



Sensotek[®]



Wireless Condition Monitoring Introduction

Sensoteq Global Presence



Global Partners / Sales Team

**Headquartered in
Belfast**

**Experienced in Robust
designs and low
powered wireless
technology**

**Global Support
Staff**



Manufacturing Markets



Automotive



**Food &
Beverages**



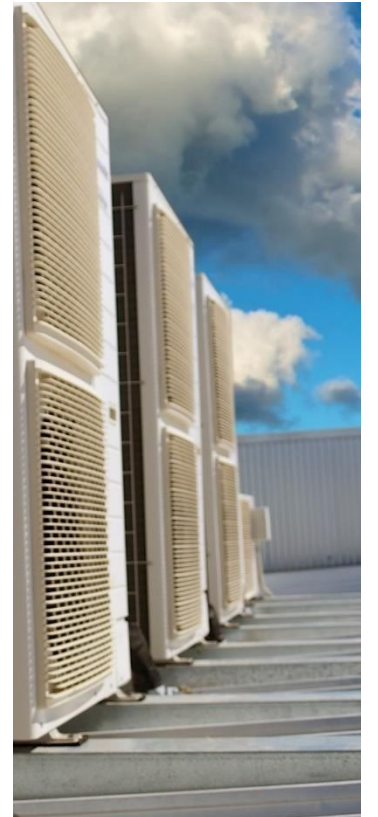
**Semiconductor
& Electronics**



**Pulp &
Paper**



**Machine
Manufacturing**



HVAC

Other Markets



**Waste &
Recycling**



**Metals &
Mining**



**Oil &
Gas**



**Power
Generation**



Chemicals



Pharmaceuticals



Sensotek[®]

Sensotek Tau[®]

Sensotek Tau[®]

Screen and Crushers Efficiency System for Machine
Health testing and Predictive maintenance

Common Fault Detection for all Rotating equipment

24/7 Continuous Monitoring of Screen Motion key parameters

Long range secure wireless communication

Robust compact design for harsh environment

Long Battery lifetime for easy maintenance

Compatible with Sensotek Analytix[®] for visualisation and analysis



Sensoteq Tau[®] - Vibrating Screen application

4x sensors
monitor
the Screen Motion



2x sensors
monitor the
bearings

6x sensors for
complete machine
monitoring

Sensotek Tau[®] Bearing

Plant Maintenance Efficiency System for Predictive Maintenance

Common Fault Detection for all types of Rotating Equipment

Smart Sense detection for short burst (Cranes, Robot, Lift)

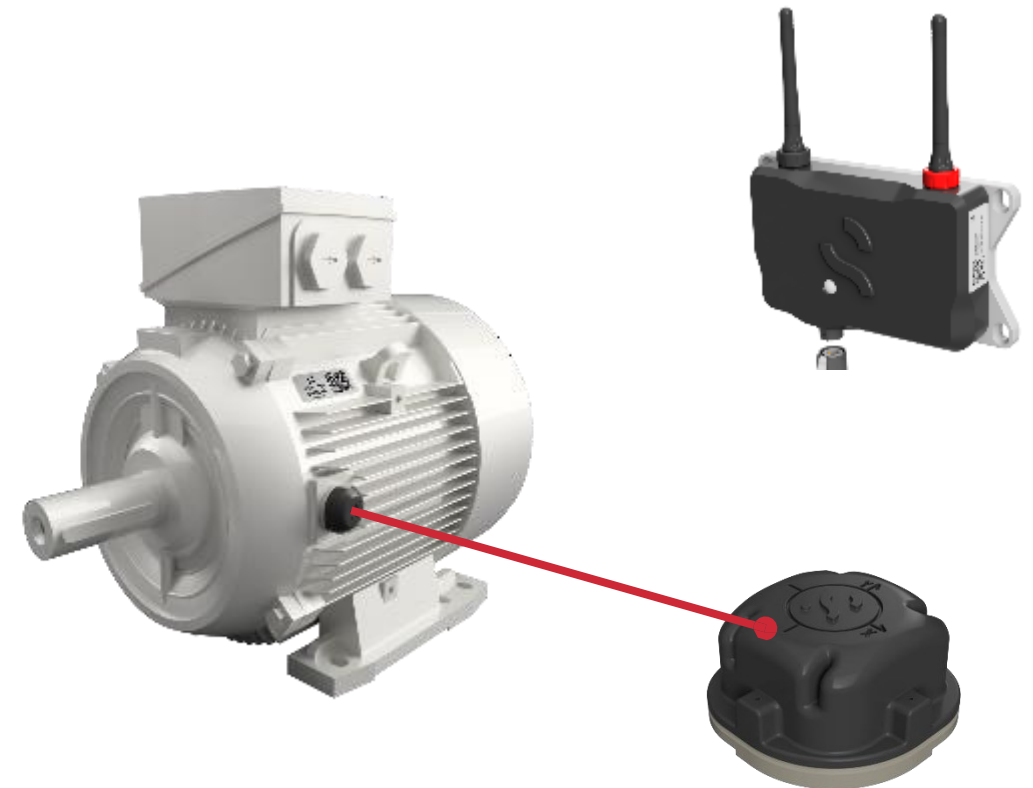
24/7 Continuous Monitoring of Vibration and Temperature

