



FailSafe®

MSE of Canada Ltd.

INSULATION MONITOR FOR SINGLE PHASE CONTROL POWER SYSTEMS FailSafe™ TYPE MG600 MODEL CVM-AC

The FailSafe Type MG600 Model CVM-AC Insulation Monitors are intended for use in ships or industry and meet Lloyds Type Certification, MIL Specification M-24678, UL Listing and CSA Certification requirements. The range of insulation resistance covered -1 Megohm to 0.25 Megohms - was chosen to meet the needs of the marine environment, which is more severe than industrial environments. The monitors provide a visual alarm indication, with contacts for external alarm and other functions and are intended for use to monitor ungrounded, AC control power systems.

FEATURES:

- ◆ Easy Installation
- ◆ Small footprint DIN Rail mounting
- ◆ Completely automatic in operation
- ◆ Gives early warning of insulation problems
- ◆ Automatic alarm reset simplifies control system trouble-shooting
- ◆ High phase to ground impedance
- ◆ Solid state circuitry
- ◆ Integral self-test capability
- ◆ LED alarm indicator
- ◆ Contacts provided for local alarm and PLC connection



APPLICATION:

On grounded control systems ground faults can short out control elements, often with catastrophic results. This defect can be eliminated and system operation can be assured at all times simply by installing a FailSafe Insulation Monitor Model CVM-AC to supervise the integrity of the system and operating the control system ungrounded. FailSafe Model CVM-AC Monitors detect insulation defects on energized, ungrounded single phase control systems and its automatic alarm reset greatly simplifies the task of locating deteriorating insulation.

The Model CVM-AC device monitors insulation resistance in the megohm range and so is effective in detecting potential grounds on the control power system before they occur. With its local and remote indication capability, it gives early warning of insulation deterioration - and raises the alarm immediately - when a ground fault occurs, allowing the operator to clear the fault before a second one can occur and shut down the system. The decay of insulation resistance may be observed by switching through the three available alarm levels to progressively lower alarm levels as the insulation deteriorates and noting the time intervals, to estimate the time remaining until the lowest level is reached.

This ability to give early warning of an impending ground fault on energized AC control systems is unique to FailSafe Insulation Monitors Model CVM-AC.

ORDERING INFORMATION

- Order FailSafe Model CVM-AC. Specify line voltage.
- Installation Kit IK-MGM includes the bracket DIN-MGM, the flashing alarm light FAL, a Test Resistor and hook-up wire, wire connectors, Ty-wraps and mounting screws sufficient to install the unit, Explanatory and Warning labels.

