

# Watch your cells grow!

## Pump flow INTEGRATOR - an economical alternative to Optical Density (OD) measurements

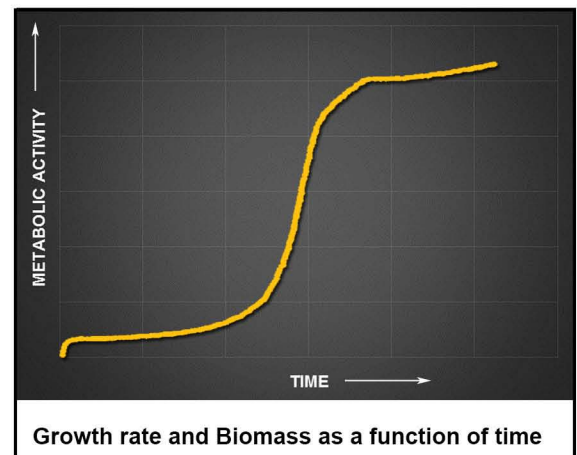
During fermentation, cells produce acid or base which needs to be compensated.

The INTEGRATOR in the pump integrates the amount of added acid or base.

These data allow to assess cell growth or biotransformation with a precision similar to titration.

### Advantages you get:

- ✓ Unlike in OD measurements, the results are not affected with the presence of dead cells, cell debris, air bubbles, precipitation & coloration
- ✓ Precise, easy-to-use & maintenance free solution at low cost
- ✓ Integrated within the pumps to save your valuable bench-space



## Where to use the INTEGRATOR?

- ✦ Control and quantification of the metabolic activity of cells during fermentation and cell cultures  
Eg. by control of pH, rH, pO<sub>2</sub>, pCO<sub>2</sub>, conductivity or other parameters
- ✦ Measurement of the enzyme activity of numerous enzymes  
Eg. esterases, acylases, lipases, proteases and others using a pH stat
- ✦ Recording foam formation (automatic antifoam addition)
- ✦ Recording the addition of reactants during exothermic reactions by a thermostat
- ✦ Recording of the consumption of reactants during titrations and much more applications

Titrate your cell's  
METABOLIC ACTIVITY!

