

Manual Supplement

Manual Title: 114,115, 116, and 117 Calibration Information Supplement Issue: 3
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This supplement contains information necessary to ensure the accuracy of the above manual.

Change #1

On page 10, delete step 30.

Change #2

On page 4, replace **Table 2** with the following:

Table 2. Accuracy Specifications

Function	Range	Resolution	Accuracy ± ([% of Reading] + [Counts])		Model ^[1]
DC millivolts	600.0 mV	0.1 mV	0.5 % + 2		114, 115, 116, 117
DC Volts	6.000 V	0.001 V	0.5 % + 2		114, 115, 116, 117
	60.00 V	0.01 V			
	600.0 V	0.1 V			
			DC, 45 to 500 Hz	500 Hz to 1 kHz	
Auto-V LoZ ^[2] True-rms	600.0 V	0.1 V	2.0 % + 3	4.0 % + 3	114, 116, 117
			45 to 500 Hz	500 Hz to 1 kHz	
AC millivolts ^[2] True-rms	600.0 mV	0.1 mV	1.0 % + 3	2.0 % + 3	114, 115, 116, 117
AC Volts ^[2] True-rms	6.000 V	0.001 V	1.0 % + 3		114, 115, 116, 117
	60.00 V	0.01 V			
	600.0 V	0.1 V			
Continuity	600 Ω	1 Ω	Beeper on <20 Ω, off >250 Ω; detects opens or shorts of 500 μs or longer.		114, 115, 116, 117
Ohms	600.0 Ω	0.1 Ω	0.9 % + 2		114, 115, 116, 117
	6.000 kΩ	0.001 kΩ	0.9 % + 1		
	60.00 kΩ	0.01 kΩ	0.9 % + 1		
	600.0 kΩ	0.1 kΩ	0.9 % + 1		
	6.000 MΩ	0.001 MΩ	0.9 % + 1		
	40.00 MΩ	0.01 MΩ	5.0 % + 2		
Diode test	2.000 V	0.001 V	0.9 % + 2		115, 116, 117
Capacitance	1000 nF	1 nF	1.9 % + 2		115, 116, 117
	10.00 μF	0.01 μF	1.9 % + 2		
	100.0 μF	0.1 μF	1.9 % + 2		
	9999 μF	1 μF	100 μF - 1000 μF: 1.9 % + 2 >1000 μF: 5 % + 20		
Lo-Z Capacitance (Power-up option)	1 nF to 500 μF		10 % +2 typical		115, 116, 117
AC Amps True-rms ^[2] (45 Hz to 500 Hz)	6.000 A 10.00 A ^[4] 20 A overload for 30 seconds maximum, 10 minutes rest minimum.	0.001 A 0.01 A	1.5 % + 3		115, 117
DC Amps	6.000 A 10.00 A ^[4] 20 A overload for 30 seconds maximum, 10 minutes rest minimum.	0.001 A 0.01 A	1.0 % + 3		115, 117

Temperature (Type K thermocouple)	-40 °C to 400 °C -40 °F to 752 °F	0.1 °C 0.2 °F	1.0 % + 10 ^[5] 1.0 % + 18 ^[5]	116
AC μ Amps True-rms ^[2] (45 Hz to 1 kHz)	600.0 μ A	0.1 μ A	1.5 % + 3 (2.5 % + 3 > 500 Hz)	116
DC μ Amps	600.0 μ A	0.1 μ A	1.0 % + 2	116
Hz (V or A input) ^[3]	99.99 Hz 999.9 Hz 9.999 kHz 50.00 kHz	0.01 Hz 0.1 Hz 0.001 kHz 0.01 kHz	0.1 % + 2	115, 116, 117
<p>Notes:</p> <p>[1] Models listed in this column also refer to the "C" version of the model. For example, those rows containing model 115 are applicable to the 115C as well.</p> <p>[2] All ac ranges except Auto-V LoZ are specified from 1 % to 100% of range. Auto-V LoZ is specified from 0.0 V. Because inputs below 1 % of range are not specified, it is normal for this and other true-rms meters to display non-zero readings when the test leads are disconnected from a circuit or are shorted together. For volts, crest factor of ≤ 3 at 4000 counts, decreasing linearly to 1.5 at full scale. For amps, crest factor of ≤ 3. AC volts is ac-coupled. Auto-V LoZ, AC mV, AC μamps, and AC amps are dc-coupled.</p> <p>[3] AC Volts Hz is ac-coupled and specified from 5 Hz to 50 kHz. AC amps Hz is dc-coupled and specified from 45 Hz to 5 kHz.</p> <p>[4] >10 A unspecified.</p> <p>[5] Temperature uncertainty (accuracy) does not include the error of the thermocouple probe.</p>				

Change #3

On page 2, under **Safety Information**:

Change: Do not use the Meter around explosive gas or vapor.

To: Do not use the Product around explosive gas, vapor, or in damp or wet environments