



ASYS TOM

Universal Smart Monitoring Solution for Predictive Maintenance





ASYSTEM

Asystem

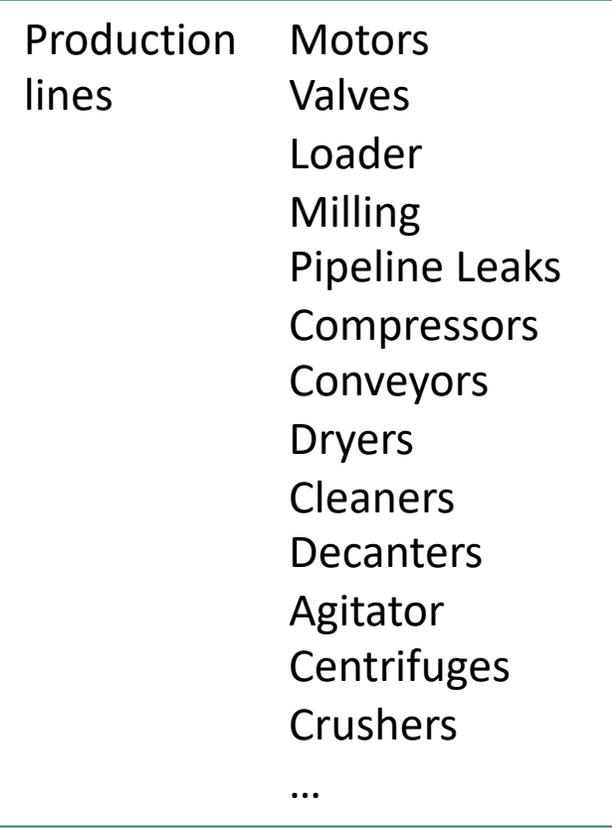


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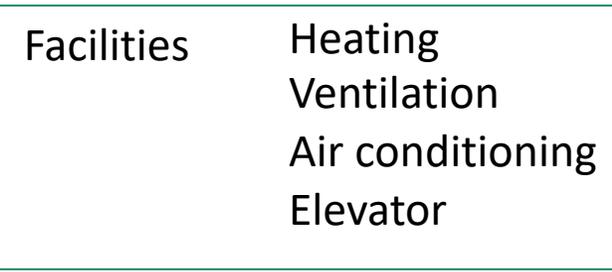


Target Segment and Applications

Industry application types



Facilities



Trusted by Leaders of The Industries



ENVIRONMENTAL



ENERGIES



MANUFACTURING



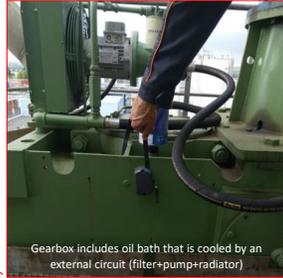
AND MORE

Saving Critical Processes...

Smooth Running of Agitator Is Critical in Fermentation Process



Giant Fermentation Tank



Gearbox includes oil bath that is cooled by an external circuit (filter+pump+radiator)

AsystemPredict was selected due to its versatile set of sensors in predicting various type of failures in rotating motors



Failure is Not An Option

Critical Process: Cooling of Molten Steel Alloys



Smooth running of cooling tower is vital for steel manufacturing processes such as cooling down molten steel alloys

Critical Component: Primary and Secondary Pumps



Customer would like to monitor the pumps to identify their drift and variations in operation, to prevent possible failure

AsystemPredict in Action

From Smart Triggering In Test Bench



AsystemPredict's wake up on vibration feature is used to collect real time data on the test bench condition

To Monitoring Usage in Multiple Equipment and Processes



Gain insights into the state of equipment across the plant



AsystemPredict

Monitoring Rotating Equipment in Various Processes



Water Treatment



Oil & Gas



Offshore



Automotive



Metals & Mining



Food



Pharmaceutical & Chemicals



Smart Building



Waste Management



Asystem - Unparalleled PdM solution

Vision

Predict failures by monitoring equipment of different ages and models without disturbing the environment



Company

An agile and flexible company with advanced Industry 4.0 technological know-how and helping our customers maximize their asset utilization



ASYSTOM

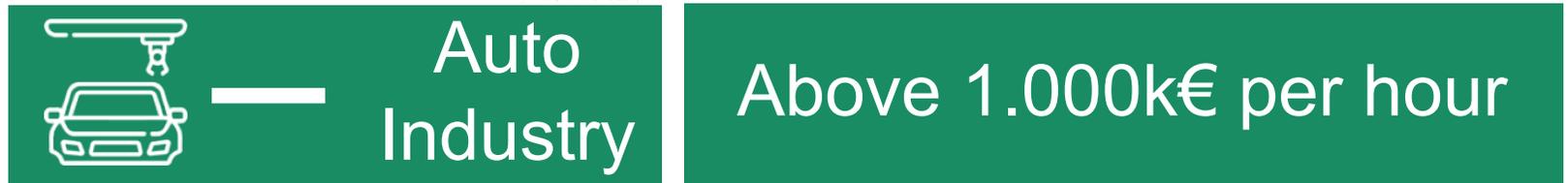
Universal Smart Monitoring Solution
for Predictive Maintenance

