

LPR WIRELESS TRANSMITTER

Request A Quote

LPR-310 / LPR-320

The LPR-310 / LPR-320 wireless transmitter is designed for on-line corrosion monitoring of water systems in electrically hazardous areas. Instantaneous corrosion rate measurements are made using linear polarization resistance (LPR) measurement technology. The LPR-310 / LPR-320 has the same patented high frequency measurement on two electrodes for compensation of solution resistance as the E-9020 wired transmitter, providing the highest accuracy and widest range of operation*.

The most common use of the transmitter is for corrosion rate and pitting tendency in water systems. However with a set galvanic electrode, the transmitter may be operated in a galvanic monitor mode, which is particularly useful in high pressure water injection systems for detection of low levels of oxygen in the parts per billion range (ppb), where conventional dissolved oxygen meters cannot be used.

The LPR-310 / LPR-320 power module has a typical life of 3 years and is hazardous location certified to allow change out in the hazardous area. Typical wireless range is 1000 ft. (300 m) or 1500 ft. (450 m) in optimal conditions with a clear line of sight from transmitter to transmitter or transmitter to gateway/management station, with multiple "hops" permissible from any transmitter back to its gateway/management station.

The LPR-310 / LPR-320 is available with the option of WirelessHART™ 7 or ISA100 Wireless communications protocol for seamless integration with Emerson, Yokogawa, and numerous other wireless process systems. For outline of a Cosasco Wireless System, and details of each product, see Cosasco Wireless System ISA100 and Cosasco Wireless System WirelessHART7 data sheets.



Specification	Communication Option	
	WirelessHART 7	ISA100 Wireless
Wireless Range (clear line of sight)	1000 ft (300 m)	1500 ft (450 m)
Transmitter Battery Life	3 Years	3 Years
Wireless Devices Supported Per Gateway	Up to 100	Up to 500
Network Type	Inherently Mesh	Mesh or Star Topology
System Integration	Emerson, Endress & Hauser, Siemens, and ABB Wireless Networks	Yokogawa, Honeywell, and GE Wireless Networks
Certifications	Hazardous Area Locations (Class I, Zone 1)	Hazardous Area Locations (Class I, Zone 1)

*For reference, see ASTM G96-90(2001) e1 Standard Guide for On-Line Monitoring of Corrosion in plant equipment (Electrical and Electrochemical Methods).

Operating Specifications

Measurement Ranges:

Corrosion Rate: 0 to 200 mpy
0 - 5,000 $\mu\text{m}/\text{y}$
0 - 5 mm/y

Imbalance (Pitting Index): 0 to 200 pitting units
Potential Measurement: 0 to 2 volts
Potential Input Impedance: >20 Mohms
Galvanic/Current Measurement: 0 to 500 μA

Resolution: 0.1% of ranges 0-1%, 1-10%,
10%-100% of full scale

Operating Range:
See graph next page

Data Transmit Rate
10 to 60 minutes
(15 minutes for 3 year battery life)

Communication:
2.4 GHz IEEE 802.15.4.

- WirelessHART 7 Protocol (CWT-9020-0-0)
- ISA100 Wireless Protocol (CWT-9020-0-2)

Ambient Temperature Range
-40C to +70C (-40F to +158F)

Antenna
Integrated Omni-directional Antenna
Impedance: 50 Ω
Gain: +2dBi
Maximum SWR: 3:1
Maximum radio power output: 10 mW

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. Cosasco 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. The LPR is currently certified with the governmental agencies of Angola, Azerbaijan, Australia, Canada, China, Colombia, Ecuador, European Union, Egypt, India, Indonesia, Kazakhstan, Kuwait, Malaysia, Mexico, Oman, Qatar, Russia, Saudi Arabia, Thailand & Tobago, UAE, United States and Venezuela. Additional country approvals are in currently in progress and will be posted as soon as certification is verified. Please contact Cosasco or visit our website for the latest country certifications.

FCC and Industry Canada (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.

Physical Specifications

Enclosure

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

Power supply

7.2 V Lithium Power Module
Power Module life: 3 years (Typical) – 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

Dimensions
See below

Optional 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 (P/N 710973 or P/N
710972). For remote locations probe can be directly
connected to LPR via a probe to instrument cable).

