KUSAM-MECO®
An ISO 9001:2015 Company

AC / DC TRMS Clamp-On Multimeter with VFD, EF-Detection & PC Interface

THINK SAFETY
THINK KUSAM-MECO®

Model KM 2777 - TRUE RMS SENSING

SPECIAL FEATURES :

- AutoCheck ™ Voltage & Ohms
- VFD-V & VFD-Hz function
- 5ms CREST-MAX capture mode (Peak Hold)
- Autoranging Relative -Zero mode
- Display Hold function
- EF-Detection (NCV)
- Backlight LCD Display
- Auto Power Off
- Diode Test & Continuity Test
- PC Interface (Optional)



Preliminary Data

GENERAL SPECIFICATIONS :

- ✶ **Sensing :** TRMS sensing
- ✶ **Jaw Opening :** 55mm max.
- ✶ **Display :** 3-5/6 digits 6000 counts & 3½ digits 1,999 counts for Hz.
- ✶ **Update Rate :** 5 per second nominal
- ✶ **Polarity :** Automatic
- ✶ **Low Battery :** Below approx 2.4V
- ✶ **Operating Temperature :** 0°C to 40°C
- ✶ **Relative Humidity :** Maximum 80% R. H. for temperature upto 31°C decreasing linearly to 50% Relative Humidity at 40°C
- ✶ **Storage Temperature :** -20°C to 60°C, < 80% R.H. (With battery removed)
- ✶ **Altitude :** Operating below 2000m
- ✶ **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 :** Typical 14mA for Current function, & 5.2mA for others.
- ✶ **APO Timing :** Idle for 34 minutes
- ✶ **APO Consumption :** 10μA typical
- ✶ **Dimension :** 264(L) x 97(W) x 43(H) mm
- ✶ **Weight :** Approx. 608gm.
- ✶ **Accessories :** Test leads (pair), user's manual, Bkp60 banana plug K-type Thermocouple x 1 & carrying case.
- ✶ **Optional Accessories :** USB interface kit BRUA-19X, BKB32 banana plug to type-K socket plug adaptor

SAFETY :

- Double insulation per IEC/EN61010-1 2nd Ed., UL61010-1 2nd Ed., & CAN/CSA C22.2 No.61010.1-0.92 to Category CAT IV 1000V AC & DC.
- **Transient Protection :** 12 kV (1.2/50μs surge)
- **Overload Protection :**
  Clamp-on jaws : 2000A rms continuous
  " + " & COM Terminals (all other functions) : 1000V rms.
- **Pollution degree :** 2
- **EMC :** 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 + 200 digits
  Performance above 3V/m is not specified.

ELECTRICAL SPECIFICATIONS : KM 2777

Accuracy is ± (% readings digits + number of digits) or otherwise specified, at 23°C ± 5°C & less than 75% R.H.
True RMS Model KM 2777 voltage accuracies are specified from 5% to 100% of range or otherwise specified.
Maximum Crest Factor <1.4:1 at full scale & <2.8:1 at half scale, & with frequency components within the specified frequency bandwidth for non-sinusoidal waveforms.

ACA CURRENT(Clamp on)

Range	Resolution	Accuracy[1)]
50Hz – 60Hz		
200.0 A	100 mA	±(2.0%rdg + 5dgts)
0 ~ 500 A	1 A	±(2.5%rdg + 5dgts)
500~2000 A	1 A	±(3.0%rdg + 5dgts)
40Hz~50Hz & 60Hz~400Hz		
200.0 A	100 mA	±(2.5%rdg + 5dgts)
0 ~ 500 A	1 A	±(3.0%rdg + 5dgts)
500~1000 A	1 A	±(3.5%rdg + 5dgts)
1000~2000 A	1 A	Unspecified

True RMS Crest Factor :
< 1.4:1 at full scale & <2.8:1 at half scale
[1)]Induced error from adjacent current carrying conductor : <0.1A/A

DCA CURRENT(Clamp on)

Range	Resolution	Accuracy[1)2)]
200.0 A	100 mA	±(2.0%rdg + 5dgts)
0 ~ 500 A	1 A	±(2.0%rdg + 5dgts)
500~2000 A	1 A	±(2.5%rdg + 5dgts)

[1)]Induced error from adjacent current carrying conductor : <0.1A/A
[2)]Specified with Relative Zero Δ mode applied to offset the non-zero residual readings, if any.

DC + ACA CURRENT(Clamp on)

Range	Resolution	Accuracy[1)2)]
DC, 50Hz ~ 60Hz		
200.0 A	100 mA	±(3.0%rdg + 8dgts)
2000 A	1 A	
40Hz ~ 50Hz & 60Hz ~ 400Hz		
200.0 A	100 mA	±(3.5%rdg + 8dgts)
0 ~ 1000 A	1 A	
1000~2000 A	1 A	Unspecified

True RMS Crest Factor :
< 1.4:1 at full scale & <2.8:1 at half scale
[1)]Induced error from adjacent current carrying conductor : <0.1A/A
[2)]Specified with Relative Zero Δ mode applied to offset the non-zero residual readings, if any.

Note: All Specification are Subject to change without prior notice.

