# Manuals+

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# tpi 9075 Wireless Smart Vibration Sensor

## Specifications

- **Signal Parameters**: Frequency Range / Resolution, BDU – Bearing Noise – Frequency Range, Dynamic Range, A/D Converter
- **Connection**: Bluetooth
- **Battery**: Rechargeable
- **Charger**: Wireless
- **IP Rating**: Weather-resistant
- **Operating Temperature**: Specified range
- **Storage Temperature**: Specified range
- **Dimensions & Weight**: Provided
- **ULTRA III App Features**: Screen Cursors, Band Alarms, Peak to Peak Displacement, Balancing, Balancing RPM (Range), Low Limit Diagnostic Features, Ultra III Route Transfer, USB-C, Bluetooth, Cloud

Scan to download the TPI View app:



## Description

The 9075 is a wireless accelerometer used to take vibration readings and send data via Bluetooth wireless communication to an Android tablet running the TPI Ultra III app. Used in conjunction with Ultra III software the 9075 features include:

- 2/10Hz to 1kHz ISO standard for assessing Unbalance, Misalignment or Looseness
- 1kHz to 10kHz BDU range for identification of Bearing Condition
- High resolution (0.2 Hz) frequency spectra from 2 Hz to 10 kHz
- Screen Cursors – Single, Harmonic, Moving Harmonic, Sideband, and Time/Frequency for waveform
- Demod & Coast Down, Phase & Orbit Plots, Gap Voltage Display
- Download Routes with Inspection points (with optional C-Trend II PC software)
- Clear, easy-to-read, and navigate touchscreen
- Wireless Charging
- Battery – 2000mAh Lithium-Ion battery
- Data transfer by Bluetooth
- 2Hz to 10kHz Frequency Range
- 100 to 51,200 Line Resolution
- 108dB Dynamic Range
- IP67-rated housing

**Scan to download the TPI View app**



## Overview

| Front View | Back View | Top View |
|---|---|---|

**Front View**

On / Off Switch

LED Indicators



**Back View**

Wireless charging, Place this area onto wireless charging pad.



**Top View**

Power and Bluetooth connection indicator LED's



On/Off Switch

## Side / Bottom View

¼ x 28 threaded female connection point for use with magnets and studs.

A9073 magnet included.



## Charging the 9075

The 9075 can be charged using a wireless charging pad. Place the 9075 backside down on the charging pad. Make sure the charge indication icon on the 9075 is placed on the pad. Please see the charge indication icon below.

The ORANGE power indication LED will flash while the 9075 is charging. When the 9075 is fully charged, the power indication LED will flash GREEN.

## Turning the 9075 On and Off

### Powering On

- Press & hold the On/Off button  to turn the 9075 on. The Green power LED will illuminate.

### Powering Off

Press and hold the On/Off button  until the 9075 turns off. The Power and Bluetooth LED's will illuminate Orange and Blue respectively prior to turning off.

## 9075 LED Conditions

### Not Charging

- Solid Green LED on when turned on and battery >= 20%.
- Solid Red LED on when turned on and battery < 20%

### When Charging

- Flashing Red LED if battery is < 20%.
- Flashing Orange LED if battery is >= 20% & < 98%.
- Solid Green LED if the battery is fully charged

### When in Operation

Blue LED turns on when connected to a tablet. Orange and Blue LED on prior to turning off when the on/off switch is held down.

## Using the 9075

1. Turn the 9075 on. The 9075 is ready to be connected to a smart device running the TPI View app.

2. Open the View app on the smart device and tap on Scan for Devices. The View app will search for the 9075. Tap on the 9075 to be connected. When connected, the Bluetooth LED of the 9075 will illuminate.

3. Attach the 9075 to the measurement point of the machine under test.
   **Note:** For best results the sensor should be placed gently onto the measurement point by "rolling" the magnet onto the machine. This is done to avoid any sudden shocks that would be seen as large acceleration peaks by the sensor and could take some time (several seconds) to go away.

4. Tap on Take Reading to perform measurements with the 9075. Measurement data will be sent from the 9075 to the View app. The app allows Velocity, Bearing Damage Units (BDU), and Total Acceleration to be displayed. Tapping on VA Bands will display the Velocity at different frequency bands and tapping on FFT will display the FFT graph. The run speed can be adjusted to match the machine under test by tapping on Run Speed and entering the speed of the device under test. Readings can be saved and a report generated.

