

User's Guide

**EXTECH**  
**INSTRUMENTS**

Mini Photo Tachometer Model 461700

Mini Contact Tachometer Model 461750



**T**  **USA**  
**Equipment**  
**.NET**  
An Interworld Highway, LLC Company

## Introduction

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Congratulations on your purchase of the Extech Tachometer.

The **Model 461700 Photo Tachometer** uses precision optics and reflective tape to measure the RPM of rotating devices such as fans and gears.

The **Model 461750 Contact Tachometer** uses convex and concave attachments to measure RPM. It also has a built-in wheel to measure the linear surface speed of moving devices such as conveyors and treadmills. Careful use of this tachometer will provide years of reliable service.

## Specifications

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### General Specifications

Display	5-digit LCD Display
Range selection	Automatic range selection
Time Base	4MHz Quartz Crystal
Sampling Time	1 second (>60 rpm); >1 second (10 to 60 rpm)
Photo Tachometer Distance	2 to 12" (5 to 30cm)
Operating Temperature	32 to 122°F (0 to 50°C)
Operating Humidity	80% RH Max.
Power supply	9V Battery
Battery Life	40 hours (approx.)
Applicable standards	EN 50081-1/1992 (EN 55022) EN 50082-1/1997 (EN 55024)
Dimensions	461700: 4.9 x 2.0 x 1.3" (124 x 51 x 33mm) 461750: 5.9 x 2.0 x 1.3" (150 x 51 x 33mm)
Weight	461700: 4.0 oz. (114g); 461750: 5.0 oz. (142g)

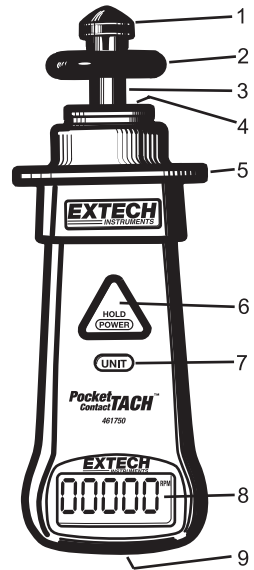
### Range Specifications

Measurement	Range	Accuracy
Rotation (461700 Photo)	10.000 to 99999 rpm	± (0.1% reading + 2 digits)
Rotation (461750 Contact)	10.000 to 9999 rpm	± (0.1% reading + 2 digits)
Surface Speed (461750)	3.0000 to 6560.0 ft/min	± (1.5% reading + 2digits)
	1.0000 to 1999.9 m/min	
	1.0000 to 5000.0 yds/min	

## Meter Description

1. RPM adaptor (461750 only)
2. Wheel for linear surface measurements (461750 only)
3. Adaptor shaft (461750 only)
4. Model 461700 optics
5. Hand Guard (461750 only)
6. Power ON/OFF and HOLD button
7. Unit of measure selection button (461750 only)
8. LCD Display
9. Alternate Power ON/OFF button

Note that the battery compartment is located on the rear of the instrument



## Display Description

1. Low Battery
2. Data Hold
3. Rotations per minute
4. Meters per minute  
Feet per minute  
Yards per minute



## ***461750 Safety Precautions***

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The 461750 incorporates a finger guard for protection. However, care should be taken when measuring surface speed to avoid injury.

1. Hold the meter firmly when touching the wheel or attachment to a moving object
2. Keep fingers behind the finger guard while taking measurements
3. Keep your eyes and attention on the measurement activity at all times
4. Do not attempt to record measurements while holding the meter to the moving object (use the Data Hold feature to freeze the reading on the LCD; refer to the Data Hold section of this manual).

## ***Meter Power***

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### **Power ON / OFF**

1. Press the triangular POWER HOLD button to turn the device ON. Alternatively, press the button at the bottom of the meter (just under the LCD) which doubles as a power on/off button. Two buttons are provided for easy reach at any holding angle.
2. Press and hold the triangular POWER HOLD button (or the alternate button) for approx. 5 seconds to turn the device OFF.

