

DPM AI System

AI-based System for Early Detection
of Digester Biology Problems



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Digester Performance Monitoring AI

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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	

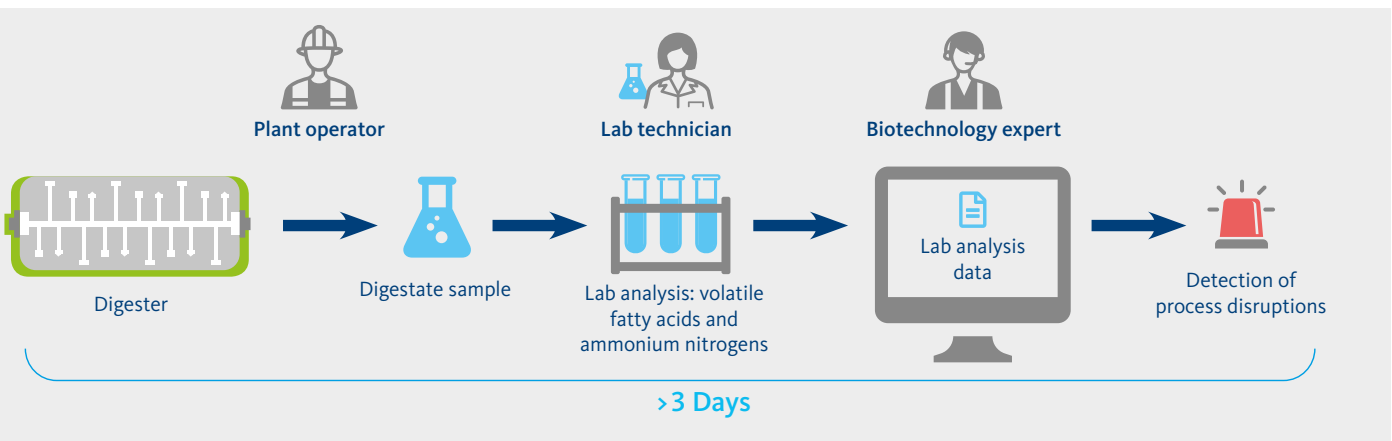
Reliable, Automatic Monitoring of the Biological Process in Dry Anaerobic Digestion

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 labora-

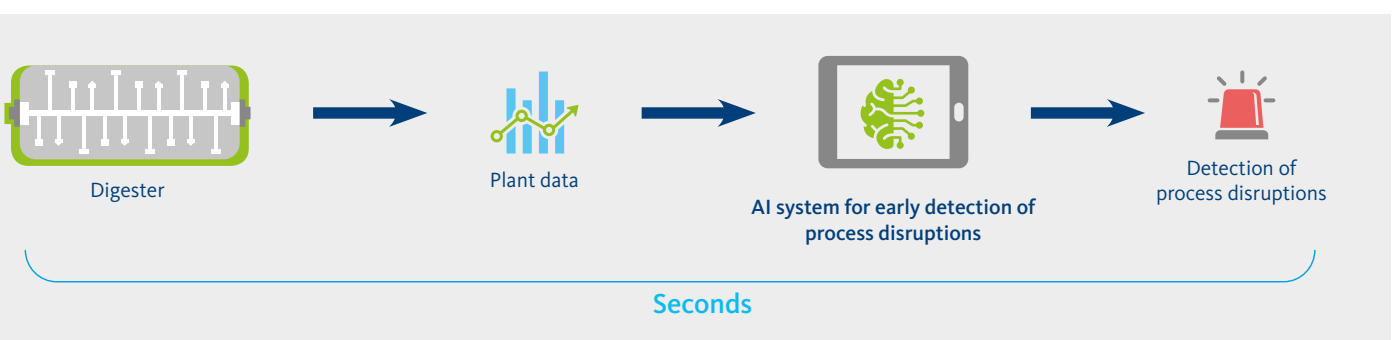
tory analyses to measure volatile fatty acids and ammonium nitrogen in the digestate, which must then first be analysed by a process expert. Until then, feeding cannot be continued at all or can only be continued on a greatly reduced basis.



