

### MODEL KM 525



CAT IV  
1 KV

IP54



#### ACCESSORIES :

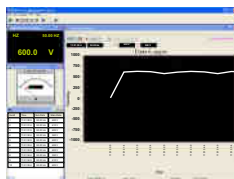
Test lead pair, Battery installed, User Manual,  
One BKP60 banana plug type-K Thermocouple

#### OPTIONAL ACCESSORIES :

PC interface kit BU-82X; BMH-01 Magnetic Hanger;  
BKB32 banana plug to type-K socket plug adaptor.  
Current Clamp Adaptor CA500, CA1000, CA2000,  
High Voltage Probe PD-28.



Software CD



Software



Fuse



Software Cable



Thermocouple



Magnetic Hanger

KM 525 Stand-alone logging capability 43500 / 87000 points for dual / single display with selectable logged interval 0.05s, 0.1s, 0.5s, 1s, 2s, 3s, 4s, 5s, 10s, 15s, 30s, 60s, 120s, 180s, 300s, 600s.

#### SPECIAL FEATURES :

- Stand alone Multi Parameter logging.
- Record Max/Min/MAX-MIN readings, Auto Ranging
- Audible & Visible Input Warning;
- Auto-Ranging Relative Zero Mode
- AutoCheck V & Auto-Ranging 50ms Record;
- T1-T2 differential temperature readings
- NCV & Probe-Contact EF-Detection
- nS conductance
- Lo-Z volts to drain Ghost Voltages (AutoCheck Feature)
- Logic & Line Level Frequency
- Logic Level Duty Cycle Readings

#### FEATURES :

- DC Voltage basic Accuracy 0.08%
- 4 digit 10,000 counts Backlight Dual Digital LCD Display
- Low Battery Indication
- AC, AC+DC True RMS Conversion; Frequency Bandwidth 20kHz (V) & 1kHz (A)
- Fast Measurements, 5/sec
- Auto Power Off

#### GENERAL SPECIFICATIONS :

- \* Sensing : AC, AC+DC True RMS
- \* Display :  
9999 Counts : ACV, DCV, Hz & nS  
6000 Counts : mV,  $\mu$ A, mA, A, Ohm & Capacitance
- \* Update Rate :  
Digital Display : 5 per second nominal;  
41 Segments Bar-graph : 60 per second max
- \* Low Battery : Below approx 7V
- \* Operating Temperature : 0°C to 45°C
- \* Relative Humidity : Maximum 80% R.H. For Temperature up to 31°C decreasing linearly to 50% R.H. at 45°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 ~ 45°C), or otherwise specified
- \* Power Consumption : 5mA typical
- \* APO Timing : Idle for 30 minutes
- \* APO Consumption : 50 $\mu$ A typical
- \* Power Supply : Single 9V battery
- \* Dimension : 208(L) x 103(W) x 64.5(H) mm
- \* Weight : Approx. 635gm with holster

#### 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 Category IV 1000 Volts AC & DC.
- Transient Protection : 12 kV (1.2/50 $\mu$ S surge)
- Pollution degree : 2
- Terminals (to COM) Measurement Category :  
 $\mu$ A/mA $\mu$ A: Category IV 1000V AC & V DC  
F Fuse  
A : 11A/1000V AC & V DC, IR 20kA  
F Fuse  
V : 1100V DC/AC rms  
mV,  $\Omega$  & Others : 1000V DC/AC rms
- 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 + 100digits  
Performance above 3V/m is not specified.
- Rugged fire retarded casing with battery access door.
- Replaceable protective holster with probe-holders & Tilt-stand
- 1000V (Ohm, Capacitance & all other Functions) Input protection
- LVD meets EN61010-1 CAT IV 1KV

All Specifications are subject to change without prior notice

## ELECTRICAL SPECIFICATIONS : KM 525

Accuracy is (% readings 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 10% to 100% of range or otherwise specified. Maximum Crest Factor < 3:1 at full scale & < 6:1 at half scale, and with frequency components within the specified frequency bandwidth for non-sinusoidal waveforms.

