



Probably the world's best algae labscale photobioreactors.

Changing the way you think about growing algae.



Algem[®] Pro

The professional-grade, precision labscale photobioreactor for algal research.

Simple, intuitive, flexible performance.



We believe that algae can change the world

Our goal is to unlock the potential of algae and its benefits, by designing systems that work to support credible, reproducible research advances across the breadth of opportunities represented by algae technologies and delivering them to market.

Why the Algem Pro?

The Algem Pro is the finest algal research tool of its kind. It was developed, designed and delivered through a unique collaboration between biologists, physicists, electronic design and software engineers, with one goal in mind: to support and drive high quality, reproducible algae R&D to underpin and catalyze a diverse sector.

Each system contains two individually programmable photobioreactors to optimize your throughput and flexibility.

- Precision lighting control
- Automated OD measurement
- Computer control of pH via CO₂
- Minimal downtime with easily exchangeable standard Erlenmeyer flasks
- Profiled control of light and temperature (including white, red and blue LEDs, and active heating and cooling)
- Gimbal-mounted reactors for highly effective but low-shear mixing to emulate swirling by hand
- Global geographical modeling from the UN FAO database



Flexibility – whatever your application

The Algem Pro system is the most versatile and precision-controlled, commercially available, lab-scale photobioreactor. The Algem Pro has been used by researchers in academic and research institutions, culture collections and companies worldwide to support research across a broad range of areas including:

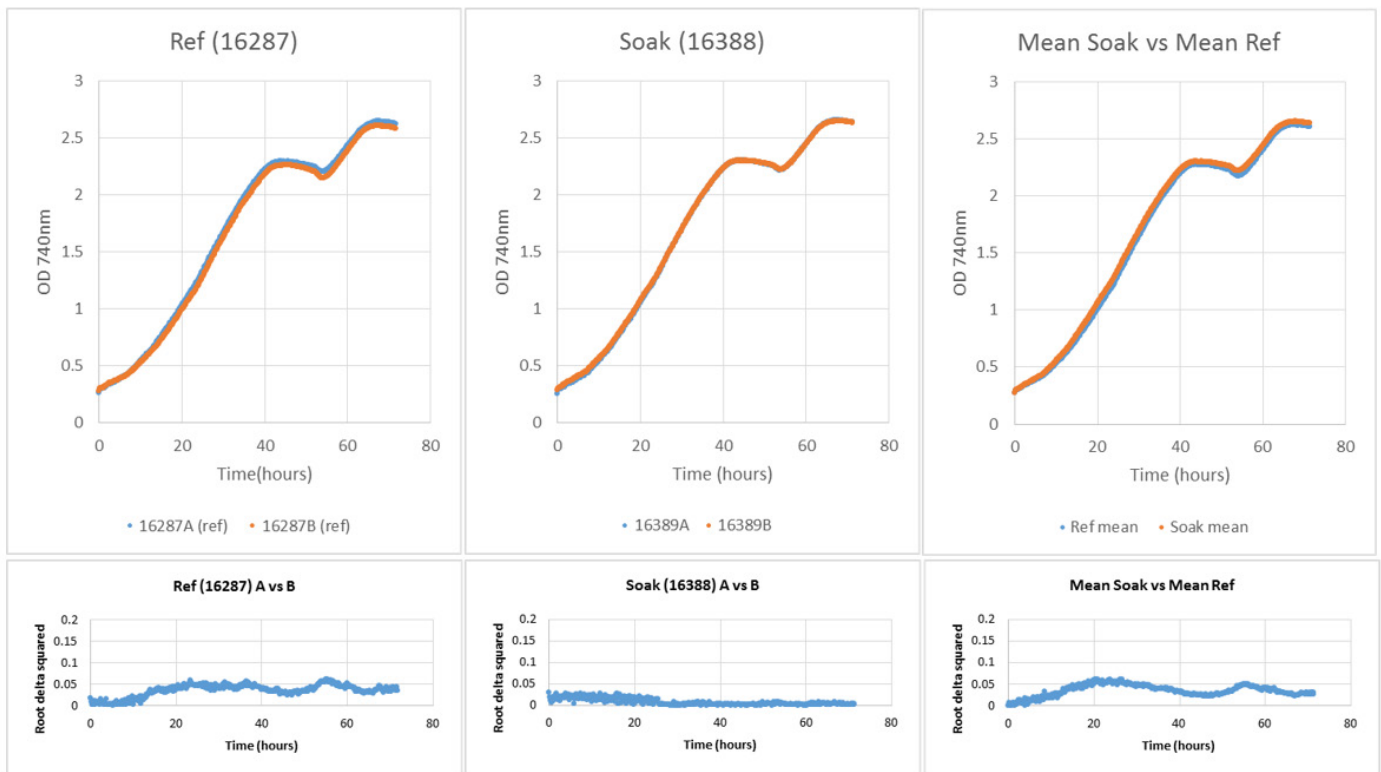
- Water treatment
- Molecular biology, including transcriptomics
- Strain optimization and characterization
- Condition modeling and scenario testing
- Process development

