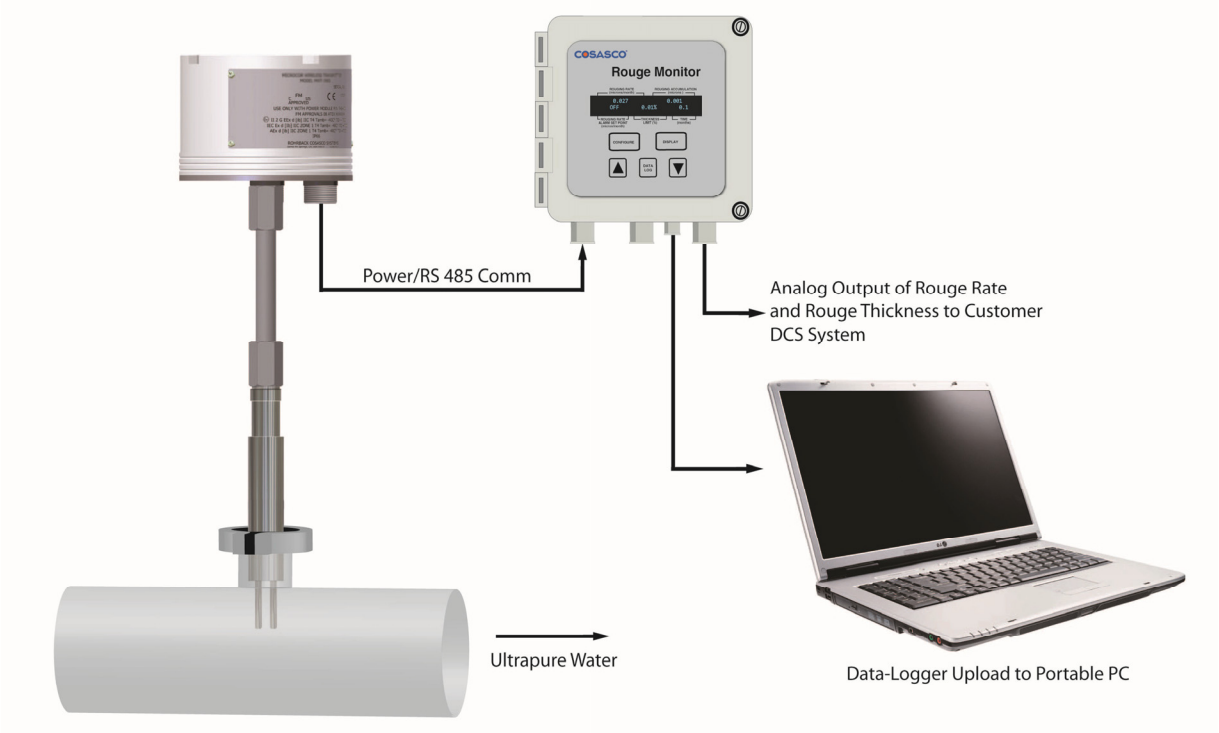
Rouge Monitor



Features

- **Ultra-Sensitive**
- **Alarm for Abnormal Conditions**
- **Rapid measurements for rouging rates and accumulation**
- **Low cost of ownership**
- **Remote monitoring with data logging**

The Rouge Monitor provides accurate measurement of ultra-low corrosion (rouging) rates in pharmaceutical water systems. The Rouge Monitor is ideal for Biotechnology, Pharmaceutical, and other industries where monitoring corrosion in metallic piping is critical.

Rouge can build up on internal surfaces of hot water and steam metallic piping systems, storage tanks, distribution systems, process vessels, and can be found on non-metallic surfaces including membranes, filters, and tubing. Particulate matter and sloughage from the build-up must be avoided to prevent contamination of downstream products. Monitoring the rouging (corrosion) rate of typical ions of ferric oxide, chromium oxide, and nickel oxides in the water assists the determination of derouging and passivation frequency. Typically, derouging and passivation frequency is subjectively determined by periodic inspection of the piping or a definitive time increment, without regard to rouge rate or rouge deposition thickness.

The installation and use of a Rouge Monitor unit presents a scientific approach to derouging and passivation frequency with absolute measurements for rouge rate and rouge accumulation (thickness).

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Derouging and passivation frequency can be based on data rather than subjective opinions and prophylactic approaches.

The Rouge Monitor system consists of a highly-sensitive front end probe/transmitter assembly, a remote data display/controller, data logger, analog output, and a serial communication port for computer data uploads. The remote display unit provides on screen displays of rouging rate in microns/month and rouge accumulation in microns.

A wide range of Analog outputs may also be set separately. Measurement ranges from 0.001 – 10 µ (1 to 10,000 nanometer). The unit can be easily configured for connection to a SCADA, BMS, data highway, or process control system. The data logger allows independent accumulation of all readings and measurement for direct transfer to a computer at the user's discretion. The display unit/controller provides power to the transmitter/probe assembly.

Applications

- **Hot Water Systems**
- **WFI Systems**
- **SS and Metallic Storage Tanks**
- **SS and metallic equipment and accessories**
- **Clean-in-Place systems**

Industries

- **Pharmaceutical**
- **Biotechnology**
- **Research Labs**
- **Clinical production**
- **API production**

Specifications

Probe:

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 µ/month at 1.3 µS/cm (0.7 MΩ-cm)
0.000-0.100 µ/month at 0.054 µS/cm (18 MΩ-cm)
Operating Range: 100-0.025 µS/cm conductivity
0.01-40 MΩ-cm resistivity

Transmitter:

Model E-9020 LPR Transmitter with connecting adapter for direct mounting to monitoring probe. (Separate mounting bracket available if required)
Enclosure: IP 67
Dimensions: 4.5" diameter by 3" high excluding connectors (114.3mm diameter x 76.2 mm height)
Weight: 3.5 lbs (1.6 Kg)

Display Unit:

Display of Rouging rate: 0 to 9.999 microns/month
Rouge thickness: 0 to 9.999 microns
Alarm setpoint: 0 to 2.000 microns/month
Running time: 0 to 50 months
Analog outputs: Loop 1 Rouging Rate: 4-20 mA
Loop 2 Rouge thickness 4-20mA
Loops are self-powered internally with 24 VDC
Selectable Ranges:
Rouge Rate Current loop ranges [nm/month]: 10, 20, 50, 100, 200, 500, 1000, and 2000
Rouge Thickness Current loop ranges [nm]: 100, 200, 500, 1000, 2000, and 5000
Measurement Cycle Time: 20 minutes
Integration Time: Adjustable 3 to 120 minutes-default 60 min
Datalogging Interval: Settable from 30 minutes to 24 hours
Datalogging capacity: latest 2048 readings–non-volatile memory
4.25 days at Cycle Time set to 3 minutes
28 days at Cycle Time set to 20 minutes
84 days at Cycle Time set to 60 minutes
170 days at Cycle Time set to 120 minutes
Datalogged Parameters: Date and time stamp for all readings
Enclosure: NEMA 4X
Power Requirements: 115/240 VAC Hz Supply at 15 watts
Alarm output relay: 1 SPDT 1 amp at 230 VAC
Weight: 3 lbs (1.4 Kg.)

Ordering Information

Model	Rouge Monitor Kit
710696	LPR Transmitter Display Unit, E-9020, and Probe

Code	Instrument Voltage
115	115 V
230	230 V

Code	Instrument Voltage
L	Cable Length in Feet

Code	Probe Flange Size (in)
FF	1.5" or 2.0"

710696 — 115 — 5 — 1.5 ← **Example**

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