

HIGH SAFETY DIGITAL MULTIMETERS "UL" APPROVED NEW 5 4/5 DIGITS HAND HELD DIGITAL MULTIMETER 50000/500,000 COUNTS

KUSAM-MECO
An ISO 9001:2000 Certified company

General Specifications

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

POLARITY : Automatic

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 Bar graph : 60 per second max.

LOW BATTERY : Below approx. 7V

OPERATING TEMPERATURE : 0°C to 45°C

RELATIVE HUMIDITY :

Maximum relative humidity 80% R.H. For temperature upto 31°C decreasing linearly to 50% relative humidity at 45°C

POLLUTION DEGREE : 2

STORAGE TEMPERATURE : -20°C to 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.

SENSING : AC, AC + DC True RMS

POWER SUPPLY : Single Alkaline 9V battery.

POWER CONSUMPTION : 5mA typical

APO TIMING : Idle for 4.5 minutes

APO CONSUMPTION : 20µA

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 : 390 gm, 500 gm with Holster

SAFETY : The meter is protected, against the users, by double insulation per EN61010-1 and IEC61010-1 2nd Edition (2001) to CAT III 1000V & CAT IV 600V. The meter also meets UL3111-1 (1994) * and CSA C22.2 No. 1010-1-92* to CAT III 1000V

*Category IV safety standard was first released in IEC61010-1 2nd Edition in year 2001, and was yet an UL published standard at the time this catalog was written.

E.M.C. : Meets EN61326(1997, 1998/A1), EN61000-4-2(1995) and EN61000-4-3(1996)

OVERLOAD PROTECTIONS :

µA & mA: 1A/1kV(or 0.44A/1kV)IR 10kA,Ffuse A :15A/1kV,IR 10kA(or 11A/1kV,IR 20kA),F fuse V : 1050 Vrms, 1450 V peak

mV, Ω & Others : 1050 Vrms, 1450 V peak

TRANSIENT PROTECTION :

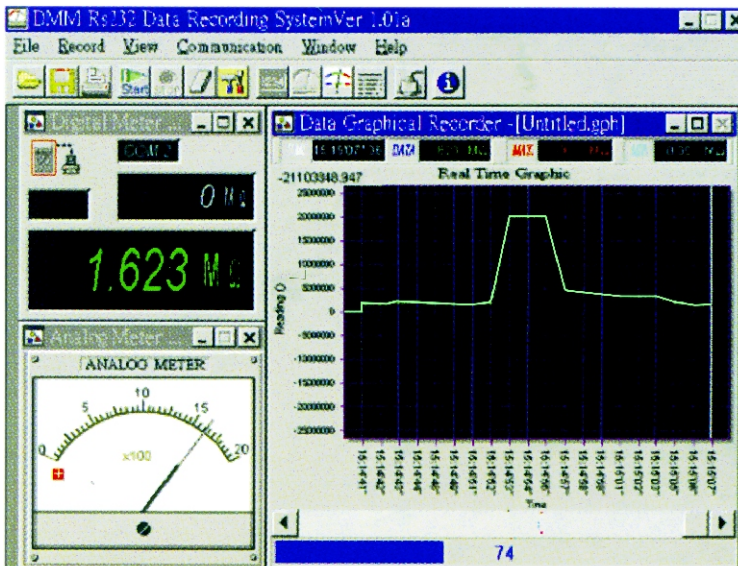
8kV lightning surge (1.2/50µs)

STANDARD ACCESSORIES : Test leads (pair), holster, Battery installed, User's manual, K-type thermocouple x 1.

OPTIONAL ACCESSORIES : PC interface Kit (RS232 optical adapter cable + RS232 Software CD) , pins to type-K socket plug adapter.

SPECIAL FEATURES : 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. Backlighted display. dBm readings. T1-T2 differential temperature readings. %4-20 mA loop current readings. High noise rejection filtered Line Level Frequency mode. Data Hold. Audible & Visible input warning.

Model KM 859CF



All specifications are subject to change without prior notice.

ELECTRICAL SPECIFICATIONS

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 spectrums, besides fundamentals, fall within the meter specified AC bandwidth for non-sinusoidal waveforms.

DC Voltage

Range	Accuracy
500.00mV	0.02%rdg + 2dgts
5.0000 V	0.02%rdg + 2dgts
50.000 V	0.02%rdg + 2dgts
500.00 V	0.04%rdg + 2dgts
1000.0 V	0.05%rdg + 2dgts

