CODEL
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GCEM 50E Extractive Gas Analyser

Whats new?

ISO 9001:2015
Quality Certification

ISO 14001:2015
Environmental Certification

Monitoring Solutions SmartCem **www.codel.co.uk**

GCEM 40E/50E Comparison

Measurements	GCEM 40E	GCEM 50E
NDIR Measurement Principle	✓	✓
Gas Temperature	✓	✓
Pressure Sensor	✓	✓
Number of Gas Measurements	7	10
Response Time	200 Seconds	<180 Seconds
Internal Flow Measurement (Low Flow Alarm)	✗	✓
Pump Temp Control	✗	✓
Temperature Control Resolution	0.5°C	0.1°C

System Protection

Interlock Start Ups	2	3
Full O2 diagnostics	✗	✓
Sample Blockage Alarm	✗	✓
Autocooling of cabinet	✗	✓
Cabinet Door Alarm	✗	✓

Communication

mA Outputs	8	12
Relay Outputs	8	8
Comm Ports	2	4
Integrated HMI	✗	✓
Codel Cloud compatible	✗	✓

Installation & Servicing

Quick Release Single Cable (Power & Comms)	✗	✓
Cooling Fan replacement	✗	Quick Release
Modular Electronics	✗	✓

Cabinet PCB Quantity	12	1

Certification

TUV (EN 15267- 3) MCERTS QAL 1	✗	✓

The GCEM 50E is compliant with MCERTS (UK), and QAL1 certification under EN 15267, ensuring its suitability for continuous emissions monitoring in legally regulated industrial environments.

Faster Response Time (T90)

A faster response time in the GCEM 50E system delivers more accurate, real-time emissions data during process changes and load fluctuations. It enables quicker operator or automated control responses, reducing non-compliance risks. Faster T90 also minimizes sample degradation in heated lines and ensures regulatory requirements are met, providing more reliable monitoring and reporting.

Internal Flow Measurement

The GCEM 50E incorporates internal flow measurement to ensure stable sample flow, enabling consistent gas concentration readings and enhanced measurement reliability. This feature supports proactive fault detection, with real-time alerts for blockages or flow disruptions, reducing unplanned downtime. By continuously monitoring internal flow, the system safeguards critical components and maintains data integrity under varying process conditions.

Pump Temperature Control

Better resolution in pump temperature control ensures more stable sample conditions, reducing the risk of condensation and preserving gas integrity in the GCEM 50E. This leads to more consistent and accurate readings, especially for moisture-sensitive components like SO_2 or HCl. Precise temperature control also minimizes thermal cycling, extending component life and reducing maintenance.

3 Way Interlock Start Ups

The increased number of interlock startups, in the 50E helps the system protect itself and ensures only valid compliant data is collected. Each interlock acts as a safeguard, preventing operation under unsafe or out-of-spec conditions. The interlocks installed on the GCEM 50E include Sample Probe, Sample Line, Sample Pump and Heated Chamber Temperature. This layered protection preserves critical components and reduces maintenance costs, but also ensures the system consistently operates within performance standards, delivering maximum reliability and confidence in emissions reporting.

Full O2 Diagnostics

Full O_2 diagnostics in a CEMS system continuously monitor the health and performance of the oxygen sensor, ensuring accurate and reliable measurements. The diagnostics detect issues such as sensor drift, cell degradation, or reference air faults before they impact data quality. This enables predictive maintenance, reduces unplanned downtime, and supports consistent regulatory compliance. By validating sensor integrity in real time, full O_2 diagnostics enhance system reliability and overall confidence in emissions reporting.

Sample Blockage Alarm

The GCEM 50E's Sample Blockage Alarm, is essential for ensuring accurate emissions data by detecting interruptions in sample flow that can compromise measurement validity. It also protects key system components—such as pumps, sensors, and filters - from damage caused by overpressure or condensate buildup. Early detection enables timely, condition-based maintenance, helping to minimise unplanned downtime and extend system lifespan.

CODEL Cloud Compatible

CODEL Cloud is an advanced cloud-based platform designed to provide real-time remote monitoring and data management for industrial emission monitoring systems. It allows users to access, visualize, and manage emissions data from anywhere, offering full visibility and control over CODEL's Continuous Emissions Monitoring Systems (CEMS).

Installation & Servicing

The GCEM 50E has been engineered by CODEL's R&D team with a strong emphasis on streamlined commissioning and minimal maintenance overheads. The system features an integrated quick-release, single-cable solution for both power and communications, significantly reducing installation time and complexity. Serviceability is enhanced through modular electronic architecture, a reduced PCB count for improved reliability, and a quick-release cooling fan assembly that enables rapid component replacement with minimal downtime.

Automated Cabinet Cooling

An automated cooling fan actively regulates the cabinet's internal environment, maintaining stable operating conditions for sensitive electronics and measurement components. By minimising the impact of ambient and process-related temperature fluctuations, this system enhances measurement accuracy and long-term reliability.

Integrated HMI

This provides a real time display of measured data and also access to system diagnostics and configuration. Combined with a CODEL Cloud subscription this simplifies commissioning, maintenance and troubleshooting.