

LIST OF PRODUCTS

- * Digital Multimeter
- * AC Clamp Adaptor
- * Thermo Anemometer
- * Distance Meter
- * Network Cable Tester
- * Earth Resistance Tester
- * DC Power Supplies
- * Calibrators
- * Frequency Counter
- * Phasing Sticks
- * Waterproof Pen Testers
- * EMF Detector
- * Wood, Paper & Grain Moisture Meter
- * Transistorised Electronic Analog & Digital Insulation Resistance Testers(upto 10 KV)
- * Digital Sound Level Meter & Sound Level Calibrator
- * Digital contact & Non-contact Type Tachometer
- * Digital Non-contact (infrared) Thermometer
- * Maximum Demand Controller/Digital Power Meter
- * Digital Hand Held Temperature Indicators
- * Digital AC & AC/DC Clampmeter
- * AC/DC Current Adaptor
- * Thermo Hygrometer
- * Digital Lux Meter
- * Power Factor Regulator
- * Digital Panel Meters
- * High Voltage Detector
- * Gas Analysers
- * Function Generator
- * Battery Tester
- * Solar Power Meter



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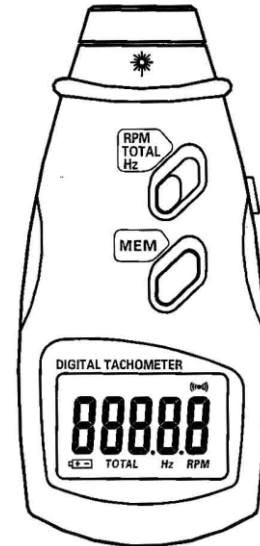
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AN ISO 9001:2015 COMPANY

NON-CONTACT LASER BEAM DIGITAL TACHOMETER KM 2234BL



OPERATING MANUAL

WARNING

Do not point light beam of the instrument at or have it reflected into the eyes of people and animals to avoid injury.

I . FEATURES

- 1.The tachometer uses microcomputer (CPU) technique; photoelectric technology, anti-jamming technique and junction laser technique for noncontact measurement of rotation speed (RPM), frequency (Hz), and total cycle (Total).
- 2.Wide measuring range and high resolution.
- 3.Large screen LCD display provides clear reading.
- 4.White back light guarantee reading in any light environment.
- 5.Automatically save Max, Min and last value, also save 96 set of continuous data. (The tachometer starts to store data after first reading)
- 6.Low battery voltage indication.
- 7.Smooth housing design, comfortable to hold and use.
- 8.The instrument is delicate and rugged. It uses the durable, long-lasting components and a strong, light weight ABS plastic housing.

II . TECHNICAL SPECIFICATION

Display: 5digital, 18mm LCD

Range: 2.5~99999 RPM

0.05~1666 Hz

1~99999 Count

Resolution: 0.1 RPM (2.5~999.9RPM)
 1 RPM (above 1000RPM)
 0.01Hz (0.05~99.99Hz)
 0.1Hz (above 100Hz)

Accuracy: $\pm (0.05\% + 1 \text{ digit})$

Sampling Time: 0.8second (over 60RPM)

