



iQunet.®

Asset & Condition Monitoring Solutions

iQunet offers ready-to-use products and software for digitalization projects, ensuring a quick rollout of on-premises monitoring solutions.

iQunet also supports custom engineering requests to meet specific needs.

iQunet.[®]
Asset & Condition Monitoring Solutions



on-premises

MQTT

OPC UA

GraphQL
API

iQunet.[®] Edge



AI

IO-Link

4-20mA / 0-10V Analog

iQunet.[®]
Wireless FSK

LoRaWAN[®]

Modbus



iQunet.[®]

IO-Link

LoRaWAN[®]

4-20mA Analog
0-10V Analog

Modbus

Vibration Current Signature Wireless Plant Monitoring Drive-as-a-Sensor Metering

Sensors

iQunet.[®]

increases Industrial OEE

(Overall Equipment Efficiency)

through

on-premises

Data Acquisition (DAQ) & Analytics

from a versatile network of

(wireless) iQunet Sensors

and powered by

embedded Edge (AI) Software

enabling

continuous

Asset & Condition Monitoring

iQunet.®

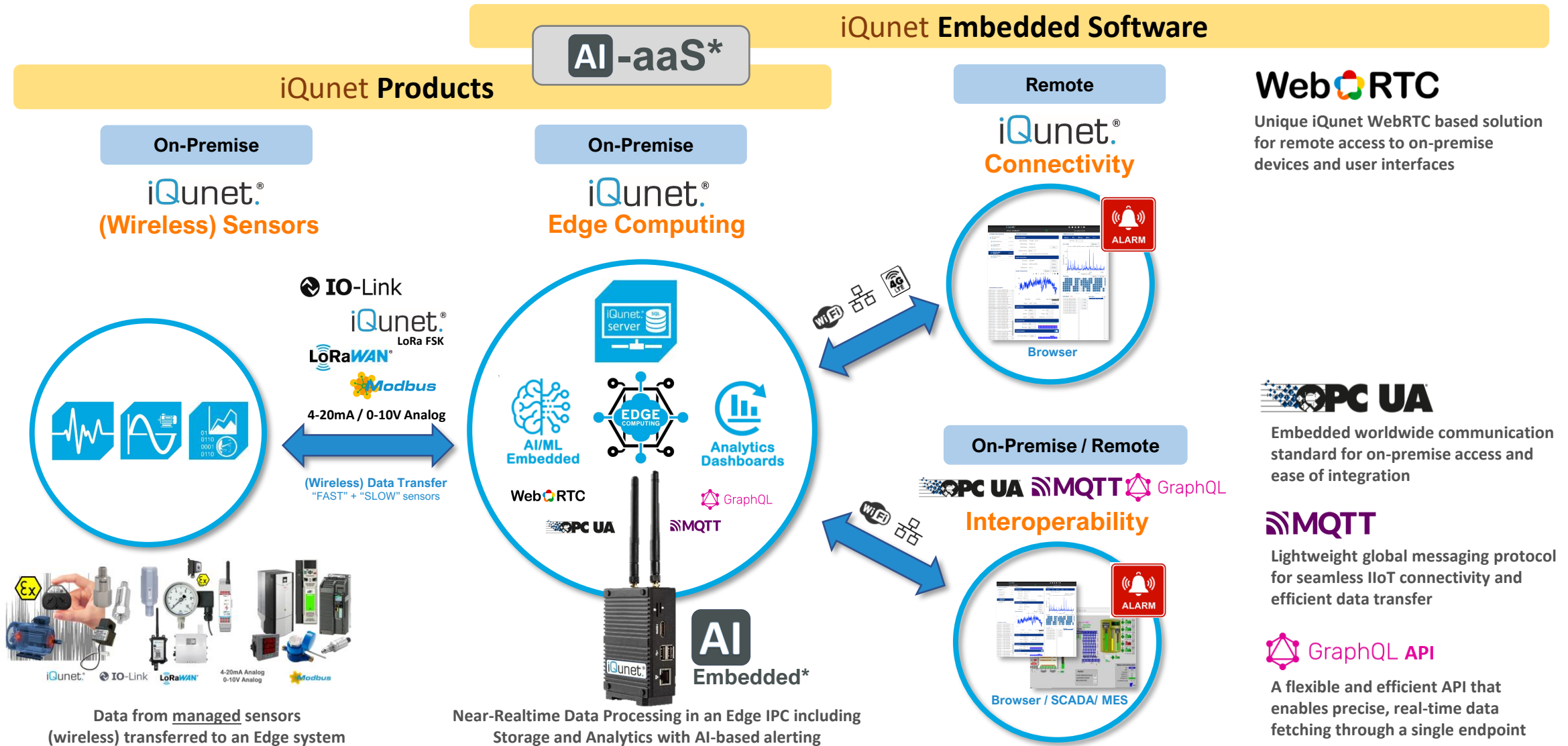
Asset & Condition Monitoring Solutions



iQunet.® In a nutshell

- The iQunet solution is a unique **on-premises** platform for **continuous Asset and Condition Monitoring**.
- It connects both **wireless and wired sensors and devices** to the **iQunet Edge** using a variety of industrial protocols—entirely without relying on the cloud.
- All monitoring **data is stored locally** and made instantly accessible via **OPC UA, MQTT, or a GraphQL API**, enabling **seamless integration** with existing plant systems.
- A **comprehensive embedded software suite** supports sensor and device management, Time Waveform (TWF) analytics, interactive graphing, dashboards, and more.
- Complemented by **built-in Edge AI services** for advanced local processing, **on-premises**.

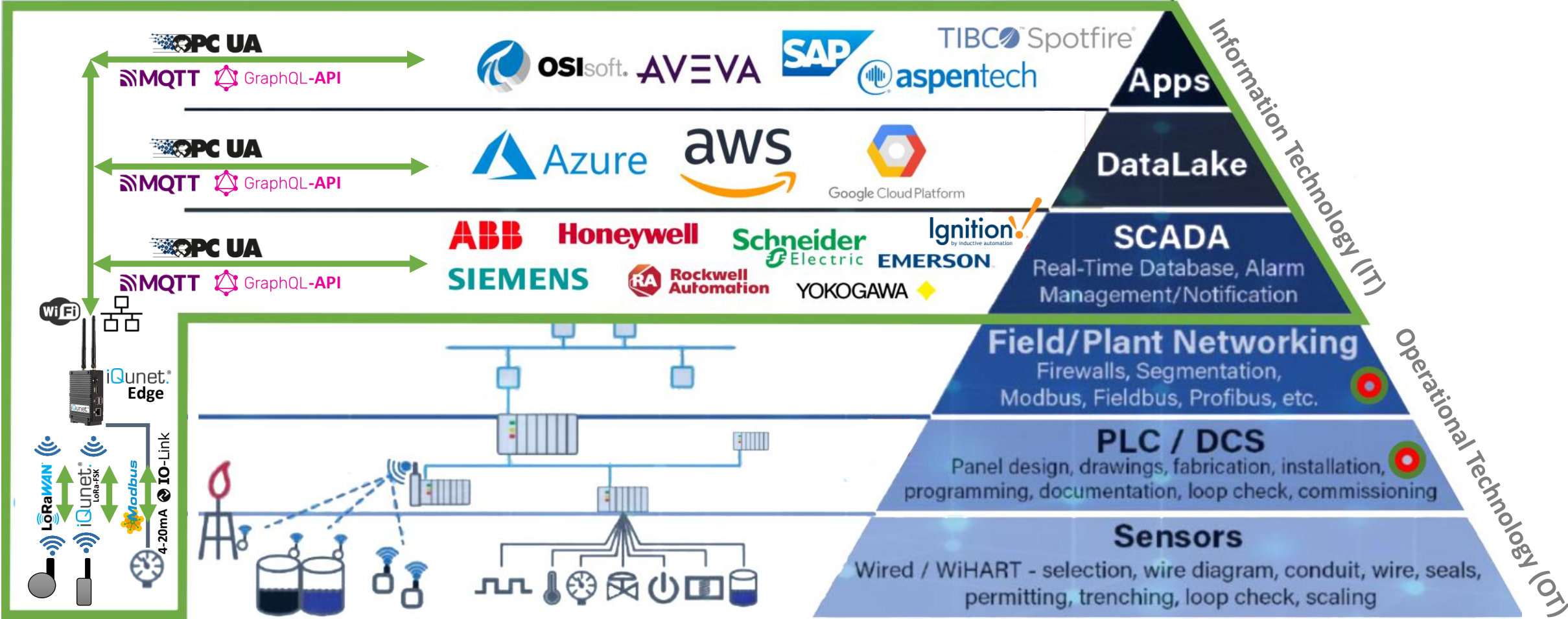
iQunet.[®] How it works / What we provide



* AI-aaS is an optional service for providing AI-based alerting

iQunet[®] : Smart IIoT for Seamless Interoperability

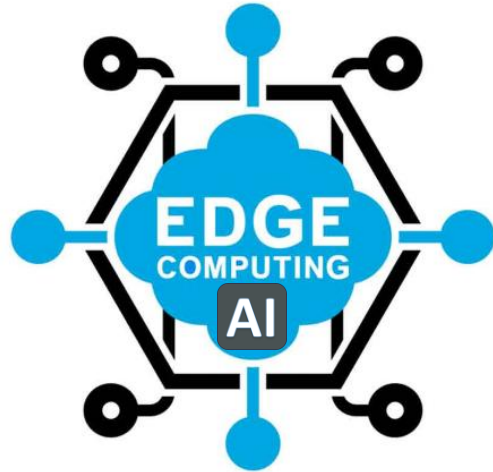
iQunet[®] Asset & Condition Monitoring



Traditional Process Monitoring & Control

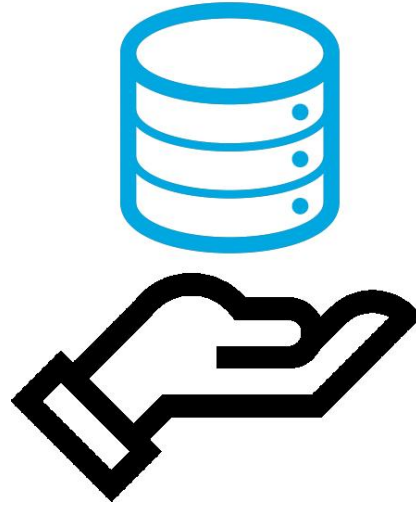
iQunet.[®] Key Benefits

Edge (AI) Computing / Data Ownership / Interoperability



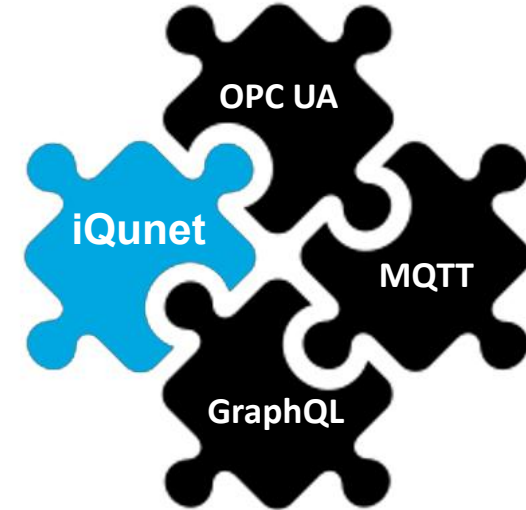
**Edge Analytics &
On-Premises Data Storage**

Real Time Processing,
incl. Embedded AI



**Free Sensor Data &
Data Ownership**

No Vendor Lock-in
Mainly CAPEX



**Seamless Interoperability
& Connectivity**

End-to-End Solution
with High ROI



iQunet.®

Asset & Condition Monitoring

Predictive Maintenance Solution
&
Multi Sensor Data Acquisition Architecture
in
one On-Premises System

iQunet.[®] Predictive Maintenance Solution

iQunet's sensor hardware and software covers most important potential Drive Train failures

Time series (full spectrum) from:



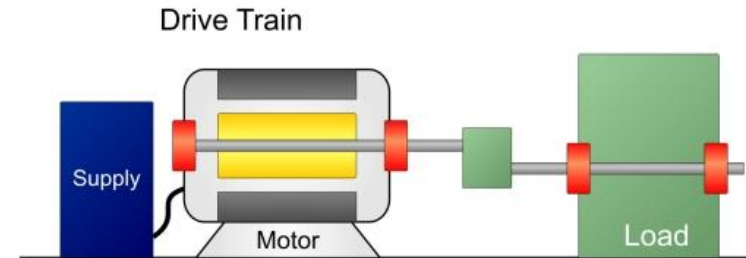
Vibration Monitoring

✓ 3/7



(MCSA) Current Waveform Monitoring

✓ 5/7



✓	Supply	Power Quality	EPVA (Voltage)	
✓	Mec. Imbalance or Misalignment	MCSA	Vibration	EPVA
	Insulation Faults	Partial Discharge	EPVA	
✓	Stator Electrical Imbalance	EPVA	MCSA	Power Quality
✓	Broken Bars	MCSA	EPVA and IPSA	
✓	Bearing Faults	Vibration	Wavelet on Current	MCSA, EPVA and IPSA
✓	Coupling and Load Mechanical Failures	Vibration	MCSA, EPVA and IPSA	

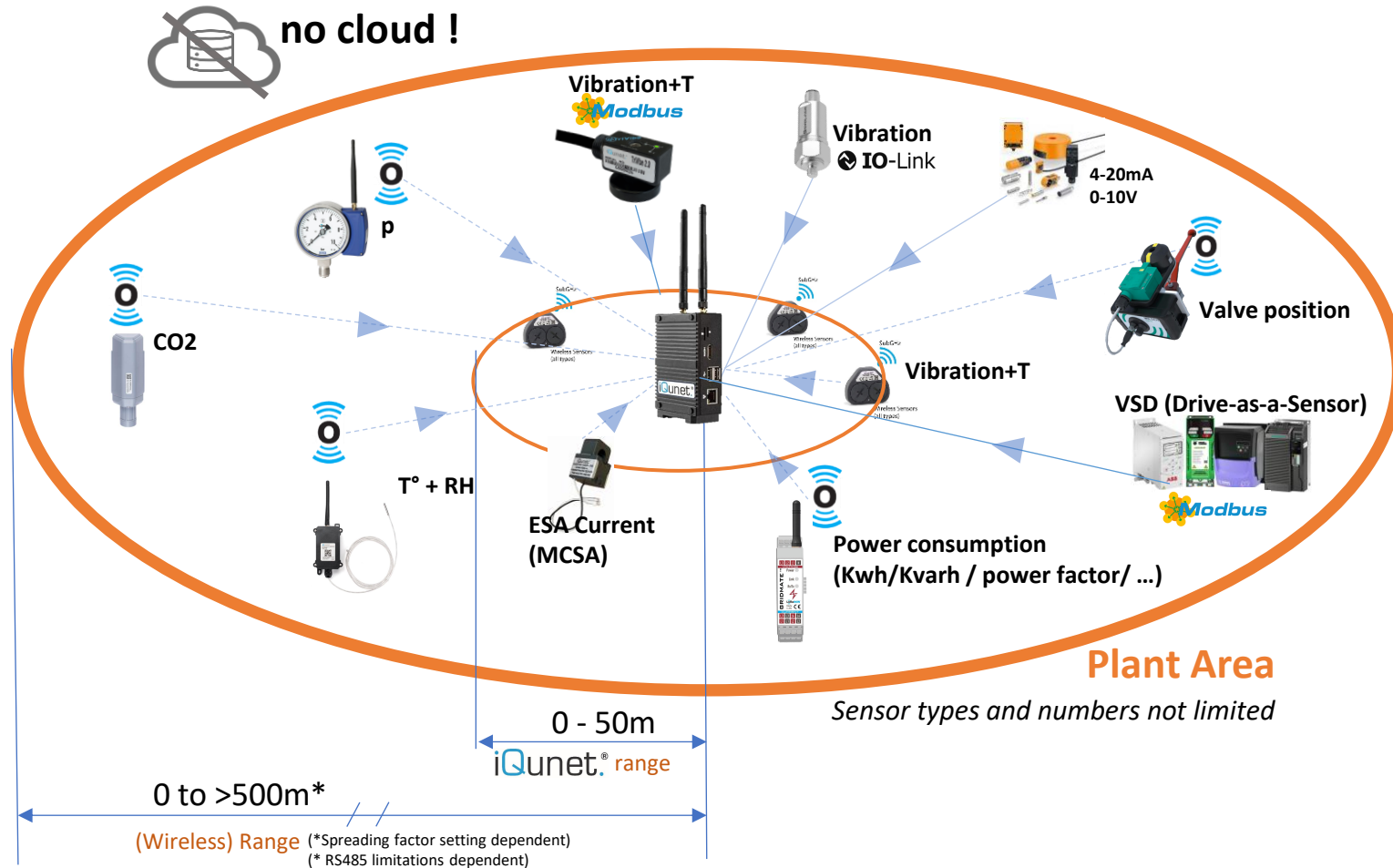
ideal

good

workable

iQunet.[®] = Multi Sensor Data Acquisition in one On-Premises System

LoRaWAN[™] Modbus Asset Monitoring Sensors + iQunet.[®] Condition Monitoring Sensors (ESA+Vibration)



