

# 505L

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## LASER PHOTO / CONTACT TACHOMETER

### Instruction Manual





## WARNING



### **Read instructions before operating:**

Be sure these instructions accompany the tool when passed from one user to a new or inexperienced user.

Rotating equipment can cause flying particles



### **Wear Safety Goggles (User and bystanders).**

*Flying particles can cause eye injury.*

Keep yourself, clothing and test equipment clear of moving parts.

**CAUTION: LASER RADIATION - DO NOT STARE INTO BEAM. OUTPUT <1mW WAVELENGTH 635 - 670nm. CLASS II LASER PRODUCT**

**Note:** To zero previous readings on all tach operations, Press and hold the **START** button then press the desired function button. If a stored value appears, release **START** button until the display goes off. Then press the **START** button immediately and a zero reading will be displayed until the unit is used for measuring RPM or the **START** button is released.

# PHOTO TACH OPERATION

## *Measurement Procedure:*

1. Unscrew contact collar from optical end of 505L (if attached).

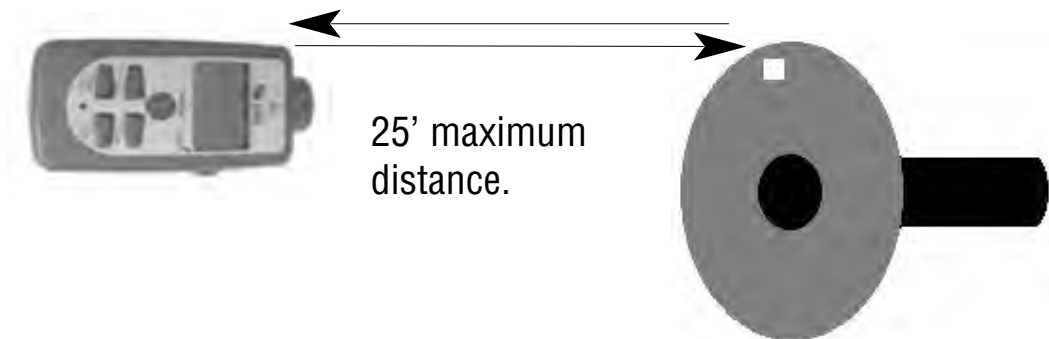


Contact collar

2. Attach a piece of reflective tape on the rotating object to be measured.
3. Depress and hold the START button and then press the Photo button (lower right) on the 505L.
4. With the start button depressed, point the optical end at the rotating surface so the reflective tape passes the laser every rotation.

**Note:** The 505L can be set to continuous on, eliminating the need to hold the START button down. Press and hold the START button then press the MEMORY button. "L-on" will display indicating continuous on is activated. Deactivate continuous on by holding down the START button and press the MEMORY button. "L-off" will display indicating continuous on is deactivated.

5. Read the RPM on the LCD display.



Maximum distance to target is dependent on several items like the strength of reflection of the laser, ambient light conditions, and the surface of the item under test. For best results the background surface should be dark as compared to the reflective tape. If readings are unstable, move closer to the target for better performance. At long distances a tripod or other rest may be necessary for proper function.

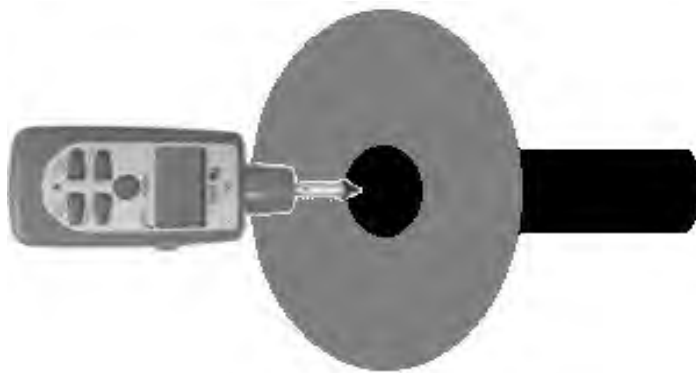
# CONTACT TACH OPERATION

## *Measurement Procedure:*

1. Screw the contact collar onto the optical end of the 505L.
2. Attach the cone or concave tip to end of the contact collar shaft.
3. Press and hold the START button and then press the Contact button (lower left) on the 505L.
4. While pressing the START button, hold the wheel against the center end of the rotating shaft.

**Note:** The 505L can be set to continuous on, eliminating the need to hold the START button down. Press and hold the START button then press the MEMORY button. "L-on" will display indicating continuous on is activated. Deactivate continuous on by holding down the START button and press the MEMORY button. "L-off" will display indicating continuous on is deactivated.

5. Read the RPM on the LCD.



Lightly press the cone or concave tip to the center of the rotating shaft. Measuring from anywhere but the center will result in incorrect readings.

# SURFACE SPEED OPERATION

## *Measurement Procedure:*

1. Screw the contact collar onto the optical end of the 505L.
2. Attach the surface speed wheel to the end of the contact collar shaft.
3. Press and hold the START button and then press the ft/min (feet per minute) or m/min (meters per minute) on the 505L.
4. While pressing the START button, hold the wheel against the moving surface.

