

DPM AI Solution

AI-based Solution for Early Detection
of Digester Biology Disturbances



Hitachi Zosen
INOVA

Digester Performance Monitoring AI

Henry Smith | London 1A

Alarms history | Shiftbook | About | Help

Digester 1 | Digester 2 | Analysis date: Today

System alarms [Show more details](#)

Specific biogas flow (DPM KPI 1) ✓ Normal No potential disruption is predicted.	Biogas quality (DPM KPI 2) ✓ Normal No potential disruption is predicted.
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System alerts

Feeding downtime ✓ Normal 90 Min	Biogas quality measurement ✓ Reliable	Inoculation ✓ Normal
Agitator torque ✓ Normal 45 %	Retention time ✓ Normal 25 Days	

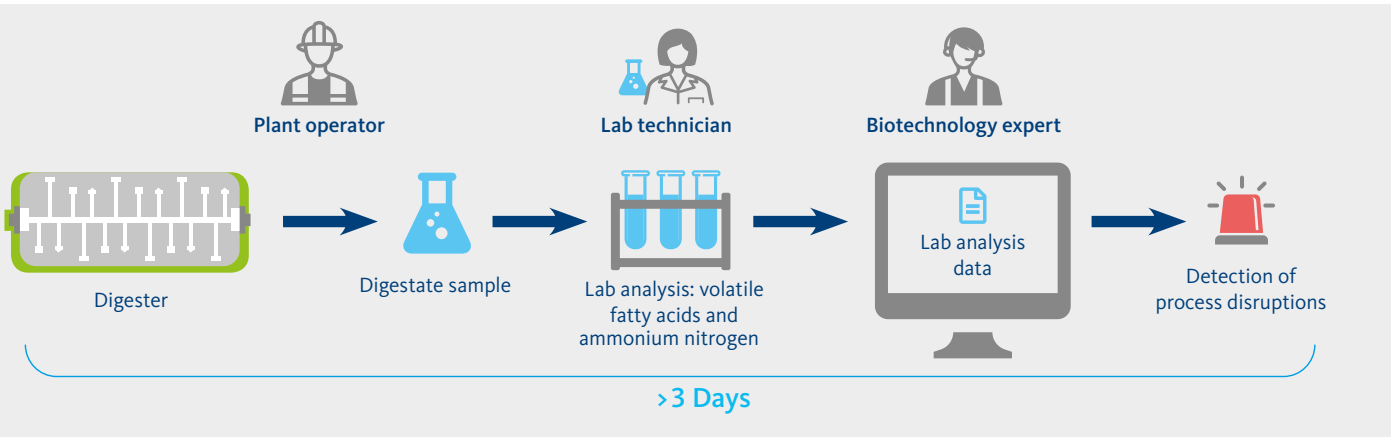
Reliable, Automatic Monitoring of the Biological Process in Dry Anaerobic Digestion

There are significant advantages to the automated, continuous monitoring of disturbances in the biological process in the digester with the help of artificial intelligence. These include rapid fault detection in a matter of seconds, increased plant availability, higher productivity, and time and cost savings versus conventional monitoring by means of laboratory analysis. For new plants as well as retrofits, boosting productivity by enabling reliable fault detection in seconds.

Current Situation

If disturbances to the biological process in the digester are detected too late, the result is reduced utilisation of plant capacity as well as lower gas production and financial losses. The most common method of process monitoring consists of

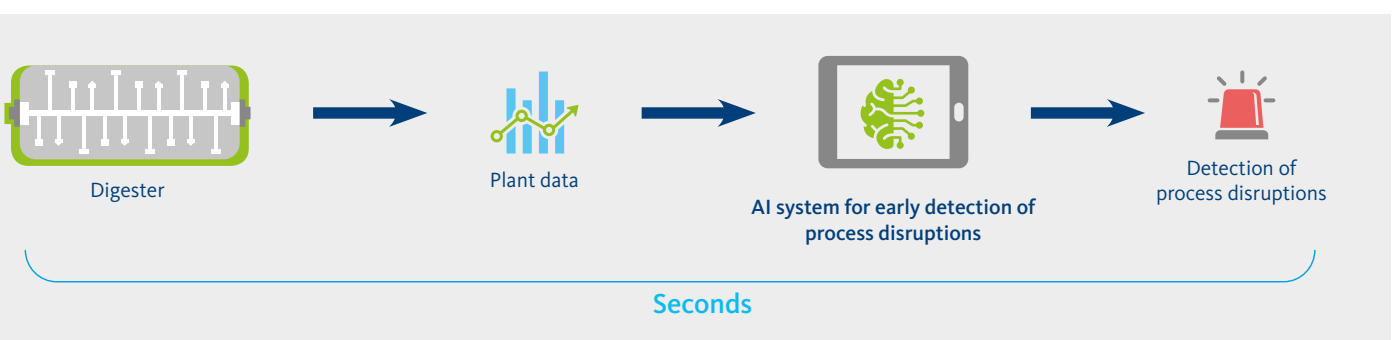
laboratory analyses to measure volatile fatty acids and ammonium nitrogen in the digestate, which must then first be analysed by a process expert.