Range Select: Auto-range

Time Base: 6MHz Quartz crystal

Detecting Distance: 50mm~500mm

Dimension: 155×70×35mm

Power: 3×1.5V AA battery

III. PANEL DISCRIPTION (Fig. 1)

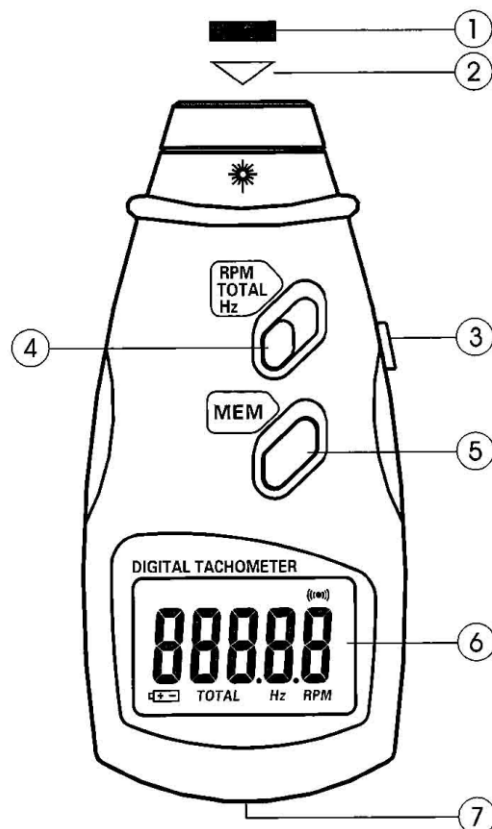
- 1.Reflective mark
- 2.Light beam
- 3.Measurement button
- 4.Function select switch
- 5.Memory button
- 6.LCD display
- 7.Battery cover

IV. MEASUREMENT OPERATION

1.Measure RPM

- a.Stick a reflective mark on the object, select function switch to RPM
- b.After install batteries, press and hold measurement button and point light beam at the reflective mark to start measure.

03



(Fig. 1)

04

- c. After display data is stable, release measurement button, and test result is automatically saved.
- d. Press "MEM" button to display Max, Min, and Last measured value (or multiple saved data)

2. Measure TOTAL

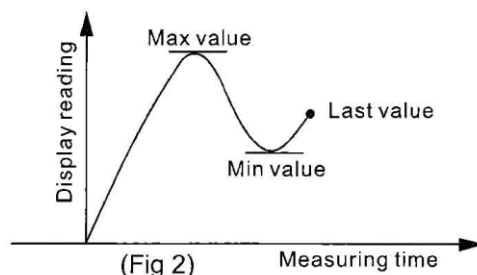
- a. Stick a reflective mark on the object, select function switch to TOTAL
- b. Hold measurement button and point light beam at the reflective mark and start counting. Every time the object rotates or passes through the reflective mark, the count plus one. Release measurement button, so TOTAL count is saved.
- c. Press "MEM" button to show TOTAL count.

3. Measure Hz

- a. Stick a reflective mark on the object, select function switch to Hz.
- b. After install batteries, press and hold measurement button and point light beam at the reflective mark to start measure.
- c. After display data is stable, release measurement button, and result is saved.
- d. Press "MEM" button to display Max, Min, and Last measured value (or multiple saved data)

V. MEMORY FUNCTION

1. After measurement, release measurement button, data is saved but nothing is displayed on LCD. Press "MEM" to display Max, Min, and last value. (Fig. 2) Each time "MEM" is pressed,



LCD display English symbol then value in turns. "UP" for Max, "dn" for Min, and "LA" for Last value. (Fig. 3)

2. After display last value, press and hold "MEM" button, meter is turned into a mode indicate whether to get a series of saved data, where display a count down from 20 to 1. (Fig. 4) During this countdown, the meter still display Max, Min, and Last value if "MEM" button is released before countdown to "1", otherwise will enter a mode to display series of data.
3. When countdown to "1", LCD display "An *" (An is short for Anamnesis, * means the total amount of data that is saved). When "*" is zero,

3517
RPMUP
RPM

Max

1895
RPMdn
RPM

Min

3370
RPMLA
RPM

Last value

(Fig. 3)

---20
RPM---1
RPM

(Fig. 4)

it mean there is not any data saved (Fig. 5).
Each time "MEM" is pressed, queue number
and saved value is displayed on LCD in turns.
After display all saved data (maximum 96),

it mean there is not any data saved (Fig. 5).
Each time "MEM" is pressed, queue number
big, the maximum sets of store data decrease).
For example, 64 sets of data is saved during a
measurement, it will display "An 64" (Fig. 6).
Each time "MEM" is pressed, sets of data is
displayed in order, such as first value is 350.
3RPM, second value is 317.1RPM.... so on,
and the 64th value is 337.0RMP (Fig. 7).