### DC<sup>AC</sup> & AC+ DC<sup>AC</sup> VOLTAGE

| Function              | Range   | Accuracy           |
|-----------------------|---|--------------------|
| <b>DC 50Hz ~ 60Hz</b> |   |                    |
| mV                    | 60.00 mV, 600.0 mV                              | ±(0.7%rdg + 6dgts) |
| V                     | 9.999 V, 99.99 V, 999.9 V                       |                    |
| <b>40Hz ~ 1kHz</b>    |   |                    |
| mV                    | 60.00 mV, 600.0 mV                              | ±(1.0%rdg + 6dgts) |
| V                     | 9.999 V, 99.99 V                                | ±(2.2%rdg + 6dgts) |
|                       | 999.9 V   | ±(2.2%rdg + 6dgts) |
| <b>1kHz ~ 20kHz</b>   |   |                    |
| mV                    | 60.00 mV <sup>1)</sup> , 600.0 mV <sup>1)</sup> | ±(2.2%rdg + 6dgts) |
| V                     | 9.999 V <sup>2)</sup> , 99.99 V                 | 3dB                |
|                       | 999.9 V   | Unspec'd           |

<sup>1)</sup> Specified from 30% to 100% of range.

<sup>2)</sup> for 1kHz ~ 15kHz only

Input Impedance : 10MΩ, 50pF nominal (80pF nominal for 600mV ranges)

### DC VOLTAGE

| Function | Range                     | Accuracy            |
|----------|---------------------------|---------------------|
| mV       | 60.00 mV                  | ±(0.12%rdg + 2dgts) |
|          | 600.0 mV                  | ±(0.06%rdg + 2dgts) |
| V        | 9.999 V, 99.99 V, 999.9 V | ±(0.08%rdg + 2dgts) |

Input Impedance : 10MΩ, 50pF nominal (80pF nominal for 600mV range)

### AC VOLTAGE

| Function            | Range   | Accuracy           |
|---------------------|---|--------------------|
| <b>50Hz ~ 60Hz</b>  |   |                    |
| mV                  | 60.00 mV, 600.0 mV                              | ±(0.5%rdg + 3dgts) |
| V                   | 9.999 V, 99.99 V, 999.9 V                       |                    |
| <b>40Hz ~ 500Hz</b> |   |                    |
| mV                  | 60.00 mV, 600.0 mV                              | ±(0.8%rdg + 4dgts) |
| V                   | 9.999 V, 99.99 V                                | ±(1.0%rdg + 4dgts) |
|                     | 999.9 V   | ±(2.0%rdg + 4dgts) |
| <b>500Hz ~ 1kHz</b> |   |                    |
| mV                  | 60.00 mV, 600.0 mV                              | ±(2.0%rdg + 3dgts) |
| V                   | 9.999 V, 99.99 V                                | ±(1.0%rdg + 4dgts) |
|                     | 999.9 V   | ±(2.0%rdg + 4dgts) |
| <b>1kHz ~ 3kHz</b>  |   |                    |
| mV                  | 60.00 mV, 600.0 mV                              | ±(2%rdg + 3dgts)   |
| V                   | 9.999 V, 99.99 V, 999.9 V                       | ±(3.0%rdg + 4dgts) |
| <b>3kHz ~ 20kHz</b> |   |                    |
| mV                  | 60.00 mV <sup>1)</sup> , 600.0 mV <sup>1)</sup> | ±(2%rdg + 3dgts)   |
| V                   | 9.999 V <sup>2)</sup> , 99.99 V                 | 3dB                |
|                     | 999.9 V   | Unspec'd           |

<sup>1)</sup> Specified from 30% to 100% of range.

