KUSAM-MECO®
An ISO 9001:2015 Company

4-5/6 DIGIT 60,000 COUNTS AUTORANGING TRUE RMS DMM WITH DATALOGGING & PC INTERFACE MODEL - KM 891

THINK SAFETY
THINK KUSAM-MECO®

KM 891 is a datalogging TRMS Multimeter with Features such as Trend Capture, Low Pass Filter, nS Conductance, Dual Temperature, & more Storage 20000 sets of measurements data & display them on a trend graph for long term monitoring.

21 FUNCTIONS 63 RANGES

20,000 Records Data Logging

NEW



IP65

CAT III 1000V
CAT IV 600V

SPECIAL FEATURES :

- **Basic DC Voltage Accuracy :** 0.03%
- Waterproof and dustproof : IP65
- 20,000 records Data Logging
- Recording Measurement Data
- Power Saving Mode
- Test Lead Alarm Buzzer
- Date & Time function
- Auto power save
- LPF Measurement
- dBV & dBm function
- Maximum & Minimum Value
- Relative value
- Peak detection
- Compare mode COMP & Pass Mode
- Low Value or High Value or Value function.
- Diode & Continuity Test
- Type-K Temperature
- AC Current + DC Current
- Duty Cycle, Conductance, Pulse width,
- USB Communication
- Bluetooth Communication (Optional)
- PC Interface

GENERAL SPECIFICATIONS

✶ **Sensing :** True RMS Sensing

✶ **Display :** 4-5/6 digits 60,000 counts Backlight LCD display

✶ **Range :** Auto / Manual

✶ **Polarity :** Auto

✶ **Electromagnetic compatibility :** In the RF-Field of 1V/m :
Overall Accuracy = specified accuracy + 5% of range.
No specified idex for the RF-Field over 1V/m.

✶ **Operating Temperature :** -20°C to 50°C

✶ **Storage Temperature :** -30°C to 60°C

✶ **Relative Humidity :** ≤ 80% (0°C ~ 30°C), ≤75% (30°C ~ 40°C), ≤45% (40°C ~ 50°C).

✶ **Temperature Coefficient :** 0.1 x (specified accuracy) / °C @ (<18°C or >28°C)

✶ **Low Battery :** The symbol shows on the LCD.

✶ **Power Supply :** Lithium battery of 7.4V 2200mAh battery.

✶ **Power Adapter :** Input of 100V ~ 240V, 50/60Hz 0.2A max, output of DC10V 500mA (short-circuit protection for output). External diameter of 5.5mm & internal diameter of 2.5mm.

✶ **Dimension :** Approx.225 x 100 x 60 mm

✶ **Weight :** Approx. 608gm (including battery).

Preliminary Data

SOFTWARE CD



USB CABLE



- **ACCESSORIES :** Test leads (pair), User's Manual, 2 K-Type Temperature probes, Charging Adapter, Charging Connector, USB Cable, Software CD & carrying case.
- **OPTIONAL ACCESSORIES :** Bluetooth Communication (Optional)

SAFETY

- **Safety :** IEC / EN61010-1, EN61010-2-030, EN61010-2-033, CAT III 1000V and CAT IV 600V.

All Specifications are subject to change without prior notice.

ELECTRICAL SPECIFICATIONS : KM 891

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

AC VOLTAGE

Range	Resolution	Accuracy Tolerance : ±(%reading + Digits)			
60 mV	0.001 mV	45~1kHz	1k~10kHz	10k~20kHz	20k~100kHz
		±(0.6%+60)	±(1.2%+60)	±(3%+60)	±(4%+60)
600 mV	0.01 mV	45~1kHz	1k~10kHz	10k~20kHz	20k~100kHz
		±(0.3%+30)	±(1.2%+40)	±(3%+40)	±(4%+40)
6 V	0.0001 V	45~1kHz	1k~10kHz	10k~20kHz	20k~100kHz
		±(0.3%+30)	±(1.2%+40)	±(3%+40)	±(4%+40)
60 V	0.001 V	45~1kHz	1k~10kHz	10k~20kHz	20k~100kHz
		±(0.3%+30)	±(1.2%+40)	±(3%+40)	±(4%+40)
600 V	0.01 V	45~1kHz	1k~10kHz	10k~20kHz	20k~100kHz
		±(0.3%+30)	±(1.2%+40)	±(3%+40)	Only for reference
1000 V	0.1 V	45~1kHz	1k~5kHz	5k~10kHz	10k~100kHz
		±(0.6%+30)	±(3%+40)	±(6%+40)	Only for reference

Input Impedance : About 10MΩ
Overload protection : 1000V
Display : True virtual value for 10% to 100% of the range.