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

AC & AC+DC Voltage

Range	Accuracy
20Hz -- 45Hz	
500.00mV	1.5% rdg + 40 dgts
5.0000V	1.5% rdg + 40 dgts
50.000V	1.5% rdg + 40 dgts
500.00V	Unspec'd
1000.0V	Unspec'd
45Hz -- 300Hz	
500.00mV	0.3% rdg + 20 dgts
5.0000V	0.8% rdg + 20 dgts
50.000V	0.8% rdg + 20 dgts
500.00V	0.4% rdg + 40 dgts
1000.0V	0.4% rdg + 40 dgts
300Hz -- 5kHz	
500.00mV	0.3% rdg + 10 dgts
5.0000V	0.4% rdg + 40 dgts
50.000V	0.4% rdg + 40 dgts
500.00V	0.4% rdg + 40 dgts
1000.0V	0.8% rdg + 40 dgts (300Hz--1kHz)
5kHz -- 20kHz	
500.00mV	0.5% rdg + 20 dgts
5.0000V	0.8% rdg + 20 dgts
50.000V	0.8% rdg + 20 dgts
500.00V	0.5% rdg + 20 dgts
1000.0V	Unspec'd
20kHz -- 100kHz	
500.00mV	2.0% rdg + 40 dgts
5.0000V	4.0% rdg + 40dgts**
50.000V	4.0% rdg + 40dgts**
500.00V	Unspec'd
1000.0V	Unspec'd

*From 5% to 10% of range : accuracy % of reading (or in dB)+80d
 **From 5% to 10% of range : accuracy % of reading (or in dB)+180d
 ** From 10% to 15% of range : accuracy % of reading (or in dB) + 100d
 CMRR : > 90dB @ DC to 60Hz, Rs = 1kΩ
 Input Impedance : 10MΩ, 30pF nominal (80pF nominal for 500mV range)
 Residual reading less than 50 digits with test leads shorted.

Crest mode (Instantaneous Peak Hold) :
Accuracy : Specified accuracy ± 100 digits for changes > 0.8ms in duration

Hz Logic Level Frequency

Range	Accuracy
5.0000Hz--2.0000MHz	0.002%+4d

Sensitivities : 2.5Vp square wave

T1-T2 Dual Temperature

Range	Accuracy
-50.0°C ~ 1000.0°C	0.3% + 1°C
-58.0°F ~ 1832.0°F	0.3% + 2°F

Thermocouple range & accuracy not included

Ohms

Range	Accuracy
500.00 Ω	0.07% + 10d
5.0000 kΩ	0.07% +2d
50.000 kΩ	0.07% +2d
500.00 kΩ	0.07% +2d
5.0000 MΩ	0.2% +6d
50.000 MΩ	2.0% +6d

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

Capacitance

Range	Accuracy*
50.00nF	0.8% +3d
500.0nF	0.8% +3d
5.000μF	1.0% +3d
50.00μF	2.0% + 3d
500.0μF	3.5% + 5d
9999μF	5.0% +5d

*Accuracies with film capacitor or better

% Duty Cycle

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

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

DC Loop Current

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

1) Audible Continuity Tester

Audible threshold :
 between 20Ω and 120Ω.
Response time : < 100μs

AC & AC+DC Current

Range	Accuracy	Burden Voltage
50Hz -- 60Hz		
500.00μA	0.5% + 50d	0.15mV/μA
5000.0μA	0.5% + 50d	0.15mV/μA
50.000mA	0.5% + 50d	3.3mV/mA
500.00mA	0.5% + 50d	3.3mV/mA
5.0000A	0.5% + 50d	0.03V/A
10.000A*	0.5% + 50d	0.03V/A
40Hz -- 1kHz		
500.00μA	0.7% + 50d	0.15mV/μA
5000.0μA	0.7% + 50d	0.15mV/μA
50.000mA	0.7% + 50d	3.3mV/mA
500.00mA	0.7% + 50d	3.3mV/mA
5.0000A	0.7% + 50d	0.03V/A
10.000A*	0.7% + 50d	0.03V/A
1kHz -- 10kHz		
500.00μA	2.0% + 50d	0.15mV/μA
5000.0μA	2.0% + 50d	0.15mV/μA
50.000mA	2.0% + 50d	3.3mV/mA
500.00mA	2.0% + 50d	3.3mV/mA
5.0000A	Unspec'd	0.03V/A
10.000A*	Unspec'd	0.03V/A

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

DC Current

Range	Accuracy	Burden Voltage
500.00μA	0.15% rdg + 20dgts	0.15mV/μA
5000.0μA	0.1% rdg + 20dgts	0.15mV/μA
50.000mA	0.15% rdg + 10dgts	3.3mV/mA
500.00mA	0.1% rdg + 20dgts	3.3mV/mA
5.0000A	0.5% rdg + 10dgts	0.03V/A
10.000A*	0.5% rdg + 20dgts	0.03V/A

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

Diode Tester

Range	Accuracy	Test Current (Typical)	Open Circuit Voltage
5.0000V	1 %+1d	0.8mA	< 3.5 VDC

dBm :
 At 600Ω, -11.76dBm to 54.25dBm,
Accuracy : ± 0.25dB + 2d (@40Hz -- 20kHz)
Input Impedance : 10MΩ, 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, 1200Ω

Hz Line Level Frequency

Range	Accuracy
5.0000Hz--200.000kHz	0.002%+4d

Sensitivities (Sine RMS): 0.1V min @500mV range
 1V min @5V range
 10V min @ 50V range
 100V min @500V range
 900V min @1000V range



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