Long range wireless secure communication (Through walls/metal)

Robust compact design for harsh environment

Long Battery lifetime for easy maintenance

Compatible with Sensotek Analytix[®] for visualisation and analysis

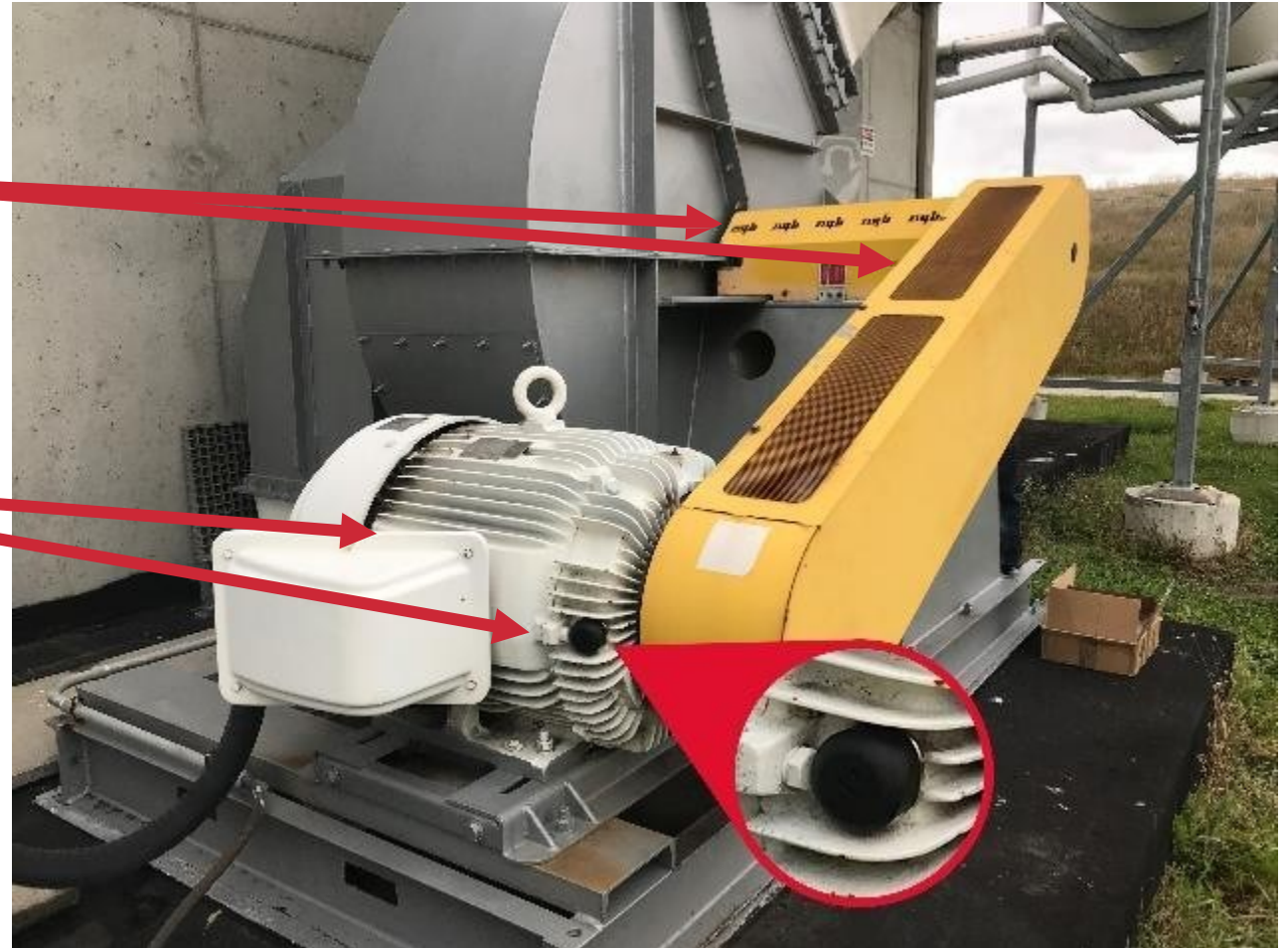


Sensotek Tau[®] Bearing - Belt Driven Fan application

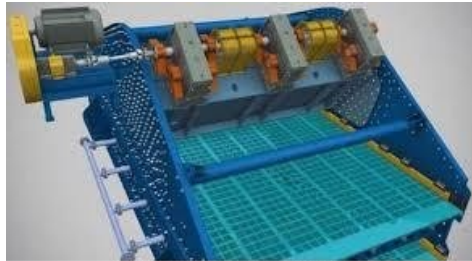
2x sensors
monitor
the Fan and belt

2x sensors
the motor
and belt

4x sensors for
complete machine
monitoring



Sensotek Tau[®] - Applications



Use of Three Unbalance Exciters in Parallel



Crusher



Gear Box

Vibrating Screens



Exciter



Pumps



Centrifuge / Decanter



Mineral Sizer

Sensoteq Tau[®] Technical Info

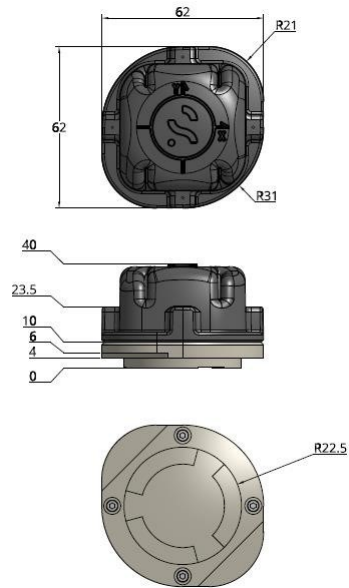
Sensor Specifications	
Bearing Measurements	Temperature, Vibration (X,Y, Z)
Screen Measurements	Stroke Length/Shape, Deflection, RPM
Bearing Measurements Sampling Rate	1 minute
