User Manual

DIGI-SENSE™

Digital Contact/Photo Tachometer
with NIST-Traceable Calibration

Model 20250-26
**Introduction**

The Digi-Sense Digital Contact/Photo Tachometer (Model 20250-26) is designed for quick and accurate rpm and surface speed measurements. This digital tachometer is an essential instrument in preventive maintenance programs for ensuring the optimal performance of your equipment and will reduce costly downtime and repairs by catching potential equipment problems early. Easily configure the unit for contact or noncontact measurements depending on your application requirements. Tachometer features auto-ranging with 0.05% accuracy; Max, Min, and last values; built-in memory recall of last twenty average measurements; and a rugged design that is ideal for industrial environments. The instrument is fully tested and calibrated to NIST-traceable standards. Careful use of this meter will provide years of reliable service.

**Unpacking**

Check individual parts against the list of items below. If anything is missing or damaged, please contact your instrument supplier immediately.

| 1. Tachometer                  | 9. Carrying case         |
| 2. Surface speed wheel         | 10. Four AA batteries    |
| 3. Large male rpm rubber cone  | 11. User manual          |
| 4. Small male rpm rubber cone  | 12. NIST-traceable       |
| 5. Female rpm rubber cone      | calibration report       |
| 6. rpm contact adapter         | with data                |
| 7. Reflective tape (23 5⁄8", 60 cm) |                           |
| 8. Four set screws             |                           |
**Meter Description**

1. Surface speed wheel
2. rpm contact adapter
3. Contact converter
4. **Measure** button
5. **Mode/Function** switch  
   (m/min contact, rpm contact, rpm photo)
6. **MEM** button  
   (memory/recall)
7. Backlit LCD
8. Battery cover
Display Descriptions

General display function descriptions:
- “m/min” icon indicates meters per minute
- “rpm” icon indicates revolutions per minute
- “” icon indicates low-battery status

When holding and selecting the MEM button:
- “UP” icon indicates the maximum measurement value
- “dn” icon indicates the minimum measurement value
- “LA” icon indicates the last measurement value
- “An” icon indicates memory recall of up to the last twenty average measurement values taken

Key Features

- Microprocessor (CPU) design combines contact tachometer and photo tachometer capabilities in one instrument
- Precision accuracy of ±0.05% ±1 digit
- User-configurable contact or photo capability
- Max, Min, last value, and recall of last twenty average measurements
- Photo tachometer measures from a distance up to 19\(\frac{11}{16}\)” (50 cm) away from target
- Comfortable, ergonomic design
- Durable, lightweight ABS plastic housing
- Large easy-to-read backlit display
- Low-battery indicator
Setup and Operation

Procedure for Contact Measurements

Rotational rpm speed measurement

1. Select the “rpm contact” option on the Mode/Function switch located on the front of the tachometer.
2. Install the contact converter to the top of the tachometer.
3. Install the rpm contact adapter on the shaft.
4. Place desired male or female rpm rubber cone on the rpm contact adapter.
5. Press the Measure button and lightly place the rpm contact adapter against the center hole of the rotating shaft. Be certain to keep alignment straight. Release the Measure button when the display reading stabilizes.

Surface speed measurement

1. Slide the Mode/Function switch to “m/min contact” option.
2. Install the surface speed wheel to the shaft on the contact converter.
3. Press the Measure button and place the surface speed wheel on the desired surface.
4. Release the Measure button when the display reading stabilizes.
Procedure for Noncontact (Photo) Measurements

1. Apply a piece of reflective tape on the object being measured.
   
   a. **Note:** Cut and peel reflective tape into approximately 0.5" (12 mm) squares and apply one square to each rotational shaft. The nonreflective area must always be greater than the reflective area. If the shaft is normally reflective, it must be covered with black tape or black paint before attaching reflective tape. Also make sure the shaft surface is clean and smooth before applying reflective tape.
   
   b. For very low rpm measurements, increase the use of reflective tape marks and space them at equal distances apart. Then divide the reading shown by the number of reflective tape marks to get the actual rpm measurement.