<https://www.algeminstruments.com/publications>

Validated reproducibility

In designing the Algem Pro, we set out to achieve something that was missing to algal scientists – reproducibility – giving true experimental control back by creating a system that delivers what you need.

Every Algem Pro is validated by testing the growth of obligate photoautotrophs. This ensures that each Algem Pro operates to an equivalent spec, and data-sets can be shared between different systems and laboratories globally.



Every Algem Pro must pass final quality control testing with the photoautotrophic microalga *Dunaliella salina*, to make sure performance is tightly matched

THE ALGEM PRO:

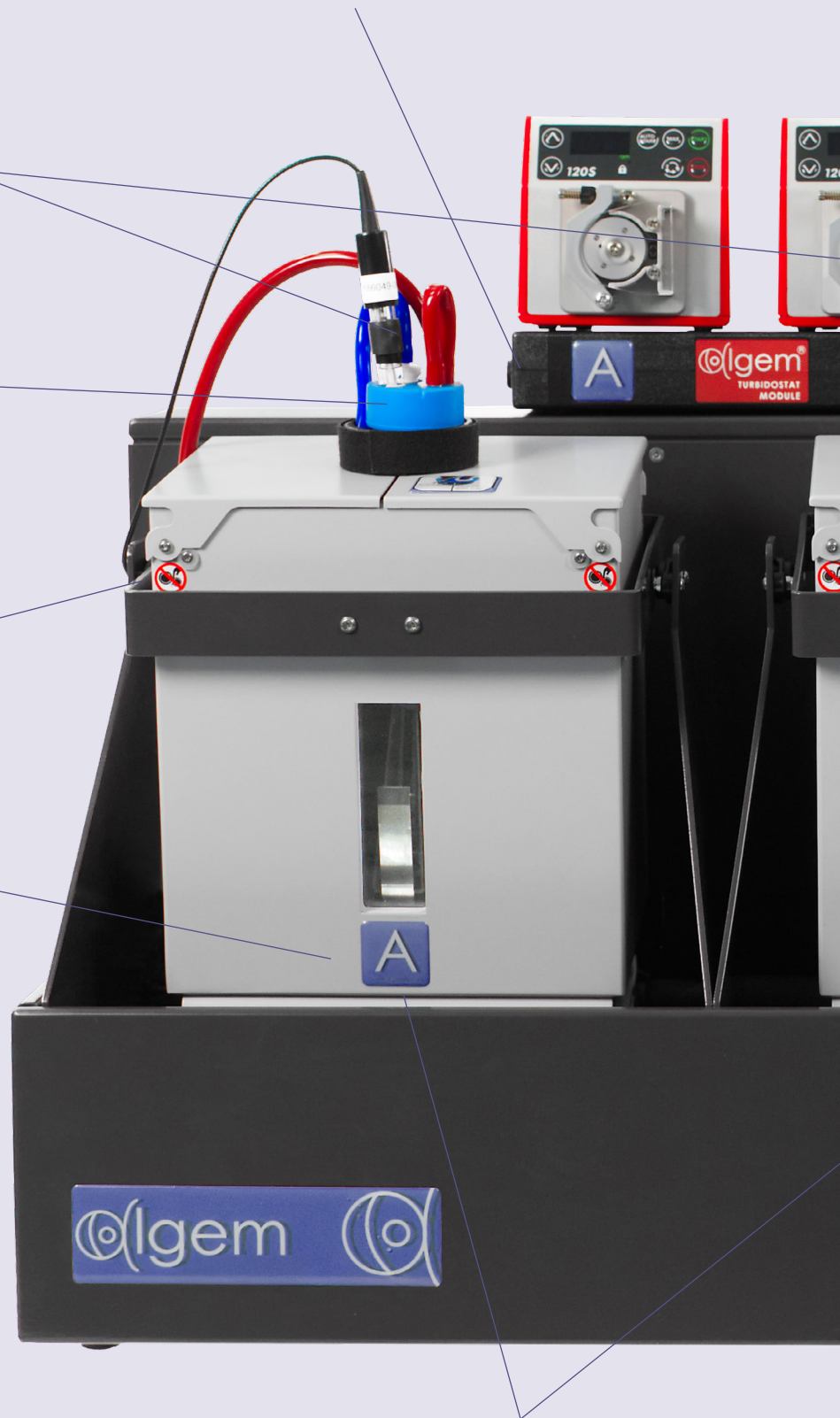
True turbidostat for a continuous mode of operation
(optional)