Screen Measurements Sampling Rate	5 minutes
Stroke Sampling time	10 seconds
Measurement Range	2.5KHz / 540Hz
LOR	1600 lines
Wireless Transmission Frequency	Sensoteq Channel 1 or 2 - Sub 1GHz (ISM)
Battery Life	Up to 3 years ⁽¹⁾ (non-replaceable)
Ingress Protection	IP 69K
Explosive Atmosphere	ATEX Zone 0 available on request
Min. / Max. Temperatures	-40 to 85°C (-40 to 185°F)
Dimensions (L x W x H)	62 x 62 x 37mm
Mounting	Magnet/Bolted



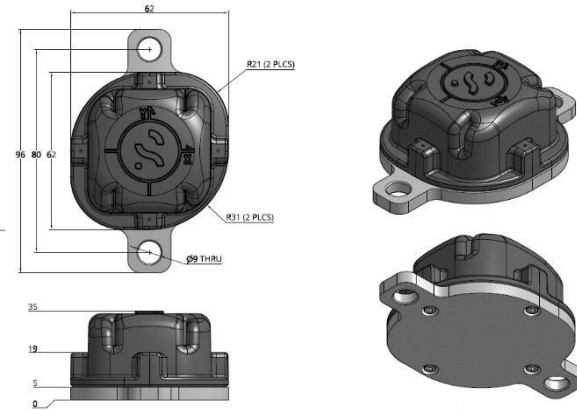
Gateway Specifications	
Receiving Capability	Sensoteq Channel 1 or 2 Sub 1GHz (ISM)
Transmission Capability	WiFi (Cellular available on request)
Measurements	Temperature
Power Source	12VDC
Ingress Protection	IP64
Explosive Atmosphere	ATEX Zone 2 available on request
Min. / Max. Temperatures	-40 to 85°C (-40 to 185°F)
Dimensions (L x W x H)	176 x 195 x 40mm
Mounting	Screw or DIN Rail



