



Algenuity® is transforming the world by making algae work.

Join the revolution.



Algem®

The professional-grade lab-scale photobioreactor for algal research from Algenuity.

It will change the way you think about growing algae.



We believe that algae can change the world

Our goal is to unlock the potential of algae and its benefits, with a focus on the big picture and the positive global impact of the work we are doing. We are experts in all things algal biology, and our message is simple: 'making algae work'.

Why the Algem?

The Algem is the finest algal research tool of its kind. It was specifically designed by Algenuity's dedicated team of R&D scientists to enhance and further algal biology research, and can generate months of data by providing reliable and predictable microalgal cultivation, optimization and biological characterization.

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

- Precision lighting control
- Automated optical density (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

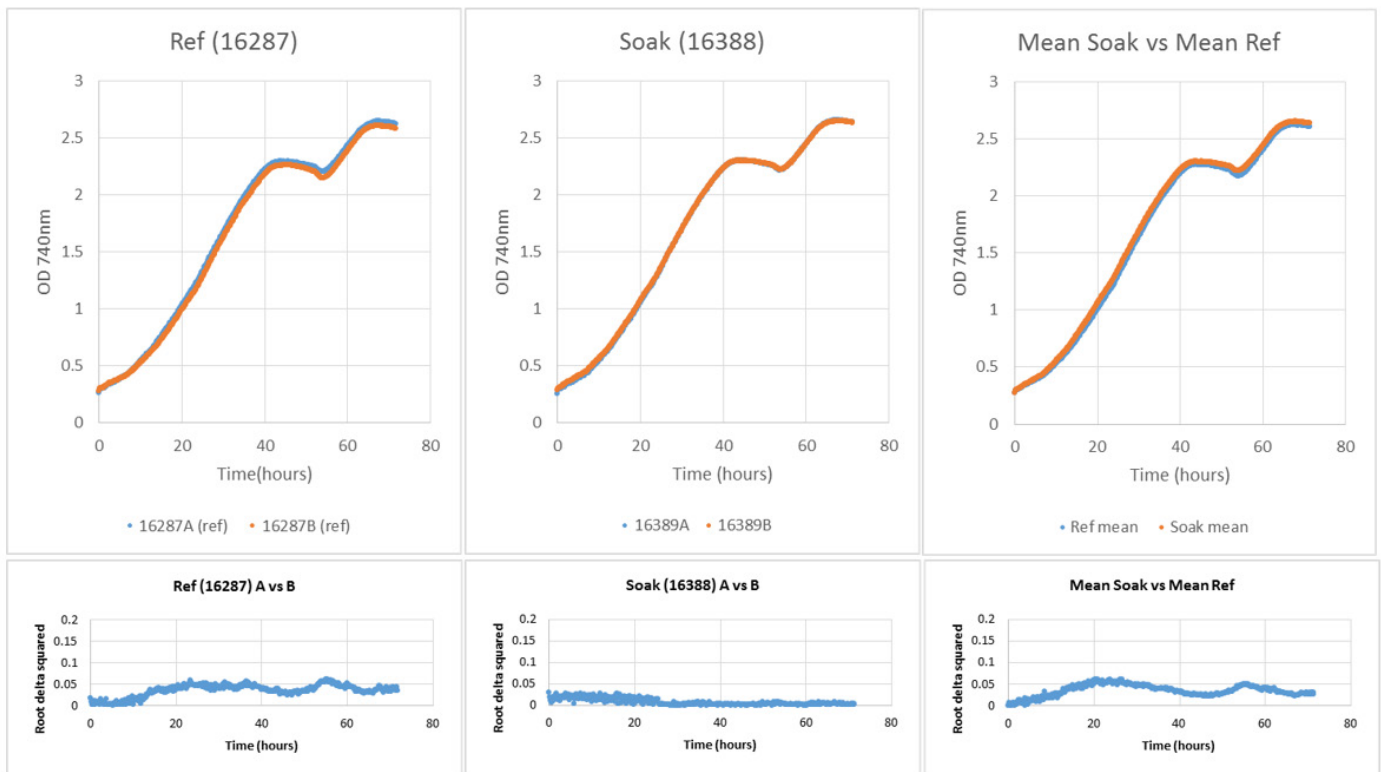
The Algem system is the most versatile and precision-controlled, commercially available, lab-scale photobioreactor. The Algem has been used by labs worldwide to support research in a broad range of areas, including:

