



sartorius stedim
biotech

ambr[®] analysis module



turning science into solutions

Add-On Capability for Calibration of pH in ambr 15 Micro Bioreactors

The analysis module provides add-on capability for measurement of pH in ambr 15 micro bioreactors, for the purpose of initial bioreactor vessel pH sensor calibration and subsequent in-process re-calibration. The analysis module eliminates the operator time needed for manual pH sample transfer, measurement, data transfer and bioreactor pH sensor recalibration, by fully automating this process.

Operation of the analysis module is supported by user replaceable sensors (electrodes) and reagent kits including calibration solutions, cleaning solutions and a waste container. analysis module is suitable for use with both cell culture and microbial media. analysis module is not suitable for use with particulates (for example microcarriers will block internal tubing) or highly viscous cultures or samples (e.g. filamentous microbes).

The benefits

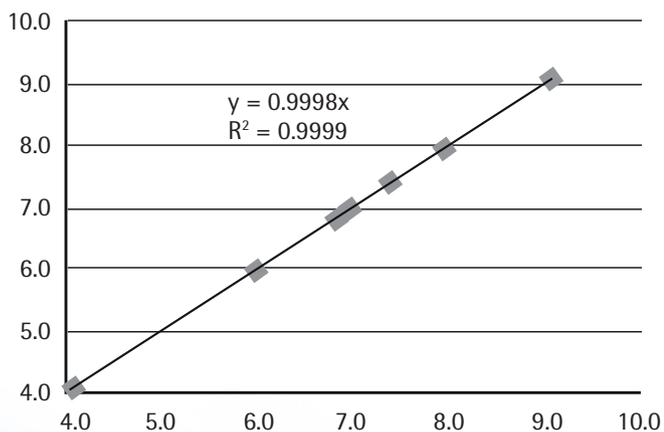
- Improve pH control and culture performance with frequent, accurate pH sensor recalibration
- Minimal user interaction enables more frequent pH checks and frees up scientist time
- Small sample volume allows more frequent pH checks and/or more culture volume for other samples
- Improves accuracy and consistency through full automation of sample handling and assay read
- Heater sensor cell enables measurement temperature to match the culture temperature, improving measurement accuracy
- Reduced CO₂ outgassing effects and errors compared to manual offline samples
- Reduce utilisation of offline pH analyser, increasing capacity for other assays
- Compact size increases the ambr 15 system width by less than 25 cm

Specifications

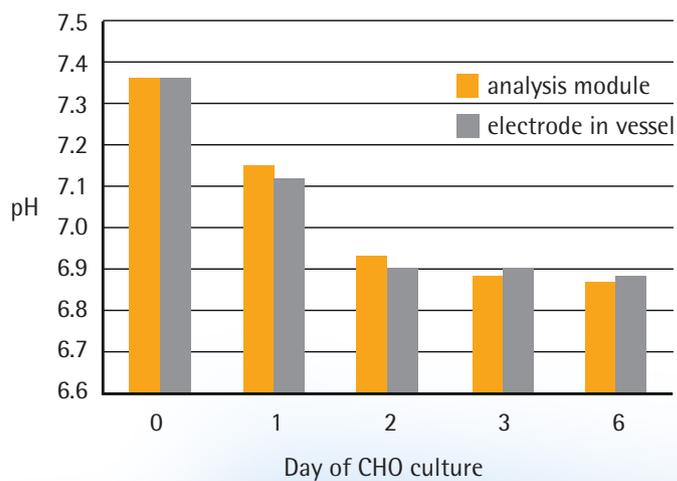
Optimal working range	pH 6.0 - 8.0
Sample volume (ambr 15)	60 µL
Cycle time per read	90 s
Resolution	0.01 pH
Buffer accuracy	±0.01 pH

Performance

- Accurate, precise, linear response when reading a range of pH buffers
- Y-axis: ambr 15 analysis module reading
- X-axis: pH buffer reference value



- Accurate, precise measurement of CHO culture pH
- ambr 15 CHO R&D test culture at Sartorius Royston
- N = 24 bioreactors, $\sim 10^6$ cell/mL at day 6
- Reference measurement: Mettler electrode inserted into ambr 15 vessel



Consumables

Operation of the analysis module is supported by replaceable sensors (electrodes) and reagent kits including calibration solutions, cleaning solutions and a waste container. A reagent kit typically provides sufficient reagents for up to 3 months operation. Replacement of electrodes and reagent kit is recommended every 3 months for optimum measurement accuracy.

pH and reference electrodes

Part no. 001-4B80



Reagent kit, pH

Part no. 001-4B60



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Specifications subject to change
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