KUSAM-MECO®

An ISO 9001:2015 Company

TRUE RMS DIGITAL INSULATION MULTIMETER

THINK SAFETY
THINK KUSAM-MECO®

24 FUNCTIONS 79 RANGES

MODEL KM 878



Preliminary Data

SPECIAL FEATURES :

- VFD V & Hz readings.
- Paper-White Backlight LCD Display
- Record MAX / MIN readings.
- Display Hold Function.
- Dual Digital Display.
- Autoranging.
- LOCK-Test mode for Insulation Resistance & Earth Continuity Test.
- BeepJack™ audible & visible input warning.
- Remote Probe for insulation Resistance & Earth Continuity Test.

GENERAL SPECIFICATIONS :

✶ **Sensing :** AC, True RMS
✶ **Display :** 3-5/6 digits 6000 Counts Backlight LCD Display.
✶ **Polarity :** Automatic
✶ **Update Rate :** 5 per second nominal
✶ **61 Segments Analog Bar Graph :** 60 per second max.
✶ **Power Supply:** Four Alkaline AA batteries
✶ **Power Consumption:** 4.5mA typical except : ACV $^{+Hz}$ & VFD ACV $^{+Hz}$: 7.0mA
Earth Continuity Test : 110mA @20Ω range, 220mA @2.0Ω range.
Tester can perform at least 3000 Earth Continuity Test measurements with new alkaline batteries at room temperature. These are standard test of 1Ω with a duty cycle of 5 seconds on & 25 seconds off.
Insulation Resistance @ 1mA Test Current :
50V output Voltage : 25mA, 100V output Voltage : 45mA
250V output Voltage : 85mA, 500V output Voltage : 170mA
1000V output Voltage : 440mA
Tester can perform at least 950 Insulation Tests with new alkaline batteries at room temperature. These are standard tests of 1000V into 1MΩ with a duty cycle of 5 seconds on and 25 seconds off.
✶ **Operating Temperature :** -10ºC ~ 40ºC
✶ **Relative Humidity :** Maximum relative humidity 90% for temperature up to 28ºC decreasing linearly to 50% relative humidity at 40ºC.
✶ **Pollution degree :** 2
✶ **IP Rating Design :** IP40
✶ **Storage Temperature :** -20ºC ~ 60ºC, < 80% R.H. (with battery removed)
✶ **Altitude :** Operating below 2000m
✶ **Temperature Coefficient :** Nominal 0.15 x (specified accuracy)/ °C @(-10ºC~18ºC or 28ºC~40ºC), or otherwise specified.
✶ **Low Battery:** approx. 4.6V
✶ **APO Timing:** Idle for 20 minutes
✶ **APO Consumption:** 50µA typical
✶ **Auto or Manual-ranging mode.**
✶ **Auto Power Off.**
✶ **Dimension:** 208(L) X 103(W) X 64.5(H) mm with holster
✶ **Weight:** 635 gm with holster.

SAFETY :

✶ **Safety :** Double insulation per IEC/UL/EN61010-1 Ed. 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 1000 V AC & DC and CAT IV 600V AC & DC.
✶ **Compliance to IEC/EN61557; 2007 (per CE requirements, not certified by UL or ETL) :** IEC/EN61557-1, IEC/EN61557-2 & IEC/EN61557-4 where applicable.
✶ **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:
Total Accuracy = Specified Accuracy + 25 digits.
Performance above 3V/m is not specified.
✶ **Transient Protection :** 8KV(1.2/50µS Surge)
✶ **Overload Protections :**
Insulation Resistance & mA : 0.4A/1KV, IR 30kA or better
Earth Continuity Test : 0.25A/1KV, IR 30kA or better
V : 1100Vrms
mV, Ω & Others : 1000 Vrms

ACCESSORIES : Test probe pair, BRP21S2-C Remote probe, Alligator clip pair, Holster, User manual & Carrying Case.

OPTIONAL ACCESSORIES : BKB32 banana plug to type-K socket plug adaptor & Magnetic hanger.

All Specifications are subject to change without prior notice

ELECTRICAL SPECIFICATIONS : KM 878

Accuracy is ± (% of reading digits + number of digits) or otherwise specified, at 23°C ± 5°C & less than 80%relative humidity.

True RMS voltage & current accuracies are specified from 1 % to 100 % of range or otherwise specified.

Maximum Crest Factor < 1.70:1 at full scale & < 3.4:1 at half scale, and with frequency components fall within the specified frequency bandwidth for non-sinusoidal waveforms.

DC VOLTAGE

Range	Resolution	Accuracy
6.000 V	1 mV	±(0.2%rdg + 3dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	±(0.3%rdg + 3dgts)

Input Impedance : 10MΩ, 110pF nominal

VFD AC VOLTAGE

Range	Resolution	Accuracy[1)]
10Hz ~ 45Hz		
600.0 V	100 mV	±(4%rdg + 5dgts)
45Hz ~ 200Hz		
600.0 V	100 mV	±(2%rdg + 5dgts)
200Hz ~ 440Hz		
600.0 V	100 mV	±(7%rdg + 5dgts[2)])

[1)] Unspecified for fundamental frequency > 440Hz

[2)] Accuracy linearly decreases from 2% + 5d @ 200Hz to 7% + 5d @ 440Hz

Input impedance : 10MΩ, 110pF nominal.

