



TpH-D

80S2000X0



Digital differential pH sensor

This rugged, digital differential pH sensor is designed for use with TriBox controllers and is particularly well-suited for challenging measurements in influent streams to wastewater treatment plants. The sensor is also used to monitor flue gas scrubbing systems on ships.

The reference system of the pH electrode is separated from the measuring medium due to the closed design. This rules out electrode poisoning. A dirt-resistant salt bridge reduces the amount of cleaning required and prevents dilution of the electrolyte. As a result, the probe achieves a particularly long service life, even in heavily contaminated media. TpH-D is available with a cable length of 10 m, 2 m or 0.5 m.

Advantages

- “plug & play” with TriBox controllers
- Communication of measurements via digital Modbus RTU protocol
- Differential measurement method enables a longer service life of the electrodes
- Handling of all calibrations via the digital interface

Applications

- Flue gas scrubbing / Scrubber
- Waste water treatment
- Drinking water treatment
- Process monitoring and control
- Environmental monitoring

Technical specifications

Measurement technology		pH electrode with additional reference pH electrode in pH7 buffer solution	
Measurement principle		Potentiometry	
Parameters		pH value, temperature	
Measurement range	pH	0...14 pH	
	Temperature	0...+65 °C	~ +32 to +149 °F
Resolution	pH	0.01 pH	
	Temperature	0,1 °C	~ +32.2 °F

Measurement accuracy	pH	$\pm 0.06 \text{ pH}$	
	Temperature	$\pm 0.5 \text{ }^{\circ}\text{C}$	$\pm +32.9 \text{ }^{\circ}\text{F}$
Intrinsic error	pH1	$\pm 0.05 \text{ pH}$	
	pH7	$\pm 0.05 \text{ pH}$	
	pH13	$\pm 0.35 \text{ pH}$	
Linearity measurement error		$\pm 0.1 \text{ pH}$	

Repeatability	pH1	$\pm 0.1 \text{ pH}$	
	pH7	$\pm 0.05 \text{ pH}$	
	pH13	$\pm 0.1 \text{ pH}$	
Output signal fluctuation	pH7	$\pm 0.025 \text{ pH}$	
	pH4	$\pm 0.05 \text{ pH}$	
Warm-up time		< 5 min	
Drift	Short-term drift 24 h	$\leq 0.03 \text{ pH}$	
	Long-term drift 1 week	$\leq 0.05 \text{ pH}$	
10 % time and 90 % time	T10 ascending	< 2 s	
	T10 falling	< 2 s	
	T90 ascending	$\leq 5 \text{ s}$	
	T90 falling	$\leq 5 \text{ s}$	
Temperature compensation		Pt1000	
Measurement interval		2 s	

Housing material	PPS / PET / NBR / PVDF / ceramic junction / Viton o-ring / titanium ground electrode / pH glass		
Dimensions (L x Ø)	~ 242 x 32 mm	~ 9.5" x 1.3"	
Weight*	260 g	~ 0.57 lbs	

*with 0.5 m cable

Interface	RS-485, Modbus RTU
------------------	--------------------

Power consumption	0.2 W		
Power supply	12 - 24 VDC ($\pm 10\%$)		
Connection	8pin M12 plug		
Sensor cable	0.5 m, 2 m and 10 m		
Maintenance effort	≤ 0.5 h/month typical		
Calibration / maintenance interval	4 weeks typical		
System compatibility	Modbus RTU		
Warranty	1 year (EU & USA 2 years) on electronics; wearing parts are excluded from the warranty		
Max. pressure	with fixed cable	3 bar	~ 43.5 psi
	in FlowCell	1 bar, 2...4 L/min	~ 14.5 psi, 0.5 to 1 gpm
Degree of protection	IP68		
Sample temperature	+2...+40 °C	~ +36 to +104 °F	
Ambient temperature	-5...+55 °C	~ +23 to +131 °F	
Storage temperature	0...+40 °C*	~ +32 to +104 °F	
Inflow velocity	0...3 m/s	~ 0 to 10 fps	

Recommendation from TriOS: Storage at +5...+15 °C (+41 to +59 °F) for longer shelf life