



Nalco Corrosion Monitor Model NCM100



Battery-Operated Corrosion Monitoring Device

The NCM100 is a battery-powered, electro-chemical device capable of measuring general corrosion rates in industrial water and process systems. The compact unit provides operators with an affordable means of obtaining accurate on-line corrosion information that can be used to help reduce the total cost of system operation. The instrument has an excellent fit in systems where corrosion rates of mild steel, copper and other yellow metals are of critical importance.



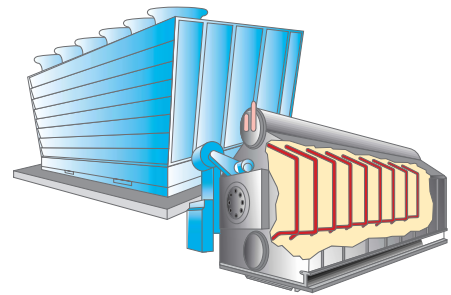
Starter kits include all components necessary for startup. 400-NCM100KB.88 for Boiler Feedwater, condensate and other hot water applications is pictured above.

Corrosion is the leading cause of process equipment and piping failures in industrial water and process systems. Each year companies are forced to spend billions of dollars for corrosion-related equipment replacement costs and downtime. In addition, corrosion produces iron by-products that can foul critical heat exchange equipment. Iron fouling of heat transfer surfaces has a negative impact on plant efficiency, throughput, and operating costs. Mechanical, operational, and chemical methods can be used to control corrosion in industrial water systems. Accurate, on-line measurement of corrosion rates gives system operators critical information that can be used as a basis for optimizing the selected method(s) of corrosion control in their systems. On-line corrosion monitoring can be used to help system operators achieve the following benefits:

- Increase Unit Output – Enhance Revenue/Profits
- Lower Total System Operating Costs
- Maximize Equipment Reliability
- Minimize Downtime & Maintenance Costs
- Optimize Treatment Program Cost & Performance

Installation

The battery-powered NCM100 can be easily installed in the field using the included mounting tabs. Disposable CW “smart probes” are designed to fit into 1” corrosion coupon racks. Coupon racks 500-C0191.88 (clear-view) and 500-C0192.88 (PVC) are available from Nalco.



Available for Cooling Water and Boiler Feedwater/Condensate Applications

Benefits

- ✓ Accurate, on-line corrosion information
- ✓ Affordable alternative to existing corrosion monitoring devices
- ✓ Supports five probe metallurgies for maximum versatility
- ✓ Auto recognition of probe metallurgy simplifies operation
- ✓ Compact lightweight design makes installation quick, easy, and inexpensive
- ✓ Standard 9V batteries eliminate the need for costly engineering and hard-wiring
- ✓ Rugged NEMA 4 enclosure enhances durability
- ✓ CE approval conforms to international standards
- ✓ 4-20 mA output signal capability for remote monitoring and data acquisition
- ✓ Internal data logger with real-time clock stores critical system information
- ✓ Optional Palm™ interface kit facilitates data management

Specifications

Number of channels: Single

Dimensions: 3" H x 5" W x 2.3" D
[7.62 cm x 12.70 cm x 5.84 cm]

Weight: 1.0 lb [0.45 kg]

Display: 3-digit LCD

Probe design: Two-electrode with Solution Resistance Compensation

Power Supply: DC, 9V alkaline battery or 24V loop power

NCM 100 Operating Range: 40-120°F [4.5-48.9°C]; 100 psi

Probe Operating Range:
Cooling Water Probe: Max. 158°F [70°C]; 100 psi
Boiler Probe: Max. 350°F [176°C]; 1,000 psi; 10.8 pH

Metallurgies Supported: 1018 Mild Steel, 110 Copper, 443 Admiralty Brass, 706 (90/10) Cu/Ni and 715 (70/30) CuNi

Multiplier Selection: None (self-identification of probe metallurgy/multiplier)

Corrosion Rate Range:
Mild Steel (0.10 – 99.9 mpy);
Copper/ Alloys (0.01 – 9.99 mpy)

Accuracy [Mild Steel]: CW ±10% (0.1-10 mpy), 50% (10-99.9 mpy) and (Boilers) ± 15% (0.1-3 mpy)

Accuracy [Copper/Alloys]: ±10% (0.01-1.0 mpy) and 50% (1.0-9.99 mpy)

Minimum Conductivity:
Cooling Water: 10 µS/cm
Boiler: 5 µS/cm

Output: Isolated 4-20 mA into 600 ohms maximum. RS-232 download of stored data to IBM PC or equivalent.