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ELECTRICAL SPECIFICATIONS : KM 2777

DC VOLTAGE

Range	Resolution	Accuracy
6.000 V	1 mV	±(0.5%rdg + 5dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	

Input Impedance : 10MΩ, 50pF nominal

AC VOLTAGE

Range	Resolution	Accuracy
50Hz ~ 400Hz		
6.000 V	1 mV	±(1.2%rdg + 5dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	

Input Impedance : 10MΩ, 50pF nominal

AC + DC VOLTAGE

Range	Resolution	Accuracy
DC, 50Hz ~400Hz		
6.000 V	1 mV	±(1.4%rdg + 7dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	

Input Impedance : 10MΩ, 50pF nominal

VFD_ ACV (with Low Pass Filter)

Range	Resolution	Accuracy [1]
10Hz ~ 20Hz		
6.000 V	1 mV	±(4%rdg + 80dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	
20Hz ~ 200Hz		
6.000 V	1 mV	±(2%rdg + 60dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	
200Hz~420Hz[2]		
6.000 V	1 mV	±(7%rdg + 80dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	

[1] Not specified for fundamental frequency > 400Hz

[3] Accuracy linearly decreases from 2% + 50d @ 200Hz to 7% + 80d @ 400Hz

AUTOCHECK™_ACV

Range	Resolution	Accuracy [1]
50Hz ~ 60Hz		
6.000 V	1 mV	±(1.5%rdg + 5dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	

AutoCheck™ Lo-Z ACV Threshold : >1.5V (50/60Hz) nominal.

AutoCheck™ Lo-Z ACV input impedance :

Initially approx. 2.5kΩ, 600pF nominal; impedance increases abruptly within a fraction of a second as display voltage is above 50V (typical). Ended up impedances vs display voltages typically are :

10 kΩ @ 100V
60 kΩ @ 300V
200kΩ @ 600V
420kΩ @ 1000V

AUTOCHECK™_DCV

Range	Resolution	Accuracy
6.000 V	1 mV	±(1.3%rdg + 5dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	

AutoCheck™ Lo-Z DCV Threshold : >+1.5VDC & <-1.5VDC nominal.

AutoCheck™ Lo-Z DCV input impedance :

Initially approx. 2.5kΩ, 600pF nominal; impedance increases abruptly within a fraction of a second as display voltage is above 50V (typical). Ended up impedances vs display voltages typically are :

10 kΩ @ 100V
60 kΩ @ 300V
200kΩ @ 600V
420kΩ @ 1000V

CAPACITANCE

Range	Resolution	Accuracy [1]
60.00 nF	10 pF	±(2.0%rdg + 5dgts)
600.0 nF	100 pF	
6.000 µF	1 nF	
60.00 µF	10 nF	±(3.5%rdg + 5dgts)[2]
600.0 µF	100 nF	
2000 µF	1 µF	±(4.0%rdg + 5dgts)[2]

[1] Accuracies with film capacitor or better

[2] Temperature Coefficient : 0.25 x (specified accuracy) / °C @ (0°C ~ 18°C or 28°C ~ 40°C)

NON-CONTACT EF-DETECTION

Typical Voltage	Bar-Graph Indication
20V (tolerance : 10V ~ 36V)	-
55V (tolerance : 23V ~ 85V)	- - -
110V (tolerance : 59V ~ 600V)	- - - - -

Indication : Bar-graph segments & audible beep tones proportional to the field strength

Detection Frequency : 50/60Hz

Detection Antenna : Top side of the stationary jaw

Probe-Contact EF-Detection: For more precise indication of live wires, such as distinguishing between live and ground connections, use the Red (+) test probe for direct contact measurement.

~Hz LINE LEVEL FREQUENCY

Function	Sensitivity (Sine RMS)	Range
6 V	2 V	40Hz ~ 1999Hz
60 V	20 V	40Hz ~ 1999Hz
600 V	100 V	40Hz ~ 1999Hz
1000 V	600 V	40Hz ~ 1999Hz
200 A	10 A	20Hz ~ 400Hz
2000 A	40 A	20Hz ~ 400Hz
VFD 6 V[1]	1 V ~ 2 V	10Hz ~ 400Hz
VFD 60 V[1]	6 V ~ 20 V	10Hz ~ 400Hz
VFD 600 V[1]	60 V ~ 200 V	10Hz ~ 400Hz

Accuracy : 0.1% + 4d

[1] VFD sensitivity linearly decreases from 10% F.S. @ 200Hz to 40% F.S. @ 400Hz

TEMPERATURE

Range	Resolution	Accuracy
-50°C ~ 1000°C	1°C	±(0.3%rdg + 4dgts)
-58°F ~ 1832°F	1°F	±(0.3%rdg + 6dgts)

K-type Thermocouple range & accuracy not included

OHM & AUTOCHECK™ _OHM[1]

Range	Resolution	Accuracy
600.0 Ω	0.1 Ω	±(0.5%rdg + 5dgts)
6.000 KΩ	1 Ω	
60.00 KΩ	10 Ω	
600.0 KΩ	100 Ω	±(0.8%rdg + 5dgts)
6.000 MΩ	1 KΩ	±(1.2%rdg + 5dgts)
40.00 MΩ	10 KΩ	±(2.3%rdg + 5dgts)

Open Circuit Voltage : 0.45VDC typical.

[1] **AutoCheck™ OhmThreshold :** <10.00MΩ nominal.

CREST-MAX CAPTURE MODE

Accuracy :
Specified accuracy plus 250 digits for changes > 5ms in duration

AUDIBLE CONTINUITY TESTER

Audible Threshold	Response Time
between 10Ω and 200Ω	32ms approx.

DIODE TESTER

Range	Test Current (Typical)	Open Circuit Voltage
1.000V	0.56mA	<1.8V DC typical

Accuracy : 1.0% + 3d

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