Rev. A-11/2000

FLUKE®

Fluke 170 Series True-rms Digital Multimeter
Extended Specifications

Model Differences
(all other specifications are the same for each model)

Feature	Model		
	175	177	179
Backlight		•	•
Temperature Measurement			•
Basic dc voltage accuracy	0.15%	0.09%	0.09%

Nominal Specifications

Function	Absolute Range or Description	
AC Voltage, True-rms	0.1 mV to 1000V (1 kHz)	
DC Voltage	0.1 mV to 1000V	
Continuity	Beeper guaranteed on < 25 Ω, guaranteed off > 250 Ω; detects opens or shorts of 250 µs or longer.	
Resistance	0.1Ω to 50.00 MΩ	
Diode Test	2.400V	
Capacitance	1 nF to 9999 uF	
AC Current, True-rms	0.01 mA to 10.00A (20.00 A over-range for 30 seconds)	
DC Current	0.01 mA to 10.00A (20.00 A over-range for 30 seconds)	
Frequency	2 Hz to 50 kHz	
Temperature (179 Only)	-40 °C to +400 °C; -40 °F to +752 °F	
Basic dc voltage accuracy	0.15% (175)	0.09% (177 & 179)
Basic ac voltage accuracy	1.0%	

Features

Feature	Description
Digital Display	6000 counts, updates 4 x second
Analog Bargraph Display	33 segments, updates 40 x second
Backlight (177 & 179 only)	Automatically turns off after 2 minutes to save battery life The timeout feature can be disabled with a power-up option
HOLD & Auto HOLD	HOLD: freezes the display at the push of a button Auto HOLD: Display holds present reading until it detects new stable input, then the meter beeps and displays new reading
MIN MAX AVG	Minimum, maximum, and average reading memory
Manual or auto ranging	In auto range, the meter selects the range with the best resolution for the present measurement value
Fast continuity/open detection	The beeper sounds with a stretched pulse for opens or shorts as brief as 250 µs
Test lead alert	The message "LEAd" appears briefly on the display when the rotary switch is moved to or from any **A** (Amps) position
Power-up options	(1) Turn on all LCD segments, (2) Disable beeper, (3) Disable sleep mode, (4) Enable smoothing, (5) Disable backlight timeout (Models 177 & 179 only)
Closed-case calibration	No internal adjustments needed
Probe holders	The instrument comes with built-in probe holders for probe storage and for convenience when making measurements
Battery access door	Battery replacement without voiding calibration
High-impact overmold case	Integrated overmolded protection provides superior impact protection for your meter

FLUKE ®

General Specifications

Accuracy is specified for 1 year after calibration, at operating temperatures of 18 °C to 28 °C, with relative humidity of 0 % to 75 %. Accuracy specifications take the form of: ± ([% of Reading] + [Counts])	
Maximum voltage between any terminal and earth ground	1000V DC or AC RMS
Surge Protection	8 kV peak per IEC 61010
Fuse for mA inputs	440 mA, 1000 V FAST Fuse
Fuse for A input	11A, 1000V FAST Fuse
Display	Digital: 6,000 counts, updates 4/sec Bar Graph: 33 segments, updates 40/sec Frequency: 9,999 counts Capacitance: 9,999 counts
Altitude	Operating: 2000 m; Storage: 12000 m
Temperature	Operating: -10 °C to +50 °C Storage: -30 °C to +60 °C
Temperature coefficient	0.1 X (specified accuracy / °C) (< 18 °C or > 28 °C)
Electromagnetic Compatibility (EN 61326-1:1997)	In an RF field of 3 V/M, accuracy = specified accuracy except in temperature: specified accuracy ± 5 °C, ± 9 °F
Relative Humidity	0 % to 90 % @ 0 °C to 35 °C; 0 % to 70 % @ 36 °C to 50 °C
Relative Humidity in 50 MΩ Range	0 % to 80 % @ 0°C to 35°C; 0 % to 70 % @ 36 °C to 50 °C
Battery Life	Alkaline: ~200 hrs typical
Size, with Holster (H x W x L)	4.3 cm x 9 cm x 18.5 cm
Weight	420g
Safety Compliances	ANSI/ISA S82.02.01, CSA C22.2-1010.1, IEC 61010 to 1000 V Overvoltage Category III, 600 V Overvoltage Category IV
Certifications	CSA, TÜV (EN61010), Australian ✓ (N10140)