4-20 mA Scaling:
Mild Steel: 0.1/25.0 mpy
Copper and Alloys: 0.01/5.0 mpy

Connectors: 6' serial probe cable with 9-Pin D connector

Cycle time: 30 minutes (synchronized at top and bottom of hour)

Data storage: Stores up to 255 days of data (12,240 data points)

Description

The NCM100 is based on a two-electrode potentiostat design with solution resistance compensation. Corrosion rate measurements are made using innovative low-power circuitry and the proven linear polarization resistance (LPR) technique.

Patented "smart probes" feature plug & play technology that automatically identifies probe metallurgy when plugged in. No user intervention is required.

New durable boiler probes are designed for environments where high pH, tempera-

ture, pressure and low conductivity typically limit the use of traditional LPR corrosion probes.

The NCM100 runs on a standard 9V alkaline battery. A probe reading sequence is initiated every 30 minutes to maximize battery life. When not performing corrosion measurements, the unit returns to an idle 'sleep' mode to conserve battery power. Expected battery life under normal operating conditions is approximately three months. A 24V power supply (not included) can also be used to eliminate the need for batteries.

To Order

The NCM100 is available through your local Nalco representative, or through our Nalco Customer Service at 1-800-288-0879.

For more information on this product, please contact Equipment Solutions Technical Support Group at 1-800-323-8483.

Parts and Accessories

Part number	Description	KS	KC	KB
Starter Kits				
400-NCM100KS.88	NCM100 Starter Kit* (1018 Steel)			
400-NCM100KC.88	NCM100 Starter Kit* (110 Copper)			
400-NCM100KB.88	NCM100 Starter Kit* (High Temperature & Pressure)			
Cooling Water Application Probes				
400-NCMP1B.88	1018 Steel Probe with ferrules	•		
400-NCMP2B.88	110 Copper Probe with ferrules		•	
400-NCMP7B.88	443 Admiralty Brass Probe with ferrules	∇	∇	∇
400-NCMP4B.88	90/10 Cu/Ni Probe with ferrules	∇	∇	∇
400-NCMP5B.88	70/30 Cu/Ni Probe with ferrules	∇	∇	∇
High Temperature & Pressure Application Probe and Accessories				
400-NCMP6.88	High temperature & pressure probe			•
400-NCMAC14.88	Cable for high temp & pressure probe			•
400-NCMAC13.88	Housing kit (Tee & Reducer)			•
500-P6116.88	Replacement tips (Mild Steel)			•
500-P6113.88	Replacement Teflon O-Rings			•
Replacement Parts and Accessories				
400-NCMAC1.88	NCM100 Software	•	•	•
400-NCMAC2.88	Test Probe (Mild Steel)	•		•
400-NCMAC10.88	Test Probe (Copper)		•	
400-NCMAC3.88	Serial Cable, 6' (1.8m)	•	•	•
400-NCMAC4.88	4-20 mA Cable, 10' (3m)	•	•	•
400-NCMAC5.88	3/4" Swagelok Fitting	•	•	
400-NCMAC9.88	Palm™ Interface Kit (Cable & CD)	•	•	•
400-NCMAC15.88	Probe Restraint	•	•	

*Starter kits consist of 1 each: NCM100 Corrosion Monitor, Software CD, Operating Manual (PDF Format), Serial Cable Test Probe, Smart Probe with front & back ferrule and Swagelok fitting. Boiler Starter Kit also includes electrode tips, housing and cable (Swagelok fitting and ferrule N/A).

•Parts are compatible with either KS (Mild Steel), KC (Copper), or KB (High temp & pressure) starter kits.

∇Brass and Cu/Ni probes are compatible with the NCM100 monitor.

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