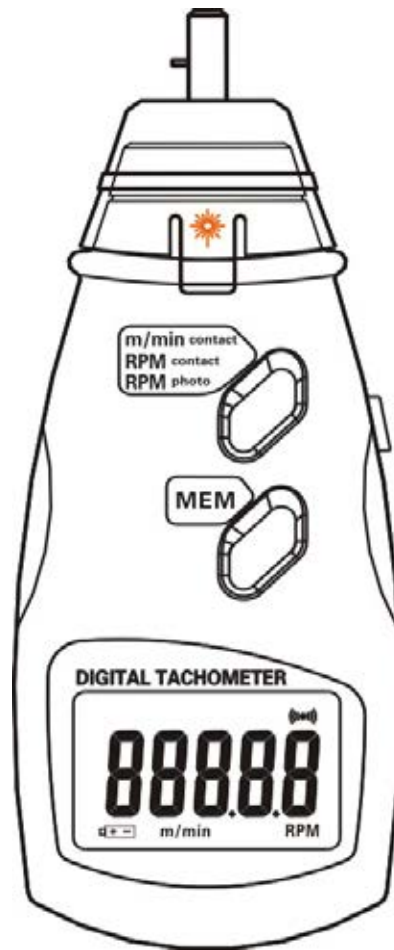# DIGITAL HIGH PRECISION TACHOMETE

OPERATION MANUAL

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) or contact measurement of rotation speed (RPM), surface speed (m/min) Wide measuring range and high resolution.
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. Easy switch between contact and noncontact mode.
8. Surface speed wheel with groove to test surface speed or length of wire, cable, or rope conveniently.
9. Smooth housing design, comfortable to hold and use.
10. 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:
2.5~99999RPM noncontact mode

0.5~19999 RPM contact mode
0.05~1999.9 m/min contact mode
Resolution:
Noncontact rotation Speed:
        0.1 RPM (0.5~999.9RPM)
        1 RPM (above 1000RPM)
Contact rotation Speed:
        0.1 RPM (0.5~999.9RPM)
        1 RPM (above 1000RPM)

Surface Speed: 0.01m/min (0.05~99.99m/min)
        0.1m/min (above 100m/min)
Accuracy: ± (0.05%+1digital)
Sampling Time: 0.8second (over 60RPM)
Range Select: Auto-range
Time Base: 6MHz Quartz crystal
Detecting Distance: 50mm-500mm
Dimension: 155*70*35mm(without contact tacho part)
Power: 3×1.5V AAA battery

Ⅲ. PANEL DISCRIPTION (Fig. 1)

1. Surface speed wheel
2. Contact tacho part
3. Adapter
4. Measurement button
5. Function select switch
6. Memory button
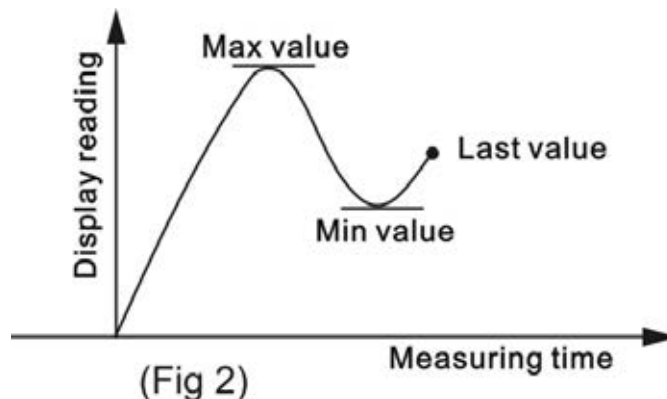7. LCD display
8. Battery cover
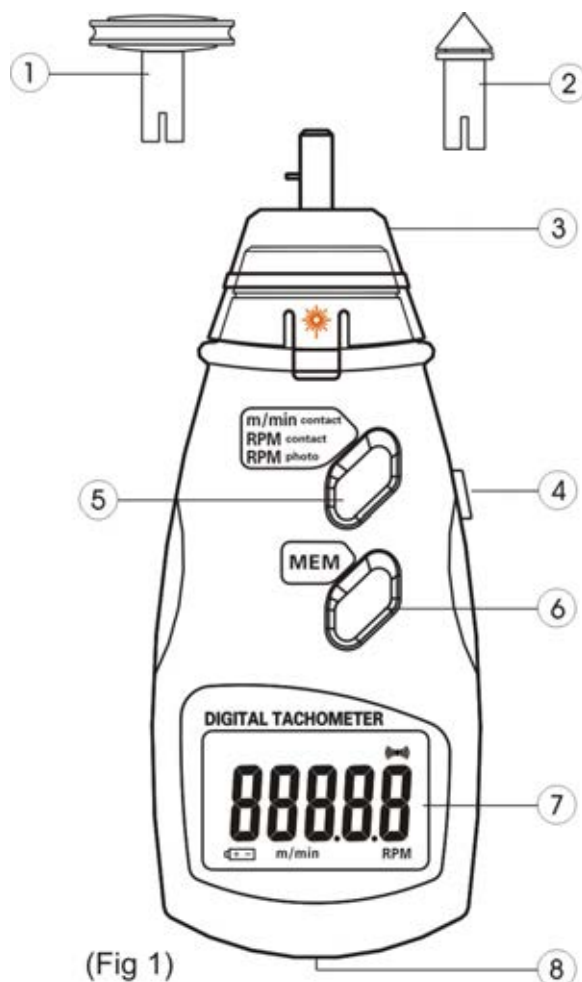
(Fig 1)

