

## AC / DC TRMS Clamp-On Multimeter with VFD, EF-Detection, PC Interface & Extended 1500V DC Range

MODEL KM 2777S

### SPECIAL FEATURES :

- Extended >1000 ~ 1500V DC range suitable for solar
- 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)

### 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 2<sup>nd</sup> Ed., UL61010-1 2<sup>nd</sup> 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 2777S

Accuracy is ± (% readings digits + number of digits) or otherwise specified, at 23°C ± 5°C & less than 75% R.H.

True RMS 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 <sup>1)</sup>
<b>50Hz – 60Hz</b>		
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)
<b>40Hz~50Hz &amp; 60Hz~400Hz</b>		
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

<sup>1)</sup>Induced error from adjacent current carrying conductor :

<0.1A/A

#### DCA CURRENT(Clamp on)

Range	Resolution	Accuracy <sup>1)2)</sup>
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)

<sup>1)</sup>Induced error from adjacent current carrying conductor : <0.1A/A

<sup>2)</sup>Specified with Relative Zero Δ mode applied to offset the non-zero residual readings, if any.

#### DC + ACA CURRENT(Clamp on)

Range	Resolution	Accuracy <sup>1)2)</sup>
<b>DC, 50Hz ~ 60Hz</b>		
200.0 A	100 mA	±(3.0%rdg + 8dgts)
2000 A	1 A	
<b>40Hz ~ 50Hz &amp; 60Hz ~ 400Hz</b>		
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

<sup>1)</sup>Induced error from adjacent current carrying conductor :

<0.1A/A

<sup>2)</sup>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.

## ELECTRICAL SPECIFICATIONS : KM 2777S

### 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	
1000 ~ 1500V	1 V	

Input Impedance : 10MΩ, 50pF nominal

### AC VOLTAGE

Range	Resolution	Accuracy
<b>50Hz ~ 400Hz</b>		
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
<b>DC, 50Hz ~400Hz</b>		
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 <sup>1)</sup>
<b>10Hz ~ 20Hz</b>		
6.000 V	1 mV	±(4%rdg + 80dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	
<b>20Hz ~ 200Hz</b>		
6.000 V	1 mV	±(2%rdg + 60dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	
<b>200Hz~420Hz<sup>2)</sup></b>		
6.000 V	1 mV	±(7%rdg + 80dgts)
60.00 V	10 mV	
600.0 V	100 mV	
1000 V	1 V	

<sup>1)</sup> Not specified for fundamental frequency > 400Hz<sup>2)</sup> Accuracy linearly decreases from 2% + 50d @ 200Hz to 7% + 80d @ 400Hz

### AUTOCHECK™\_ACV

Range	Resolution	Accuracy <sup>1)</sup>
<b>50Hz ~ 60Hz</b>		
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 : &gt;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 : &gt;+1.5VDC &amp;

&lt;-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 <sup>1)</sup>
60.00 nF	10 pF	±(2.0%rdg + 5dgts)
600.0 nF	100 pF	
6.000 μF	1 nF	±(3.5%rdg + 5dgts) <sup>2)</sup>
60.00 μF	10 nF	
600.0 μF	100 nF	±(4.0%rdg + 5dgts) <sup>2)</sup>
2000 μF	1 μF	

<sup>1)</sup> Accuracies with film capacitor or better<sup>2)</sup> Temperature Coefficient : 0.25 x (specified accuracy) / °C @ (0°C ~ 18°C or 28°C ~ 40°C)

### OHM & AUTOCHECK™\_OHM<sup>1)</sup>

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

Open Circuit Voltage : 0.45VDC typical.

<sup>1)</sup>AutoCheck™ OhmThreshold : <10.00MΩ nominal.

### ~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 <sup>1)</sup>	1 V ~ 2 V	10Hz ~ 400Hz
VFD 60 V <sup>1)</sup>	6 V ~ 20 V	10Hz ~ 400Hz
VFD 600 V <sup>1)</sup>	60 V ~ 200 V	10Hz ~ 400Hz

Accuracy : 0.1% + 4d

<sup>1)</sup>VFD sensitivity linearly decreases from 10% F.S. @ 200Hz to 40% F.S. @ 400Hz

### NON-CONTACT EF-DETECTION

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

Indication : Bar-graph segments &amp; 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.

### 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 &amp; accuracy not included

### CREST-MAX CAPTURE MODE

<b>Accuracy :</b> Specified accuracy plus 250 digits for changes > 5ms in duration
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### 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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 An ISO 9001:2015 Company

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