FLUKE®

Detailed Specifications

Function	Range [1]	Resolution	Accuracy ± ([% of Reading] + [Counts]) Model 175	Model 177	Model 179
AC Volts [2]	600.0 mV 6.000V 60.00V 600.0V 1000V	0.1 mV 0.001V 0.01V 0.1V 1V	1.0 % + 3 (45 Hz to 500 Hz) 2.0 % + 3 (500 Hz to 1 kHz)	1.0 % + 3 (45 Hz to 500 Hz) 2.0 % + 3 (500 Hz to 1 kHz)	1.0 % + 3 (45 Hz to 500 Hz) 2.0 % + 3 (500 Hz to 1 kHz)
DC mV	600.0 mV	0.1 mV	0.15 % + 2	0.09 % + 2	0.09 % + 2
DC Volts	6.000V 60.00V 600.0V	0.001V 0.01V 0.01V	0.15 % + 2	0.09 % + 2	0.09 % + 2
	1000V	1V	0.15 % + 2	0.1 % + 2	0.1 % + 2
Continuity	600Ω	1Ω	Meter beeps at < 25 Ω, beeper turns off at > 250 Ω; detects opens or shorts of 250 ms or longer.		
Ohms	600.0Ω 6.000 kΩ 60.00 kΩ 600.0 kΩ 6.000 MΩ 50.00 MΩ	0.1Ω 0.001 kΩ 0.01 kΩ 0.1 kΩ 0.001 MΩ 0.01 MΩ	0.9 % + 2 0.9 % + 1 0.9 % + 1 0.9 % + 1 0.9 % + 1 1.5 % + 3	0.9 % + 2 0.9 % + 1 0.9 % + 1 0.9 % + 1 0.9 % + 1 1.5 % + 3	0.9 % + 2 0.9 % + 1 0.9 % + 1 0.9 % + 1 0.9 % + 1 1.5 % + 3
Diode test	2.400V	0.001V	1 % + 2		
Capacitance	1000 nF 10.00 µF 100.0 µF 9999 µF [3]	1 nF 0.01 µF 0.1 µF 1 µF	1.2 % + 2 1.2 % + 2 1.2 % + 2 10 % typical	1.2 % + 2 1.2 % + 2 1.2 % + 2 10 % typical	1.2 % + 2 1.2 % + 2 1.2 % + 2 10 % typical
AC Amps (True-rms) (45 Hz to 1 kHz)	60.00 mA 400.0 mA (600 mA for 18 hrs) 6.000A 10.00A (20A for 30s)	0.01 mA 0.1 mA 0.001A 0.01A	1.5 % + 3	1.5 % + 3	1.5 % + 3
DC Amps	60.00 mA 400.0 mA (600 mA for 18 hrs) 6.000A 10.00A (20A for 30s)	0.01 mA 0.1 mA 0.001A 0.01A	1.0 % + 3	1.0 % + 3	1.0 % + 3
Hz (AC- or DC-coupled, V or A [4,5] input)	99.99 Hz 999.9 Hz 9.999 kHz 99.99 kHz	0.01 Hz 0.1 Hz 0.001 kHz 0.01 kHz	0.1 % + 1	0.1 % + 1	0.1 % + 1
Temperature	-40 °C to +400 °C -40 °F to +752 °F	0.1 °C 0.1 °F	NA	NA	1 % + 1.0 °C 1 % + 1.8 °F
MIN MAX AVG	For DC functions, accuracy is the specified of the measurement function ± 12 counts for changes longer than 275 ms in duration. For AC functions, accuracy is the specified of the measurement function ± 40 counts for changes longer than 1.2 s in duration.				

1. All AC voltage and AC current ranges are specified from 5 % of range to 100 % of range.
2. Crest factor of ≤ 3 at full scale up to 500 V, decreasing linearly to crest factor ≤ 1.5 at 1000 V.
3. In the 9999 µF range for measurements to 1000 µF, the measurement accuracy is 1.2 % for all models.
4. In mA and A ranges, frequency measurement is specified to 30 kHz.
5. Frequency < 10 kHz are not specified in 600 mV AC, 60 mA AC, and 6 A AC ranges.

Function	Overload Protection [1]	Input Impedance (Nominal)	Common Mode Rejection Ratio (1 kΩ Unbalanced)		Normal Mode Rejection
Volts AC	1000 V RMS or DC	> 10 MΩ < 100 pF	> 60 dB @ DC, 50 or 60 Hz		
Volts DC	1000 V RMS or DC	> 10 MΩ <100 pF	>120 dB @ DC, 50 or 60 Hz		> 60 dB @ 50 Hz or 60 Hz
		Open Circuit Test Voltage	**Full Scale Voltage To: 6.0 MΩ**	**50 MΩ**	**Short Circuit Current**
Ohms	1000V RMS or DC	< 1.5 V DC	< 600 mV DC	< 1.5 V DC	< 500 µA
Diode test	1000V RMS or DC	2.4 to 3.0 V DC	2.4 V DC		< 1.2 mA typical

1. 10^7 V-Hz maximum.

Fluke. *Keeping your world up and running.*

Fluke Corporation
PO Box 9090, Everett, WA USA 98206

Fluke Europe B.V.
PO Box 1186, 5602 BD
Eindhoven, The Netherlands

For more information call:
U.S.A. (800) 443-5853 or
Fax (425) 446-5116
Europe (31 40) 2 675 200 or
Fax (31 40) 2 675 222
Canada (905) 890-7600 or
Fax (905) 890-6866
Other countries (425) 446-5500 or
Fax (425) 446-5116
Web access: http://www.fluke.com

Printed in U.S.A. 3/2001

Printed on recycled paper.