Ⅳ. **MEASUREMENT OPERATION**

1. Measure RPM in noncontact mode
   a. Take down adapter, and stick a reflective mark on the object, select function switch to RPM photo.
   b. After install batteries, press and hold measurement button and point light beam at the reflective mark in a line to start measure.
   c. After display data is stabled, release measurement button, and test result is automotive saved.
2. Measure RPM in contact mode

   a. Install adapter and contact tacho part, select function switch to RPM contact.
   b. Bring rubber head in contact with test body, so it turns with the body at synchro-speed and coaxial rotation.
   c. Hold measurement button to start measure, and release measurement button after display data is stabled, test result is automotive saved.
3. Measure surface speed in contact mode
   a. Install adapter and surface speed wheel, select function switch to m/min contact.
   b. Bring surface speed wheel in contact with test body, so it turns with the body at synchro-speed.
   c. Hold measurement button to start measure, and release measurement button after display data is stabled, test result is automotive saved.

Remark: Since surface speed wheel's outer and groove perimeters are different, real test result is 0.9* display value when using groove for test, such as wire, cable, rope and linear materials.
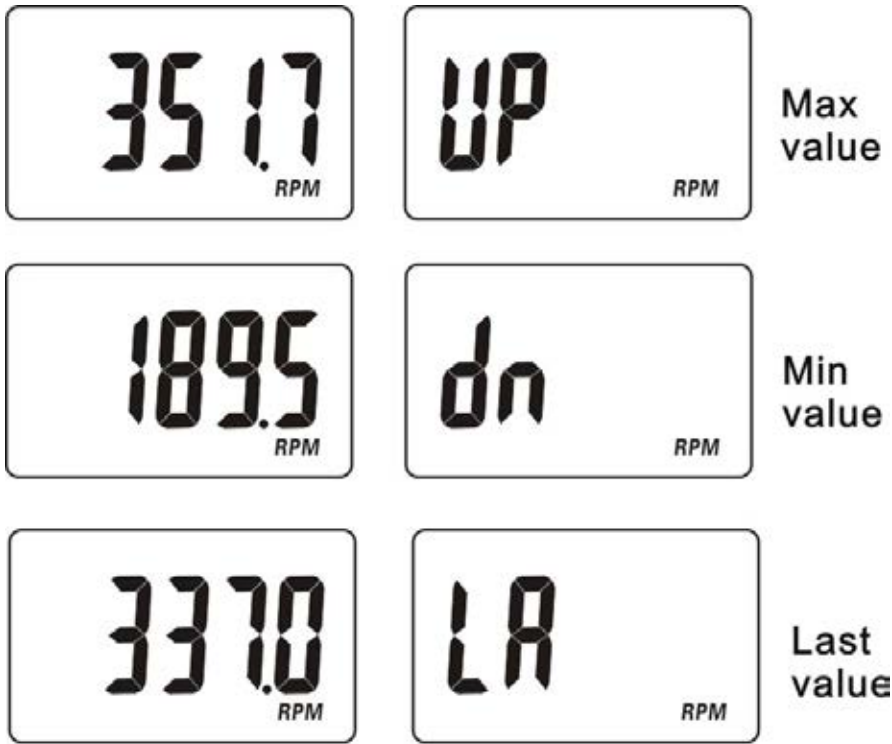
Ⅴ. **MEMERY FUNCTION**

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)

(Fig 2)

Each time "MEM" is pressed, LCD display English symbol then value in turns. "UP" is 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.

	Max value
3517 RPM	**UP** RPM
1895 RPM	**dn** RPM	Min value
3370 RPM	**LA** RPM	Last value

(Fig 3)

- - - 20 RPM	**- - - - 1** RPM

(Fig 4)

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, 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), meter will switch back to Max, Min, and Last value display (when measured values vary too 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).

An 0 RPM	**An 64** RPM
(Fig 5)	(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).

1 RPM	**350.3** RPM
2 RPM	**317.1** RPM
⋮	⋮
64 RPM	**337.0** RPM

(Fig 7)

Remark: Contact length mode does not have Max, Min memory and data save function, only have shows the last test value. During memory mode, press measurement button anytime will lose all saved data and start new measurement and store data.

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. The Package comes with big cone, small cone and cylinder parts for rotation speed measurement. Big cone and cylinder rubber parts use for low RPM and small cone rubber part use for high RPM.
4. 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

CONTACT MEASURING SCHEMATIC