

KUSAM-MECO®

An ISO 9001:2015 Company

5-4/5 DIGITS 50000/500,000 COUNTS HAND HELD TRMS DIGITAL MULTIMETER with PC INTERFACE

THINK SAFETY
THINK KUSAM-MECO®
SPECIAL FEATURES

- 500,000 counts high resolution stable reading mode.
- 20kHz Bandwidth voltage function
- Record MAX, MIN, MAX-MIN readings.
- Crest (Instantaneous Peak Hold) MAX, MIN, MAX-MIN readings.
- Relative zero mode.
- dBm readings.
- % 4 -20mA loop current readings.
- High noise rejection filtered Line Level Frequency mode.
- Line Level Frequency with 4 Trigger Levels.
- HBC Fuse Protection

FEATURES :

- DC Voltage Basic Accuracy 0.03%
- Fully Autoranging
- Backlight display.
- Fast Data Measurement 5/sec
- Data Hold function
- Diode Test & Duty Cycle
- Audible & Visible input warning.
- Auto Power Off

GENERAL SPECIFICATIONS :

- * **Sensing :** AC, AC + DC True RMS; Frequency Bandwidth 20kHz (V) & 1kHz (A)
- * **Display :** 4-4/5 digits 50,000 counts. Selectable stable mode 5-4/5 digits 500,000 counts for DC Voltage & 6 digits 999,999 counts for Hz
- * **Update Rate :** 4-4/5 digits fast mode : 5 per second nominal; 5-4/5 digits stable mode : 1.25 per second nominal; 42 Segments Analog Bar graph :60 per second max.
- * **Polarity :** Automatic
- * **Low Battery :** Below approx. 7V
- * **Operating Temperature :** 0°C to 50°C
- * **Relative Humidity :** Maximum 80% R.H. For Temperature upto 31°C decreasing linearly to 50% R.H. at 50°C
- * **Pollution Degree :** 2
- * **Storage Temperature :** -20°C~60°C, < 80% R.H. (With battery removed)
- * **Altitude :** Operating below 2000m
- * **Temperature Coefficient :** nominal 0.1 x (specified accuracy) / °C @ (0°C -- 18°C or 28°C -- 40°C), or otherwise specified
- * **Power Consumption :** 6mA typical
- * **APO Timing :** Idle for 17 minutes
- * **APO Consumption :** 55µA typical
- * **Power Supply :** Single Alkaline 9V battery.
- * **Dimension :** 186(L) mm x 87(W) mm x 35.5(H) mm; 198(L) mm x 97(W) mm x 55(H) mm with Holster
- * **Weight :** Approx. 390 gm, Approx. 500 gm with Holster

SAFETY :

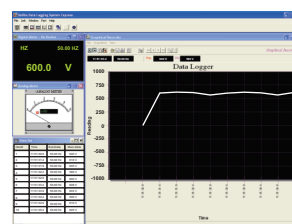
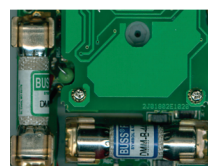
- Double insulation per IEC/UL/EN61010-1Ed.3.0, IEC / EN61010-2-030 Ed. 1.0, IEC / EN61010-2-033 Ed. 1.0, IEC/UL/EN61010-031 Ed. 1.1 and CAN/CSA-C22.2 No. 61010-1-12 Ed. 3.0 to CAT III 1000V AC & DC & CAT IV 600V AC & DC.
- **Transient Protection :** 8KV (1.2/50µs surge)
- **Terminals (to Com) Measurement Category:** V/A/mAµA : Category III 1000V AC & V DC & CAT IV 600V AC & V DC.
- **Overload Protections :** µA & mA : 0.44A/1000V DC/AC rms, IR10kA, F Fuse
A : 11A/1000V DC/AC rms, IR 20kA, F Fuse
V : 1100V DC/AC rms
mV, Ω & Others :1000V DC/AC rms
- **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)
In an RF field of 3V/m:
Capacitance function is not specified
Other function ranges:
Total Accuracy = Specified Accuracy +100 digits
Performance above 3V/m is not specified

ACCESSORIES :

Test Leads pair, Holster, Battery installed, User Manual

OPTIONAL ACCESSORIES :

BRUA-85Xa PC interface kit (BC-85Xa RS232 optical adapter cable + Bs85X Software CD + BUA-2303 USB-to-Serial adaptor), Current Clamp Adaptor CA500, CA1000, CA2000, High Voltage Probe PD-28.

