Made in USA

ICM441
Motor Protector



The ICM441 is a low cost, rugged motor temperature monitoring device, designed to shut off power to a motor before thermal damage occurs.



Protects Against...

- *Low Voltage*
- *High Voltage*
- *Grounded Windings*
- *Power Interruptions*
- *Winding Over Temperature*
- *Rapid Short-Cycling*

Features

- **Protects Against:**
  - **Under voltage**
  - **Power interruptions**
  - **Shorted temperature sensor**
  - **Over temperature**
  - **Rapid short-cycling**
  - **Open temperature sensor**
- **Control Duty SPST Relay Layout:**
  - **4 amp, 277 VAC relay contacts**
- **Anti-short cycle time delay:**
  - **4 minutes (nominal)**
  - **1-second manual bypass**

Mode of Operation

The ICM441 is designed to individually monitor 3 PTC temperature sensors which are wound into each phase winding of a motor. If any winding or incoming line power is beyond the safe operating range of the motor, the ICM441 will lock the motor out of operation until the inputs fall back into the safe operating range. The ICM441 can sense shorted or open sensors, in addition to providing isolation to each sensor to prevent damage to the monitor in the event a sensor shorts to a winding or case ground.

Specifications

ENVIRONMENTAL

Epoxy Encapsulated
- For use in extreme environmental conditions

Connection Terminals
- 0.25" male spade terminals

Temperature Range
- -40°C to +85°C (storage), -40°C to +70°C (operating)

Maximum Operating/Storage Relative Humidity
- 95% non-condensing

Sensor Shorted, Open, Over Temperature Detection
- 0.1 second maximum

Power Loss Detection
- 0.1 second maximum

Nominal Anti-Short Cycle Time
- 4 minutes (+/- 60 seconds)

Mechanical
- ***Dimensions:*** 3" x 3.25" x 1.5"

ELECTRICAL

User Selectable Operating Voltage:
- 90-140 VAC RMS and 185-270 VAC RMS (based on field wiring)

Low Voltage Cutout:
- 85 (+/-5.5) VAC RMS (using 120 VAC input)
- 175 (+/-10) VAC RMS (using 208 VAC input)

Over Temperature Trip:
- Any one (1) sensor input in excess of 11KΩ (+/- 1KΩ)

Over Temperature Reset:
- All three (3) sensor inputs must be less than 3KΩ (+/- 500Ω)

Shorted Sensor Trip:
- Any one (1) sensor input less than 250Ω (+/- 50Ω)

Shorted Sensor Reset:
- All three (3) sensor inputs must be greater than 500Ω (+/- 100Ω)

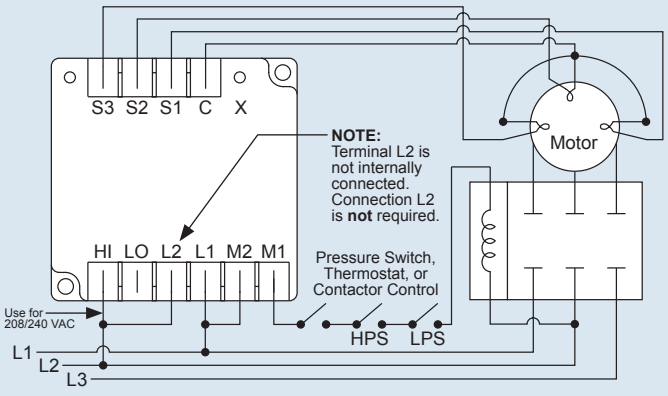
N.O. Relay Contact Rating (M1, M2):
- 6 amp resistive @ 277 VAC RMS
- 4 amp inductive @ 277 VAC RMS

Low Power Consumption:
- 23mA (nominal) @ 120 VAC @ 25°C
- 21mA (nominal) @ 240 VAC @ 25°C

Terminal "L2" is Not Internally Connected:
- Provided for backward compatibility to competitor models
- Not required for new installations

Temperature Sensors:
- Monitors industry standard 3BA and 10BA sensors

Wiring Diagram



LIS59-2

All features and specifications subject to change without notice.

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ICM CONTROLS

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ICM441 Cross Reference Guide (Expanded)

ICM Part No. ICM441	T.I. No.	MARS No.	Copeland No.	Bristol No.
	31AA1606 E			241680
	15AA1603 B	37304	**Replaces:** 071-9800-01 **Used On:** Copeland: GR, SE	
	15AA1603 C	37306	**Replaces:** 071-9800-00 **Used On:** Copeland: GR, SE	
	31AA1600 E	37322	**Replaces:** 071-0376-02, 071-0397-01, 071-0424-01, 071-0376-01, 071-0397-00, 071-0424-00 **Used On:** Copeland: 4R, 6R, BR, M, 2D, 3D, 4, 6, 8, both Reed & Discus models	
	15AA1600 B	37300	**Replaces:** 071-0376-02, 071-0397-01, 071-0424-01 **Used On:** Copeland: 4R, 6R, BR	
	15AA1600C	37302	**Replaces:** 071-0376-01, 071-0397-00 **Used On:** Copeland: 4R, 6R, BR	