RS Stock No. 7575104

Data sheet
IDM 503
Industrial Digital Multimeter

FEATURE:

- 40,000/4,000 count extra large digital display
- 43 segments analog bar graph
- Auto Backlit, Dual display
- Auto AC, DC and AC+DC on Voltage & Current mode with Frequency indication
- Auto selection on Ohm, Diode or Continuity
- On-Screen-Menu Selection
- Navigator Key Drive
- High Frequency Rejection (HFR)
- 0.03% DCV accuracy
- AC+DC True RMS indication
- 0.5 ms Peak Hold
- Auto Hold
- Store/Recall memories
- dBm/dB measurement
- 20000 records data logging capacity
- All Weather Housing
- Optical USB interface with Software included
- Included with Magnetic Hanging kit
- CAT. IV 600V/CAT. III 1000V standard

Specifications

- Accuracy is ± (% reading + number of digits)
- Ambient temperature: 23°C ± 5°C (< 80% RH)
- For the best measurements, with REL Δ function to compensate for offsets.

Voltage

Function	Range	Accuracy
AC	40.000mV 400.00mV	Sine Wave: ± (1.0% + 50d) for 40Hz to 65Hz[1] ± (3.0% + 50d) for 66Hz to 1kHz[1] ± (5.0% + 50d) for 1kHz to 3kHz[2]
	4.0000V 40.000V	Sine Wave: ± (1.5% + 50d) for 40Hz to 45Hz[1] ± (0.7% + 50d) for 46Hz to 65Hz[1] ± (1.5% + 50d) for 66Hz to 1kHz[1] ± (3.0% + 50d) for 1kHz to 10kHz[2] ± (5.0% + 50d) for 10kHz to 50kHz[3] ± (10% + 50d) for 50kHz to 100kHz[3] [4]
	400.00V 1000.0V	Sine Wave: ± (1.5% + 50d) for 40Hz to 45Hz[1] ± (0.7% + 50d) for 46Hz to 65Hz[1] ± (1.5% + 50d) for 66Hz to 1kHz[1] [5]
DC	40.000mV	± (0.040% + 40d)
	400.00mV	± (0.035% + 20d)
	4.0000V 40.000V 400.00V 1000.0V	± (0.030% + 20d)
[1] Below 5% of AC range, add 70d to accuracy. [2] Below 5% of AC range, add 150d to accuracy. [3] Below 5% of AC range, add 350d to accuracy. [4] At 40.000V of AC range, the accuracy is ± (15% + 50d). [5] At 1000.0V of AC range, the accuracy is ± (10% + 50d).		

Input Protection: 1000VDC or 1000VAC rms

Input Impedance: 10MΩ, < 100pF

Bandwidth: 40Hz to 100kHz

Minimum Resolution: 1µV

CMRR / NMRR (Common / Normal Mode Rejection Ratio):

VAC: CMRR > 60dB at DC, 50Hz / 60Hz

VDC: CMRR > 100dB at DC, 50Hz / 60Hz

NMRR > 50dB at DC, 50Hz / 60Hz

AC Conversion Type:

AC conversions are ac-coupled, true rms responding, calibrated to the sine wave input.

For non-sine wave add the following Crest Factor corrections:

For Crest Factor of 1.4 to 2.0, add 1.0% to AC accuracy.

For Crest Factor of 2.0 to 2.5, add 2.5% to AC accuracy.

For Crest Factor of 2.5 to 3.0, add 4.0% to AC accuracy.

Current

Function	Range	Accuracy
AC	40.000mA 400.00mA 4.0000A 10.000A	Sine Wave: ± (0.8% + 80d) for 40Hz to 65Hz[1] ± (3.0% + 80d) for 66Hz to 1kHz[1]
DC	40.000mA 400.00Ma	± (0.2% + 40d)
	4.0000A 10.000A	± (0.2% + 80d)
[1] Below 5% of AC range, add 70d to accuracy.		

