**ICM450**

**THREE-PHASE VOLTAGE MONITOR**

---

**Stop Motor Burnouts!**

Programmable 3-phase line voltage monitor with 25-fault memory, high temperature LCD display, easy setup & clear, diagnostic readout of system faults, 190 to 630 VAC operation...

The ICM450 was specifically designed to protect motors and other 3-phase loads from premature failure and damage due to common voltage faults such as voltage unbalance, over/under voltage, phase loss, reversal, incorrect sequencing and rapid short cycling.

---

**Mode of Operation**

At power up, the ICM450 evaluates the incoming power for proper phase sequence, amplitude, and symmetry (voltage unbalance). If the three phase input at the line side connections is within user-set parameters, the load energize LED is turned on and the internal relay is energized. Continuity will be across terminals 4 and 6. If connections are made to the load side terminals, the ICM450 will transfer monitoring over to the load side only.

When a critical fault condition (phase loss or phase reversal) is present, the relay will immediately de-energize, the load-energized LED will turn off, the fault LED will flash, and the fault is written to memory. Continuity will be across terminals 4 and 5.

If a non-critical fault condition (unbalance, high or low voltage) is present, the ICM450 will ignore it during the interrogation delay time. If it is still present following the interrogation delay time, the relay will de-energize, the load-energized LED will turn off, the fault LED will flash, and the fault is written to memory. Continuity will be across terminals 4 and 5.

The ICM450 will store the last 25 faults in memory. The relay will not energize if any fault conditions exist. The integral adjustable delay on break timer will prevent short cycling.

---

**Features**

- **Reliable, high temperature LCD display**
  - Simplifies system setup and diagnostics. Indicates condition of incoming line voltage, fault conditions, system setpoints and other user adjustments.
  - Temperature: -20°C to +75°C (-4°F to +167°F)

- **Simultaneous voltage display (an ICM exclusive)**
  - View all 3 phases, no need to scroll through readouts.

- **Fully adjustable variables**
  - User may easily set and adjust variables in SETUP mode:
    - Line voltage: 190 to 600 VAC
    - Voltage unbalance: 2 to 20%
    - Delay on break period: 0 to 10 minutes
    - Fault interrogation: 0 to 15 seconds
    - Over/under voltage: 2 to 25%
    - Reset modes: AUTO or 0 to 10 retries
    - Control mode: ON or OFF

- **25-fault memory and storage**
  - Clearly displayed on LCD

- **Ultra bright LED indicators**
  - Shows current mode:
    - Setup LED
    - Control voltage LED
    - Load energized LED
    - Fault LED

- **Easy to install and configure**
  - Simple 7-step push-button setup
  - Wiring diagram on unit
  - Installation and application guide included

---

**Wiring Diagram**

---

All features and specifications subject to change without notice.
Specifications

Input
- **Line Voltage**: Universal (190-630 VAC)
- **Frequency**: 50/60 Hz

Output
- **Type**: Relay
- **Form**: SPDT
- **Voltage Range**: Up to 240 VAC (maximum: 10 amps)
- **Frequency**: 50/60 Hz

**Control Operating Temperature**
- **Operating Temperature**: -40°C to +75°C
  (-4°F to +167°F)
- **Storage Temperature**: -40°C to +85°C
  (-4°F to +185°F)

**LCD Operating Temperature**
- **Operating Temperature**: -20°C to +75°C
  (-4°F to +167°F)

**Phase Unbalance Protection**
- **Voltage Unbalance**: 2-25% adjustable

**Over/Under Protection**
- **Under Voltage**: 2-25% adjustable
- **Over Voltage**: 2-25% adjustable

**Phase Loss Protection**
- Phase Loss condition = <25% of nominal for any given phase. System will shut down and a fault will be recorded should this condition occur.

**Delay on Break Timer**
- **Control Voltage**: 18-240 VAC
- **Time Delay**: 0-10 minutes adjustable

**Fault Interrogation Delay**
- **Time Delay**: 0-15 seconds adjustable
- Provides a delay between fault detection and system shutdown, eliminating nuisance trips/unnecessary shutdowns.

**Mechanical**
- **Mounting**: Surface mount using (2) #8 screws
- **Termination**: Screw terminals
- **Weight**: 12 ounces (341 grams)
- **Dimensions**: 6.5” x 4.25” x 1.4” (16.5 x 10.8 x 3.5 cm)

**Installation and Setup**
- Application Guide included with unit

---

**System Diagram**

* Install jumper for 24 VAC anticipator type thermostats.