



## INSULATION MONITOR FOR ELECTRICAL MACHINES FailSafe™ TYPE MG600 MODEL MGM600D

The FailSafe Type MG600 Model MGM600D Insulation Monitors are intended for use in ships and are designed to meet Lloyds Type Certification and MIL Specification M-24678. The range of insulation resistance covered - 3 Megohm to 0.5 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 with machines to 600 volts AC or DC.

### FEATURES:

- ◆ Easy Installation
- ◆ Small footprint DIN Rail mounting
- ◆ Completely automatic in operation
- ◆ Gives early warning of insulation problems
- ◆ Solid state circuitry
- ◆ Low monitoring voltage for personnel safety
- ◆ Integral self-test capability
- ◆ LED local alarm
- ◆ Contacts provided for local alarm and PLC connection
- ◆ Optional automatic reset mode



### APPLICATION:

FailSafe Insulation Monitors are designed to provide safe monitoring of electrical insulation integrity in the marine environment. They may be installed to monitor motors in any area of the vessel where electrical machinery may sit idle but must be effective on demand, e.g. the lower platform, deck machinery, standby generators.

FailSafe Insulation Monitors are effective in eliminating grounds on the ship's electrical system before they occur, since most grounds occur when wet motors are started - and FailSafe monitors detect wet motors whilst they are idle, a task beyond the capability of system ground indicators.

FailSafe Insulation Monitors give early warning of insulation degradation, before motors (or generators) with deteriorated insulation are in immediate danger of failing on start up. This allows preventative maintenance to be scheduled when convenient, thus eliminating failure and the need for an emergency replacement or rewind.

The seriousness of the situation can be found by using the three alarm levels provided (3, 1 and 0.5 MΩ), to determine the speed of the insulation deterioration.

Control power requirement is 115/230 volts, 50/60 Hz., 3 va.

## ORDERING INFORMATION

- Order FailSafe Model MGM600D, as the unit may be used with either control 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.

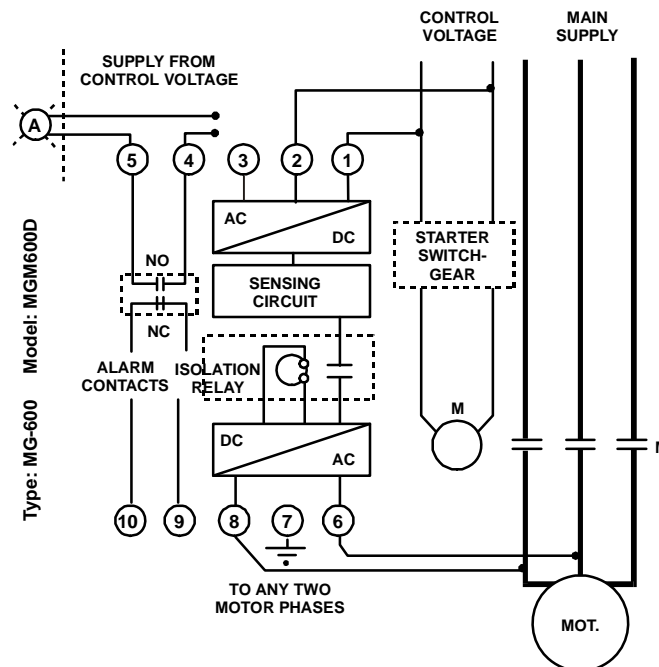
## SPECIFICATIONS

Model MGM600D

Max Line Voltage	600 AC/DC
Supply Voltage*	115/230v. AC, ± 20%, 50/60 Hz
Isolation voltage	100 - 600V AC/DC
Power Requirements	3 VA
Factory Set point**	3, 1 & 0.5 Megohms
Contact Rating	5 amp., 250 v. AC resistive
Isolation Time	0.5 milliseconds
Dimensions (mm) WxHxL (in)	45 x 68 x 112 1.77 x 2.67 x 4.4
Weight (kg)/(oz)	0.27/9.5

- \* DC and 400Hz supply voltage units available – contact factory
- \*\* For other set points, consult factory.
- Maximum short circuit current 5 microamps.
- Operating temperature -20°C to +50°C; storage temperature -40°C to +100°C.
- Environment; maximum 95% relative humidity, non-condensing.
- Lloyds, US Coast Guard, UL and CSA approved.