Our Solution

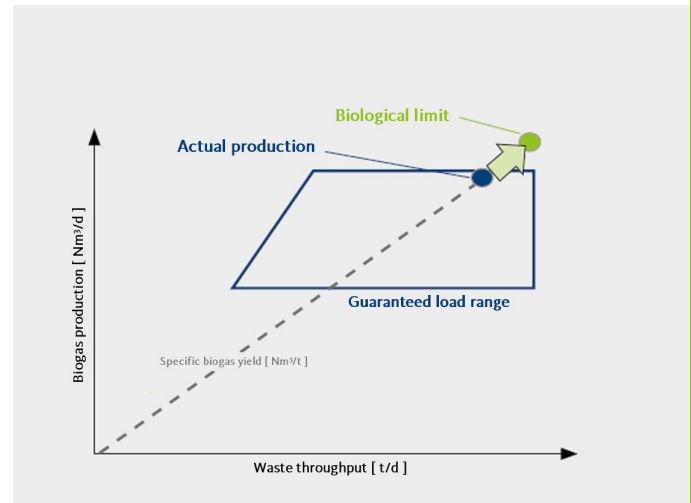
Thanks to artificial intelligence, the automated early detection of disturbances in the biological process in the digester is possible within a few seconds. In the event of a disturbance, the system triggers an alarm and enables the operating

personnel to intervene as quickly as possible. The system uses plant data available online from existing measurements, meaning that it can be used in many different types of plant.



The Benefits for You

- With the DPM AI solution, digestion plants can be operated closer to their biological limits, without the risk of a biological disruption.
- Conventional laboratory analysis is no longer necessary and the continuous monitoring of the biological process eliminates the delay before a disruption is detected. Detection happens several weeks before disruption.
- Results are output directly on site as a dashboard with details of the disruption, enabling immediate intervention by the operating personnel.
- A reduction in production lasting up to several weeks can be avoided. Plant availability can also be increased, reducing financial losses.



Plant Measurement Data Required

Measurement*
Agitator torque
Biogas throughput volume
Solid organic waste throughput
Liquid organic waste throughput
Concentration of CO ₂ gas
Concentration of CH ₄ gas
Concentration of H ₂ gas
Average fill level of digester
Addition of recirculate for inoculation

* Missing measurements can be taken into account during system planning.

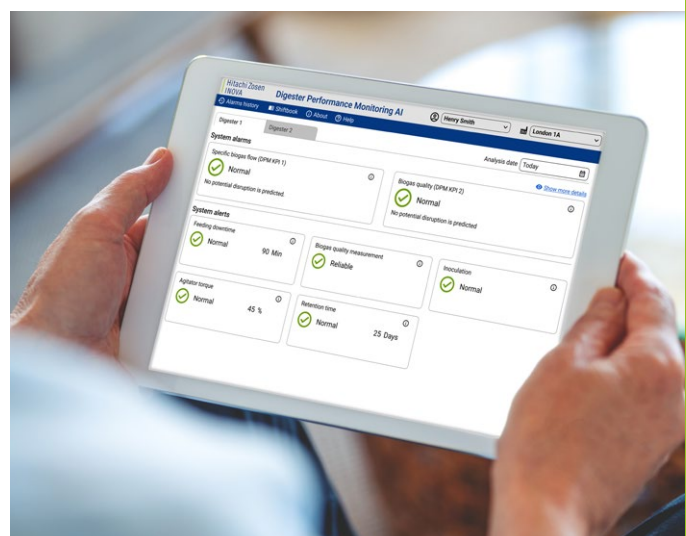
Intended use

- Kompogas® plants.
- All dry anaerobic digestion plants in continuous operation, regardless of the temperature.
- It can be used for retrofit as well if requirements are fulfilled.

System Properties

- Continuous monitoring and early detection of disturbances in the biological process
- Overall accuracy 99.5%
- Sensitivity 100%

System Dashboard



Example display of an installation



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Hitachi Zosen Inova AG | Hardturmstrasse 127 | 8005 Zurich | Switzerland
Phone +41 44 277 11 11 | Fax +41 44 277 13 13 | info@hz-inova.com | www.hz-inova.com