<sup>2)</sup> for 1kHz ~ 15kHz only

Input Impedance : 10MΩ, 50pF nominal (80pF nominal for 600mV range)

### CREST MODE (INSTANTANEOUS PEAK HOLD)

**Accuracy :** Specified accuracy adds 250 digits for changes > 1.0 ms in duration

### AC & AC+ DC CURRENT

| Range                          | Accuracy           | Burden Voltage |
|--------------------------------|--------------------|----------------|
| <b>50Hz ~ 60Hz</b>             |                    |                |
| 600.0 μA, 6000 μA              | ±(0.6%rdg + 3dgts) | 0.08mV / μA    |
| 60.00 mA                       |                    | 2.1mV / mA     |
| 600.0 mA                       | ±(1.0%rdg + 3dgts) | 0.02V / A      |
| 6.000 A, 10.00 A <sup>1)</sup> | ±(0.8%rdg + 6dgts) |                |
| <b>40Hz ~ 1kHz</b>             |                    |                |
| 600.0 μA, 6000 μA              | ±(0.8%rdg + 4dgts) | 0.08mV / μA    |
| 60.00 mA                       |                    | 2.1mV / mA     |
| 600.0 mA                       | ±(1.0%rdg + 4dgts) | 0.02V / A      |
| 6.000 A, 10.00 A <sup>1)</sup> | ±(0.8%rdg + 6dgts) |                |

<sup>1)</sup> 10A continuous, > 10A to 20A for 30 second max with 5 minutes cool down interval

### DC CURRENT

| Range                          | Accuracy           | Burden Voltage |
|--------------------------------|--------------------|----------------|
| 600.0 μA, 6000 μA              | ±(0.2%rdg + 4dgts) | 0.08mV / μA    |
| 60.00 mA                       |                    | 2.1mV / mA     |
| 600.0 mA                       |                    | 0.02V / A      |
| 6.000 A, 10.00 A <sup>1)</sup> |                    |                |

<sup>1)</sup> 10A continuous, > 10A to 20A for 30 second max with 5 minutes cool down interval

### RESISTANCE

| Range                             | Accuracy           |
|-----------------------------------|--------------------|
| 600.0Ω, 6.000kΩ, 60.00kΩ, 600.0kΩ | ±(0.1%rdg + 3dgts) |
| 6.000MΩ                           | ±(0.4%rdg + 3dgts) |
| 60.00MΩ                           | ±(1.5%rdg + 5dgts) |

Open Circuit Voltage : < 1.2VDC (<1.0VDC for 60M Ω range)

### CONDUCTANCE

| Range   | Accuracy            |
|---------|---------------------|
| 99.99nS | ±(0.8%rdg + 10dgts) |

### TEMPERATURE (K-TYPE THERMOCOUPLE)

| Range           | Accuracy         |
|-----------------|------------------|
| -50°C to 1000°C | ±(0.3%rdg + 2°C) |
| -58°F to 1832°F | ±(0.3%rdg + 5°F) |

Type-K thermocouple range & accuracy not included.

Supplied thermocouple suitable for measurement upto 250°C.

### RECORD MODE

**Accuracy :** Specified accuracy adds 10 digits for changes > 100 ms in duration

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## ELECTRICAL SPECIFICATIONS : KM 525

### CAPACITANCE

| Range                  | Accuracy <sup>1)</sup> |
|------------------------|------------------------|
| 60.00 nF, 600.0 nF     | ±(0.8%rdg + 3dgts)     |
| 6.000 μF               | ±(1.0%rdg + 3dgts)     |
| 60.00 μF               | ±(2.0%rdg + 3dgts)     |
| 600.0 μF <sup>2)</sup> | ±(3.5%rdg + 5dgts)     |
| 6.000 mF <sup>2)</sup> | ±(5.0%rdg + 5dgts)     |
| 25.00 mF <sup>2)</sup> | ±(6.5%rdg + 5dgts)     |

<sup>1)</sup> Accuracies with film capacitor or better

<sup>2)</sup> In manual-ranging mode, measurements not specified below 50.0μF, 0.54mF and 5.4mF for 600.0μF, 6.000mF and 25.00mF ranges respectively.

