
B	Aluminum

Probe cable gland

Code	Probe cable gland
G0	No gland
M2	Metric, brass, Hawke 501/453/Universal Ex de
M3	Metric, nickel plated brass, Hawke 501/453/Universal Ex de
M4	Metric, stainless steel, Hawke 501/453/Universal Ex de
N2	NPT, brass, Hawke 501/453/Universal Ex de
N3	NPT, nickel plated brass, Hawke 501/453/Universal Ex de
N4	NPT, stainless steel, Hawke 501/453/Universal Ex de

Probe cable size range

Code	Probe cable size range
0 ⁽¹⁾	Not applicable
1 ⁽²⁾	5.5-12 mm OD / 3.5-8.1 ID
2 ⁽²⁾	9.5-16 mm OD / 6.5-11.4mm ID
3 ⁽²⁾	12.5-20.5 mm OD / 8.4-14.3mm ID
4 ⁽²⁾	16.9-26 mm OD / 11.1-19.7mm ID

(1) Available only with probe cable gland option G0, no gland.

(2) Not available with probe cable gland option G0, no gland.

Blind and drain plug material

Code	Blind and drain plug material
p ⁽¹⁾	Nylon (TBV)
B ⁽¹⁾	Brass
N ⁽¹⁾	Nickel plated brass
S	Stainless steel

(1) Not available with enclosure material option B.

Approvals

Code	Approvals
A2	ATEX, Intrinsically Safe
A3	IECEX, Intrinsically Safe
A5	INMETRO, Intrinsically Safe
A6	EAC, Intrinsically Safe
A7	CSA, Intrinsically Safe

Tag plates

Code	Tag plates
ZZ	No tag plates
TG	Standard tag plates for instruments

Factory options

Code	Factory options
Z	Standard product

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