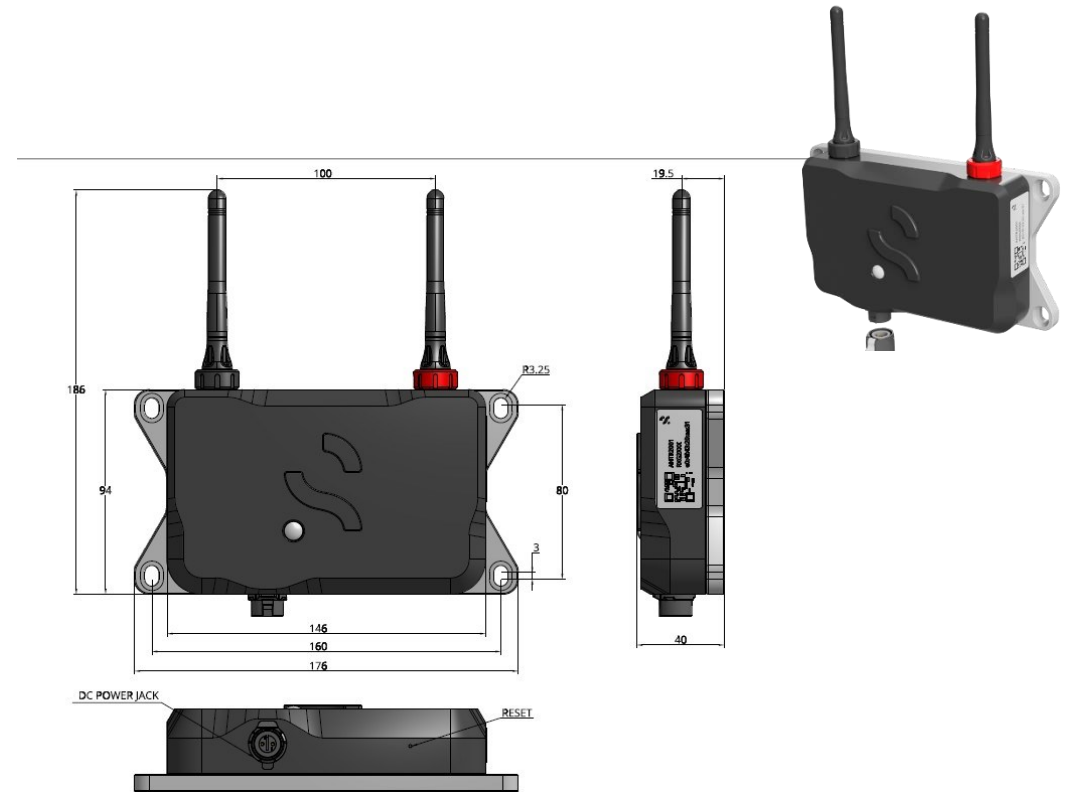
Sensoteq Tau[®] Dimensions



Sensor (Magnet Version)



Sensor (Bolted Version)



