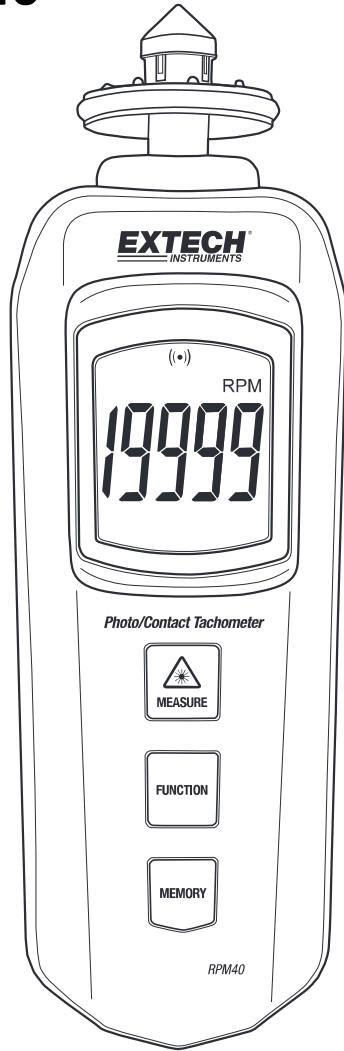


COMBINATION PHOTO/CONTACT TACHOMETER

Model RPM40



## Introduction

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Thank you for selecting the Extech Combination Photo/Contact Tachometer, Model RPM40. This combination tachometer is a patented design providing contact and non-contact RPM measurements. In addition, linear surface speeds can be measured in ft/min or m/min. This device is shipped fully tested and calibrated and, with proper use, will provide years of reliable service. Please visit our website ([www.extech.com](http://www.extech.com)) to check for the latest version of this User Guide, Product Updates, and Customer Support.

## Features

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- Compact pocket tachometer
- Combination photo and contact tachometer
- Laser pointer for Photo Tachometer targeting
- Non-contact Photo Tachometer detects target to a distance of 1.5m (4.9 ft.)
- Wide measuring range 0.5 to 19,999 RPM (Contact) and 99,999 RPM (Photo)
- 0.1% basic accuracy
- Memory/Recall of highest, lowest, and last readings
- Durable, light-weight ABS plastic housing

## Safety

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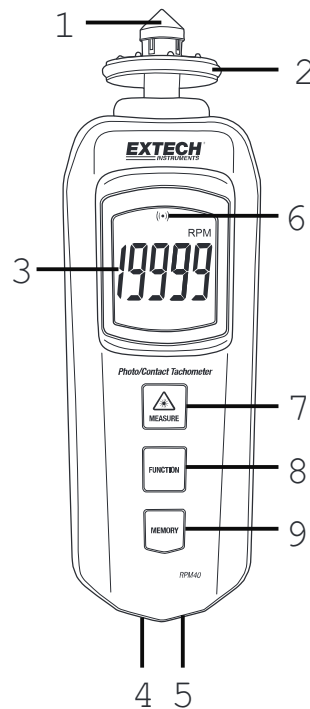
1. Use extreme caution when the laser beam is on
2. Do not point the beam toward anyone's eye
3. Be careful not to let the beam strike the eye from a reflective surface
4. Do not use the laser near explosive gases or in other potentially explosive areas



## Meter Description

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1. RPM Adapter (Contact)
2. Surface Speed Wheel
3. LCD Display
4. Photo Detect Sensor
5. Laser pointer (red)
6. Monitor Indicator
7. Measure Button
8. Function Button
9. Memory Button



The battery compartment is located on back of meter.

## Battery Replacement

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The low battery indicator appears when the batteries need to be replaced. To replace the batteries:

1. Open the rear battery compartment by removing the two Phillips head screws that secure it
2. Replace the four 1.5V AA batteries observing correct polarity
3. Replace the battery cover before attempting to use the meter



Never dispose of used batteries or rechargeable batteries in household waste. As consumers, users are legally required to take used batteries to appropriate collection sites, the retail store where the batteries were purchased, or wherever batteries are sold.

**Disposal:** Do not dispose of this instrument in household waste. The user is obligated to take end-of-life devices to a designated collection point for the disposal of electrical and electronic equipment.

## Operation

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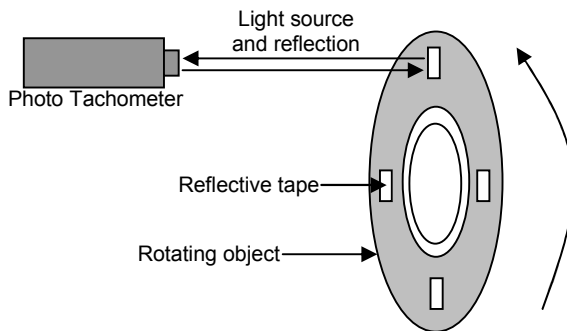
### Selecting a function

Press and hold the MEASURE button (7) and, while holding MEASURE, use short presses of the FUNCTION button (8) to step through the modes. The available modes are: Contact RPM measurement, Surface speed (m/min), Surface speed (ft/min), Surface speed (in/min), and Photo RPM measurement (laser pointer will switch ON in this mode).

