

AC TRUE RMS DIGITAL CLAMPMETER WITH EF-DETECTION, AMPTIP FUNCTION FOR LOW CURRENT MEASUREMENT

MODEL KM 033



Preliminary Data

SPECIAL FEATURES :

- AmpTip™ low-current range calibrated at Jaw-tip for slim-conditions for accurate readings
- MAX / MIN Recording mode.
- MAX / MIN Crest (Peak-Hold) mode.
- Relative-zero mode.
- Display Hold
- EF-Detection (NCV).
- Back-lighted easy-to-read LCD display
- Fully Autoranging
- BeepLit™ Feature.

GENERAL SPECIFICATIONS :

- * Sensing : True RMS
- * Jaws Opening size : 26mm Max.
- * Display : 3-5/6 digits 6000 counts
- * Update Rate : 5 per second nominal
- * Polarity : Automatic
- * Operating Temperature : 0°C to 40°C
- * Relative Humidity : Maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 50% relative humidity at 40°C
- * Altitude : Operating below 2000m
- * Storage Temperature : -20°C ~ 60°C, < 80% R.H. (with battery removed)
- * Temperature Coefficient : Nominal 0.1 x (specified accuracy) / °C @ (0°C — 18°C or 28°C — 40°C), or otherwise specified
- * Power Supply : Standard 1.5V AAA Size Battery X 2
- * Power Consumption : typical 4mA
- * Low Battery : Below approx. 2.85V for Capacitance & Hz Below approx. 2.5V for other functions
- * APO timing : Idle for 32 minutes
- * APO Consumption : typical 5µA
- * Dimension : 188(L) x 66(W) x 32(H)mm
- * Weight : approx 158 gms.

SAFETY :

- Safety : Certified per IEC/UL/CSA_C22.2_# / EN standards. 61010-1 Ed.3.0, 61010-2-032 Ed. 3.0, 61010-2-033 Ed. 1.0 & 61010-031 Ed. 2.0 to Measurement Categories CAT III 600V AND CAT IV 300V AC & DC.
- Overload Protection : Current via jaws : 600A DC / AC rms at <400Hz. Voltage via terminal: 660V DC / 920VAC rms. Other functions via terminals : 600V DC / VAC rms
- Pollution Degree : 2
- E.M.C. : Meets EN61326-1 DCA and ACA Functions, in an RF field of 1V/m : Total Accuracy = Specified Accuracy + 40 digits at around 87MHz DCµA & Ohm Functions, in an RF field of 1V/m : Total Accuracy = Specified Accuracy + 25 digits Other Functions, in an RF field of 3V/m : Total Accuracy = Specified Accuracy + 20 digits
- Transient Protection : 6.0kV (1.2/50µs surge)
- Rugged Fire retarded housing.
- LVD EN61010-1/61010-2-032/61010-2-033 to CAT III 600V & CAT IV 300V

ACCESSORIES : Test leads set, Users Manual, Carrying case & Bkp60 banana plug type-K thermocouple.

OPTIONAL ACCESSORIES : BKB32 banana plug to type-K socket plug adaptor

ELECTRICAL SPECIFICATIONS : KM 033

Accuracy is ± (% of reading digits + number of digits) or otherwise specified, at 23°C ± 5°C

Maximum Crest Factor <2 : 1 at full scale & <4:1 at half scale or otherwise specified, and with frequency spectrum not exceeding the specified frequency bandwidth for non-sinusoidal waveforms.

REGULAR AC CLAMP-ON CURRENT

Range	Resolution	Accuracy ^{1) 2)}
50Hz ~ 100Hz		
600.0 A	0.1 A	±(1.5%rdg + 5dgts)
100Hz ~ 400Hz		
600.0 A	0.1 A	±(2.0%rdg + 5dgts)

¹⁾ Induced error from adjacent current-carrying conductor : < 0.6A/A

²⁾ Specified accuracy is for measurements made at the jaw center. When the conductor is not positioned at the jaw center, add 2% to specified accuracy for position errors.