AC VOLTAGE + DC Voltage

Range	Resolution	Accuracy Tolerance : ±(%reading + Digits)		
60 mV	0.001 mV	50~1kHz	1k~10kHz	10k~35kHz
		±(1% + 80)	±(3% + 40)	±(6% + 40)
600 mV	0.01 mV	50~1kHz	1k~10kHz	10k~20kHz
		±(1%+80)	±(3% + 40)	±(3%+40)
6 V	0.0001 V	50~1kHz	1k~10kHz	10k~20kHz
		±(1%+80)	±(3% + 40)	±(3%+40)
60 V	0.001 V	50~1kHz	1k~10kHz	10k~20kHz
		±(1%+80)	±(3% + 40)	±(3%+40)
600 V	0.01 V	50~1kHz	1k~10kHz	10k~20kHz
		±(1%+80)	Only for reference	Only for reference
1000 V	0.1 V	50~1kHz	1k~5kHz	5k~10kHz
		±(1.2%+80)	Only for reference	Only for reference

Input Impedance : About 10MΩ
Overload protection : 1000V
Display : True virtual value for 10% to 100% of the range.

AC Current

Range	Resolution	Accuracy Tolerance : ±(%reading + Digits)	
600 μA	0.01 μA	45 ~ 1kHz	1k ~ 10kHz
		±(0.6% + 40)	±(1.2% + 40)
6000 μA	0.1 μA	45 ~ 1kHz	1k ~ 10kHz
		±(0.6 + 20)	±(1.2% + 40)
60 mA	0.001mA	45 ~ 1kHz	1k ~ 10kHz
		±(0.6% + 40)	±(1.2% + 40)
600 mA	0.01 mA	45 ~ 1kHz	1k ~ 10kHz
		±(0.6% + 20)	±(1.2% + 40)
10 A	0.001 A	45 ~ 1kHz	1k ~ 10kHz
		±(1% + 20)	±(3% + 40)

Display : True virtual value for 10% to 100% of the range.
Overload protection : μAmA range : 0.8A H 1000V Fuse Type Φ 6 x 32 mm
10A range : 10A H 1000V Fuse Type Φ 10 x 38 mm
Switch on for 30 seconds and suspend for 10 minutes for 20A.
Not specified for over 10A.

DC VOLTAGE

Range	Resolution	Accuracy
60 mV	0.001 mV	±(0.025%rdg + 20dgts)
600 mV	0.01 mV	±(0.025%rdg + 5dgts)
6 V	0.0001 V	
60 V	0.001 V	
600 V	0.01 V	
1000 V	0.1 V	±(0.03%rdg + 5dgts)

Input Impedance : About 10MΩ
Overload protection : 1000V
Relative mode (REL) is required to compensate bias voltage for 60mV.

DC CURRENT

Range	Resolution	Accuracy
600 μA	0.01 μA	±(0.08%rdg + 20dgts)
6000 μA	0.1 μA	±(0.08%rdg + 10dgts)
60 mA	0.001mA	±(0.08%rdg + 20dgts)
600 mA	0.01 mA	±(0.15%rdg + 10dgts)
10 A	0.001 A	±(0.5%rdg + 10dgts)

Overload protection :
μAmA range : 0.8A H 1000V Fuse Type Φ 6 x 32 mm
10A range : 10A H 1000V Fuse Type Φ 10 x 38 mm
Switch on for 30 seconds and suspend for 10 minutes for 20A. Not specified for over 10A.

RESISTANCE

Range	Resolution	Accuracy
600 Ω	0.01 Ω	In REL state: ±(0.05%rdg+10dgts)
6 kΩ	0.0001 kΩ	±(0.05%rdg + 2dgts)
60 kΩ	0.001 kΩ	
600 kΩ	0.01 kΩ	
6 MΩ	0.0001 MΩ	±(0.3%rdg + 10dgts)
60 MΩ	0.001 MΩ	±(2%rdg + 10dgts)

Overload protection : 1000V **Humidity for 60MΩ :** < 50%

CONDUCTANCE

Range	Resolution	Accuracy
60 nS	0.01 nS	±(2%rdg + 10dgts)

Overload protection : 1000V **Humidity for 60MΩ :** < 50%

DUTY CYCLE

Range	Resolution	Accuracy
10% ~ 90% (10Hz ~ 2kHz)	0.01%	±(1.2%rdg + 30dgts)

- **Overload protection :** 1000V
- When the rise time is less than 1μs, the signals center on trigger level.

