INTRINSICALLY SAFE TRUE RMS DIGITAL MULTIMETER WITH PC INTERFACE

9999 / 6000 COUNTS Model - KM 822EX

- **Ex-rating : Ex ib IIA T4 Gb / ib I Mb**
- **INTRINSICALLY SAFE**
- **These meters comply to IEC SANS 600790:2000 & IEC SANS 60079-11:1999, which is applicable for electrical apparatus for use in explosive gas atmospheres. Part 0 (general requirements) & Part 1 (intrinsic). The approved explosive protection rating of this equipment is suitable for use in Zone 1 hazardous area. Group I (coal mines) underground & Group II (surface).**

2 Year Warranty IP64 CAT IV 1KV EX



✳ SPECIAL FEATURES :

- Splash / Drop Proof
- Measuring Range 1000V AC / DC
- Dual Display
- Backlit Display
- Beep-Jack Audible & Visible Input Warning
- Relative Zero Mode
- PC Interface Capability
- Data Hold
- Fuse 1A / 1kV (IR10kA)for mA & mA (1000V HRC Fuse)
- Fuse 11A / 1kV (IR20kA) for A (1000V HRC Fuse)

✳ FEATURES :

- DC Voltage Basic Accuracy 0.08%
- 4 Digit 10,000 counts large easy to read Backlight LCD display
- Fast Measurements, 5/sec; Fully Auto-Ranging
- Logic & Line Level Frequency
- Logic Level Duty Cycle Readings & Diode Tester
- Fast Audible Continuity
- Auto Power Off

✳ GENERAL SPECIFICATIONS :

- **Sensing :** AC True RMS
- **Display :** 9999 Counts : ACV, DCV, Hz & nS
  6000 Counts : mV, µA, 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 :** Max. 80% R.H. for Temperature up to 31°C decreasing linearly to 50% R.H. at 45°C
- **Pollution degree :** 2
- **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 :** 50µA typical
- **Power Supply :** Single Alkaline 9V batteries.
- **Weight :** Approx. 635gm with holster
- **Dimension :** Approx. 208(L)x103(W)x64.5(H)mm with holster

✳ ACCESSORIES :

Test lead pair, Battery installed, User Manual, Carrying case.

✳ OPTIONAL ACCESSORIES :

USB interface kit BU-86X, BMH-01 Magnetic Hanger.

✳ MARKING ON METER :

- MTEx-MS/19.0358 X
- Ex Rating: Ex ib IIA T4 Gb
- Ex ib I Mb.
- IP 64



Test Lead Pair Carrying Case



USB Interface Kit BU-86X (Optional)



Magnetic Hanger (Optional)

✳ 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 & CAN/CSA-C22.2 No. 61010-1-12 Ed. 3.0 to Category IV 1000V AC & VDC.
- **Transient Protection :** 12 kV (1.2/50µs surge)
- **Terminals (to COM) Measurement Category :**
  V / A / mAµA : Category IV 1000V AC & DC
- **Overload Protection :**
  µA & mA : 0.44A / 1000V AC / DC rms, IR 10kA, F Fuse
  A : 11A / 1000V AC & V DC, IR 20kA, F Fuse
  V : 1100V DC / AC rms
  mV, Ω & Others : 1000V DC / AC rms
- **EMC :** Meets EN61326-1:2006
  Capacitance function is not specified
  Other function ranges :
  Total Accuracy = Specified Accu. + 100 dgts
  Performance above 3V/m is not specified.

ELECTRICAL SPECIFICATIONS : KM 822EX

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 < 2:1 at full scale & <4:1 at half scale, and with frequency components within the specified frequency bandwidth for non-sinusoidal waveforms.

