

FLUKE®

27
Multimeter

Users Manual

October 1998 Rev.2, 12/03
© 1998-2003 Fluke Corporation. All rights reserved. Printed in U.S.A.
All product names are trademarks of their respective companies.

For IEC 61010 CAT III Meters Only

Specifications

Function	Range	Resolution	Accuracy*
\bar{V}	3.200 V	0.001 V	$\pm(0.1\%+1)$
	32.00 V	0.01 V	$\pm(0.1\%+1)$
	320.0 V	0.1 V	$\pm(0.1\%+1)$
	1000 V	1 V	$\pm(0.1\%+1)$
\bar{mV}	320.0 mV	0.1 mV	$\pm(0.1\%+1)$
Ω (nS)	320.0 Ω	0.1 Ω	$\pm(0.3\%+3)**$
	3.200 k Ω	0.001 k Ω	$\pm(0.2\%+1)$
	32.00 k Ω	0.01 k Ω	$\pm(0.2\%+1)$
	320.0 k Ω	0.1 k Ω	$\pm(0.2\%+1)$
	3.200 M Ω	0.001 M Ω	$\pm(0.2\%+1)$
	32.00 M Ω	0.01 M Ω	$\pm(1\%+1)$
	32.00 nS	0.01 nS	$\pm(2\%+10)$
\tilde{V}	2.080 V	0.001 V	$\pm(1\%+1)$ typical
\tilde{mV}	3.200 V	0.001 V	40 Hz-2 kHz $\pm(0.5\%+3)$
	32.00 V	0.01 V	2 kHz-10 kHz $\pm(2\%+3)$
	320.0 V	0.1 V	10 kHz-30 kHz $\pm(4\%+10)$
	1000 V	1 V	$\pm(4\%+10)$ $\pm(4\%+10)$ $\pm(4\%+10)$ Not Specified
	320.0 mV	0.1 mV	$\pm(2\%+3)$

** When using the REL (Δ) function to compensate for offsets

Function	Range	Resolution	Accuracy	Typical Burden Voltage
$\overline{\text{mA/A}}$	32.00 mA	0.01 mA	$\pm(0.75\%+2)$	5.6 mV/mA
	320.0 mA	0.1 mA	$\pm(0.75\%+2)$	5.6 mV/mA
	10.00 A	0.01 A	$\pm(0.75\%+2)$	50 mV/A
$\overline{\mu\text{A}}$	320.0 μA	0.1 μA	$\pm(0.75\%+2)$	0.5 mV/ μA
	3200 μA	1 μA	$\pm(0.75\%+2)$	0.5 mV/ μA
$\widetilde{\text{mA/A}}$ 40-1000 Hz	32.00 mA	0.01 mA	$\pm(1.5\%+2)$	5.6 mV/mA
	320.0 mA	0.1 mA	$\pm(1.5\%+2)$	5.6 mV/mA
	10.00 A	0.01 A	$\pm(1.5\%+2)$	50 mV/A
$\widehat{\mu\text{A}}$ 40-1000 Hz	320.0 μA	0.1 μA	$\pm(1.5\%+2)$	0.5 mV/ μA
	3200 μA	1 μA	$\pm(1.5\%+2)$	0.5 mV/ μA

* Accuracy is specified as $\pm([\% \text{ of reading}] + [\text{number of least significant digits}])$.

Basic electrical accuracy is specified from 18°C to 28°C with relative humidity up to 95%, for a period of one year after calibration. All ac conversions are ac coupled, average responding, and calibrated to read the true rms value of a sine wave input.

Ranging is either automatic or manual in all functions with more than one range. Test resistance below approximately 270 Ω in the Diode test function produces a continuous audible tone.

Specifications

Function	Overload Protection*	Input Impedance (Nominal)	Common Mode Rejection Ratio (1 k Ω unbalance)	Normal Mode Rejection
\bar{V}	1000 V rms	10 M Ω in // with <100 pF	>120 dB at dc, 50 Hz, or 60 Hz	>60 dB at 50 Hz or 60 Hz
\bar{mV}	1000 V rms	10 M Ω in // with <100 pF	>120 dB at dc, 50 Hz, or 60 Hz	>60 dB at 50 Hz or 60 Hz
\hat{V}	1000 V rms	10 M Ω in // with <100 pF (ac coupled)	>60 dB, dc to 60 Hz	
\hat{mV}	1000 V rms	10 M Ω in // with <100 pF (ac coupled)	>60 dB, dc to 60 Hz	
Ω	1000 V rms	Open Circuit Test Voltage	Full Scale Voltage	
		<2.8 V dc	Up to 3.2 M Ω	32 M Ω or nS
			<420 mV dc	<1.3 V dc
*10 ⁷ V Hz Max				

Maximum Voltage Between Any Terminal and Earth Ground
1000 V

Function	Fuse Protection
mA or μ A A	44/100 A 1000 V Fast 11 A 1000 V Fast

Digital Display	3200 counts, updates 2/sec
Analog Display	31 Segments, updates 25/sec
Operating Temperature	-15°C to 55°C, to -40°C for 20 minutes when taken from 20°C
Storage Temperature	
Without Battery	-55°C to 85°C
With Battery	-55°C to 60°C
Electromagnetic Compatibility	In an RF field of 3 V/m on all ranges and functions except mVAC, total accuracy = specified accuracy +1.0% of range. For mVAC, total accuracy = specified accuracy + 1.5% of range. EN 61326-1:1997
Temperature Coefficient	0.1X (specified accuracy)/ °C (<18°C or >28°C)
Relative Humidity	0% to 95% (0°C to 35°C) 0% to 70% (35°C to 55°C)
Battery Type	9 V, NEDA 1604 or 6F22 or 006P
Battery Life	1000 hrs. typical
Shock, Vibration and Water Resistance	Per MIL-T-28800 for a Style A, Class 2 Instrument
Size (H X W X L)	2.2 in X 3.75 in X 8 in (5.6 cm X 9.5 cm X 20.3 cm)
Weight	1.6 pounds (0.75 kg)
Altitude	2000 m maximum
Safety	Complies with ANSI/ISA S82.01-1994, CAN/CSA C22.2 No. 1010.1:1992, 1000 V Overvoltage Category III. UL3111-1.