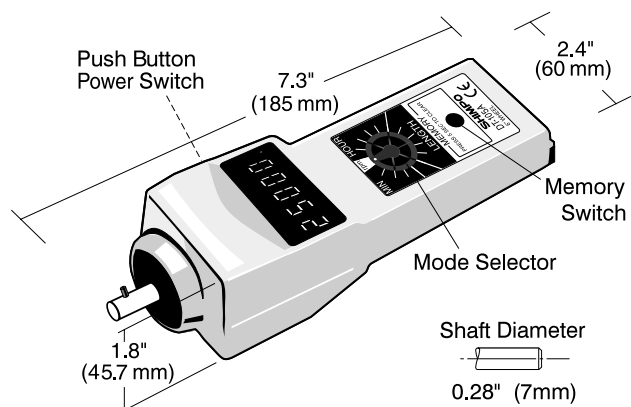


# SHIMPO INSTRUMENTS

## Model DT-105A Handheld Contact LCD Digital Tachometer

## Instruction Manual



### Features

The Shimpo DT-105A is a battery operated, handheld, microprocessor-controlled contact type tachometer. It incorporates the latest micro-circuit technology and offers:

- *Multi-mode capability – measures RPM, FPM, YPM, mPM and other units without special accessories*
- *Large memory capacity*
- *Wide speed range with automatic floating decimal point*
- *C-MOS single chip microprocessor for high reliability and low maintenance*
- *Rugged construction - die-cast aluminum housing*

### Specifications

| MODEL                 | DT-105A                                                                                                                                                      |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Display Range         | 0.10 to 25,000 rpm with floating decimal                                                                                                                     |
| Accuracy              | ±0.06 rpm: 0.10 to 999.99 rpm<br>±0.6 rpm: 1,000.0 to 9,999.9 rpm<br>±0.006% of reading ±1 digit (or ±2rpm max.): 10,000 to 25,000 rpm                       |
| Display               | 5 digit 0.47" (12mm) high LCD                                                                                                                                |
| Measuring Units       | Revolutions: RPH, RPM Feet: FPH, FPM Miles: MPH<br>Yards: YPH, YPM Inches: IPM Meters: mPH, mPM<br>Length: m, cm, inches, feet, yards Total revolutions: REV |
| Memory System         | 13 readings are stored in memory and retained for 5 minutes (last, max., min. and 10 extra measurements)                                                     |
| Detection             | Optical coupler, 60 pulses/rev                                                                                                                               |
| System Control        | Single chip C-MOS microprocessor                                                                                                                             |
| Over Range Indicator  | Flashing numerals                                                                                                                                            |
| Update Time           | 1 second (typical)                                                                                                                                           |
| Batteries Included    | Size: 2 AA 1.5V<br>Life: Approx. 65 hrs                                                                                                                      |
| Low Voltage Indicator | Flashing "LO BAT" display                                                                                                                                    |
| Operating Temperature | 32° to 113°F (0° to 45°C)                                                                                                                                    |
| Construction          | Die-cast aluminum housing                                                                                                                                    |
| Weight                | 0.9 lbs (400g)                                                                                                                                               |
| Dimensions            | 7.3"L x 2.4"W x 1.8"H (185mm x 60mm x 45.7mm)                                                                                                                |
| Warranty              | 1 year                                                                                                                                                       |
| STANDARD ACCESSORIES  | 2 cone adapters, 1 funnel adapter, 3-1/2" extension shaft, carrying case and 1 master wheel (6" cir.)                                                        |

### Range and Accuracy

Using the 6" master wheel and proper mode selector switch, the following industrial units of measurement are achieved.

| MODEL                   | DT-105A                                                                   |                                                                   |                           |
|-------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------|
| R: REVOLUTIONS          | SINGLE RANGE                                                              | ACCURACY                                                          | RESOLUTION                |
| Contact RPM (rev./min.) | 0.10 - 999.99<br>1,000.0 - 9,999.9<br>10,000 - 25,000                     | ± 0.06<br>± 0.6<br>±0.006% of reading ±1digit<br>(or ±2 rpm max.) | 0.01<br>0.1<br>1          |
| Contact RPH (rev./hour) | 6 - 99,999                                                                | ±0.006% of reading ±1digit<br>(or ±6 rpm max.)                    | 1                         |
| REV (total revolution)  | 0.1 - 9,999.9<br>10,000 - 99,999                                          | ± 0.1<br>± 1                                                      | 0.1<br>1                  |
| F: FEET                 | SINGLE RANGE                                                              | ACCURACY                                                          | RESOLUTION                |
| F/M (feet/min)          | 0.05 - 999.99<br>1,000.0 - 9,999.9<br>10,000 - 12,500                     | ± 0.06<br>± 0.6<br>± 1                                            | 0.01<br>0.1<br>1          |
| F/H (feet/hour)         | 3 - 99,999                                                                | ±0.006% of reading ±1digit<br>(or ±6 FPH max.)                    | 1                         |
| FT (length)             | 0.01 - 999.99<br>1,000.0 - 9,999.9<br>10,000 - 99,999                     |                                                                   | 0.01<br>0.1<br>1          |
| Y: YARDS                | SINGLE RANGE                                                              | ACCURACY                                                          | RESOLUTION                |
| Y/M (yards/min.)        | 0.02 - 999.99<br>1,000.0 - 4,167.0                                        | ± 0.06<br>± 0.3                                                   | 0.01<br>0.1               |
| Y/H (yards/hour)        | 1.0 - 9,999.9<br>10,000 - 99,999                                          | ±0.6<br>±0.006% of reading ±1digit<br>(or ±6 YPH max.)            | 0.1<br>1                  |
| YRd (length)            | 0.005 - 99.995<br>100.00 - 999.99<br>1,000.0 - 9,999.9<br>10,000 - 99,999 |                                                                   | 0.005<br>0.01<br>0.1<br>1 |
| I: INCHES               | SINGLE RANGE                                                              | ACCURACY                                                          | RESOLUTION                |
| I/M (inches/min.)       | 0.6 - 9,999.9<br>10,000 - 99,999                                          | ±0.6<br>±0.006% of reading ±1digit<br>(or ±6 IPM max.)            | 0.1<br>1                  |
| IN (length)             | 0.1 - 9,999.9<br>10,000 - 99,999                                          |                                                                   | 0.1<br>1                  |
| m: METERS               | SINGLE RANGE                                                              | ACCURACY                                                          | RESOLUTION                |
| m/M (meters/min.)       | 0.02 - 999.99<br>1,000.0 - 3,810.0                                        | ± 0.06<br>± 0.3                                                   | 0.01<br>0.1               |
| m/H (meters/hour)       | 0.9 - 9,999.9<br>10,000 - 99,999                                          | ± 0.6<br>±0.006% of reading ±1digit<br>(or ±6 mPH max.)           | 0.1<br>1                  |
| m (length)              | 0.005 - 99.995<br>100.00 - 999.99<br>1,000.0 - 9,999.9<br>10,000 - 99,999 |                                                                   | 0.005<br>0.01<br>0.1<br>1 |
| cm (length)             | 0.5 - 9,999.5<br>10,000 - 99,999                                          |                                                                   | 0.5<br>1                  |
| M: MILES                | SINGLE RANGE                                                              | ACCURACY                                                          | RESOLUTION                |
| M/H (miles/hour)        | 0.0006 - 9.9999<br>10.000 - 99.999<br>100.00 - 142.05                     | ± 0.0006<br>± 0.006<br>± 0.01                                     | 0.0001<br>0.001<br>0.01   |

