

SURVEYOR PLUS™ M

ENVIROMENTAL CONDITION MONITOR



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The SURVEYOR PLUS™ M is a multiparameter monitoring system that provides continuous environmental surveillance and rapid detection of any deterioration that could potentially damage expensive equipment and valuable assets. Early detection of high humidity, elevated temperatures, or corrosive conditions allows for corrective action to be taken before substantial damage occurs to sensitive computer and instrumentation systems or electrical equipment.

The system measures humidity, temperature, and corrosive effects using two replaceable thin-film sensors (alternative: Quartz Crystal Microbalance (QCM) sensors). Units also selectable with optional differential pressure measurement feature. The corrosion rate displayed on the LCD screen that correspond to the ISA classification of environments (G1 through GX) for copper and silver. This system is particularly useful for environmental monitoring in refineries, chemical plants, pulp and paper plants, control rooms, computer rooms, museums, and cleanrooms.

DISPLAY

It is equipped with an LCD high-resolution display. Silver and copper corrosion, temperature, humidity and pressure (optional) are plotted at different time intervals. In addition, layer deposition thickness and cumulative and incremental corrosion following ISA standards are available for display.

ALARMS

Configurable alarms for each variable are available. These alarms have a HIGH and a LOW option available for the user to set. If one of the alarm limits is reached, then the device will display a blinking "!" symbol to notify the user.

SENSOR

The device utilizes silver and copper sensors operating at an oscillating frequency of 6,000,000 Hz to measure frequency deviations with a precision smaller than 1 Hz, which translates into an equivalent corrosion measurement. The corrosion severity level is displayed on the main screen following ISA 71.04-2013 standards, with different range levels (G1-GX) shown as a plot.

POWER SUPPLY

Supports a voltage input range of 7 to 40 VDC through a barrel jack connection port.

OUTPUTS

The default communication output of the device is ModBUS protocol with RS485 connectivity port. Optionally, up to five analog outputs are available, one for each monitored variable. These outputs follow the 4-20mA standard for industrial environments. An SD Card securely stores all data points in a .CSV format, which can be easily removed for further data analysis. Additionally, an optional module can be added to enable Wi-Fi connectivity.

SPECIFICATION

No.	Parameters	Units	Range	Accuracy
A	Temperature	°C	-40 to 100	± 0.2
B	Relative Humidity	% RH	0 to 100	± 1.8
C	Copper Cumulative Corrosion	Å	0 to 4000	<1
D	Silver Cumulative Corrosion	Å	0 to 4000	<1
E	Differential Pressure (Optional)	Pa	± 600	± 0.25

ISA STANDARD GUIDELINE

Class	Severity Level	Copper Reactivity Level	Description
G1	Mild	<300 Angstrom	An environment sufficiently well-controlled such that corrosion is not a factor in determine equipment reliability
G2	Moderate	<1,000 Angstrom	An environment in which the effects of corrosion are measurable and may be a factor in determining equipment reliability
G3	Harsh	<2,000 Angstrom	An environment in which there is a high probability that corrosive attack will occur. These harsh levels should prompt further evaluation resulting in environmental
GX	Severe	>2,000 Angstrom	An environment in which only specially designed and packaged equipment would be expected to survive. Specifications for equipment in this class are a manner of negotiation between user and supplier