MotoSafe®

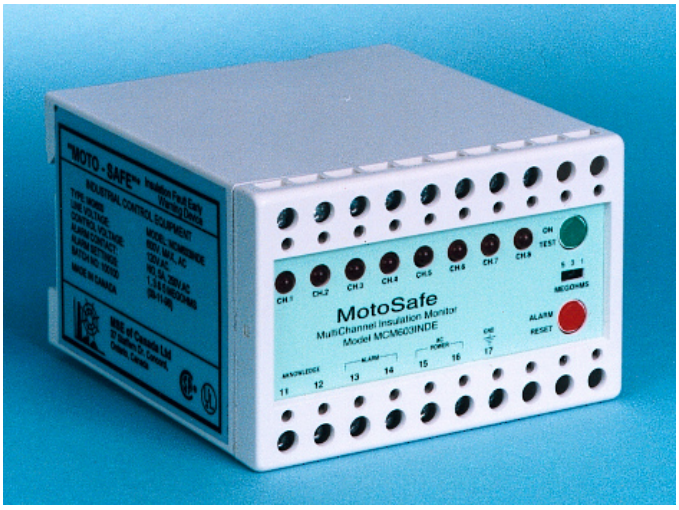
MSE of Canada Ltd.

INSULATION MONITOR FOR LOW VOLTAGE ELECTRICAL MACHINES TYPE MG600 MODEL MCM603INDE

MotoSafe Type MG600 Model MCM603INDE Insulation Monitors are designed to provide low cost monitoring of up to eight low voltage AC motors (600 volts max.) in a single industrial application. All of the motors are monitored at the same alarm level (5, 3 or 1 Megohms), selected by the user for his industrial environment. Visual alarm indication, with contacts for external alarm or other functions is provided.

FEATURES:

- Easy Installation
- Small footprint DIN Rail Mounting
- Completely automatic, continuous, sequential monitoring of motors
- Early warning of insulation problems
- Digital circuitry
- Low monitoring voltage for personnel safety
- Integral self-test capability
- LED faulty motor indication and alarm
- Contacts provided for local/remote alarm and PLC connection
- Local reset and remote acknowledgement capability



APPLICATION:

MotoSafe Model MCM603INDE Insulation Monitors provide safe monitoring of insulation integrity for up to eight electrical motors in a single industrial application. Their primary application is on motors in intermittent operation, since those motors, which are most susceptible to insulation deterioration in adverse environments. Designed for use with AC motors up to 600 volts, MotoSafe Model MCM603INDE Insulation Monitors give early warning of insulation degradation, well before the motors are in danger of failing on start up. This allows preventative maintenance to be scheduled when convenient, thus eliminating motor insulation failure as a cause of production downtime and product loss.

The digital design of the Model MCM603INDE retains all of the desirable features of the original Model M603IND, such as easy hi-potting of the motor winding and three alarm levels (5, 3 and 1MΩ), selected with a faceplate switch, but is easier to install, requiring only a single connection to each motor. The three alarm levels provide a simple way of determining the rate of insulation deterioration, by noting the time intervals between alarms at successively lower levels.

The Model MCM603INDE monitor is intended for use with up to eight motor starters mounted in a single enclosure and it is recommended that the same phase be used for the connections to all motors.

OPERATION

Individual optocouplers isolate the motors from the monitor and are activated sequentially by the internal microprocessor, scanning for line voltage. The insulation resistance of any un-energized motor is measured eight times (shown by the flickering of its channel LED) before the next motor is scanned. If any motor insulation resistance is below the alarm level, an alarm indication is **only** given **after** the monitor has cycled through all of the motor circuits twice more, to allow any residual line voltage to discharge and so avoid false alarms. Then, if the alarm condition still exists, the channel indicator and the ALARM LED begin to flash continuously and the alarm contacts change state in synchronism for remote alarm indication. Terminals are provided for an external "ACKNOWLEDGE" push button, which converts all alarm indications to continuous red when operated. The scanner then skips over any channel that is in alarm.

Any of the motors may be hi-pot tested to 1.5 kV DC but the power to the Model MCM603INDE monitor should be turned off to avoid false indications should the monitor attempt to scan the motor channel for line voltage during the hi-pot measurement. If the Model MCM603INDE monitor is factory installed, all connections should be removed and the monitor terminals should be grounded before dielectric strength testing of the motor control center is carried out.

The internal circuitry of the monitor can be tested by pushing and holding the "TEST" button for 40 seconds to permit the unit to scan all eight channels.

