PROAXION®

Maximizing Industrial Uptime™

TACTIX™ Wireless Vibration and Temperature Sensor

User Manual

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Introduction and Safety

Description

The TACTIX™ system is a comprehensive machine health monitoring system used to perform predictive maintenance of rotating equipment. The system includes hardware to measure and transmit machine health data, including vibration and temperature, and software to analyze the data, show historical trending and provide remote alerts when machines require service.

Safety

WARNING:

- The TACTIX™ system is not intended to be used as a personal or facility safety protection device. Data and alerts are to be used to perform predictive maintenance only. ProAxion is not liable for any personal injury or facility damage that results from machine or equipment failures.
- Do not use the TACTIX™ system in hazardous locations where there is the potential for an explosive environment.
- Before installing the TACTIX™ Sensor on any machinery, ensure that the machinery is in a de-energized state and follow all safety protocols, including lock-out / tag-out and user of Personal Protective Equipment (PPE). Failure to do so may result in severe personal injury or death.
- The TACTIX™ sensor is permanently sealed. The battery is not rechargeable or replaceable. Do not disassemble, crush, incinerate or heat heat above 125℃ (257℉).

TACTIX™ Sensor Installation Guide

1. Determine mounting location. Good locations:
    a. Are close to the vibration and/or heat source of interest.
        i. Typically this is a bearing within the machine, however it can also be a gear interface, pump/fan impeller, compressor screw, or other component where vibration or temperature can indicate and trend machine health.
    b. Have good mechanical and thermal communication with the vibration and heat source of interest.
        i. Usually a rigid metallic structure like a bearing housing or frame. Do not install on thin walled covers, guards or other structures that can add resonance vibration.
    c. Have a flat or curved surface free of obstructions to support the sensor mounting face (1.25” diameter).
    d. Have enough clearance for the sensor and any installation accessory or tools
        i. Sensor is cylindrical in shape roughly 2” diameter x 4” long.
        ii. If stud-mount, make sure to consider height of spot-face tool (3.3”) and drill.
        iii. If using the curved surface adapter for epoxy-mounting, the total height of the sensor increases to 4.3”.
2. Mounting locations for typical machine components:
    a. Standard motors - mount on the drive-end bearing housing, either radial or axial to the shaft.
    b. Large or critical motors - mount an additional sensor on the non-drive-end bearing housing.
    c. Independent pillow-block or double-bearing housings - mount onto the bearing housing surface, either radial or axial to the shaft.
    d. Standard gearboxes with unibody housing or frame - mount close to input or output shaft drive-end bearing, either radial or axial to the output shaft.
    e. Large or critical gearboxes - mount sensors at both drive-end and non-drive-end bearings for each stage, to ensure pick-up of vibration for each bearing and gear interface.
    f. Pumps, fans & other machines with internal bearings and overhung shaft - mount sensor on the bearing housing, either radial or axial to the output shaft.
    g. Pumps, fans & other machines with split-case design and separate drive-end and non-drive-end bearings - mount sensors on both drive-end and non-drive-end bearing housings, either radial or axial to the output shaft.

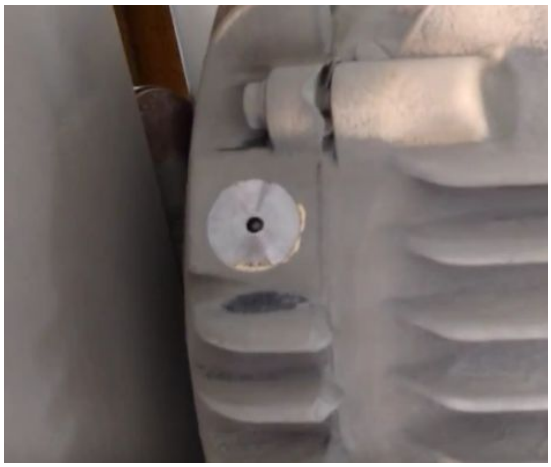
3. Select mounting method
    a. Threaded Stud - preferred method for permanent installation. The sensor comes with a 316SS threaded ¼”-28 stud for screwing the sensor into a threaded hole on the machine surface.
        i. Requires mounting surface to have wall thickness of ½” or greater, otherwise “break-through” can occur from drilling.
    b. Adhesive - alternate preferred method for permanent installation.
        i. Use a high-strength adhesive suitable for environment and application. ProAxion Epoxy-Mounting Kit includes Lord® 406-17 2-Part Modified Acrylic Adhesive.
        ii. Mount sensor directly to a flat surface, or use epoxy-mounting adapter included in ProAxion Epoxy-Mounting Kit. The epoxy-mounting adapter can be used for curved or flat surfaces that are smooth.
    c. High-strength Magnet **(not recommended for permanent installations)**
        i. Recommend minimum 95 lbs pull-strength.
        ii. Even high-strength magnets can “walk” over time, which can cause sensor to “wobble” on the machine surface and add erroneos vibration data, which can cause false alarms.

Steps for stud-mounting

Prepare machine surface:

1. Mark spot using indent tool or drill a small pilot hole

2. Use spot-face tool to machine a flat surface & pilot hole. Set drill bit to minimum depth of 11/32” (8.7mm).



3. Tap hole with ¼”-28 thread (use bottoming tap for blind holes).

4. Clean any metal shavings or filings from the tapped-hole

Mount sensor:

5. Apply semi-permanent thread locker to stud threads (we recommend Vibra-Tite® Blue).

6. Apply silicone sealant to surface of spot face to prevent corrosion of machine surface.

7. Hand-tighten the sensor to machine (do not use tools).

Steps for adhesive-mounting

1. **Prepare machine surface:**
    a. Remove all dirt, grease, oil, loose coatings and oxidation from machine surface. Use scour pad, wire brush or other tools as necessary to ensure long-lasting bond.
2. **Mount sensor:**
    a. If mounting sensor directly to machine surface (flat surfaces only), follow instructions for mixing and applying adhesive and ensure that sensor maintains good contact with machine surface during full cure time.
    b. If using epoxy-mounting adapter provided in ProAxion Epoxy Mounting Kit (for flat or curved surfaces), follow instructions for mixing and applying adhesive and mount the adapter to the machine ensuring it makes good contact with machine surface during cure time.
        i. The epoxy-mounting adapter has a built-in magnet which helps make good contact with machine surface during cure time for steel surfaces.
        ii. Allow enough time for full cure of the adapter to the machine before attaching sensor to the adapter. Typically 24 hours.
        iii. After adhesive has fully cured, follow steps #5 and #7 of the stud-mounting instructions to attach sensor to the adapter. **Hand-tighten only, do not use tools!**

Regulatory Compliance

- Warning: Changes or modifications to this device not expressly approved by ProAxion, Inc. could void the user's authority to operate the equipment.
- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- This equipment complies with radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
  Cet équipement est conforme aux limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20 cm entre le radiateur et votre corps. Cet émetteur ne doit pas être co-localisées ou opérant en conjonction avec tout autre antenne ou transmetteur.
- This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
  Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Contact Information

If you have any questions or concerns, please contact ProAxion, Inc.:

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