M.Doctor User Guide

Rev. 1.0

AUTOSYS

Safety Precautions

•**Installation Safety:** Do not install or remove the sensor while the machinery is operating. Always shut down the machine and ensure all rotating parts have stopped before installation to avoid injury.

•**Temperature Limits:** Operate the device only within the specified temperature range of **-40°C to +105°C**. Exceeding these limits may damage the battery or sensor.

•**Power Supply:** Use only the specified input voltage (**DC 2.2V - 5.5V**). Using incorrect voltage may cause fire or device failure.

•**IP67 Rating:** The device is water and dust resistant (IP67) but is not designed for permanent submersion or high-pressure water jets.

•**Magnetic Warning:** This device may contain strong magnets. Keep away from pacemakers and magnetic storage media.

•**RF Exposure:** To comply with RF exposure requirements, maintain a separation distance of at least **20cm** between the device and the user.

•**No Modification:** Do not disassemble or modify the device. This voids the warranty and may compromise safety and water resistance.

•**Disposal:** Do not dispose of this product with household waste. Please recycle in accordance with local WEEE regulations.

Maintenance & Care

To ensure optimal performance and longevity of the **M.Doctor**, please follow these maintenance guidelines:

1. Cleaning

Wipe the device with a soft, dry cloth. If necessary, use a damp cloth with mild detergent. **Do not use** solvents (e.g., thinner, benzene, alcohol) or harsh chemicals, as they may damage the housing and compromise the waterproof seals. Avoid using high-pressure water jets directly on the device.

2. Mounting Inspection

· **Check tightness:** Regularly inspect the sensor to ensure it remains securely attached to the machinery. Loose mounting can lead to inaccurate vibration data.

· **Surface contact:** Ensure the contact surface between the sensor and the machine is free of rust, debris, or thick paint, which can dampen vibration signals.

3. Port & Battery Care

· **USB Port Protection:** After charging or data transfer via the USB-C port, always ensure the **waterproof cap** is tightly closed to maintain the IP67 rating.

· **Battery Storage:** If the device is stored for a long period, charge the battery to at least 50% every 3 months to prevent deep discharge.

4. Physical Inspection

Inspect the device for any physical damage, such as cracks in the casing.

If the device has been dropped or subjected to severe impact, verify the data readings via the App to ensure the MEMS sensor is functioning correctly.

Customer Service & Incident Reporting

If the product malfunctions, sustains physical damage, or presents a safety hazard (e.g., abnormal heat, smoke, or battery swelling), **discontinue use immediately**.

Do not attempt to disassemble, modify, or repair the device yourself. Unauthorized repair may compromise the safety features and water resistance (IP67) of the product and will void the warranty.

Please report the issue or request technical support using the contact information below:

Manufacturer: AUTOSYS Co., Ltd.
Address: Rm. 1509~1511, 24 Gasan digital 2-ro, Geumcheon-gu, Seoul, Republic of Korea
E-mail: info@autosys.co.kr
Tel: +82-10-9021-3696
Fax: +82-2-851-3120
Website: www.autosys.co.kr

Warranty & After-Service

1. Warranty Period
The standard warranty period for this product is **1 year** from the date of purchase.
Note: Consumable parts, such as the built-in batteries (1/2 AA Lithium), may have a limited warranty period (e.g., 6 months) depending on usage conditions.

2. Scope of Warranty
This warranty covers defects in materials and workmanship under normal use in accordance with the user manual.
AUTOSYS will repair or replace the defective product free of charge within the warranty period.

3. Warranty Exclusions (Void Warranty) The warranty does not cover damage caused by the following:

- **Misuse & Abuse:** Physical damage due to drops, impacts, or negligence (e.g., failure to close the USB waterproof cap).
- **Environmental Limits:** Damage resulting from operating the device outside the specified temperature range (**-40°C to 85°C**).
- **Improper Power Supply:** Circuit damage caused by using a power source other than the specified **USB Type-C 5.0 Vdc**.
- **Unauthorized Modification:** Disassembly, repair, or modification by anyone other than an authorized AUTOSYS service provider.
- **Consumables:** Normal depletion of battery life.

