Features

- **Highly Secure and Reliable Self Organizing Wireless Mesh Network**
- **High Resolution Metal Loss Measurement for all process environments**
- **Direct input through Modbus Interface to virtually any Process Automation System**
- **Low installed cost**
- **International Hazardous Area Certifications**
- **WirelessHART™ 7 protocol Seamlessly Integrates with Emerson Smart Wireless Network**

The Cosasco Wireless System has redefined corrosion monitoring as a true process parameter. The system is based on Microcor patented high resolution corrosion measurement technology; the industries most widely used and only technologically advanced system capable of operating in any process environment. The 2.4 GHz self-organizing wireless network delivers exceptional data reliability and network stability through its high security communication. Microcor online systems are already known worldwide for their proven accuracy and reliability. The wireless link now adds simplicity, flexibility, and exceptional economy of installation to new or existing installations.

The Cosasco Wireless System includes Microcor ER Wireless Transmitters, measuring metal loss and corrosion and erosion rate; LPR Wireless Transmitters, measuring galvanic corrosion rates and pitting tendencies, and Cosasco Wireless Extenders (WE) for wireless network expansion.

These transmitters along with supporting access fittings, probes, gateway, corrosion management servers and process interface software comprise the complete corrosion management system. Alternatively, the Wireless Transmitters can be added seamlessly to an Emerson Smart Wireless Network or via direct input from the gateway through Modbus Interface to virtually any Process Automation System (PAS), Including Honeywell, Yokogawa, Siemens, ABB, or Endress & Hauser hard-wired or wireless networks (see page 4). With its widespread capability and effectiveness, the wireless system is not only complementary to any process system but a guaranteed maximum return on investment, both in the short and long run, in terms of low installation costs, effective chemical inhibitor use, and asset preservation.

The Wireless Transmitters are quickly and easily installed without the time and expense required for wiring. Once installed metal loss and computed corrosion rate is read from the Gateway directly into your DCS/SCADA system, a Cosasco ICMS3-Amulet Corrosion Management System, or Cosasco Intelligent Interface Unit for smaller scale systems. The Wireless Transmitters are easily configured using a direct connection to a PC or laptop in a safe area, or through Cosasco's handheld instrument in hazardous locations.

The Wireless Transmitter 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 1000ft (300 m) in optimal conditions and with a clear line of site from transmitter to transmitter or transmitter to gateway, with multiple "hops" permissible from any transmitter back to its gateway. See individual data sheets for all Wireless Transmitter specifications.

Cosasco Wireless System Overview

The Cosasco Wireless System can operate as an independent system or can integrate into your existing DCS/SCADA (See diagram below). The Cosasco Wireless System just like its wired counterpart Microcor Corrosion Monitoring System is flexible, highly accurate, and economical

The basic system architecture comprises the following:

1) Microcor ER Wireless Transmitters (measuring corrosion and erosion)
2) LPR Wireless Transmitter (measuring corrosion in water systems)
3) Cosasco Wireless Extender (to expand wireless network)
4) Gateway

5) Corrosion Probes & Probe Adapters
6) Access Fittings & Hollow Plugs
7) Proof Cable (if Transmitter is mounted remotely from probe)
8) ICMS3™ or IIU Server
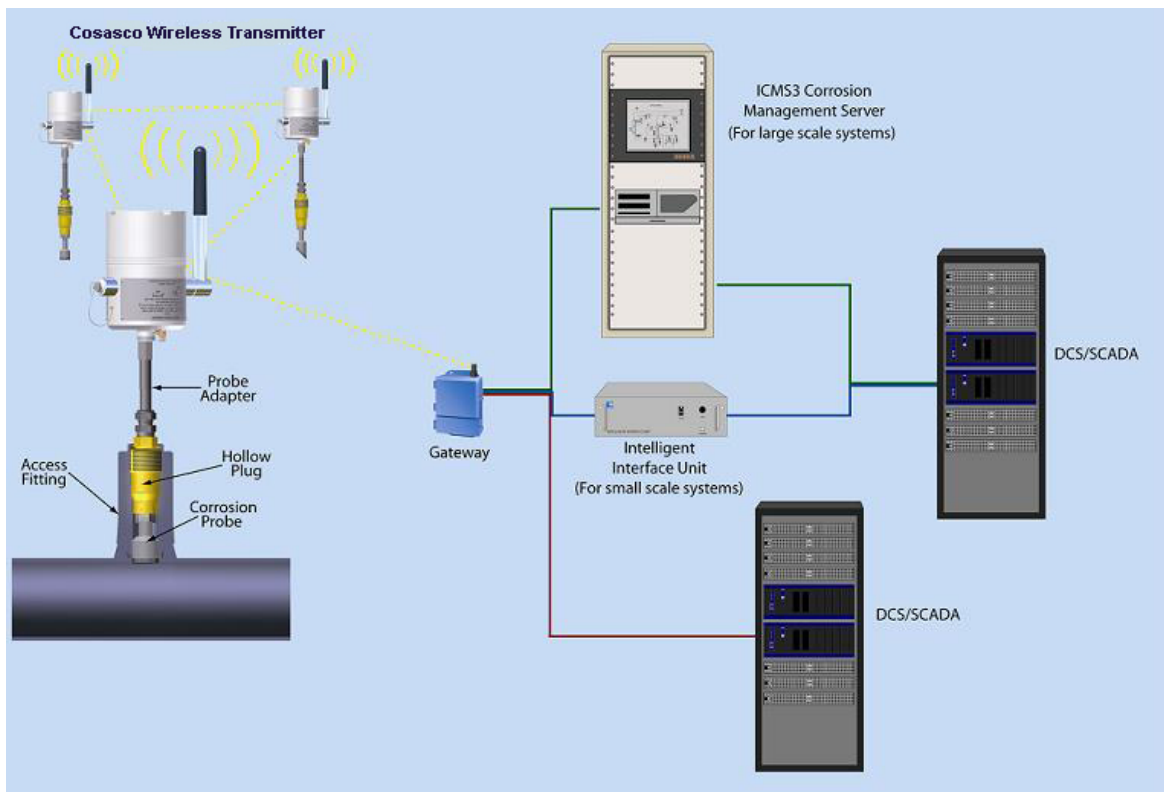
System Details