Industrial Maintenance

Cost of Downtime



Source : April 21st, 2016 | IT Communications and Networking



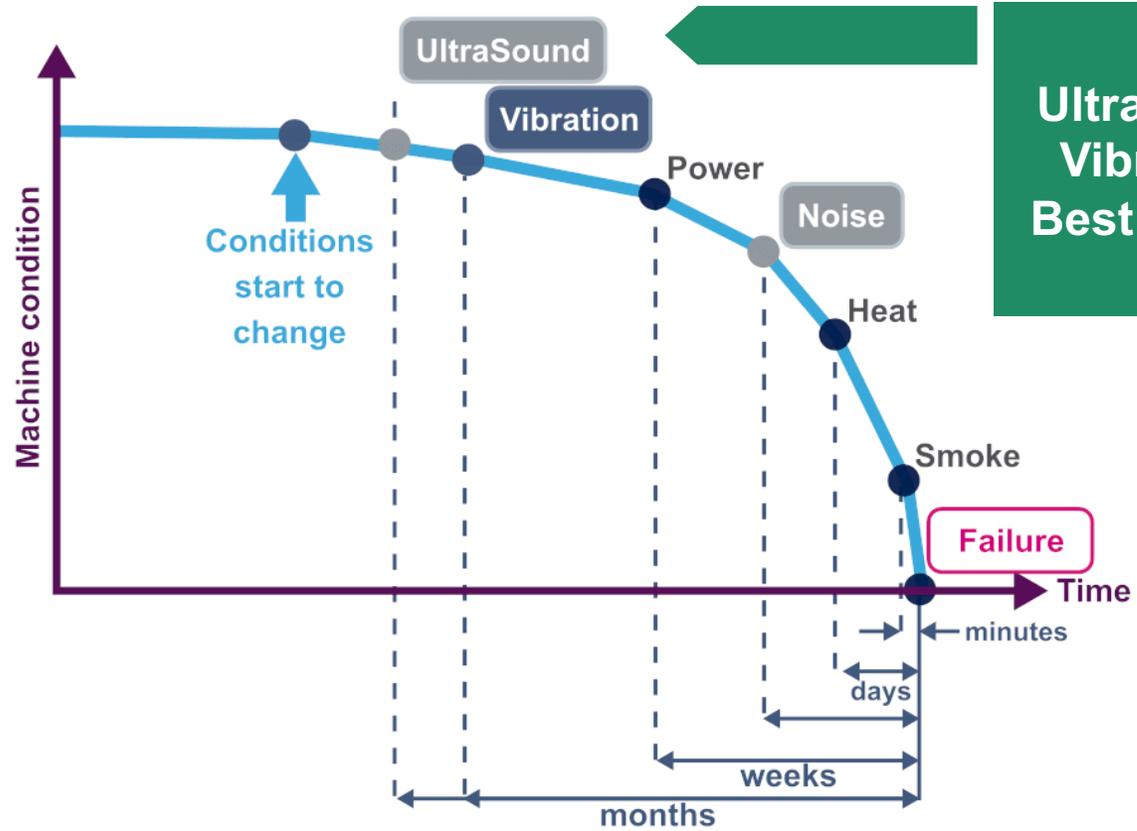
Source : Advanced Technology Services, Inc. Mar 29, 2006