LPR-310 / LPR-320

ATEX Certification

Ex d [ib] Class I, Zone 1, IIC, T4, Gb, Ta = -40C to +70C

North American Certifications

FM AEx d [ib] Class I, Zone 1, IIC, T4, Ta = -40C to +70C

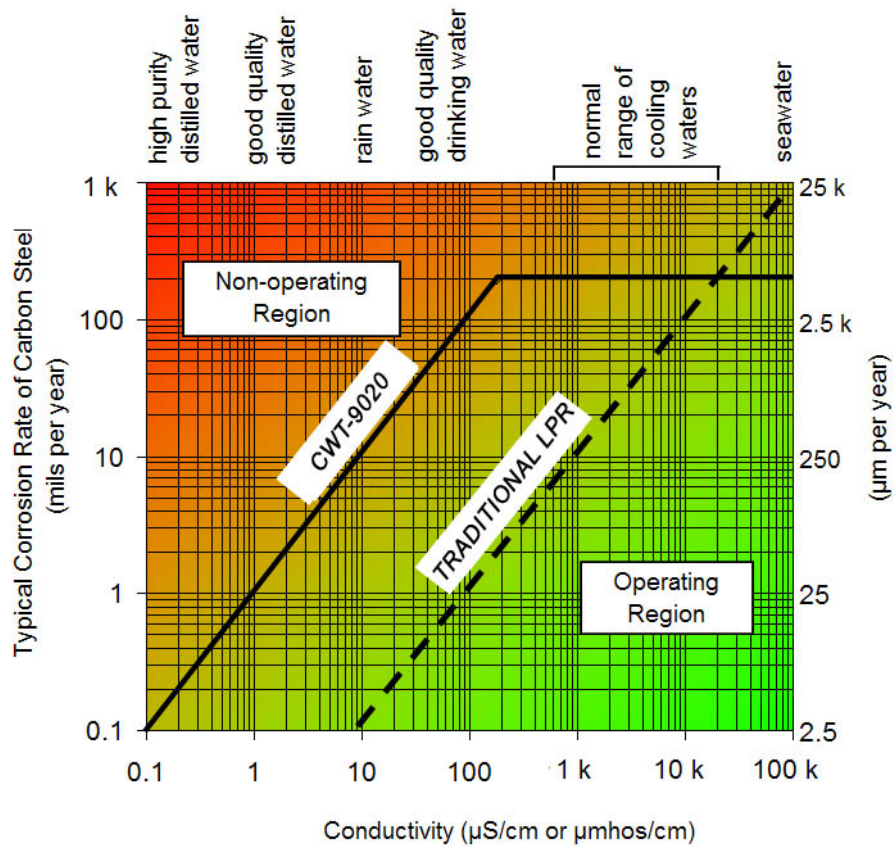
FMc Ex d [ib] Class I, Zone 1, IIC, T4, Ta = -40C to +70C

IEC Ex Certification

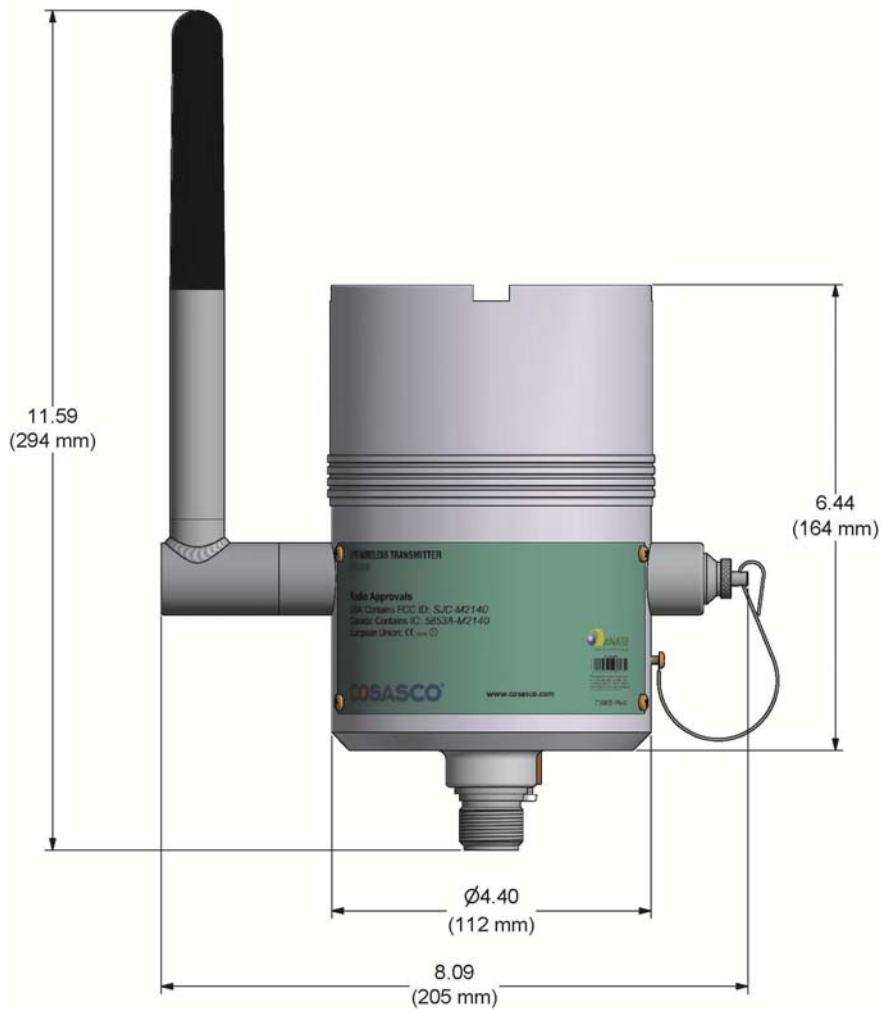
IEC Ex d [ib], Class I, Zone 1, IIC, T4, Gb, Ta = -40C to +70C