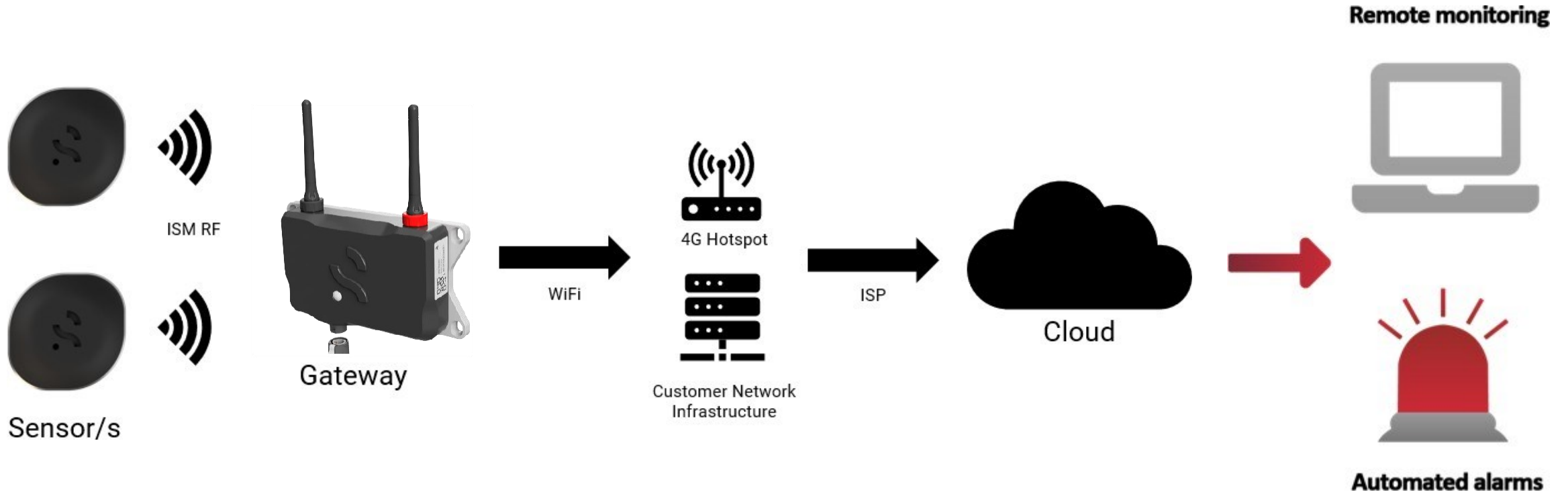
Gateway



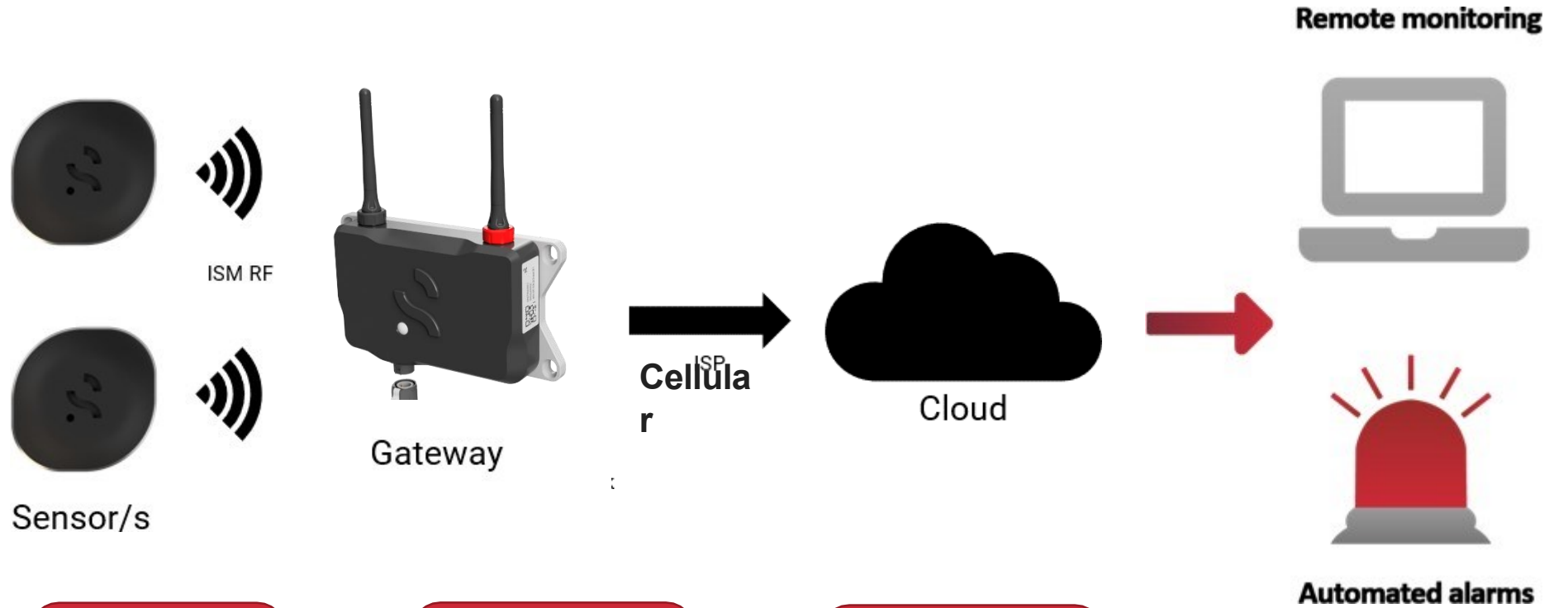
Sensotek[®]

Sensotek Analytix[®]

