AVT RELIABILITY

...it's in our DNA

# Machine Sentry®

## Experience What's Possible

### Machine Sentry® Fixed Type: MSF-1


- Intelligent, wireless tri-axial vibration and temperature ATEX certified sensor.
- Capture readings on hard to access, infrequently running and medium criticality assets.
- Stores up to 5000 high definition, full spectrum readings.
- Powered by a replaceable battery which will last up to 5 years.
- Simple installation and low cost of ownership.

Ex

www.machinesentry.com

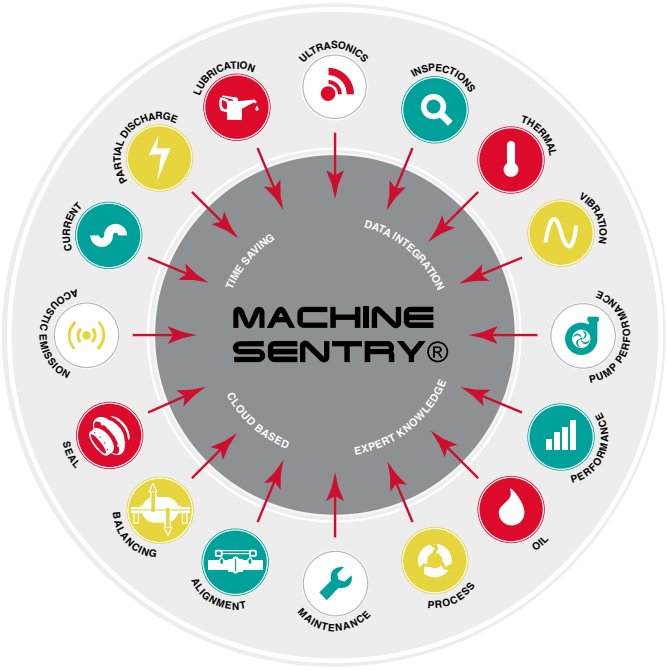
MACHINE SENTRY®

# Machine Sentry® - Experience What's Possible

Machine Sentry® is a unique cost effective Condition Based Maintenance (CBM) solution integrates all CM (condition monitoring) techniques and data, enabling effective maintenance planning and management reporting.

## Benefits

- Online platform enables all condition monitoring data to be accessed in one place.
- Suits the needs of both expert and novice users
- Up to 5 times faster than other condition monitoring systems
- Can be used either as a standalone tool or alongside an existing enterprise system (e.g. SAP, Maximo, PEMAC, etc.
- Access to world leading condition monitoring engineers – providing detailed diagnosis and advice
- Easily configurable and scalable for future expansion
- Secure, password protected, and easy to access online portal.
- Easy to use report template.
- Monitor trends to identify potential reliability issues.




## Typical Applications

- Batch or variable processes
- Difficult to access assets
- Bad actor or critical assets

# Machine Sentry® Vibration and Temperature Sensor Type MSF-1

The intelligent and wireless Machine Sentry® MSF-1 tri-axial vibration sensor, with integrated temperature measurement, connects via a Bluetooth® enabled hand held device to the Machine Sentry® software.

Semi-continuous monitoring reduces the chance of fault conditions being missed.

The sensor incorporates a 3 channel multiplexed data acquisition system connected to a tri-axial sensor to give full 3-axis support.

The Machine Sentry® MSF-1 sensor can be paired to any Android tablet or smartphone, using standard Bluetooth® communications, to provide safe and efficient data collection from up to 50m away. The sensor can either be permanently mounted or temporarily installed using the optional magnet attachment. Assets which would normally be difficult to monitor or operate infrequently using a traditional wired accelerometer can now be measured with ease (e.g. collection points behind guards and large or moving assets such as gearboxes on agitators). The sensor uses a unique combination of low energy Bluetooth® and classic Bluetooth® protocols to optimise battery life and increase data transfer speed.

Intelligent data compression utilities optimise the amount of data that can be stored internally. The time waveform is stored in a high definition raw format giving maximum flexibility for post processing.

The integral replaceable battery will operate for up to 5 years depending on collection mode.

> Machine Sentry® is the CBM and Reliability tool of choice for many international blue chip organizations.

## Machine Sentry® Features

**Advanced Vibration Analysis** - With intelligent tri-axial vibration measurement capability (patent pending).

**ADA™ Automated Diagnostic Assistant** - Can predict stage 2, 3 and 4 bearing failure and detect a wide range of other common fault conditions

**Hard to access or infrequently running assets** - The sensor is the ideal solution for monitoring these difficult situations. Enabling maintenance teams to predict and prevent asset failure.

**Large Sensor Memory** - The sensor can store up to 5,000 high definition, full spectrum readings between data synchronisation from sensor to an Android™ device.

**Suitable for both fixed assets and rotating machinery** - The Pipework Vibration Compliance feature allows a plant operator to quickly screen all process pipework and small bore connections in order to identify lines that have the greatest risk of failure.

**Long Battery Life** - Powered by a replaceable battery which will last up to 5 years.

**Easy to Install** - The sensor can either be permanently mounted or temporarily installed using the optional magnet attachment.

**IP67 rated and ATEX certified** - Certified for use in hazardous areas (Zone 0 to Zone 2).

# Specification

| Tri-axial Vibration and Temperature Sensor | |
|---|---|
| **Measurements** | |
| Vibration | 1Hz to 5.5kHz Overall velocity, -/+ 20g Amplitude Range.<br>Maximum samples 16384. Sampling Frequency 500 to 20k samples per second |
| Temperature | -40 to 115ºC<br>Accuracy +/-0.5ºC (0-60ºC), +/-1.5ºC (-40-115ºC) |
| **Resolution** | Up to 6400 lines |
| **Outputs** | Wireless Bluetooth® connection to mobile device connected to Machine Sentry® software via Android v 5.0.1+ |
| **Installation** | Epoxy bonded /bolted / magnetic |
| **Wireless Range** | ~50m in open space |
| **Wireless Communications** | Bluetooth® 3 Classic & Bluetooth® 4.2 LE. |
| **Wireless Frequency Band** | 2.4 Ghz |
| **Bluetooth® Transfer Rate** | Typical 3 readings / second |
| **Memory Storage** | 128Mb (typically up to 5000 readings) |
| **Battery Type** | Li 3.6v 8500mAh |
| **Battery Life** | Up to 5 years (5 minute sampling, transferring 1 reading / hr / axis) |
| **Environmental** | |
| Ambient Temperature Range | -20ºC to 60ºC operating, 10ºC to 25ºC Storage |
| Sealing | IP67 |
| **Weight** | 180g |
| **Dimensions** | 42mm (d) x 70mm (h) |
| **Approvals** | CE |
| | ATEX Certification II 1G Ex ia IIB T4 Ga (-20°C ≤ Ta ≤ +60°C)<br>Baseefa18ATEX0145 (certified to EN IEC 60079-0: 2018 EN 60079-11: 2012) |
| **Case Material** | 316 stainless / polycarbonate |

Machine Sentry® supported by ADA™
the Automated Diagnotic Assistant.

# AVT RELIABILITY®

The comprehensive AVT Reliability® program covers Asset Integrity, Performance Monitoring, Training, Maintenance Consultancy and Total Pump Management / Products to industry. AVT Reliability® are certified to ISO 17359 and ISO 9001. Accredited by UKAS as a Machine Directive Notified body, and are ICML and BINDT members.

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