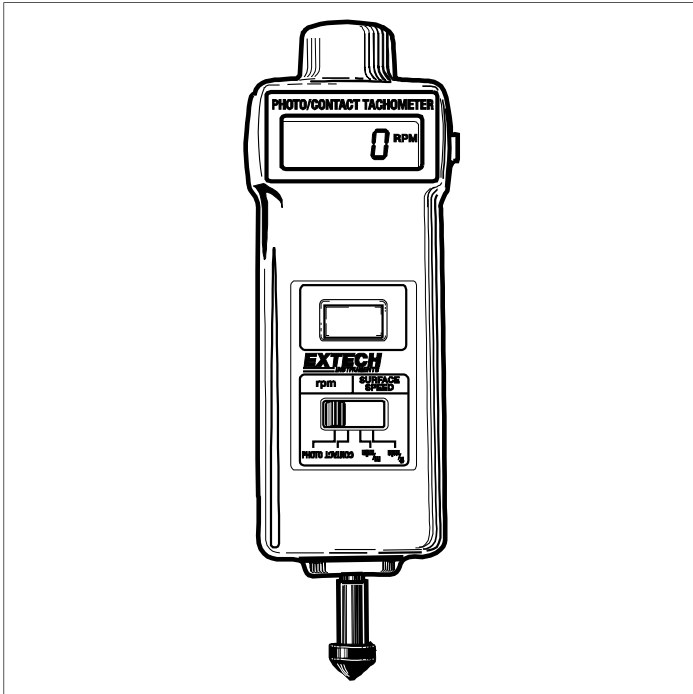


EXTECH[®]

USER MANUAL

Combination Contact/ Photo Tachometer

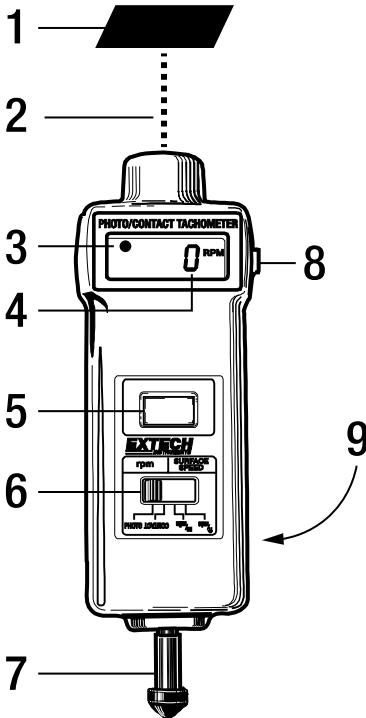
MODEL 461895



Introduction

Congratulations on your purchase of the Extech Combination Contact/Photo Tachometer. The 461895 is a patented design providing contact and non-contact RPM measurements. In addition, linear surface speeds can be measured. Careful use of this device will provide years of reliable operation.

Description



1. Reflective tape: In the non-contact mode, place a small square piece of tape on the object under test.
2. Sensor light source: In the non-contact mode, direct the light beam toward the reflective tape while the device under test is moving.
3. Monitor indication: In the non-contact mode, the indicator switches ON each time the reflective tape breaks the light beam.
4. Measurement display: Indicates the measurement result.
5. Memory button: Press to recall the last, maximum, and minimum readings.
6. Function switch: Select the Tachometer or Linear Surface Speed mode.
7. Rotating shaft: In the contact mode, carefully touch the shaft to the moving object.
8. Measure button: Press to initiate a measurement.
9. Battery compartment on rear.

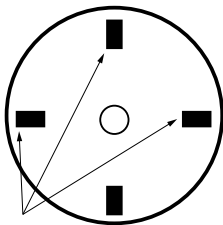
Operation

Photo Tachometer

⚠ CAUTION: Rotating objects can be dangerous. Use extreme care when working near rotating objects.

NOTE: Bright ambient light may interfere with the reflected light beam. In this case, shade the target area.

1. Slide the Function Switch to the **rpm PHOTO** position.
2. Apply a 0.5 in. (12 mm) square piece of reflective tape to the object being measured.
3. Press the measure button and align the visible light beam with the object being measured. Check that the monitor indicator switches ON (upper left-hand corner of LCD) when the reflective tape passes through the light beam. Release the measure button when the reading stabilizes (approx. 2 seconds). For best results, hold the meter's light source 6 to 12 in. (152 to 304 mm) from the object being measured and minimize ambient light.
4. If the RPM measurement is < 50 , apply additional squares of reflective tape (equidistant). Divide the displayed reading by the number of reflective squares to find the actual RPM. In the image, below, three additional pieces of tape were added to a wheel, as indicated by the arrows.