Sensoteq Analytix[®] platform – WiFi



Sensoteq Analytix[®] platform – Cellular



Sensoteq Analytix[®] – Cloud Storage

Item	Value / Description
Cloud Provider	AWS (Amazon Web Services)
Location	EU (Ireland)

- All messages between devices and the Sensoteq Cloud are protected by strong encryption and anomaly detection by default. Frequent Identity checks and fast-rotating session keys help mitigate man-in-the-middle style attacks.
- Traffic to the Cloud API (Application Programming Interface) is intelligently load balanced to mitigate brute force attacks. In addition, every server sits behind a strictly firewalled private network with intrusion detection to avoid unauthorised access.
- All data stored in the cloud instances is done so with redundancy and regular secure backups to multiple data centres.
- Data Stored in AWS Servers located in EU (all stored data compliant with GDPR European legislation).

Sensoteq Analytix[®] – Device management

Item	Value / Description
Frequency Band	ISM (Sub 1GHz) Receive Only, WiFi (Cellular option available)
Data Measured & Transmitted	Unique ID Temperature Humidity WiFi Signal Strength ISM RF Signal Strength per sensor
Transmission Mode	DUPLEX



Gateway

v

Item	Value / Description
Frequency Band	ISM (Sub 1GHz) Transmit Only
Protocol	Proprietary
Data Measured & Transmitted	Unique ID Temperature Vibration (3 Axis) CRC
Transmission Mode	SIMPLEX