2. Select the “rpm photo” option on the **Mode/Function** switch located on the front of the tachometer.

3. Press the side **Measure** button and align the visible light beam with the applied reflective tape target. Verify that the display indication symbol lights up when the reflective tape target aligns with the beam.

4. Begin taking measurements
Displaying Maximum Measurement Value
After taking measurements, press and hold the MEM button once. The “UP” icon will appear on the left side of display and the maximum measurement value will be shown on the right side of display.

Displaying Minimum Measurement Value
After taking measurements, press the MEM button two times and hold on the second press. The “dn” icon will appear on the left side of display and the minimum measurement value will be shown on the right side of display.

Displaying Last Measurement Value
After taking measurements, press the MEM button three times and hold on the third press. The “LA” icon will appear on the left side of display and the last measurement value will be shown on the right side of display.

Recalling the Stored Average Measurement Values (up to the last 20 readings)
After taking measurements, press the MEM button four times and hold on the fourth press. The “An” icon will appear on the left side of display and the number of average stored measurements will be shown on the right side of display. Every sequential press of the MEM button will then display the individual stored number along with the associated average value.

Note: After approximately 5 minutes of nonuse, all measurement values stored in memory (maximum, minimum, last, and stored) are erased from the tachometer.
Specifications

<table>
<thead>
<tr>
<th>Mode/Function</th>
<th>Contact</th>
<th>Photo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0.5 to 19,999 rpm</td>
<td>2.5 to 99,999 rpm</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 rpm from 0.5 to 999.9 rpm; 1 rpm over 1000 rpm</td>
<td>0.1 rpm from 2.5 to 999.9 rpm; 1 rpm over 1000 rpm</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±(0.05% + 1 digit)</td>
<td></td>
</tr>
<tr>
<td>Surface speed</td>
<td>0.2 to 6561 ft/min; 0.05 to 1999.9 m/min</td>
<td></td>
</tr>
<tr>
<td>Sampling time</td>
<td>0.8 second (over 60 rpm)</td>
<td></td>
</tr>
<tr>
<td>Range select</td>
<td>Auto-range</td>
<td></td>
</tr>
<tr>
<td>Time base</td>
<td>Quartz crystal</td>
<td></td>
</tr>
<tr>
<td>Detecting distance</td>
<td>—</td>
<td>50 to 500 mm</td>
</tr>
<tr>
<td>Display</td>
<td>Backlit 5-digit LCD</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>8.6 oz (244 g)</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>8⅛&quot; x 2⅝&quot; x 1⅛&quot; (21 x 7.4 x 3.7 cm)</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>Four AA batteries</td>
<td></td>
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</tbody>
</table>

Safety

• Use extreme caution when laser beam is turned on.

• Do not let the laser beam enter your eye, another person’s eye or the eye of an animal.

• Be careful not to let the laser beam on a reflective surface strike your eye.

• Do not allow the laser light beam to impinge on any gas which can explode.
Maintenance, Recalibration, and Repair

Cleaning and Storage

• Meter should be cleaned with a damp cloth and mild detergent when necessary. Do not use solvents or abrasives.

• Store the meter in an area with moderate temperature and humidity.

Battery Replacement

When the battery power falls low, the low-battery icon will appear on the screen. Replace the four AA batteries in the rear battery compartment by removing the battery door. Ensure that the cover is securely refastened when finished. Remove batteries if unit is not being used for extended time periods.

Note: Install batteries aligning the positive and negative ends with the “+” and “-” symbols located on the battery floor compartment. Installing the batteries incorrectly may cause permanent circuit damage to the tachometer.

It is recommended that Digi-Sense products are calibrated annually to ensure proper function and accurate measurements; however, your quality system or regulatory body may require more frequent calibrations. To schedule your recalibration, please contact InnoCal, an ISO 17025 calibration laboratory accredited by A2LA.

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