



MATE Digital Multimeters

- 6½ Digit Resolution
- IEEE-488 and MATE Compatible
- DCV, ACV, and Resistance Functions
- DCI and ACI Option
- Autocal

The AUTOCAL 1062MT and 1062MT-5 are accurate 5½/6½ digit DMMs, specifically designed for MATE (Modular Automated Test Equipment) systems applications. Under the United States Air Force MATE System Control Interface Standard, these DMMs are each classified as Sensor Modules, type DMM, with single measurement channels. CIIIL (Control Interface Intermediate Language) is used as the normal programming language, although native IEEE-488 commands may be used when required.

Multifunction Capability

Both instruments provide high accuracy measurement functions of DCV, ACV and Resistance, and are virtually identical in operation and appearance. The 1062MT, however, is more accurate than the 1062MT-5, and has the optional facility to measure current.

System Measurement Integrity

The performance of the 1062MT and the 1062MT-5 has been optimized to meet the most

demanding systems applications, using both the IEEE-488 and the MATE interfaces. For example, specialist features such as Ohms Guard can be used to overcome the effects of systems lead capacitance to maintain fast settling time for resistance measurements, while extensive guard and ground plane shielding and selectable input filtering maintain a high degree of measurement integrity under the most adverse conditions.

AUTOCAL=Low Life Cycle Cost

The long term goal of MATE philosophy is to reduce the Life Cycle Cost of A.T.E. Improvements in downtime and reliability resulting from AUTOCAL are significant steps towards meeting this objective. AUTOCAL enables the 1062MT and the 1062MT-5 to be quickly and accurately calibrated without removal of covers or the need to make any mechanical adjustments. Front panel keystrokes or IEEE-488 interface commands are used to establish and store digital calibration constants. The entire process can be completed without even removing the DMM from its A.T.E. rack which not only removes the need to dismantle an A.T.E.

in order to send equipment away for calibration, but also removes the requirement to temporarily replace that equipment with spares to avoid unacceptably long A.T.E. downtimes. Furthermore, eliminating the transportation or movement of equipment in order to get it calibrated inevitably increases its reliability.

In addition to all of these benefits, rugged programmable calibrators, such as the Datron 4700 series, may be used to completely automate the calibration of the 1062MT and the 1062MT-5, thereby reducing calibration downtime even further.

The high reliability of the 1062MT and 1062MT-5, coupled with the AUTOCAL capability, truly represent a means to not only reduce A.T.E. downtime, but also to cut the spares and logistics costs associated with repair and calibration.

**PRECISION DIGITAL
MULTIMETERS
MODEL 1062MT**

SPECIFICATIONS

1062MT DC Voltage

Ranges: 100 mV to 1000V in decades.
FS: 2 x Full Range. 100% Overrange. (Except 1kV range).
Resolution: 100nV, 6½ digits.
Total Uncertainty: (180 Day, 23° ± 5°C, ±(ppmR+ppmFS)).
100mV Range: 35+8.
1V and 10V Ranges: 25+4.
100V and 1000V Ranges: 35+4.
CMRR: (1kΩ unbalance) >140 dB at DC, >(80 dB + NMRR) at 1-60 Hz.
NMRR: 66 dB at 50/60 Hz (Filter out), 100 dB at 50/60 Hz (Filter in).
Input Impedance: >10,000MΩ from 100 mV to 10V ranges, 10MΩ ± 0.1% on 100V and 1000V ranges.
Input Protection: Withstands 1kV RMS on any range.
Input Current: <50 pA.
Settling Time: (To 10 ppm step size) <5 ms (Filter out), <350 ms (Filter in).
Read Rate: 1.5s at 6½ digits, 100s at 4½ digits.

1062MT True RMS AC Voltage

Ranges: 100 mV to 1000V in decades.
FS: 2 x Full Range. 100% Overrange. (Except 1kV range).
Resolution: 1μV, 5½ digits.
Total Uncertainty: (180 Day, 23° ± 5°C, Signals >0.25% FS, ±(%R + %FS)).
100mV and 1000V Ranges:
DC+45 Hz- 5kHz: 0.1+0.02.
DC+5 kHz-100 kHz: 0.25+0.05.
1V to 100V Ranges:
DC+45 Hz-5 kHz: 0.05+0.01.
DC+5 kHz-100 kHz: 0.12+0.025.
Hf Accuracy: (1V and 10V ranges, typical).
DC+100 kHz-1 MHz: ±(2%R + 1% FS).
CMRR: (1kΩ unbalance) >90 dB at DC '60 Hz.
Input Impedance: >1MΩ shunted by 150 pF.
Input Protection: Withstands 1kV RMS on any range.
Crest factor: 7:1 at full range.
Max Volt-Hertz: 2 x 10⁷.
Settling Time: (To 0.1% step size) <150 ms (Filter out), <500 ms (Filter in).
Read Rate: 3s.

