M7000 and M8000 Series
Dual Display Digital Multimeters

- **4,000 & 40,000 Count**
- **Dual Display**
- **Analogue Bargraph Updates 128 times every second**
- **True r.m.s d.c. + a.c. and Average Responding**
- **Basic Accuracy from 0,3% to 0,08%**

DESCRIPTION

The Megger M7000/M8000 Series of advanced analogue/digital multimeters use the latest microprocessor technology to provide the most comprehensive measuring ranges and features in a hand held instrument.

There are four instruments in the range, the two M7000 models are for more general applications yet still incorporate many advanced features, whereas the M8000 models have been designed to provide greater accuracy with extensive additional measuring capabilities.

The M7000 units offer rugged dependability for use in field conditions. Both the M7027 and M7029 are supplied in rugged yellow cases with wrap around rubberised holsters for added protection against mishandling. The main difference between the models is that the M7027 has a basic accuracy of 0.3% and the M7029 has a basic accuracy of 0.2%. Both models have dual displays and the choice of operation in the 4,000 count or the higher resolution 40,000 count mode.

The M8000 models provide more advance features for applications requiring more extensive measuring capabilities. The M8037 is the top of the range instrument it measures true rms, a.c. + d.c. and a.c. voltage ranges, which more accurately measure voltage values regardless of the waveforms. Square, sawtooth, triangle, pulse trains, spikes as well as distorted waveforms with the presence of harmonics can all be measured accurately.

The M8037 also has a backlit display for easier readings in

poorly illuminated areas. Both the M8035 and M8037 have basic accuracies of 0.08%, dual displays and the choice of operation in the manual or autoranging mode.

Capacitance, frequency, conductance and diode test facilities are included as standard features plus, for more advanced measurement applications, the ability to record, store, sort and compare results is also provided.

4,000/40,000 Counts
To ensure maximum speed, accuracy and resolution, the fast $3\frac{3}{4}$ digit 4,000 count display updates 5 times per second (nominally). The user-selected 10 x higher resolution mode $4\frac{3}{4}$ digit count display updates approximately every $\frac{3}{4}$ s, and is available in most measurement functions.

Analogue Bar Graph
The 43 segment analogue bar graph updates 128 times/sec in d.c. voltage and resistance functions enabling the user to easily detect faulty contacts, identify potentiometer clicks and indicate signal spikes during adjustments. In other modes and other functions the bar graph updates 20 times/sec showing excellent trending characteristics.

Dual Display
Innovative LCD and microprocessor technology has been utilised to provide dual displays in various modes. Using this feature one can simultaneously display a.c. volts + frequency, a.c. amps + frequency, conductance + resistance, duty cycle + frequency, dbm + frequency and values + events.

Fast 150 μs Audible Continuity Test

The audible continuity test is a quick go/no-go test that distinguishes between an open and a closed circuit. The meter will give a continuous beep tone when the input resistance drops below 10 Ω. This is useful for checking wiring connections and operation of switches.

Relative Functions

There are three different relative modes to choose from; Relative Zero, Relative Percentage and Relative per Unit. In Relative Zero mode the user is allowed to offset the meter measurements with a relative reference value, therefore subtracting this reference from any further measurement. In Relative Percentage change mode the bar graph automatically indicates ±200% or ±20% for full scale changes with respect to the Relative Reference value which becomes centre zero point. This simplifies zero, peaking, nulling measurements and is excellent for fine adjustments. The final relative range is Relative per Unit which shows the ratio of measuring values to the relative base value. For example measuring the parallel capacitance of co-axial cable or parallel wire in conjunction with the Relative per Unit mode, helps estimate the total cable length or pinpoint cable breakdown locations.

Record Max, Min, Max-Min and Average

Using the Record you can easily track intermittent signals, capture turn-on/turn-off surges and monitor line voltage changes over a much wider dynamic range with the highest resolution. The faster the sampling speed, the more accurate the measurement of surges, spikes and sags will be. The true average continually calculates all readings taken over time.

Data Store & Recall (MEM)

This feature stores the whole display data in memory for later recall. The memory will remain even in auto-power-off mode and can also be recalled at any time, even while being operated in another measuring function.

APPLICATIONS

The M7000 and M8000 series multimeters are uniquely flexible instruments, ideal for use in the workshop and in the field, but also suitable for the laboratory. The precision of the digital reading, combined with the ability to follow trends on the analogue scale, ensures that the technician or engineer is fully equipped for all testing requirements with just one instrument.

SPECIFICATION

Display

4,000 count (updated every 0,2s)

40,000 count (updated every 0,8s)

Bargraph (updated every 8 ms)

Dual display: 10,000 counts

Features
Data Hold

Data record: 50 ms response, autorange max, min, max-min span, average

Store and Recall

Relative zeroing with centre-zero auto-zoom bargraph

relative units

relative % change

relative per unit change

Quick Continuity test:

response <150 μs, turn on <10 Ω, turnoff >60 Ω

Line Frequency filter:

60/50 Hz switchable

Diode Test:

4,000 count V range, test current (typical) 0,8 mA open circuit <3,5 V d.