AC VOLTAGE

Range	Resolution	Accuracy
50Hz ~ 60Hz		
60.00 mV	0.01 mV	±(0.5% rdg + 3 dgts)
600.0 mV	0.1 mV	
9.999 V	1 mV	
99.99 V	10 mV	
999.9 V	100 mV	
40Hz ~ 500Hz		
60.00 mV	0.01 mV	±(0.8% rdg + 4 dgts)
600.0 mV	0.1 mV	
9.999 V	1 mV	±(1.0% rdg + 4 dgts)
99.99 V	10 mV	
999.9 V	100 mV	±(2.0% rdg + 4 dgts)
500Hz ~ 1kHz		
60.00 mV	0.01 mV	±(2.0% rdg + 3 dgts)
600.0 mV	0.1 mV	
9.999 V	1 mV	±(1.0% rdg + 4 dgts)
99.99 V	10 mV	
999.9 V	100 mV	±(2.0% rdg + 4 dgts)
1kHz ~ 3kHz		
60.00 mV	0.01 mV	±(2.0% rdg + 3 dgts)
600.0 mV	0.1 mV	
9.999 V	1 mV	±(3.0% rdg + 4 dgts)
99.99 V	10 mV	
999.9 V	100 mV	
3kHz ~ 20kHz		
60.00 mV[1]	0.01 mV	±(2% rdg + 3 dgts)
600.0 mV[1]	0.1 mV	
9.999 V[2]	1 mV	3dB
99.99 V	10 mV	3dB
999.9 V	100 mV	Unspec'd

[1] **Specified from 30% to 100% of range.**
[2] **For 3kHz ~ 15kHz only**
Input Impedance : 10MΩ, 50pF nominal (80pF nominal for mV ranges)

DC VOLTAGE

Range	Resolution	Accuracy
60.00 mV	0.01 mV	±(0.12%rdg + 2dgts)
600.0 mV	0.1 mV	±(0.06%rdg + 2dgts)
9.999 V	1 mV	±(0.08%rdg + 2dgts)
99.99 V	10 mV	
999.9 V	100 mV	

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

CREST MODE (INSTANTANEOUS PEAK HOLD)

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

AC & AC+ DC CURRENT

Range	Resolution	Accuracy	Burden Voltage
50Hz ~ 60Hz			
600.0 µA	0.1 µA	±(0.6%rdg + 3dgts)	0.08mV / µA
6000 µA	1 µA		
60.00 mA	0.01 mA		2.1mV / mA
600.0 mA	0.1 mA	±(1.0%rdg + 3dgts)	
6.000 A	0.001 A	±(0.8%rdg + 6dgts)	0.02V / A
10.00 A[1]	0.01 A		
40Hz ~ 1kHz			
600.0 µA	0.1 µA	±(0.8%rdg + 4dgts)	0.08mV / µA
6000 µA	1 µA		
60.00 mA	0.01 mA		2.1mV / mA
600.0 mA	0.1 mA	±(1.0%rdg + 4dgts)	
6.000 A	0.001 A	±(0.8%rdg + 6dgts)	0.02V / A
10.00 A[1]	0.01 A		

[1] **10A continuous, > 10A to 20A for 30 second max with 5 minutes cool down interval**

DC CURRENT

Range	Resolution	Burden Voltage
600.0 µA	0.1 µA	0.08mV / µA
6000 µA	1 µA	
60.00 mA	0.01 mA	2.1mV / mA
600.0 mA	0.1 mA	
6.000 A	0.001 A	0.02V / A
10.00 A[1]	0.01 A	

Accuracy : ±(0.2% rdg + 4 dgts)
[1] **10A continuous, > 10A to 20A for 30 second max with 5 minutes cool down interval**

RESISTANCE (OHMS)

Range	Resolution	Accuracy
600.0 Ω	0.1 Ω	±(0.1%rdg + 3dgts)
6.000 kΩ	0.001 kΩ	
60.00 kΩ	0.01 kΩ	
600.0 kΩ	0.1 kΩ	
6.000 MΩ	0.001 MΩ	±(0.4%rdg + 3dgts)
60.00 MΩ	0.01 MΩ	±(1.5%rdg + 5dgts)

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

LINE LEVEL FREQUENCY (~Hz)

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

Accuracy : 0.04% + 4d

LOGIC LEVEL FREQUENCY (Ⲙ Hz) & DUTY CYCLE (D%)

@DCmV Function	Range	Accuracy [1]
Frequency	5.00Hz ~ 1.000MHz	±(0.04%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

CAPACITANCE

Range	Accuracy [1]
60.00nF, 600.0nF	0.8% + 3d
6.000µF	1.0% + 3d
60.00µF	2.0% + 3d
600.0µF [2]	3.5% + 5d
6.000mF [2]	5.0% + 5d
25.00mF [2]	6.5% + 5d

[1] **Accuracies with film capacitor or better**
[2] **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.**

DIODE TESTER

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

Test Current (Typically) : 0.4mA
Open Circuit Voltage : < 3.5V DC

AUDIBLE CONTINUITY TESTER

Audible threshold : Between 20Ω and 300Ω
Response time : < 100µs