SPECIFICATIONS

Model MCM603INDE

Max Line Voltage	600 AC
Number of motors monitored	8 maximum
Control Voltage	115 or 230v. AC, 50/60 Hz
Control Power	3 VA.
Factory Set point*	5, 3 & 1 Megohms
Contact Rating	5 amp., 250 v. AC resistive
Dimensions (mm) WxHxL (in)	103 x 68 x 112 4.05 x 2.67 x 4.4
Weight (kg)/(oz)	0.42/14.8

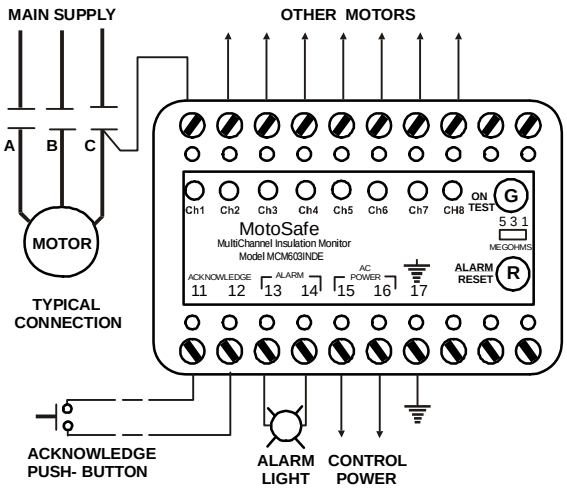
ORDERING INFORMATION

a) Order MotoSafe Model MCM603INDE and specify the required control voltage

b) Installation Kit IK-MHV includes the bracket DIN-MHV, the flashing alarm light FAL, a Test Resistor and hook-up wire, wire connectors, cable ties and mounting screws sufficient to install the unit, Explanatory and Warning labels.

- Environment; maximum 95% relative humidity, non-condensing
- UL and CSA Approved as Industrial Control devices
- *For other set points, consult factory.
- Maximum short circuit current 12 microamps
- Operating temperature -20°C to +50°C; storage temperature -40°C to +100°C

CONNECTION DIAGRAM – DIRECT ON LINE MOTOR



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MotoSafe™ MONITOR TYPE MCM603INDE: INSTALLATION INSTRUCTION

IMPORTANT: READ THE INSTRUCTION BEFORE INSTALLING THE MONITOR

MotoSafe INSULATION MONITOR FOR MULTIPLE MOTORS (GROUNDED SUPPLY).

The device is intended to monitor the insulation resistance of up to eight motors controlled from a common starter enclosure with up to eight motors contactors. It monitors the mashines when they are idle, to provide early warning of insulation deterioration. It withstands hi-pot test voltages to 1000V DC. For dielectric strength testing, disconnect and ground all terminals.

INSTALLATION

To install the monitor:

1. Disconnect power from starter enclosure.
2. Install the mounting bracket close to the enclosure hinges using the screws supplied. Clip the monitor unit securely to the mounting bracket.
3. Install the alarm light (if required) on the starter enclosure front panel close to the hinges and affix the self-adhesive warning label around the lamp.

WIRING INSTRUCTIONS

CAUTION: OBSERVE SAFETY PRECAUTIONS – DO NOT WORK ON LIVE CIRCUITS

1. Disconnect the supply and control voltages.
2. Connect terminals 15 & 16 to the control voltage.
3. Connect terminal 1 to one phase on the load side of motor contactor #1, terminal 2 to the ***same phase*** of motor contactor #2 and so on until all motors are connected.
4. Connect terminal 17 to ground.
5. Connect a normally open push-button to terminals 11 & 12 for alarm acknowledge (if required).
6. Connect the alarm light (supplied) to terminals 13 & 14. Alternatively may be used for operation a remote alarm circuit.

INITIAL TEST PROCEDURE

With contactor #1 open, ground one of the motor phases via the Test Resistor (supplied). When the monitor cycles to Channel 1, the channel LED should light (steady) and alarm indicator and external alarm light should flash. Remove the ground and reset the monitor with the RESET button.

Repeat the test with the remaining channels.

Note: Flashing channel's LED indicates the channel being checked at the moment. Pushing the acknowledge button resets the alarm but channel LED remains ON until the fault is removed.

To tested the device at any time press the TEST button. The channel being checked at the time will go into alarm.

The device automatically skips running motors and check only off line motors.

Recommended setting is 5 Megohms; however if still in alarm at 1 Megohm, call for service.

Connection Diagram Model MCM603INDE