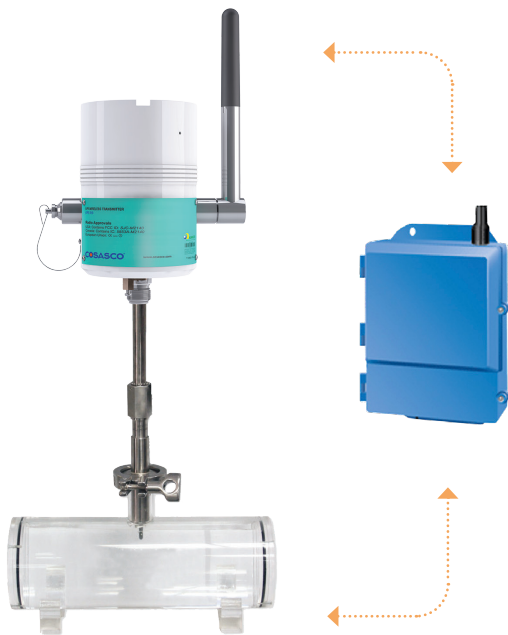


## Wireless Rouge Monitor System

Accurate measurement of ultralow rouging rates in stainless steel systems.



Reduces unplanned downtime



Detects real-time rouge rate



Optimizes chemical dosage

The Wireless Rouge Monitor provides accurate measurement of ultralow corrosion (rouging) rates in high purity biopharmaceutical water systems. Monitoring the rouging rate of typical ions of ferric, chromium, molybdenum and nickel oxides in the water assists the determination of derouging and passivation frequency. The installation and use of a Rouge Monitor provide absolute measurements for rouge rate and rouge accumulation (thickness).

The high sensitivity frontend probe consists of electropolished 316L stainless steel and probe assembly. The probe assembly is connected to a battery operated wireless transmitter providing real-time data and seamless integration.

The WirelessHART protocol uses spread spectrum frequency hopping 2.4GHz radios. These radios communicate directly with the gateway or through other transmitters forming a mesh network. The WirelessHART gateway supports up to 100 units. The typical distance between transmitters is 300-900ft. The gateway is located in a central position, powered by 24 VDC and connected to the DCS (Distributed Control System) system. Using a gateway, the rouging rate in microns/month and rouge accumulation in microns is displayed in the DCS, SCADA (Supervisory Control and Data Acquisition), BMS (Building Management System), data highway, or process control system.

**Rouge measurement range is 0.001 – 10  $\mu$  (1 to 10,000 nanometer).**

# Operating Specifications

## Wireless Transmitter

### Measurement Ranges:

Corrosion Rate	Rouging rate: 0 to 9.999 $\mu$ /month Rouging rate resolution: 0.001 $\mu$ /month
Potential Measurement	0 to 2 volts
Potential Input Impedance	>20 M $\Omega$
Rouging rate resolution	0.001 microns/month
Data Transmit Rate	20 to 60 minutes
Communication	2.4 GHz IEEE 802.15.4. WirelessHART 7 Protocol
Battery Life	3 years at 20 min measurement interval
Ambient Temperature Range	-40°C to +70°C
Antenna	Integrated Omni-directional Antenna Impedance: 50 $\Omega$ Gain: +2dBi Maximum SWR (Standing Wave Ratio):3:1 Maximum radio power output: 10 mW



## Probe

Housing Materials	316L stainless steel probe body with electropolished stainless steel (or other alloy) electrodes with Tri-Clover Flange Mounting
Temperature Range	0-200° C
Deposition rate	0.000-3.000 $\mu$ /month at 1.3 $\mu$ S/cm (0.7 M $\Omega$ -cm) 0.000-0.100 $\mu$ /month at 0.054 $\mu$ S/cm (18 M $\Omega$ -cm)
Operating Range	100-0.025 $\mu$ S/cm conductivity 0.01-40 M $\Omega$ -cm resistivity

## Wireless Transmitter Physical Specifications

### Enclosure

Rating	IP66
Housing Materials	6061-T6 Aluminum with Polyester Enamel over Epoxy Primer  316 Stainless Steel

### Power Supply

7.2 V Lithium Power Module

Hazardous Area Location Certified. (replacement okay in hazardous locations).