Failures =
24% of
production cost

90%
corrective
action done in
emergency

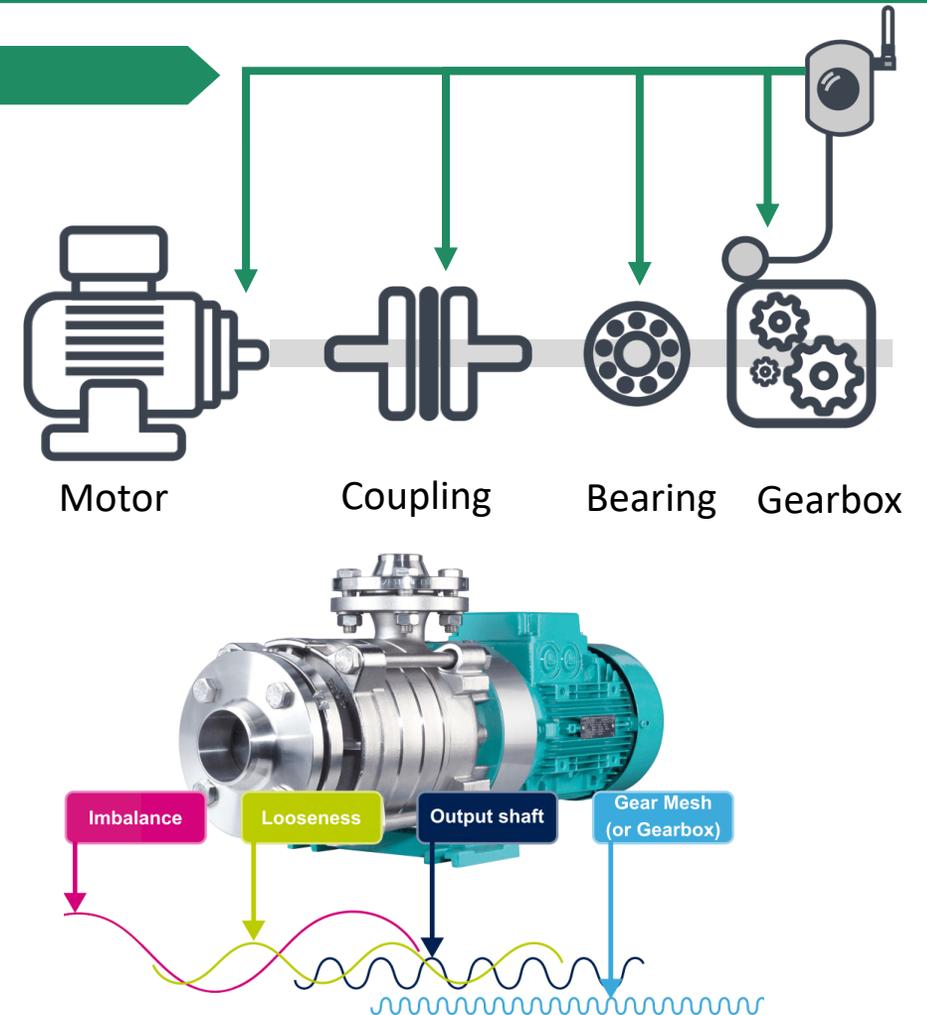
Understanding Asystem predictivity

Earliest alert of drift



(Source SMTElectronics)

Enhanced multi-sensing





ASYSOM

AsystemPredict

A turnkey solution



2



A Universal Solution for Predictive Maintenance

Embedded Intelligence



AsystemSentinel

Multisensor Edge computing technology

- Learn
- Monitor
- Analyse before transmission

IoT Connectivity



AsystemInfra

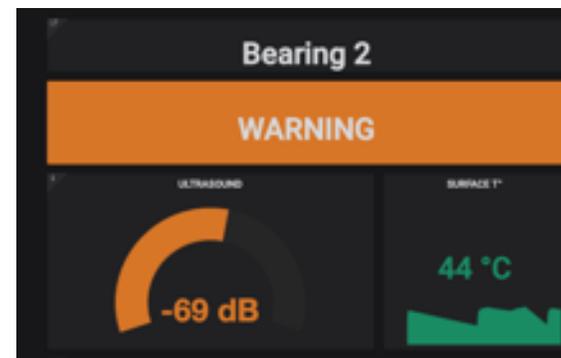
- Scalable Server Technology
- LoRa network
- Secured, encrypted transmission

Intelligence « On cloud »