Microcor ER Wireless Transmitters

The M-310 uses high resolution metal loss measurement providing 18 bit resolution, and is rated for operation in hazardous locations (Class I, Zone 1). M-310 have an allowable operating range of -40°C to 70°C and can operate in virtually any environment. The M-310 can be added seamlessly to an Emerson Smart Wireless Network or via direct input from the gateway through Modbus Interface to virtually any Process Automation System.

LPR Wireless Transmitters

The LPR-310 is designed for on-line corrosion monitoring of water systems in electrically hazardous areas, and is compatible with M-310 and Emerson Smart Wireless devices. 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 LPR-310 patented high frequency measurement on two electrodes for compensation of solution resistance provides the highest accuracy and widest range of operation. This compensation has been further enhanced on this instrument to make it the widest range of operation of all the Cosasco LPR instruments.

Cosasco Wireless Extender

The WE is used to expand the wireless network when wireless transmitters are located distances that are out of wireless range direct to the gateway.

Gateway

The gateway serves as a connection between the wireless transmitters and a host system. The gateway is easily configurable and integrates into a designated control system through serial or ethernet connections. The Gateway is scalable supporting up to 100 wireless devices and is certified for Class I, Div2, and Zone 2. The gateway can communicate directly with the host system using Modbus TCP/IP integration over Ethernet interface and supports communication with host applications using OPC.

Checkmate DL-W Wireless Configurator

The Checkmate Dl-W Wireless Configurator is a portable handheld instrument specifically designed to configure designed to configure Cosasco Wireless devices. The intrinsically safe Checkmate DL-W allows you to easily configure Cosasco Wireless devices in hazardous area locations when configuration in a safe location with a PC a not possible. In addition to setting up the Cosasco Wireless devices, the Checkmate DL-W allows you to view the settings and status of the Wireless Transmitter/Extenders and display the most recent metal loss measurement of M-310s.

Corrosion and Erosion Probes

Microcor Corrosion Probes are specially designed to provide advanced thermal performance, and reliable operation in all environments including sour service. Two forms of probe element are available – flush and cylindrical. Several mounting configurations are available, the most common of which allow the probes to be inserted and removed under full process operating conditions without shutdown.

Erosion Probes

Erosion Probes are used to detect sand erosion in oil and gas wells where sand production is common. There are two versions of Erosion Probes available. The S4500 with a specially designed element support shield is suitable for severe flow or high temperature applications. The S4700 with an angled element is exposed to the flow at a 45° angle, simulating a change in direction in the pipe.

Galvanic Probes

LPR probes provide a direct measure of corrosion rate and a qualitative pitting tendency of metals in electrolytes by the technique of linear polarization resistance. These probes employ two replaceable, identical electrodes which are mounted at the end of the probe by threaded, insulated studs. Two electrode probes are suitable for the majority of problems where LPR techniques are applicable. See individual data sheets for complete details.

Probe Adapters

The probe connecting adapter allows the Wireless Transmitters to be close-coupled to the probe and provides a mounting for the transmitter. The probe adapter is the preferred and simplest method of mounting the Wireless Transmitter (see probe data sheet for mounting clearance).

Access Fitting Assembly & Hollow Plug

The probe is mounted onto the pipeline or vessel through a Cosasco Access Fitting Assembly that includes both the hollow plug and body. The mounting configuration allows for safe installation and removal of corrosion or erosion probes under full operating pressure with Cosasco Retriever and Service Valve.

Cable

If high vibration or excessive temperature are present or direct mounting of the transmitter to the probe is not feasible, an alternative short connection cable can be used.