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ELECTRICAL SPECIFICATIONS : KM 891

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

AC CURRENT + DC CURRENT

Range	Resolution	Accuracy Tolerance : ±(%reading + Digits)	
600 μA	0.01 μA	50 ~ 1kHz	1k ~ 10kHz
		±(0.8% + 40)	±(2.0% + 40)
6000 μA	0.1 μA	50 ~ 1kHz	1k ~ 10kHz
		±(0.8 + 20)	±(2.0% + 40)
60 mA	0.001mA	50 ~ 1kHz	1k ~ 10kHz
		±(0.8% + 40)	±(2.0% + 40)
600 mA	0.01 mA	50 ~ 1kHz	1k ~ 10kHz
		±(0.8% + 20)	±(2.0% + 40)
10 A	0.001 A	50 ~ 1kHz	1k ~ 10kHz
		±(1.2% + 20)	±(3% + 40)

Display : True virtual value for 10% to 100% of the range.

Overload protection : μAmA range : 0.8A H 1000V Fuse Type Φ 6 x 32 mm

10A range : 10A H 1000V Fuse Type Φ 10 x 38 mm

Switch on for 30 seconds and suspend for 10 minutes for 20A.

Not specified for over 10A.

CONTINUITY TEST

Range	Resolution	Remark
•))	0.01Ω	Open-circuit voltage is around 3V; when the buzzer selects short circuit for sound warning, the resolution is less than 10Ω. The buzzer continuously sounds, the resolution is greater than 50Ω. The buzzer does not sound. When the buzzer selects open circuit for sound warning, the resolution is greater than 50Ω. The buzzer continuously sounds, the resolution is less than 10Ω. The buzzer does not sound.

- **Overload protection :** 1000V

DIODE TEST

Range	Resolution	Remark
▶|	0.0001V	Open -circuit voltage is around 3V. The forward voltage drop value of the measured PN junction is approximately ≤ 3V. When the buzzer activates, it will beep briefly for the normal semiconductor junction; if the semiconductor junction shorts out, it will beep continuously. Silicon PN junction drops between 0.5 ~ 0.8V as the normal value.

- **Overload protection :** 1000V

PULSE WIDTH

Range	Resolution	Accuracy
250 mS	0.001mS ~ 0.01mS	±(1.2%rdg + 30dgts)

- **Overload protection :** 1000V
- When the rise time is less than 1μs, the signals center on trigger level.
- The pulse width is greater than 2μs for 10Hz to 200kHz. The pulse width depends on signal frequency.

CAPACITANCE

Range	Resolution	Accuracy
6 nF	0.001 nF	±(3%rdg + 10dgts)
60 nF	0.01 nF	±(2.5%rdg + 5dgts)
600 nF	0.1 nF	±(2%rdg + 5dgts)
6 μF	0.001 μF	
60 μF	0.01 μF	
600 μF	0.1 μF	
6 mF	1 μF	±(5%rdg + 5dgts)
60 mF	10 μF	Not specified

Overload protection : 1000V

Display Digits : 6000

FREQUENCY

Range	Resolution	Accuracy
60 Hz	0.001 Hz	±(0.02%rdg + 8 dgts)
600 Hz	0.01 Hz	±(0.01%rdg + 5dgts)
6 kHz	0.0001 kHz	
60 kHz	0.001 kHz	
600 kHz	0.01 kHz	
6 MHz	0.0001 MHz	
60 MHz	0.001 MHz	

Overload protection : 1000V

Input amplitude :

10Hz ~ 30MHz : 600mV ≤ a ≤30Vrm.

Greater than 30MHz : Not specified

TEMPERATURE

Range	Resolution	Accuracy
-40°C ~40°C	0.1 °C	±(2.0%rdg + 30dgts)
40°C ~ 400°C		±(1.0%rdg + 30dgts)
400°C ~ 1000°C		±(2.5%)
-40°F ~ 104°F	0.2 °F	±(2.5%rdg + 50dgts)
104°F ~ 752°F		±(1.5%rdg + 50dgts)
752°F ~ 1832°F		±(2.5%)

- **Overload protection :** 1000V
- Two-channel temperature measurement can be performed via temperature connectors.
- **Temperature Sensor :** Applicable to K type (chromel-silicel) thermocouple. Spare parts are point contact K-type (chromel-silicel) thermocouple (only applicable to the measurement when temperature is below 230°C).

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KM 891 RECORDING MODE

● Recording Measurement Data

Press the function key SAVE (Menu) to enter the modes of single recording, continuous recording & inquire recording. Press the cursor keys to select the following modes.