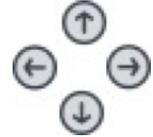
AsystemView

- Visualisation
- Alert
- Set-up & configuration



Key innovations and differentiations

1



360 Situational Awareness

3-axis Vibration, Ultrasound & Environmental to sense machine vitals

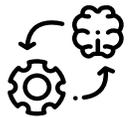
2



Edge AI

Machine Learning with Sensor Fusion for accurate prediction

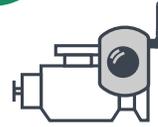
3



SmartProbe

Monitor hard to access machine with universal probe and wake up on event

4



Easy to Install and Use

Setup in minutes

5



Wireless and Secured streams

LoRa (up to 800m outdoor) & simple network topology

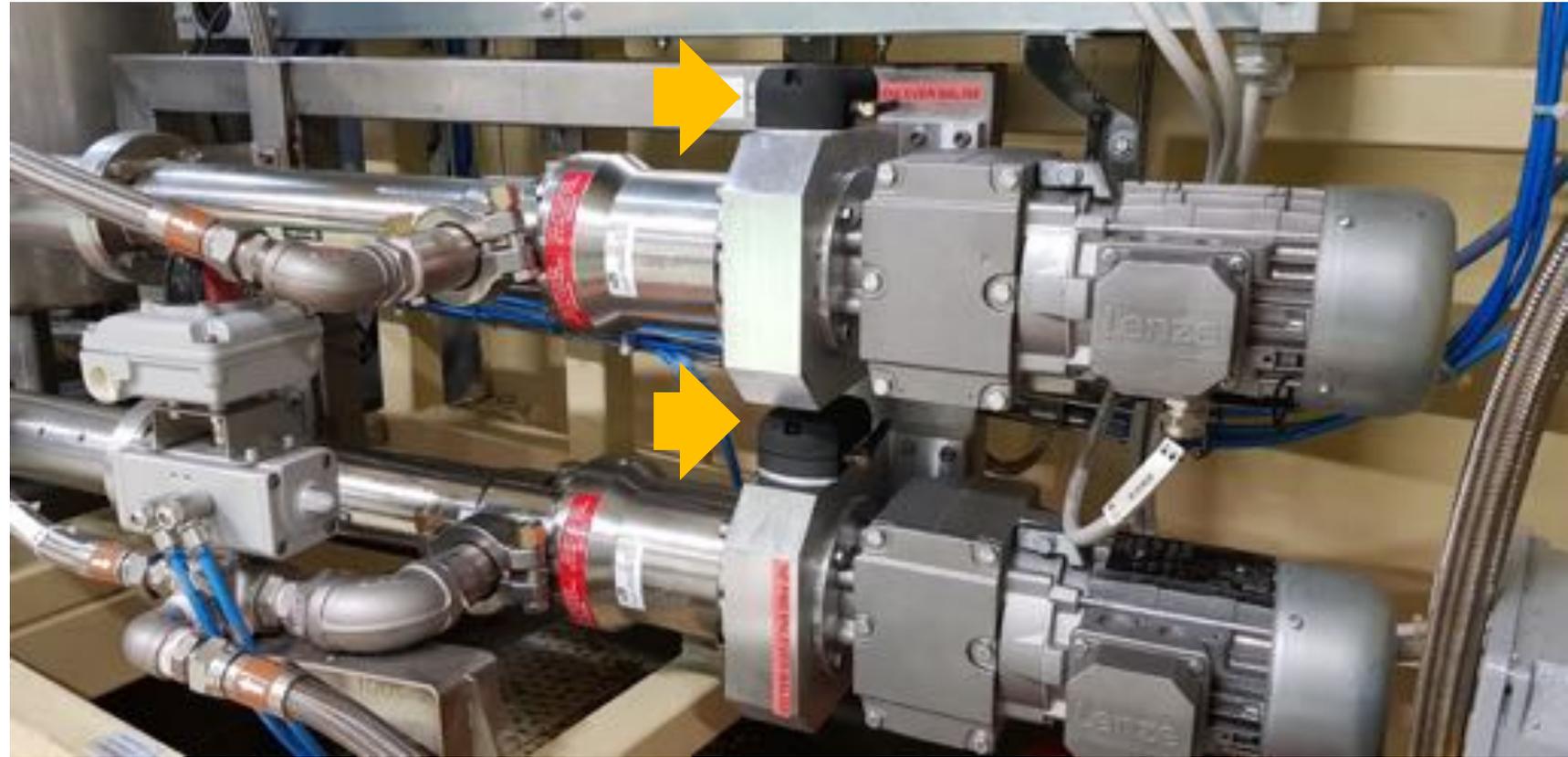
6



Compact and Autonomy

Up to 10 years with replaceable AA batteries

Use case : Industrial installations



Asystem beacons on an industrial site (authorized by Renault)

Monitoring : conveyors, crusher,
motors, pumps, compressors, ...
Production line



Dust



Heavy Weather



Hazardous



**Advanced
Moisture &
Dust Protection**

&





AsystemPredict : a Turnkey solution



AsystemSentinel
multi sensors device
positioned on your equipment

+



AsystemInfra
Network and
cloud server

+



+



AsystemView
access to our
visualization and alert
platform.



AsystemSentinel



3

Embedded Intelligence

Place



Learn



**Monitor
for years**



**Alert
for Drift**



How?

Unsupervised Anomaly Detection algorithm

Why?

Real Time Condition Drift Monitoring for Accurate Predictive Maintenance

Asystem Sentinel EX



World first **Tri-axial Vibration with Ultrasound** sensor designed for the **hazardous** environment

Accurate Prediction

- Integrated vibration & ultrasound sensor detects wide range of faults
- Edge AI drives powerful analytics and alerts

Ease of Operations

- 100% remote real time monitoring
- 10-years battery life (replace-able AA)
- Smart Probe enables installation on tight space & wake up on event

Cost Effective

- Long range wireless
- Captures wide range of machine condition using a single device

Certified for Zone 1

- Covered almost all areas where rotating assets are operational

Asystem Sentinel Outdoor



Designed to work in **harsh condition**, the AsystemSentinel Outdoor simplifies operation with **universal smart probe** and **long battery life**

Accurate Prediction

- Integrated vibration & ultrasound sensor detects wide range of faults
- Edge AI drives powerful analytics and alerts

Ease of Operations

- Smart chassis enables installation on tight space & wake up on
- 100% remote real time monitoring
- 10-years battery life (replace-able AA)
- Support external sensor (optional)

Cost Effective

- Long range wireless
- Captures wide range of machine condition using a single device

Robust Design

- Encapsulated electronics & IP66 rated

Asystem Sentinel Indoor



A complete machine monitoring solution with exceptional value in sensor fusion and Edge AI

Accurate Prediction

- Integrated vibration & ultrasound sensor detects wide range of faults
- Edge AI drives powerful analytics and alerts

Ease of Operations

- Compact design supporting optional universal smart probe
- 100% remote real time monitoring
- 5-years battery life (replace-able AA)

Cost Effective

- Long range wireless
- Captures wide range of machine condition using a single device



AsystemSentinel Models



Asystem Sentinel Analytic

Multi-sensors

- Tri-axial Vibration
- Ultrasound
- Sound
- T° surface

- Tri-axial Vibration
- Ultrasound
- Sound
- T° surface
- Gyroscope (*)
- Shocks (*)
- Optional external 4-20mA, Dry Contact, T° Sensor