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

Validated reproducibility

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



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

THE ALGEM:

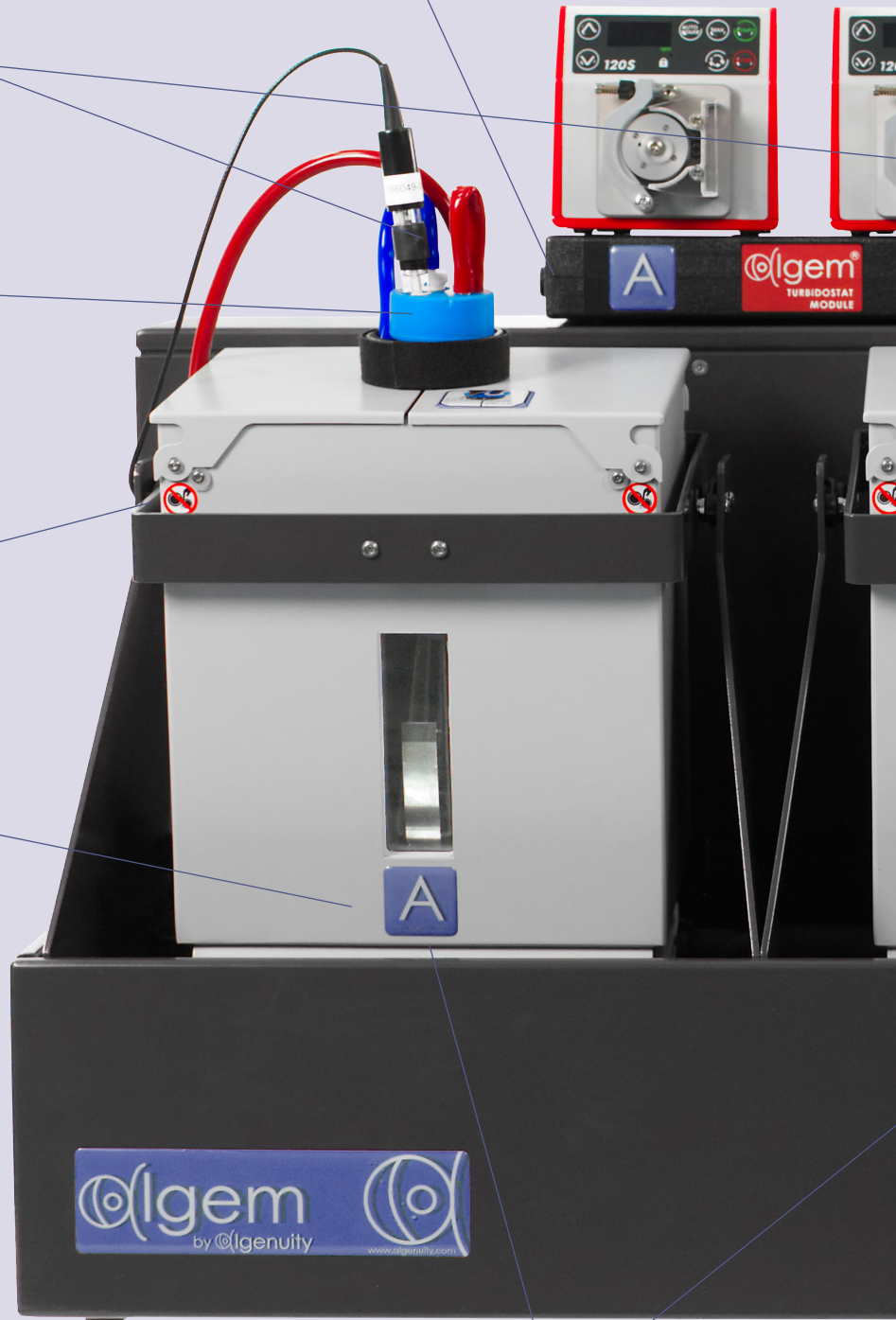
True turbidostat for a continuous mode of operation
(optional)