### **Auto Power OFF**

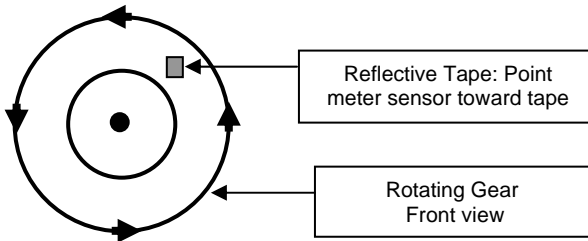
1. The meter turns off AUTOMATICALLY after 20 minutes.
2. For 461750 only: To disable this feature, turn the meter off. Then press and hold the POWER and UNITS buttons until the meter turns on. Release the POWER button first and the 'n' display icon will appear. This indicates that the feature is disabled.

# Measurements

## RPM Measurements

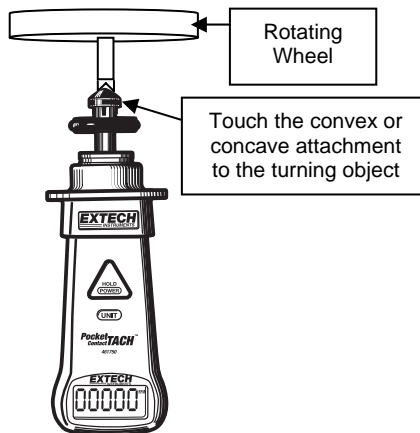
### 461700 Photo Tachometer

1. Affix a small (1/4") square of reflective tape to the surface of the device under test. See rotating gear example diagram below.
2. Allow the device under test to turn at its normal rate.
3. Turn the meter ON.
4. Point the Tachometer's sensor toward the reflective tape. Keep the sensor perpendicular to the reflective tape for the best results. The distance from meter to object can be up to 12" (30cm).
5. Read the RPM (rotations per minute) measurement on the LCD.



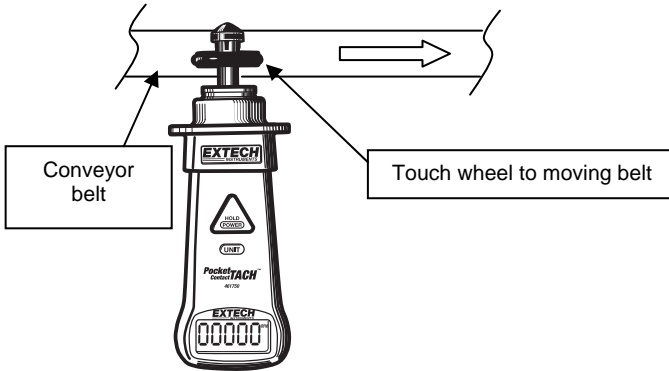
### 461750 Contact Tachometer

1. Affix the convex (cone) or concave (funnel) attachment that best fits the application to the meter shaft as shown below.
2. Turn the meter ON.
3. Use the UNITS button to select RPM (the display will reflect the selection).
4. Touch the attachment to the moving object and read the displayed measurement.



### Surface Speed Measurements (461750 only)

1. Turn the meter on as described previously.
2. Touch the wheel to the moving object and read the measurement on the display. Refer to diagram below.
3. Use the UNITS button to select the unit of measure: ft/min (feet per minute); m/min (meters per minute); yds/min (yards per minute).



### Data Hold Feature

After the meter is turned on, the POWER-HOLD button can be pressed and released to activate Data Hold. Data Hold automatically freezes the displayed reading. While the reading is held, the HOLD display icon switches on. Press the POWER-HOLD button again to exit this mode.

## ***Maintenance***

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### **Battery Replacement**

When the 9V battery weakens, the low battery indicator appears on the LCD. To replace the battery, open the rear compartment and exchange the battery. Be sure to replace the compartment cover securely prior to meter use.

### **Meter Cleaning**

Wipe the meter housing with a damp cloth only. Do not use any abrasives or solvents.

## ***Calibration and Repair Services***

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Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.

## ***Warranty***

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EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website at [www.extech.com](http://www.extech.com) (click on 'Contact Extech' and go to 'Service Department' to request an RA number). A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.



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