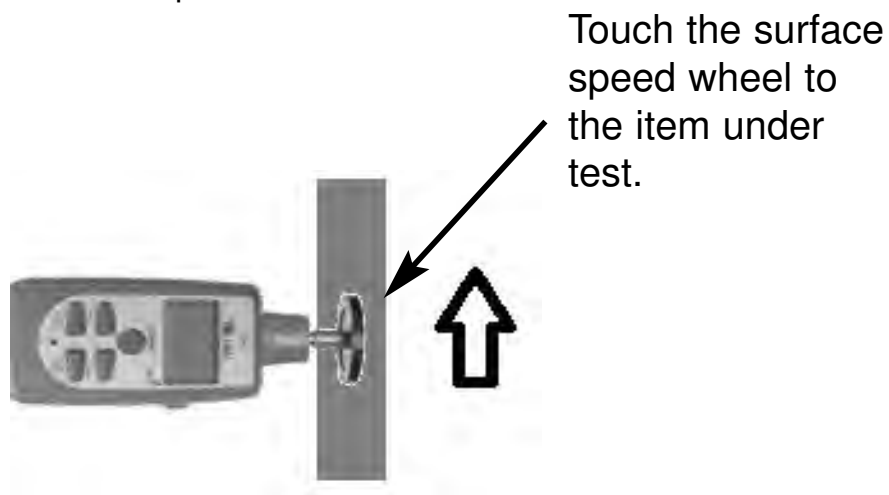


Contact collar



Surface Speed Wheel

- Note:** The 505L can be set to continuous on, eliminating the need to hold the START button down. Press and hold the START button then press the MEMORY button. "L-on" will display indicating continuous on is activated. Deactivate continuous on by holding down the START button and press the MEMORY button. "L-off" will display indicating continuous on is deactivated.
5. Read the speed on the LCD.



Note: In this mode the meter displays the surface speed in ft/min (feet per minute) or m/min (meters per minute) and not RPM. Do not use the surface speed wheel to measure RPM. Displayed readings will be incorrect.

## MEMORY RECALL OPERATION

***Note: The memory resets itself once the START button is depressed and stable measurements are displayed for 10 seconds or 12 revolutions (whichever is longer). The values are stored when the START button is released.***

1. When you are finished taking measurements, release the START button.
2. Depress the MEMORY button once, the LAST reading will be displayed
3. Press the MEMORY button twice, the MAX reading will be displayed.
4. Press the MEMORY button three times, the MIN reading will be displayed.

**Unit will power off after 5 seconds.**

## CONTINUOUS ON OPERATION

The 505L can be set to continuous on, eliminating the need to hold the START button down.

- 1 Press and hold the START button then press the MEMORY button. "L-on" will display indicating continuous on is activated.
2. Deactivate continuous on by holding down the START button and press the MEMORY button. "L-off" will display indicating continuous on is deactivated.

## BATTERY REPLACEMENT

### *Measurement Procedure:*

1. Remove the screw holding the battery compartment cover in place on the back of the 505L.
2. Slide the cover off of the unit.
3. Remove the 2 each “AA” alkaline batteries and replace with the same type.
4. Replace the cover and screw.

## STANDARD ACCESSORIES

Reflective Tape . . . . .	A501
Contact RPM Adapter (screw on) . . . . .	A502
RPM Adapter (Cone Type) . . . . .	A503
RPM Adapter (Funnel Type) . . . . .	A504
Surface Speed Test Wheel . . . . .	A505
(O.D. 48.7 mm exactly)	
Carrying case . . . . .	A908

## OPERATION SPECIFICATIONS

Function	Range	Accuracy
<b>Photo Tach:</b>	6 - 30,000 RPM	± 0.1% of FS + 1 digit
<b>Contact Tach:</b>	6 - 20,000 RPM	± 0.1% of FS + 1 digit
<b>Surface Speed:</b>	0.9 - 3,046 m/min	± 0.1% of FS + 1 digit
	2.0 - 9,990 ft/min	± 0.1% of FS + 1 digit

## GENERAL SPECIFICATIONS

**Display:** 5 Digit LCD

**Operating Temperature:** 32° to 122°F (0° to 50°C)

**Operating Humidity:** 80% Max. R.H.

**Power Supply:** AA Alkaline Bat. (2)

**Maximum Distance from Target (photo mode):** 25 feet\*\*

**Detection Type:** Laser reflection

**Laser Output:** Class II 635~670nm

**Signal Output:** +5V pulsed

**Tripod Connection:** 1/4 inch

\*\* Max distance to target is dependent on several items like the strength of reflection of the laser, ambient light conditions, and the surface of the item under test. For best results the background surface should be dark as compared to the reflective tape. If readings are unstable, move closer to the target for better performance.



## Output Signal (+5V Pulsed)

The 505L incorporates a +5V pulsed output to trigger external devices:



Connect a lead to the pulsed output jack (see below).

Output pulses +5V with each reflected signal from the device under test.

+5V Pulsed Output

### Wiring Diagram for Pulsed Output Lead



- 1 : +5V Pulse Out
- 2 : N.C.
- 3 : GND

## Tripod Connection

The 505L is equipped with a tripod connection. This connection is located on the back of the instrument and can be used for added stability when taking measurements at long distances.



505L Tripod mount. Standard 1/4" threaded mount accepts various tripods and adapters.