

# How the the Aber Biomass Monitoring Systems work

**Real time means real savings.** Cells with intact plasma membranes in a fermenter can be considered to act as tiny capacitors under the influence of an electric field. The non-conducting nature of the plasma membrane allows a build up of charge.

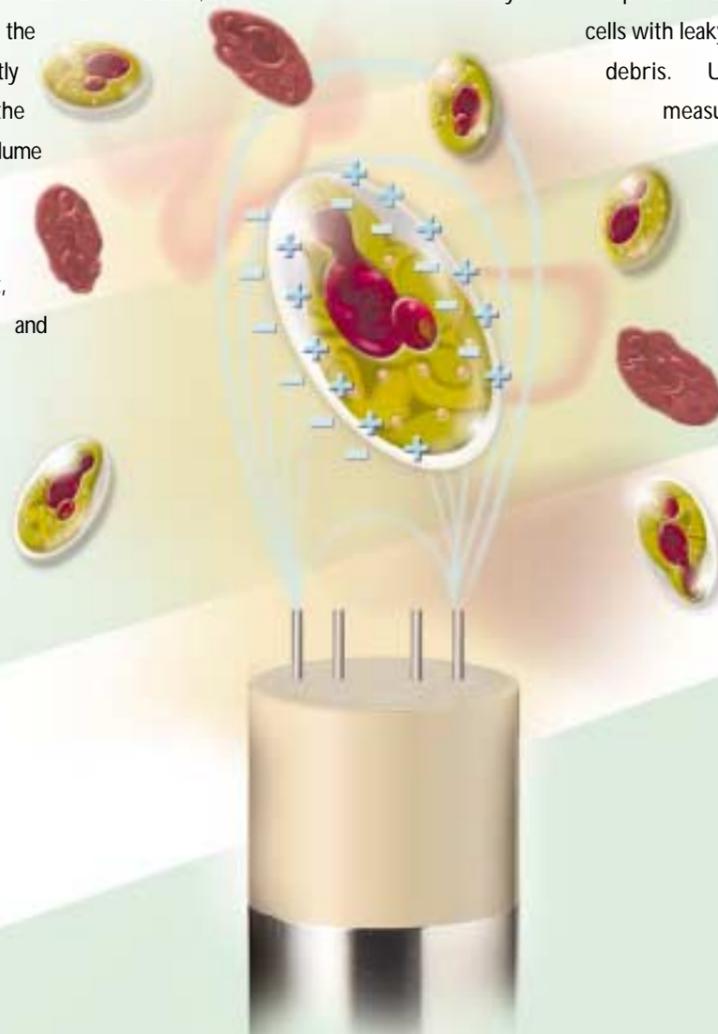
The resulting capacitance can be measured; it is dependent upon the cell type and is directly proportional to the membrane bound volume of these viable cells.

The technology is ideal for viable yeast, bacteria, animal, plant and other cellular biomass.

**A unique patented probe** that is steam sterilisable in situ and incorporates four electrodes is used to apply a radio frequency field to the biomass. Electronic processing of the resulting signal produces an output which is an accurate measurement of the concentration of viable cells.

The system is responsive to viable cells and is insensitive to cells with leaky membranes, gas bubbles and cell debris. Unlike conventional optical measurement techniques, the Aber method is not prone to fouling. It can also monitor very high biomass concentrations and operate in a wide range of complex culture media.

*You asked for precise, on-line biomass monitoring in a GMP environment...*



*...so here's a measured response*  
**The Biomass Monitor 220**



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## Key features

- A new improved 2-frequency system that will allow improvements in sensitivity and accuracy under highly aerated conditions.
- Continuous on-line measurement of gas hold up and conductivity for additional process information.
- Integral Multiplexer reducing the cost per channel.
- 19mm and 25mm diameter probes designed for GMP facilities.



**ACCURATE & CONSISTENT**



## Biotechnology Solutions from Aber Instruments Ltd - World leaders in Biomass Instrumentation

The Biomass Monitor is widely recognised as the online instrument for viable cell mass... Now, **Aber Instruments** has used its extensive experience to provide you with a high specification Biomass monitor at a lower cost: The **Model 220**. This state-of-the-art instrument uses the latest advances in radio-frequency dielectrics combined with an advanced software program to set new standards in performance and sensitivity for monitoring viable cell concentrations during fermentation and cell culture. The new range now uses probes constructed of materials that conform to FDA, making the **Biomass Monitor 220** ideal for scaling up in a GMP environment.

All Aber Instruments products are backed by a world class support team and distribution network. From laboratory to production you will find only one practical solution you can count on... Aber Instruments.



## Four reasons why you can count on the BIOMASS MONITOR 220

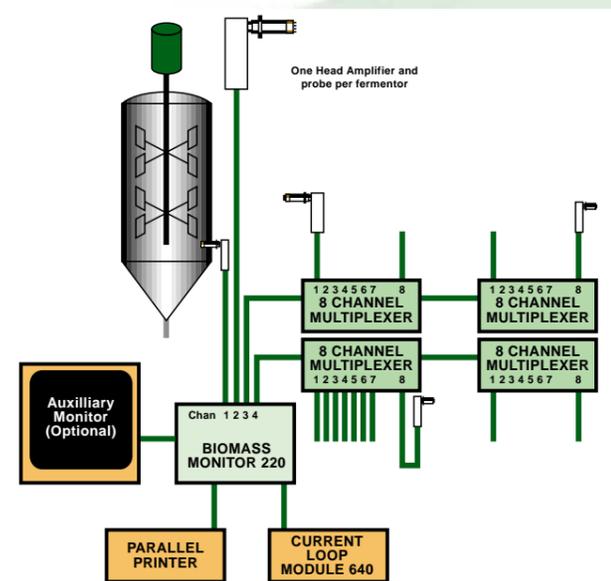
### Precise, Viable cell mass on-line

Traditional lab methods of determining viable cell mass are often time consuming, inaccurate and subject to operator judgement. The **Biomass Monitor 220** can free

up your valuable laboratory time and provide a PRECISE record of those critical changes in biomass throughout fermentation or cell culture. In many cases the reduction in sampling can reduce the risk of contamination of the Fermentation or the laboratory!

### New models to suit your budget

The new Biomass Monitor range incorporates a budget "entry level" instrument (the **Model 210**). This instrument can be upgraded to the standard **Biomass Monitor 220** that has an in-built multiplexer allowing up to 4 fermenters to be monitored and substantially lowering the cost per channel. Further probes can be added to the system using additional multiplexers up to a maximum of 34 fermenters.



### Probes ideal for GMP environment

The new Biomass Monitor range has probes constructed from wetted materials that conform to FDA making the system ideal for scale up in a GMP environment. With the instrument widely used in cell culture applications, the **Biomass Monitor** is now the standard on-line probe for monitoring cell mass.

### Proven system - EVEN with IMMOBILIZED CELLS or COMPLEX MEDIA!

The **Biomass Monitor** can provide you with a direct on-line method of cell mass measurement if the cells are clumped or immobilized. Examples include microcarriers and packed bed reactors with animal cells. The **Model 220**, utilizing a new 2 frequency system, will also operate in a wide conductivity range of complex media for bacterial and fungal fermentations. The Aber Instruments technology is the ideal choice for long fermentation or cell culture runs.

