

1000A AC TRUE RMS DIGITAL CLAMPMETER WITH VFD, EF-DETECTION, AMPTIP FUNCTION FOR LOW CURRENT MEASUREMENT & 3 PHASE ROTATION CHECK FUNCTION & 3 PHASE SEQUENCE INDICATION

SPECIAL FEATURES :

- AmpTip™ low-current range calibrated at Jaw-tip for slim-conditions for accurate readings
- MAX/MIN/AVG Recording mode (Auto ranging)
- VFD-V & Hz for fundamental V/Hz of most Variable-Frequency-Drives
- Display Hold & Non-Contact EF-Detection (NCV)
- Back-lighted easy-to-read LCD display
- Fast 80ms Peak-RMS mode to capture in-rush currents
- Auto-ranging Relative mode with DC-Zero mode & 5ms Crest (Instantaneous Peak-Hold) mode
- 3-Phase Rotation-R for MAINS supply (Probe contact)
- 3-Phase Rotation-M (Hi-sensitivity mode) for Motors (Probe-contact)

25 FUNCTIONS 32 RANGES

MODEL KM 086

NEW

GENERAL SPECIFICATIONS :

- * Sensing : AC; True RMS
- * Jaws Opening size & conductor diameter : 51mm Max.
- * Display : 3-5/6 digits 6000 counts
- * Update Rate : 5 per second nominal
- * Polarity : Automatic
- * Operating Temperature : -10°C to 50°C
- * Relative Humidity : Non condensing ($\leq 10^\circ\text{C}$) Maximum 90%R.H. at 10-30°C
decreasing linearly to 75% R.H. at 30-40°C & 45% R.H. at 40-50°C
- * Altitude : Operating below 2000m; Storage below 12000m
- * Storage Temperature : -20°C ~ 60°C, < 80% R.H. (with battery removed)
- * Temperature Coefficient : Nominal 0.10 x (specified accuracy) / °C @ (-10°C — 18°C or 28°C — 50°C),
or otherwise specified
- * Power Supply : Standard 1.5V AA Battery x 2
- * Power Consumption : typical 4.3mA
- * 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 : 258(L) x 94(W) x 44(H)mm
- * Weight : approx 312 gms.

SAFETY :

- Safety : Double insulation per UL/IEC/EN61010-1 Ed. 3.0, IEC/EN61010-2-033 Ed. 1.0, CAN/CSA C22.2
No. 61010-1 Ed. 3.0, IEC/EN61010-2-032 Ed. 3.0 & IEC/EN61010-031 Ed. 1.1
- Measurement Category : CAT III 1000V AND CAT IV 600V AC & DC
- E.M.C. : Meets EN61326-1 : 2006 (EN55022, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3,
EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11) :
ACA, DCA and DC+ACA Functions, in an RF field of 1V/m :
Total Accuracy = Specified Accuracy + 60 digits at around 200MHz~350MHz
DCμA and Ohm Functions, in an RF field of 1V/m : Total Accuracy = Specified Accuracy + 80 digits
Other Functions, in an RF field of 3V/m : Total Accuracy = Specified Accuracy + 20 digits
- Overload Protection :
Current & Hz functions via jaws : 1000ADC/AAC rms at <400Hz
Voltage & 3-Phase Rotation functions via terminals : 1100VDC/ VAC rms
Other functions via terminals : 1000VDC/ VAC rms
- Pollution Degree : 2
- Transient Protection : 8.0kV (1.2/50μs surge)
- Rugged Fire retarded casing.
- LVD EN61010-2-032/EN61010-2-033 to CAT III 1000V & CAT IV 600V

ACCESSORIES :

Test leads set, Users Manual, Soft carrying pouch, Bkp60 banana plug K-type thermocouple, Alligator Clip set,
BKB32 banana plug to type-K socket plug adaptor (for optional purchase)



Preliminary Data

ELECTRICAL SPECIFICATIONS : KM 086

Accuracy is $\pm$ (% of reading digits + number of digits) or otherwise specified, at $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$
Maximum Crest Factor $<2.5:1$ at full scale & $<5:1$ at half scale or otherwise specified, and with frequency spectrum not exceeding the specified frequency bandwidth for non-sinusoidal waveforms.