13 FUNCTIONS 42 RANGES**Model KM 857s**
**CAT III
1KV
CAT IV 600V
UL
Approved**
**Software****Software CD****Fuse****Software Cable****All Specifications are subject to change without prior notice**
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 Shop no.18, 1st Floor, CIDCO Shopping Complex, Plot # 9, Sector-7, Rajiv Gandhi Marg,
 Sanpada, Navi Mumbai - 400705. **Sales Direct :** (022) 27754546 **Tel. :** 27750662, 27750292
Email : sales@kusam-meco.co.in **Web.:** www.kusamelectrical.com

ELECTRICAL SPECIFICATIONS : KM 857s

Accuracy is $\pm$ (%Reading digits + number of digits) or otherwise specified, at 23°C $\pm$ 5°C & less than 75% relative humidity.

True RMS Voltage & Current accuracies are specified from 5% to 100% of range or otherwise specified. Maximum Crest Factor < 5:1 at full scale & <10:1 at half scale, and with frequency components within the specified frequency bandwidth for non-sinusoidal waveforms.

DC VOLTAGE

Range	Resolution	Accuracy
500.00 mV	1 μ V	$\pm(0.03\%rdg + 2dgts)$
5.0000 V	10 μ V	
50.000 V	100 μ V	
500.00 V	1 mV	$\pm(0.05\%rdg + 2dgts)$
1000.0 V	10 mV	$\pm(0.1\%rdg + 2dgts)$

NMRR : > 60dB @ 50/60Hz

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

Input Impedance : 10M Ω , 30pF nominal
(80pF nominal for 500mV ranges)

DC CURRENT

Range	Resolution	Accuracy	Burden Voltage
500.00 μ A	10 nA	$\pm(0.15\%rdg + 20dgts)$	0.15 mV/ μ A
5000.0 μ A	0.1 μ A	$\pm(0.1\%rdg + 20dgts)$	0.15 mV/ μ A
50.000 mA	1 μ A	$\pm(0.15\%rdg + 20dgts)$	3.3 mV/mA
500.00 mA	10 μ A	$\pm(0.1\%rdg + 30dgts)$	3.3 mV/mA
5.0000 A	100 μ A	$\pm(0.5\%rdg + 20dgts)$	45 mV/A
10.000 A*	1 mA	$\pm(0.5\%rdg + 20dgts)$	45 mV/A

DC LOOP CURRENT %4--20mA

4mA = 0% (zero);
20mA = 100% (span)

Resolution : 0.01%

Accuracy : $\pm$ 25d

* 10A continuous, >10A to 20A for 30 second max with 5 minutes cool down interval.

AC & AC+DC CURRENT

Range	Resolution	Accuracy	Burden Voltage
50Hz -- 60Hz			
500.00 μ A	10 nA	$\pm(1.0\%rdg + 40dgts)$	0.15mV/ μ A
5000.0 μ A	0.1 μ A		0.15mV/ μ A
50.000 mA	1 μ A		3.3 mV/mA
500.00 mA	10 μ A		3.3 mV/mA
5.0000 A	100 μ A		45 mV/A
10.000 A*	1 mA		45 mV/A
40Hz -- 1kHz			
500.00 μ A	10 nA	$\pm(1.0\%rdg + 40dgts)$	0.15mV/ μ A
5000.0 μ A	0.1 μ A		0.15mV/ μ A
50.000 mA	1 μ A		3.3 mV/mA
500.00 mA	10 μ A		3.3 mV/mA
5.0000 A	100 μ A		45 mV/A
10.000 A*	1 mA		45 mV/A
1kHz -- 10kHz			
500.00 μ A	10 nA	Unspec'd	0.15mV/ μ A
5000.0 μ A	0.1 μ A		0.15mV/ μ A
50.000 mA	1 μ A		3.3 mV/mA
500.00 mA	10 μ A		3.3 mV/mA
5.0000 A	100 μ A		45 mV/A
10.000 A*	1 mA		45 mV/A

*10A continuous, >10A to 20A for 30 second max with 5 minutes cool down interval.

