



An ISO 9001:2015 Company

# INDUSTRIAL INTRINSICALLY SAFE SMART MULTIMETER MODEL-KM 823 Ex

THINK SAFETY  
THINK **KUSAM-MECO**

The industrial intrinsically safe smart multimeter Multimeter KM 823Ex adopts advanced technology. a newly designed, developed, and produced industrial grade 6000 Counts True RMS digital multimeter. It is sturdy and durable, with 6000 Counts counting, VFD testing function, LoZ function, full Model automatic range, and true RMS testing, ensuring easy application in the industrial and maintenance fields. In addition, it is also suitable for outdoor construction, pipeline inspection, etc. It can be used in conjunction with various applications such as OA office systems, inspection positioning systems, data collection systems, etc. This model is especially suitably used in dangerous environment such as petroleum, chemical, pharmaceutical, oil depot, tank farm as well as the dangerous sites with combustible and explosive gas. It is convenient for users' timely production dispatching and communication.

Ex-marking: Ex ib IIC T4 Gb / Ex ib IIIC T130°C Db

Certificate NO.: CLEX25.7859X

IP Grade: IP67

IP67

NEW



Preliminary Data

CAT IV 600V  
CAT III 1000V

## FEATURES

- 3-5/6 Digit 6000 Counts Super bright large screen display
- Shell: Double injection molding
- Impact (drop test): 2 meters
- TRMS true effective value measurement
- Fully automatic range
- LoZ: Low impedance input to prevent erroneous

Data readings caused by stray voltages

## APPLICATIONS :

KM 823 Ex especially suitably used in dangerous environment such as :

- Petroleum • Chemical • Pharmaceutical
- Oil depot • Tank farm

As well as the dangerous sites with combustible and explosive gas.

## EXPLOSION PROOF CERTIFICATE PARAMETERS

|                                   |                                                                                                           |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------|
| Ex-Marking                        | Ex ib IIC T4 Gb / Ex ib IIIC T130°C Db                                                                    |
| Certificate No.                   | CLEX25.7859X                                                                                              |
| Protection Grade                  | IP67                                                                                                      |
| <b>ELECTRICAL SPECIFICATION :</b> |                                                                                                           |
| Shell                             | Double injection molding, waterproof                                                                      |
| Impact (Drop Test)                | 2 meters                                                                                                  |
| Diode Testing                     | The maximum test current is 0.9mA, and the typical open circuit voltage is 3.2VDC                         |
| Continuity Check                  | When the resistance is less than 50 $\Omega$ , the buzzer sounds and the test current is less than 0.35mA |

All Specifications are subject to change without prior notice.

|                                    |                                                                                                  |
|------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Input Impedance</b>             | >10 MΩ VDC, >10 MΩ VAC                                                                           |
| <b>Communication Response</b>      | True effective value                                                                             |
| <b>ACV Bandwidth</b>               | 45Hz ~ 1KHz                                                                                      |
| <b>Display</b>                     | 6000 Counts LCD display                                                                          |
| <b>Over Range Indication</b>       | Display 'OL'                                                                                     |
| <b>Automatic Shutdown</b>          | About 15 minutes, this feature can be disabled                                                   |
| <b>Polarity</b>                    | Automatic; The negative sign (-) indicates negative polarity                                     |
| <b>Measurement Rate</b>            | 2 times per second, nominal value                                                                |
| <b>Low Battery Level Indicator</b> | If the battery voltage drops below the operating voltage, it will display "0"                    |
| <b>Battery</b>                     | 9V (6F22) battery                                                                                |
| <b>Fuse</b>                        | mA, μA range: 0.8A/1000V ceramic fast melting<br>A range; 10A/1000V ceramic rapid melting        |
| <b>Operating Temperature</b>       | 0°C ~ 55°C                                                                                       |
| <b>Storage Temperature</b>         | -20°C ~ 60°C(-40°F ~ 140°F)                                                                      |
| <b>Working Humidity</b>            | The maximum humidity reaches 80%RH at 31°C(87°F) and decreases linearly to 50%RH at 40°C (104°F) |
| <b>Storage Humidity</b>            | < 80%RH                                                                                          |
| <b>Working Altitude</b>            | Within 2000 meters                                                                               |
| <b>Accessories</b>                 | User Manual, Battery,                                                                            |

## ELECTRICAL SPECIFICATION KM 823EX

### DC Voltage

| Range                 | Resolution | Accuracy         |
|-----------------------|------------|------------------|
| ZONE1 & ZONE2         |            |                  |
| 60.00 mV              | 0.01 mV    | ±(0.9%+9 digits) |
| 600.0 mV              | 0.1 mV     |                  |
| 6.000 V               | 0.001 V    | ±(0.5%+5 digits) |
| 45.00 V               | 0.01 V     |                  |
| IN NORMAL ENVIRONMENT |            |                  |
| 1000 V                |            |                  |

In the dangerous environment (**Zone1 & Zone2**). Use this EX multimeter to measure upto 45V (Not the 1000V). Your can refer our specific datasheet. In normal environment, user can measure to 1000V (AC / DC) and 10A (AC / DC).

### AC Current (45Hz ~ 1KHz)

| Range    | Resolution | Accuracy         |
|----------|------------|------------------|
| 600.0 μA | 0.1 μA     | ±(1.5%+3 digits) |
| 6000 μA  | 1 μA       |                  |
| 60.00 μA | 0.01 mA    |                  |
| 600.0 μA | 0.1 mA     |                  |
| 6.000 μA | 0.001 A    | ±(2.0%+3 digits) |
| 10.00 A  | 0.01 A     |                  |

All AC current ranges are from 5% to 100% of the specified range. AC current bandwidth: 45Hz ~ 1KHz (sine wave): 50/60Hz (all waveforms).