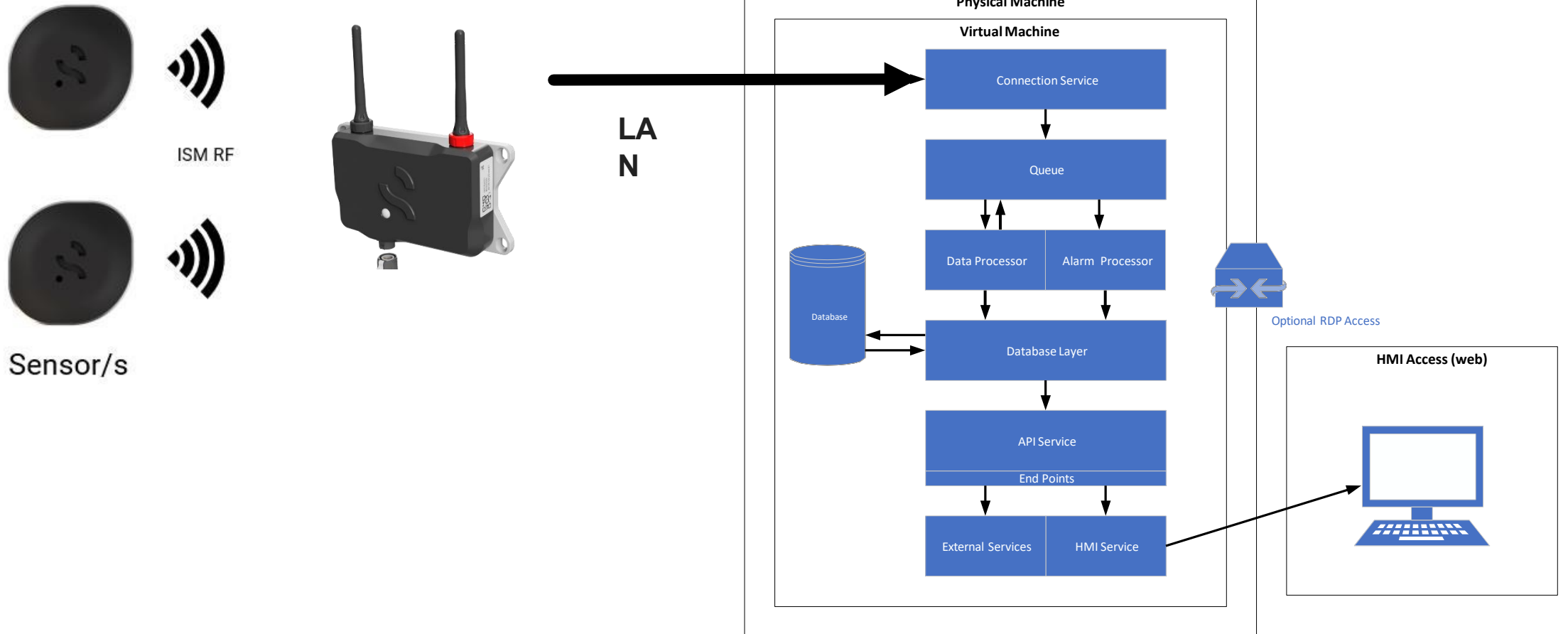


Wireless Sensor

Sensoteq Analytix[®] – Device management

- **All our hardware devices use “bare metal” MCUs (Microcontrollers) that minimise attack vectors that are often unknowingly exposed by SoC (System On Chip) device that run full operating systems. Our implementation is a stripped down RTOS (Real Time Operating System) rather than embedded Linux or Windows. Attack vectors are paths by which a malicious individual or group may attempt to gain access to a network or system, by minimising these within our hardware it greatly enhances system security.**
- **As it is not capable of running a full operating system it is not capable of serving content within the network, it is not possible to SSH/connect to the gateway and it is not capable of collecting information about other machines on the network.**
- **The gateway does not store or transmit any information about its physical location or any customer details, that data is managed within the cloud and linked to the Unique ID.**
- **All measured data is processed by the cloud and is checked for consistency and anomalies before passed onto to any other processes.**

Sensoteq Analytix[®] platform – On Prem (local*)



* to be released in Q1
2021

Sensoteq Analytix[®]

User Interface for Visualisation, Analysis, Alarming and Reporting

Visualisation of Machine Health and all related data

Trending of all collected data for early life detection

Vibration/Temp recommended warnings based on machine type

Analysis tools for failure diagnosis purposes

Reporting Capabilities using standard automated templates

Compatible with all Sensoteq Monitoring devices



Machine 147 No issues

Screen - Inclined

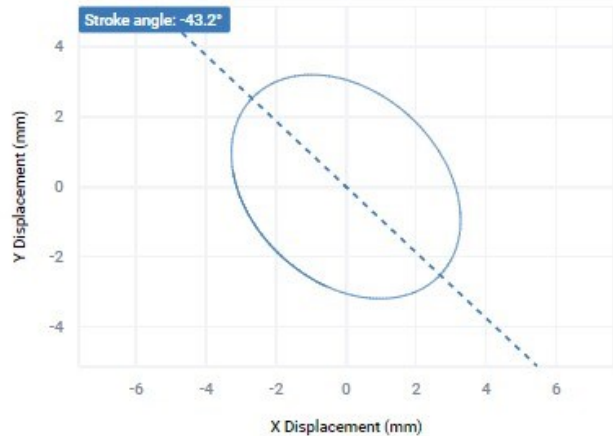
DATE May 19th 2020, 10:21 [Navigation icons] [EDIT]

