

Shimpo DT-105A - DT-107A Handheld Tachometers



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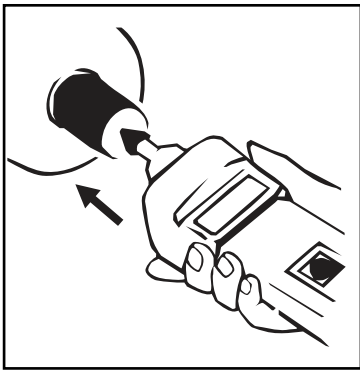
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1.0 INTRODUCTION

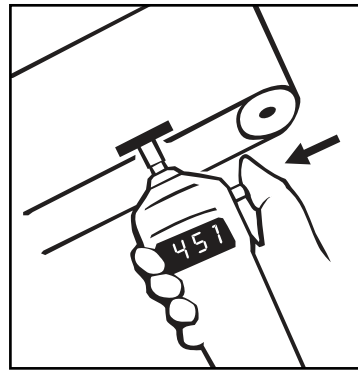
The DT-105A, DT-107A DT-105A-12 and DT-1807A-12 Hand-Held Digital Tachometers are designed to accurately measure rotation speeds, surface speeds and length. The rotational speed is displayed in RPM units (Revolutions per minute) while the surface speed and length can be displayed in a variety of user-selected engineering units.

When measuring RPM, the user will mount the Cone Tip Adapter or Funnel Tip Adapter to the end of the shaft and place in contact with the rotating shaft or element. When measuring surface speed or length, the 6 inch circumference (1.9" diameter) is fitted to the end of the shaft and placed in contact with the moving surface.

Applications



RPM Measurement



Surface Speed & Length

9.0 SPECIFICATIONS

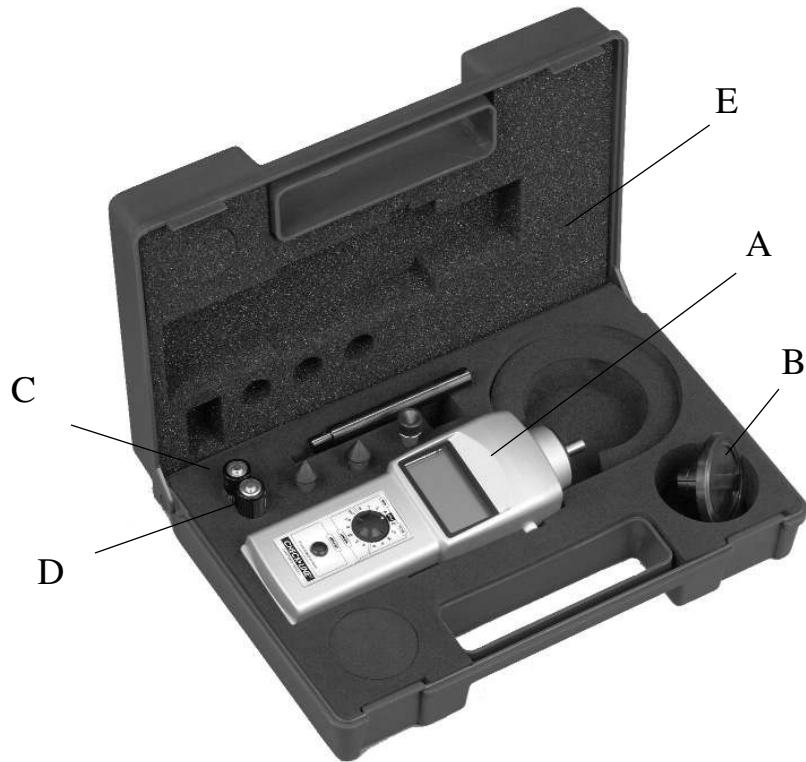
Display Range	0.10 to 25,000 rpm with floating decimal
Accuracy	0.10 to 999.99 rpm: ± 0.06 rpm 1,000.0 to 9,999.9 rpm: ± 0.6 rpm 10,000 to 25,000 rpm: $\pm 0.006\%$ rpm
Measurement Units	
<i>per Minute</i>	Revolutions, Meters, Yards, Feet, Inches
<i>per Hour</i>	Feet, Yards, Miles, Meters, Revolutions
<i>Total</i>	Revolutions, Centimeters, Meters, Yards, Feet, Inches
<i>per Second</i>	Revolutions, Inches, Feet, Yards, Centimeters (optional, inquire)
Memory System	13 readings are stored in memory and retained for 5 minutes (last, max., min., and 10 measurements)
Over-Range Indicator	Flashing numerals
Detection	Optical coupler, 60 pulses/rev
Update Time	1 second (typical)
Batteries Size:	2 1.5 V AA Life: Approx. 65 hrs. (DT-105A) Life: Approx. 40 hrs. (DT-107A)
Low Voltage Indicator	Flashing "LO BAT" display (DT-105A) "B" display (DT-107A)
Operating Temperature	32 to 113° F (0 to 45° C)
Weight	0.9 pounds (400 grams)
Dimensions	7.3" L x 2.4" W x 1.8" H (185.4 x 60.0 x 45.7mm)
Warranty	1 year