- Tri-axial Vibration
- Ultrasound
- Sound
- T° Ambient
- T° Surface
- Humidity
- Pressure
- Gyroscope (*)
- Shocks (*)

Autonomy

Up to 10 years autonomy with 4AA battery

Up to 10 years autonomy with 4AA battery. Optional external power supply

Up to 5 years autonomy with 2AA battery

Edge AI

- Powerful calculation capacity. Auto learning.
- Algorithms for prediction of dysfunctions and drift
 - LoRa WAN connectivity
- Encrypted and Secure data transmission

AsystemInfra



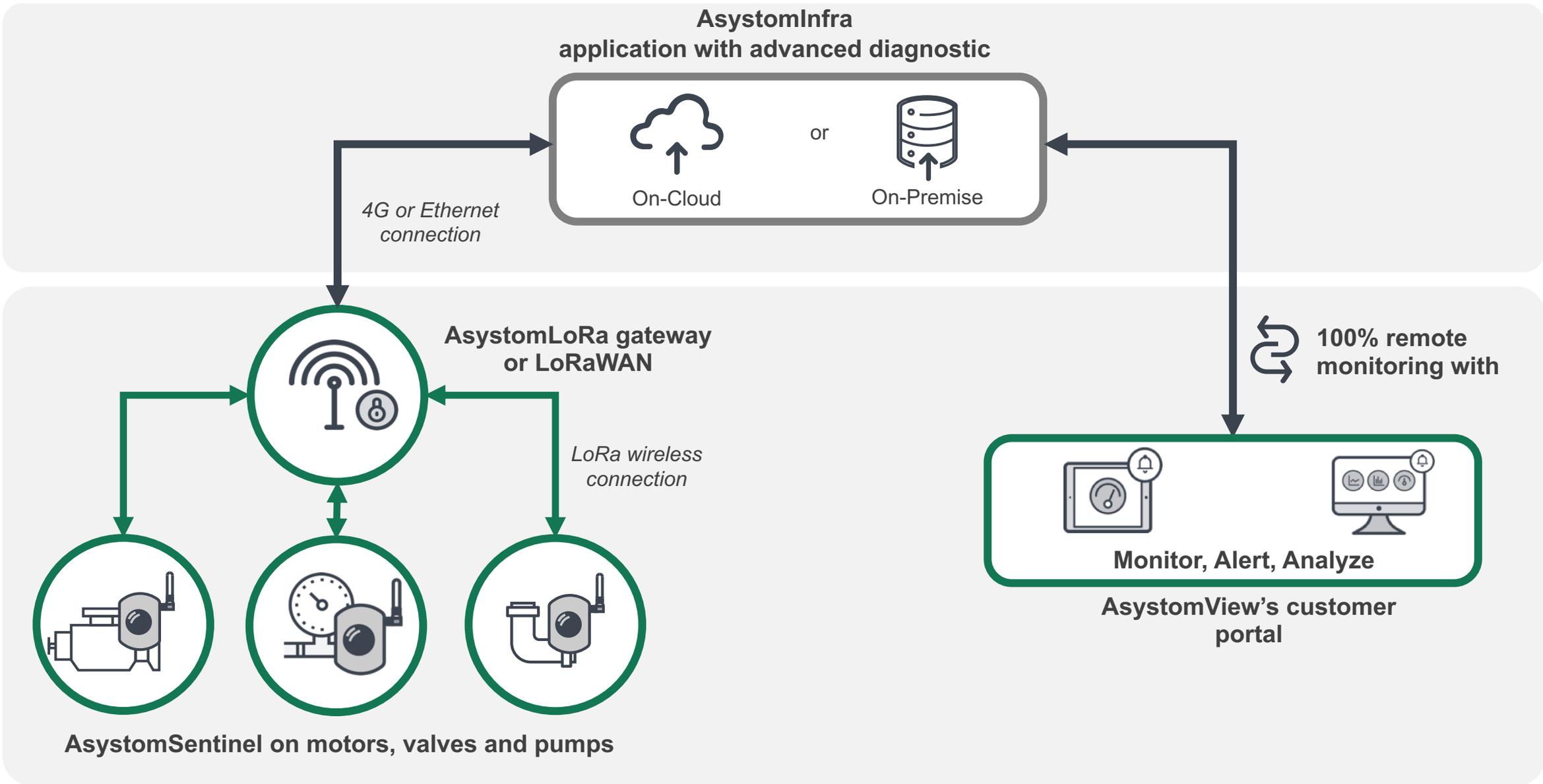
4



AsystemInfra Setup

Hosted Application

Customer Site



Secured Wireless Architecture

Secured



- Our solution ensures end-to-end security through state-of-the-art encryption and authentication schemes.
- Additionally, our cloud infrastructure guarantees a complete isolation between customer data through a “one customer / one server” approach.
- If required, we offer the deployment of our entire solution on premise including the server.