AMPTIP™ CLAMP-ON AC CURRENT

Range	Resolution	Accuracy ^(1) 2) 3)
40Hz ~ 100Hz		
60.00 A	0.1 A	$\pm(1.5\%\text{rdg} + 5\text{dgts})$
100Hz ~ 400Hz		
60.00 A	0.1 A	$\pm(2.0\%\text{rdg} + 5\text{dgts})$

¹⁾ Induced error from adjacent current-carrying conductor : $< 0.02\text{A/A}$

²⁾ Specified with Relative Zero Δ mode applied to offset the non-zero residual readings, if any

³⁾ Add 10d to the specified accuracy @ $< 4\text{A}$

REGULAR CLAMP-ON AC CURRENT

Range	Resolution	Accuracy ^{1) 2)}
40Hz ~ 100Hz		
60.00 A ³⁾	0.01 A	±(1.8%rdg + 5dgts)
600.0 A	0.1 A	
1000 A ⁴⁾	1 A	
100Hz ~ 400Hz		
60.00 A ³⁾	0.01 A	±(2.2%rdg + 5dgts)
600.0 A	0.1 A	
1000 A ⁴⁾	1 A	

¹⁾ Induced error from adjacent current-carrying conductor : $< 0.05\text{A/A}$

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.

³⁾ Add 10d to the specified accuracy @ $< 6\text{A}$

⁴⁾ Maximum Crest Factor $< 1.4 : 1$ at full scale & $< 2.8 : 1$ at half scale

DC μA (Via Test Leads)

Range	Resolution	Accuracy
200.0 μA	0.1 μA	$\pm(1.0\%\text{rdg} + 5\text{dgts})$
2000 μA	0.1 μA	

Burden Voltage : $3.5\text{mV}/\mu\text{A}$

HZ LINE LEVEL FREQUENCY

Function	Sensitivity ¹⁾ (Sine RMS)	Range
600 V	50 V	5.00Hz~999.9Hz
1000 V		
60 A (AmpTip™)	20 A	40.00Hz~400.0Hz
60 A	20 A	40.00Hz~400.0Hz
600 A		
1000A		

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

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

TEMPERATURE

Range	Accuracy
$-40.0^{\circ}\text{C} \sim 99.9^{\circ}\text{C}$	$1.0\% \sim 0.8^{\circ}\text{C}$
$100.0^{\circ}\text{C} \sim 400^{\circ}\text{C}$	$1.0\% \sim 1^{\circ}\text{C}$
$-40.0^{\circ}\text{F} \sim 211.8^{\circ}\text{F}$	$1.0\% \sim 1.5^{\circ}\text{F}$
$212^{\circ}\text{F} \sim 752^{\circ}\text{F}$	$1.0\% \sim 2^{\circ}\text{F}$

K-type thermocouple range & accuracy not included

DIODE TESTER

Range	Resolution	Accuracy ¹⁾
2.000 V	1 mV	$\pm(1.5\%\text{rdg} + 5\text{dgts})$

AC VOLTAGE (with Digital Low-Pass Filter)

Range	Resolution	Accuracy
50Hz ~ 60Hz		
600.0 V	0.1 V	±(0.8%rdg + 5dgts)
1000 V	1 V	
20Hz ~ 200Hz		
600.0 V	0.1 V	±(1.5%rdg + 5dgts)
1000 V	1 V	
200Hz ~ 400Hz		
600.0 V	0.1 V	±(10%rdg + 5dgts)
1000 V	1 V	

Input Impedance : $10\text{M}\Omega$, 100pF nominal

DC VOLTAGE

Range	Resolution	Accuracy
600.0 V	0.1 V	$\pm(0.8\%\text{rdg} + 5\text{dgts})$
1000 V	1 V	

Input Impedance : $10\text{M}\Omega$, 100pF nominal

RESISTANCE

Range	Resolution	Accuracy
600.0 Ω	0.1 Ω	$\pm(1.0\%\text{rdg} + 5\text{dgts})$
6.000K Ω	1 Ω	
60.00K Ω	10 Ω	

Open Circuit Voltage : 1.0VDC typical

CAPACITANCE

Range	Resolution	Accuracy ¹⁾
200.0 μF	0.1 μF	$\pm(2.0\%\text{rdg} + 4\text{dgts})$
2500 μF	1 μF	

¹⁾ Accuracies with film capacitor or better

NON-CONTACT EF-DETECTION

Typical Voltage	Bar-Graph Indication
20V (tolerance : 10V~36V)	-
55V (tolerance : 23V~83V)	--
110V (tolerance : 59V~165V)	---
220V (tolerance : 124V~330V)	----
440V (tolerance : 250V~1000V)	-----

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 EF-Detection with best sensitivity.

PEAK-RMS (ACV & ACA)

Response	80ms to $> 90\%$
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CREST (PEAK-HOLD)

Accuracy	Add 250 digits to specified accuracy for changes $> 5\text{ms}$
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AUDIBLE CONTINUITY TESTER

Audible Threshold	Between 10Ω and 250Ω
Response Time	32ms approx