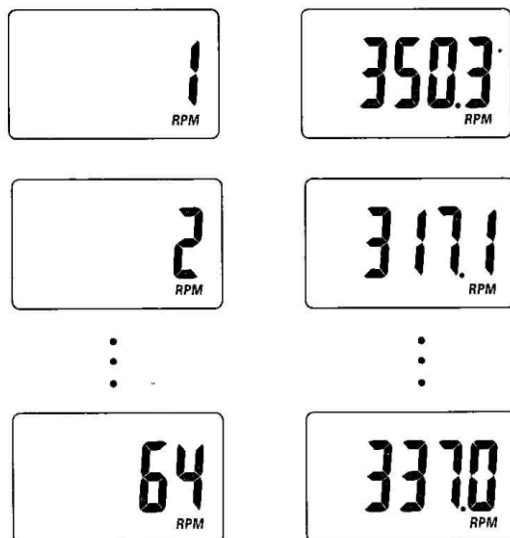
Remark: TOTAL mode do not have Max, Min and
Last value functionality, only a series of stored
data. If press measurement button during
"MEM" mode, all data saved before is lost and
start new measurement.

An 0
RPM

(Fig. 5)


An 64
RPM

(Fig. 6)



(Fig. 7)

VI. BATTERY REPLACEMENT

1. When battery voltage is too low, left side of LCD display "  " symbol that indicate that battery replacement is needed.
2. Open battery cover and take out low voltage battery.
3. Enter new batteries as indicated.

VII. REMARKS

1. Usage of reflective mark: the length of reflective mark should not be too short, recommend cut 12mm reflective mark and stick on rotation axis. If rotation axis reflect light, paint it to black or cover with black tape, then stick reflective mark. The rotation axis should be smooth and clean.
2. When measure low speed rotation, more reflective mark is recommend for more precise results. Display value divide by the number of reflective mark could give you real value.
3. If meter is not going to use for a long time, please take out batteries to prevent leakage which damage the meter.

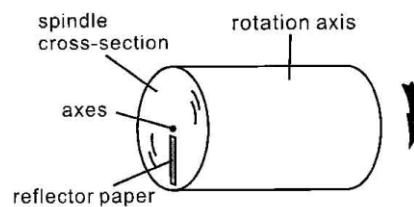


PHOTO MEASURING SCHEMATIC

MUMBAI

TEST CERTIFICATE
NON-CONTACT LASER BEAM
DIGITAL TACHOMETER

This Test Certificate warrants that the product has been inspected and tested in accordance with the published specifications.

The instrument has been calibrated by using equipment which has already been calibrated to standards traceable to national standards.

MODEL NO. KM 2234BL

SERIAL NO. _____

DATE: _____

ISO 9001:2015

**WARRANTY**

Each "KUSAM-MECO" product is warranted to be free from defects in material and workmanship under normal use & service. The warranty period is one year (12 months) and begins from the date of despatch of goods. In case any defect occurs in functioning of the instrument, under proper use, within the warranty period, the same will be rectified by us free of charges, provided the to and fro freight charges are borne by you.

This warranty extends only to the original buyer or end-user customer of a "KUSAM-MECO" authorized dealer.

This warranty does not apply for damaged Ic's, fuses, burnt PCB's, disposable batteries, carrying case, test leads, or to any product which in "KUSAM-MECO's" opinion, has been misused, altered, neglected, contaminated or damaged by accident or abnormal conditions of operation or handling.

"KUSAM-MECO" authorized dealer shall extend this warranty on new and unused products to end-user customers only but have no authority to extend a greater or different warranty on behalf of "KUSAM-MECO".

"KUSAM-MECO's" warranty obligation is limited, at option, free of charge repair, or replacement of a defective product which is returned to a "KUSAM-MECO" authorized service center within the warranty period.

THIS WARRANTY IS BUYER'S SOLE AND EXCLUSIVE REMEDY & IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. "KUSAM-MECO" SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE WHATSOEVER.

All transaction are subject to Mumbai Jurisdiction.