### AC Voltage (45Hz ~ 1KHz)

| Range                 | Resolution | Accuracy         |
|-----------------------|------------|------------------|
| ZONE1 & ZONE2         |            |                  |
| 60.00 mV              | 0.01 mV    | ±(0.9%+9 digits) |
| 600.0 mV              | 0.1 mV     | ±(0.8%+3 digits) |
| 6.000 V               | 0.001 V    |                  |
| 45.00 V               | 0.01 V     |                  |
| IN NORMAL ENVIRONMENT |            |                  |
| 1000 V                |            |                  |

In the dangerous environment (**Zone1 & Zone2**). Use this EX multimeter to measure upto 45V (Not the 1000V). Your can refer our specific datasheet. In normal environment, user can measure to 1000V (AC / DC) and 10A (AC / DC).

All AC voltage ranges are from 5% to 100% of the specified range.

AC voltage bandwidth : 45Hz ~ 1KHz (sine wave) : 50/60HZ (all waveforms).

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**DC CURRENT**

| Range         | Resolution   | Accuracy                      |
|---------------|--------------|-------------------------------|
| 600.0 $\mu$ A | 0.1 $\mu$ A  | (1.0%+3 digits)               |
| 6000 $\mu$ A  | 1 $\mu$ A    |                               |
| 60.00 $\mu$ A | 0.01 $\mu$ A |                               |
| 600.0 $\mu$ A | 0.1 $\mu$ A  |                               |
| 6.000 $\mu$ A | 0.001 A      | $\pm(1.5\%+3 \text{ digits})$ |
| 500.00 mA     | 0.01 A       |                               |

**RESISTANCE**

| Range            | Resolution       | Accuracy                      |
|------------------|------------------|-------------------------------|
| 600.0 $\Omega$   | 0.1 $\Omega$     | $\pm(1.0\%+2 \text{ digits})$ |
| 6.000 K $\Omega$ | 0.001 K $\Omega$ | $\pm(0.8\%+2 \text{ digits})$ |
| 60.00 K $\Omega$ | 0.01 K $\Omega$  |                               |
| 600.0 K $\Omega$ | 0.1 K $\Omega$   |                               |
| 6.000 M $\Omega$ | 0.001 M $\Omega$ | $\pm(1.2\%+2 \text{ digits})$ |
| 60.00 K $\Omega$ | 0.01 M $\Omega$  | $\pm(1.0\%+5 \text{ digits})$ |

**CAPACITANCE**

| Range         | Resolution    | Accuracy                       |
|---------------|---------------|--------------------------------|
| 99.99 nF*     | 0.01 nF       | $\pm(5.0\%+20 \text{ digits})$ |
| 999.9 nF      | 0.1 nF        | $\pm(4.0\%+5 \text{ digits})$  |
| 9.999 $\mu$ F | 0.001 $\mu$ F |                                |
| 99.99 $\mu$ F | 0.01 $\mu$ F  |                                |
| 999.9 $\mu$ F | 0.1 $\mu$ F   |                                |
| 9.999 mF      | 0.001 mF      | $\pm 10\% \text{ reading}$     |
| 99.99 mF      | 0.01 mF       |                                |

**FREQUENCY (Electronic)**

| Range     | Resolution | Accuracy                      |
|-----------|------------|-------------------------------|
| 9.999 Hz  | 0.001Hz    | $\pm(0.1\%+4 \text{ digits})$ |
| 99.99 Hz  | 0.01Hz     |                               |
| 999.9 Hz  | 0.1Hz      |                               |
| 9.999 KHz | 0.001KHz   |                               |
| 99.99 KHz | 0.01KHz    |                               |
| 999.9 KHz | 0.1KHz     |                               |
| 9.999 MHz | 0.001MHz   |                               |

Sensitivity: When the duty cycle is between 20% and 80% and < 100kHz, the minimum is 0.8V RMS; Minimum 5Vrms at 20% to 80% duty cycle and >100kHz.

**TEMPERATURE**

| Range        | Resolution | Accuracy                                                                             |
|--------------|------------|--------------------------------------------------------------------------------------|
| -40 ~ 1000°C | 1°C        | $\pm(3.0\%+3^{\circ}\text{C}/5^{\circ}\text{Fdigits})$<br>(Excluding probe accuracy) |
| -40 ~ 1832°F | 1°F        |                                                                                      |

Attention: Accuracy specifications include two elements:

1. (% reading) - This is the accuracy of the measurement circuit.
2. (+digits) - This is the accuracy of the analog-to-digital converter.

Attention : Accuracy is expressed under conditions of 18°C ~ 28°C (65°F ~ 83°F) and relative humidity less than 75%.

**FREQUENCY (Electronic)**

| Range      | Resolution | Accuracy                    |
|------------|------------|-----------------------------|
| 10.00-1KHz | 0.01Hz     | $\pm 0.5\% \text{ reading}$ |

Sensitivity: AC mV range ( $\geq 100\text{mV}$ ),  
ACV range ( $\geq 6\% \text{ range}$ );  
6000  $\mu$ A / 500.0mA  
600.0  $\mu$ A / 60.00mA

**DUTY CYCLE**

| Range       | Resolution | Accuracy                      |
|-------------|------------|-------------------------------|
| 0.1 ~ 99.9% | 0.10%      | $\pm(1.2\%+2 \text{ digits})$ |

Pulse width: 100  $\mu$ s ~ 100ms; Frequency : 5Hz ~ 150KHz

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