Our Solution

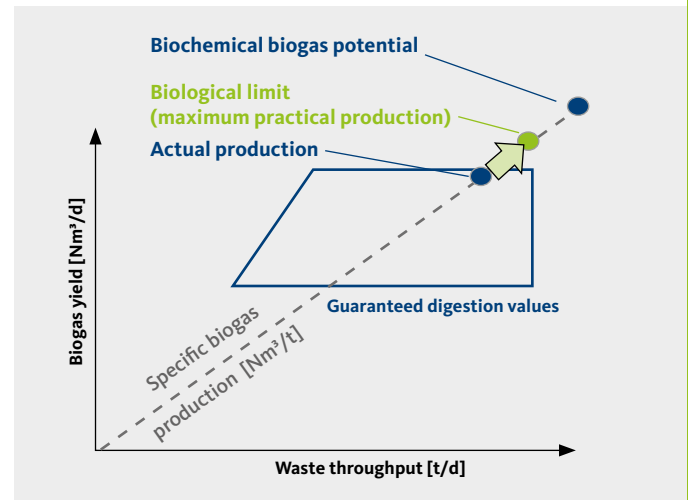
Thanks to artificial intelligence, the automated early detection of disturbances in the biological process in the digester is possible within a few seconds. In the event of a disturbance, the system triggers an alarm and enables the operating

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 system, digestion plants can be operated closer to their biological limits, which can increase productivity by up to 15%.
- Conventional laboratory analysis is no longer necessary and the continuous monitoring of the biological process in real time eliminates the delay before a malfunction is detected. Detection happens within seconds rather than days.
- Results are output directly on site as a visual report with details of the malfunction, enabling immediate intervention by the operating personnel.
- A reduction in production lasting several days can be avoided. Plant availability can also be increased, reducing financial losses.



Plant Measurement Data Required

Measurement*	Range of Measurement
Agitator torque	0–200%
Biogas throughput volume	0–1,000 Nm³/h
Solid organic waste throughput	0–100 t/d
Liquid organic waste throughput	0–100 m³/d
Concentration of CO ₂ gas	0–100%
Concentration of CH ₄ gas	0–100%
Concentration of H ₂ gas	0–5,000 ppm
Average fill level of digester	0–100%
Addition of recirculate for inoculation	0–1,000 m³

* If measurements are missing we can take this into account in system planning.

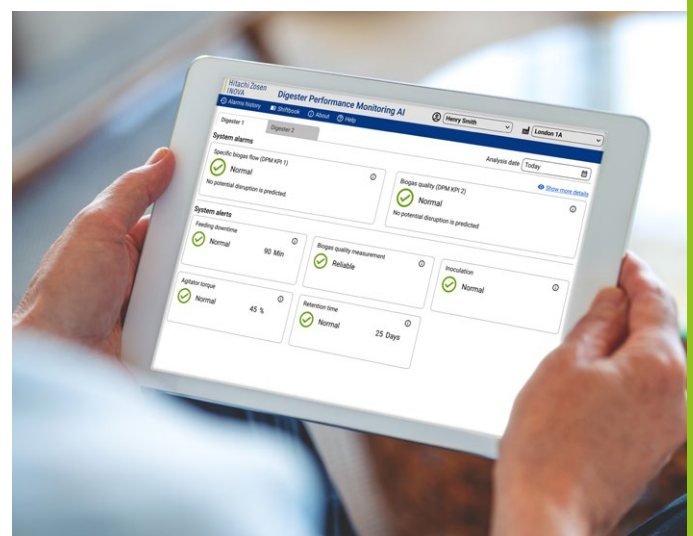
Types of Dry Anaerobic Fermentation Plants that Can Potentially Be Monitored with this System

- Kompogas® plants
- All dry digestion plants in continuous operation, regardless of whether this takes place in the mesophilic or thermophilic temperature range

System Properties

- Continuous monitoring and early detection of disturbances in the biological process
- Overall accuracy 99.5%
- Sensitivity 100%
- Can be retrofitted to many different types of plant

System Dashboard



Example display of an installation



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