All Models			
I: Inches	Single Range	Accuracy	Resolution
I/M (inches/min.)	0.6 – 9,999.9	±0.6	0.1
	10,000 – 99,999	±0.006% of reading ±1 digit (or ±6 IPM max.)	1
IN (length)	0.1 – 9,999.9		0.1
	10,000 – 99,999		1
m: Meters	Single Range	Accuracy	Resolution
m/M (meters/min.)	0.02 – 999.99	±0.06	0.01
	1,000.0 – 3,810.0	±0.3	0.1
m/H (meters/hour)	0.9 – 9,999.9	±0.6	0.1
	10,000 – 99,999	±0.006% of reading ±1 digit (or ±6 MPH max.)	1
m (length)	0.005 – 99.995		0.005
	100.00 – 999.99		0.01
	1,000.0 – 9,999.9		0.1
	10,000 – 99,999		1
cm (length)	0.5 – 9,999.5		0.5
	10,000 – 99,999		1
M: Miles	Single Range	Accuracy	Resolution
M/H (miles/hour)	0.0006 – 9.9999	±0.0006	0.0001
	10.000 – 99.999	±0.006	0.001
	100.00 – 142.05	±0.01	0.01

2.0 OVERVIEW



3.0 CONTENTS OF COMPLETE KIT



- A. Tachometer
- B. 6-inch Surface Speed Wheel (modelsDT-105A,DT107A)
12-inch Surface Speed Wheel (modelsDT-105A-12,DT-107A-12)
- C. Batteries (2 pcs. x AA)
- D. Accessories
 - Cone Tip Adapter (2)
 - Funnel Tip Adapter
 - Shaft Extension
- E. Operating Instructions (located behind upper foam)

8.0 RANGE AND ACCURACY

All Models			
R: Revolutions	Single Range	Accuracy	Resolution
Contact RPM (rev./min.)	0.10 – 999.99	±0.06	0.01
	1,000.0 – 9,999.9	±0.6	0.1
	10,000 – 25,000	±0.006% of reading ±1 digit (or ±2 rpm max.)	1
Contact RPH (rev./hour)	6 – 99,999	±0.006% of reading ±1 digit (or ±6 rpm max.)	1
REV (total revolution)	0.1 – 9,999.9	±0.1	0.1
	10,000 – 99,999	±1	1
F: FEET	Single Range	Accuracy	Resolution
F/M (feet/min.)	0.05 – 999.99	±0.06	0.01
	1,000.0 – 9,999.9	±0.6	0.1
	10,000 – 12,500	±1	1
F/H (feet/hour)	3 – 99,999	±0.006% or reading ±1 digit (or ±6 FPH max.)	1
FT (length)	0.01 – 999.99		0.01
	1,000.0 – 9,999.9		0.1
	10,000 – 99,999		1
Y: Yards	Single Range	Accuracy	Resolution
Y/M (yards/min.)	0.02 – 999.99	±0.06	0.01
	1,000.0 – 4,167.0	±0.3	0.1
Y/H (yards/hour)	1.0 – 9,999.9	±0.06	0.1
	10,000 – 99,999	±0.006% or reading ±1 digit (or ±6 YPH max.)	1
Y/Rd (length)	0.005 – 99.995		0.005
	100.00 – 999.99		0.01
	1,000.0 – 9,999.9		0.1
	10,000 – 99,999		1

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7.0 BUILT-IN MEMORY SYSTEM

The DT-105A, DT-107A, DT-105A-12 and DT-107A-12 include a built-in memory system capable of storing the *last*, *maximum* and *minimum* values, plus 10 separate readings for recall to the display.

Storing Readings

Press the Memory Switch momentarily when the reading to be stored appears on the display. An “M” will appear on the display briefly indicating that the reading has been successfully stored in the memory. A maximum of 10 readings can be stored in memory.