1062MT Resistance

Ranges: 10Ω to 10MΩ in decades.
FS: 2 x full range, 100% overrange.
Resolution: 10μΩ, 6½ digits.
Total Uncertainty: (180 Day, 23° ± 5°C, ±(ppmR+ppmFS)).
10Ω Range: 50+8.
100Ω to 10kΩ Ranges: 40+4.
100kΩ Range: 50+4.
1MΩ Range: 150+4.
10MΩ Range: 400+4.
Open Circuit Voltage: <10V.
Lead Resistance: Up to 100Ω.
Current Through Unknown:
10Ω and 100Ω: 10 mA.
1kΩ: 1 mA.
10kΩ: 100μA.
100kΩ: 10μA.
1MΩ: 1μA.
10MΩ: 100 nA.
Input Protection: Withstands 250V RMS on any range.
Settling Time: Up to 10kΩ generally the same as DCV.
Read Rate: As DCV.

1062MT DC Current

Ranges: 100μA to 1A in decades.
FS: 2 x full range. 100% overrange.
Resolution: 1 nA, 5½ digits.
Total Uncertainty: (180 Day, 23° ± 5°C, ±(ppmR + ppmFS)).
100μA to 100 mA Ranges: 130 + 20.
1A Range: 250 + 20.
Shunt Resistance:
100μA: 1kΩ.
1 mA: 100Ω.
10 mA: 10Ω.
100 mA: 1Ω.
1A: 100MΩ.
Settling Time: (To 10 ppm of step size) <5 ms (Filter out), <350 ms (Filter in).
Read Rate: 35s.

1062MT AC Current

Ranges: 100μA to 1A in decades.
FS: 2 x full range. 100% overrange.
Resolution: 1 nA, 5½ digits.
Total Uncertainty: (180 Day, 23° ± 5°C, ±(%R+%FS)).
100μA to 1A Ranges:
DC+45 Hz-5 kHz: 0.25+0.05.
Shunt Resistance:
100μA: 1kΩ.
1 mA: 100Ω.
10 mA: 10Ω.
100 mA: 1Ω.
1A: 100mΩ.
Settling Time: (To 0.1% of step size) <150 ms (Filter out), <500 ms (Filter in).
Read Rate: 3s.

1062MT-5 DC Voltage

Total Uncertainty: (180 Day 23° ± 5°C, ±(ppmR+ppmFS)).
100 mV Range: 70+16.
1V and 10V Ranges: 50+4.
100V and 1000V Ranges: 85+4.
Other Specs: As 1062MT.

1062MT-5 AC Voltage

Total Uncertainty: (180 Day, 23° ± 5°C, Signals >0.25% FS, ±(%R,%FS)).
100mV and 1000V Ranges:
DC + 45 Hz-100 kHz: 0.08+0.025.
1V to 100V Ranges:
DC + 45 Hz-100 kHz: 0.5+0.1.
Hf Accuracy: (1V and 10V ranges, typical).
DC + 100 kHz-1 MHz: ±(7%R+1%FS).
Other Specs: As 1062MT.

1062MT-5 Resistance

Total Uncertainty: (180 Day, 23° ± 5°C, ±(ppmR,ppmFS)).
10Ω and 100Ω Ranges: 70+16.
1kΩ and 10kΩ Ranges: 50+4.
100kΩ Range: 60+4.
1MΩ Range: 200+4.
10MΩ Range: 500+4.
Other Specs: As 1062MT.

GENERAL

Calibration: Autocal from front panel or via the IEEE-488 interface
Remote Programming:
MATE
IEEE-488
Environmental:
Operating Temp: 0° to +50°C.
Storage Temp: -40° to +70°C.
Dimensions: 88 mm (3.5 in.) high; 455 mm (17.9 in.) wide; 420 mm (16.5 in.) deep.
Weight: 10 kg (22 lb.) net.
Power: 105-127V or 205-255V, 50 Hz, 60 Hz, or 400 Hz. 20 Watts approx.

CONFIGURATIONS

Models 1062MT and 1062MT-5: 6½ Digit AUTOCAL Digital Multimeter (includes DCV, ACV, Resistance, Rear Input, IEEE-488, MATE, 1 Year Warranty).

OPTIONS

30: Current Converter. (For 1062MT only).
80: 115V 60 Hz Line Operation.
81: 115V 50 Hz Line Operation.
82: 115V 400 Hz Line Operation.
90: Rack Mounting Kit.

ACCESSORIES

1501: DMM Lead Kit.

FACTORY/FOB

**Indianapolis, IN
Norwich, England**

