MCEMAX® Product Information

M-Series 5kV Electric Motor Analyzer

- Portable and battery powered
- Monitors Power Circuit, Insulation, Stator, Rotor, and Air Gap
- Variable test voltage from 250 to 5000V
- Automatic IR, PI, DAR, and Step Voltage Tests
- Measures insulation resistance to 3 TΩ
- Precision resistance with resolution to 10 μΩ using a 4-wire bridge test measurement
- Measures capacitance (pF) and inductance (mH)
- Six channel simultaneous acquisition
- Torque and efficiency analysis
- Impedance and phase angle measurement
- Power and current signature tests

Description

The MCEMAX® Motor Circuit Evaluation test equipment offers the most versatile approach to troubleshooting and trending electric motors on the market today.

It is equipped with a fully functional laptop computer and loaded with MCEGold®, the gold standard in motor management software.

With MCEGold® the entire test history of your electric motor along with the latest in acceptance criteria from IEEE and NEMA is at your fingertips. Immediately following the test, Red or Yellow color-coded alarms identify any test data that is outside the acceptance criteria.

The MCEMAX® provides dynamic and static testing for all types of motors and generators including AC Induction, Synchronous, Wound Rotor, and DC motors.

Whether your motor is running or shutdown, the MCEMAX® can provide a health assessment of the six fault zones.

The MCEMAX® evaluates:

- Incoming **Power Quality** and alerts the user if the distortion or harmonic content exceeds IEEE limits.
- Cables and **Power Circuit** to verify the severity of a high resistance connection.
- Ground **Insulation** for deterioration,
- **Stator** turn insulation for shorts/opens.
- **Rotor** cage for breaks and shorted iron.
- **Air Gap** for non-symmetry or eccentricity.

The case is made of ultra high impact ABS material for ruggedness. It is easy to carry and no AC power is required, making tough to reach motors or starters easier to test.

Data Includes:

- Phase-to-Phase Resistance
- Phase-to-Phase Inductance
- Balance of Resistance
- Balance of Inductance
- Ground Capacitance
- Polarization Index
- Dielectric Absorption Ratio
- Measured Ground Resistance
- Corrected Ground Resistance
- Rotor Influence check
- DC Field Inductance
- DC Field Resistance
- DC Field Capacitance
- DC Field Ground Resistance
- DC Armature Tests
- Synchronous Motor Tests
- Wound Rotor Motor Tests
- Current Spectral Analysis
- High Frequency Eccentricity Analysis
- Three Phase In-Rush/Start-Up
- Phase-to-Phase and Line-to-Neutral Voltage
- Voltage Imbalance
- Crest Factor
- Total Harmonic Distortion (THD)
- % Full Load Amps
- Phase Current RMS
- Phase Impedance
- Impedance Imbalance
- Power (KW, KVA, KVAR)
- Power Factor
- Efficiency
- Energy Cost Analysis
- Output Power
- Torque

Capacitance Measurement:

Range (Accuracy):

1000 to 220,000 pF @1200 Hz (±5%)

220,000 to 1,000,000 pF @300 Hz (±5%)

Resolution:

250 pF

Ground Resistance Test Voltages:

250-5000 V in 50 V steps

*250-1000 V in 50 V steps

Range (Accuracy):

20 KΩ to 100 MΩ @250-500v (±2%)

100 MΩ to 1 GΩ @250-5000v (±2.5%)

1 GΩ to 220 GΩ @500-5000v (±5%)

220 GΩ to 1000 GΩ @1kV-5kV (±5%)

1 TΩ to 3 TΩ @1kV-5kv (±20%)

Short circuit/charge current:

2 mA

Inductance Measurement:

Range (Accuracy@1200 Hz):

.05mH to 250mH (±1%)

Range (Resolution):

.05mH to <50mH (.01mH)

50mH to <100mH (.05mH)

100mH to 250mH (.1mH)

Range (Accuracy @300 HZ):

220mH to <700mH (±1%)

700mH to 2000mH (±2%)

>2000mH to 5000mH (±5%)

Resolution:

220mH to 500mH (.5mH)

500mH to 700mH (1mH)