pH probes (optional)

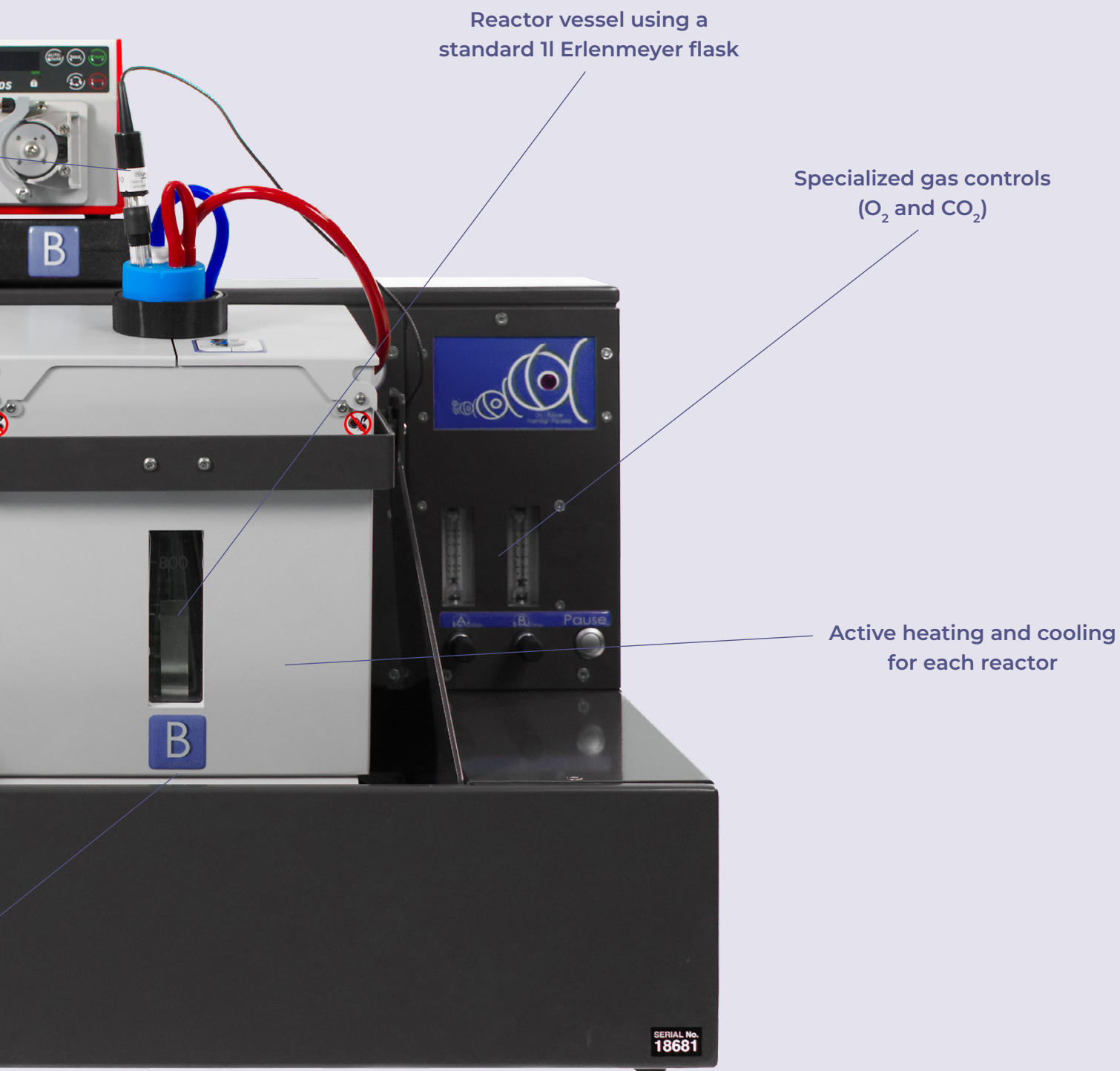
Specialized bungs
(stoppers) for active
addition/removal of media

