KIKUSUI

6 1/2 digit resolution, Essential device of "Electronic Measurement"

Supporting basic measurement with variety of options

CE

D I G I T A L M U L T I M E T E R

DME1600

- ***DME1600***
- ***DME1600SC*** (*with scanner*)
- ***DME1600GC*** (*with GPIB*)
- ***DME1600SG*** (*with scanner and GPIB*)

The DME1600 is a digital multi-meter with a resolution of 6 1/2 digit. It can be performed up to 2000 times per second at the setting condition of 4 1/2 digit as fastest measurement, and it can measures 50 times per second when it is set for the 6 1/2 digit. The DME1600 offers fully function of measurement for the voltage, current, resistance, frequency and temperature which can be used various application of measurement and evaluation in design, development and debugging of electronics devices. The DME1600 provides USB and GPIB interface* as standard feature for automated measurement besides manual operation. Furthermore, the DME1600 offers wide range of options such as 20-channel multi-point scanner card supporting the basic measurement.

- Resolution : 6 1/2 digit
- Display : 5 x 7 dot matrix VFD, dual display with 3-color
- Basic measurement function

  DC voltage : 0.1V, 1V, 10V, 100V, 1000V
  AC voltage : 0.1V, 1V, 10V, 100V, 750V
  DC current : 10mA, 100mA, 1A, 3A
  AC current : 1A, 3A
  2-wire / 4-wire resistance : 100Ω, 1kΩ, 10kΩ, 100kΩ, 1MΩ, 10MΩ, 100MΩ
  Frequency : 3Hz to 300kHz
  Continuity test
  Diode test
  Temperature test
- Built-in USB Interface (GPIB Interface*: selected model)

*Model with GPIB Interface : DME1600GC, DME1600SG

Options

20-channel multi-point scanner card
[DME1600-OPT09]

10-channel multi-point scanner card
[DME1600-OPT01]

Kelvin probe
(for 4-wire resistance measurement)
[DME1600-OPT07]

4-wire test lead
[DME1600-OPT08]

Thermocouple adapter
[DME1600-OPT02]

K type thermocouple cable
[DME1600-OPT11]

Specifications

DC Characteristics

Accuracy

- ± (%of reading + %of range)
- 6 1/2 digit resolution, measured by Auto Trigger mode after the unit has been warmed up more than two hours.
- For the resistance measurement, it applies to use either 4-wires resistance measurement or 2-wires resistance measurement of the Null function.

DC Voltage			
Range	Resolution	Input Resistance	1 year (23 ℃ ± 5 ℃)
100.0000 mV	0.1 μ V	> 10 G Ω	0.0050+0.0035
1.000000 V	1.0 μ V	> 10 G Ω	0.0040+0.0007
10.00000 V	10 μ V	> 10 G Ω	0.0035+0.0005
100.0000 V	100 μ V	10 M Ω	0.0045+0.0006
1000.000 V	1 mV	10 M Ω	0.0045+0.0010
DC Current			
Range	Resolution	Shunt Resistance	1 year (23 ℃ ± 5 ℃)
10.00000 mA	10 nA	5.1 Ω	0.050+0.020
100.0000 mA	100 nA	5.1 Ω	0.050+0.005
1.000000 A	1 μ A	0.1 Ω	0.100+0.010
3.000000 A	10 μ A	0.1 Ω	0.120+0.020
Resistance			
Range	Resolution	Test Current	1 year (23 ℃ ± 5 ℃)
100.0000 Ω	100 μ Ω	1 mA	0.010+0.004
1.000000 k Ω	1 m Ω	1 mA	0.010+0.001
10.00000 k Ω	10 m Ω	100 μ A	0.010+0.001
100.0000 k Ω	100 m Ω	10 μ A	0.010+0.001
1.000000 M Ω	1 Ω	5 μ A	0.010+0.001
10.00000 M Ω	10 Ω	500 nA	0.040+0.004
100.0000 M Ω	100 Ω	500 nA‖10 M Ω	0.800+0.010
Diode Test			
Range	Resolution	Test Current	1 year (23 ℃ ± 5 ℃)
1.0000 V	10 μ V	1 mA	0.010+0.020
Continuity			
Range	Resolution	Test Current	1 year (23 ℃ ± 5 ℃)
1000.00 k Ω	10 m Ω	1 mA	0.010+0.030

Measuring Characteristics

Item	Specifications
DC voltage measurement : Over range	Capable 20% of the over range excluding "1,000V range"
DC voltage measurement : Input bias current	Less than 30pA (at 25℃)
DC voltage measurement : Input voltage protection	1,000V for all ranges
DC current measurement : Over range	Capable 20% of the over range excluding "3A range"
Resistance measurement : Maximum resistance value for usable test lead	10 Ω (100 Ω range) 100 Ω (1k Ω range) 1k Ω (Other ranges)
Resistance measurement : Input voltage protection	1,000V for all ranges

Frequency and Period

Accuracy

- ± (%of reading)
- 6 1/2 digit resolution, measured after the unit has been warmed up more than two hours.

