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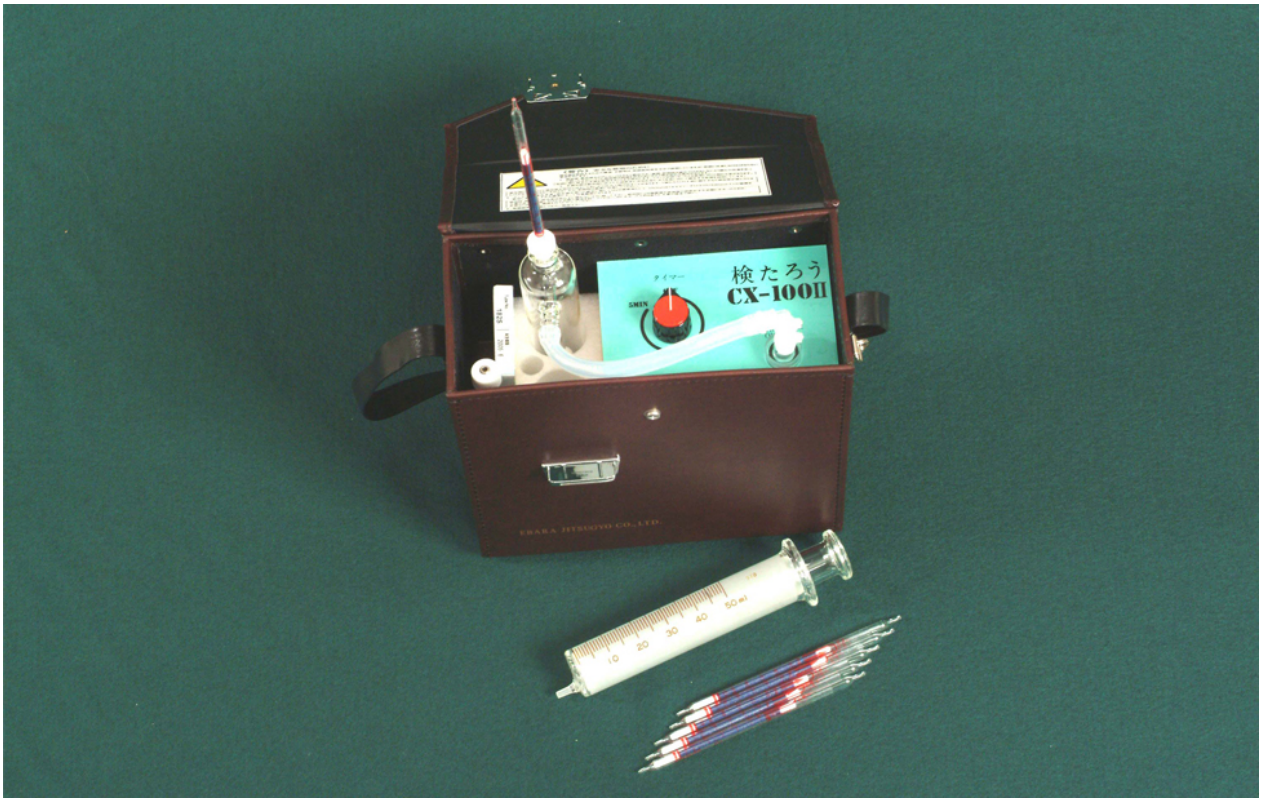
ozone water sensors: uv absorption technology | acniti

Acniti offers three industrial ozone water sensors for precise measurement of dissolved ozone from 0-50 mg/L. The EL-550 provides compact UV absorption monitoring in an all-in-one housing. The EL-610 features advanced microprocessor control with separated sensor and controller. The portable CX-100 II delivers economical field measurement for calibration and on-site testing. All models serve water treatment facilities, research laboratories, and aquaculture operations.





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ozone water sensors: uv absorption technology | acniti

uv absorption ozone water sensors for industrial & research use

- Ozone water concentration sensor 0-50 mg/L
- For high precision measurement of ozone concentrations
- Calibration performed automatically and can be set to frequent or infrequent calibrations
- Excellent ozone sensor for universities and research and development departments

measure ozone in water.

