

# Technical Specification

# Get in Touch

### Sensor Performance

	CH <sub>4</sub>	CO <sub>2</sub>	O <sub>2</sub>	H <sub>2</sub>	NO
Sensor technology	NDIR	NDIR	Paramagnetic	Electrochemical	Electrochemical
Sensor range	0 to 1000ppm	0 to 5000ppm	0 to 100%	0 to 1000ppm	0 to 200ppm
Response time	T90 = <30 seconds from sample inlet	T90 = <30 seconds from sample inlet	T90 = <30 seconds from sample inlet	T90 (s) from zero to 400ppm <30	T90 (s) from zero to 50ppm NO <30
Operating temperature	5°C to 40°C / 41°F to 104°F				
Humidity	0-95% non-condensing				

### Product Information

	CDM	SEM 1	SEM 2	SEM 3	SAM
Dimensions (mm)	726 (w) 662.7 (h) 267 (d)	627.5 (w) 659 (h) 267 (d)	407.5 (w) 439 (h) 235 (d)	609 (w) 645 (h) 228 (d)	706 (w) 651 (h) 275 (d)



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Analogroup.com



Achieving **Precision,**  
Striving for **Perfection**

Our journey in developing a precise, robust and reliable gas sensing solution for **monitoring the reduction of methane emissions.**



# About us

**Analox Group is a trusted provider of gas sensing systems** across a range of industries such as commercial diving, food and beverage, defence and much more. Our team of highly skilled professionals are dedicated to **solving challenges with innovation, precision and reliability, ensuring safety in every environment.**

# Here’s our story...

## Joining the Consortium

Analox joined the Dancing with Daffodils project through a recommendation from Professor Jamie Newbold, a leading researcher at Scotland’s Rural College, to our Group Technical Sales Manager, David Booth. David’s extensive network and expertise in gas analysis led to our collaboration with Rumenco, the consortium’s lead organisation, to develop on-farm gas monitoring systems.



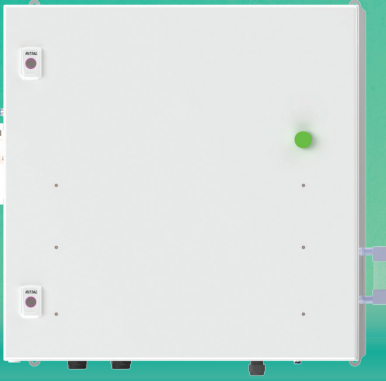
## Defining Customer Needs & Building the Project Team

Our early discussions with the customer were critical to establish a clear and shared vision from the outset - understanding their needs, constraints and performance expectations, ensuring alignment between all stakeholders. Establishing a project team was based on required technical competencies and project scope, as well as the involvement of graduate engineers to foster learning and fresh perspectives.

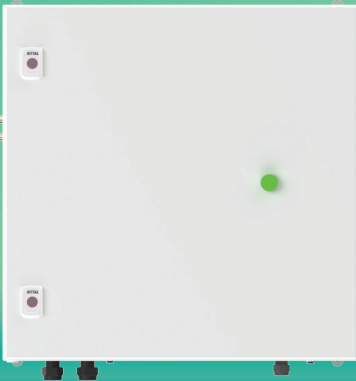
# Our System



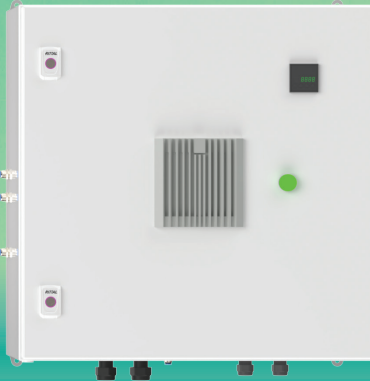
Central Display Module (CDM)



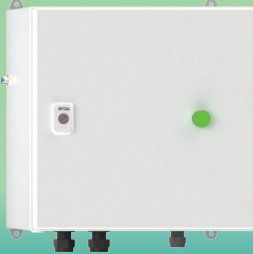
Sample Acquisition Module (SAM)



Sensor Expansion Module 1 (SEM 1)



Sensor Expansion Module 2 (SEM 2)



Sensor Expansion Module 3 (SEM 3)

## Design, Feasibility and the Build of Prototype One

The system needs to measure CO<sub>2</sub>, O<sub>2</sub>, CH<sub>4</sub>, NH<sub>3</sub> and H<sub>2</sub> from a cow's eructation while feeding, using a pump to draw samples to the sensors via a feeding hood. There have been many site surveys executed as well as collaborating with Newcastle University and Scotland Rural College for on-farm trials. During the build of prototype one, there was a redesign from plastic to metal enclosures to be more resistant for radiated immunity testing.

Scan this QR code to view an **interactive timeline** of the project!



## Internal Safety Testing

In-house safety testing is conducted, including a visual inspection, cable tug test, insulation test, and a continuity test. This includes gas calibration through the sample lines to verify sensor accuracy.

## Field Ready: Prototype Testing

On-farm testing will validate the performance, durability and compliance of the prototype under real-world conditions. The main priorities will be focusing on operational effectiveness, reliability, durability and user feedback integration. This phase is essential in de-risking deployment and ensuring the system meets all technical and operational expectations.

## In Action: Conducting On-Farm Trials

The on-farm trials for the Daffodil project will provide real-world validation of the system's performance under operational conditions. Key focuses will include monitoring yield efficiency and environmental impact, as well as gathering data to ensure the system meets industry standards and regulatory requirements. The trial feedback will provide the information required to optimise the systems performance, durability and reliability before full-scale deployment.