pH probes (optional)

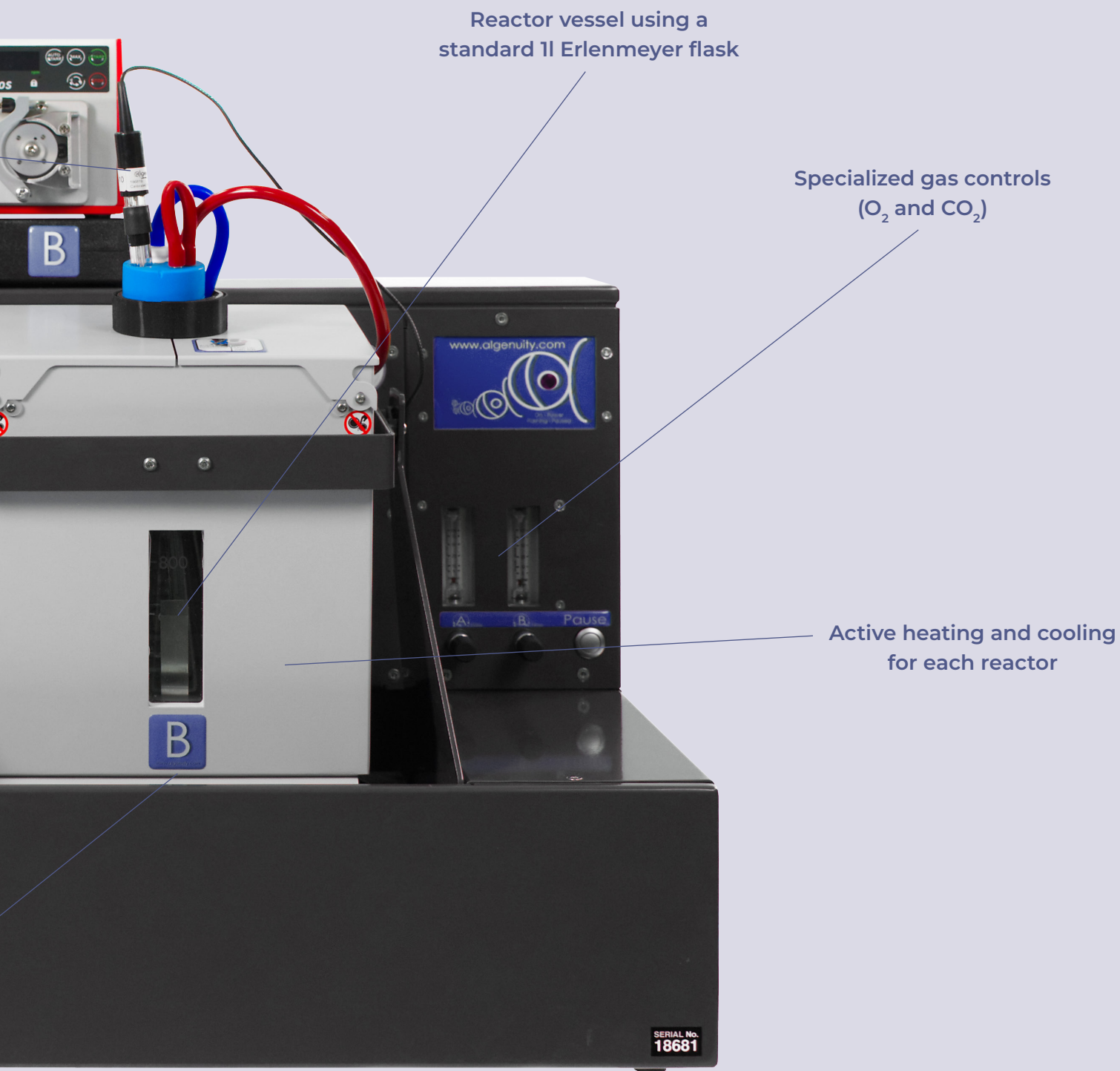
Specialized bungs
(stoppers) for active
addition/removal of media

