

# The Aber Biomass Monitor 230

## Ideal for cGMP Production bioreactors



### TYPICAL MONITORING APPLICATIONS

- ANIMAL CELLS IN SUSPENSION OR ATTACHED TO CARRIERS
- VISCOUS FUNGAL OR FILAMENTOUS BACTERIA GROWN IN COMPLEX MEDIA
- YEAST AND PLANT CELLS AND LINEAR UP TO HIGH CELL CONCENTRATIONS
- HIGH DENSITY FED BATCH BACTERIAL FERMENTATIONS

### TYPICAL CONTROL APPLICATIONS

- CONTROLLING CONSTANT LEVEL OF BIOMASS IN BIOREACTORS
- NUTRIENT FEED RATE CONTROL BASED ON LIVE BIOMASS

The unique Aber™ technology to measure **LIVE** biomass is widely used in fermentation and cell culture to reduce costs by saving manpower or to maintain a more consistent process in manufacturing. The **Biomass Monitor 230** can be used to monitor the viable cell concentration of mammalian, yeast, fungal, plant and bacterial cells. A range of probes in 12, 19 and 25mm diameter that can be steam

sterilised in situ is available for installation in fermenters from less than 1 litre through to production fermenters of 200,000L. The new product is a response to the demand in the industry for a multi-channel biomass instrument that is flexible with settings and communications and that will also meet the strict validation requirements and environmental conditions of a cGMP production process.



## KEY BENEFITS - MODEL 230

<b>Expandable</b>	The <b>Model 230</b> has an integral multiplexer allowing up to 4 bioreactors to be monitored sequentially.
<b>Flexible with settings</b>	The instrument can be used in wide range of operating modes allowing the live cell measurement to be optimized.
<b>Robust</b>	Built within a stainless steel IP65 enclosure, the instrument is ideal for a production or pilot plant environment.
<b>Validatable</b>	The Model 230 can be provided with full IQ/OQ documentation and is ideal for cGMP bioreactors.

## TECHNICAL SPECIFICATIONS - MODEL 230

<b>General</b>	The Model 230 measures live cell bio-volume using radio-frequency impedance with up to 4 channels
<b>Display Range</b>	Capacitance: 0 to 400pF/cm. Conductivity: 1.0 to 60 mS/cm
<b>Resolution</b>	0.05pF/cm at low conductivity. 0.2pF/cm at high conductivity (Bacteria typically 0.1g/l dry weight or $2 \times 10^9$ cell/ml for E. Coli Yeast or animal cells 0.05g/l or $1 \times 10^5$ cells/ml)
<b>Measuring Frequencies</b>	Single frequency or two frequency operation on all channels. Options for polarisation correction.
<b>Local Display/Controls</b>	Large high contrast, LCD display with membrane key pad. Capacitance and conductivity displayed on all 4 channels. Laptop PC can be connected for instrument set-up or monitoring/test purposes.
<b>Communications</b>	Serial communication via RS232. This allows full remote operation of the instrument either from a PLC or from a local Laptop PC. Continuous 4-20mA (or 0-10V option) loops for capacitance and conductivity on all 4 channels.
<b>Calibration</b>	Span calibration will be via fermenter-specific cells/ml factors in the users PLC or PC. Periodic system checks require the use of a probe simulator and simple pass/fail criteria.
<b>Power Supply</b>	110 to 240V AC at approx. 3 Amps
<b>Enclosure</b>	IP65 Waterproof Stainless Steel, wall-mounting, with 4 off Headamp connectors and 2 off cable glands/blanks on base. Optional lock. <b>Dimensions: 400H 400W 200D</b>
<b>Probes</b>	4 platinum electrodes in annular ring, flush fitting or pin arrangements. 12, 19 and 25mm diameter options with FDA compatible materials. Probe lengths 100mm through to 450mm. Wetted materials (316L Stainless Steel, Virgin PEEK and EPDM O-rings) conform to FDA requirements.



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