

# Motor Checker EMC-22

Resistance/Inductance/Insulation Test



Analog Display to avoid EMF issues and degradation of LCD over Time !

Insulation Resistance (IR) Measurements

Resistance Measurement

Inductance Measurement

Identify Open and Short Circuits / Loose Connections in a winding

Detect Rotor Bar Problems without dismantling the rotor

Inductance of the winding with respect to different positions for rotor for detecting blow holes or cracks in rotor bars

Simple Operation, accurate and Quick assessment of motor condition'

Shok Proof Rubberized Metal Body



## Open Circuits / Loose Connections Increase Resistance

The inductance and resistance of all windings should be identical when a motor is in good condition. An Open circuit . loose connection, at terminals in one of the windings will increase the resistance of that winding. The fault can easily be identified by measuring the resistance of that winding and comparing the results

## Inter-Turn Shorts Reduces The Inductance

A Short Circuit between two or more turns of a winding will reduce its inductance. Measuring and comparing winding inductance is therefore the most suitable method to detect this type of fault. In case of fewer turns short the change in the resistance is negligible whereas change in Inductance is considerably High.

Inductance Measurement across a stator winding is also used to check the rotor. In case of rotor faults, the inductance readings will change considerably as the rotor position is changed

## Instrument Controls

EMC22 has three test lead terminals, used for insulation measurement (Left-Centre) and resistance / Inductance measurement (centre-right) respectively.

The pointer dial has double scale. Insulation resistance is shown in MEGAOHM, winding resistance and inductance in percent.

When testing the charge of the instrument batteries, the needle should reach the field marked "BBATTERY"

During Measurement, the operating button is held down. The Operating mode is selected by first turning the function switch to the desired settings.

The range switch controls the range during resistance and inductance measurements, in 6 steps. It is used to obtain the largest possible on-scale readings, so that any difference between the windings will be clearly shown.



## Test Procedure

EMC-22 is normally connected directly to the motor terminals after SWITCHING OFF THE POWER SUPPLY. There is no need to disconnect the supply cables for inductance and resistance measurement. Insulation resistance is measured first by connecting the test leads to a terminal and a suitable place on motor housing.

On Star or delta connected motors, one measures across winding pairs R-Y-YB-RB. The setting of the range which must not be altered between readings. On disconnected motors, each winding is measured individually (R-R etc)

Balanced readings will show that all three windings are electrically identical (good motor condition). If motor condition is still suspected, the motor is turned 90 degree and the inductance measurement is repeated

The rotor is checked by taking a series of inductance readings on the same winding, turning the rotor 10° to 15° after each measurement. Balanced readings indicate good rotor condition

On detecting a fault (large difference between readings), the motor is dismantled and properly examined at the workshop





## Technical Specifications :

Insulation Resistance (IR)	: 0-20M $\Omega$ @ 500V DC, Max Current: 0.25mA Accuracy: +/-5%
Resistance	: 0-60 $\Omega$ in Six Ranges (0.2 $\Omega$ F.S.D in Range 6) Accuracy: +/-2%
Inductance	: 0-300mHenry in Six Ranges (1mH F.S.D. in range 6) Accuracy: +/-2%
Operating Temperature	: 0 to 55°C
Weight	: 1000 Grams (Aprox.)
Power	: 1.5V X 6 AAA Size Cells Optionally 230V to 9V mains Adaptor

## Scope Of Supply:

EMC22 Motor Checker

Test leads with Crocodile Clips

6 Numbers of 1.5 V AAA Batteries

\*Optional 230VAC/9V DC Mains Adaptor