1. Save

Press the function key SAVE (Menu) to record the current measuring data for once up to 20000 pieces.

2. View Save

Press the function key VIEW (Menu) to view one-time recorded data. Press or long press the function key PREV(Menu) to view the previous recorded data. Press or long press the function key NEXT (Menu) to view the next recorded data. Press the function key DELETE (Menu) to delete the current recorded data. Press the function key RETURN (Menu)to return to the last menu. In addition to displaying the recorded data, the location & total number of current recorded data are displayed in the lower left corner. The date & time of current data recording are displayed in the lower right corner.

3. Delete All Save

Press the function key DELETE (Menu) to delete all one-time recorded data. Press the function key YES (Menu) to confirm. To cancel the operation, press the function key NO (Menu).

4. Record

Press the function key ENTER (Menu) to enter the continuous recording mode with maximum recording pieces upto 10000. Press or & move cursors to select the three settings as follows.

Edit Name

Press the function key EDIT (Menu) to name the continuous recording items. Press or to move the cursor & select edit locations. Press the F1 key to switch the input mode to “Uppercase” mode, then press or to input uppercase letters. Press the F2 key to switch the input mode to “Lowercase” mode, then press . or to input lowercase letters. Press the F3 key to switch the input mode to “Digital” mode, then press or to enter numbers or symbols. Press the F4 key to save exit & exit edit mode.

Set Interval

Press the function key EDIT (Menu) to set the interval time of continuous recorded. Press or long press or to move the cursors to select edit locations. Press or long press or to enter different numbers.
The interval time can to set as 1Sec ~ 60Min

Set Duration

Press the function key EDIT (Menu) to set the duration time of continuous recording. Press or long press or to move the cursors to select edit locations. Press or long press or to enter different numbers. The duration time can be set as days, hours & minutes.

Max Duration

Indicates the maximum time for continuous recording After completing the settings, Press the function key START (Menu) to start a continuous recording as shown in Figure 13.

The character REC shows on the display & flashes with red dot. The relevant display information is shown in the following table.

Information	Description
Elapsed Time	Run time displayed in hours:minutes:seconds
Remaining Time	Time left displayed in hours:minutes:seconds
Samples	Total recording points for present recorded events
Start	Time & date started from recording period

To manually stop recording, press the function key STOP (Menu). When stop recording, return to the menu View Recorded to view the record events. See the relevant operations in the following menu View Record.



Figure 13

5. View Record

Press the function key (Menu) to view the information on record events as shown in Figure 14. The basic display information is in the following table.

Information	Description
Name	Run time displayed in hours:minutes:seconds
Interval	Time left displayed in hours:minutes:seconds
Duration	Total recording points for present recorded events
Samples	Time & date started from recording period
Maximum	Maximum value for present record data
Average	Average value for all data of present record
Minimum	Minimum value for present record data
REC	Position of present record incident & total number of record events
Start	Time & date started from recording period

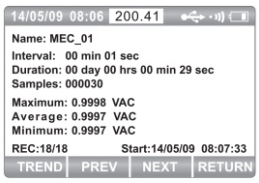


Figure 14

Press the function key PREV (Menu) to display basic information on the previous record. Press the function key NEXT (Menu) to display basic information on the next record. Press the function key RETURN (Menu) to return to the previous menu. Press the function key TREND (Menu) to view the trend chart of present record as shown in Figure 15. The display information of trend data is in the following table:

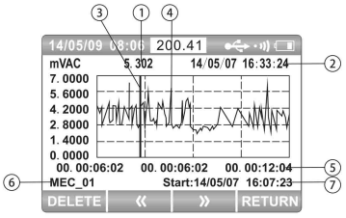


Figure 15

No.	Description
1	Measured value corresponding to cursor
2	Date & time for measurement corresponding to cursor
3	Cursor
4	Trend line
5	Time label of X-axis to display during elapsed time
6	Name of record event
7	Time & date started from recording period

View the trend chart. Press or long press the F2 key to move the cursor left. The cursor moves one data t the left for each pressing. Long pressing, the cursor speeds up to move left. Press or long press the F3 key to move the cursor right. The cursor moves one data to the right for each pressing. Long pressing, the cursor speeds up to move right. Press or . to scale the graph vertically. Press or to scale the graph horizontally.

Press the F1 key to delete this record. Press the function key YES (Menu) to confirm the deletion. To cancel the deletion, press the function key N0 (Menu).

6. Delete All Record

Press the function key DELETE (Menu) to delete all record events. Press the function key YES (Menu) to confirm. To cancel the operation, press the function key N0 (Menu).

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