

3 PHASE TRMS POWER CLAMP-ON METER WITH KWHr RECORDING FUNCTION & PC INTERFACE

18 FUNCTIONS 23 RANGES

Model KM 357

Transient Protection
6.5kV
(1.2/50 S surge)

CAT III 600V
CE
Approved



kWhr Reading
Screen Display

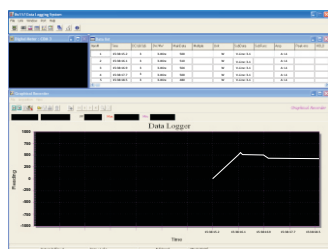


SPECIAL FEATURES :

- Selectable Power parameters of W, VAR & VA with Total Power Factor in dual-display.
- AutoVA™ (Auto Selection on ACV, DCV or ACA functions)
- Backlight display
- kWhr Recording
- Display Hold & PEAK-rms HOLD
- PC-Comm computer interface capabilities

GENERAL SPECIFICATIONS :

- * **Sensing** : True RMS sensing
- * **Jaw opening & Conductor diameter** : 26mm max
- * **Display** :
Voltage Function : 6000 counts LCD display
Power, Ohm & Hz functions : 9999 counts LCD display
ACA clamp-on function : 4000 counts LCD display
- * **Update Rate** :
Power function : 2 per second nominal
Voltage, ACA clamp-on & Ohm functions :
2 per second nominal
Hz function : 1 per second nominal
- * **Operating Temperature** : 0°C to 40°C
- * **Relative Humidity** : Maximum relative humidity
80% for temperature upto 31°C decreasing linearly
to 50% relative humidity at 40°C
- * **Polarity** : Automatic
- * **Low Battery** : Below approx 2.4V
- * **Altitude** : Operating below 2000m
- * **Storage Temperature** : -20°C to 60°C, < 80% R.H.
(With battery removed)
- * **Temperature Coefficient** : nominal 0.15 x
(specified accuracy) / °C @ (0°C-18°C or 28°C-40°C),
or otherwise specified
- * **Power supply** : Standard 1.5V AAA Battery x 2.
- * **Power Consumption** :
Voltage, ACA, Hz & Power functions : 11mA typical
Ohm function : 5.5mA typical
- * **AP0 Timing** : Idle for 30 minutes
- * **AP0 Consumption** : 4 A typical
- * **Dimension** : 189(L) x 78(W) x 40(H) mm
- * **Weight** : Approx. 192 gms



PC Software Screen



Software CD



BA-1XX
Cable

BUA-2303
USB to Serial Adapter

BC-100R
USB port Cable

SAFETY :

- Meets IEC61010-1 2nd Ed., EN61010-1 2nd Ed., UL61010-1 2nd Ed., IEC61010-2-032, EN61010-2-032, UL61010B-2-032.
- **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, EN61000-4-7, EN61000-4-8, EN61000-4-11)
In an RF field of 3V/m :
Total Accuracy = Specified Accuracy + 50 digits
Performance above 3V/m is not specified
- **Measurement Category** : CAT III 600Volts AC & DC
- **Pollution degree** : 2
- **Overload Protections** :
ACA Clamp-on jaws : AC 600A rms continuous
+ & COM terminals(all functions) : 600VDC/VAC rms

ACCESSORIES :

Test leads (pair), Battery installed, User's Manual, Carrying Case.

OPTIONAL ACCESSORIES :

PC interface Kit, (including BUA-2303 USB-to-Serial adaptor, BA-1XX optical adapter black, BC-100R cable & Bs Software CD)

ELECTRICAL SPECIFICATIONS - KM 357

Accuracy is \pm (% reading digits + number of digits) or otherwise specified, at 23°C \pm 5°C & less than 75% R.H.

True RMS ACV & ACA clamp-on accuracies are specified from 5% to 100% of range or otherwise specified. Maximum Crest Factor are as specified below, and with frequency spectrums, besides fundamentals, fall within the meter specified AC bandwidth for non-sinusoidal waveforms. Fundamentals are specified at 50Hz and 60Hz.

AC VOLTAGE

Range	Resolution	Accuracy
50Hz / 60Hz		
600.0V	0.1V	$\pm(0.5\%rdg + 5dgt)$
45Hz ~ 500Hz		
600.0V	0.1V	$\pm(1.5\%rdg + 5dgt)$
500Hz ~ 3.1kHz		
600.0V	0.1V	$\pm(1.5\%rdg + 5dgt)$

CMRR : > 60dB @ DC to 60Hz, Rs=1k

Input Impedance : 2M , 30pF nominal

Crest Factor : < 2 : 1 at full scale & < 4 : 1 at half scale

ACV AutoVA™ Threshold : 30VAC (40Hz - 500Hz only) nominal

AC CURRENT (Clamp-On)