### LINE LEVEL FREQUENCY (Hz)

| Function Range | Frequency        | Sensitivity (sine Rms) |
|----------------|------------------|------------------------|
| AC 60.00 mV    | 15.00 ~ 50.00kHz | 40 mV                  |
| AC 600.0 mV    |                  | 60 mV                  |
| AC 9.999 V     | 15.00 ~ 10.00kHz | 2.5 V                  |
| AC 99.99 V     |                  | 25 V                   |
| AC 999.9 V     |                  | 100 V                  |
| AC 600.0 μA    |                  | 200 μA                 |
| AC 6000 μA     | 15.00 ~ 3.000kHz | 600 μA                 |
| AC 60.00 mA    |                  | 40 mA                  |
| AC 600.0 mA    |                  | 60 mA                  |
| AC 6.000 A     |                  | 4 A                    |
| AC 10.00 A     |                  | 6 A                    |

Accuracy : 0.04% + 4d

### AUTOCHECK (DCV)

| Range                  | Accuracy           |
|------------------------|--------------------|
| 9.999V, 99.99V, 999.9V | ±(0.5%rdg + 3dgts) |

Lo-Z DCV Threshold : > +1.5 VDC or < -1.0VDC nominal

Lo-Z DCV Input Impedance :

Initially approx. 3.0kΩ, 165pF 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:

18kΩ @ 100V  
125kΩ @ 300V  
320kΩ @ 600V  
500kΩ @ 1000V

### AUTOCHECK (ACV)

| Range                  | Accuracy           |
|------------------------|--------------------|
| <b>50Hz ~ 60Hz</b>     |                    |
| 9.999V, 99.99V, 999.9V | ±(1.0%rdg + 4dgts) |

Lo-Z ACV Threshold : >3VAC (50/60Hz)nominal

Lo-Z ACV Input Impedance : Initially approx. 3.0kΩ, 150pF 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:

18kΩ @ 100V  
125kΩ @ 300V  
320kΩ @ 600V  
500kΩ @ 1000V

### LOGIC LEVEL FREQUENCY (□Hz) & DUTY CYCLE (D%)

| @DCmV Function | Range             | Accuracy <sup>1)</sup>    |
|----------------|-------------------|---------------------------|
| Frequency      | 5.00Hz ~ 1.000MHz | ±(0.04%rdg + 4dgts)       |
| Duty Cycle     | 0.00% ~ 100.0%    | 3d/kHz + 2d <sup>2)</sup> |

<sup>1)</sup> Sensitivity : 2.5Vp (Square wave) for 3V & 5V Logic Family

<sup>2)</sup> Specified Frequency : 5Hz ~ 10kHz

### AUDIBLE CONTINUITY TESTER

Audible threshold : between 20Ω and 300Ω;

Response time : < 100μs

### AUTOCHECK (OHMS)

| Range                             | Accuracy           |
|-----------------------------------|--------------------|
| 600.0Ω, 6.000kΩ, 60.00kΩ, 600.0kΩ | ±(0.5%rdg + 4dgts) |
| 6.000MΩ                           | ±(0.8%rdg + 3dgts) |
| 60.00MΩ                           | ±(2.0%rdg + 5dgts) |

Open Circuit Voltage : < 1.2VDC (<1.0VDC for 60MΩ range)

### DIODE TESTER

| Range  | Accuracy           |
|--------|--------------------|
| 2.000V | ±(1.0%rdg + 1dgts) |

Test Current (Typically) : 0.4mA

Open Circuit Voltage : < 3.5V DC

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An ISO 9001:2015 Company

G-17, Bharat Industrial Estate, T. J. Road, Sewree (W), Mumbai - 400 015. INDIA.  
Sales Direct.: 022-24156638, 27754546 Tel. : 24124540, 24181649, 27750662, 27750292

Email : [sales@kusam-meco.co.in](mailto:sales@kusam-meco.co.in) Web: [www.kusamelectrical.com](http://www.kusamelectrical.com)