

Case Study: Biogas Plant



Industry
RENEWABLE ENERGY

CHALLENGE:

A European biogas company in Europe needed a simple and reliable way to monitor and control the pressure exerted on the seal hatches of several digesters as well as on the main compressed air line to protect the main air compressor. This pressure results from biogas buildup, a mixture of gases (predominantly methane) produced from manure, sludge or waste decomposition.

The customer's challenge was to efficiently monitor the integrity of every single seal of each digester as well as the pressure on the main air compressor. In the event the main compressor fails, the customer also wanted an immediate switchover and activation of the backup air compressor using ATEX and SIL approved instrumentation.

These challenges were compounded by the fact their existing system vendor provided poor service at a high cost, further complicating the challenge.



ONE SERIES
FIELD SAFETY SYSTEM

SOLUTION:

The customer decided to deploy UE's ONE Series Safety Transmitter (range: 20bar) on each digester and the main air line. This solution offered several key advantages:

- **Multiple integrated outputs in one device:** for instance, in the event of a main compressor failure, the Safety Transmitter's safety relay (rated for loads of 5 amps at 250 VAC) would be tripped (within 100ms) to activate the backup air compressor. Simultaneously, a discrete output mirroring the safety relay output would be transmitted to the PLC to trigger additional actions (e.g., alarm).
- **User-friendly operation:** the customer valued the ease of operation on the device. For example, operators could read off process variables via the large LCD display on the device. In addition, users could perform local programming of setpoints and deadbands (up to 100% of the range) through the keypad on the LCD display.
- **Safety certifications:** the Safety Transmitter's ATEX and SIL2/SIL3 approvals, along with third-party exida SIL certification, met the plant's safety system requirements and validated the device's reliability.



Operational efficiency



Ease of use



Reliability