Asset & Condition Monitoring

Description:



iQunet.[®] Edge Gateway M4



iQunet.[®] Wireless sensors



LoRaWAN[™] Wireless Sensors



Modbus RTU/TCP wired sensors or devices



IO-Link wired sensors or devices

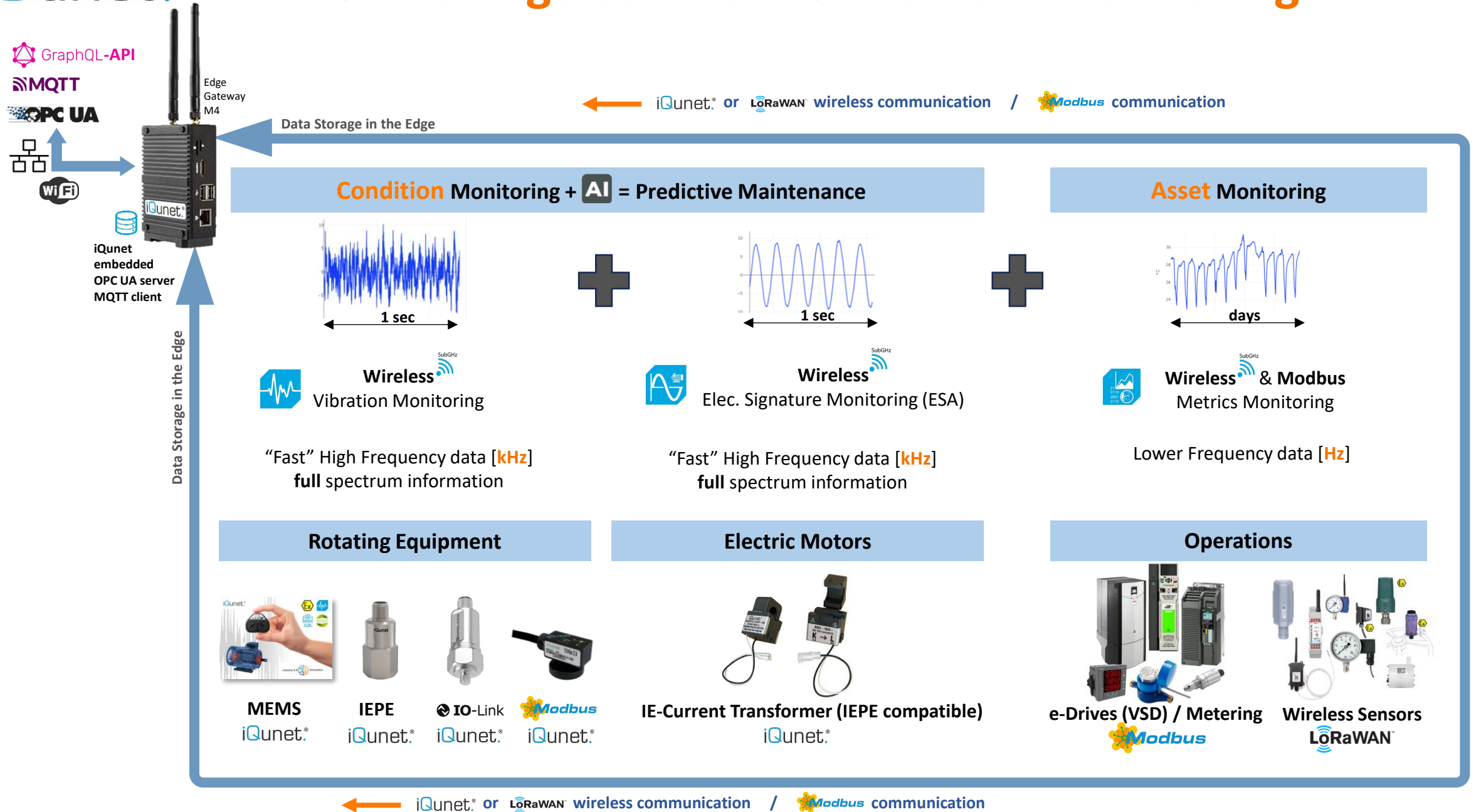
4-20mA
0-10V

Analog sensor and devices (scaled output)



No cloud storage of sensor data

iQunet.®: End-to-End Edge Solution for Remote Monitoring





iQunet.®

Edge Gateway M4

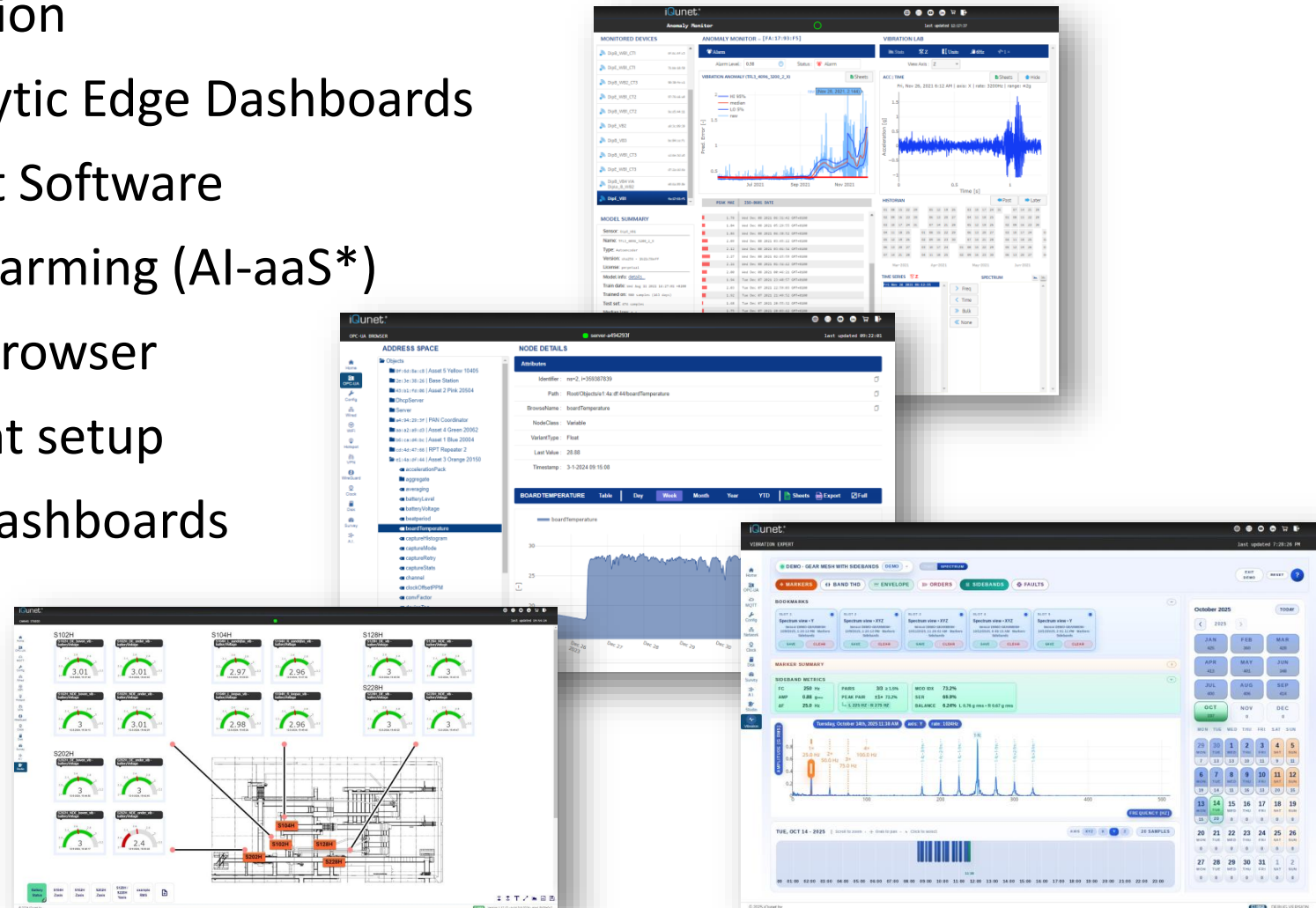
Turn machine data into dashboards

Embedded Software



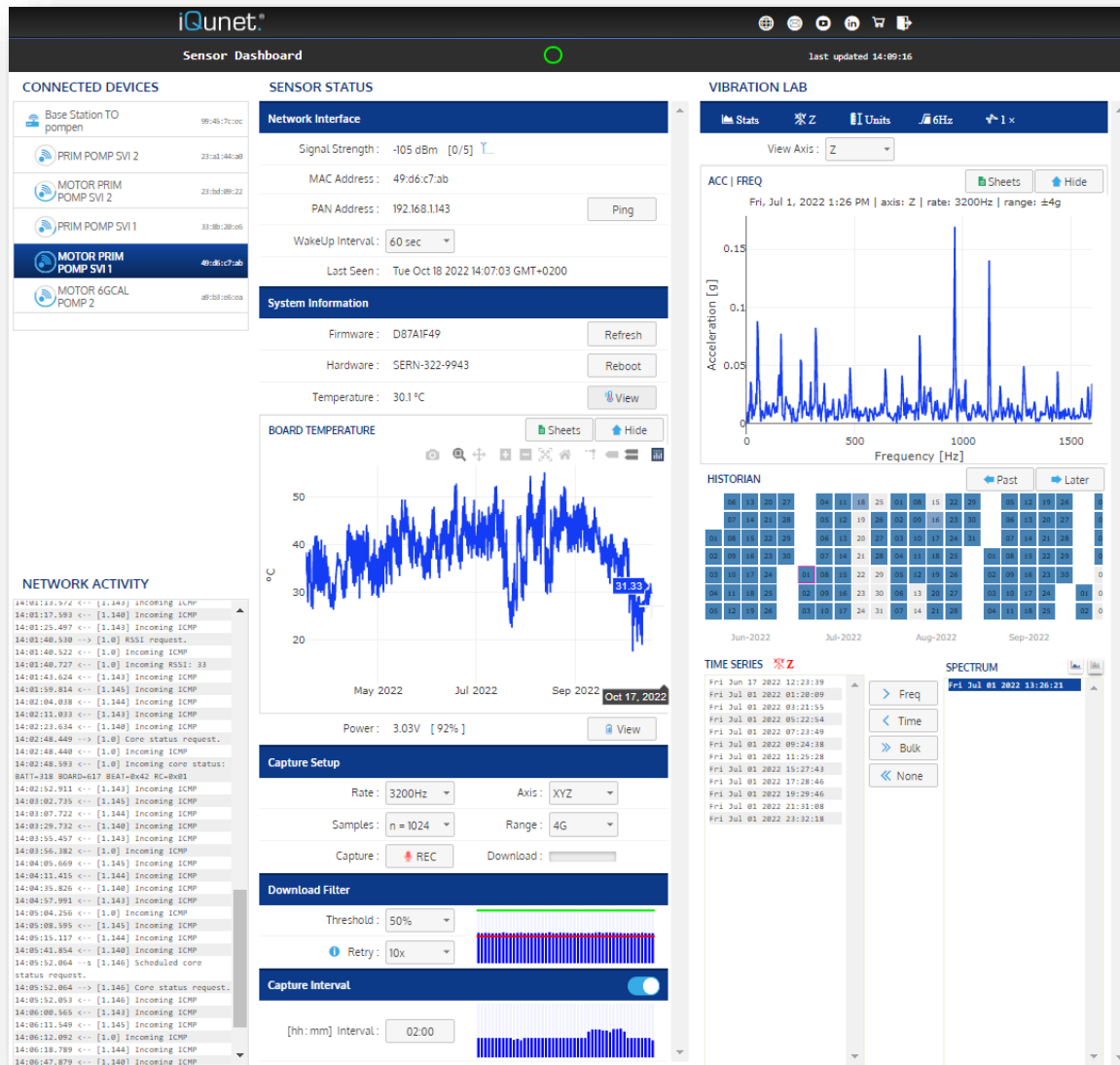
iQunet.[®] Software: Embedded (Edge) Web-Interfaces

- No software installation
- Comprehensive analytic Edge Dashboards
- Free Vibration Expert Software
- Accurate Edge AI – alarming (AI-aaS*)
- Embedded OPC UA browser
- One-click MQTT client setup
- Embedded Widget Dashboards



*AI-aaS is provided as an optional Service

iQunet.[®] Software: Sensor management & Analytics Dashboards



Standard included embedded software

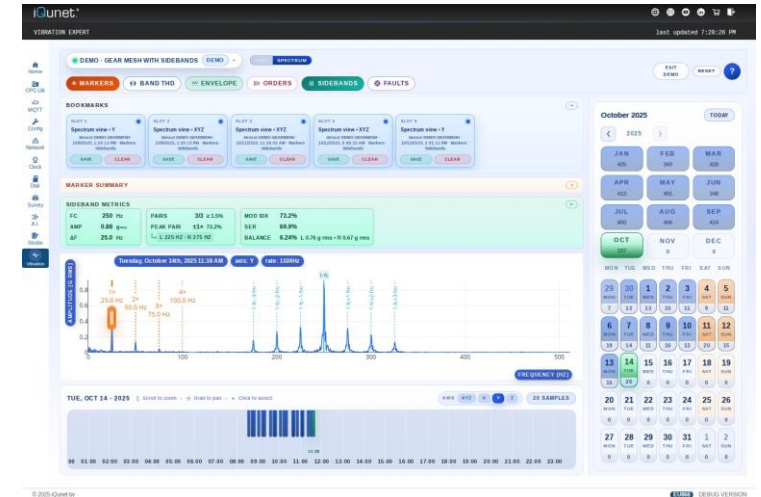
- General sensor information and overview
- Sensor Status information
 - Connectivity
 - Historical temperature graph
 - Historical battery level graph
- Capture setup pane
- Capture interval setup pane
- Sensor download threshold setup pane
- Vibration / current waveform Analytics pane (incl. historical data)
 - Time Series Lab
 - velocity and acceleration selection
 - HP filter settings
 - Time series graph
 - FFT graph
 - 3D FFT plot
 - Statistics
 - velocity and acceleration selection
 - HP filter settings
 - RMS trend graph
 - Kurtosis trend graph



