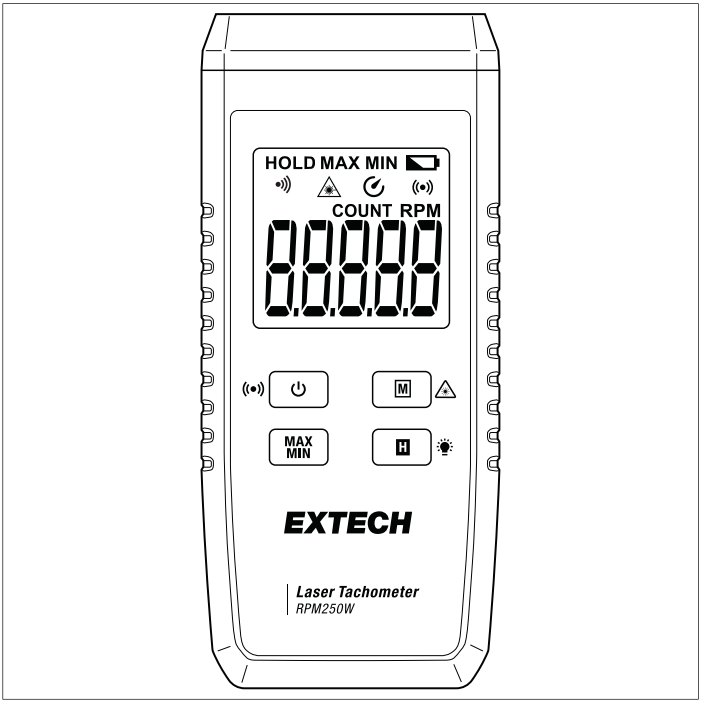
EXTECH®

User Manual

RPM250W Laser Tachometer

Bluetooth® Connectivity with the ExView® Mobile App



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1 Introduction

Thank you for selecting the Extech RPM250W Laser Tachometer. This meter measures rotations per minute on equipment such as fan blades, rotors, turbines, and similar machinery. The RPM250W is also a counter where items on a conveyor, for example, can be counted. Measurements are made using the built-in photo-electric sensor, situated at the top of the meter. Readings are shown on the backlit LCD.

The meter includes Bluetooth connectivity, MAX/MIN memory (in RPM mode), auto power off, data hold, Laser pointer, backlit LCD, and tripod mount.

Using the Extech ExView mobile app, you can pair your smart devices with the meter using Bluetooth. The app and the W Series meters were developed together for seamless integration. Download the free app from the App Store (iOS®) or from Google Play (Android™).

This quality instrument is designed to provide years of reliable service, high accuracy and simple operation. Please visit the Extech website for additional information and world-class support.

2 Safety

Please read all safety information before using this device

CAUTION

- Check for damage to the device's housing, sensor, display, and battery compartment before use. If obvious damage or abnormalities are noticed, please discontinue use and return the device for service.
- Do not attempt to open the meter housing or access the sensor module. There are no user-serviceable components in this device.
- Do not point the Laser beam toward the eyes. See Laser safety label below:

- Replace the batteries immediately after the low battery symbol appears. If the device is to be stored for a period of months, please remove the batteries and store separately.
- Do not store the device in high temperature or humidity environments, in flammable or combustible areas, or where a strong electromagnetic field is present.
- This device is CE certified.

3 FCC Compliance

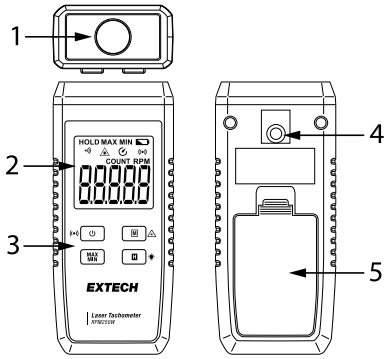
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

⚠ **WARNING**
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

4 Product Description

4.1 Meter Parts



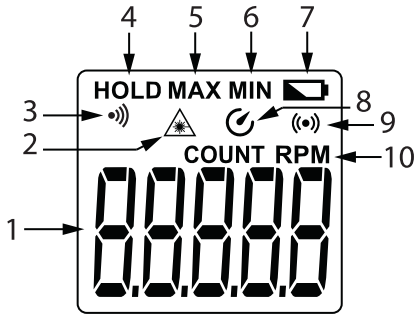
1. Photo-electric sensor and Laser pointer lens
2. Backlit LCD (detailed below)
3. Function buttons (detailed below)
4. Tripod mount
5. Battery compartment

4.2 Function Buttons

	**Power / Bluetooth button** Long press to switch the device on. Short press to switch off. With the meter powered, long press to switch Bluetooth on/off. Short press to switch the meter off directly from the Bluetooth mode.
	**MAX/MIN and Counter Reset button** In RPM mode, short press to view the MAX/MIN readings; Long press to clear the readings. In Count mode, short press to reset the count to zero. The *COUNT* display text will flash twice.
	**Data Hold / Backlight button** Short press to freeze/unfreeze the displayed reading. *HOLD* will display when data hold is active. Long press to switch the LCD backlight on/off.