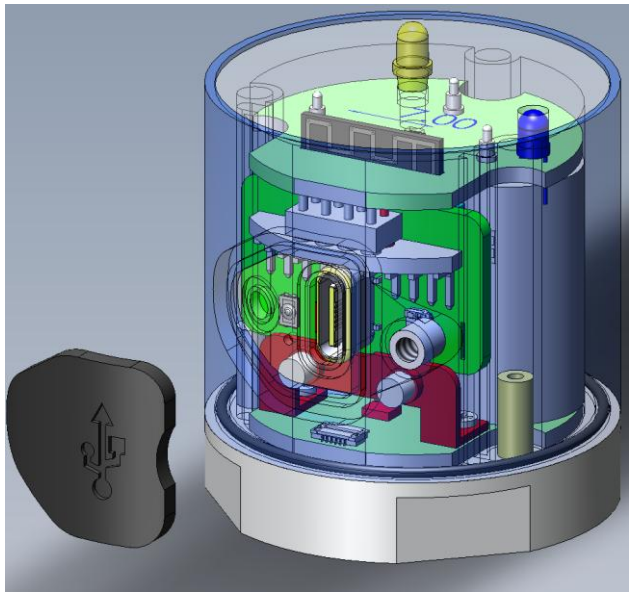
4. Battery Replacement

This device is powered by **two 1/2 AA Lithium 3.6V (1200mAh)** batteries.
For battery replacement, please contact the AUTOSYS service center.
Use of non-compliant batteries may damage the device and void the warranty.

5. Contact for Service

For technical support or warranty service, please contact:
Tel: +82-2-851-3120
Email: info@autosys.co.kr
Website: www.autosys.co.kr

Equipment Overview



AIoT Vibration & Temperature Sensor

- Real-time condition monitoring via wireless vibration sensors

- On-sensor computation of Vrms, Arms, Crest Factor, 1/3-Octave Bands, Raw Data

- Wi-Fi & BLE 5.0; tri-axial accelerometer + temperature

- Standards: ISO 10816 / ISO 20816; Sampling up to 6 kHz

"M.Doctor" is a real-time condition-monitoring solution that collects and analyzes data via the MD-1000 wireless vibration sensor mounted on the machine. The sensor supports Wi-Fi and BLE 5.0 and integrates a tri-axial accelerometer and a temperature sensor. With on-sensor computation, it can calculate and transmit VRMS, ARMS, Crest Factor, 1/3-Octave Bands, and Raw Data in real time. The system complies with ISO 10816 and ISO 20816, and—at sampling rates up to 6 kHz—delivers high-fidelity vibration data for precise condition diagnostics.

Equipment

- Equipment Name e : M.Doctor
- Model Name: MD-364JA
- Component:

  3-Axis MEMS tri-axial accelerometer (1-Axis, 2-Axis option)

Manufacturer

- Manufacturer Name: Autosys Co., Ltd.
- Manufacturer Address: 1510, 24 Gasan digital 2-ro,

  Geumcheon-gu, Seoul, Republic of Korea

Equipment Specifications

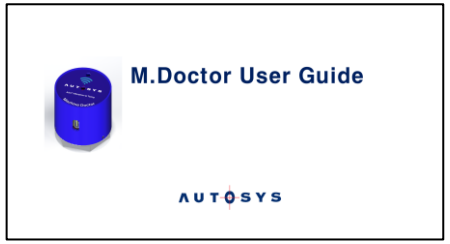
Parameter	Specification	Note
Type	Wireless Vibration Sensor	
Sensor	3-Axis MEMS Accelerometer	
Power source	Battery 3.6 Vdc, USB C Type 3.0 (5.0 Vdc)	
Battery	1/2 AA Lithium 1200mAh(3.6V) x 2 EA	
Communication Interface	WIFI 2.4G 802.11 b/g/n BLE 5.0 1MBps USB C type 3.0 (5.0 Vdc)	
RF Frequency	2.4 GHz	
External Connector	USB C Type	
Sampling rate	26.667KHz	
Frequency response	up to 6.0 kHz	
Measurement range	2, 4, 8, 16g	
Sensitivity	0.061mg/LSB @2g	
Operating Temperature	– 40 ~ 85 °C	
Dimensions	Ø40 x 49(H)	
Weight	72g (excluding battery weight)	
Warranty	1 year or less	