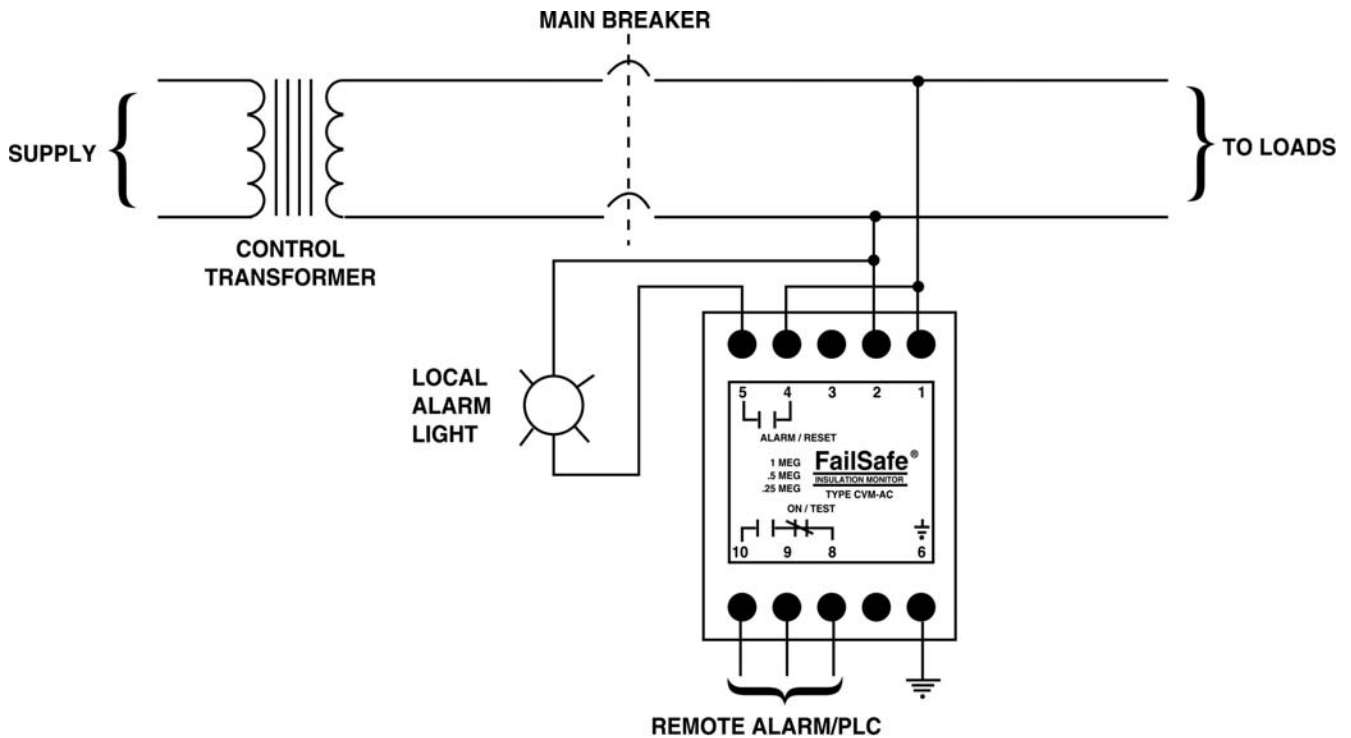
SPECIFICATIONS

Model CVM-AC

Max Line Voltage	220 AC, 1 phase or phase to neutral
Supply Voltage	Derived from line voltage
Power Requirements	3 va.
Factory Set points*	1, 0.5 & 0.25 Megohms
Contact Rating	5A., 250V. AC Resistive
Dimensions (mm) WxHxL (in)	45 x 68 x 112 1.77 x 2.67 x 4.4
Weight (kg)/(oz)	0.27/9.5

- * For other set points, consult factory.
- Maximum short circuit current 75 microamps.
- Operating temperature -20°C to +50°C; storage temperature -40°C to +100°C.
- Environment; maximum 95% relative humidity, non-condensing.
- UL and CSA Approved, meets Lloyds and US Coast Guard requirements.

CONNECTION DIAGRAM - FAILSAFE MODEL CVM-AC



FailSafe™ MONITOR TYPE CVM-AC; INSTALLATION INSTRUCTIONS

IMPORTANT: READ THE INSTRUCTIONS BEFORE INSTALLING THE MONITOR

FailSafe INSULATION MONITOR FOR 1 PHASE
UNGROUND CONTROL SYSTEMS TYPE CVM-AC

The FailSafe device continuously monitors the leakage resistance of the power system and operates its alarm relay when the value falls below the chosen set point. The device includes a visual alarm indicator and provides two changeover contacts for external alarm indication.

OPERATION

The monitor is connected to each side of the system through two, series-connected resistors R_1 and R_2 and a stabilized low DC voltage is applied to the mid-point through a range setting precision resistor and an AC filter. (See Fig. 1). The voltage appearing across the precision resistor is proportional to the system leakage resistance and its value is determined by comparing it to a reference voltage. When the value falls below the reference level, the alarm is activated and remains until the leakage resistance fault is removed.