## Understanding Vibration Readings

Once a vibration reading has been taken, the display will show three values, as shown in the example screen opposite. The values are color coded to show their alarm status as explained in the following sections.
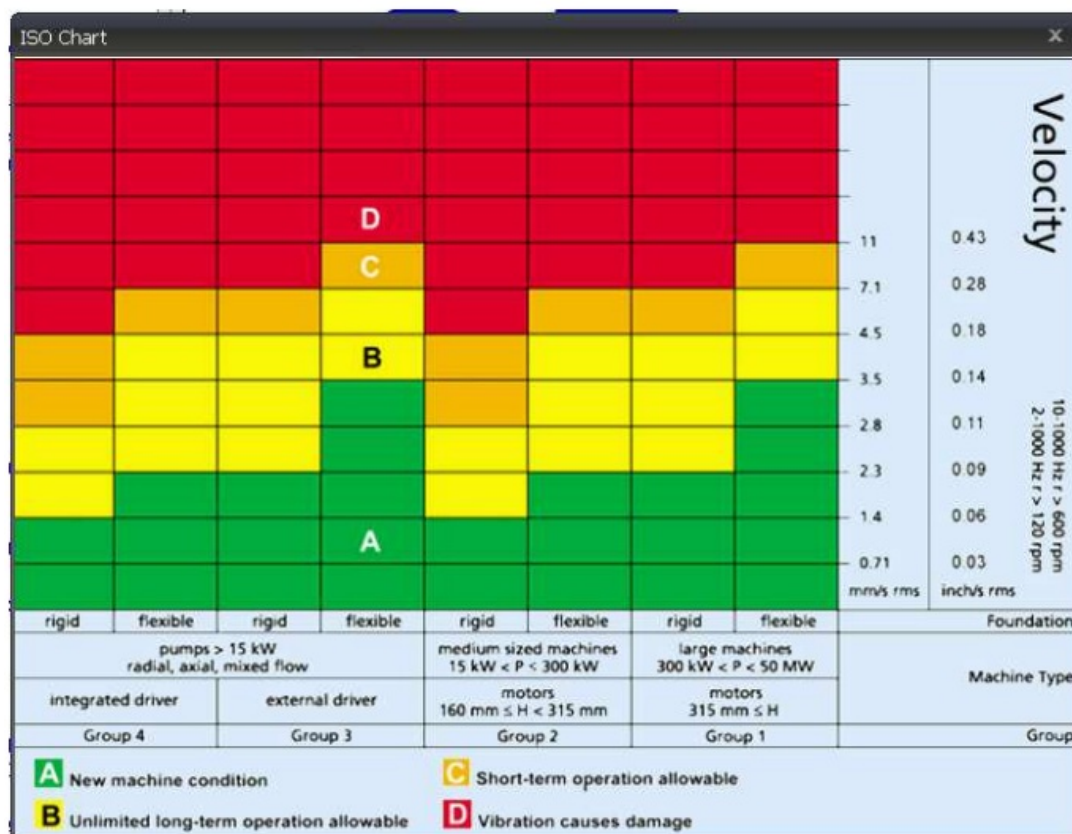The three values shown in the readings screen are:

- ISO value (velocity in mm/second or inch/s)
- Bearing Noise in BDU (Bearing Damage Units)
- Total g (acceleration)

These readings are explained in more detail below with some examples of what they actually mean:

### ISO value (mm/s)
The ISO value (in mm/s or inch/s) is the large number displayed at the top of the screen, which is the RMS (average) of the vibration velocity in the frequency band 10Hz (600 RPM) to 1kHz (60,000 RPM) or 2Hz (120 RPM) to 1kHz (60,000 RPM), as specified by the ISO standard1. The correct frequency band is automatically selected by the meter

based on running speed. The ISO value background is color coded according to the ISO 10816-1 vibration velocity level chart (see below).



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| rigid | flexible | rigid | flexible | rigid | flexible | rigid | flexible | | | Foundation |
| pumps > 15 kW radial, axial, mixed flow | | | | medium sized machines 15 kW < P < 300 kW | | large machines 300 kW < P < 50 MW | | | | Machine Type |
| integrated driver | | external driver | | motors 160 mm ≤ H < 315 mm | | motors 315 mm ≤ H | | | | |
| Group 4 | | Group 3 | | Group 2 | | Group 1 | | | | Group |

A New machine condition
B Unlimited long-term operation allowable
C Short-term operation allowable
D Vibration causes damage

**Bearing Noise (BDU)**

Below the displayed ISO value and to the left is the value of bearing noise (high frequency vibration) in Bearing Damage Units (BDU), where 100 BDU corresponds to 1g RMS (average) vibration measured above 1kHz. This is a measure of the wear state of the bearings in the equipment being monitored. The higher the number, the more worn the bearing. It is commonly held that 1g of high-frequency vibration (100 BDU) corresponds to a relatively high level of bearing noise and so can be considered indicative of a damaged bearing. In other words, it may be helpful to think of the Bearing Noise figure as being very roughly equivalent to "percentage" of bearing wear. By default, the bearing noise is displayed on a Red background if it is above 100 BDU, an Amber background between 50 and 100 BDU, and a Green background below 50 BDU. However, the BDU alarm levels can be changed using the Manual Setup menu (see section 2.3.2.1).