Range	Resolution	Accuracy ¹⁾²⁾
50Hz / 60Hz		
40.00 A	0.01 A	$\pm(1.0\%rdg + 5dgt)$
400.0 A	0.1 A	$\pm(1.0\%rdg + 5dgt)$
600 A	1 A	$\pm(1.0\%rdg + 5dgt)$
45Hz ~ 500Hz		
40.00 A	0.01 A	$\pm(2.0\%rdg + 5dgt)$
400.0 A	0.1 A	$\pm(2.0\%rdg + 5dgt)$
600 A	1 A	$\pm(2.5\%rdg + 5dgt)$
500Hz ~ 3.1kHz		
40.00 A	0.01 A	$\pm(2.5\%rdg + 5dgt)$
400.0 A	0.1 A	$\pm(2.5\%rdg + 5dgt)$
600 A	1 A	$\pm(3.0\%rdg + 5dgt)$

ACV AutoVA™ Threshold : 1A AC (40Hz - 500Hz only) nominal

Crest Factor : < 3:1 at full scale & < 6:1 at half scale

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

²⁾ Specified accuracy is from 1% to 100% of range & for measurements made at the jaw center. When the conductor is not positioned at the jaw center, position errors introduced are:

Add 1% to specified accuracy for measurements made WITHIN jaw marking lines (away from jaw opening)

Add 4% to specified accuracy for measurements made BEYOND jaw marking lines (toward jaws opening)

DC VOLTAGE

Range	Resolution	Accuracy
600.0V	0.1V	$\pm(0.5\%rdg + 5dgt)$

NMRR : > 50dB @ 50/60Hz

CMRR : > 120dB @ DC, 50/60Hz, Rs=1k

Input Impedance: 2M , 30pF nominal

DCV AutoVA™ Threshold : 2.4VDC nominal

PEAK-rms HOLD (ACA & ACV only)

Response	65 ms to >90%
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AUDIBLE CONTINUITY TESTER

Audible threshold	between 10 and 300
Response time	250 s

KWhr (kilo-Watt-Hour Energy)

Time base accuracy	< 30ppm
Non-volatile memory	Separately stores one 3-Phase -Balanced-load and one Single-Phase result.

SINGLE-PHASE & 3-PHASE BALANCED-LOAD POWER

Range	Accuracy ¹⁾²⁾³⁾			
0 ~ 360.0kVA	F ~ 10 th	11 th ~ 45 th	46 th ~ 51 st	
@ PF = 0.99 ~ 0.1	2.0%+6d	3.5%+6d	5.5%+6d	
Range	Accuracy ¹⁾²⁾⁴⁾			
0 ~ 360.0kW / kVAR	F ~ 10 th	11 th ~ 25 th	26 th ~ 45 th	46 th ~ 51 st
@ PF = 0.98 ~ 0.70	2.0%+6d	3.5%+6d	4.5%+6d	10%+6d
@ PF = 0.70 ~ 0.50	3.0%+6d			
@ PF = 0.50 ~ 0.30	4.5%+6d			
@ PF = 0.30 ~ 0.20	10%+6d		15%+6d	

¹⁾ Specified accuracy is for ACA clamp measurement at the center of jaws.

When the conductor is not positioned at the jaw center, position errors introduced are :

Add 1% to specified accuracy for ACA measurements made WITHIN jaw marking lines (away from jaw opening)

Accuracy is not specified for ACA measurement made BEYOND jaw Marking lines (toward jaws opening)

²⁾ Add 4d to specified accuracy for 3-Phase Balanced-load Power measurements.

³⁾ Add 1% to specified accuracy @ ACA fundamental < 6A or ACV fundamental < 90V.

Accuracy is not specified @ ACA fundamental < 1A or ACV Fundamental < 30V

⁴⁾ Add 1% to specified accuracy @ ACA fundamental < 6A or ACV fundamental < 90V.

Accuracy is not specified @ ACA fundamental < 2A or ACV fundamental < 50V

TOTAL POWER FACTOR (PF)

Range	Accuracy ¹⁾	
0.10 ~ 0.99	F ~ 21 st	22 nd ~ 51 st
	3d	
	5d	

¹⁾ Specified accuracy @ ACA fundamental > 2A; ACV fundamental > 50V

RESISTANCE

Range	Resolution	Accuracy
999.9	0.1	$\pm(1.0\%rdg + 6dgt)$

Open Circuit Voltage : 0.4VDC typical

FREQUENCY

Range	Resolution	Accuracy
5Hz ~ 500Hz	0.01Hz ~ 0.1Hz	$\pm(0.5\%rdg + 4dgt)$

Sensitivity (Sine RMS)

40A range : > 4A; 400A range : > 40A

600A range : > 400A; 600V range : > 30V

3-PHASE UNBALANCED-LOAD POWER

This 3-Phase Unbalanced-Load Power measurement is achieved through the calculation of discrete single-phase measurements that are taken one at a time manually. Since it is not real-time on all 3 phases simultaneously, it is intended only for stable power conditions without significant power fluctuations over the time of measurements. Result accuracy is hence the accumulated accuracy of the discrete single-phase measurements plus the associated fluctuations.

A-LAGS-V INDICATION

LCD annunciator "A-lags-V" turns on to indicate an inductive circuit, or Current A lags Voltage V (i.e., Phase-shift angle is "+"). A-lags-V Indication is specified at 50/60Hz fundamental without the presence of harmonics, and at ACV > 90V, ACA > 9A and PF < 0.95

All Specifications are subject to change without prior notice