-HZ LINE LEVEL FREQUENCY

Function Range	Sensitivity (sine Rms)	Range
500 mV	100 mV	10Hz ~ 200kHz
5 V	1 V	10Hz ~ 200kHz
50 V	10 V	10Hz ~ 100kHz
500 V	100 V	10Hz ~ 100kHz
1000 V	900 V	10Hz ~ 10kHz

Accuracy : 0.02%+4d

DIODE TESTER

Range	Resolution	Accuracy
5.0000V	100 μ V	$\pm(1\%rdg + 1dgt)$

Test Current(typical) : 0.4mA

Open Circuit Voltage : < 3.5VDC

CAPACITANCE

Range	Resolution	Accuracy*
50.00 nF	10 pF	$\pm(0.8\%rdg+3dgts)$
500.0 nF	100 pF	$\pm(0.8\%rdg+3dgts)$
5.000 μ F	1 nF	$\pm(1.5\%rdg+3dgts)$
50.00 μ F	10 nF	$\pm(2.5\%rdg+3dgts)$
500.0 μ F**	100 nF	$\pm(3.5\%rdg+5dgts)$
9999 μ F**	1 μ F	$\pm(5.0\%rdg+5dgts)$

*Accuracies with film capacitor or better

**In manual-ranging mode, measurement not specified below 45.0 μ F & 450 μ F for 500.0 μ F & 9999 μ F ranges respectively.

AC & AC+DC VOLTAGE

Range	Resolution	Accuracy*
20Hz -- 45Hz		
500.00 mV	10 μV	Unspec'd
5.0000 V	100 μV	
50.000 V	1 mV	
500.00 V	10 mV	
1000.0 V	100 mV	
45Hz -- 300Hz		
500.00 mV	10 μV	±(0.8%rdg + 60dgts)
5.0000 V	100 μV	
50.000 V	1 mV	
500.00 V	10 mV	
1000.0 V	100 mV	
300Hz -- 1kHz		
500.00 mV	10 μV	±(0.8%rdg + 40dgts)
5.0000 V	100 μV	±(2.0%rdg + 60dgts)
50.000 V	1 mV	
500.00 V	10 mV	
1000.0 V	100 mV	±(1.0%rdg + 40dgts)
1kHz -- 20kHz		
500.00 mV	10 μV	1 dB**
5.0000 V	100 μV	2 dB**
50.000 V	1 mV	
500.00 V	10 mV	3 dB**
1000.0 V	100 mV	Unspec'd
20kHz -- 100kHz		
500.00 mV	10 μV	Unspec'd
5.0000 V	100 μV	
50.000 V	1 mV	
500.00 V	10 mV	
1000.0 V	100 mV	

*From 5% to10% of range : Accuracy % of reading(or in dB) + 80d

**From 5% to10% of range : Accuracy % of reading(or in dB) + 180d

** From 10% to 15% of range : Accuracy % of reading(or in dB) + 100d

CMRR : > 80dB @ DC to 60Hz, Rs = 1k Ω

Input Impedance : 10M Ω , 30pF nominal (80pF nominal for 500mV range) Residual reading less than 50 digits with test leads shorted.

RESISTANCE

Range	Resolution	Accuracy
500.00 Ω	10 m Ω	$\pm(0.1\%rdg + 6dgts)$
5.0000 k Ω	100 m Ω	$\pm(0.1\%rdg + 6dgts)$
50.000 k Ω	1 Ω	$\pm(0.1\%rdg + 6dgts)$
500.00 k Ω	10 Ω	$\pm(0.1\%rdg + 6dgts)$
5.0000 M Ω	100 Ω	$\pm(0.4\%rdg + 6dgts)$
50.000 M Ω	1 k Ω	$\pm(2.0\%rdg + 6dgts)$

Open Circuit Voltage : <1.3VDC (<3VDC for 500 Ω range)

HZ LOGIC LEVEL FREQUENCY

Range	Accuracy
5.0000Hz -- 2.00000MHz	$\pm(0.002\%rdg + 4dgts)$

Sensitivities : 2.5Vp square wave

CREST MODE (Instantaneous Peak Hold) :

Accuracy : Specified accuracy $\pm$ 100 digits for changes > 0.8ms in duration

All specifications are subject to change without prior notice.