Table 8. Models 85 and 87 AC Voltage Function Specifications

Function	Range	Resolution	Accuracy[1]			
			50 Hz - 60 Hz	**45 Hz - 1 kHz**	**1 kHz - 5 kHz**	**5 kHz - 20 kHz[2]**
$\tilde{V}$ [3]	400.0 mV	0.1 mV	±(0.7% + 4)	±(1.0% + 4)	±(2.0% + 4)	±(2.0% + 20)
	4.000 V	0.001 V	±(0.7% + 2)	±(1.0% + 4)	±(2.0% + 4)	±(2.0% + 20)
	40.00 V	0.01 V	±(0.7% + 2)	±(1.0% + 4)	±(2.0% + 4)	±(2.0% + 20)
	400.0 V	0.1 V	±(0.7% + 2)	±(1.0% + 4)	±(2.0% + 4)[4]	unspecified
	1000 V	1 V	±(0.7% + 2)	±(1.0% + 4)[5]	unspecified	unspecified

1. Accuracy is given as ±([% of reading] + [number of least significant digits]) at 18°C to 28°C, with relative humidity up to 90%, for a period of one year after calibration. For Model 87 in the 4 ½-digit mode, multiply the number of least significant digits (counts) by 10. AC conversions are ac-coupled and valid from 5% to 100% of range. Models 85 and 87 are true rms responding. AC crest factor can be up to 3 at full scale, 6 at half scale. For non-sinusoidal wave forms add -(2% Rdg + 2% full scale) typical, for a crest factor up to 3.
2. Below 10% of range, add 6 counts.
3. Models 85 and 87 are true rms responding meters. When the input leads are shorted together in the ac functions, the meters display a reading (typically <25 counts) that is caused by internal amplifier noise. The accuracy on Models 85 and 87 is not significantly affected by this internal offset when measuring inputs that are within 5% to 100% of the selected range. When the rms value of the two values (5% of range and internal offset) is calculated, the effect is minimal as shown in the following example where 20.0 = 5% of 400 mV range, and 2.5 is the internal offset: RMS = SQRT[$(20.0)^2$ + $(2.5)^2$] = 20.16. If you use the REL function to zero the display when using the ac functions, a constant error that is equal to the internal offset will result.
4. Frequency range: 1 kHz to 2.5 kHz.
5. Below 10% of range, add 16 counts.

Table 9. Model 83 AC Voltage Function Specifications

Function	Range	Resolution	Accuracy[1]		
			50 Hz - 60 Hz	**45 Hz - 1 kHz**	**1 kHz - 5 kHz**
$\tilde{V}$[2]	400.0 mV	0.1 mV	±(0.5% + 4)	±(1.0% + 4)	±(2.0% + 4)
	4.000 V	0.001 V	±(0.5% + 2)	±(1.0% + 4)	±(2.0% + 4)
	40.00 V	0.01 V	±(0.5% + 2)	±(1.0% + 4)	±(2.0% + 4)
	400.0 V	0.1 V	±(0.5% + 2)	±(1.0% + 4)	±(2.0% + 4)[3]
	1000 V	1 V	±(0.5% + 2)	±(1.0% + 4)	unspecified

1. See the first sentence in Table 8 for a complete explanation of accuracy.
2. Below a reading of 200 counts, add 10 counts.
3. Frequency range: 1 kHz to 2.5 kHz.