LEFT DISCHARGE

10:26

No alarm issues detected

	ACCEL (G)	STROKE (MM)
X	4.08	6.54 2%
Y	3.99	6.39 4%
Z	0.0564	0.0904
O/A	4.6	7.37 3%



1056 RPM 17.6 Hz

DISCHARGE

RIGHT DISCHARGE

10:30

No alarm issues detected

	ACCEL (G)	STROKE (MM)
X	4.01	6.43 2%
Y	3.85	6.17 4%
Z	0.147	0.235
O/A	4.48	7.19 3%

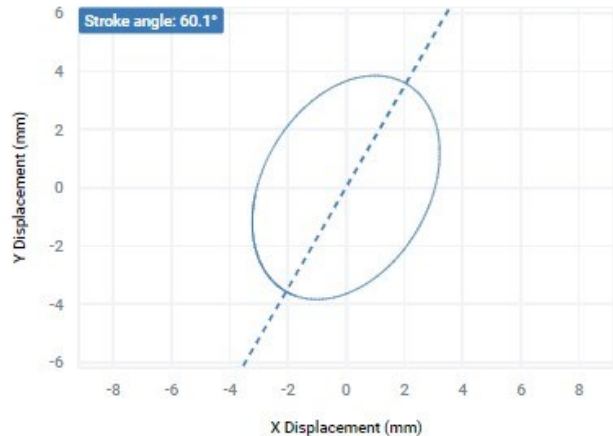


LEFT FEED

10:26

No alarm issues detected

	ACCEL (G)	STROKE (MM)
X	4.01	6.44 1%
Y	4.79	7.68 3%
Z	0.101	0.163
O/A	5.14	8.24 1%

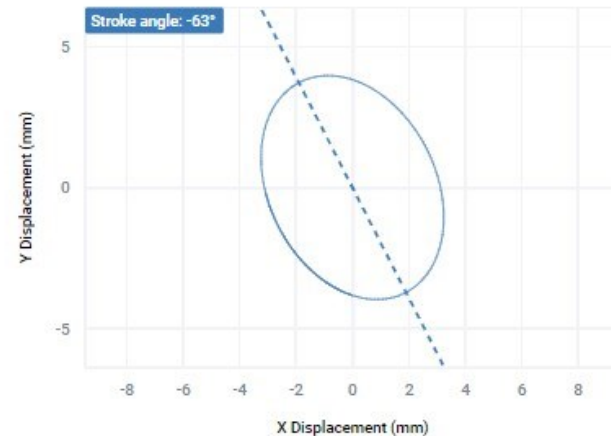


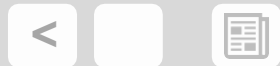
RIGHT FEED

10:28

No alarm issues detected

	ACCEL (G)	STROKE (MM)
X	4.04	6.47 1%
Y	4.95	7.93 3%
Z	0.113	0.181
O/A	5.2	8.35 1%





POINT DATA SITE 47 MACHINE 141 POINT 3 VIBRATION SPECTRUM

Search... [notification] [refresh] [share] [sensotek]

MENU

- HOME
- SCREEN DASHBOARD
- ANALYSIS
- SERVICE TOOL
- ALARMS >
- REPORTS
- SETTINGS >

Next data available in 11 hours

latest custom low res. high res. horiz. vert. axial

INFORMATION

TIME 04:35:27 on 10th October

RMS (ACC) 0.484 g

PEAK-TO-PEAK 3.74 g

RMS (VEL) 1.82 mm/s

OA 0.0717

CREST FACTOR 3.53

SAVED RPM 1785

ANALYSIS OPTIONS

These settings are for analysis purposes only - they are not saved

RPM

1785

FFT Windowing

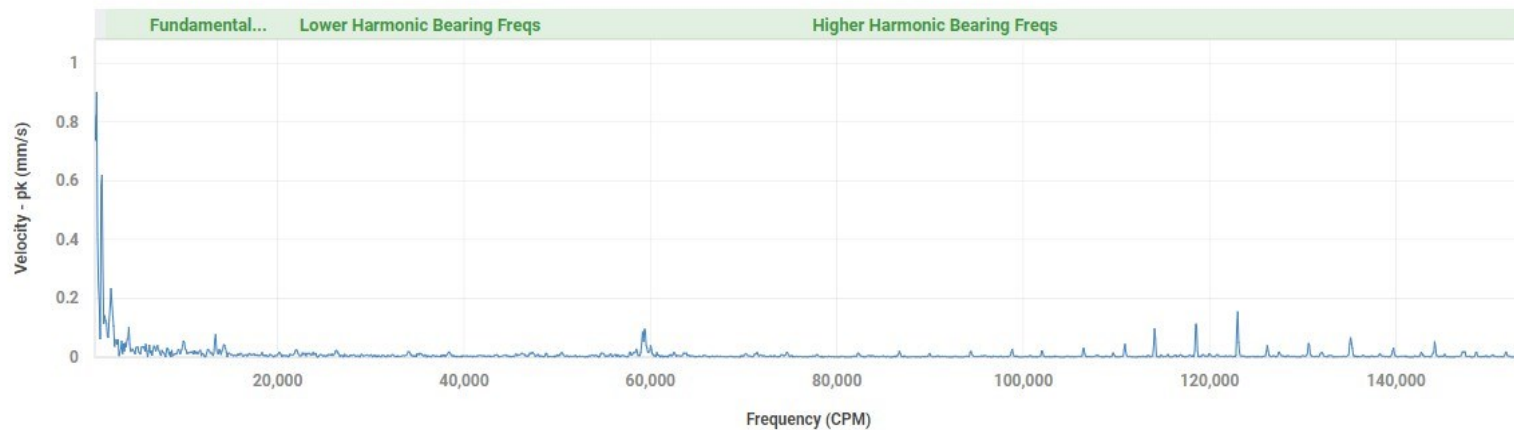
Hann window

Bearing Type

Select a bearing type...

VELOCITY

Horizontal - Low res - 1785 CPM



TIME DOMAIN

Horizontal - Low res - 1785 CPM