Gimbal mount, to emulate
swirling by hand

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

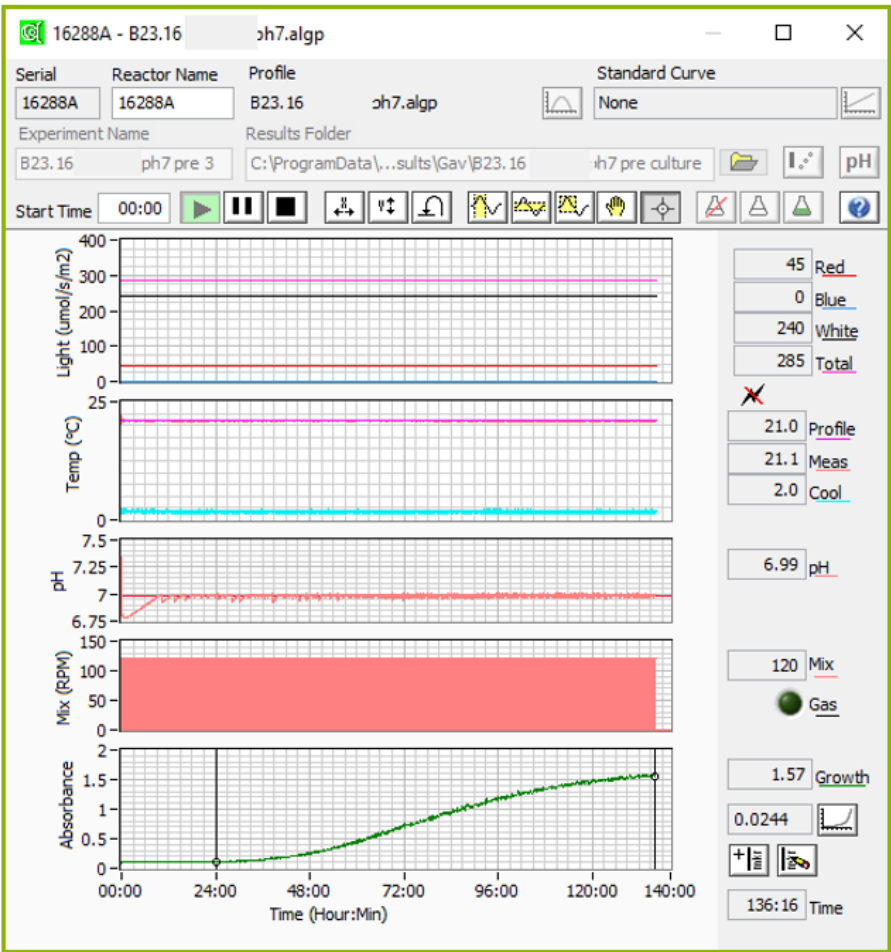


Two separate reactor vessels, each
independently and simultaneously
controlled by Algenious® software

