5-4/5 DIGITS HAND HELD TRMS DIGITAL MULTIMETER WITH PC INTERFACE

50000/500,000 COUNTS

14 FUNCTIONS 43 RANGES

SPECIAL FEATURES

- 100kHz Bandwidth voltage function
- Record MAX, MIN, MAX-MIN readings.
- Crest (Instantaneous Peak Hold) MAX, MIN, MAX- MIN readings.
- Relative zero mode.
- 500,000 counts high resolution stable reading 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 0.02%
- Fully Autoranging
- Backlighted display.
- T1-T2 differential Temperature readings.
- Fast Data Measurement 5/sec
- Data Hold, Diode Test & Duty Cycle
- Audible & Visible input warning.
- Auto Power Off

GENERAL SPECIFICATIONS :

- **Sensing :** AC, AC + DC True RMS; Frequency Bandwidth 100kHz (V) & 10kHz (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 45°C
- **Relative Humidity :** Maximum 80% R.H. For Temperature upto 31°C decreasing linearly to 50% R.H. at 45°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 :** 30µA 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 IEC61010-1 2nd Ed., EN61010-1 2nd Ed., UL61010-1 2nd Ed. & CAN/CSA C22.2 No. 61010.1-0.92 to CAT III 1000V AC & DC and 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, IR 10kA, or better, F fuse
  A : 11A/1000V, IR 20kA or better, F fuse
  V, mV, & Others : 1050Vrms, 1450Vpeak
- **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, Bkp60 banana plug K-type Thermocouple.

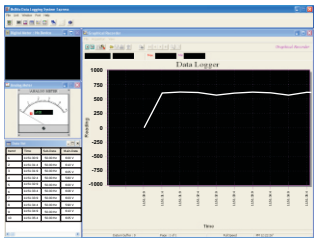
OPTIONAL ACCESSORIES :

PC interface kit, RS232 optical adapter cable + Software CD + BUA-2303 USB-to-Serial adaptor, Bkb32 banana pins to K-type socket plug adapter.

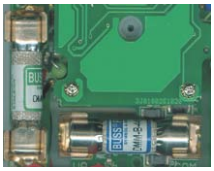
Model KM 859 CF

CAT III 1KV
CAT IV 600V
UL Approved

Software CD



Software



Fuse

Software Cable

Thermocouple

All Specifications are subject to change without prior notice

KUSAM-MECO®

ELECTRICAL SPECIFICATIONS : KM-859 CF

Accuracy is ± (%Reading digits + number of digits) or otherwise specified, at 23°C ± 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
500.000 mV	1 V	±(0.02%rdg + 2dgts)
5.00000 V	10 V	
50.0000 V	100 V	
500.000 V	1 mV	±(0.04%rdg + 2dgts)
1000.00 V	10 mV	±(0.05%rdg + 2dgts)

NMRR : > 60dB @ 50/60Hz
CMRR : > 120dB @ DC, 50/60Hz, Rs = 1k
Input Impedance : 10M , 30pF nominal
(80pF nominal for 500mV ranges)

