



Integrated Cell Culture Analyzers

Ambr[®] 15 Cell Culture and
Ambr[®] 250 High Throughput

SARTORIUS

Ambr® Analysis Module

The Analysis Module provides add-on capability for accurate, rapid and low volume pH measurement for Ambr® 15 Cell Culture and Ambr® 250 High Throughput bioreactors, for the purpose of initial bioreactor vessel pH sensor calibration and subsequent in-process re-calibration. Close coupling to the Ambr® system ensures the best possible measurement accuracy, minimum sample volume requirement and fastest cycle time. The Analysis Module is available as an option from Sartorius.

The benefits

- Improve pH control and culture performance with frequent, accurate pH sensor recalibration
- Highly accurate pH assays with reduced CO₂ outgassing effects compared to other methods
- Small sample volume allows more frequent pH checks or more culture volume for other samples
- Compact size increases the Ambr®15 system width by less than 25 cm

Integrated cell counter

Either Beckman Coulter Vi-CELL XR or Roche Cedex HiRes cell counter can be directly connected to a sample cup located on the deck of the Ambr® system. Sample transfer and cleaning steps are handled by the syringe pump on the cell counter, which is normally located outside the Ambr® biosafety cabinet.

Sartorius do not provide the cell counter systems, these have to be ordered separately from the relevant supplier. For connection of a new or existing Vi-CELL XR or Cedex HiRes cell counter, a field integration is required and will be performed by Sartorius.

The benefits

- Improved consistency of results compared to manual sample transfer of samples
- Enables walk away operation and out of hours cell counts e.g. at night
- A software (data) connection allows results to be recorded and used within the Ambr® software
- Control actions e.g. feed additions can be calculated and executed based on cell counts
- Can be integrated in parallel with Ambr® Analysis Module

	Ambr® 15 Cell Culture	Ambr® 250 High Throughput
Cycle time (min)	1.5	2
Sample volume (mL)	0.06	0.3

	Roche Cedex HiRes	Beckman Coulter Vi-CELL XR
Cycle time (min)	4-5	4-5
Sample volume (mL)	0.3 (undiluted)	0.55 (undiluted)



BioProfile® Flex2

Integration of Nova Biomedical BioProfile® Flex2 with Ambr® systems provides a comprehensive walk away capability for fully automated cell culture process operation, including sampling, assay, feedback control and data management.

The Flex2 External Sampling Module (ESM) automatically transfers cell culture samples from a sample cup on the Ambr® system deck to the Flex2 for analysis. Nova Flex2 results are transferred to Ambr® software and the Ambr® system records the data and can also carry out a range of feedback control calculations and actions.

Ambr® systems are provided by Sartorius; Nova BioProfile® Flex2 and ESM are provided by Nova Biomedical; connection (field integration) of the systems takes place in the user laboratory.

The benefits

- Comprehensive analysis of up to 16 culture parameters
- Assay panels are defined via Flex2, selected via Ambr®
- Fully automated sampling, sample transfer and analysis, data transfer and automated feedback control
- Typical control actions can be executed using Flex2 results e.g. glucose or feed addition based on glucose, cell count, IVC or other parameters
- Simplified data management workflow reduces errors and scientist workload

	Ambr® 15 Cell Culture	Ambr® 250 High Throughput
Cycle time (min)	6-7	6-8
Sample volume (mL)	0.4-0.5	0.4-0.7



Nova Biomedical
BioProfile® Flex2



ESM

Availability and compatibility

Availability	Ambr® 15 Cell Culture	Ambr® 250 High Throughput
Analysis Module	Yes	Yes
Cell Counter	Yes	Yes
BioProfile® Flex2	Yes	Yes

Integration compatibility table for Ambr® 15 Cell Culture and Ambr® 250 High Throughput

Scenario	Analysis Module	Cell Counter	BioProfile® Flex2
1	Yes	-	-
2	-	Yes	-
3	-	-	Yes
4	Yes	Yes	-
5	Yes	-	Yes
6	-	Yes	Yes
7	Yes	Yes	Yes



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