

AC; AC+DC TRUE RMS MULTI PARAMETER MOBILE-LOGGER DIGITAL MULTIMETER WITH PC INTERFACE

17 FUNCTIONS 69 RANGES

Model KM 525 / KM 521



CAT IV
1 kV



ACCESSORIES :

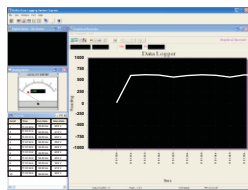
Test lead pair, Battery installed, User Manual,
One BKP60 banana plug type-K Thermocouple

OPTIONAL ACCESSORIES :

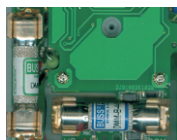
PC interface kit BU-82X; BMH-01 Magnetic Hanger;
BKB32 banana plug to type-K socket plug adaptor.
Current Clamp CA300,
Current Clamp Adaptor CA500, CA1000, CA2000,
High Voltage Probe PD-28.



Software CD



Software



Fuse



Software Cable



Thermocouple



Magnetic Hanger

KM 521 Stand-alone logging capability 5400 / 10800 points for dual / single display.
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, μ 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 μ 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 IEC61010-1 2nd Ed.,
EN61010-1 2nd Ed., UL61010-1 2nd Ed., &
CAN/CSA C22.2 No.61010.1-0.92 to Category
IV 1000V AC & V DC.
- Transient Protection : 12 kV (1.2/50 μ S surge)
- Pollution degree : 2
- Terminals (to COM) Measurement Category :
V/A/mA A: Category IV 1000V AC & V DC
- Overload Protection :
A & mA : 0.44A/1000V AC & V DC, IR 10kA
or better, F Fuse
A : 11A/1000V AC & V DC, IR 20kA
or better, F Fuse
V, mV, & Others : 1050Vrms, 1450Vpeak
- 1000V High Breaking Capacity fuses protected
on Current inputs
- 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

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.

AC & AC+ DC VOLTAGE

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

¹⁾ Specified from 30% to 100% of range.

CMRR : >60dB @ DC to 60Hz, Rs=1K

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

Residual reading less than 5 digits with test leads shorted.

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) |

NMRR : > 60dB @ 50/60Hz

CMRR : > 110dB @ DC 50/60Hz, Rs=1K

Input Impedance :

10M Ω , 50pF nominal (80pF nominal for 600mV range)

CAPACITANCE

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

¹⁾ Accuracies with film capacitor or better

²⁾ In manual-ranging mode, measurements not specified below

50.0 F, 0.54mF and 5.4mF for 600.0 F, 6.000mF and 25.00mF ranges respectively.

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

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

DC CURRENT

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

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

RESISTANCE

| Range | Accuracy |
|--|--------------------|
| 600.0 Ω , 6.000k Ω , 60.00k Ω , 600.0k Ω | ±(0.1%rdg + 3dgts) |
| 6.000M Ω | ±(0.4%rdg + 3dgts) |
| 60.00M Ω | ±(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

AUTOCHECK (DCV)

| Range | Accuracy |
|---------------------------------|-------------------------|
| 999.9mV, 9.999V, 99.99V, 999.9V | $\pm(0.5\%rdg + 3dgts)$ |

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

Lo-Z DCV Input Impedance :

Initially approx. 3.0k , 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:

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

AUTOCHECK (ACV)

| Range ¹⁾ | Accuracy |
|---------------------------------|-------------------------|
| 50Hz ~ 60Hz | |
| 999.9mV, 9.999V, 99.99V, 999.9V | $\pm(1.0\%rdg + 4dgts)$ |

Lo-Z ACV Threshold : >2VAC (50/60Hz)nominal

Lo-Z ACV Input Impedance : Initially approx. 3.0k , 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:

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

AUTOCHECK (OHMS)

| Range | Accuracy |
|----------------------------------|-------------------------|
| 600.0 , 6.000k , 60.00k , 600.0k | $\pm(0.5\%rdg + 4dgts)$ |
| 6.000M | $\pm(0.8\%rdg + 3dgts)$ |
| 60.00M | $\pm(2.0\%rdg + 5dgts)$ |

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

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 A | 15.00 ~ 3.000kHz | 45 A |
| AC 6000 A | | 600 A |
| 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

LOGIC LEVEL FREQUENCY (MHz) & DUTY CYCLE (D%)

| @DCmV Function | Range | Accuracy ¹⁾ |
|----------------|-------------------|---------------------------|
| Frequency | 5.00Hz ~ 1.000MHz | $\pm(0.004\%rdg + 4dgts)$ |
| Duty Cycle | 0.00% ~ 100.0% | 3d/kHz + 2d ²⁾ |

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

²⁾ Specified Frequency : 5Hz ~ 10kHz

AUDIBLE CONTINUITY TESTER

Audible threshold : between 20 and 300 ;

Response time : < 100 s

DIODE TESTER

| Range | Accuracy |
|--------|-------------------------|
| 2.000V | $\pm(1.0\%rdg + 1dgts)$ |

Test Current (Typically) : 0.4mA

Open Circuit Voltage : < 3.5V DC

All specifications are subject to change without prior notice.