Table 10. DC Voltage, Resistance, and Conductance Function Specifications

Function	Range	Resolution	Accuracy[1]		
			Model 83	**Model 85**	**Model 87**
V⎓	4.000 V	0.001 V	±(0.1% + 1)	±(0.08% + 1)	±(0.05% + 1)
	40.00 V	0.01 V	±(0.1% + 1)	±(0.08% + 1)	±(0.05% + 1)
	400.0 V	0.1 V	±(0.1% + 1)	±(0.08% + 1)	±(0.05% + 1)
	1000 V	1 V	±(0.1% + 1)	±(0.08% + 1)	±(0.05% + 1)
mV⎓	400.0 mV	0.1 mV	±(0.3% + 1)	±(0.1% + 1)	±(0.1% + 1)
Ω	400.0 Ω	0.1 Ω	±(0.4% + 2)[2]	±(0.2% + 2)[2]	±(0.2% + 2)[2]
	4.000 kΩ	0.001 kΩ	±(0.4% + 1)	±(0.2% + 1)	±(0.2% + 1)
	40.00 kΩ	0.01 kΩ	±(0.4% + 1)	±(0.2% + 1)	±(0.2% + 1)
	400.0 kΩ	0.1 kΩ	±(0.7% + 1)	±(0.6% + 1)	±(0.6% + 1)
	4.000 MΩ	0.001 MΩ	±(0.7% + 1)	±(0.6% + 1)	±(0.6% + 1)
	40.00 MΩ	0.01 MΩ	±(1.0% + 3)	±(1.0% + 3)	±(1.0% + 3)
nS	40.00 nS	0.01 nS	±(1.0% + 10)	±(1.0% + 10)	±(1.0% + 10)

1. See the first sentence in Table 8 for a complete explanation of accuracy.
2. When using the REL Δ function to compensate for offsets.

Table 11. Current Function Specifications

Function	Range	Resolution	Accuracy[1]			Burden Voltage (typical)
			Model 83[2]	Model 85[3, 4]	Model 87[3, 4]	
mA	40.00 mA	0.01 mA	±(1.2% + 2)[6]	±(1.0% + 2)[6]	±(1.0% + 2)	1.8 mV/mA
A~	400.0 mA	0.1 mA	±(1.2% + 2)[6]	±(1.0% + 2)[6]	±(1.0% + 2)	1.8 mV/mA
(45 Hz to 2 kHz)	4000 mA	1 mA	±(1.2% + 2)[6]	±(1.0% + 2)[6]	±(1.0% + 2)	0.03 V/A
	10.00 A[5]	0.01 A	±(1.2% + 2)[6]	±(1.0% + 2)[6]	±(1.0% + 2)	0.03 V/A
mA						
A⎓	40.00 mA	0.01 mA	±(0.4% + 4)	±(0.2% + 4)	±(0.2% + 4)	1.8 mV/mA
	400.0 mA	0.1 mA	±(0.4% + 2)	±(0.2% + 2)	±(0.2% + 2)	1.8 mV/mA
	4000 mA	1 mA	±(0.4% + 4)	±(0.2% + 4)	±(0.2% + 4)	0.03 V/A
	10.00 A[5]	0.01 A	±(0.4% + 2)	±(0.2% + 2)	±(0.2% + 2)	0.03 V/A

1. See the first sentence in Table 8 for a complete explanation of accuracy.
2. AC conversion for Model 83 is ac coupled and calibrated to the rms value of a sinewave input.
3. AC conversions for Models 85 and 87 are ac coupled, true rms responding, and valid from 5% to 100% of range.
4. See note 3 in Table 8.
5. ⚠ 10 A continuous; 20 A for 30 seconds maximum; >10 A: unspecified.
6. Below a reading of 200 counts, add 10 counts.

Table 11. Current Function Specifications (continued)

Function	Range	Resolution	Accuracy[1]			Burden Voltage (typical)
			Model 83[2]	Model 85[3, 4]	Model 87[3, 4]	
µA ~ (45 Hz to 2 kHz)	400.0 µA	0.1 µA	±(1.2% + 2)[5]	±(1.0% + 2)[5]	±(1.0% + 2)	100 µV/µA
	4000 µA	1 µA	±(1.2% + 2)[5]	±(1.0% + 2)[5]	±(1.0% + 2)	100 µV/µA
µA⎓	400.0 µA	0.1 µA	±(0.4% + 4)	±(0.2% + 4)	±(0.2% + 4)	100 µV/µA
	4000 µA	1 µA	±(0.4% + 2)	±(0.2% + 2)	±(0.2% + 2)	100 µV/µA

1. See the first sentence in Table 8 for a complete explanation of accuracy.
2. AC conversion for Model 83 is ac coupled and calibrated to the rms value of a sinewave input.
3. AC conversions for Models 85 and 87 are ac coupled, true rms responding, and valid from 5% to 100% of range.
4. See note 3 in Table 8.
5. Below a reading of 200 counts, add 10 counts.