Automatic PowerOff:

5 minutes (default)/5 sec/off

Input Warning:

on incorrect connection (M8000s only)

Safety

M7000 rated to IEC 1010 Cat III 600 V, Cat II 1000 V

M8000 rated to IEC 1010 Cat III 1000 V

EMC

In accordance with IEC61326 including amendment No.1

Model No.	M8037	M8035	M7029	M7027
A.C. Conversion Type	True RMS	Average responding	Average responding	Average responding
Backlit LCD	Yes	N/A	N/A	N/A
Crest/Peak	0,8 ms response, Max, Min Max-Min	0,8 ms response, Max, Min Max-Min	N/A	N/A
Sort	Auto-ranging, Max, Min,	Auto-ranging, Max, Min,	N/A	N/A
Input Warning	Audible & Visible		N/A	N/A
Total Functions	55 Ranges		40 Ranges	40 Ranges
DCV	40 mV to 1 kV in 6 ranges		400 mV to 1 kV in 5 ranges	400 mV to 1 kV in 5 ranges
Best Resolution	1 µV		10 µV	10 µV
Basic Accuracy	± 0,08% ± 1 digit (0,5% ±6d on 40,00 mV)		±0,2% ± 1 digit (±2 digits 1 kV)	±0,3% ± 1 digit (±2 digits 1kV)
NMRR @ 50/60 Hz	> 60 dB		> 60 dB	> 60 dB
CMRR @ DC	> 120 dB @ d.c. & 50/60 Hz		> 120 dB @ d.c. & 50/60 Hz	> 120 dB @ d.c. & 50/60 Hz
ACV	400 mV to 750 V in 5 ranges		400 mV to 750 V in 5 ranges	400 mV to 750 V in 5 ranges
Best Resolution	10 µV		10 µV	10 µV
Basic Accuracy	±0,5% ±3 digits 50-60 Hz		±0,7% ±3 digits 50-60 Hz	±1% ±3 digits 50-60 Hz
Basic Bandwidth	40 Hz - 20 kHz		40 Hz - 1 kHz, 1,5 dB @ 30 k	40 Hz - 1 kHz
CMRR @ DC, 50/60 Hz	> 60 dB		> 60 dB	> 60 dB
DCA/ACA	400 µA to 10 A in 6 ranges		4000 µA to 10 A in 3 ranges	4000 µA to 10 A in 3 ranges
Best Resolution	0,01 µA		0,1 µA	0,1 µA
Basic Accuracy d.c.	from ±0,2% ±2 digits to 1% ± 4 digits		±1% ±3 dig. @ 60 Hz ±0,4% ±2 dig. @ d.c.	±1,3% ±3 digits @ 60 Hz ±1% dig.@
Resistance	40 to 40 M Ω in 7 ranges		400 to 40 M Ω in 6 ranges	400 to 40 M Ω in 6 ranges
Best Resolution	0,001 Ω		0,01 Ω	0,01 Ω
Basic Accuracy	<400 kΩ ±0,15% ±2 digits; 40 MΩ: 1,5% ±5 digits		<400 kΩ ±0,3% ±2 dig., 40 MΩ 2% ±5 dig.	<400 kΩ ±0,4% ±2 dig 40 MΩ ±3% ±5 dig.
Conductance	400 nS in 1 range		400 nS in 1 range	400 nS in 1 range
Best Resolution	0,1 nS		0,1 nS	0,1 nS
Basic Accuracy	±0,7% ±5 digits		±0,7% ±5 digits	±1% ±5 digits
Capacitance	4 nF to 40 mF in 8 ranges		4 nF to 40 mF in 8 ranges	
Best Resolution	1 pF		1 pF	
Basic Accuracy	40 nF - 4 µF: 0,8% ±5 digits; <40 nF, >4 µF ±4%		40 nF - 4 µF: 0,8% ±5 dig. <40 nF, >4 µF ±4%	
Frequency	100 Hz to 4 MHz in 6 ranges		100 Hz to 250 kHz in 5 ranges	
Best Resolution	0,001 Hz		0,001 Hz	
Basic Accuracy	±0,002% ±3 digits		±0,05% ±4 digits	
Duty Cycle	100% in 1 range	N/A	N/A	N/A
Best Resolution	0,1%			
Basic Accuracy	±0,5 digits/kHz ±2 digits			
(AC + DC) V	4 V to 750 V in 4 ranges	N/A	N/A	N/A
Best Resolution	0,1 mV			
Basic Accuracy	±0,8% ±8 digits (40 Hz - 20 kHz)			
dBm	-60,7 dBm to 81,4 dBm Auto with 20 reference Ω	N/A	N/A	N/A
Best Resolution	0,01 dBm			
Basic Accuracy	±0,25 dBm ±2 digits @ 40 Hz to 20 kHz			

ORDERING INFORMATION

Item (Qty)	Order No.
Analogue/Digital Multimeter dual display, 0,08% accuracy	M8035
Analogue/Digital Multimeter dual display, true rms (a.c. & d.c.)	M8037
Analogue/Digital Multimeter dual display, 0,3% accuracy	M7027
Analogue/Digital Multimeter dual display, 0,2% accuracy	M7029
Included Accessories	
Battery	
9 V alkaline battery	
Test lead pair with probes	
Protective holster	
User Guide	

Item (Qty)	Order No.
Optional Accessories	
FPK8 Fused Test Leads	6111-218
Replacement Lead Set	8101-045
Lead Set c/w Crocodile Clip	6220-562