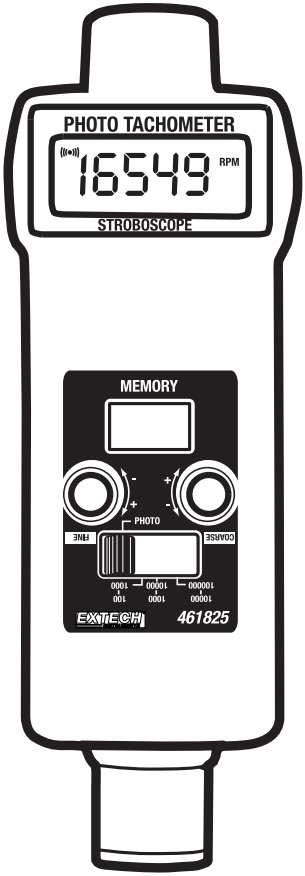
EXTECH INSTRUMENTS

USER GUIDE

Combination Photo-Tachometer Stroboscope

Model 461825



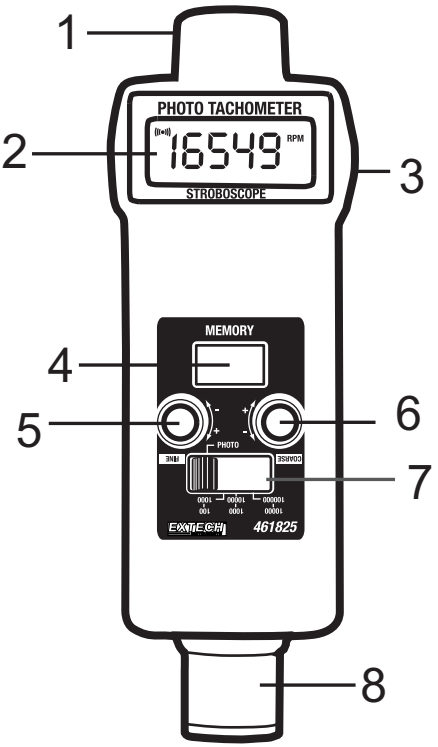
Introduction

Congratulations on your purchase of Extech's Combination Photo-Tachometer/Stroboscope. 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) to check for the latest version of this User Guide, Product Updates, and Customer Support.

Meter Description

1. Tachometer Light Source
2. LCD Display
3. Measure trigger button
4. Memory Recall button
5. FINE adjust knob
6. COARSE adjust knob
7. Range/Function select switch
8. Stroboscope flash tube

Note: Battery compartment is on rear of meter



You, as the end user, are legally bound (**EU Battery ordinance**) to return all used batteries, **disposal in the household garbage is prohibited!** You can hand over your used batteries / accumulators at collection points in your community or wherever batteries / accumulators are sold!

Disposal: Follow the valid legal stipulations in respect of the disposal of the device at the end of its lifecycle

STROBOSCOPE MEASUREMENT PROCEDURE

Select the Stroboscope Function and Range using the Range/Function Select Switch. The switch has four positions, three of which are stroboscope-dedicated with white range numbers. The fourth position is Photo-Tachometer dedicated and is labeled as such.

Speed Measurements.

1. Remove power to the moving object under test and affix a target mark on the area to be measured.
2. Apply power to the moving object and press the stroboscope's Measure Trigger Button.
3. Aim the Stroboscope light beam toward the marked area on the object under test.
4. Use the FINE and COARSE adjust knobs to synchronize or "stop" the motion of the object's mark. A single stationary image of the mark provides actual speed measurement data.

NOTE: Care must be taken to ensure that the mark is providing a 1:1 measurement. This is done by checking that there is only one mark and not two, four, or more stationary marks on the object under test. Two or more stopped marks indicate "harmonic" measurements (2:1, 3:1, 4;1 etc.) which provide a doubling, tripling, or quadrupling of the actual speed. A useful method of avoiding harmonic measurements is to adjust the FINE/COARSE knobs until two images (marks) appear and then lower the flash rate (via COARSE/FINE knobs) until a single, stationary image appears. This is the actual speed.

Inspecting a moving object

Measure the speed of a moving object as described above and move the FINE adjust knob alternately higher and lower to visually inspect all areas of the device.

PHOTO-TACHOMETER MEASUREMENT PROCEDURE

1. Select the Photo-Tachometer function by moving the Range/Function select switch to the PHOTO position.
2. Affix a small piece (approx. 0.5") of supplied reflective tape to the object under test.
3. Press the meter's Measurement Trigger button and align the Photo-Tachometer light source with the reflective tape mark on the moving object.
4. Wait until the Monitor Indicator appears in the upper left hand corner of the LCD indicating that synchronization has occurred.
5. Release the Measure Trigger button only after the reading has stabilized (approx. 2 seconds).

NOTE: To obtain better accuracy for low RPM measurements (less than 50 RPM) use more than one piece of reflective tape. Divide the meter reading by the number of reflective tape pieces for accurate measurement data.

MEMORY RECORD AND RECALL

The 461825 can record Maximum, Minimum, and Last Reading for the period of time during which the Measure Trigger button is held. These stored values can then be read directly on the meter's display. The memory will automatically erase after approximately 10 seconds of meter inactivity. Access the memory data immediately after the measurements.

1. Follow the instructions for normal operation.
2. Release the Measurement Trigger button.
3. Immediately press the Memory Recall button once to display the Last Reading taken during the measurement period. 'LA' will alternately display with the data reading to indicate 'Last Reading".
4. Release and press the Memory Recall button again to display the Maximum reading taken during the measurement period. 'UP' will alternately appear with the data reading to indicate Max. reading.
5. Release and press the Memory Recall button again to display the Minimum reading taken during the 30 second test period. 'dn' will alternately appear with the data reading to indicate Min. reading.

Specifications

General Specifications

Circuit	Custom LSI microprocessor based design
Display	Reversible, 10mm (0.4") 5-digit (99999 count) LCD display
Measurement units	RPM (revolutions or rotations per minute)
Memory Recall	Records/Recalls Max/Min/Last readings with memory push-button
Operating Temperature	0 to 50°C (32 to 122°F)
Operating Humidity	< 80% RH
Power Supply	Four 1.5V 'AA" batteries (UM-3 or equivalent)
Weight	216g (0.48 lbs.) meter only
Dimensions	207 x 72 x 48mm (8.2 x 2.8 x 1.9")
Accessories	Reflective tape and carrying case

Electrical Specifications

Measurement Range	5 to 99,999 RPM for the Tachometer 100 to 100,000 FPM/RPM for the Stroboscope
Resolution	0.1 RPM (<1000 RPM) and 1 RPM (> 1000 RPM)
Accuracy	± (0.1% + 2 digits)
Sampling Time	1 second (> 60 RPM)
Photo Tachometer detection distance	50 to 150mm (2 to 6") typical *Note:* Detection distances up to 300mm (12") are possible depending upon ambient light
Stroboscopic Flash rate	100 to 100,000 FPM (flashes per minute)
Stroboscopic Flash adjust range	Range A: 100 to 1,000 FPM Range B: 1000 to 10,000 FPM Range C: 10,000 to 100,000 FPM
Stroboscopic Flash tube type	High efficiency LED lamp
Stroboscopic Flash duration	60 to 1000 microseconds (approx. 16% of period)
Stroboscopic Flash Color	Orange