HZ LOGIC LEVEL FREQUENCY

Range	Accuracy
5.0000Hz--2.00000MHz	0.002%+4d

Sensitivities : 2.5Vp square wave

AC & AC+DC VOLTAGE

Range	Resolution	Accuracy*
20Hz -- 45Hz		
500.00 mV	10 V	±(1.5%rdg + 60dgts)
5.0000 V	100 V	±(1.5%rdg + 60dgts)
50.000 V	1 mV	±(1.5%rdg + 60dgts)
500.00 V	10 mV	Unspec'd
1000.0 V	100 mV	Unspec'd
45Hz -- 300Hz		
500.00 mV	10 V	±(0.3%rdg + 20dgts)
5.0000 V	100 V	±(0.8%rdg + 20dgts)
50.000 V	1 mV	±(0.8%rdg + 20dgts)
500.00 V	10 mV	±(0.4%rdg + 40dgts)
1000.0 V	100 mV	±(0.4%rdg + 40dgts)
300Hz -- 5kHz; 300Hz -- 1kHz		
500.00 mV	10 V	±(0.3%rdg + 10dgts)
5.0000 V	100 V	±(0.4%rdg + 40dgts)
50.000 V	1 mV	±(0.4%rdg + 40dgts)
500.00 V	10 mV	±(0.4%rdg + 40dgts)
1000.0 V	100 mV	±(0.8%rdg + 40dgts) (300Hz--1kHz)
5kHz -- 20kHz		
500.00 mV	10 V	±(0.5%rdg + 20dgts)
5.0000 V	100 V	±(0.8%rdg + 20dgts)
50.000 V	1 mV	±(0.8%rdg + 20dgts)
500.00 V	10 mV	±(0.5%rdg + 20dgts)
1000.0 V	100 mV	Unspec'd
20kHz -- 100kHz		
500.00 mV	10 V	±(2.5%rdg + 40dgts)
5.0000 V	100 V	±(4.0%rdg + 40dgts**)
50.000 V	1 mV	±(4.0%rdg + 40dgts**)
500.00 V	10 mV	Unspec'd
1000.0 V	100 mV	Unspec'd

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

AUDIBLE CONTINUITY TESTER

Audible threshold :
between 20 & 200 .
Response time :
<100 s

DC LOOP CURRENT %4--20mA

4mA = 0% (zero);
20mA = 100% (span)
Resolution : 0.01%
Accuracy : ± 25d

dBm :

At 600 , -11.76dBm to 54.25dBm,
Accuracy :
± 0.25dB + 2d (@40Hz -- 20kHz)
Input Impedance:10M ,30pF nominal
Selectable reference impedance values of 4, 8, 16, 32, 50, 75, 93, 110, 125, 135, 150, 200, 250, 300, 500, 600, 800, 900, 1000, 1200

% DUTY CYCLE

Range	Accuracy
0.1%--99.99%	3d/kHz+2d

Input Frequency : 5Hz -- 500 kHz, 5V Logic Family

CREST MODE (Instantaneous Peak Hold) :

Accuracy : Specified accuracy ± 100 digits for changes > 0.8ms in duration

% DIODE TESTER

Range	Resolution	Accuracy
5.0000V	100 V	±(1%rdg + 1dgt)

Test Current (typical) : 0.4mA
Open Circuit Voltage : < 3.5VDC

DC CURRENT

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

* 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 A	10 nA	±(0.5%rdg + 50dgts)	0.15mV/ A
5000.0 A	0.1 A		0.15mV/ A
50.000 mA	1 A		3.3 mV/mA
500.00 mA	10 A		3.3 mV/mA
5.0000 A	100 A		45 mV/A
10.000 A*	1 mA		45 mV/A
40Hz -- 1kHz			
500.00 A	10 nA	±(0.7%rdg + 50dgts)	0.15mV/ A
5000.0 A	0.1 A		0.15mV/ A
50.000 mA	1 A		3.3 mV/mA
500.00 mA	10 A		3.3 mV/mA
5.0000 A	100 A		45 mV/A
10.000 A*	1 mA		45 mV/A
1kHz -- 10kHz			
500.00 A	10 nA	±(2.0%rdg + 50dgts)	0.15mV/ A
5000.0 A	0.1 A		0.15mV/ A
50.000 mA	1 A		3.3 mV/mA
500.00 mA	10 A		3.3 mV/mA
5.0000 A	100 A	Unspec'd	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.**

CAPACITANCE

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

***Accuracies with film capacitor or better**
****In manual-ranging mode, measurement not specified below 45.0 F & 450 F for 500.0 F & 9999 F ranges respectively.**

RESISTANCE

Range	Resolution	Accuracy
500.00	10 m	±(0.07%rdg+ 10dgts)
5.0000 k	100 m	±(0.07%rdg +2dgts)
50.000 k	1	±(0.07%rdg +2dgts)
500.00 k	10	±(0.07%rdg +2dgts)
5.0000 M	100	±(0.2%rdg +6dgts)
50.000 M	1 k	±(2.0%rdg +6dgts)

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

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