M	**Tachometer/Counter and Laser button** Short press to toggle Tachometer (RPM) and Count modes. Long press to switch the Laser pointer on/off. The Laser pointer symbol is shown when the Laser is on.
APO ON/OFF	With the meter on, long press the power and *H* buttons to switch APO on/off. The APO symbol is displayed when APO is enabled. APO is reset each time the meter power is cycled.

4.3 Display Symbols



1. Tachometer/Counter readings
2. Laser pointer symbol
3. Monitor symbol appears when the sensor detects a reflection from the supplied tape or when an object is counted
4. Data Hold mode
5. Maximum reading
6. Minimum reading
7. Low battery symbol
8. Auto Power Off (APO) symbol
9. Bluetooth active
10. Tachometer (RPM) and Counter (COUNT) modes

5 Operation

5.1 Powering the Meter

The meter operates on three (3) 1.5 V (AAA) batteries, installed in the rear compartment.

Long press the power button ⏻ to switch the meter on. Short press the power button to switch the meter off. If the meter does not switch on, check the batteries for proper orientation.

When the low battery symbol appears on the display, replace the batteries immediately to ensure accurate readings.

5.2 Auto Power Off (APO)

The meter switches off automatically five (5) minutes after the last button press.

The default mode for APO is ON (the APO symbol on the display indicates that APO is enabled).

To switch the APO function off, with the meter switched on, long press the power ⏻ and *H* buttons. The APO symbol will switch off, indicating that the function is disabled. APO is reset each time the meter's power is cycled.

Repeat this process to switch APO back on manually.

5.3 Tachometer (RPM) Measurements

⚠ **WARNING**
To avoid personal injury and damage to the meter and other machinery, keep a distance of at least 50 mm (2 in.) between the tachometer and the measured object.

1. Switch off the device under test so that it is not moving.
2. Cut off a 12 mm x 12 mm (0.5 x 0.5 in.) piece of reflective tape (supplied) and affix it to the device under test.
3. Long press the power button ⏻ to switch the meter on and short press the mode button M (if necessary) so that *RPM* is shown.
4. Switch on the device under test so that it begins moving.
5. From a distance of 50 to 500 mm (2 to 20 in.), point the meter's sensor (top) towards the reflective tape. For best results, the vertical angle of incidence should be < 30°.

6. When the sensor detects a reflection from the tape, the monitor symbol •)) appears on the LCD.
7. The five-digit LCD read-out shows the RPM measurement.
8. If the measurement is > 99,999 RPM, *OL* will appear on the display in place of a reading.

NOTE

When measuring < 50 RPM, the period of the pulse is quite long and requires that the meter be kept still to ensure accuracy. Wait at least two pulse signals for the best accuracy. If the pulse is longer than 7 seconds, the RPM reading will not change.

5.4 Counter Measurements (with illuminated objects)

1. Long press the power button ⏻ to switch the meter on.
2. Short press the mode button M so that *COUNT* is displayed.
3. Position the meter 50 to 500 mm (2 to 20 in.) from the object under test. For best results, the vertical angle of incidence should be < 30°.
4. Switch on the machinery under test so that it begins moving.
5. Each time an illuminated object passes the meter sensor, the count increments by 1 and the monitor symbol •)) appears.
6. Short press the *MAX/MIN* button to reset the counter to zero (*COUNT* will flash twice).
7. When the counter is > 99,999 units, *OL* will display.

5.5 Counter Measurements (with external illumination)

1. Long press the power button ⏻ to switch the meter on.
2. Short press the mode button M so that *COUNT* is displayed.
3. Long press the Laser button ⚠ to switch off the Laser.
4. Position the meter 50 to 500 mm (2 to 20 in.) from the object under test. For best results, the vertical angle of incidence should be no greater than 30°.
5. Position the external optical source opposite the meter, on the other side of the device under test (so the device under test is situated between the meter and the light source).
6. Switch on the device under test so that it begins moving.
7. As each object passes between the meter sensor and the optical source, the count increments by 1 and the monitor symbol •)) appears.
8. Short press *MAX/MIN* to reset the counter to zero (*COUNT* will flash twice).
9. If the count > 99,999, the display will show *OL* in place of a reading.

