Optical pH Sensors

Data Sheet

Polestar Technologies

KEY FEATURES

High Performance

- Rapid Response Time: t_{90} < 20 Seconds
- Made from USP Class VI Materials (certification)
- Stable Calibration
- Durable Glass-free Construction

Versatile

- Available in Single or Multi-use Configurations
- Customizable for a Variety of Industries
- Autoclave and Stable to CIP, Gamma-Stable and Biocompatible

Easy to Use

- Pre-calibrated
- Low Maintenance
- Long-term Wet or Dry Storage

Developed for single-use and conventional bioreactors where control of pH is critical to performance.

Sensors are available for two ranges of pH

•pH Low – 3.0 to 6.5
•pH Mid – 6.0 to 9.0

SENSORS FOR YOUR INDUSTRY

BIOPHARMA | ENVIRONMENTAL | FOOD & BEVERAGE

Glass-Free, Pre-Calibrated Sensing Technology

Our optical pH sensors are designed specifically to work with Polestar's DSP and DSM series Optical Process Monitors.

Polestar's sensors are exceptionally reliable and highly accurate. The sensors are delivered pre-calibrated and exhibit a response to pH that is independent of the solution temperature. The fluorescent sensing approach is glass-free and eliminates the need for reference electrodes.

We are Here to Help

Contact us to help you find the best solutions to your most challenging sensing requirements!

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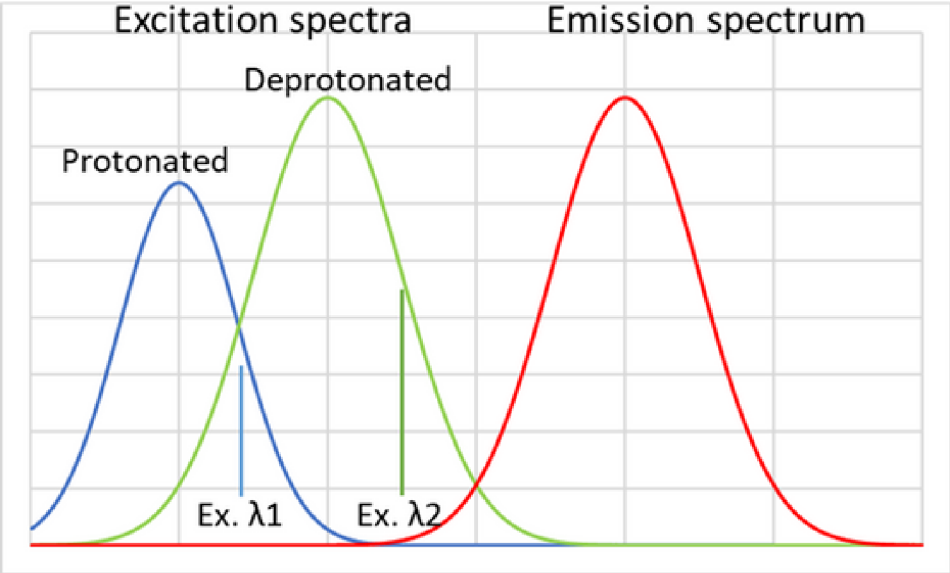
THE SCIENCE BEHIND THE SENSOR

The fluorescence ratiometric method involves the use of two wavelengths of light to excite the pH indicator of the sensing films. One of the two excitation wavelengths is at the isosbestic point of the indicator (Ex. λ1) where both the protonated and deprotonated forms of the indicator excite with equal efficiency, while the second wavelength exclusively excites the deprotonated form of the indicator (Ex.λ2).

The pH of the solution is determined from a ratio of the emission signals collected under illumination at each of the two excitation wavelengths. This ratio is independent of indicator concentration giving the approach immunity to calibration drift arising from photobleaching.



Specifications for pH Sensors

Range of response	**3.0 – 6.5**	**6.0 – 9.0**
Accuracy	0.1 @ pH 4.0	0.1 @ pH 7.0
Precision	0.02	0.02
Response time (t_{90})	< 20 sec	< 20 sec

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