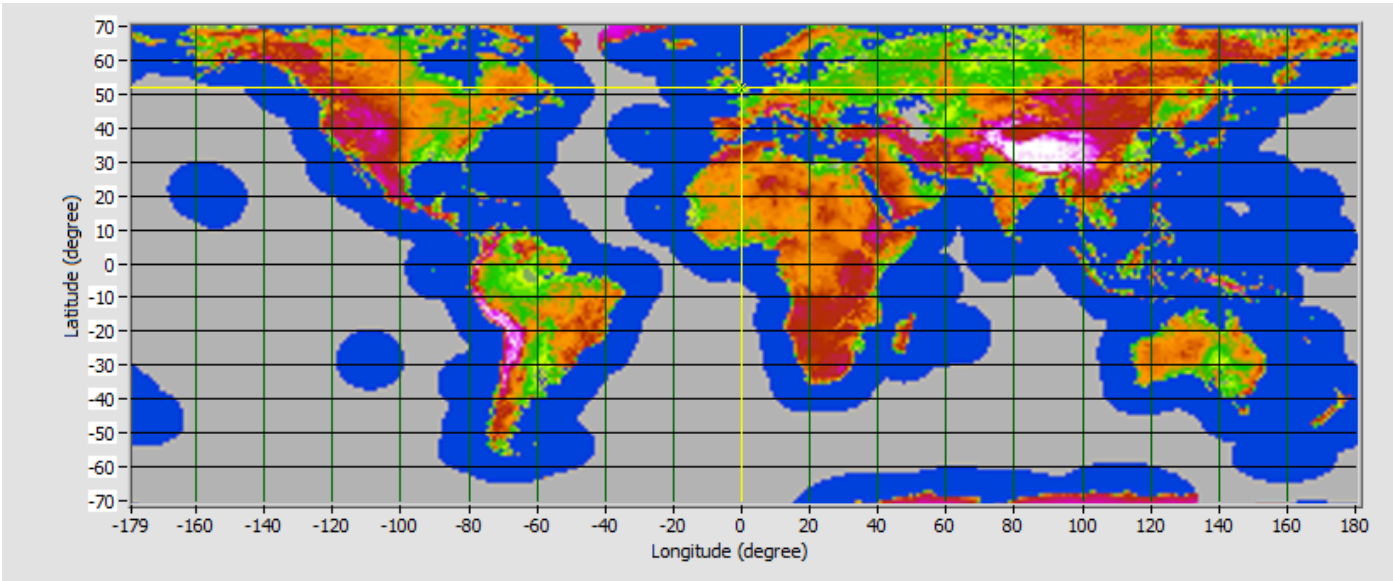


Algenious software

The Algem features Algenuity's own custom-designed Algenious user interface that displays acquisition of all major parameters simultaneously in real time. Data can be plotted during the run and exported to Microsoft Excel® for any analyses. Algenious is highly intuitive and easy to use, and also features advanced capabilities that support even the most demanding research requirements.



All major parameters are monitored simultaneously on one screen using Algenious software



Global geographical modeling, adapted from the UN FAO database

Optimize space

The Algem is designed to be a lab-scale system that fits conveniently on any standard benchtop as an individual unit. Algems can also be arranged as a rack-mounted system, in a variety of tiered layouts that work best for your facility and experimental needs.



The compact nature of the Algem 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 for studies that require a continuous mode of operation. The system is programmed via computer and maintains a user-defined OD by automatically pumping out culture, while simultaneously pumping in fresh culture media.



Algem 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

Algenious operating software is included, and a Windows®-based computer is required, which can be provided by Algenuity (optional).

(Windows 7 or later; Microsoft Word® and Microsoft Excel v.10 or later recommended).

Specifications may be subject to change

Our Algem® products:



About Algenuity

At Algenuity, we are all about making algae work for positive global impact. We are innovators and problem solvers with world-class expertise in algal biotechnology and process development, working with algal companies to improve their processes and strains, and protecting their investments and profits. In addition, our own proprietary products and solutions are creating a revolution, changing the way that algae are perceived and used in the food and beverage, aquaculture, cosmetics, pharmaceutical and healthcare industries.

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