700mH to 2000mH (2mH)

2000mH to 3500mH (5mH)

3500mH to 5000mH (25mH)

Resistance Measurement:

Range (Accuracy):

100 μΩ to 2000 Ω (±1%)

Range (Resolution):

.00010Ω to .02000Ω (.00001Ω)

.0200Ω to 2.000Ω (.0001Ω)

2.00Ω to 50.0Ω (.001Ω)

50.00Ω to 1000.00Ω (.01Ω)

1000.0Ω to 2000.0Ω (.1Ω)

Voltage Measurement:
AC Voltage 0-1000 Vrms
Direct line ±1% (10 to 100% of range)
Secondary line ±1% + PT error (10 to 100% of range)
MTAP Leads 0-35 VAC ±1% +PT error (10 to 100% of range)

DC Voltage 0-1000 Vpeak(qualitative only)

Current Measurement AC/DC:
±0.5% of input (± accuracy of the probes)

Standard Current Probes:
PdMA 2128.14
±1%(of reading) ±0.1mV from 1 to 12A @100mV/A
±1%(of reading) ±2mV from 10 to 80A @10mV/A
±2.5%(of reading) ±2mV from 100 to 150A @10mV/A

Power Measurement:
THD/HVF/ Spectrum – 50th harmonic

Current Spectrum Analysis:
8,000 lines resolution

In-Rush/Start-Up Test:
Sampling rate 3,600/second
Test duration 1 minute

Rotor Evaluation test:
Sampling rate 960/second
Fmax 0-480 Hz
Resolution 8,000 lines

Eccentricity and Power Test:
Sampling rate 12,288/second
Fmax 0-6,000 Hz
Resolution 8,000 lines

Dimension:
18.5x14.5x6 in. (46.99x36.83x15.24 cm)

Weight:
26 lbs (11.79 kg)

Test Lead Set:
10 ft. (3.05 m.) MCE Test Leads
10 ft. (3.05 m.) fused voltage leads for 3 phases and ground
10 ft. (3.05 m) current probe cable connects 3 probes via BNC connector
Voltage probe accessory kit:
Three 6 ft. (1.83 m.) current probes for three phases

Computer Voltage Input:
AC 100-240 V, 50/60 Hz (computer)

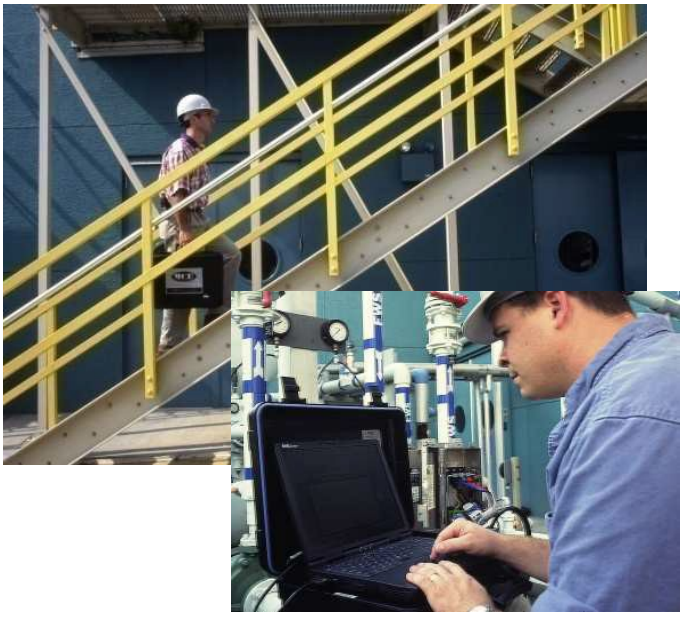
Environmental
Operating Temperature:
32°F to 95°F (0°C to 35°C)

Storage Temperature:
-40°F to 149°F (-40°C to 65°C)

Operating Humidity:
10% - 90% (non-condensing)

Storage Humidity:
5% - 95% (non-condensing)

Accuracies to within the specified +/- % accuracy or +/- two resolution steps whichever is greater.



Lightweight Portable Electric Motor Analyzer