ICMS3™ or IIU Server

The Intelligent Interface Unit (IIU) for small to medium-size systems, and the Integrated Corrosion Management System ICMS3 for medium to large systems, communicates through a direct wired and ethernet online connection to integrate into your existing DCS and SCADA systems. The gateway feeds the data from both the Wireless Transmitters and Emerson Smart Wireless devices into the ICMS3 or IIU via a Modbus interface.

The Intelligent Interface Unit (IIU) computes metal corrosion and erosion rates from measurements transmitted from our Microcor and Erosion sensors, and also provide instantaneous corrosion rates and pitting tendencies in aqueous media via LPR wireless transmitter. Eliminating the need for expensive custom software, the IIU cost-effectively illustrates metal loss and corrosion/erosion rates through the installed Cosasco Microcor Tools software. This permits operation as either a blind interface to a SCADA or DCS system, or as a stand-alone corrosion data storage and analysis system.

The Integrated Corrosion Management System ICMS3 is the most comprehensive and powerful online corrosion monitoring system available. It is ideally suited for medium to large scale systems, or for small systems with the need for future growth. The ICMS3 corrosion management server is the hub of the corrosion or erosion monitoring system, integrating several forms of corrosion monitoring and process data into one complete online system, shared over a variety of communication links. Corrosion and erosion monitoring can be managed as process parameters with constant data streaming into your preferred system. ICMS3 Amulet Software See ICMS3 and IIU data sheet for complete details.

System Integration

The Cosasco Wireless System is flexible and can be customized to integrate with your preferred Process Automation System. The Wireless Transmitters currently use HART7 Wireless communication allowing seamless integration with Emerson Smart Wireless devices. Currently in development are further communication options, including the ISA 100 standard radio that will allow communication between wireless transmitters and Honeywell, Yokogawa and Endress & Hauser Wireless devices. Regardless of the Process Automation System you use the can be directly connected to your DCS through Modbus/OPC interface.
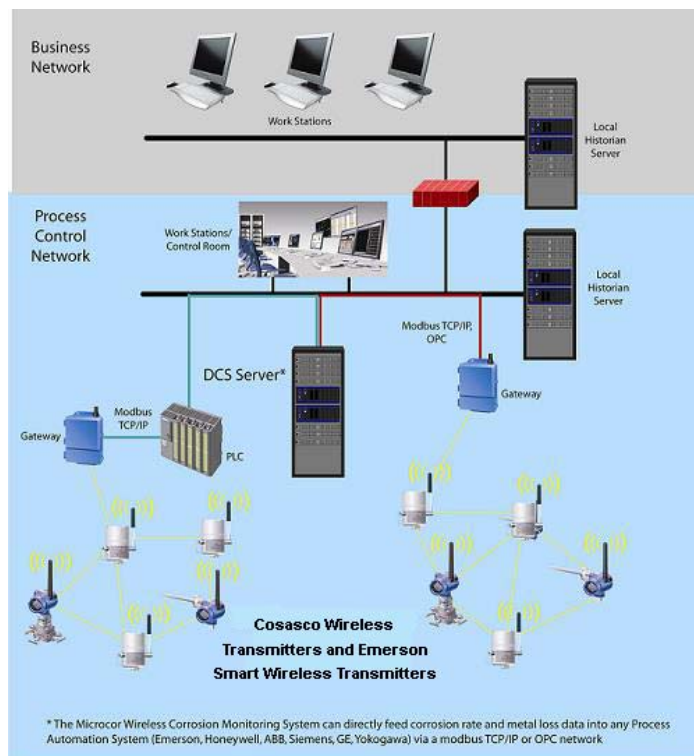
Product Certifications

Please see individual data sheets for M-310 and Gateway Product Certifications

Ordering Information

Microcor ER Wireless Transmitter
See Microcor ER Wireless Transmitter Data Sheet

LPR Wireless Transmitter
See LPR Wireless Transmitter Data Sheet

Cosasco Wireless Extender
See Cosasco Wireless Extender – MWT-3905-WE Data Sheet

Gateway
See Model R-1420 Wireless Gateway Data Sheet

Probe Adapters
P/N 745092 for Model M3000 series probes
P/N 745093 for Model M4000 & S4000 series probes (For permanent connection at 2500 PSI max.)
P/N 745114 for Model M4000 & S4000 series probes (For permanent connection at 10,000 PSI max., when used with pressure retaining cover P/N 740095)

Corrosion Probes
M3000 & M4000 Series (See Microcor Probes Data Sheet)

Erosion Probes

S4500 & S4700 (See Erosion Probe Data Sheet)

Access Fittings & Hollow Plugs
Cosasco Model 50-58 Access Fittings (See Individual Data Sheets)
Cosasco Hollow Plug - P/N 550100-1-1

Intelligent Interface Unit
See IIU Data Sheet

ICMS Server
See ICMS3 Data Sheet

Cables
Transmitter to Probe Cable with Mounting Bracket (Note: Probe adapter require (in conjunction with cable)

M-310 Remote Mounting Kit (10ft cable) P/N 748497-10
M-310 Remote Mounting Kit (15ft cable) P/N 748497-15

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