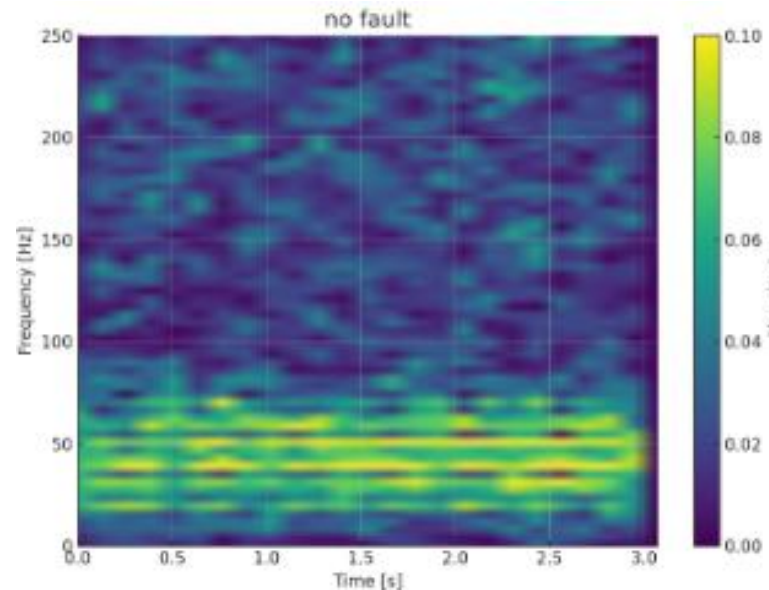
All above OPC UA (historical) node data is free accessible!



iQunet.[®] Software: free embedded Vibration Expert 0.9.0



- **Analysis view:**
 - TWF vs. spectrum toggle
 - Envelope spectrum
 - Band THD view
- **Interactive Markers & Tools**
 - Fundamentals, orders
 - Bearing fault overlay
 - Sidebands metrics panel
 - Band selection tool
 - Peak picking tool
- **Acquisition & context controls**
- **Navigation & workflow controls**
- **Demo and training mode**



Select a day in the Monthly Calendar, then click an hour bucket in the Hour Timeline Bar. Use the axis filter (XYZ, X, Y, Z) if needed.

Assess signal integrity in Time view: no clipping, no dropouts, no DC offset. Prefer a steady operating state (roughly constant running speed and load). Look for uniform cycle spacing, a stable amplitude envelope (no slow rise or fall), a flat baseline, and no step changes.

Navigate: wheel to zoom, drag to pan, press Home to autoscale.

If uncertain, hover Spectrum to preview: narrow peaks with stable harmonic spacing indicate a good choice. If peaks are broad or smeared, select a steadier interval.

Tip: Stable intervals yield sharper peaks and reliable speed and overlay alignment.

When the time trace is acceptable, switch to Spectrum and continue with Step 2 (set the fundamental).

STEP 2

Switch to Spectrum and place the fundamental

Goal: Place the fundamental marker in Spectrum to define the speed reference used by orders, bearings, and sidebands.

Switch to Spectrum: press V, use the view toggle, or click the Spectrum preview panel.

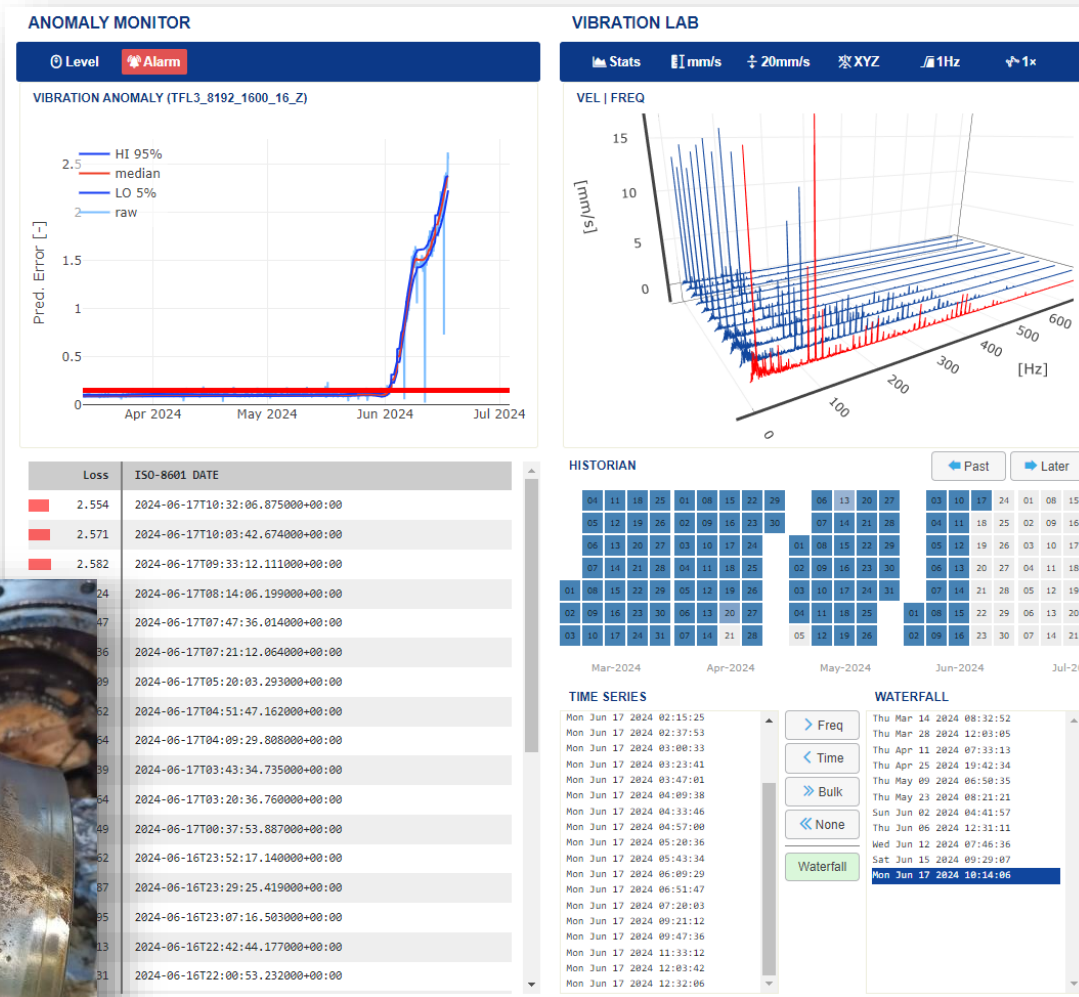
Enable Markers (toolbar button or press M). A hint appears: click the 1x running-speed peak to set the fundamental. The marker readout shows Hz, amplitude, and order.

Refine if needed: press Enter to snap to the nearest peak; use Left/Right to nudge (Shift for larger, Alt for fine); press F to focus the handle; Backspace to clear.

If peaks are ambiguous, return to Time view and select a steadier measurement (see Step 1).

Tip: Aim for the true running-speed peak. If the tallest peak looks like

iQunet.® Software: Condition Monitoring with Embedded AI



AI - Anomaly Monitor Dashboard (must run AI-aaS)

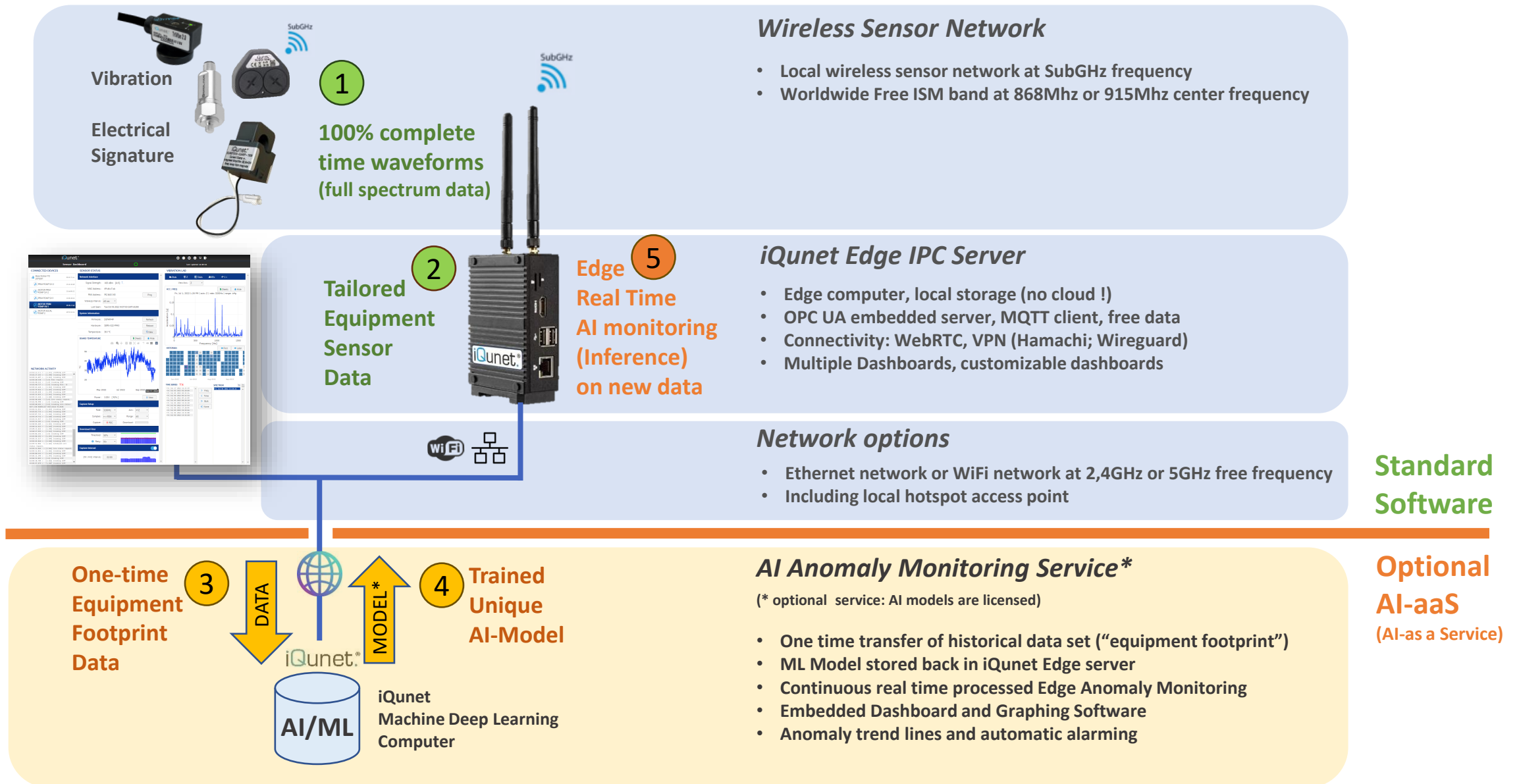
- Anomaly Detection Alarms
- Anomaly Detection trend graphs XYZ
 - Raw anomalies
 - Trend lines (5%/50%/95% certainty above set alarm level)
- Detailed AI model information
- Selectable list of peak anomaly values
- Immediate visualization of anomaly related
 - time series
 - FFTs
 - 3D-FFTs
- Analytical tools
 - Acceleration / velocity
 - Signal filtering & averaging options
 - Ax selection options
 - Historical data queries



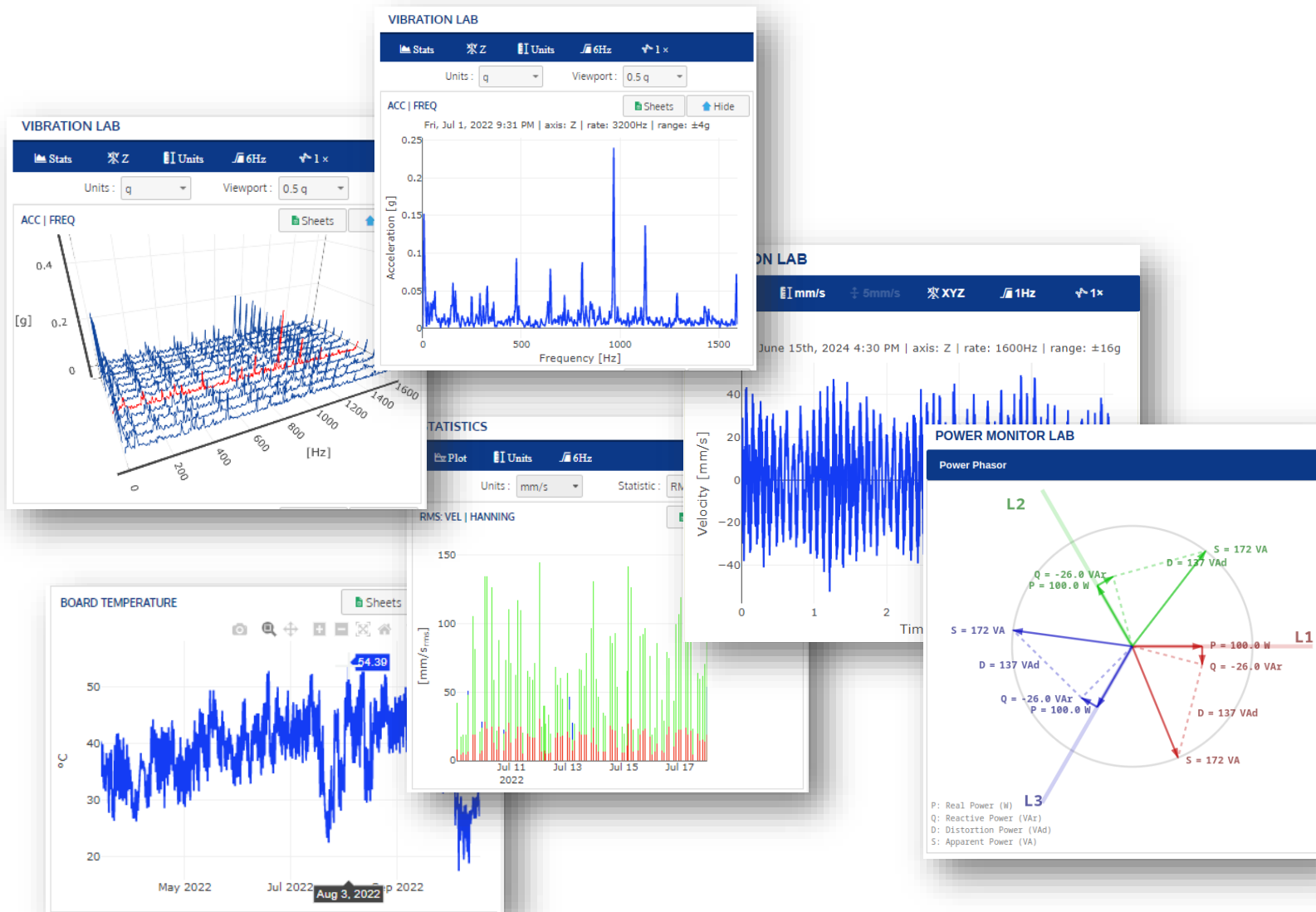
All above OPC UA (historical) node data is free accessible!