ACmV

Range	Resolution	Accuracy
50Hz ~ 60Hz		
60.00 mV	10 μV	±(1%rdg + 3dgts)
600.0 mV	100 μV	
60Hz ~ 3kHz		
60.00 mV	10 μV	±(2%rdg + 3dgts)
600.0 mV	100 μV	
3kHz ~5kHz		
60.00 mV	10 μV	±(3%rdg + 5dgts)
600.0 mV	100 μV	

Input Impedance : 10MΩ, 140pF nominal

DCmA

Range	Resolution	Accuracy
60.00 mA	10 μA	±(0.5%rdg + 3dgts)
600.0 mA	100 μA	

Burden Voltage : 3.0 mV/mA

AC VOLTAGE

Range	Resolution	Accuracy
50Hz ~ 60Hz		
6.000 V	1 mV	±(1%rdg + 3dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	
60Hz ~ 1kHz		
6.000 V	1 mV	±(2%rdg + 3dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	
1kHz ~ 3kHz		
6.000 V	1 mV	±(2%rdg + 3dgts)
60.00 V	10 mV	
600.0 V	100 mV	Unspecified
1000 V	1 V	
3kHz ~ 5kHz		
6.000 V	1 mV	±(4%rdg + 5dgts)
60.00 V	10 mV	
600.0 V	100 mV	Unspecified
1000 V	1 V	

Input Impedance : 10MΩ, 110pF nominal

DCmV

Range	Resolution	Accuracy
60.00 mV	10 μV	±(0.5%rdg + 3dgts)
600.0 mV	100 μV	±(0.1%rdg + 3dgts)

Input impedance : 10MΩ, 140pF nominal.

ACmA

Range	Resolution	Accuracy
50Hz ~ 1kHz		
60.00 mA	10 μA	±(1.5%rdg + 3dgts)
600.0 mA	100 μA	

Burden Voltage : 3.0 mV/mA

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ELECTRICAL SPECIFICATIONS : KM-878

INSULATION RESISTANCE

Test Voltage[1]	Range	Test Current	Accuracy
50 V	3.000MΩ, 30.00MΩ, 55.0MΩ	1mA @50kΩ	±(1.5%rdg + 5dgts)
100 V	3.000MΩ, 30.00MΩ, 110.0MΩ	1mA @100kΩ	
250 V	3.000MΩ, 30.00MΩ, 275.0MΩ	1mA @250kΩ	
500 V	3.000MΩ, 30.00MΩ, 300.0MΩ, 550.0MΩ	1mA @500kΩ	
1000 V	3.000MΩ, 30.00MΩ, 300.0MΩ	1mA @1MΩ	±(1.5%rdg + 5dgts)
	3000MΩ		±(2.0%rdg + 5dgts)
	25.0GΩ		±(10%rdg + 5dgts)

[1] **Actual output voltage :** 100% ~ 120% of Test Voltage

Live Circuit Detector : Inhibit test and display voltage reading instead if terminal voltage > 30V prior to initialization of test.

Display Voltage Accuracy : DCV : 1.5% + 5d

Specified measuring range is 0.020MΩ....25.0GΩ for percentage operating uncertainly B(%) ≤ ± 30% per IEC/EN61557-2 requirements.

~ Hz Line Level Frequency

Function Range	Sensitivity (Sine RMS)	Range
60 mV	6 mV	10Hz ~ 50kHz
600 mV	60 mV	10Hz ~ 100kHz
6 V	0.6 V	10Hz ~ 20kHz
60 V	6 V	
600 V	60 V	10Hz ~ 3kHz
1000 V	600 V	
VFD 600 V	60~240 V[1]	10Hz ~ 440Hz
60 mA	6 mA	10Hz ~ 5kHz
600 mA	60 mA	

Accuracy : ±(0.02%rdg + 4dgts)

[1] VFD sensitivity linearly decreases from 10% F.S. @200Hz to 40% F.S. @440Hz.

TEMPERATURE

Range	Accuracy[1]
-50.0ºC ~ 0.0ºC	2% + 3ºC
0.0ºC ~50.0ºC	2.2ºC
50.0ºC ~ 537.0ºC	2% + 2ºC
-58.0ºF ~ 32.0ºF	2% + 6ºF
32.0ºF ~ 122.0ºF	4.4ºF
122.0ºF ~ 999.0ºF	2% + 4ºF

[1] K-type thermocouple range & accuracy not included.

AUDIBLE CONTINUITY TESTER

Audible Threshold	Between 20Ω and 200Ω
Response Time	< 30ms approx.

Earth Continuity Test

Range	Test Current	Accuracy	Measuring Range[1]
2.000 Ω	> 200 mA	±(1.5%rdg +3dgts)	0.015Ω ~ 2.199Ω
20.00 Ω	> 90 mA		0.15Ω ~ 21.99Ω

Open Circuit Voltage : > 4VDC

Live Circuit Detector : Inhibit test if terminal voltage > 2V prior to initialization of test.

[1] Specified measuring range at percentage operating uncertainly B(%) ≤ ± 30% per IEC/EN61557-4 requirements.

RESISTANCE

Range	Resolution	Accuracy
600.0Ω	100 mΩ	±(0.9%rdg + 5dgts)
6.000kΩ	1 Ω	±(0.9%rdg + 2dgts)
60.00kΩ	10 Ω	
600.0kΩ	100 Ω	
6.000MΩ	1 kΩ	±(1.2%rdg + 3dgts)
60.00MΩ	10 kΩ	±(3.0%rdg + 6dgts)

Open Circuit Voltage : < 1.5VDC typical

CAPACITANCE

Range	Resolution	Accuracy[1]
3.000 μF[2]	1 nF	±(1.5%rdg + 5dgts)
30.00 μF	10 nF	
300.0 μF	100 nF	
3000 μF	1 μF	
30.00 mF	10 μF	±(10%rdg + 5dgts)

[1] Accuracies with film capacitor or better.

[2] Reading not available below 180nF.

DIODE TESTER

Range	Resolution	Accuracy[1]
2.000 V	1 mV	±(1.5%rdg + 4dgts)

Test Current : 0.5mA typically

Open Circuit Voltage : < 2.8VDC typically

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