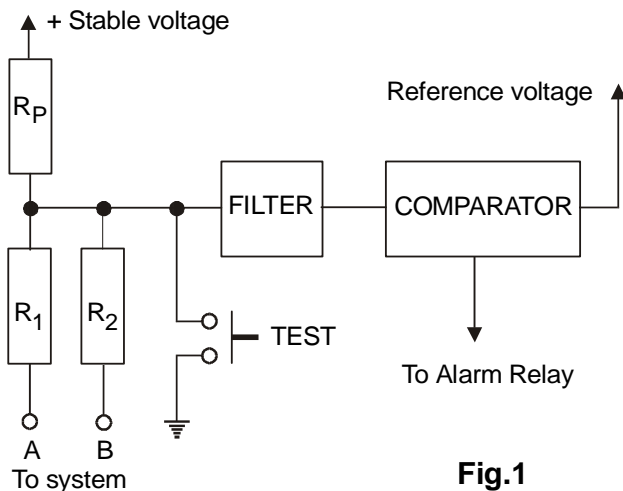


Fig.1

Note:

1. If any other device, which introduces a DC voltage between line and ground, is installed on the system, the alarm indication by the monitor will be incorrect.
2. If the system is to be meggered, the monitor must be disconnected from the system to obtain a correct reading.

INSTALLATION INSTRUCTIONS

To instal the monitor in the subdistribution panel:

1. Disconnect power from the panel.
2. Fasten the mounting bracket in place with the screws supplied. Clip the device securely to the bracket. If it is required, install the long life flashing alarm light on the panel door close to the hinges and affix the warning label around the lamp.

WIRING INSTRUCTIONS

CAUTION: OBSERVE SAFETY PRECAUTIONS -
DO NOT WORK ON LIVE CIRCUITS!

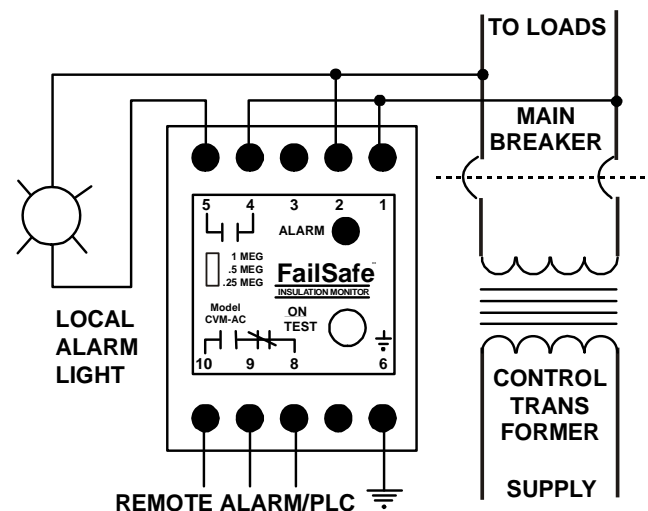
1. Disconnect power from the panel.
2. Connect terminals A and B to the system through a suitable dual fuse block. The lowest rating, eg. 2 amps, is suitable.
3. If a local alarm light is required, connect the supplied flashing alarm light to control power (terminals A and B) via the normally open contact (terminals 4 and 5).
4. Connect terminal 6 to ground.
5. Terminals 8, 9 and 10 are for the dry type, changeover contact, which may be used to provide remote indication if, required.
6. Reconnect power to the panel.

TESTING

To test the installation:

1. Verify that the FailSafe monitor is not in alarm.
2. Ground one side of the system temporarily. After 2 seconds the red LED should light and the local alarm light should light also.
3. Remove the temporary ground. The red LED and the local alarm light should go out.
4. Repeat the test procedure for the other side of the system. If the same results are obtained, the installation is correct.

Connection Diagram Model CVM-AC



Note:

The green LED is the "power ON" indicator and it is also the "TEST" push-button. After installation, the proper operation of the monitor, the local alarm light and the remote alarm indication (if installed) may be verified at any time by pushing the "TEST" button.