Package Contents

No.	Component	Name	Q'ty(EA)	Note
①	Sensor	Wireless Vibration3-Axis MEMS Accelerometer	1	
②	User Guide	M.Doctor User Guide	1	Rev 1.0
③	Mobile Application	M.Doctor Android App User Guide	1	Rev 1.0

(※ excluding battery, USB Adapter)

① M.Doctor Sensor



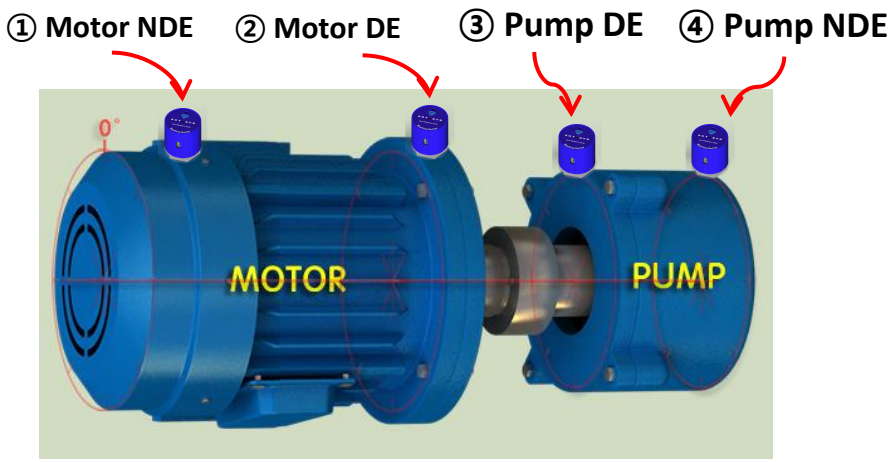
② M.Doctor User Guide

③ M.Doctor Android App User Guide

Placement Guide

When diagnosing the condition of a pump using portable small vibration sensors, the most important principle is to attach the sensor to a **"solid part closest to the bearing."** This is because vibration is transmitted through the bearings.

Here are the 4 key locations for efficient monitoring in a typical motor-pump connection structure:



1. Motor Non-Drive End (Motor NDE)

•**Location:** The bearing housing area at the rear of the motor (the side with the cooling fan).

•**Purpose:** This is good for detecting **unbalance** in the motor itself or **looseness**. You must attach it to the solid end of the motor frame inside the fan cover, not on the fan cover itself (which is a thin metal sheet).

2. Motor Drive End (Motor DE)

•**Location:** The bearing housing on the shaft side where the motor connects to the pump.

•**Purpose:** Since it is close to the **coupling**, this is a critical location for sensitively detecting **misalignment** with the pump or bearing damage.

3. Pump Drive End (Pump DE)

•**Location:** The bearing housing on the shaft side where the pump connects to the motor.