**NOTE:** When using master wheel, accuracy can be affected as much as 0.3% of reading

**CAUTION:** Although tachometer alone is able to achieve above ranges, the master wheel has a maximum speed limitation of 5,000 FPM (for safety reasons).

*A Tradition of Excellence*

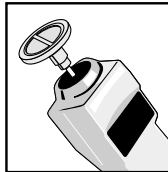
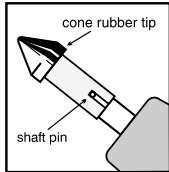
## Surface Speed Metric Conversion

Conversions such as YPM to mPM or mPM to YPM may be obtained from the memory only by switching from one mode to another.

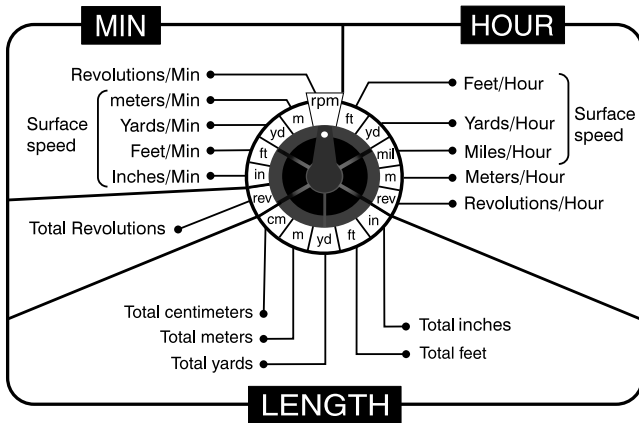
## Operating Procedure

1. Place adapter or wheel on shaft (as shown).

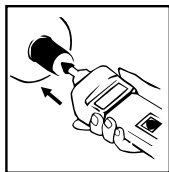
**CAUTION:** Do not attach master speed wheel on extension shaft. The wheel may slip off during measurement.



2. Turn selector switch to desired unit.



3. After attaching proper adapter or wheel, bring it into contact with rotating object or moving surface whose speed is to be measured.



Apply only enough pressure to eliminate slip. The selected function will be shown "blinking" above the display digits.

4. Press and hold the on-off switch. Display will update approximately every second.
5. Observe speed for as long as it is desired.
6. On-off switch must be released prior to removal of tachometer from rotating object if last reading must be captured.
7. After release of power switch, the last reading will be displayed for approximately 5 minutes. Readings will be retained in memory for 5 minutes and can be extended any number of additional 5 minute periods by re-pressing the memory switch.

## Memory Recall

### A. AUTOMATIC MEMORY

The following are automatically stored in memory for 5 minutes following release of the power switch:

- Last reading
- Maximum reading
- Minimum reading

These readings will be displayed in the following order when the memory switch is pressed:

- Last reading
- Maximum reading
- Minimum reading

To fill all three memory spaces, unit must operate for about 5 seconds. If any of the above memory readings are missing, unit must operate a few seconds longer.

### B. MEMORY SELECTION

The DT-105A has the capability of storing 10 extra readings in its memory. These readings can be obtained from the same machine or many machines (up to 10) by pressing the memory switch momentarily as the reading you wish stored appears on the display. An "M" with an integer will appear on the top of the display momentarily, and will be stored in memory. Up to 10 readings can be stored.

**NOTE:** All memory data will be erased if automatic shut-off has occurred. To recall a specific reading, press the memory switch until the desired reading shows up on the display along with its memory position. To erase all data from the memory, press the memory switch for at least 5 seconds until display shows CCCCC. If you hold the memory switch, the display will continue to show CCCCC until the switch is released, then will default to 0.00.

## Battery Replacement

Low battery voltage is indicated by LO BAT on the display. Remove end cover by using a coin or appropriate screwdriver and replace both batteries. Please note polarity.

