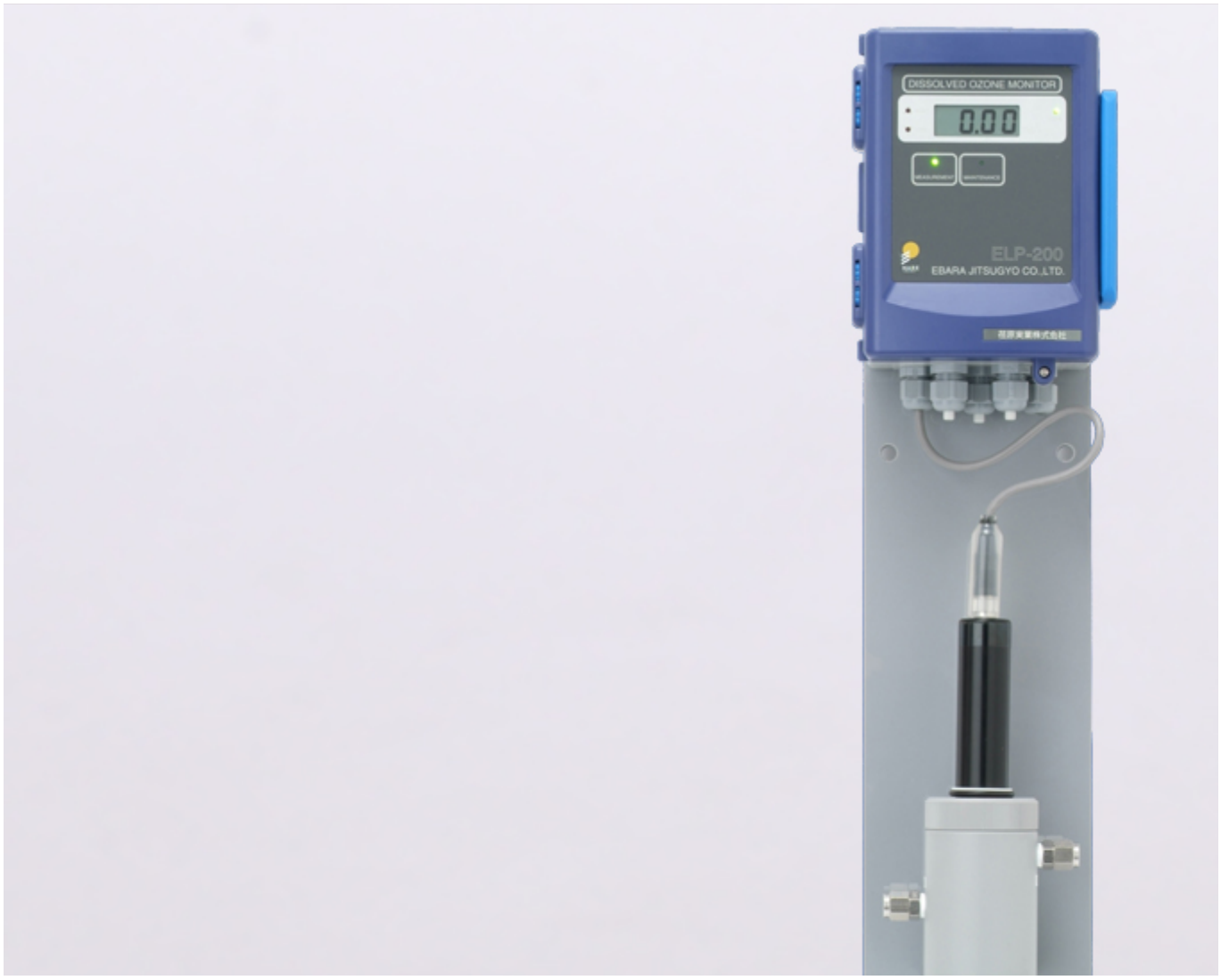

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ozone sensors polarographic: wastewater monitoring | acniti

The ELP-200 is a polarographic dissolved ozone sensor designed for wastewater treatment, pharmaceutical production, and process water disinfection control. It uses a gas-permeable membrane and three-electrode design for stable, interference-free ozone measurement from 0-10 mg/L, with automatic temperature compensation and isolated 4-20 mA output.

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elp-200 polarographic dissolved ozone sensor for wastewater

- Reliable, interference-free measurements
- Instant insight into ozone levels
- Fast and accurate response
- Automatic temperature compensation
- Smart alarm and control outputs
- Compact, durable, and long-lasting
- Amperometric Ozone Sensor specifically polarographic

what makes the acniti ozone waste water sensor unique?