iQunet.[®] Software: Condition Monitoring with Embedded AI



iQunet.® Software: Graph Functions



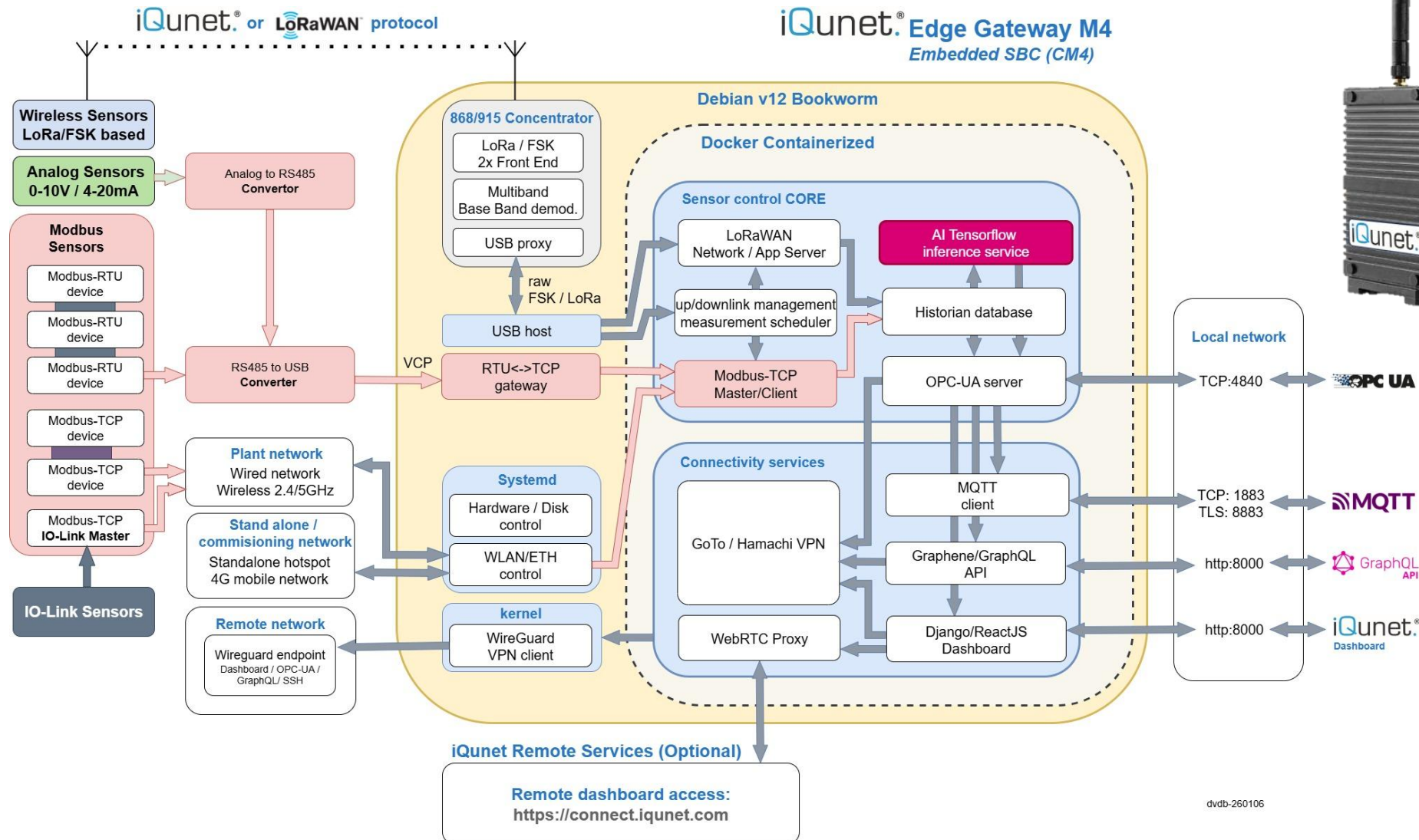
- standard included / sensor dependent
- functions
 - Zoom
 - Pan
 - Autoscaling
 - Data comparison tools
 - Orbital rotation tools
 - Camera capture
 - Hoover functions
 - CSV / Sheets / Excel export function
 - attribute consolidation in one file
 - Ideal for quick reporting of events

Create custom live dashboards in minutes

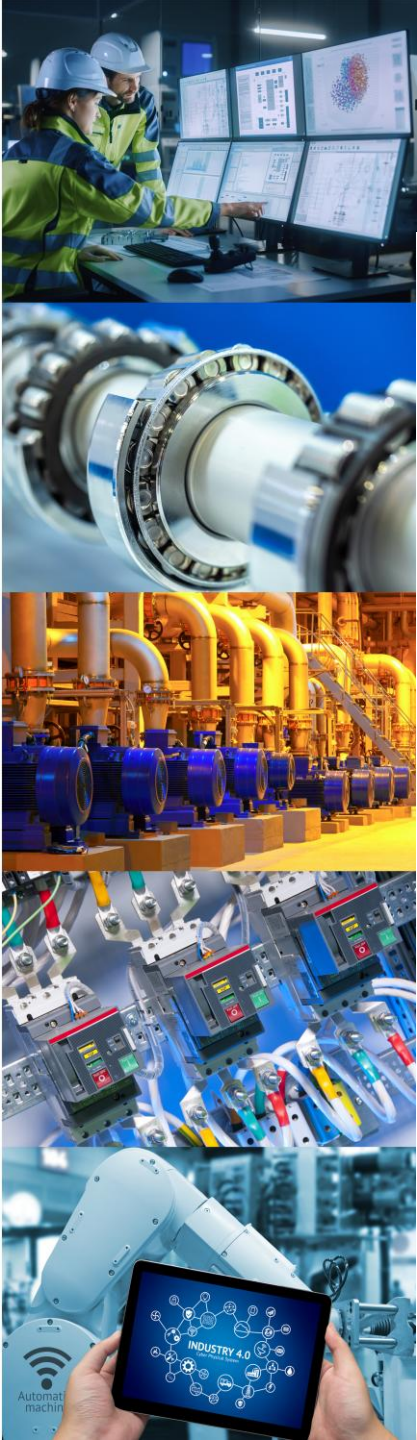
- On premise, in the Edge, free
- Easy to use widgets, drag and drop
- Use of live data in gauges and trend graphs
- Import of photos and drawings
- Add any text or description
- Multiple windows setup
- Combine multiple source data in one window



iQunet.[®] Software: Edge Gateway M4 Architecture



dvd-260106



iQunet.[®]

Sensors

Wireless/wired

data acquisition of

**Condition, Quality,
Environmental and/or Process**
parameters

iQunet.® Edge – Condition Monitoring Sensor

Vibration



Direct wireless connection / Edge local data storage



iQunet.® FSK



on-premises

iQunet Edge
Gateway M4



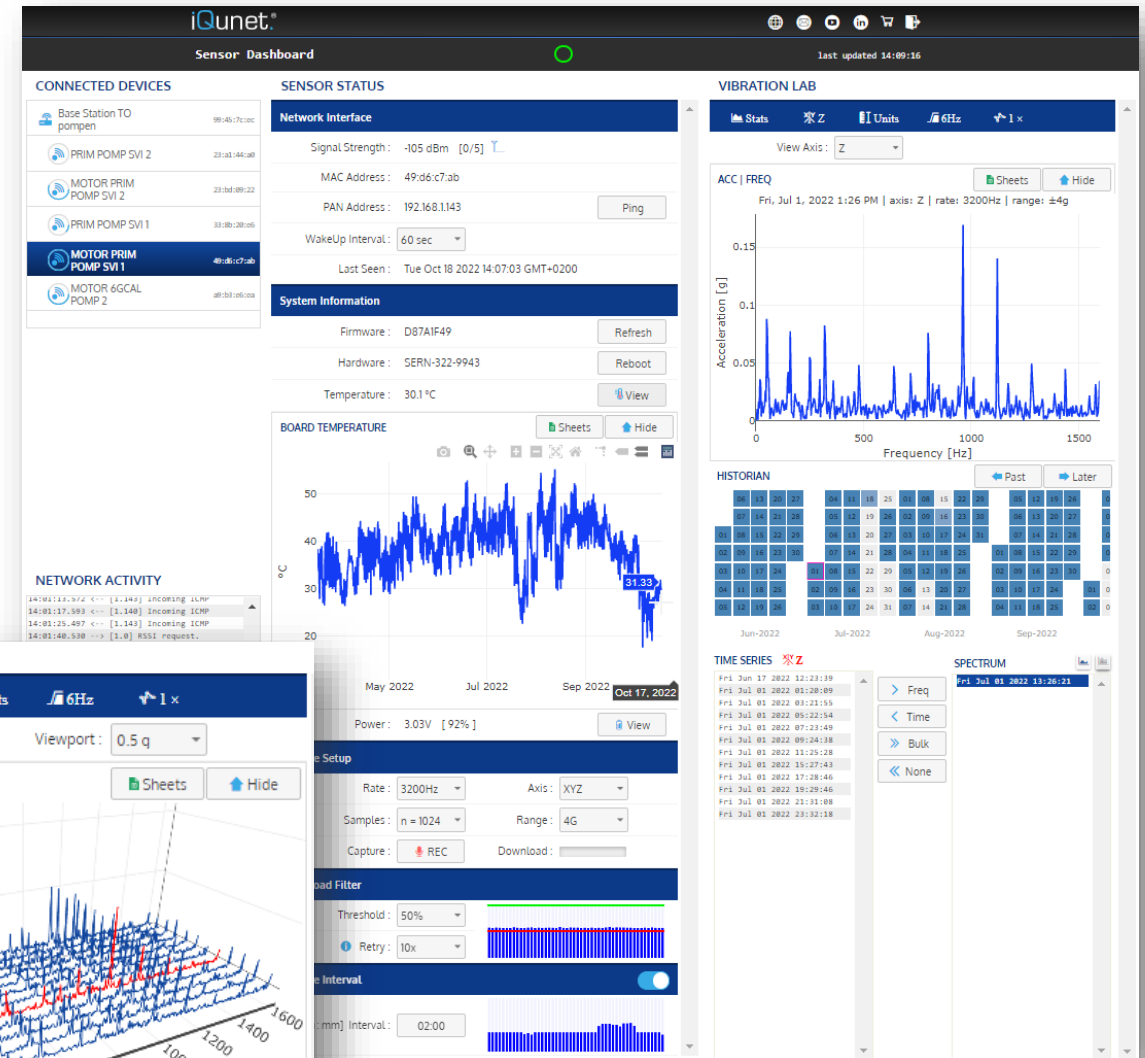
FSK (868/915Mhz) to OPC UA MQTT
Wireless – battery powered - sensor
Type: **Vibration 3-ax + T°**

- 100% Full Spectrum 3-Axial vibration data
- T° monitoring (-20 to +70 °C / +80°C intermittent)
- 3D-FFT, Kurtosis, RMS, time series g + mm/s
- Battery powered
- Field replaceable standard batteries
- Wireless range: 50m
- IP68
- ATEX version available
- On-premises solution, no cloud

Use case:

- Condition monitoring
- Predictive Maintenance

Contact us: info@iQunet.com



iQunet.® Edge – Condition Monitoring Sensor

Vibration



Direct wireless connection / Edge local data storage



on-premises

iQunet Edge
Gateway M4

FSK (868/915MHz) to OPC UA MQTT

Wireless – cable powered - sensor

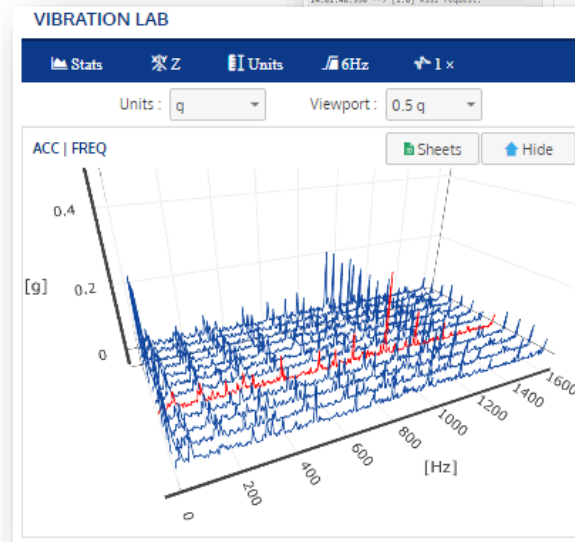
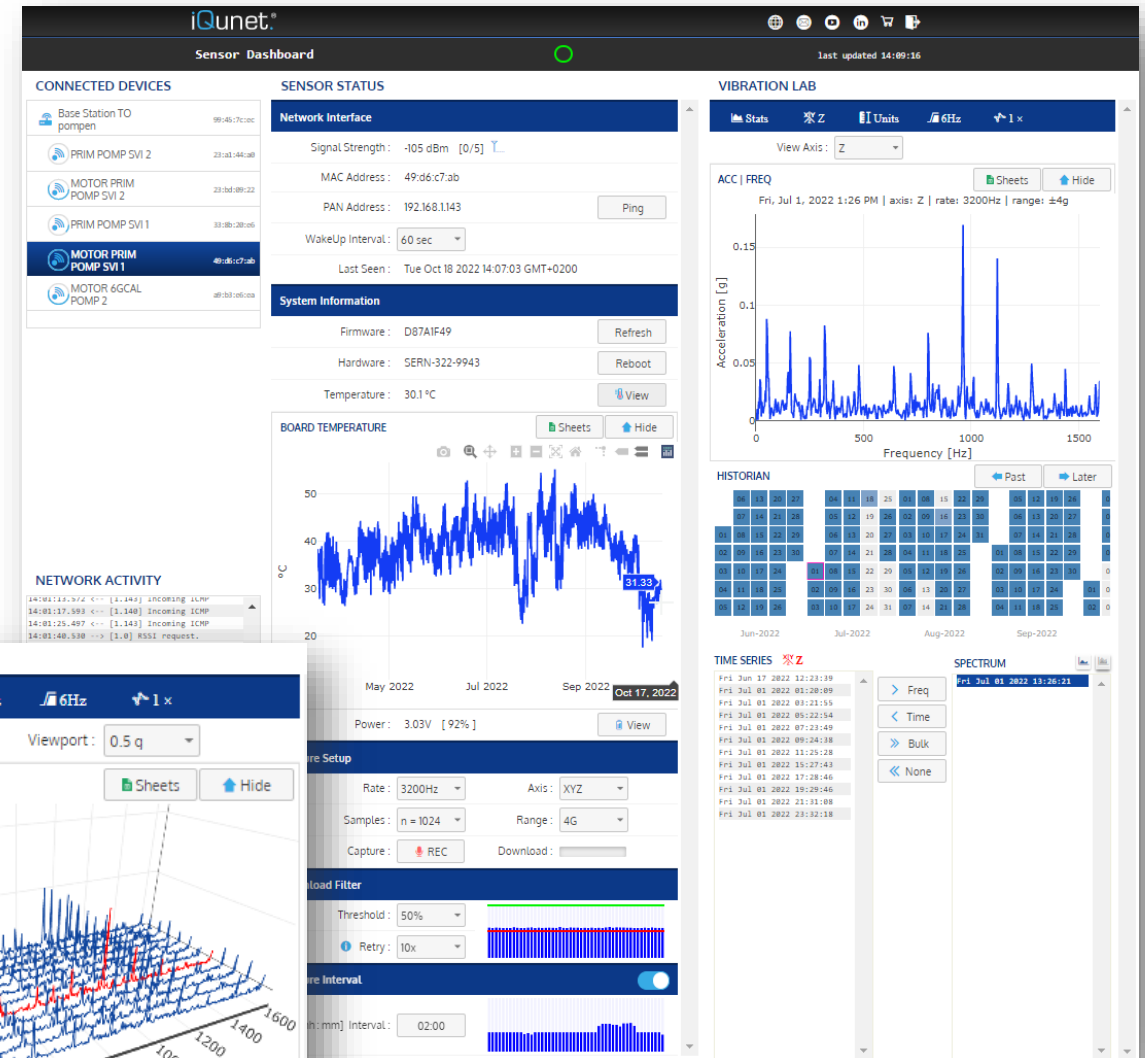
Type: Vibration 3-ax + T°