All certifications based on IP66 enclosure and for use only with Power Module P/N 748400

Operating Range for Model LPR-310 /LPR-320



Dimensions



Transmitter Dimensions in inches, front view

Ordering Information for ISA100 Wireless



LPR Wireless Transmitter-ISA100 Wireless

Model	Description						
CWT-9020	LPR-320 Wireless Transmitter with ISA100 Radio						
	<table border="1"> <thead> <tr> <th>Code</th> <th>Housing</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Aluminum</td> </tr> <tr> <td>1</td> <td>Stainless Steel 316 SS</td> </tr> </tbody> </table>	Code	Housing	0	Aluminum	1	Stainless Steel 316 SS
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System Requirements

Field Wireless Management Station

See R-Y410 Field Wireless Management Station Data Sheet.

Field Wireless Access Point

See R-Y510 Field Wireless Access Point Data Sheet.

LPR Probes

See standard LPR Probes Data Sheets for ordering information.

Probe Adapters

Retractable/Fixed Probes P/N 710973
 Retrievable Probes P/N 710972

Cables (Transmitter to Probe Cable with Transmitter Mounting Bracket)

Retractable

Retractable LPR Remote Mounting Kit P/N 710971-L (2 ft. up to 6 ft., in 1 ft. increments).

Retrievalable

Part No.	Description										
748497	Retrievalable LPR-320 Remote Mounting Kit										
	<table border="1"> <thead> <tr> <th>Code</th> <th>Cable Type</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>Retrievalable (armored) 2500 PSI</td> </tr> <tr> <td>4</td> <td>Retrievalable (unarmored) 2500 PSI</td> </tr> <tr> <td>5</td> <td>Retrievalable (armored) 10,000 PSI</td> </tr> <tr> <td>6</td> <td>Retrievalable (unarmored) 10,000 PSI</td> </tr> </tbody> </table>	Code	Cable Type	3	Retrievalable (armored) 2500 PSI	4	Retrievalable (unarmored) 2500 PSI	5	Retrievalable (armored) 10,000 PSI	6	Retrievalable (unarmored) 10,000 PSI
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Accessories

Cosasco Wireless Extender

Model	Description	
MWT-3905-WE	Cosasco Wireless Extender (includes mounting bracket)	
	Code	Radio
	0	Aluminum
	1	Stainless Steel 316 SS
		Code Housing
		2 2.4 GHz ISA100 Wireless - Integral Antenna
MWT-3905-WE	— 0 —	2 ← Typical Order Number

7.2 V Lithium Power Module P/N 748400

LPR-320 Installation Kit -
ISA100 Wireless

P/N 702406-CWT-ISA (includes Wireless Field Tool for transmitter configuration)

Ordering Information for **WirelessHART 7**

Model	Description	
CWT-9020	LPR-310 Wireless Transmitter with WirelessHART7 Radio	
	Code	Housing
	0	Aluminum
	1	Stainless Steel 316 SS
		Code Radio
		0 2.4 GHz WirelessHART7 - Integral Antenna
CWT-9020	— 0 —	0 ← Typical Order Number

LPR Wireless Transmitter-WirelessHART 7

System Requirements

Wireless Gateways

See R-1420 or R-1410 Data Sheets.

LPR Probes

See standard LPR Probes Data Sheets for ordering information.

Probe Adapters

Retractable/Fixed Probes P/N 710973
Retrievable Probes P/N 710972

Cables (Transmitter to Probe Cable with Transmitter Mounting Bracket)

Retractable

Retractable LPR Remote Mounting Kit P/N 710971-L (2 ft. up to 6 ft., in 1 ft. increments).

Retrievable

Part No.	Description	
748497	Retrievable LPR-310 Remote Mounting Kit	
	Code	Cable Type
	3	Retrievable (armored) 2500 PSI
	4	Retrievable (unarmored) 2500 PSI
	5	Retrievable (armored) 10,000 PSI
	6	Retrievable (unarmored) 10,000 PSI
	Code	Cable Length
	L	Length in Feet (15 ft max)
748497	— 3 —	5

← Typical Order Number

Accessories

Cosasco Wireless Extender

Model	Description	
MWT-3905-WE	Cosasco Wireless Extender (includes mounting bracket)	
	Code	Radio
	0	Aluminum
	1	Stainless Steel 316 SS
	Code	Housing
	0	2.4 GHz Wireless HART7 - Integral Antenna
MWT-3905-WE	— 0 —	0

← Typical Order Number

7.2 V Lithium Power Module P/N 748400

LPR-310 Installation Kit -
WirelessHART7 P/N 702406-CWT

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