Gimbal mount, to emulate
swirling by hand

Red, blue and white LEDs
that can be programed
individually for each reactor

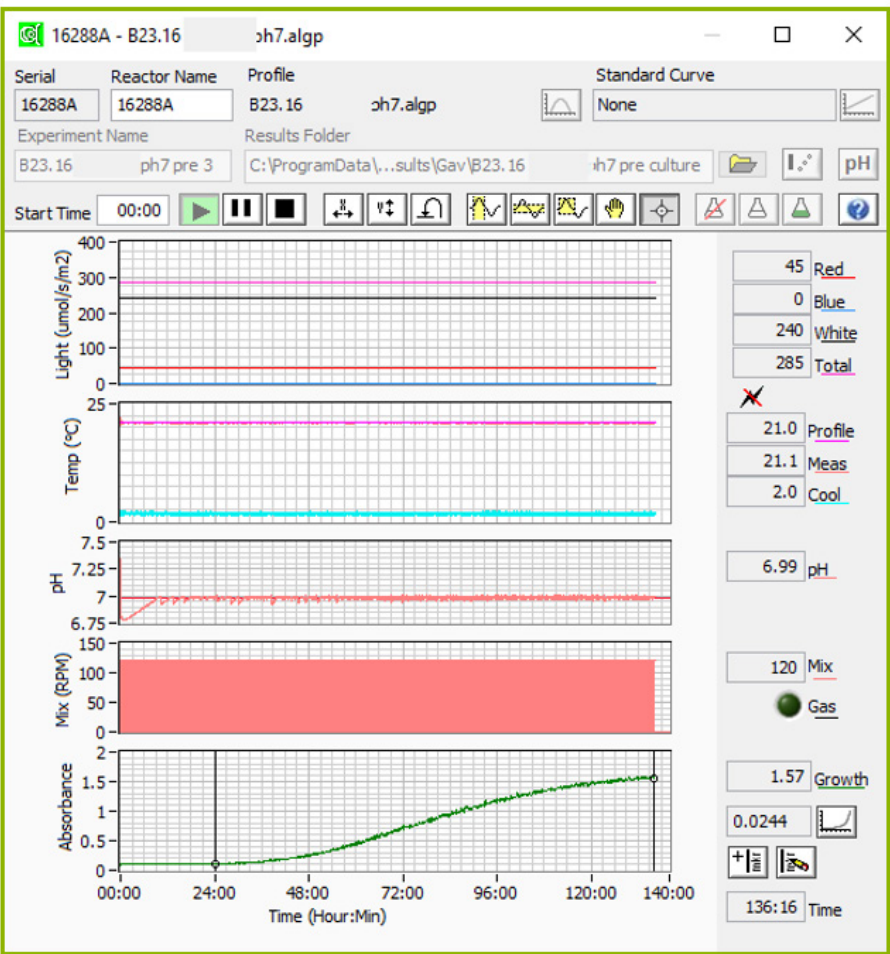


Two separate reactor vessels, each
independently and simultaneously controlled
by intuitive, best-in-class software.