CLAMP-ON AmpTip™ AC CURRENT

Range	Resolution	Accuracy ¹⁾
50Hz ~ 60Hz		
60.00 A	0.01 A	±(1.0%rdg + 5dgts)

¹⁾ Induced error from adjacent current-carrying conductor : < 0.06A/A

DCµA

Range	Resolution	Accuracy
200.0 µA	0.1 µA	±(1.0%rdg + 5dgts)
2000 µA	1 µA	

Burden Voltage : 3.5mV/µA

All Specifications are subject to change without prior notice

ELECTRICAL SPECIFICATIONS : KM 033

DC VOLTAGE

Range	Resolution	Accuracy
600.0 V	0.1 V	$\pm(1.0\%rdg + 5dgts)$

Input Impedance : 10M Ω , 100pF nominal

AC VOLTAGE (with Digital Low-Pass Filter)

Range	Resolution	Accuracy
50Hz ~ 60Hz		
600.0 V	0.1 V	$\pm(1.5\%rdg + 5dgts)$

Input Impedance : 10M Ω , 100pF nominal

RESISTANCE

Range	Resolution	Accuracy
600.0 Ω	0.1 Ω	$\pm(1.0\%rdg + 5dgts)$
60.00K Ω	10 Ω	
600.0K Ω	100 Ω	
6000K Ω	1 k Ω	

Open Circuit Voltage : 1.0VDC typical

CAPACITANCE

Range	Resolution	Accuracy ¹⁾
200.0 μ F	0.1 μ F	$\pm(2.0\%rdg + 4dgts)$
2500 μ F	1 μ F	

¹⁾ Accuracies with film capacitor or better

BeepLit™ DIODE TESTER

Range	Resolution	Accuracy ¹⁾
3.000 V	1 mV	$\pm(1.5\%rdg + 5dgts)$

Test Current : 0.3mA typically

Open Circuit Voltage : < 3.5VDC typically

Short Beep Alert Threshold : Drop across 0.850V

BeepLit™ ON Threshold : <0.100V

Audible indication : Beep Sound

Visible Indication : LCD Backlight.

CREST (Peak-Hold)

Applicability	Voltage & Non-invasion Current functions
Accuracy	Add \pm 250 digits to specified accuracy for changes > 5ms in duration.

HZ LINE LEVEL FREQUENCY

Function	Sensitivity ¹⁾ (Sine RMS)	Range
600 V	50 V	5.00Hz~999.9Hz

Accuracy : $\pm(1\%rdg + 5dgts)$

¹⁾ DC-bias, if any, not more than 50% of Sine RMS

TEMPERATURE

Range	Accuracy ¹⁾²⁾
-40.0°C ~ 99.9°C	$\pm (1.0\% + 1.0^\circ\text{C})$
100.0°C ~ 400°C	$\pm (1.0\% + 1^\circ\text{C})$
-40.0°F ~ 211.8°F	$\pm (1.0\% + 2.0^\circ\text{F})$
212°F ~ 752°F	$\pm (1.0\% + 2^\circ\text{F})$

¹⁾ Accuracies assume meter interior has the same temperature of the ambient (isothermal stage) for a correct junction voltage compensation. Allow the meter & the type-K probe set to reach isothermal stage for a significant change of ambient temperature. It can take up to an hour for changes >5°C.

²⁾ Type-K thermocouple range & accuracy not included.

BeepLit™ CONTINUITY TESTER

Continuity Threshold	Between 30 Ω & 480 Ω
Continuity ON Response Time	15ms approx.
Audible Indication	Beep sound
Visible Indication	LCD Backlight

NON-CONTACT EF-DETECTION

Bar-Graph Indication	EF-H (Hi Sensitivity)	EF-L (Lo Sensitivity)
	Typical Voltage (Tolerance)	
-	10V (2V~20V)	40V (10V~70V)
--	20V (4V~40V)	80V (20V~140V)
---	40V (8V~70V)	160V (40V~280V)
----	80V (16V~140V)	320V (80V~560V)
-----	160V (>40V)	500V (>160V)

Indication : Bar-graph segments & audible beep tones proportional to the field strength.

Detection Frequency : 50/60Hz

Detection Antenna : Inside the top side of the stationary jaw

Probe-Contact EF-Detection : For more precise indication of live wires, such as distinguishing between live and ground connections, use one single probe to test via terminal COM for direct Metal Probe-contact EF-Detection to achieve the most distinctive indication.

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