- 100% Full Spectrum 3-Axial vibration data
- T° monitoring (-20 to +85 °C)
- 3D-FFT, Kurtosis, RMS, time series g + mm/s
- Self-triggering event base monitoring
- cable powered (6~60VDC)+ battery failover
- Wireless range: 50m
- IP68
- On-premises solution, no cloud

Use case:

- Condition monitoring
- Predictive Maintenance

Contact us: info@iQunet.com



iQunet.® Edge – Condition Monitoring Sensor

Vibration



Direct wired connection / Edge local data storage



on-premises

iQunet Edge
Gateway M4



Modbus to OPC UA MQTT

Type: **Vibration 3-ax + T°**

- 100% Full Spectrum **DUAL** 3-Axial vibration data
- Sampling Rate: 25kHz; Fmax: 8kHz
- Operating T°: -40° to +105°
- IP67
- Dimensions: 57 x 54 x 31 mm
- Wiring: oil resistant cabling - Daisy chained
- Plug and play Modbus T-Ports



Modbus Cable Plugin T-Port
for easy installation

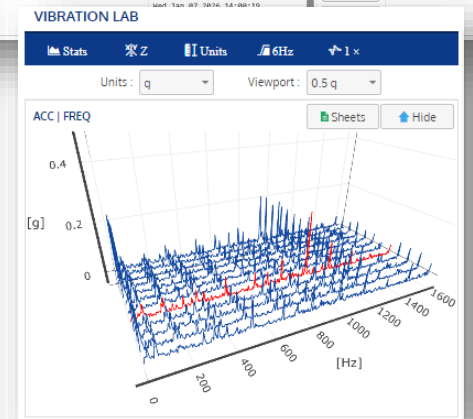
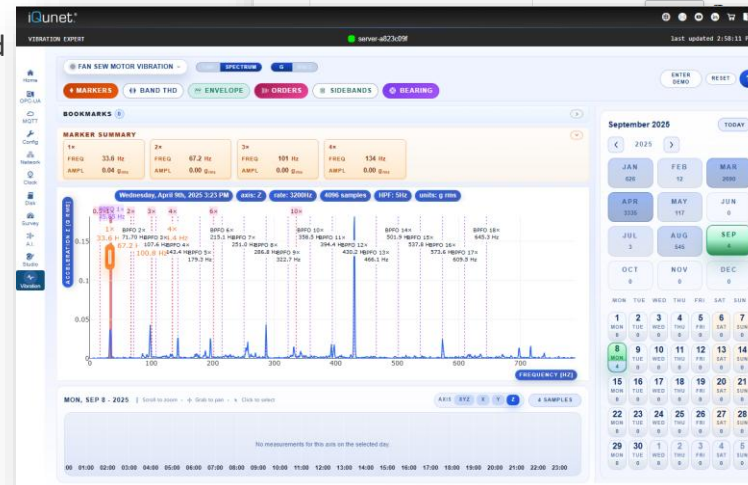
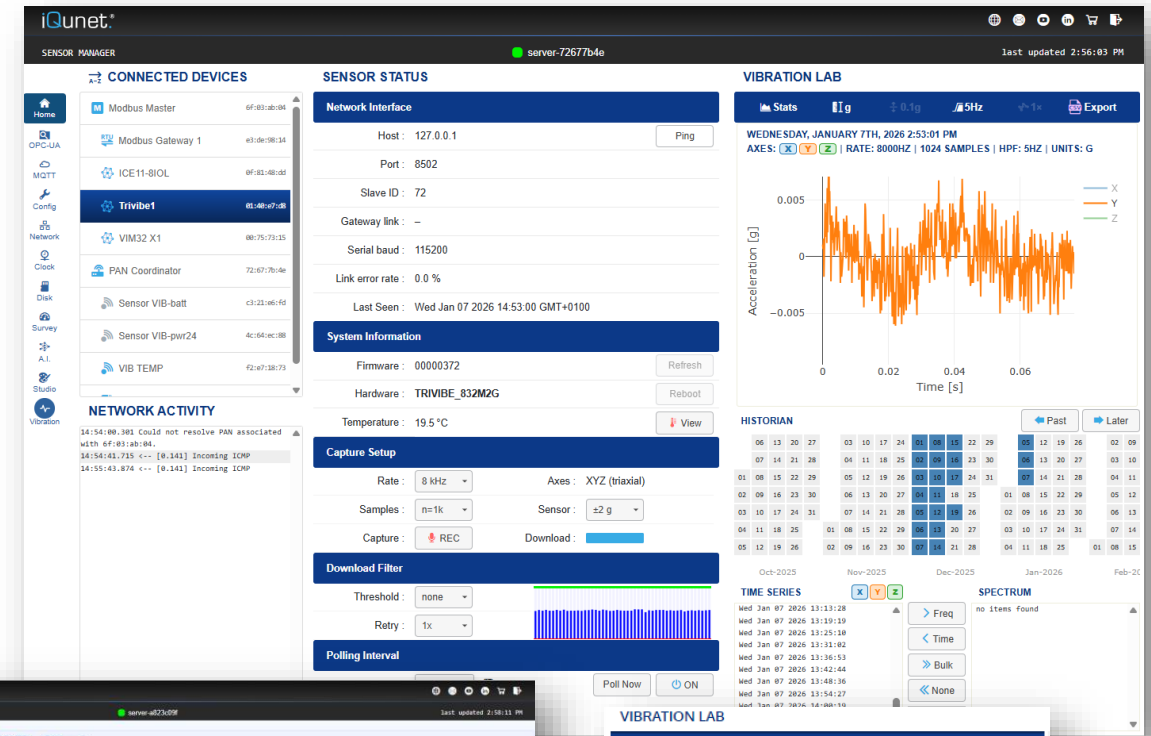
Smart Sensor for Cement Industry



Use case:

- Condition monitoring
- Predictive Maintenance

Contact us: info@iQunet.com



iQunet.® Edge – Condition Monitoring Sensor

Vibration

No Cloud dependency



Direct wired connection / Edge local data storage

IO-Link



on-premises

iQunet Edge Gateway M4



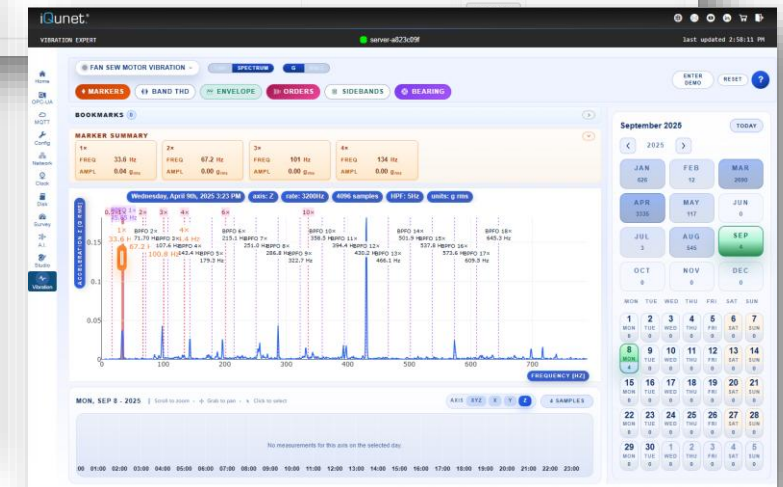
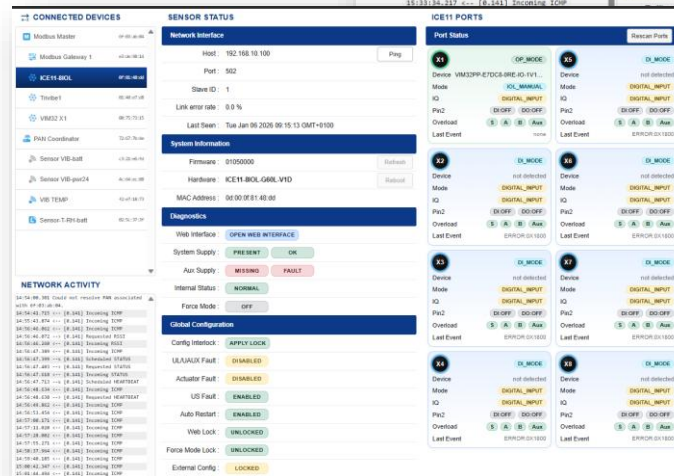
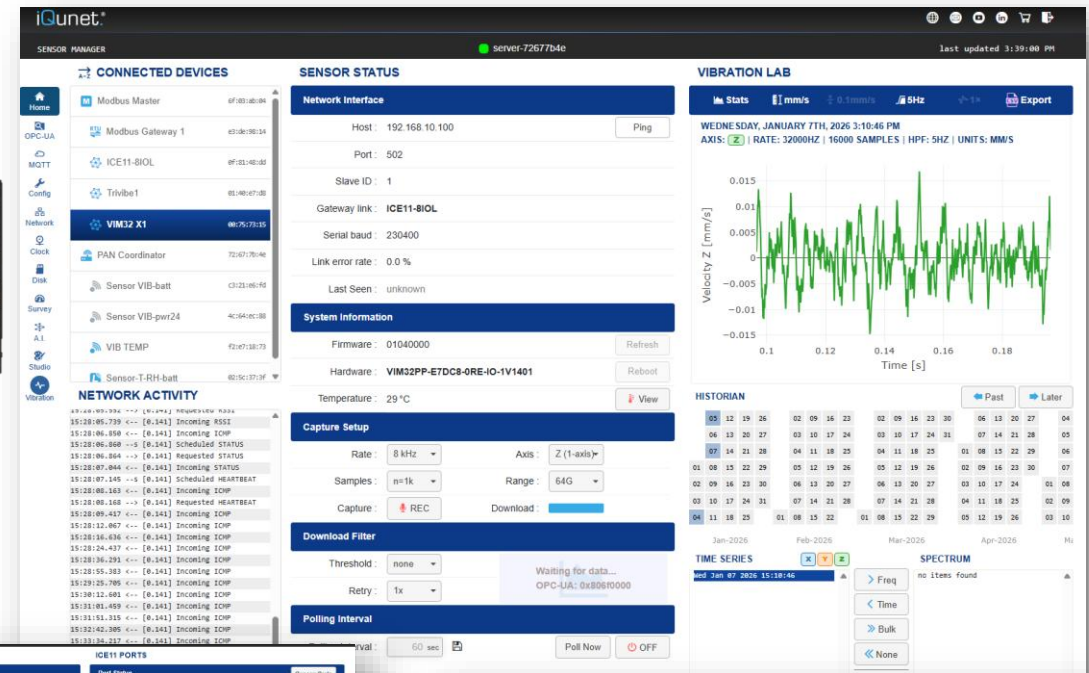
IO-Link to **OPC UA** **MQTT**
Vibration sensor
Type: Vibration 3-ax + T°

- ✓ Vibration + T°
- ✓ Sampling Rate: 32kHz
- ✓ Fmax: 16kHz
- ✓ Temperature recording: yes
- ✓ Operating T°: -40° to +85°
- ✓ Degree: IP67

Use case:

- Condition monitoring
- Predictive Maintenance

Contact us: info@iQunet.com



Embedded IO-Link Master configuration

iQunet.® Drive as a Sensor

E-Motor monitoring

No Cloud dependency



Direct wired connection / Edge local data storage



on-premises

iQunet Edge Gateway M4



Drive as a Sensor

Type: Frequency Drive output

- All drive static parameters
- Drive dynamic parameter
 - RPM
 - Frequency
 - Voltage
 - Power
 - IGBT temperature
- all parameters + logs over OPC UA

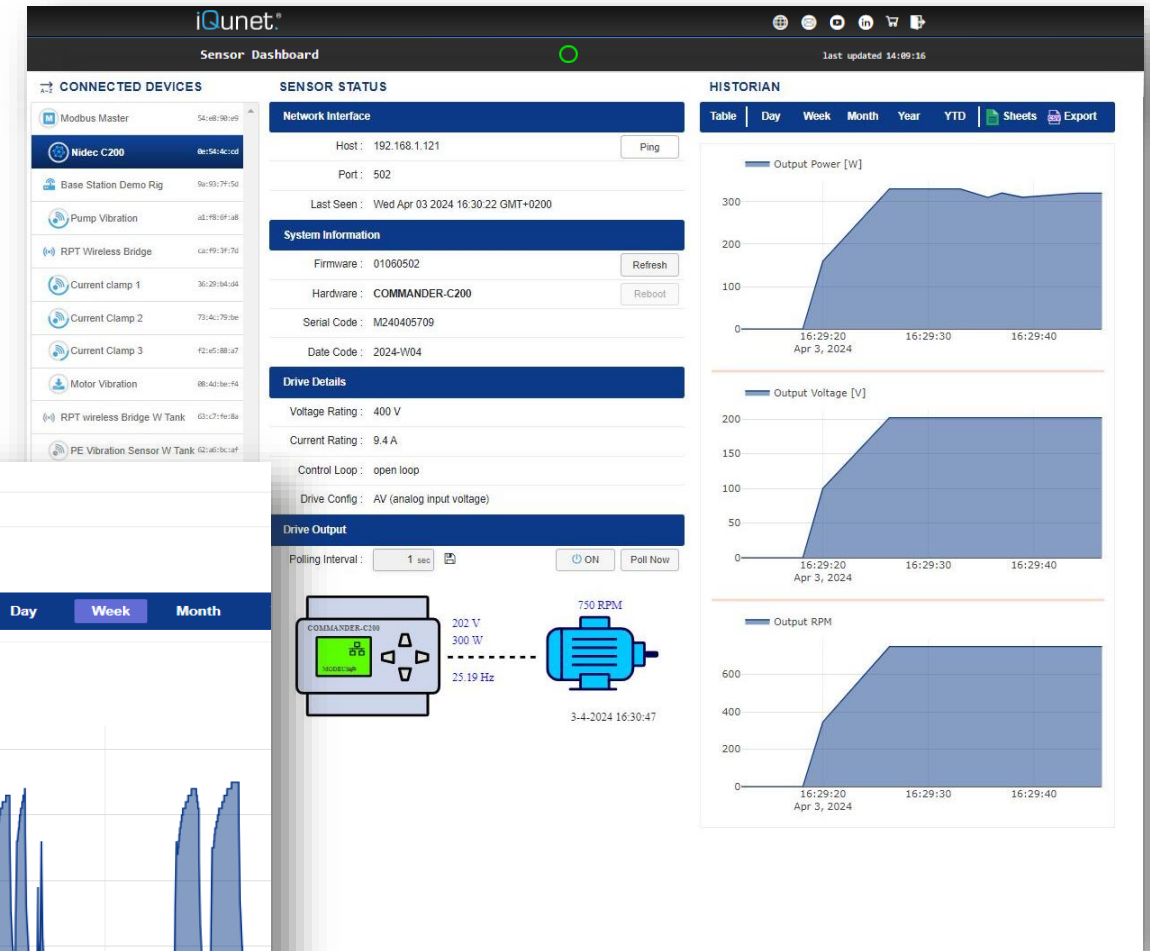
Use case:

- Condition monitoring
- Predictive Maintenance

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Nidec
CONTROL
TECHNIQUES



iQunet.® Edge - LoRaWAN sensor

E-Power Consumption

No Cloud dependency

Direct wireless connection / Edge local data storage

LoRaWAN™



on-premises

iQunet Edge Gateway M4

LoRaWAN™ to OPC UA MQTT

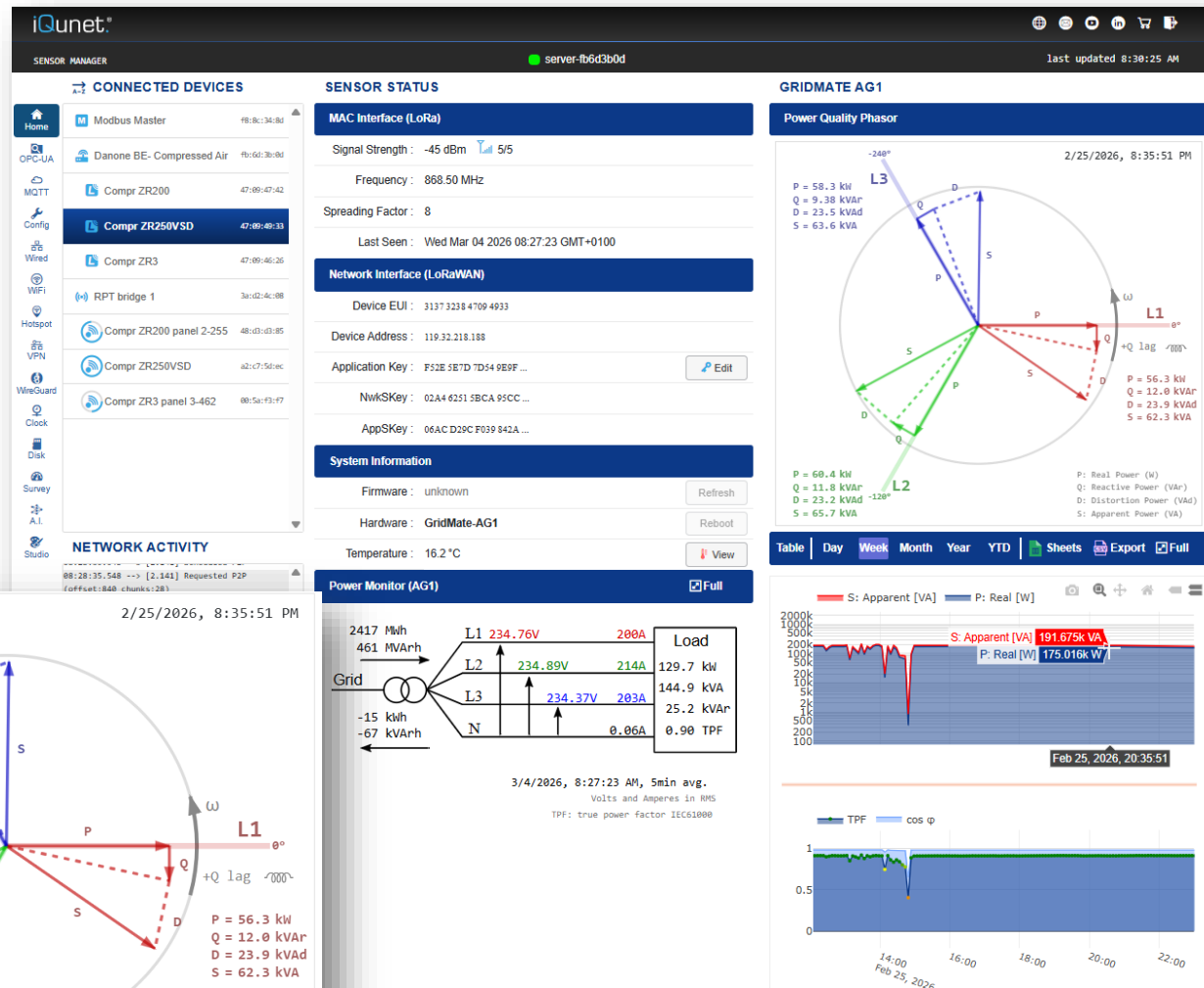
Wireless sensor

Type: 3-phase 400V Power Monitoring

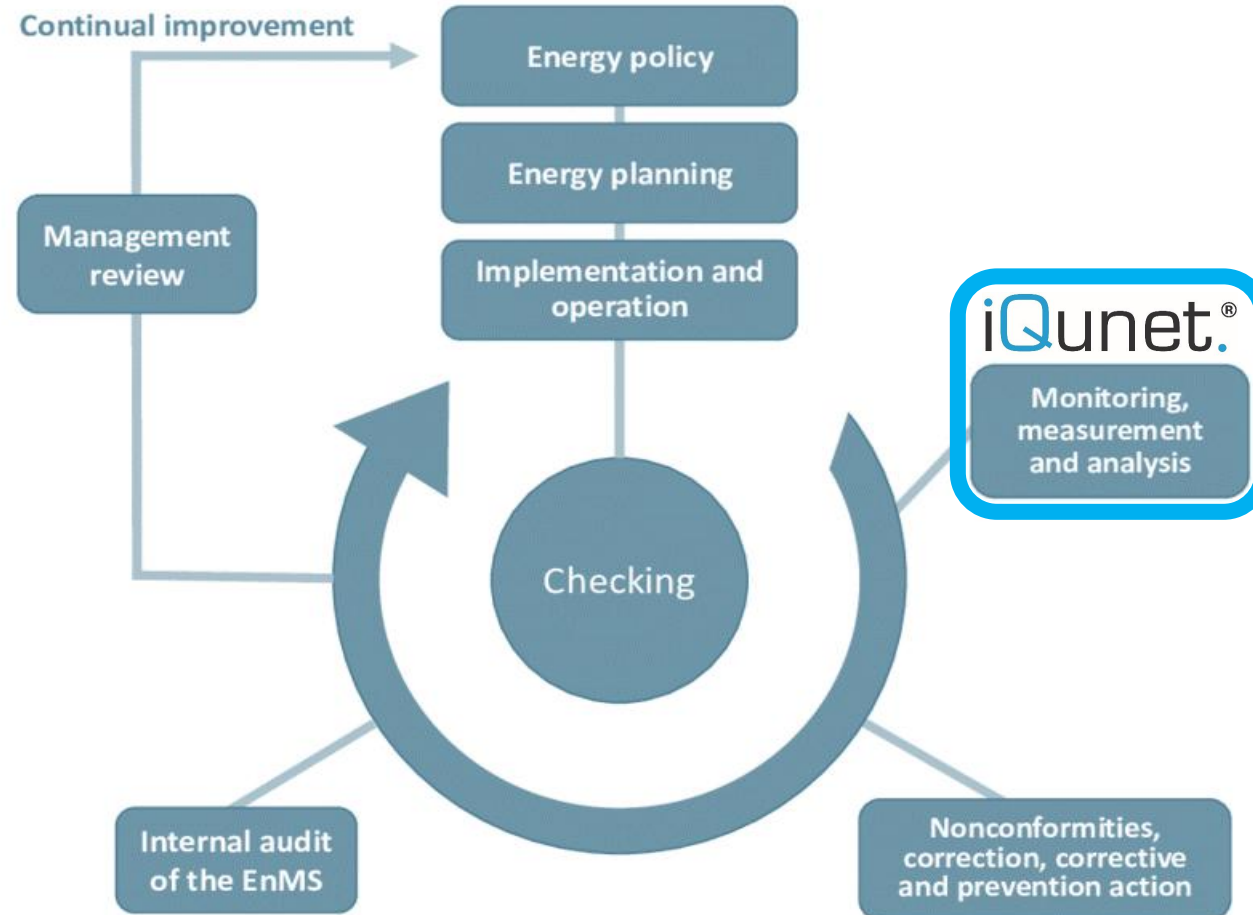
- **Voltage:** RMS
- **Current:** RMS, max instantaneous value
- **Active power:** By phase, total
- **Reactive power:** By phase
- **Apparent power:** By phase, total
- **Power factor:**
Abs. value, sign, induct. / capacit.,
- **Active energy:**
By phase, total, direction, load profile



Use case:
Power Quality / ISO50001
Energy Management System
ESG reporting



Energy Management Process (ISO 50001)



iQunet provides a complete system for monitoring, measurement and analysis of **power consumption** and **metering**

iQunet.® Edge - LoRaWAN sensor

Pressure

No Cloud dependency

Direct wireless connection / Edge local data storage

LoRaWAN™



on-premises

iQunet Edge Gateway M4



LoRaWAN™ to OPC UA MQTT

Wireless sensor

Type: Gauge Pressure / T°

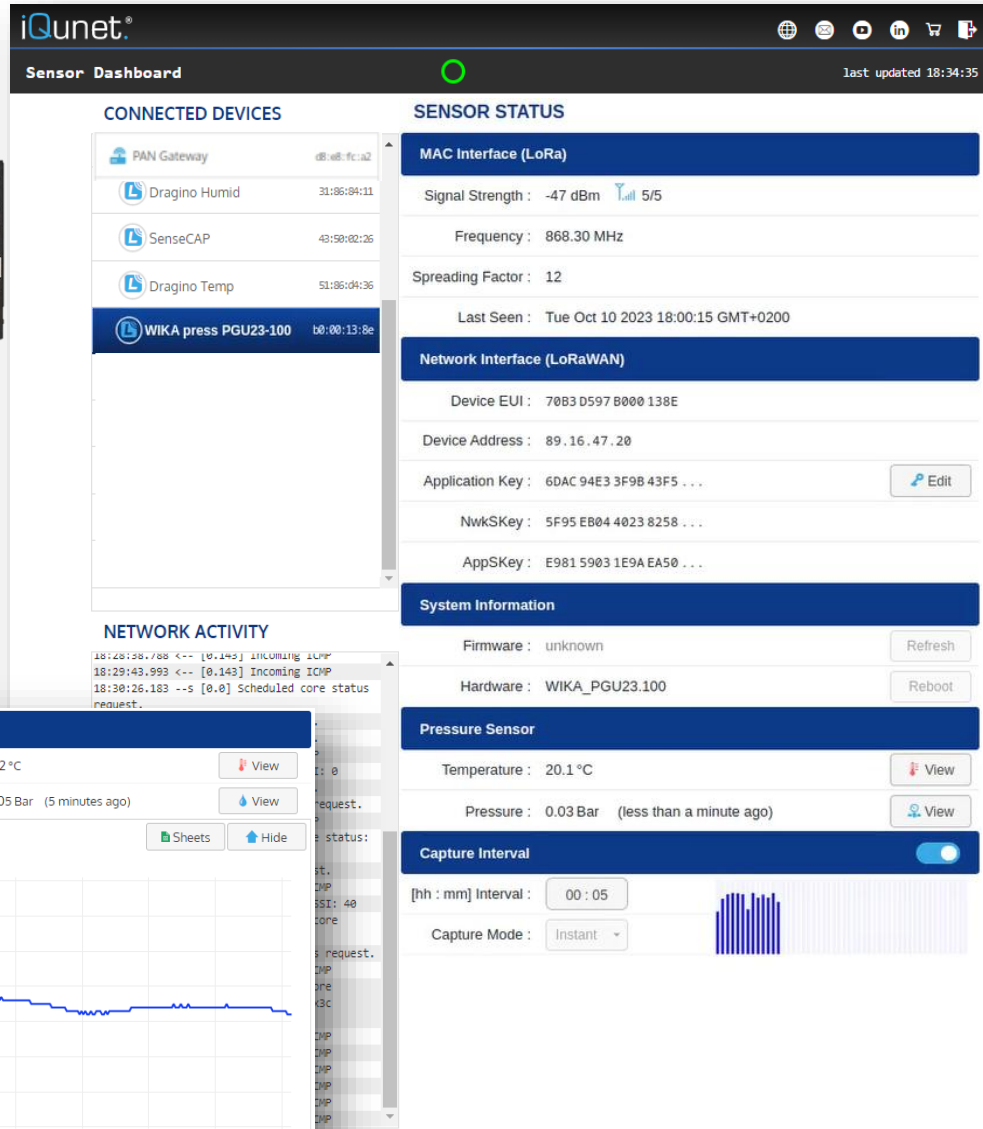
- P (0 to 0,6 bar) up to P (0 to 1600 bar)
- P vacuum -1 bar
- Wireless range: 100m - 2000m (LoRa)
- IP65; battery powered
- ATEX/IECEX

WIKAI

Use case:

- Remote pressure monitoring
- Predictive Maintenance

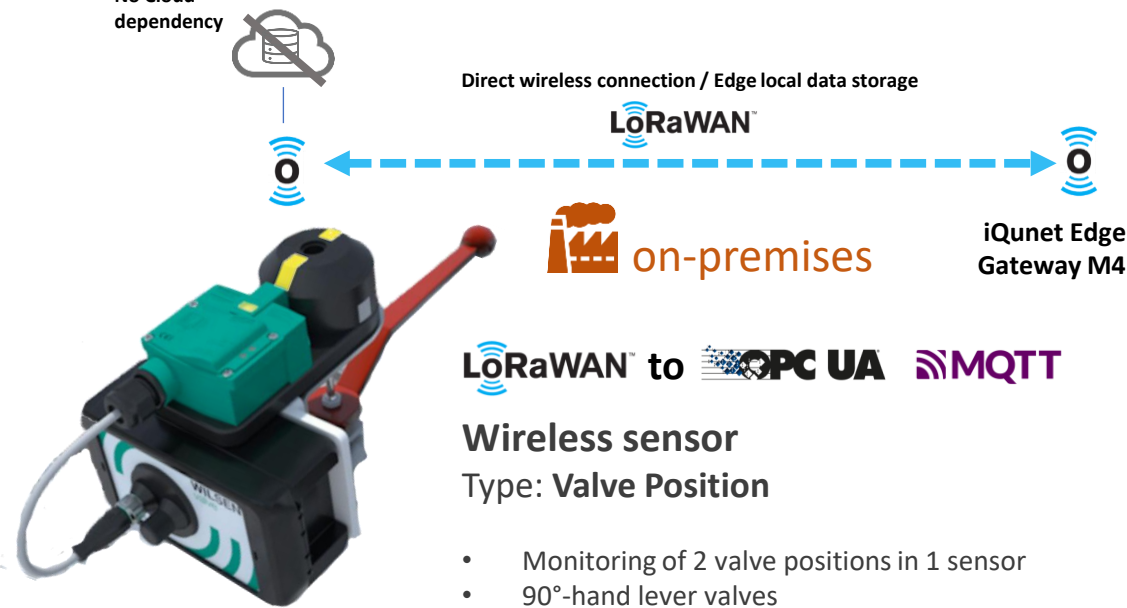
Contact us: info@iQunet.com



iQunet.® Edge - LoRaWAN sensor

Valve Position

No Cloud dependency



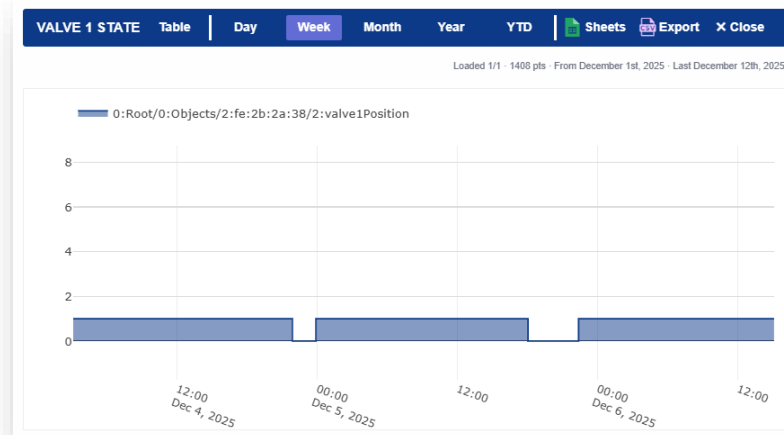
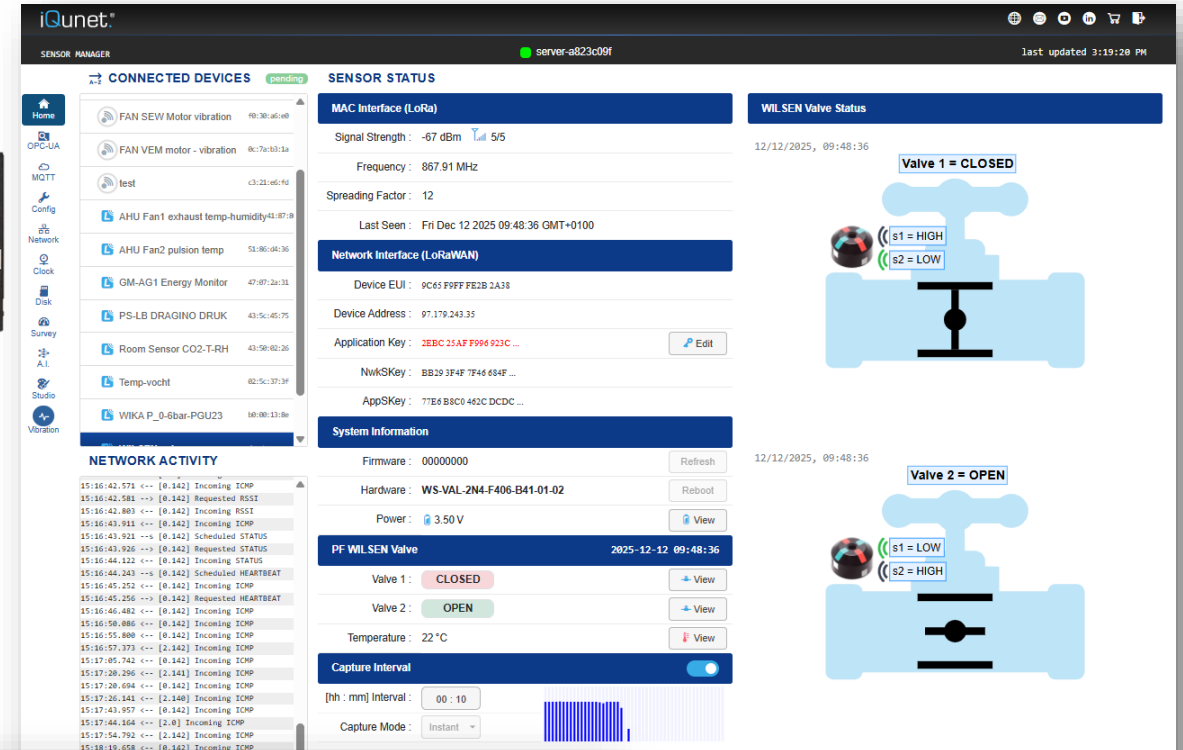
Wireless sensor Type: Valve Position

- Monitoring of 2 valve positions in 1 sensor
- 90°-hand lever valves
- Inductive open / close historical
- NAMUR input type / M12
- Temperature
- Battery power
- Wireless range: 100m - 1000m (LoRa)
- IP67

Use case:

- Process monitoring
- Water management

Contact us: info@iQunet.com



iQunet.® Edge - LoRaWAN sensor

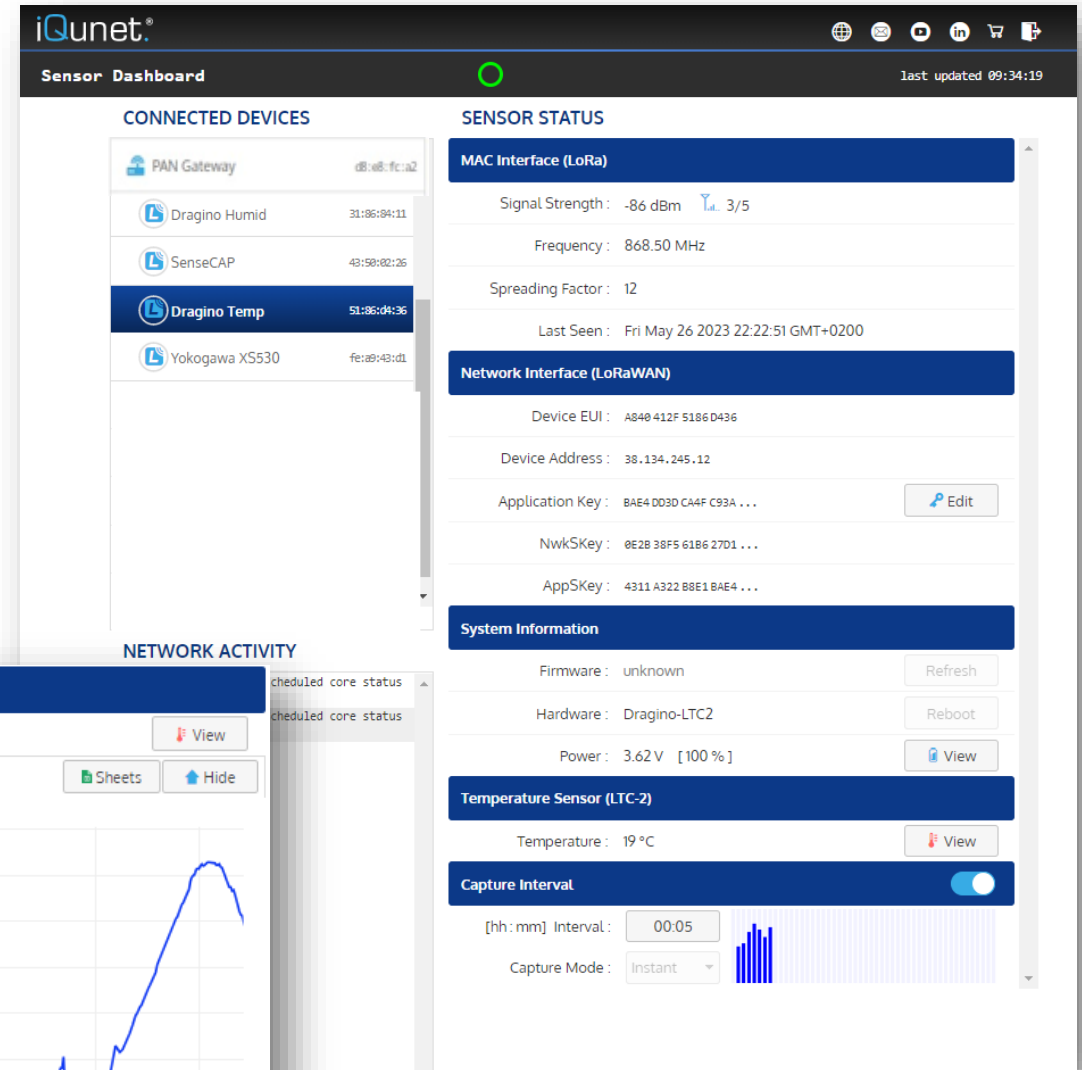
Temperature



Use case:

- Remote Monitoring
- Predictive Maintenance

Contact us: info@iQunet.com



iQunet.® Edge - LoRaWAN sensor

Temp. / Humidity



No Cloud dependency

Direct wireless connection / Edge local data storage

LoRaWAN™



on-premises

iQunet Edge
Gateway M4



LoRaWAN™ to  **OPC UA**  **MQTT**

Wireless sensor

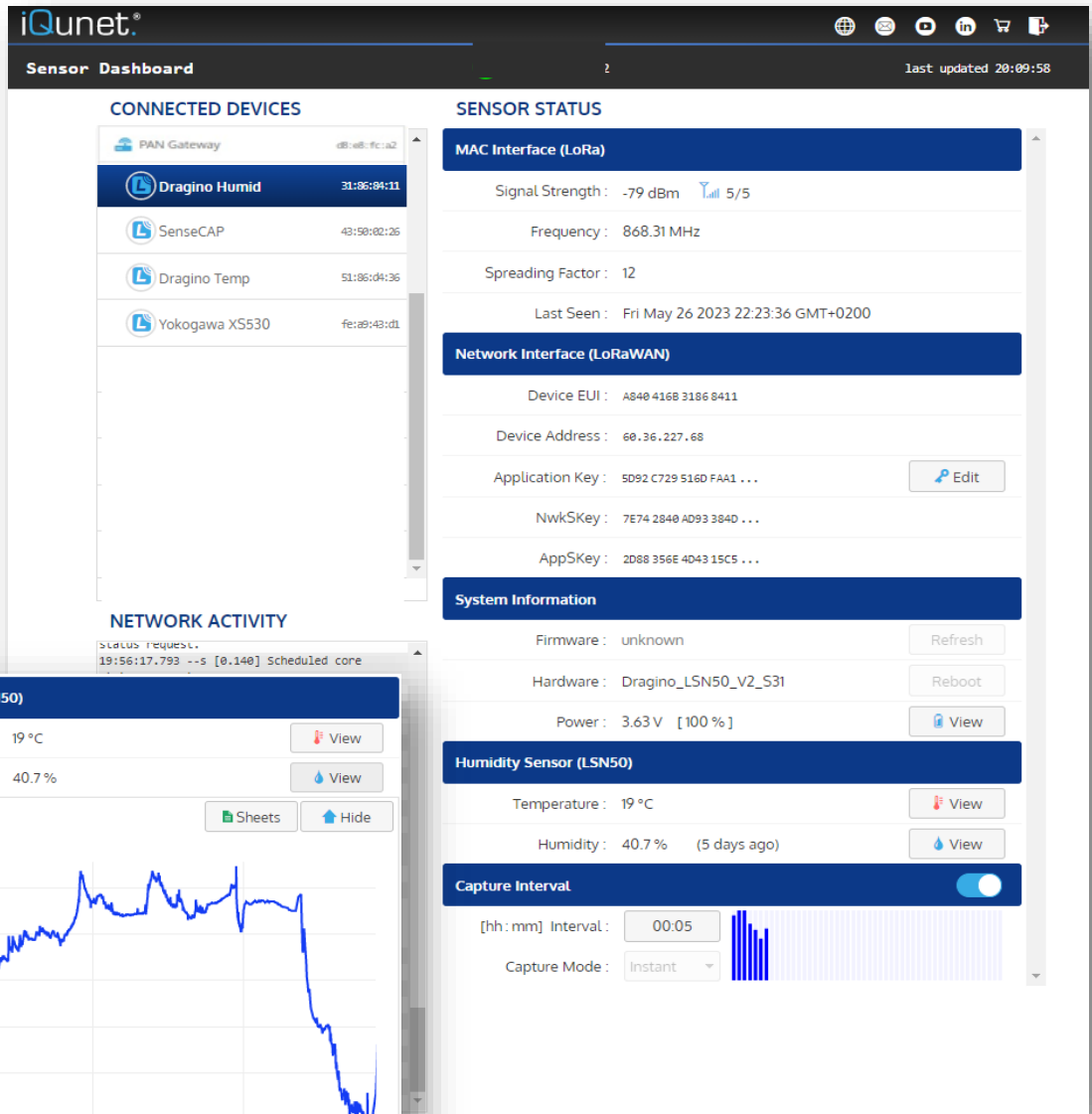
Type: T°/RH

- T° (-40 to +85 °C)
- RH (0 to 99,9%RH)
- Wireless range: up to 500m (LoRa)
- Waterproof outdoor
- battery powered

Use case:

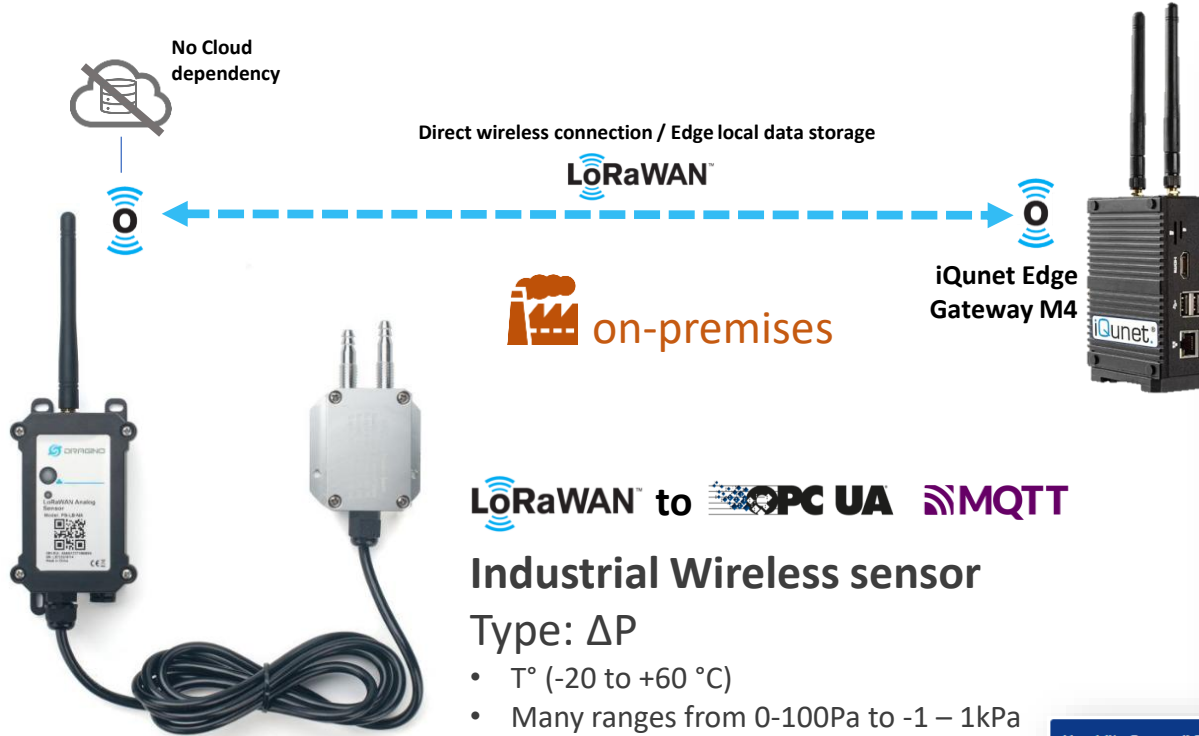
- Remote Monitoring
- Environmental Quality Monitoring