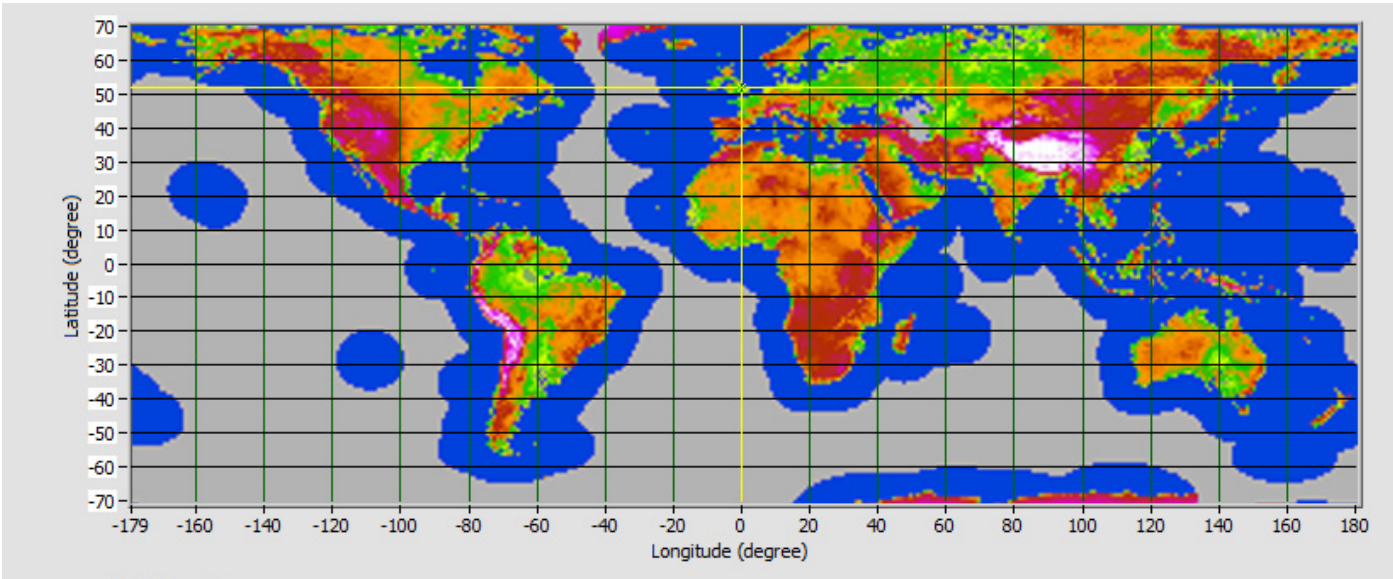


Intuitive Algem Pro software

The Algem Pro features our own custom-designed software user interface that displays acquisition of all major parameters simultaneously in real time. Data can be plotted and viewed during the run and exported as raw data or specifically to Microsoft® Excel for analysis. Our highly intuitive and easy to use software also features advanced capabilities that support even the most demanding research requirements related to environmental modeling scenarios.



All major parameters are monitored simultaneously on one screen using Algem Pro software



Global geographical modeling, adapted from UN FAO database

Optimize space

The Algem Pro is designed as a lab-scale photobioreactor that fits conveniently on any standard benchtop as an individual two-reactor unit. Algem Pro systems can also be arranged as rack-mounted systems in a variety of tiered layouts, including 3 and 5 Algem Pro systems supported by a single 450W chiller.



The compact nature of the Algem Pro allows it to be easily installed in a variety of layouts to suit your workspace



The Algem Turbidostat Module (ATM™)

The ATM can be added to any Algem Pro for studies that require a continuous mode of operation. The system is programmed via computer and maintains a user-defined optical density by automatically pumping out culture, while simultaneously pumping in fresh culture media.



Algem Pro technical specifications

Working culture volume:	2 x 400-600 ml
Mixing rate:	Off; 10-120 rpm
Temperature range:	4-50 °C
White LED (sunlight model):	Off; 20-2,000 $\mu\text{mol}/\text{m}^2/\text{s}$
Red LED (660 nm):	Off; 20-1,700 $\mu\text{mol}/\text{m}^2/\text{s}$
Blue LED (465 nm):	Off; 20-1,000 $\mu\text{mol}/\text{m}^2/\text{s}$
Gas flow rate:	Off; 5-100 cm^3/min

Algem Pro operating software and license is included, preloaded on a Windows-based laptop.

(Windows 10 or later are currently recommended. Microsoft Office is recommended but not included with the software).

Specifications may be subject to change.

Our Algem products



About Algem Instruments

The Algem family of lab-scale photobioreactors was developed, designed and delivered through a unique collaboration between biologists, physicists, electronic design and software engineers, with one goal in mind: to support and drive high quality, reproducible algae R&D to underpin and catalyze a diverse sector.

Algem Instruments started life within Algenuity, which operated initially as an algae R&D division of UK-based specialized electronics manufacturing and life sciences R&D company Spicer Consulting Limited. Algem Instruments was created and retained by Spicer Consulting Limited when Algenuity naturally evolved into its current commercial entity as an algae ingredients developer and manufacturer, to maintain the commitment to manufacture and support the Algem family of instruments in the market.

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