



MEGOHMMETER M501

Operating Instructions

Definition

The M-501 is designed to measure insulation resistance of electrical devices such as transformers, electrical motors, refrigeration hermetic compressors, hand tools and appliances. The insulation resistance should be measured under high voltage conditions, 500 or 1000 volts according to today's standards.

Application

One lead of the M-501 should be attached to the outer metal case or to the GROUND terminal and the other lead to any electrical terminal of the device being tested. It doesn't matter which electrical terminal you choose since the electrical resistance of the electrical apparatus is much smaller than its insulation resistance and it will have no effect on the final insulation resistance reading. Press the front panel button to obtain the reading.

CAUTION: 1000 volts are present at the test leads when the unit is activated. Do not touch the test leads while pressing the test button.

Specific application for hermetic refrigeration motors

Hermetic refrigeration motors require different insulation resistance evaluation criteria since the windings operate in an oil and refrigerant atmosphere. Under normal conditions the oil and refrigerant have a high electrical resistance. However, when they are contaminated with moisture, the insulation resistance changes and a low megohm reading of the winding terminal to ground may actually be the resistance of the contaminated oil. New hermetic motors have an insulation resistance value of more than 100 megohms. Readings of 50 megohms or less would indicate that either the winding insulation is deteriorating or the oil /refrigerant is contaminated. Installing an oversized drier may clean up the system. Another possible solution could be replacing the compressor oil. In either case, if the megohm test with the M-501 shows even the slightest improvement in resistance value, the remedy may have checked a declining condition. A reading of 20 megohms or less may indicate that the motor insulation may be severely damaged.