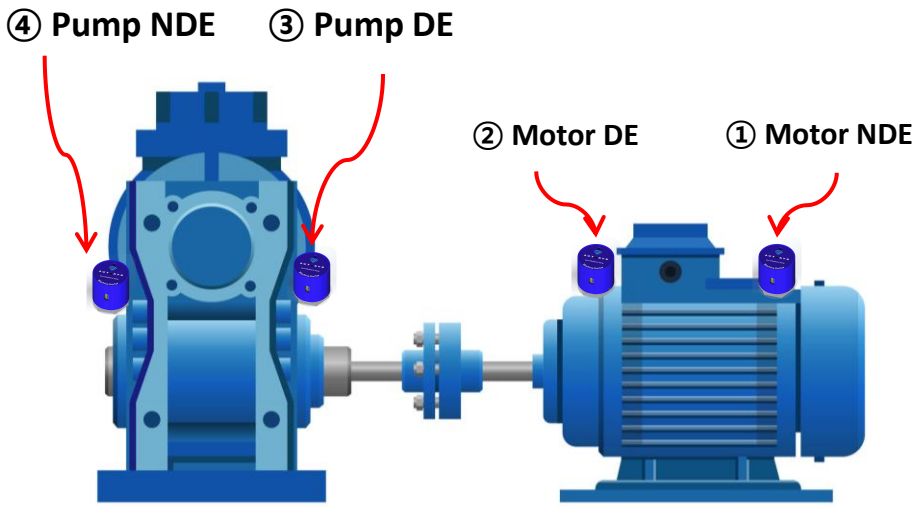
•**Purpose:** Similar to the Motor Drive End, this is essential for identifying alignment status, coupling issues, and early defects in pump bearings.

4. Pump Non-Drive End (Pump NDE)

•**Location:** The bearing housing at the outermost part of the pump (near where the impeller is located).

•**Purpose:** This is advantageous for detecting internal **hydraulic problems** (cavitation, flow instability, etc.), **impeller unbalance**, or bearing wear.

Placement Guide Tip



When attaching portable sensors, not only the location but also the **direction** is important. If possible, it is recommended to measure in the following directions at each of the 4 locations above:

1.Horizontal: Parallel to the ground (where the highest vibration usually occurs).

2.Vertical: Perpendicular to the ground (to check the machine's looseness/mounting).

3.Axial: Parallel to the rotational axis (to check for misalignment).

Note: To obtain accurate data, the sensor must be tightly attached using a magnet or adhesive to a **thick and solid casing surface**, not on a thin cover or heat sink.

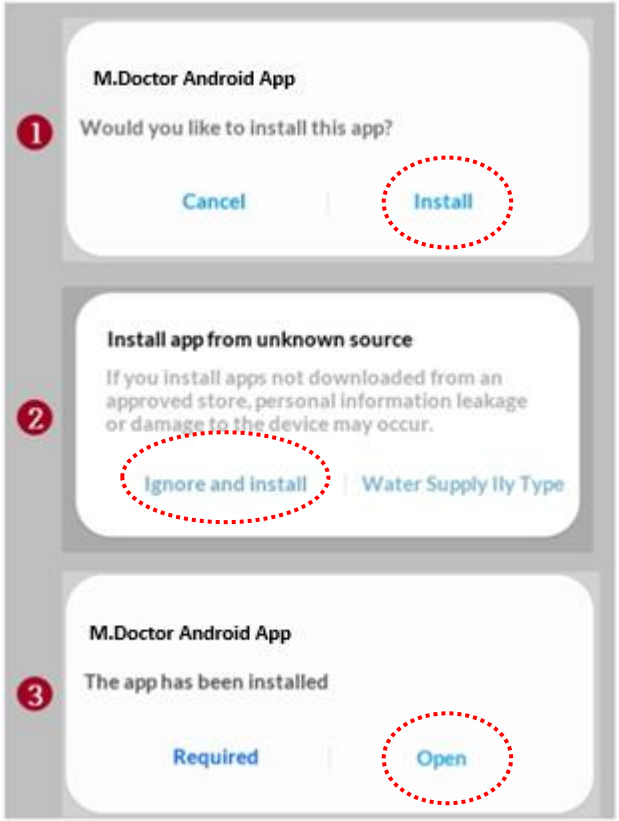
Installation Process

1) Please download the app APK file from www.autosys.co.kr..
2) Follow the steps below to install the App.

① This is the screen displayed when you run the downloaded APK file. Press the "Install" button to proceed.

② If the screen for installing apps from unknown sources appears, press the "Install anyway" (or "Ignore and install") button to proceed.

③ This is the screen showing that the installation is complete. Press the "Open" button to launch the app and proceed to the next step.



3) Please refer to the 'M.Doctor Android App User Manual'
for detailed instructions on how to use the App.