5.6 Data Hold Function

Short press the Data Hold (*H*) button to freeze/unfreeze the displayed readings. While Data Hold is active, *HOLD* will appear on the LCD.

5.7 LCD Backlight

Long press the backlight button to switch the display backlight on or off. Excessive use of the backlight will shorten battery life.

5.8 MAX/MIN Readings in RPM Mode

In RPM mode, short press the *MAX/MIN* button to step through the MAX/MIN memories.

To clear the memory, long press the *MAX/MIN* button while either the *MAX* or the *MIN* mode text is showing. The memories are cleared each time the meter power is cycled.

5.9 Bluetooth Operation

Long press the Bluetooth button with the meter on, to switch Bluetooth on or off. This communication symbol is shown when Bluetooth is on.

The Bluetooth utility allows you to remotely monitor readings on an iOS or Android smart device using the Extech ExView mobile app designed for use with this meter.

Download the ExView mobile app from the App Store for iOS devices or from Google Play for Android devices. Instructions for mobile app use are available from the ExView product page on the Extech website (link below).

http://www.extech.com

Switch APO off when using Bluetooth by pressing and holding the power and *H* buttons for 2 seconds (the APO symbol will switch off). This will prevent the meter from automatically switching off while you are logging data or monitoring readings in real time on your smart device.

6 Maintenance

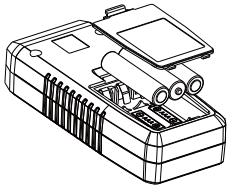
⚠ CAUTION
Warning: Do not open the meter. Service should only be performed by factory personnel, there are no user-serviceable components in this device.

6.1 General Cleaning

Wipe the housing with a damp cloth as necessary to clean. Do not use abrasives or solvents to clean this device. The sensor and Laser lens can be cleaned with a lint-free swab and high quality lens cleaner.

6.2 Battery Replacement

This device is powered by three (3) 1.5 V (AAA) batteries. When the low battery symbol ▭ appears, replace the batteries immediately, as explained below.



1. Switch the meter off and remove the rear battery compartment cover.
2. Replace the batteries, observing correct polarity. Always use batteries of the same type.
3. Secure the battery compartment before use.

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.

7 Specifications

7.1 General Specifications

Display	5 digit (99999) backlit multifunction LCD
Over range indication	*OL* is displayed when measurements are out of range
Low battery indication	Battery symbol appears when batteries are low
Sensor type	Photo-sensitive diode
Measurement distance	50 to 500 mm (2 to 20 in.)
Meter power	Three (3) 1.5 V (AAA) batteries
Dimensions	137 x 55 x 28 mm (5.4 x 2.2 x 1.1 in.)
Weight	102 g (3.6 oz.)

7.2 Measurement Specifications

Specifications apply for the following conditions:

Temperature: 23°C ± 5°C (73.4°F ± 9°F); Relative Humidity: < 90 %

RPM range	0 to 99,999 RPM
RPM reading refresh rate	1 to 7 seconds, depending on speed of device under test
Counter range	0 to 99,999

7.3 Environmental Specifications

For indoor use only

Altitude	2000 m (6562 ft.) max.
Pollution degree	2
Operating conditions	0 to 40°C (32 to 104°F); < 80% RH
Storage conditions	-20 to 60°C (-4 to 140°F); < 80% RH
Drop-proof rating	1 m (3.3 ft.)
Safety	EN 61010-1; EN 61010-031; EN 61326
Laser pointer	Class 3R; Output: ≤ 5 mW, 650 nm

7.4 Connectivity Specifications

Connectivity	Bluetooth (with ExView app)
ExView app compatibility	iOS 13.0 and Android 9.0 or higher
Transmission distance	Up to 90 m (295.3 ft.) with no line-of-sight obstruction

8 Two-year Warranty

FLIR Systems, Inc. warrants this Extech brand instrument *to be free of defects in parts and workmanship for* ***two years*** *from date of shipment (a six-month limited warranty applies to sensors and cables). To view the full warranty text please visit: http://www.extech.com/support/warranties.*

8.1 Calibration and Repair Services

FLIR Systems, Inc. offers calibration and repair services for the Extech brand products we sell. We offer NIST traceable calibration for most of our products. Contact us for information on calibration and repair availability, refer to the contact information below. Annual calibrations should be performed to verify meter performance and accuracy. Product specifications are subject to change without notice. Please visit our website for the most up-to-date product information: www.extech.com.

8.2 Contact Customer Support

Customer Support Telephone List: https://support.flir.com/contact

Calibration, Repair, and Returns e-mail: repair@extech.com

Technical Support: https://support.flir.com

EXTECH®

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Website
http://www.flir.com

Customer support
http://support.flir.com

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