Note: The stored data will be deleted when the Tachometer automatically powers off.

Recall Stored Readings

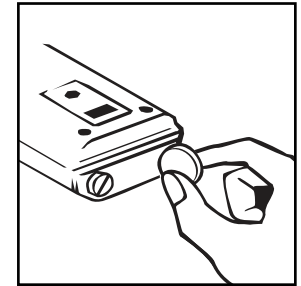
To recall stored readings to the display, press the Memory Switch. A stored value will alternately flash on the display along with the memory location number (1, 2, . . .10).

Clearing Stored Readings

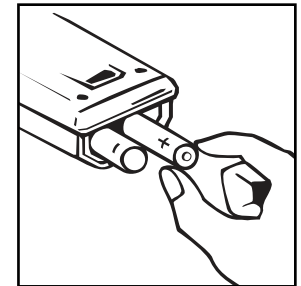
To erase all stored readings, press and hold the Memory Switch for five (5) or more seconds until the display shows “CCCCC.” This indicates that the memory was successfully erased.

4.0 INSTALLING/REPLACING BATTERIES

1. Loosen the two black screws at the bottom edge of the tachometer using a slotted screwdriver or coin.



2. Remove the battery compartment cover plate exposing the battery sleeve.

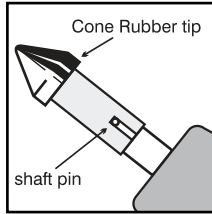


3. Insert the AA batteries observing the proper battery polarity indicated on a label inside the battery compartment.

Note: The DT-105A, DT-107A, DT-105A-12 and DT-107A-12 are designed to automatically power off after five (5) minutes of “non-use” to conserve battery power.

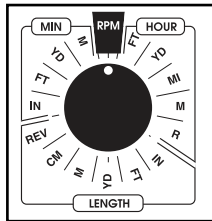
5.0 MEASURING RPM

1. Select either the *Cone Tip Adapter* or the *Funnel Tip Adapter* and carefully place it on the shaft making sure to align the pin on the shaft with the slot on the adapter.

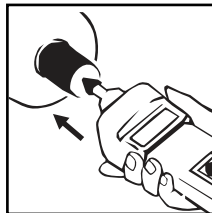


Note: The shaft extension accessory can be used to help reach the end of the shaft, however, under no circumstances should this extension be used with the *Surface Speed Wheel*.

2. Rotate the *Operating Mode Selector Switch* to RPM.



3. Position the adapter carefully on the end of the rotating shaft insuring that it is positioned in the center of the shaft. Apply enough pressure to eliminate slip.

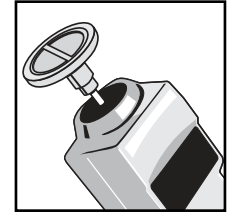


4. Press and hold the white *Measure Button* located on the right side of the Tachometer.
5. The display will update approximately 1 time per second and show the measured rotational speed in RPM.
6. Release the *Measure Button* prior to removing the Tachometer from the rotating shaft. The last reading will be retained on the display.

Readings will be retained in memory for 5 minutes. This time can be extended indefinitely by re-pressing the *Memory Switch* within each five minute period.

6.0 MEASURING SURFACE SPEED & LENGTH

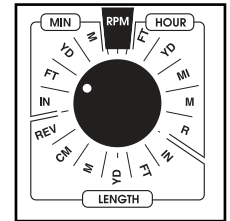
1. Select the *Surface Speed Wheel* and carefully place it on the shaft making sure to align the pin on the shaft with the slot on the wheel.



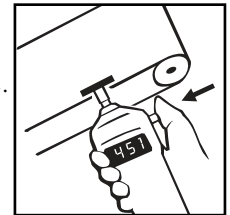
Warning: The Shaft Extension Accessory should not be used with the *Surface Speed Wheel*.

2. Rotate the *Operating Mode Selector Switch* to the desired unit of measure for surface speed or length.

Select Desired Unit Of Measure For Surface Speed or Length



3. Position the wheel carefully on the moving surface. Apply enough pressure to eliminate any slip.



4. Press and hold the white *Measure Button* located on the right side of the Tachometer.
5. The display will update approximately 1 time per second and show the measured surface speed or length in the units selected in the *Operating Mode Selector Switch*.
6. Release the *Measure Button* prior to removing the Tachometer from the rotating shaft. The last reading will be retained on the display.

Readings will be retained in memory for 5 minutes. This time can be extended indefinitely by re-pressing the *Memory Switch* within each five minute period.