ASYSTEM

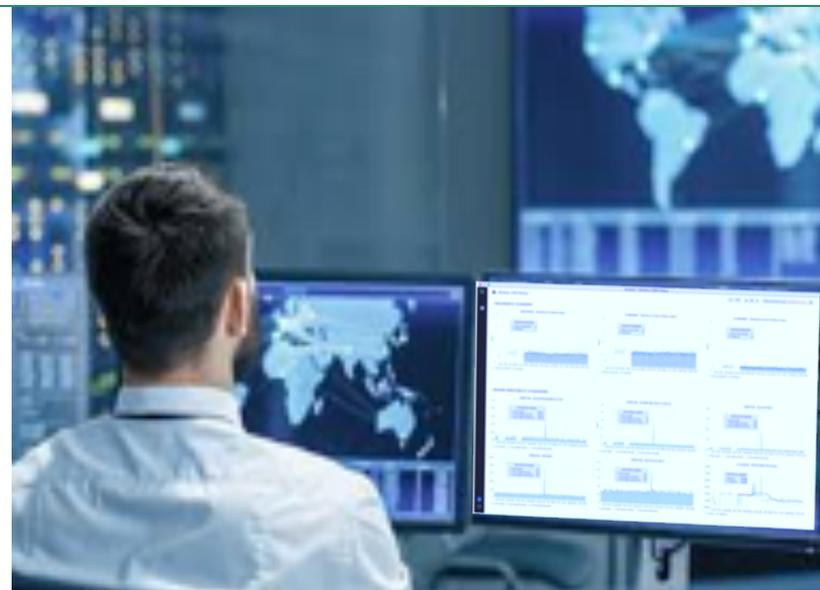
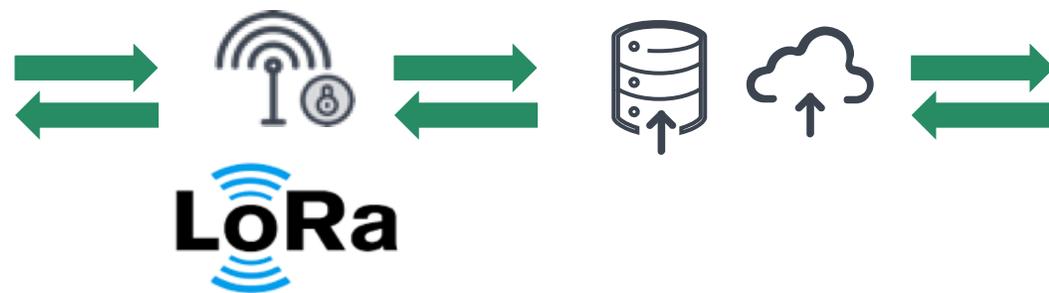
AsystemView



5



Full Remote With AsystemView



Asystem Device

Wireless

Cloud Infra

Dashboard

Continuous real time, 24x7 monitoring and **integrated multi-sensors data** enables unparalleled failure prediction that's easily monitor remotely from any web-enabled device or alert via smartphone. **No more monthly plant walkabout to collect data!**

Asystem View

Web application

Hosted in our cloud servers or on-premise

Data visualization and alerting



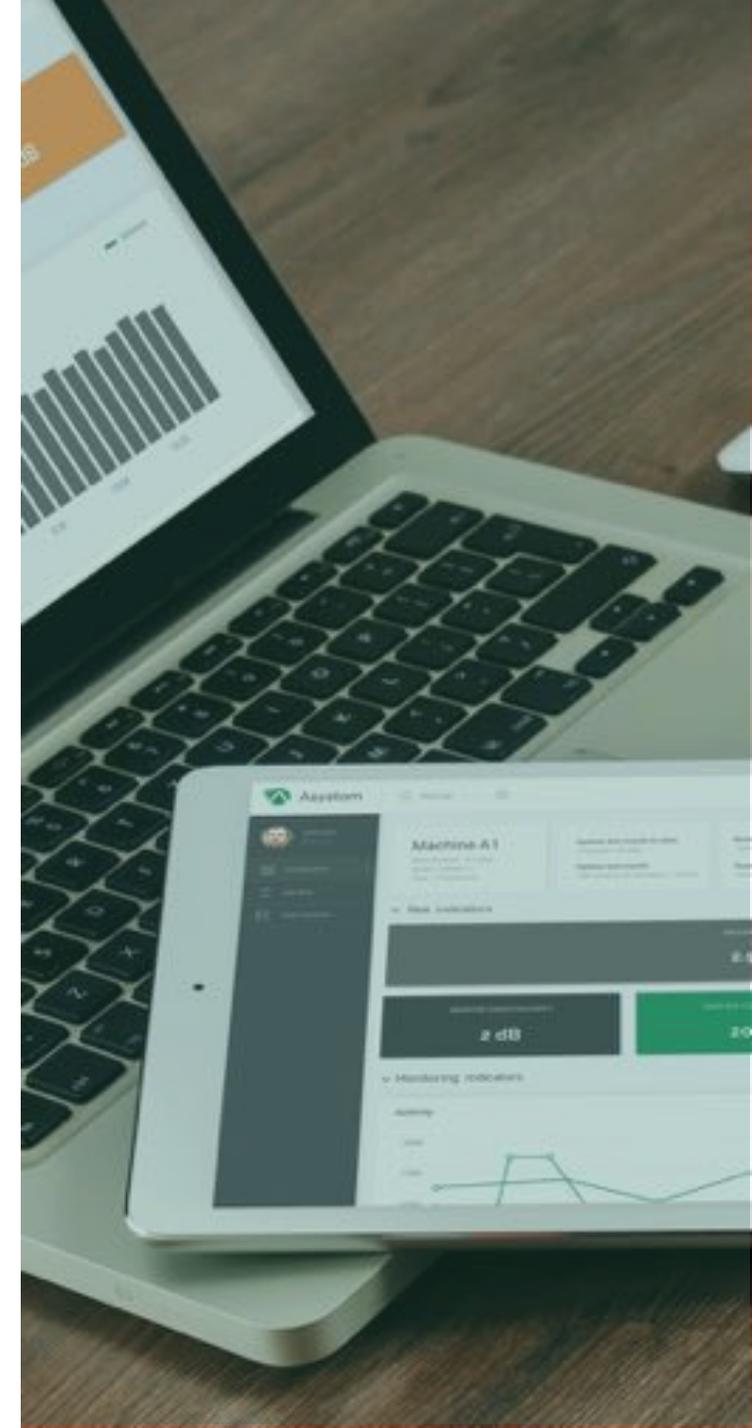
Real time data visualization is available from PC and mobile devices.