Range	Frequency	1 year (23 ℃ ± 5 ℃)
100 mV RMS ～ 750 V RMS	3 Hz ～ 5 Hz	0.10
	5 Hz ～ 10 Hz	0.05
	10 Hz ～ 40 Hz	0.03
	40 Hz ～ 300 kHz	0.01

Measuring Characteristics

Item	Specifications
Over range	Capable 20% of the over range excluding "750 V RMS Range"
Measuring frequency	750 V RMS Range is limited to100 kHz

AC Characteristics

Accuracy

- ± (%of reading + %of range)
- Specifications are for 2-hours warm-up at 6 1/2 digit, slow AC filter with Bandwidth 3Hz, sine wave input.
- Measured by the sine-wave input exceeding 5% of the range
- For the input range from 1% to 5%, add 0.1% of the range (when it is less than 50kHz) or adding 0.13% of the range (when it is from 50kHz to 100kHz)

AC Voltage (TRMS)			
Range	Resolution	Frequency	1 year (23 ℃ ± 5 ℃)
100.0000 mV	0.1 μ V	3 Hz ～ 5 Hz	1.00+0.04
		5 Hz ～ 10 Hz	0.35+0.04
		10 Hz ～ 20 kHz	0.06+0.04
		20 kHz ～ 50 kHz	0.12+0.05
		50 kHz ～ 100 kHz	0.60+0.08
		100 kHz ～ 300 kHz	4.00+0.50
1.000000 V ～ 750.000 V	1.0 μ V ～ 1 mV	3 Hz ～ 5 Hz	1.00+0.03
		5 Hz ～ 10 Hz	0.35+0.03
		10 Hz ～ 20 kHz	0.06+0.03
		20 kHz ～ 50 kHz	0.12+0.05
		50 kHz ～ 100 kHz	0.60+0.08
		100 kHz ～ 300 kHz	4.00+0.50
AC Current (TRMS)			
Range	Resolution	Frequency	1 year (23 ℃ ± 5 ℃)
1.000000 A	1 μ A	3 Hz ～ 5 Hz	1.00+0.04
		5 Hz ～ 10 Hz	0.30+0.04
		10 Hz ～ 5 kHz	0.10+0.04
3.000000 A	10 μ A	3 Hz ～ 5 Hz	1.10+0.06
		5 Hz ～ 10 Hz	0.35+0.06
		10 Hz ～ 5 kHz	0.15+0.06

Measuring Characteristics

Item	Specifications
Over range	Capable 20% of the over range excluding "750V RMS range" and "3A range"
Measuring frequency	750 V RMS Range is limited to100 kHz

General

Item	Specifications
voltage range	100 Vac/120 Vac/220 Vac/240 Vac ± 10 % (single phase)
frequency range	50 Hz/60 Hz ± 10 %
Power consumption	25 VAmax
Operating Temperature range	0 ℃ to 50 ℃
Operating Humidity range	Up to 80 %rh (0 ℃ to 31 ℃ , non condensing)
Storage Temperature range	-10 ℃ to 60 ℃
Operating Altitude	Up to 2000 m
Dimensions / Weight	224 W × 113 H × 373 D mm/ approx 4.4 kg
Interfaces	USB、GPIB (only GC, SG)
Accessories	"Power cable" 1pc. (with 3P plug), "Test Lead" (1 each for Red, Black), "USB cable" 1pc., "CD-ROM"* 1pc., "For Safety documents" 2pcs. (1 each for English, Japanese) , Packing list 1pc. (English/Japanese)
Electromagnetic compatibility (EMC)	Conforms to the requirements of the following directive and standard. EMC Directive 2004/108/EC EMC: EN61326-1:2006 EMI: CISPR 11:1997+A1:1999+A2:2002 Class B、IEC61000-3-2:2000 IEC61000-3-3:1994+A1:2001 EMS: IEC61000-4-2:1995+A1:1998+A2:2000 IEC61000-4-3:2002、IEC61000-4-4:2004 IEC61000-4-5:1995+A1:2000、IEC61000-4-6:2003 IEC61000-4-8:1993+A1:2000、IEC61000-4-11:2004
Safety	Conforms to the requirements of the following directive and standard. IEC61010-1:2001/ EN 6010-1:2001 (2nd Edition)

*Including "Operation manual (PDF)" and "Application Software"

KIKUSUI

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