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iQunet.® Edge - LoRaWAN sensor

Differential Pressure



LoRaWAN™ to OPC UA MQTT

Industrial Wireless sensor

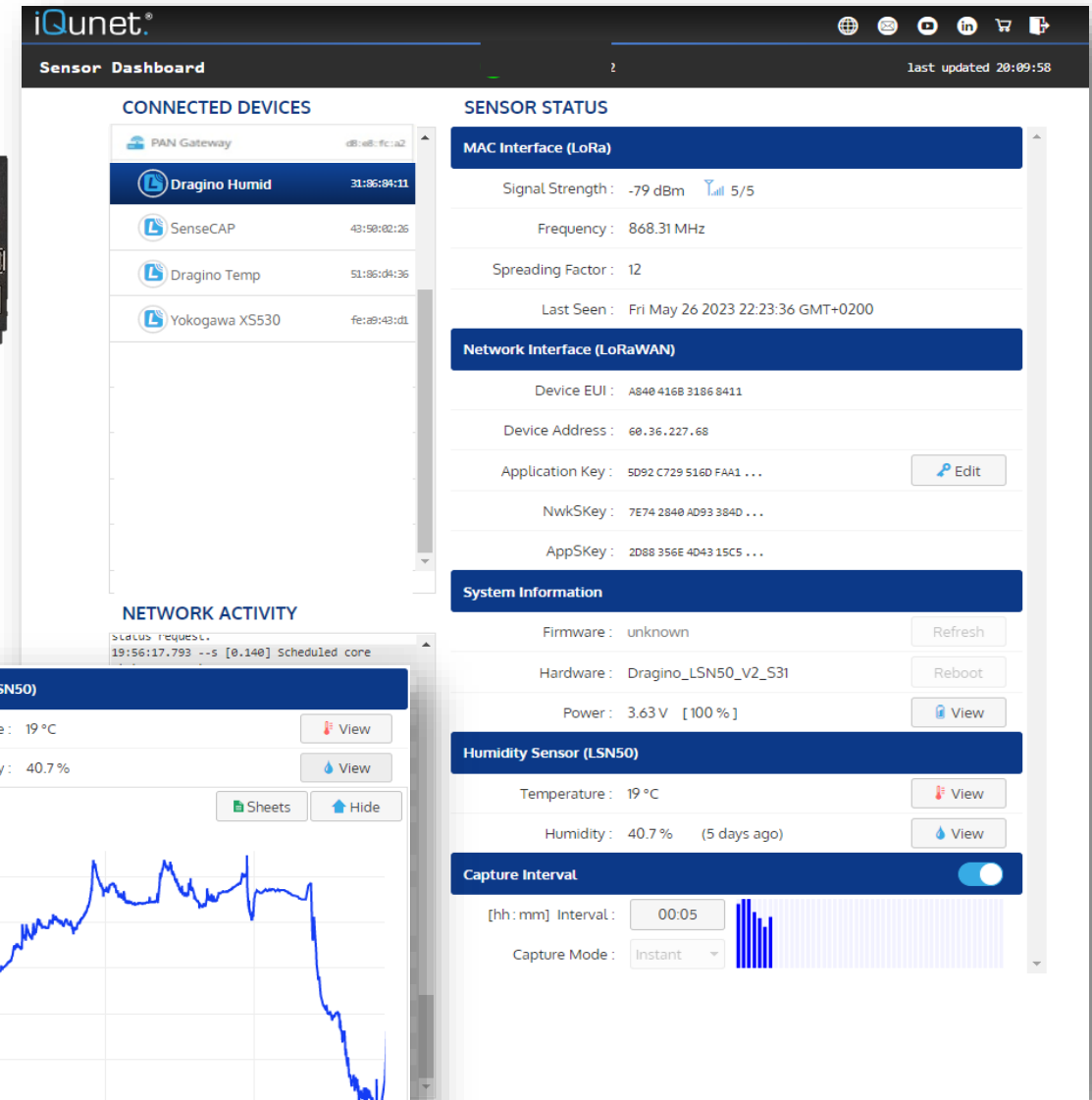
Type: ΔP

- T° (-20 to +60 $^{\circ}\text{C}$)
- Many ranges from 0-100Pa to -1 – 1kPa
- Wireless range: up to +500m (LoRa)
- battery powered

Use case:

- Remote Filter Monitoring HVAC
- Air Flow Monitoring Clean Rooms

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iQunet.® Edge - LoRaWAN sensor

CO₂ / Temp. / Humidity

No Cloud dependency

Direct wireless connection / Edge local data storage

LoRaWAN™



on-premises

iQunet Edge Gateway M4



LoRaWAN™ to OPC UA MQTT

Wireless sensor

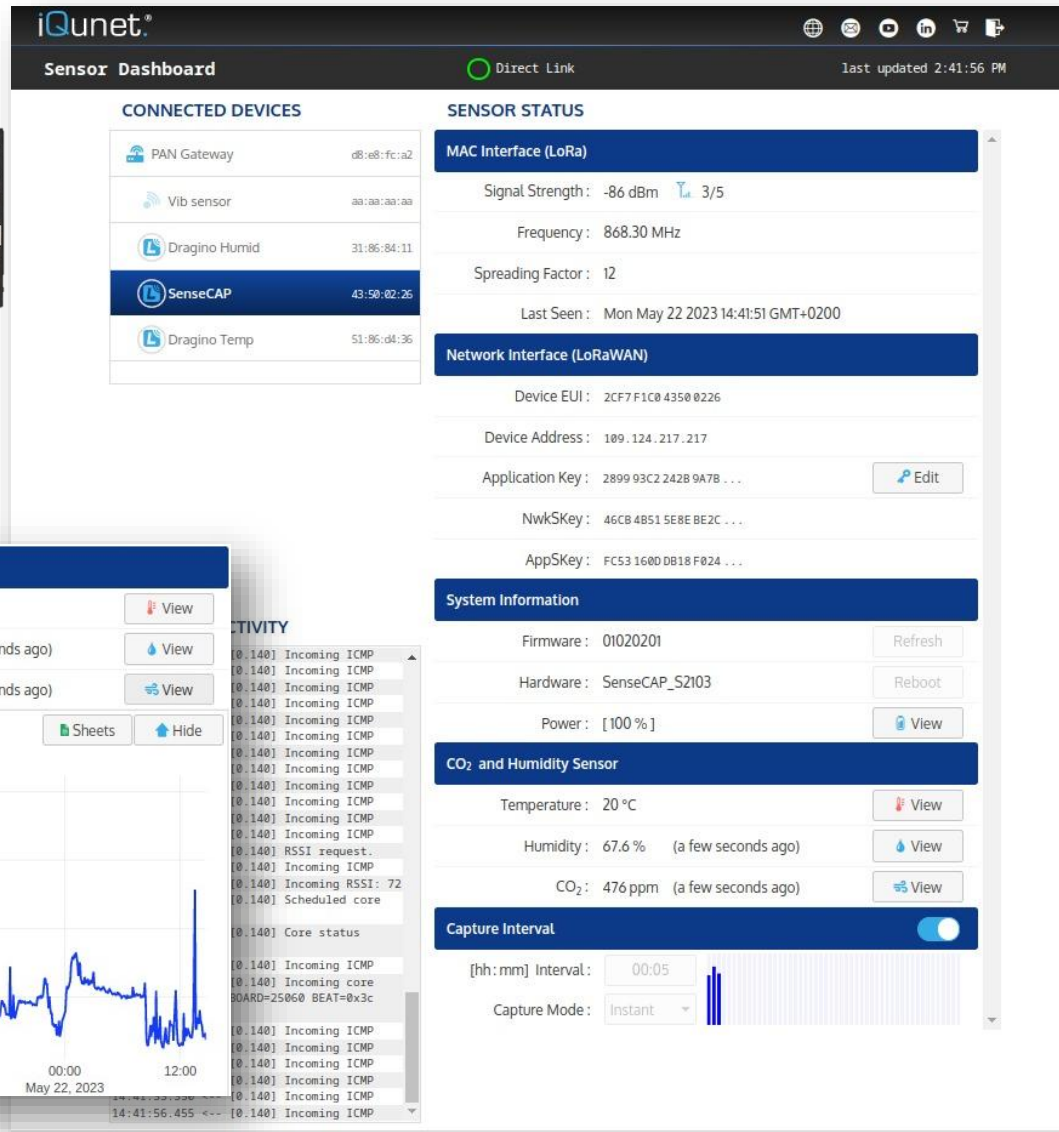
Type: CO₂/T°/RH

- CO₂ (400 to 10000 ppm)
- T° (-40 to +85 °C)
- RH (0 to 100%RH)
- Wireless range: 100m - 1000m (LoRa)
- IP66; battery powered

Use case:

- Reporting CSRD
- Indoor Air Quality Monitoring

Contact us: info@iQunet.com



PM2.5 / Temp. / Humidity

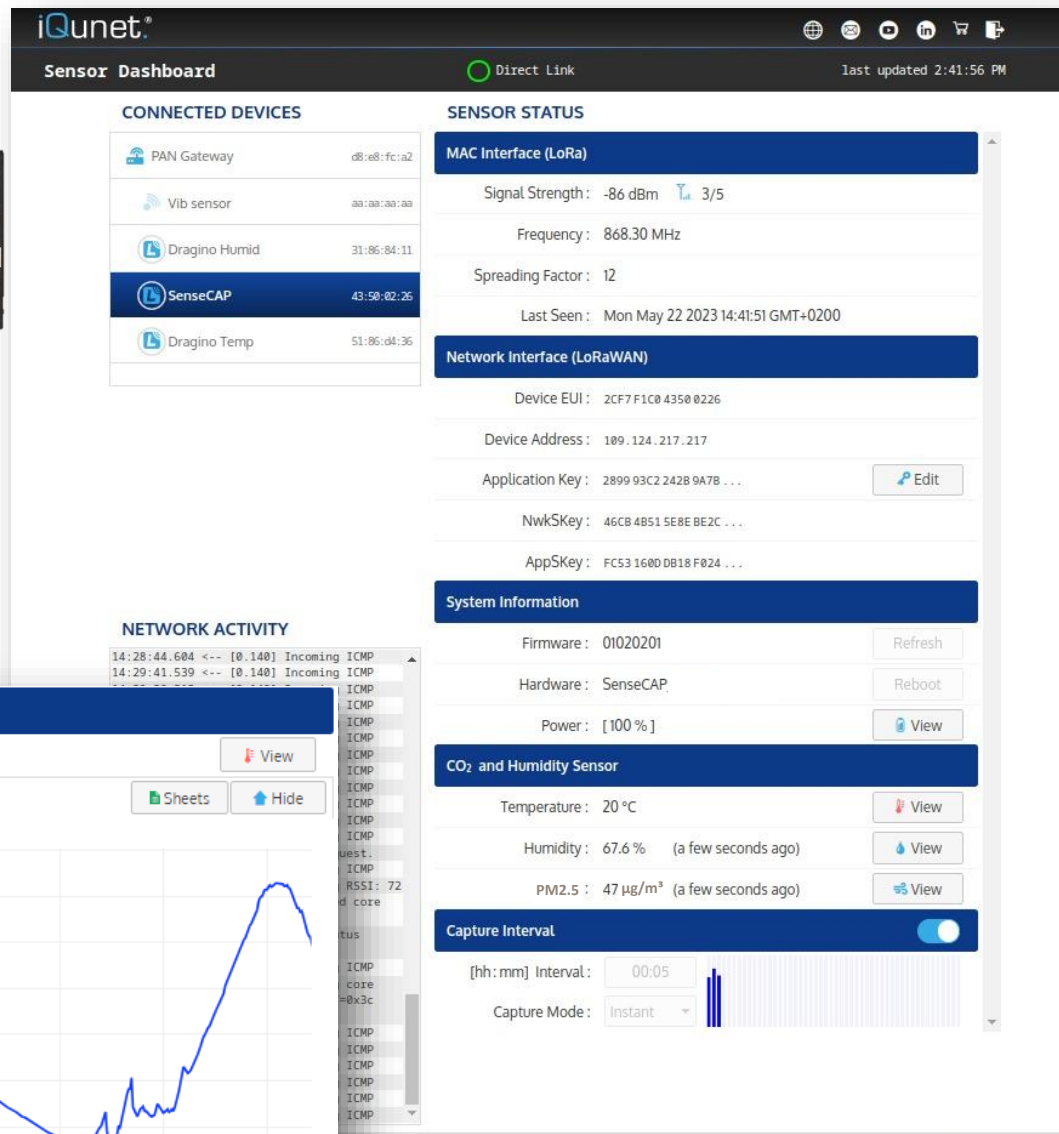


Type: PM2.5 / T° / RH

- PM2,5 concentration ($\mu\text{g}/\text{m}^3$)
- T° (-20~55°C)
- RH (0 to 100%RH)
- Wireless range: 100m - 1000m (LoRa)
- IP20 / cable powered

- Reporting CSRD
- Indoor Air Quality Monitoring

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iQunet.®

Asset & Condition Monitoring Solutions



on-premises

MQTT

OPC UA

GraphQL API

iQunet.® Edge



AI

IO-Link

4-20mA / 0-10V Analog

iQunet.®
Wireless FSK

LoRaWAN®

Modbus



iQunet.®

IO-Link

LoRaWAN®

4-20mA Analog
0-10V Analog

Modbus

Vibration Current Signature Wireless Plant Monitoring Drive-as-a-Sensor Metering

Sensors

iQunet.®

increases Industrial OEE

(Overall Equipment Efficiency)

through

on-premises

Data Acquisition (DAQ) & Analytics

from a versatile network of

(wireless) iQunet Sensors

and powered by

embedded Edge (AI) Software

enabling

continuous

Asset & Condition Monitoring

Contact us!



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Winner BEMAS Digital Innovation Award 2017

Winner Professional Jury BEMAS Digital Innovation Award 2021

Finalist BEMAS Digital Innovation Award 2022