Alerting can be configured on all monitored indicators.

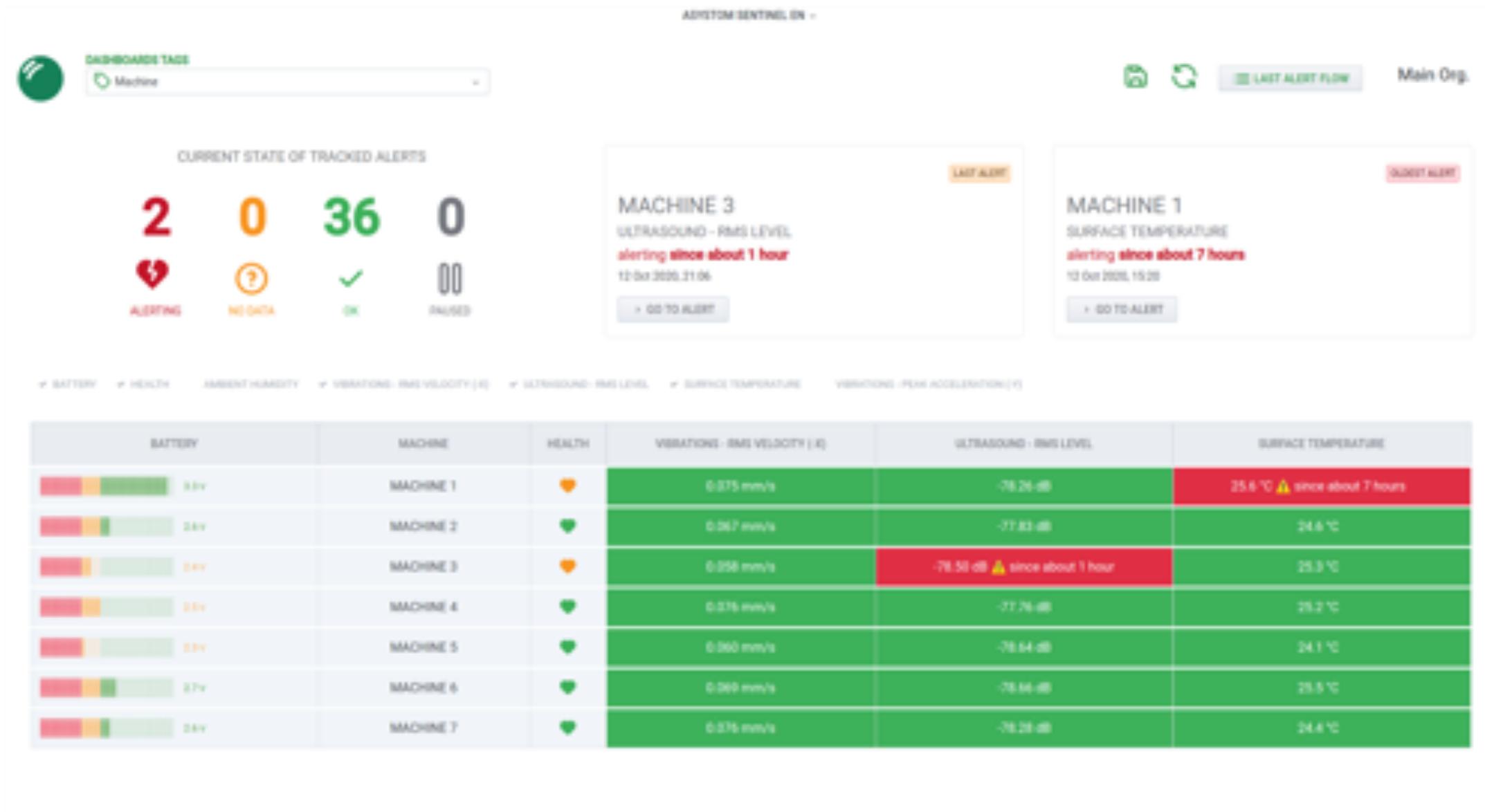


Remote Device Settings such as measurement periodicity or algorithm configuration from application.





