

Artesis MCM Line

Motor Condition Monitor for Fixed Speed Motors



Description

MCM continuously identifies existing and developing faults on electric motors and their driven equipment. MCM utilizes an intelligent, model-based approach to provide anomaly detection by measuring the current and voltage signals from the electrical supply to the motor. It is permanently mounted, generally in the motor control center and is applicable to 3-phase AC, induction or synchronous, fixed speed motors. Accompanying MCMScada Software or Artesis Enterprise Server (OPC Server) is used to view the data.

MCM provides both mechanical (unbalance, misalignment, roller bearings, etc.) and electrical (loose windings, short circuits, etc.) anomaly detection as well as electrical parameters such as voltage and current imbalances and power factor. In addition, it can detect changes in the load the motor is experiencing due to anomalies in the driven equipment or process such as cavitations or plugged filters and screens. Since it doesn't require any sensor installation on the motor itself or associated load, MCM is especially attractive for inaccessible driven equipment and is applicable to most types of pumps, compressors, and similar loads.

GENERAL INFORMATION

Motor Type	3-phase, AC (not suitable for DC motors), fixed speed (line driven) motors. Motor current (load) variation must be less than 15% during 6 sec data acquisition period. Not for use with soft-starter systems unless they are automatically bypassed immediately after motor start-up and during subsequent use
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ENVIRONMENTAL

Operating Temperature	0 – 40° C (32 – 104° F)
Humidity	Up to 90% RH, non-condensing

INPUTS

Power Input Required	100-240 Vac, 47 – 64 Hz, 19 VA, 200 mA or 120-300 Vdc, 19 VA, 200 mA (use UL listed fuse with proper voltage rating)
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MEASUREMENT VOLTAGE INPUTS

Low Voltage Models (≤ 480 Vac)	Can tap directly off voltage lines to motor
High Voltage Models (> 480 Vac)	Three Cat II Voltage Transformers*: 0.5% accuracy; 100 V, 110 V, or 120 V secondary voltages

MEASUREMENT CURRENT INPUTS

	Three 250 Vac, Cat II Current Transformers*: 0.5% accuracy, with either 5A or 1A secondary outputs depending on MCM model
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OUTPUTS

Communications	RS422/RS485 (RS232 and Ethernet with additional appropriate converter)
Relay	One assignable relay output, user programmable; NC/NO contacts (2A, 30VDC)

PHYSICAL

Weight	1170 g (2.58 lb)
Dimensions WxHxL	96 mm x 96 mm x 140 mm (3.78 in x 3.78 in x 5.51 in)
Protection Class	Front Panel: IP 40, Whole Unit: IP 20
Mounting	Front Panel Mounting (indoor)

COMPLIANCE & CERTIFICATIONS

EMC	EMC Directive 2004/108/EC, EN 61326-1, IEC 61326-1 Measurement Control and Laboratory Use for Industrial Environments
Safety	Electrical Safety Directive 2006/95/EC, EN 61010-1, UL 61010-1, IEC 61010-1 Safety Requirements for Electrical Equipment
NATO Stock Code	6625270131535

(*) Voltage and current transformers must meet local standards and regulations. For North America, current and voltage transformers must be certified by an OSHA appointed NRTL to appropriate product safety standards such as UL or CSA.

Artesis MCM Inverter



Motor Condition Monitor for Inverter Driven Motors



Description

MCM continuously identifies existing and developing faults on electric motors and their driven equipment. MCM utilizes an intelligent, model-based approach to provide anomaly detection by measuring the current and voltage signals from the electrical supply to the motor. It is permanently mounted, generally in the motor control center and is applicable to 3-phase AC fixed and variable speed motors. Accompanying MCMScada Software or Artesis Enterprise Server (OPC Server) is used to view the data.

MCM provides both mechanical (unbalance, misalignment, roller bearings, etc.) and electrical (loose windings, short circuits, etc.) anomaly detection as well as electrical parameters such as voltage and current imbalances and power factor. In addition, it can detect changes in the load the motor is experiencing due to anomalies in the driven equipment or process such as cavitations or plugged filters and screens. Since it doesn't require any sensor installation on the motor itself or associated load, MCM is especially attractive for inaccessible driven equipment and is applicable to most types of pumps, compressors, and similar loads.

GENERAL INFORMATION

Motor Type 3-phase, AC (not suitable for DC motors), fixed and variable speed motors.
Motor current (load) and voltage frequency (speed) variation must be less than 15% during 6 sec data acquisition period.

ENVIRONMENTAL

Operating Temperature 0 – 40° C (32 – 104° F)
Humidity Up to 90% RH, non-condensing

INPUTS

Power Input Required 100-240 Vac, 47 – 64 Hz, 19 VA, 200 mA or 120-300 Vdc, 19 VA, 200 mA (use UL listed fuse with proper voltage rating)

MEASUREMENT VOLTAGE INPUTS

Low Voltage Models (≤480 Vac) Can tap directly off voltage lines to motor
High Voltage Models (>480 Vac) Three Cat II Voltage Transformers*: 0.5% accuracy; 100 V, 110 V, or 120 V secondary voltages. Voltage Transformers' frequency range has to cover inverter's voltage frequency variation.

MEASUREMENT CURRENT INPUTS

3 Hall-effect Current Sensors*: selected based on the power of the motor to be monitored; secondaries to be 50-400 mA output, 30 Vac SELV.

Note: Hall-effect Current Sensors need external power sources, generally installed in the motor control panel, too.

OUTPUTS

Communications RS422/RS485 (RS232 and Ethernet with additional appropriate converter)
Relay One assignable relay output, user programmable; NC/NO contacts (2A, 30VDC)

PHYSICAL

Weight 980 g (2.16 lb)
Dimensions WxHxL 96 mm x 96 mm x 140 mm (3.78 in x 3.78 in x 5.51 in)
Protection Class Front Panel: IP 40, Whole Unit: IP 20
Mounting Front Panel Mounting (indoor)

COMPLIANCE & CERTIFICATIONS

EMC EMC Directive 2004/108/EC, EN 61326-1, IEC 61326-1
Measurement Control and Laboratory Use for Industrial Environments
Safety Electrical Safety Directive 2006/95/EC, EN 61010-1, UL 61010-1, IEC 61010-1
Safety Requirements for Electrical Equipment
NATO Stock Code 6625270131535

(*) Voltage and current transformers must meet local standards and regulations. For North America, current and voltage transformers must be certified by an OSHA appointed NRTL to appropriate product safety standards such as UL or CSA.