SMARTdiagnostics®
Give Your Machines a Voice

SmartDiagnostics® Application Note
Sensor Handling and Care

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KCF Technologies, Inc.

Background

This document details the correct use and care of SmartDiagnostics® sensors to ensure long-term reliability.

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SMARTdiagnostics®
Give Your Machines a Voice

Overview

KCF's SmartDiagnostics® sensors are designed with the industrial environment in mind, and as such are extremely robust and durable. However, there are a few key handling and care steps that should be taken to ensure sensors are not exposed to conditions which will damage them or shorten their usable life.

- **Extreme vibration:** SmartDiagnostics® sensors have a nominal acceleration measurement range of 16g. Although the sensors are capable of withstanding and measuring vibration above this level, extended use above this level, particularly in high-frequency applications, can damage circuit components and shortened life span. For this reason, **sensors should not be exposed to sustained vibration levels exceeding 20g.**

- **Mechanical shock / impact:** SmartDiagnostics® sensors are designed to withstand a 5-foot drop onto a concrete surface. Drops from higher elevations, or impacts with hammers, machinery, etc. may damage the sensor, and should be avoided.

- **Extreme temperature:** The SmartDiagnostics® sensor operational temperature range is -20°C (-4°F) to +75°C (+167°F). Exposing the sensor to extremely cold temperatures will not damage the sensor, but it may significantly decrease battery life. Exposure to higher temperatures may cause sensor damage and is a potential fire/explosion risk, as the battery can rupture at extremely high temperatures.

- **Chemical exposure:** SmartDiagnostics® sensors are designed using materials which are designed to perform in a wide variety of industrial applications. However there are certain chemicals which can attack the housing, antenna, or seal materials, making the sensor susceptible to premature failure. Because of the wide variety of possible chemical interactions, a comprehensive list of chemical susceptibility is not included in this document. If you anticipate your sensors will be exposed to any caustic or corrosive chemicals, please contact KCF for consultation.

- **Stud over-torqueing:** When mounting a SmartDiagnostics® sensor using the built-in stud mount, no tools are necessary. Simply apply threadlock to the stud threads and tighten the sensor hand-tight. Using a wrench to apply further torque may damage the sensor. Please review the Guide to Properly Mounting Sensors application note for further information.

- **Battery replacement:** When replacing a battery, it is imperative that the sensor be clean and dry before opening the battery cap. If the sensor is covered in loose dirt, snow, ice, etc. when it is opened, foreign material may enter the sensor and contaminate the electronic circuit components or environmental seals, leading to premature sensor failure. Additionally, the battery cap screws should be torqued to no more than 10 lb-in, using the KCF-supplied torque tool. Applying excessive torque will damage the threads or induce undue stress, which can eventually lead to failure of the housing or battery cap in high-vibration environments. Please consult KCF if you are unsure of how to safely perform a battery replacement.

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