Synthetic Dashboard

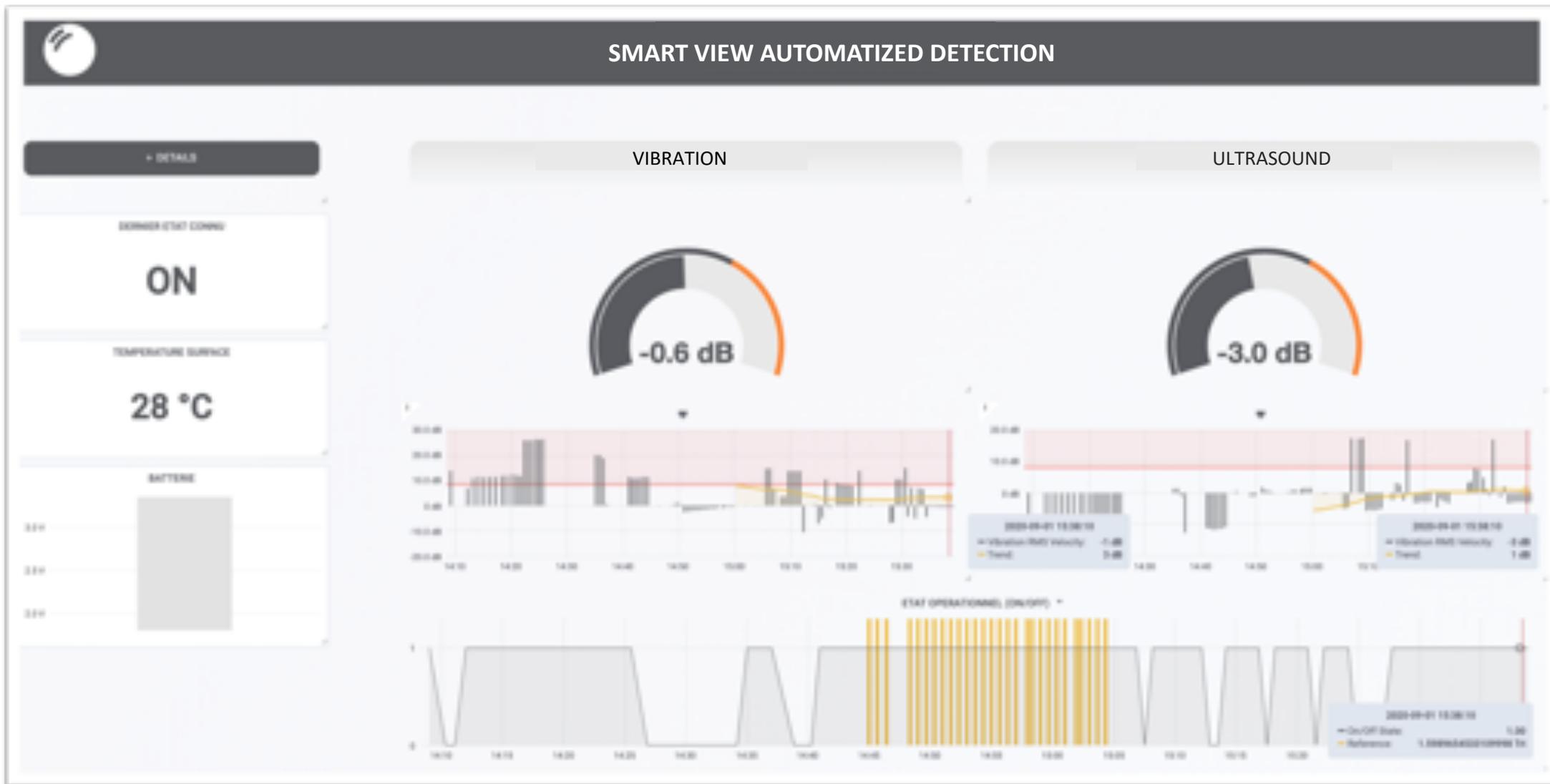




Equipment monitoring



SMART





Equipment detailed monitoring



EXPERT





The Most Advanced Technology

Unparalleled Technology Choice Point



Smart Sensor Fusion



Data Compression



“Right-time vs Real-time” monitoring technology



100% remote technology through Wireless LoRaWAN



Alerting and deep analytical platform Web-app User Interface



Advance Power Management



3rd party network



Server On-Premises. Up to full integration



Future-Proof

1

Improve efficiency of production units by avoiding unplanned downtime

2

Provide a non-intrusive universal solution simple to install

3

Facilitate and automatize failures detection

4

Gather intelligent data to propose prediction tools.

Smart Monitoring on Industrial Engines



Multi sensor

Intelligence at
the edge

Self learning
Machine state



ASYSTOM

Video

https://youtu.be/72Kw_w3VRcc

Thank You!



ASYS TOM