### Weight

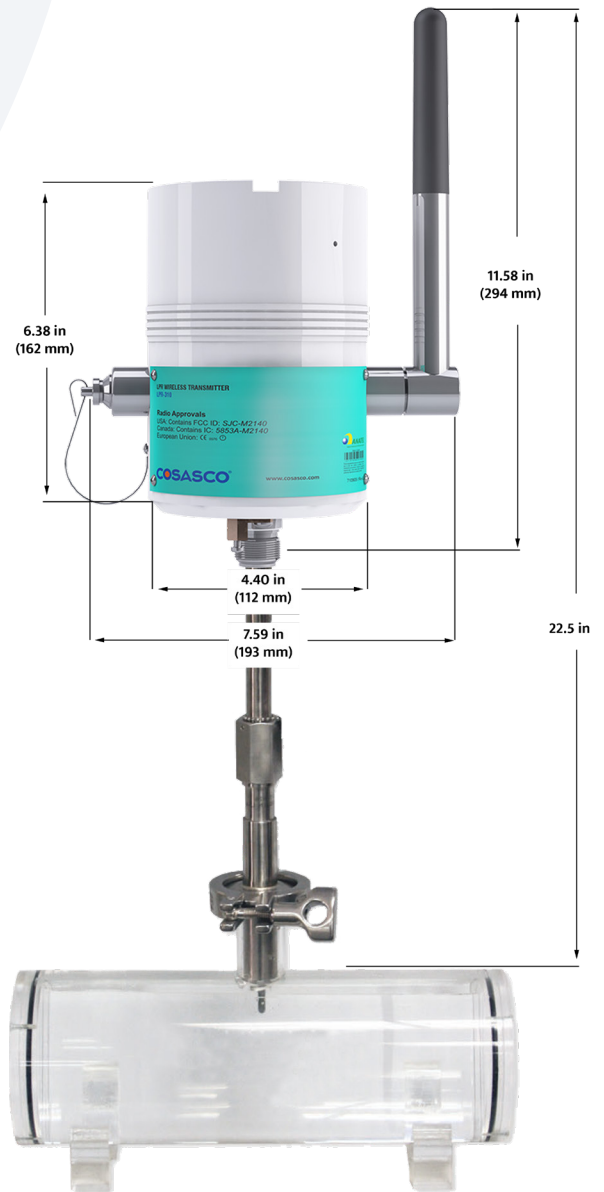
Aluminum Housing	7.5 lbs (3.4 kg) with Lithium Power Module installed
Stainless Steel Housing	15.3 lbs (6.9 kg) with Lithium Power Module installed

### Operational Pole or Wall Mounting

Metal Bracket for direct wall mount and adjustable U-Bolt mounting for 2" pipe size vertical or horizontal pole mounting.

### Probe Mounting

Directly to probe via Probe Adapter.  
Probe Adapter Length: Minimum 6.75"



## 1420 WirelessHART Gateway Functional Specifications



### Input Power

24 VDC, 500 milliamps required to power the Smart Wireless

Gateway module (included)

Radio frequency power output from Antenna

Maximum of 10 MW (10 dBm) EIRP

Maximum of 40 MW (16 dBm) EIRP for WNZ

High gain option

### Environmental

Operating Temperature Range -40 to 158°F (-40 to 70°C)

Operating Humidity Range 10-90% relative humidity

### EMC Performance

Complies with EN61326-1:2006

### Self-Organizing Network Specifications

Protocol IEG62591 (WirelessHART) 2.4 - 2.5 GHz DSSS

Maximum Network Size 100 wireless devices @ 8 sec.

Supported Device Update Rates 1-60 minutes (based on R-310 transmitter)

Network Size/Latency 100 Devices: less than 10 sec.  
50 Devices: less than 5 sec.

Data Reliability >99%

Communication Specifications RS485, Ethernet, Modbus, OPC

\*1410 WirelessHART also available

# Gateway Physical Specifications

## Weight

10 lb (4.5 kg)

## Materials of Construction

Housing Low-copper aluminum, NEMA 4X

Paint Polyurethane

Cover Gasket Silicone Rubber

## Antenna

PBT/PC integrated Omnidirectional Antenna

## Certifications

Class 1 Division 2 (U.S.) Equivalent Worldwide

