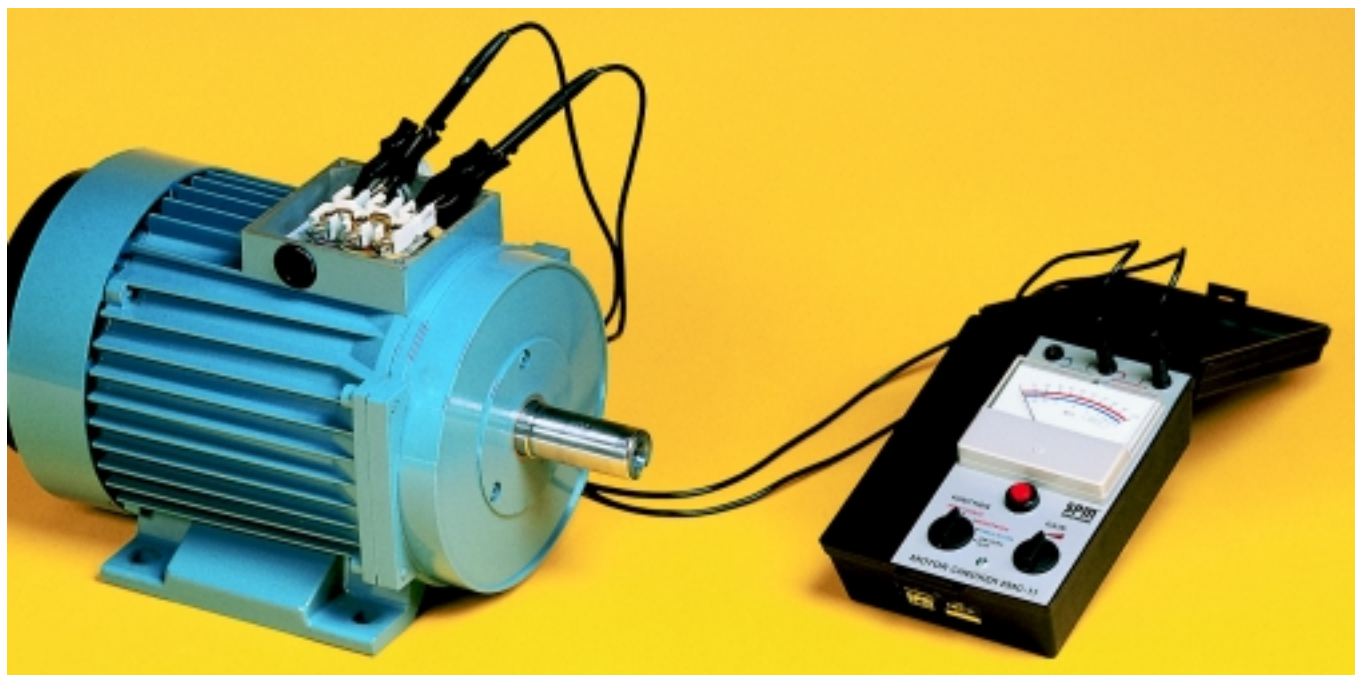


Quick Check for Electrical Faults!



Fast Checks on Electric Motors

EMC-11 is a portable diagnostic tool used for quick on-site checks of three-phase electric motors. A reduction in machine performance such as high current consumption and overloads tripping may indicate mechanical or electrical faults. If the fault is electrical the EMC-11 can be used to help diagnose the problem.

Three Operating Modes

Usually there are three categories of electrical faults which will reduce the performance of a motor or will present a possible hazardous situation:

- Faulty insulation
- Open circuits in a coil winding or contact
- Short circuits between individual turns of a winding.

Insulation Damage

Motor insulation is tested with high voltage generated by the instrument (1000 V DC, max. 0.25 mA). An insulation resistance greater than 2 megohms, measured between motor terminals and motor housing, is generally regarded as acceptable.

Open Circuit Detection

The inductance and resistance of all three windings should be relatively equal for a motor in good condition. An open circuit in one of the coil windings will increase the resistance of that winding. The fault is easily found by measuring the resistance of each winding and comparing the results.

Inter-Turn Short Detection

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 for detecting this type of fault. Inductance measurements across a stator or winding can be used to check the rotor. In the case of rotor fault, the inductance readings will change considerably as the rotor position is changed.

Test Procedure

EMC-11 is normally connected directly to the motor terminals. (Warning: make sure power is off.) Insulation resistance is measured by connecting one test lead to a terminal and grounding the second lead to the motor housing. There is no need to disconnect the windings for inductance and resistance readings. On star and delta connected motors, EMC-11 measures across winding pairs (L1-L2, L1-L3, L2-L3). The setting of the gain switch should not be altered between readings.

Technical Specifications

Measuring range

Inductance	1–300 mH in 11 steps
Resistance	0.2–60 Ω in 11 steps
Insulation	0.2–40 M Ω at 1000 V DC, max. 0.25 mA
Temp. range	0° to +55° C (32° to 130° F)
Batteries	2 x 9 V, IEC 6LF22
Size	190 x 135 x 75 mm (7.5 x 5.5 x 3 in.)
Weight	1 kg (2.2 lbs.)



SPM Instrument AB • Box 4 • SE-645 21 Strängnäs • Sweden
Tel. +46 152 22500 • Fax +46 152 15075
info@spminstrument.se • www.spminstrument.se