

PRESS RELEASE

Precise measurement results for real-time process control and comprehension:

Hamilton presents a new generation of in-line total cell density measurement in bioprocesses



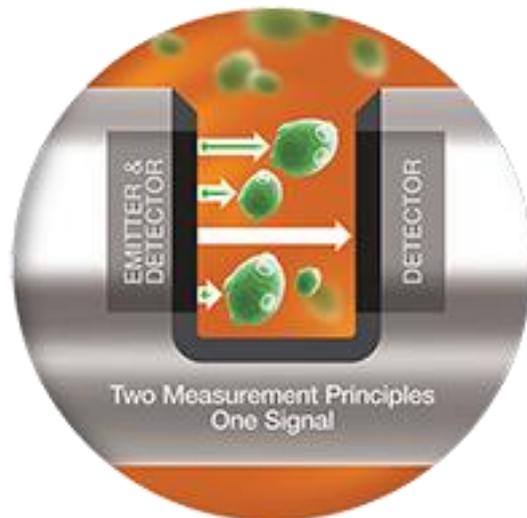
(Bonaduz, 4/5/2022) - With the Dencytee Arc sensor, Hamilton Bonaduz AG presents a new generation of in-line total cell density biomass measurement. Unlike the conventional measurement method of total cell density, where only the transmitted light is measured, Hamilton has taken the measurement technology to the next level and combined the advantages of transmission and reflection measurement. By upgrading to two detectors, higher measurement resolution can be achieved. This results in higher reliability that can be used in both low and high cell concentrations. The perfect linearity over the entire measuring range from 0 to 200 g/L and accuracy of $\pm 1\%$ allows almost complete process monitoring and the establishment of process control, both in real-time.



Dencytee Arc reduces lab time and ensures stringent data quality

"Until now, over 85 percent of customers have measured cell density offline. This means a lot of laboratory work, high contamination risk, and inconsistent data quality due to handling errors and/or different operators. As there was no satisfactory alternative so far, users accepted these limitations," explains Katharina Dahlmann, Product Manager Cell Density at Hamilton Bonaduz AG. As a result, optimizing the

process and process control previously required a lot of time and a precise understanding of the process. In a 24-hour fermentation, for example, 30 samples, including night samples, are taken over the entire process. Regular process monitoring should ensure that the induction point is not missed, but the process is very labor-intensive for laboratory personnel. In addition, long working days, as well as shift changes, can influence the results. The outcome is fluctuations in product yield and quality because the process cannot be controlled. All these challenges are now a thing of the past, thanks to the Dencytee Arc Sensor. The use of the probes reduces the number of offline samples, saving both time and money. The industry is ready for a new level of process control.



Dencytee Arc takes advantage of Hamilton's Arc Intelligent sensor technology. Arc products offer direct communication with the process control system using common standards such as Modbus digital protocol and 4-20mA output signals and further more coming soon. The sensor not only sends a compensated measured value for controlling processes. It also offers a wide range of diagnostic functions, which are recorded automatically and in compliance with GMP. The total cell density (TCD) can thus be determined quickly and accurately and used for control and documentation.

As part of the launch of Dencytee Arc, Hamilton has published an English-language brochure that addresses TCD as a process parameter in bioreactors. The brochure and more information about the product is available under www.hamiltoncompany.com/dencytee-arc



About HAMILTON Process Analytics:

Hamilton Process Analytics, a division of Hamilton Bonaduz AG, pioneers open sensing solutions to enhance the understanding and control of critical process parameters, including pH, ORP, CO₂, conductivity, and dissolved oxygen as well as total and viable cell density. First introduced in 1989, Hamilton sensors are found worldwide in applications ranging from biopharma to power generation to brewing. Hamilton continues to lead the industry with new innovations such as intelligent sensor management via Arc wireless technology, and single-use solutions to significantly reduce risk of contamination. Each Hamilton offering is supported by a full portfolio of accessories including armatures, transmitters, cables, buffers, and standards.

Hamilton Bonaduz AG is the European counterpart of Hamilton Company, founded by Clark Hamilton in 1960 and headquartered in Reno, Nevada, USA. With more than 2,500 employees across global manufacturing facilities and subsidiaries, Hamilton is a leader in numerous fields including automated liquid handling robotics, automated sample management, medical ventilation, laboratory products, and process analytics.

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