**Total acceleration (g)**

This is the RMS (average) value of the total vibration acceleration measured by the

meter over its entire frequency range (2Hz to 10kHz). This reading is shown in units of g (Earth's gravitational constant, where 1g = 9.81 m/s2).

## SPECIFICATIONS

| 9075 Signal Parameters | |
| --- | --- |
| Frequency Range / Resolution | 2Hz to 10kHz I 100 to 51,200 Lines |
| BDU – Bearing Noise – Frequency Range | 1kHz – 10kHz |
| Dynamic Range | 108dB |
| A/D Converter | 24 bit |
| **9075 Information** | |
| Connection | Bluetooth |
| Battery | 2000mAh Lithium-Ion battery |
| Charger | Wireless through charging pad |
| IP Rating | IP 67 |
| Operating Temperature | 32 to 113°F (0 to 45°C) – charging          32 to 140°F (0 to 60°C) – discharging |
| Storage Temperature | -4 to 140°F (0 to 60°C) |
| Dimensions & Weight | 1.9"" x 3.4" x 1.9" (47mm x 84.8mm x 47mm) / 9.8oz (280g) |
| **ULTRA III App** | |
| Screen Cursors | Single, Harmonic, Moving Harmonic, Sideband, and Time/Frequency for waveform |
| Band Alarms | Yes |

| | |
|---|---|
| Peak to Peak Displacement | Yes |
| No tachometer (4-run) Balancing | Yes |
| Balancing RPM (Range) Low Limit | 120 RPM |
| Diagnostic Features | Velocity, BDU, Displacement, Demod, Coast Down |
| **Ultra III Route Transfer** | |
| USB-C | Yes |
| Bluetooth | Yes |
| Cloud | Yes |

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## STANDARD ACCESSORIES

- A9073 – 1/4×28 magnet
- A9120 – Wireless charging pad and USB cable

## OPTIONAL ACCESSORIES

- A9114 – Universal USB charging puck

## WARRANTY

This product is warranted to the purchaser against defects in material and workmanship for three years from the date of purchase.

**Covered by Warranty**: Repair parts and labor; or replacement of the product at the company's option. Normal transportation charges to the purchaser are also covered.

**Not Covered by Warranty:** Damages to the product which are the result of abuse, improper use or maintenance are not covered. Any other expense, consequential damages, incidental damages, or incidental expenses including damages to property are not covered. Transportation expenses to the company are not covered. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. To Obtain Warranty Performance: Include with the product: your name, address, phone number, written description of the problem, and proof of purchase date. Carefully package and return to:

- TPI, Inc.9615 SW Allen Blvd. Beaverton, OR 97005 USA 503-520-9197 www.testproductsintl.com
- TPI Canada 342 Bronte Rd. S., Unit 6 Milton, Ontario L9T 5B7 Canada 905-693-8558 www.tpicanada.com
- TPI, Europe Ltd.. Unit 6, Rutherford Way Industrial Estate, Rutherford Way, Crawley, West Sussex. RH10 9LN +44 (0) 1293 53019 www.tpieurope.com

**Implied Warranties**: Any implied warranties including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to three years from date of purchase. To the extent any provision of this warranty is prohibited by federal or state law and cannot be preempted, it shall not be applicable. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

### Test Products International, Inc.

- 9615 SW Allen Blvd., Ste. 104 Beaverton, OR 97005
- Tel: 503-520-9197
- www.testproductsintl.com

### Test Products International, Ltd.

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**FAQs**

**Q: How do I know when the 9075 is fully charged?**

A: The power indication LED will flash GREEN when the 9075 is fully charged.

**Q: What is the frequency range of the 9075?**

A: The 9075 has a frequency range of 2Hz to 10kHz.

**Q: How should I attach the 9075 to the machine under test?**

A: Gently place and roll the magnet onto the machine's measurement point to avoid sudden shocks that may affect readings.

# Documents / Resources

| | |
|---|---|
|  | [tpi 9075 Wireless Smart Vibration Sensor](#) [[pdf](#)] Instruction Manual 9075, 9075 Wireless Smart Vibration Sensor, Wireless Smart Vibration Sensor, Smart Vibration Sensor, Vibration Sensor |

**References**

- [User Manual](#)

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