Contact Tachometer

⚠ CAUTION: Rotating objects can be dangerous. Use extreme care when working near rotating objects.

1. Slide the function switch to the **rpm CONTACT** position.
2. Press the measure button while lightly pressing the rotating ring against the center opening of a rotating shaft. Release the measure button when the reading stabilizes (approx. 2 seconds).

Surface Speed Measurements

⚠ CAUTION: Moving belts and other moving objects can be dangerous. Use extreme care when working near moving objects.

1. Slide the function switch to the **SURFACE SPEED ft/min or m/min** position.
2. Attach the surface speed wheel to the meter shaft.

3. Press the measure button and hold the surface speed wheel against the device being measured (a conveyor belt, for example).
4. Release the measure button when the reading stabilizes (approx. 2 seconds).

Memory Recall

While the measure button is pressed, the most recent (last), maximum, and minimum readings are automatically stored. Recall the values, using the memory button, as explained below.

1. Press and hold memory button: The last value is displayed followed by **LA**.
2. Press again and hold: The maximum value is displayed followed by **UP**.
3. Press again and hold: The minimum value is displayed followed by **dn**.

Maintenance

Cleaning and Storage

Wipe the device with a damp cloth and mild detergent as necessary. Do not use solvents or abrasives to clean this device. When storing, remove the batteries and store separately.

Battery Replacement

The low battery indicator **LO** appears when the batteries need to be replaced.

1. Open the rear battery compartment by removing the screw that secures it.
2. Replace the four 1.5 V AA batteries, observing correct polarity.
3. Replace the battery cover.



Do not dispose of used batteries or rechargeable batteries in household waste.

Specifications

General Specifications

Display	Five-digit LCD
Time base	Quartz crystal
Measurement types	Photo tachometer, contact tachometer, surface speed
Memory	Last, maximum, and minimum readings
Sampling time	Photo tachometer: 1 second (> 60 RPM) Contact tachometer: 1 second (> 6 RPM)
Detection distance (photo tachometer)	2 to 6 in. (50 to 152 mm), typical. Detection range can extend to 12 in. (300 mm), depending on ambient light.
Operating temperature	32 to 122°F (0 to 50°C)
Power supply	4 x 1.5 V AA batteries

Weight	7.6 oz. (215 g)
Dimensions	8.5 x 2.6 x 1.5 in. (215 x 65 x 38 mm)
Supplied accessories	Reflective tape, cone and funnel RPM adaptor, surface speed wheel, and carrying case

Electrical Specifications

Photo Tachometer	
Range	5 to 99, 999 RPM
Resolution	0.1 RPM (5.0 to 999.9 RPM) 1 RPM (\geq 1000 RPM)
Accuracy (of reading)	\pm (0.05% + 1 digit)

Contact Tachometer	
Range	0.5 to 19,999 RPM
Resolution	0.1 RPM (0.5 to 999.9 RPM) 1 RPM (\geq 1000 RPM)
Accuracy (of reading)	\pm (0.05% + 1 digit)

Surface Speed (ft/min)	
Range	0.2 to 6560 ft/min
Resolution	0.1 ft/min (0.2 to 999.9 ft/min) 1 ft/min (\geq 1000 ft/min)
Accuracy (of reading)	\pm (0.05% + 1 digit)

Surface Speed (m/min)	
Range	0.05 to 1999 m/min
Resolution	0.01 m/min (0.05 to 99.99 m/min) 0.1 m/min (100.0 to 999.9 m/min) 1 m/min (\geq 1000 m/min)
Accuracy (of reading)	\pm (0.05% + 1 digit)

Customer Support

Customer Support Local Telephone List:

<https://support.flir.com/contact>

Returns (RMA):

<https://customer.flir.com/Home>

Warranty

Teledyne FLIR warrants this Extech brand instrument to be free of defects in parts and workmanship for two years from date of shipment. To view the full warranty text, please visit the support site, link below.

<https://www.flir.com/support-center/warranty/>

Website

<http://www.flir.com>

Customer support

<http://support.flir.com>

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