

Linear Polarization Resistance (LPR) Digital Transmitter

E-9020

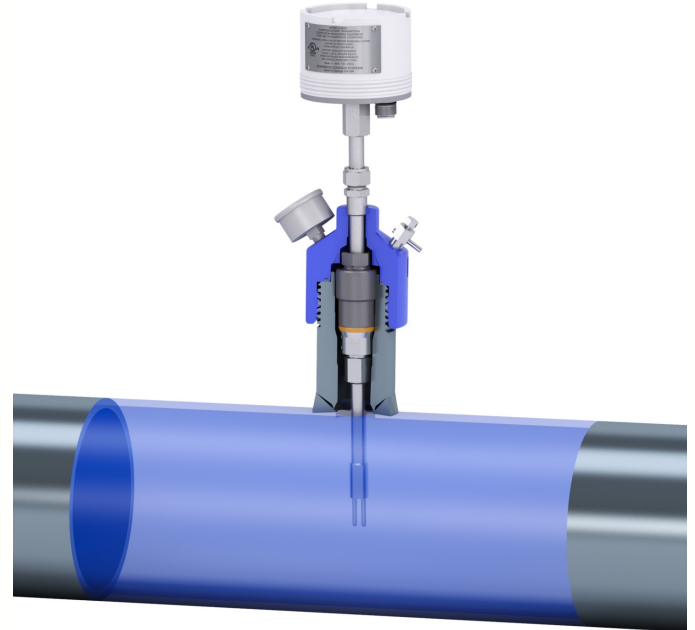
- **Explosion-proof for hazardous area operation (UL/CSA/ATEX)**
- **Compatible with Microcor Multi-drop Cable Bus**
- **Corrosion Rate & Pitting Tendency Measurements**
- **Widest Operational Range**
- **Galvanic and Potential Monitor Modes**

The E-9020 digital LPR transmitter is designed for on-line corrosion monitoring of water systems in electrically hazardous areas, and is compatible with the same communication bus as the Microcor technology. This makes it ideal for refineries, chemical plants and process plants where corrosion must be monitored in a mixture of aqueous and non-aqueous systems. The multi-drop bus provides easy installation and more economical cable installation costs than intrinsically safe systems.

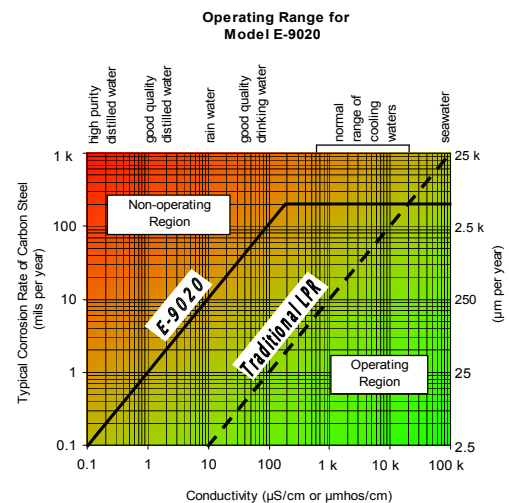
The E-9020 has a patented high frequency measurement on two electrodes for compensation of solution resistance that provides the highest accuracy and widest range of operation. For reference, see *ASTM G96-90(2001)e1 Standard Guide for On-Line Monitoring of Corrosion in Plant Equipment (Electrical and Electrochemical Methods)*. This compensation has been further enhanced on this instrument to make it the widest range of operation of all the RCS Corratel instruments.

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.

With a reference electrode, the E-9020 transmitter can also be used for potential measurements, which are useful in some systems for monitoring of pitting potential to detect between active and passive conditions.



The E-9020 may also be set into a potential and current noise mode for electrochemical noise studies.



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

- Multiplier Range: 0.2 to 2.99

- Probe Compatibility: 2 or 3 Electrode LPR probe

- Measurement Cycle Time: 5, 10, 15, 20 minutes selectable

- Isolation: Measurement circuit to RS 485 >20 Mohms
Measurement circuit to ground >20 Mohms

- CE : Compliant to relevant directives

Hazardous Area Certifications

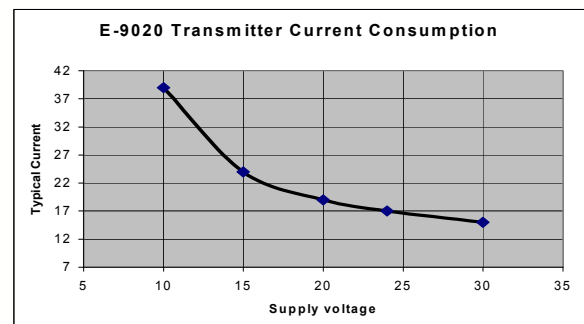
ATEX:	Class 1 Zone 1, EEx d IIC T6
UL:	Class 1 Zone 1, AEx d IIC T6
CSA:	Class 1 Zone 1, Ex d IIC T6 at $T_{\text{amb}} = -40\text{C to } +70\text{C}$

- Power Supply: 10 – 32 VDC
- Communications: RS 485 multidrop

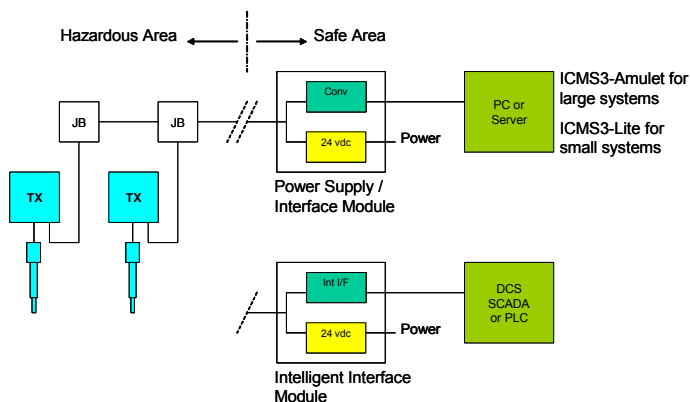
- Max Transmitters per cable: 32

- Cable Specification: Two pair individually screened
Maximum transmitters per cable gauge /length

Wire Gauge AWG	Cable Length			
	300m 1000ft	600m 2000ft	900m 3000ft	1200m 4000ft
10	32	32	32	32
12	32	32	32	27
14	32	32	22	17
16	32	21	14	10
18	27	13	9	6



System



LPR Digital Transmitter:

P/N E-9020 (With Aluminum Cover)
P/N E-9020-SS (With Stainless Steel Cover)

LPR Probes: See standard LPR Probes

Probe Connecting Adapters:

Retractable/Fixed Probes P/N 710973

Retrievable Probes P/N 710972

Tx to JB Cable: (UL/CSA) P/N 748197-L

(CENELEC) P/N 748201-L

Junction Box: P/N 702170

Class 1 Div1 Cable: Contact Factory

Power Supply/Interface: P/N 748419

PC Software: Model MS 9000A

Intelligent Interface: P/N 748302-2

ICMS3/Amulet Server: Contact Factory

Tx to PROBE Cable: (UL/CSA) PN 710971-L (6 Ft MAX)

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Rohrbach Cosasco Systems Corrosion Monitoring Equipment is manufactured and sold under one or more of the following US Patents: 4138878, 4238298, 4338563, 4514681, 4537071, 4587479, 4605626, 4625557, 4755744, 4839580, 4841787, 4882537 5243297

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