**Note:** When a function is selected it becomes the default mode of operation (even after the unit is powered off) until another function is selected.

### Photo RPM Measurement

1. Select Photo RPM measurement mode as instructed in the previous section.
2. Apply an appropriately sized square piece of reflective tape to the surface of the object under test.
3. Press and hold the MEASURE button and align the laser pointer with the reflective tape. Measurement distance should be limited to a distance range of 2 to 60" (5 to 150cm).
4. Verify that the Monitor Indicator (6) appears on the LCD when the reflective tape passes through the beam.
5. Release the Measure button when the RPM reading stabilizes on the LCD.
6. If the rpm is under 50, apply additional squares of reflective tape. Divide the reading shown on the display by the number of pieces of reflective tape squares to calculate the actual rpm.



**NOTE:** Bright ambient light may interfere with the reflected light. Shading the target area may be necessary in some cases.

**CAUTION:** Rotating objects can be dangerous. Use extreme care.

## Contact RPM Measurement

1. Install a rotating attachment (cone or funnel) to the meter
2. Select Contact RPM measurement mode as described in the 'Selecting a function' section.
3. Press and hold the MEASURE button while simultaneously placing the RPM adapter (1) against the center of the rotating axis to be measured.
4. Release the MEASURE button when the reading stabilizes (approximately 2 seconds).

## Reversible LCD Display

The LCD display indicates Photo Tachometer measurements in one direction and Contact measurements in the opposite direction. This permits the user to easily read the measurement digits in both measurement modes.

## Surface Speed Measurement

1. Select the Surface Speed (m/min, ft/min, or in/min) mode as described above in the 'Selecting a function' section.
2. Attach the Surface Speed wheel (2) to the meter.
3. Press the MEASURE button and place the surface speed wheel against the object under test.
4. Release the MEASURE button when the reading stabilizes (approximately 2 seconds).

## Memory Recall

The minimum (dn), maximum (UP), and last (LA) reading values are stored in memory after each measurement (after the MEASURE button is released). To view these values:

1. Press and hold the MEMORY button (9), the display will toggle between the stored reading and its identification label (**dn** for lowest reading), **UP** for highest reading, or **LA** for last reading).
2. Release the MEMORY button and then press and hold it again to view the next stored reading.
3. Release the MEMORY button and then press and hold it again to view the next stored reading.
4. Repeat these steps as desired.

## Specifications

|                                     |  |   |
|-------------------------------------|--|---|
| Measurement & Range                 | Photo Tachometer: 5 to 99,999 RPM  |   |
|                                     | Contact Tachometer: 0.5 to 19,999 RPM  |   |
|                                     | Surface Speed: $\frac{m}{min}$<br>m/min. – 0.05 to 1,999.9 m/min.<br>ft/min. – 0.2 to 6,560 ft/min.<br>in/min. – 2.0 to 78,740 in/min. |   |
| Resolution                          | RPM  | 0.1 RPM (< 1000 RPM)<br>1 RPM ( $\geq$ 1000 RPM)                  |
|                                     | m/min  | 0.01 m/min (<100 m/min)<br>0.1 m/min ( $\geq$ 100 m/min.)         |
|                                     | ft/min. $\frac{ft}{min}$   | 0.1 ft/min. (<1000 ft/min.)<br>1 ft/min ( $\geq$ 1000 ft/min.).   |
|                                     | in/min. $\frac{in}{min}$   | 0.1 in/min. (<1000 in/min.).<br>1 in/min. ( $\geq$ 1000 in/min.). |
| Display                             | LCD, size: 32mm x 28mm (1.26 x 1.10")<br>Large 5 digit reversible display with unit of measure and alert indicators                    |   |
| Accuracy                            | $\pm$ (0.1% of reading + 1 digit)  |   |
| Sampling rate                       | Photo mode: 1 second (> 60 RPM)<br>Contact mode: 1 second (> 6 RPM)  |   |
| Photo Tachometer detecting distance | Typically 50 to 150cm (2 to 60")   |   |
| Time base circuit                   | Quartz crystal   |   |
| Laser light source                  | Less than 1 mW; Class 2 laser diode; 645 nm  |   |
| Operating Temperature               | 0 to 50°C (32 to 122°F)  |   |
| Operating Humidity                  | Less than 80% R.H.   |   |
| Memory                              | Stores/Recalls highest, lowest, and last values  |   |
| Battery                             | 4 x 1.5V AAA batteries   |   |
| Power Consumption                   | Photo Tachometer: Approximately 20 mA DC   |   |
|                                     | Contact Tachometer: Approximately 9.5 mA DC  |   |
| Dimensions                          | 165 x 50 x 33 mm (6.5 x 2.0 x 1.3")  |   |
| Weight                              | 182g (0.4 lbs.) Battery weight included  |   |
| Accessories included                | Batteries, Reflective tape 60cm (24"), Surface speed/rpm rotating attachments (cone & funnel)  |   |

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