Input Protection: Equipped with High Energy Fuse

mA: 440mA, 1000V IR 10kA Fuse (Bussmann DMM-B-44/100)

A: 11A, 1000V IR 20kA Fuse (Bussmann DMM-B-11A)

Input Impedance: 10mΩ at A input, 1Ω at mA input

Bandwidth: 40Hz to 1kHz

Minimum Resolution: 1μA in the 40mA range

Maximum Measuring Time: 3 minutes at A input, 10 minutes at mA input
Rest time is 20 minutes minimum

AC Additional Specifications: The AC additional specifications are same as voltage

AC+DC

Function	Range	Accuracy
On ACV / ACA	Same as ACV / ACA	AC accuracy + DC accuracy + 1.0%

HFR (Low Pass Filter)

Function	Range	Accuracy
On ACV	Same as ACV	AC accuracy + 1.0% for 40Hz to 400Hz

The Cut-Off Frequency of HFR: 800Hz (-3dB point)

Attenuation Characteristic of HFR: Approx. -24dB

Frequency Counter

Function	Range	Sensitivity	Accuracy
On ACV / ACA	100.0Hz 1.000kHz 10.00kHz	20% AC Range	± (0.1% + 1d)
On AC 4V AC 40V	100.0kHz	40% AC Range	

Min Frequency: 10Hz
Minimum Resolution: 10Hz

Peak Hold

Function	Range	Accuracy
On ACV / ACA	50,000 counts	± (3.0% + 100d)

Resistance

Range	Resolution	Accuracy
400.00Ω	10mΩ	± (0.2% + 30d)
4.0000kΩ	100mΩ	
40.000kΩ	1Ω	
400.00kΩ	10Ω	± (0.3% + 30d)
4.0000MΩ	100Ω	± (1.0% + 30d) [1]
40.00MΩ	10kΩ	± (1.5% + 30d) [1]
[1] There is a little rolling less than < 100d.		

Input Protection: 1000VDC or 1000VAC rms
Maximum Open Circuit Voltage: Approx. 3.5V

Continuity Check

Range	Resolution	Accuracy
400.0Ω	100mΩ	± (0.2% + 3d)

Input Protection: 1000VDC or 1000VAC rms
Maximum Open Circuit Voltage: Approx. 2.5V
Maximum Short Test Current: Approx. 0.1mA
Continuity Threshold: 50Ω
Continuity Indicator: 2kHz Tone Buzzer

Diode Test

Range	Resolution	Accuracy
2.000V	1mV	± (1.5% + 2d)

Input Protection: 1000VDC or 1000VAC rms
Maximum Open Circuit Voltage: Approx. ±2.5V
Maximum Short Test Current: Approx. ±0.5mA

Capacitance

Range	Resolution	Accuracy	Measuring Time
4.000nF	1pF	Unspecified	0.7sec
40.00nF	10pF	± (1.2% + 20d)	
400.0nF	100pF	± (0.9% + 2d)	
4.000uF	1nF		
40.00uF	10nF		
400.0uF	100nF		
4.000mF	1uF	± (1.2% + 20d)	3.75sec
40.00mF	10uF	± (1.2% + 40d)	7.5sec

Input Protection: 1000VDC or 1000VAC rms

Frequency Counter

Range	Resolution	Sensitivity	Accuracy
40.000Hz	0.001Hz	2VP-P	± 50d
400.00Hz	0.01Hz	2VP-P	± 10d
4.0000kHz	0.1Hz	2VP-P	
40.000kHz	1Hz	4VP-P	
100.00kHz	10Hz	8VP-P	

Input Protection: 1000VDC or 1000VAC rms
Minimum Frequency: 5Hz
Maximum Test Voltage: 400V

Temperature

Range	Resolution	Accuracy
-200.0°C to 10.0°C	0.1°C	± (1.0% + 20d)
10.1°C to 1200.0°C	0.1°C	± (1.0% + 10d)
-328.0°F to 50.0°F	0.1°F	± (1.0% + 40d)
50.1°F to 2192.0°F	0.1°F	± (1.0% + 20d)

Input Protection: 1000VDC or 1000VAC rms

General

Sampling Rate:	3 times/sec
Overload Indication:	“OL” or “-OL”
Low Battery Indication:	
Auto Power Off:	Approx. 30 minutes after last operation
Operating Temperature:	0 °C ~ 30 °C (≦85% RH) 30 °C ~ 40 °C (≦75% RH) 40 °C ~ 50 °C (≦45%RH)
Storage Temperature:	-20°C to 60°C, 0% RH to 80% RH (batteries not fitted)
Temperature Coefficient:	0.15 x (Specified accuracy) / °C, < 18°C, > 28°C .
Safety:	IEC 61010-1: CAT.IV 600V, CAT.III 1000V.
Power Requirement:	4 x 1.5V IEC LR6 or AA size
Battery Life:	100 hours
Size:	95mm(W) x 207mm(L) x 52mm(D)
Weight:	Approx. 630g (with battery)
Accessories:	Battery (installed), Test Leads, User Manual, USB Cable, Software CD