The Ozone Wastewater Sensor of Acniti utilizes a proven electrochemical measurement principle, in which dissolved ozone diffuses through a polymeric membrane and reacts within an electrolyte layer. This reaction generates an electric current that is directly proportional to the ozone concentration. Thanks to the use of three electrodes (working, counter, and reference), the measurement remains stable, and the sensor is less susceptible to aging or contamination.

applications

- Water treatment facilities
- Pharmaceutical production
- Food and beverage industry
- Research laboratories
- Disinfection control in process water

key benefits

- **Accurate:** Measurements within ±2.5% of full scale
- **Fast:** 90% response within 60 seconds
- **Compact:** Lightweight and easy to mount
- **Flexible:** Available in measurement ranges of 0–1.00 mg/L and 0–10.0 mg/L
- **Automatically compensated:** For temperature variations (5–30°C)
- **Versatile output:** Isolated 4–20 mA output + contact alarms
- **Cost-effective:** No additional control equipment needed

easy installation

The sensor comes with a mounting board and all necessary accessories. The flow cell is pre-installed, and smart connectors make the sensor quick and easy to set up. For calibration of the unit CX100, a calibration kit is required.

measuring principle

The ELP-200 dissolved ozone sensor is an electrochemical sensor that uses a "membrane ozone monitor" based on the polarographic measurement principle. As an electrochemical device, it operates by facilitating the chemical reaction (specifically, reduction or oxidation) of ozone at an electrode, producing an electrical current proportional to the ozone concentration. The inclusion of a membrane allows only ozone to pass through and reach the electrode, enhancing selectivity and reducing interference. In this context, "polarographic" refers to a type of amperometric electrochemical measurement in which the sensor detects ozone by measuring the current generated during the redox reaction at the electrode surface, thereby translating chemical information into a quantifiable electrical signal.

Ozone penetrates a membrane
– Ozone (O_3) present in the water diffuses through a special polymer membrane to the inside of the sensor.

Ozone reaches the electrolyte layer
– Between the working and counter electrodes, there is a thin layer of electrolyte. The ozone dissolves here as it passes through the membrane.

Electrochemical reaction
– At the surface of the working electrode, the ozone reacts:

In acidic conditions:
$O_3 + 2H^+ + 2e^- \rightarrow O_2 + H_2O$

In basic conditions:
$O_3 + H_2O + 2e^- \rightarrow O_2 + 2OH^-$

– Simultaneously, an oxidation reaction takes place at the counter electrode, releasing electrons.

Current intensity = ozone concentration
– The amount of electrical current generated is directly proportional to the amount of ozone in the water. This is known as the limiting current region – a voltage range where the measured current remains constant despite increasing voltage.

Stable and linear measurement

– Thanks to the stable design with three electrodes (working, counter, and reference electrodes), the measurement remains reliable over a long period, with minimal sensor contamination.

In short, the Ozone Waste Water Sensor converts ozone in water into an electrical signal that precisely indicates the amount of ozone present. Reliable, linear, and accurate, exactly what you want in a critical measurement application.

important specifications

Feature	Specification
Model	ELP-200
Measurement Principle	Electrochemical via a gas-permeable membrane
Measurement Range	0–10 mg/L dissolved ozone
Accuracy	±2.5% of full scale
Response Time	90% response within 60 seconds
Temperature Range	Water: 5–30°C; Ambient: 5–40°C
Power Supply	100 - 220 V AC, 50/60 Hz (~5 VA)
Connections	Stainless steel fittings for water inlet and outlet
Dimensions	125 x 81 x 560 mm
Calibration	CX100 is required

elp-200: ozone sensor for wastewater treatment | acniti

	General		
1	Model name	ELP-200 Polarographic Dissolved Ozone Sensor for Wastewater	
2	Model number	sensor_o3_water_concentration_ELP-200	
	Liquid	**Metric**	**Imperial**
3	Minimum flow / minute	0.5 Liter	0.1 Gallon
4	Maximum flow / minute	1.0 Liter	0.3 Gallon
5	Minimum flow / hour	30 Liter	7.9 Gallon
6	Maximum flow / hour	60 Liter	16 Gallon
7	water temperature minimum	5 °C	41 °F
8	water temperature maximum	30 °C	86 °F
9	Strainer availability and size		
	Ambient	**Metric**	**Imperial**
10	Ambient temperature minimum	5 °C	41 °F
11	Ambient temperature maximum	40 °C	104 °F
12	Relative humidity minimum	0 %	
13	Relative humidity maximum	90 %	

	Gas	Metric	Imperial
14	Gas quality		
15	Gas remark		

	Electrical	Metric	Imperial
16	Unit phase Ø voltage	AC 100~240V 50/60Hz	
17	Unit power consumption	5 VA	
18	Wetted parts		
19	Pump model		
20	Pump phase Ø voltage		
21	Pump phase Ø voltage 60Hz		
22	Pump pressure setting		
23	Control		

	Connections	
24	Water inlet	Fitting straight tightening joint stainless steel
25	Water outlet	
26	Gas inlet	

	Dimensions & weight	Metric	Imperial
27	Dim. (w) x (d) x (h)	125 x 81 x 560 mm	4.9 x 3.2 x 22.0 inch
28	HS code	9027-9090	

	Remarks	
29	Other remarks	Dissolved ozone analyzer for sewage. Measures dissolved ozone through a gas-permeable membrane, not easily affected to residual chlorine and dissolved organic substance. This compact dissolved ozone monitor uses a diaphragm polarograph sensor with excellent selectivity and is not easily affected by various metal ions or conductivity in the sample water. The three-electrode configuration greatly suppresses the formation of electrode reaction byproducts that deteriorate the sensor's aging characteristics.