## CONNECTION DIAGRAM - DIRECT ON LINE MOTOR



# FailSafe™ MONITOR TYPE MGM600D; INSTALLATION

## **IMPORTANT: READ THE FOLLOWING INSTRUCTIONS BEFORE INSTALLING THE MONITOR!**

The FailSafe device continuously monitors the insulation resistance of idle machines to provide early warning of insulation deterioration. It withstands test voltages up to 1000V.

### INSTALLATION

1. Disconnect power from the starter unit.
2. Install the mounting bracket close to the enclosure hinges using the screws supplied. Clip the monitor securely to the mounting bracket.
3. If required and regulations permit, install the long life flashing alarm light (supplied) on the starter enclosure front panel close to the hinges and affix the self-adhesive warning label around the lamp.
4. Connect control voltage to the unit (terminals 1 & 2 for 120V, 1 & 3 for 220V). Connect terminals 6 & 8 to any two phases on the load side of the main contactor. Connect terminal 7 to ground.

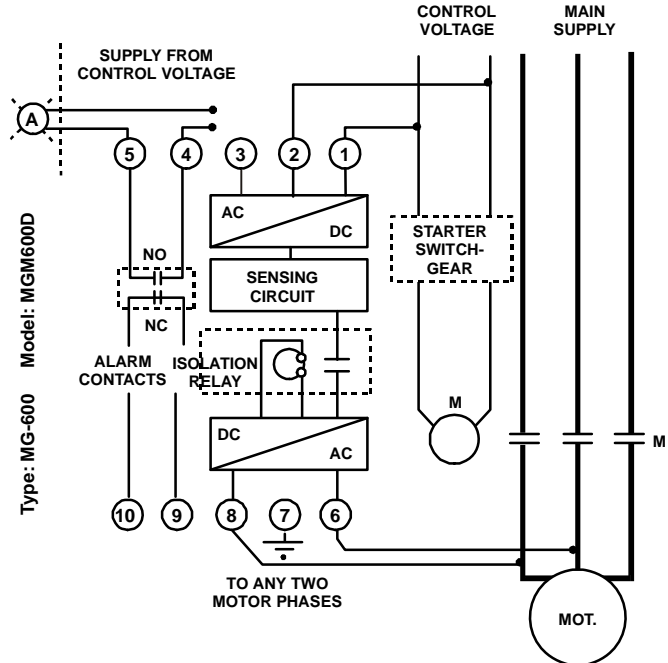
Use terminals 9 & 10 for start prevention (if required) and terminals 4 & 5 for local or remote alarm operation.

### INITIAL TEST PROCEDURE

1. Ground one of the motor phases momentarily with the supplied Test Resistor
2. The Red LED should light and the external alarm circuit be activated after a delay of 8 – 10 seconds.
3. Reset the monitor with the RESET button.
4. Repeat the procedure with the other two phases.
5. Start the motor. If the Red LED lights while the motor is running, check connections to terminals 6 & 8.

Monitoring is now automatic and may be verified at any time by pressing the TEST button.

### CONNECTION DIAGRAM MODEL MGM600D



**NB.** If the motor is wired for start prevention it will be tripped out by the test.

Alarm level switch: recommended setting is 3 Megohm; however if still in alarm at 0.5 Megohm, call for service!

### SPECIFICATIONS

Max. Power	3VA
Control	115/220V AC $\pm$ 20% 50/60 Hz $\pm$ 10%
Max. Line voltage	600V AC/DC
Measuring voltage	24V
Measuring current	50 $\mu$ A max
Isolation Time	0.5 milliseconds
Contacts rating	250V 5A AC resistive
Dimensions	4.4" x 1.77" x 2.67" 112 x 45 x 68 mm

Available for DC control, 400Hz and different settings – consult factory

**NOTE: DISCONNECT CONTROL POWER FROM THE STARTER ENCLOSURE IF HIGH VOLTAGE INSULATION TEST IS REQUIRED.**