Shimpo DT-105A

Shimpo DT-105A Handheld Contact Tachometer User Manual

Model: DT-105A
Brand: Shimpo

Introduction

This manual provides comprehensive instructions for the safe and effective operation, maintenance, and troubleshooting of the Shimpo DT-105A Handheld Contact Tachometer. Please read this manual thoroughly before using the device.

The Shimpo DT-105A is a portable contact tachometer designed for measuring rotational speed, linear speed, surface speed, and total length. It offers 16 different measurement units for rate and speed, making it versatile for various applications in mechanical or industrial engineering environments.

The device features a five-digit LCD screen for displaying results and units, and can store up to 13 readings (maximum, minimum, and last test result). Its durable die-cast aluminum body ensures longevity in harsh environments. The tachometer conforms to NIST standards and carries the CE mark.

Safety Information

Always observe the following safety precautions to prevent injury or damage to the instrument:

- Ensure the device is used within its specified operating temperature range (32 to 113 degrees F / 0 to 45 degrees C).
- Do not attempt to measure speeds exceeding the maximum range (25,000 rpm) to avoid instrument damage. Flashing numerals on the LCD indicate speeds outside the measuring range.
- Use appropriate attachments for the measurement task. Ensure attachments are securely fastened.
- Keep hands and loose clothing away from moving parts during measurement.
- Do not expose the device to excessive moisture or corrosive substances.
- Replace batteries when the low battery indicator appears to ensure accurate readings.

What's in the Box

Verify that all components are present upon unpacking:

- Shimpo DT-105A handheld contact tachometer
- Six-inch wheel
- (2) Cone adapters
- Funnel adapter
- 3.5-inch extension shaft
- Carrying case
- NIST certificate



Image: The Shimpo DT-105A tachometer shown with its included accessories: the main unit, a 6-inch wheel, two cone adapters, a funnel adapter, and an extension shaft.

Setup

1. **Battery Installation:** Open the battery compartment on the back of the tachometer. Insert two AA batteries, ensuring correct polarity. Close the compartment securely.
2. **Attachment Selection:** Select the appropriate attachment for your measurement task:
    - **Six-inch Wheel:** For measuring linear speed, surface speed, or total length on conveyor belts or rotating surfaces.
    - **Cone Adapters:** For measuring rotational speed of shafts with a central hole.
    - **Funnel Adapter:** For measuring rotational speed of shafts with a flat end surface.
    - **Extension Shaft:** Use with cone or funnel adapters for extended reach.
3. **Attachment Installation:** Securely attach the selected accessory to the tachometer's shaft. Ensure it is firmly seated to prevent inaccurate readings or detachment during operation.





Image: Front view of the Shimpo DT-105A handheld tachometer, showing the LCD display, function dial, and memory button.

Operating Instructions

Powering On/Off

Press the power button (usually located on the side) to turn the device on. The LCD will illuminate. Press the power button again to turn it off.

Selecting Measurement Mode and Units

The DT-105A features a rotary dial for selecting measurement modes and units. Rotate the dial to choose between:

- **RPM:** Rotations Per Minute
- **RPH:** Rotations Per Hour
- **Linear Speed Units:** ft./hour, ft./min., MPH, yards/hour, yards/min., in./min., meters/hour, meters/minute
- **Length Units:** meters, centimeters, inches, feet, yards (for total length measurement)

Taking Measurements

1. **Contact:** Gently press the selected attachment against the center of the rotating shaft or the surface of the moving object.
2. **Readout:** The measurement will be displayed on the five-digit LCD screen. The unit of measurement will also be indicated.
3. **Continuous Measurement:** For continuous measurements, the device can be tripod-mounted and locked into position.
4. **Out-of-Range Indication:** If the measured speed is outside the device's range, the numerals on the LCD screen will flash.



Image: The Shimpo DT-105A tachometer displaying a rotational speed measurement in RPM on its LCD screen.

Memory Function

The DT-105A stores up to 13 readings, including the maximum, minimum, and last test result values. To recall these values, press the 'MEMORY' button. To clear the memory, press and hold the 'MEMORY' button for 5 seconds.





Image: The Shimpo DT-105A tachometer being used with the 6-inch wheel attachment to measure linear speed, displaying 'F/M' (feet per minute) on the screen.

Maintenance

- **Cleaning:** Wipe the tachometer body with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Storage:** Store the device and its accessories in the provided carrying case when not in use to protect it from dust and impact.
- **Battery Replacement:** Replace batteries promptly when the low battery indicator appears. Remove batteries if the device will not be used for an extended period to prevent leakage.
- **Calibration:** The DT-105A conforms to NIST standards. Regular calibration by a certified service center is recommended to maintain accuracy, especially in critical applications.



Image: The Shimpo DT-105A tachometer and its various attachments neatly organized within its protective carrying case.

Troubleshooting

Problem	Possible Cause	Solution
Device does not power on	Dead or incorrectly installed batteries	Check battery polarity; replace with new AA batteries.
Inaccurate readings	Loose attachment, incorrect contact, or worn attachment	Ensure attachment is secure and making firm, stable contact. Replace worn attachments.
LCD displays flashing numerals	Measurement is outside the device's range	Do not attempt to measure speeds beyond 25,000 rpm. The device is not designed for this range.
Memory function not clearing	Memory button not held long enough	Press and hold the 'MEMORY' button for 5 seconds until the display confirms clearing.

Specifications

Parameter	Value
Model	DT-105A
Measurement Range	0.1 to 25,000 rpm

Parameter	Value
Accuracy	+/-0.06rpm (0.10-999.9rpm); +/-0.6rpm (1,000.0-9,999.9rpm); +/-0.006% of reading +/-1 digit (+/-2 rpm max.) (25,000rpm)
Measuring Units	RPH, RPM, ft./hour, ft./min., MPH, yards/hour, yards/min., in./min., meters/hour, meters/minute; Length: meters, centimeters, inches, feet, yards; total revolutions
Display	Five-digit LCD
Update Time	1 second
Operating Temperature	32 to 113 degrees F (0 to 45 degrees C)
Power Source	(2) AA batteries
Dimensions (H x W x D)	7.2 x 2.4 x 1.8 inches (182.5 x 60 x 46mm)
Weight	0.9 lb (400g)
Material	Die-cast Aluminum
Certifications	NIST, CE

Warranty and Support

For warranty information, technical support, or service inquiries, please contact Shimpo customer service. Refer to the official Shimpo website or the documentation included with your purchase for current contact details.

The Shimpo DT-105A comes with an NIST certificate, ensuring its adherence to measurement standards.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question