Measure ozone concentration levels precisely from 0 to 50 mg/L in water. The unit measures ozone concentration with UV light; the sensor has a built-in self-priming suction pump to take in sample water and reference water. This unit is excellent for universities and research departments of companies. The sensor has the capability to connect to a recorder, allowing data to be collected over time. Furthermore, it has an ERR output and a "Hi Lo" output.

uv technology

Ozone has a maximum absorption band near the wavelength of ultraviolet at 253.7 nanometers. A low-pressure mercury lamp light source has an emission line spectrum at 254 nm. By irradiating ozone with this wavelength, the amount of light without ozone gas (I0) and the amount of light with ozone gas (IX) are Lambertian. Lambert law : when an area element is radiating as a result of being illuminated by an external source, the irradiance (energy or photons/time/area) landing on that area element will be proportional to the cosine of the angle between the illuminating source and the normal.

The ozone concentration is obtained from Beer-Lambert law, and compared with a standard device calibrated by the iodine titration method to make a correction and use it as the display value at the end of calibration Beer-Lambert law relates the attenuation of light to the properties of the material through which the light is travelling.

Since the measured ozone concentration is inversly proporational to the gas or water temperature, most units are equipped with a temperature sensor. The

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temperature reading is used to autocompensate the ozone concentration output.

polarographic polymeric membrane technology

Polarographic sensors with polymeric membranes represent an established electrochemical method for monitoring dissolved ozone, with widespread applications across various industries. In aqueous solutions, dissolved ozone permeates through the polymeric membrane and reaches the working electrode, where it undergoes a reduction reaction at the electrode surface. Simultaneously, an oxidation reaction occurs at the counter electrode, generating an electrical current that is directly proportional to the ozone concentration in the water. Acniti provides polarographic polymeric membrane sensors specifically designed for wastewater treatment applications.

el550 uv technology

The EL-550 is an ozone monitor that is intended to be incorporated into equipment, and has been made compact and reasonably-priced by minimizing functions other than analog output. It can be installed on the wall or on the floor to reduce restrictions on installation location.

el610 uv technology

The EL-610 is a more advanced model ozone monitor than the EL-550. The sensor has more functionality and the sensor and the controller are separated which increases the freedom in installation.

overview differences el-550 versus el-610

Detailed comparison table

Feature / Function	EL-550	EL-610
Measurement principle & target	UV absorption: Dissolved ozone in water	UV absorption: Dissolved ozone in water
Sensor & Controller	integrated unit	Separate the detector and controller
Microprocessor	No	Yes
Zero Calibration	Manual (trimmer adjustment)	Manual (panel buttons), Auto (timer/external signal/serial)
Auto Zero Calibration	No	Yes
Self-diagnosis	No	Yes (light source/cell/circuit abnormality detection)
Measuring interval	Continous	Continuous
Analog Output	Yes: 0-1V, 0-10V or 4-20mA when ordering	Yes, 0-1V or 0-10V when ordering, and 4- 20mA is an optional feature
Digital Alarm Output	No	Yes, two concentration level alarms

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Feature / Function	EL-550	EL-610
External Zero Input	No	Yes (zero calibration pulse input terminal)
Error/Status Output	No	Yes (Monitor error, measurement status, photocoupler output)
Host Computer Interface	No	Optional RS232C
Display	Digital: ozone concentration, light intensity, span	Digital: ozone concentration (decimal adapts to range)
Flow Rate Water	0.05-3.0 L/m	0.1-1.0 L/m

cx-100 ii

The CX-100 II is the most economical solution for measuring dissolved ozone and other dissolved components, such as trichloroethylene, tetrachloroethylene, 1,1,1-trichloroethane, Carbon Tetrachloride, Ammonia (Ammonium ions), and Hydrogen Sulfide. The sensor is not based on the UV method described above. The unit is easy to carry as it is battery-powered. It can measure water temperatures accurately from 5°C to 35°C or 41°F to 91°F. Acniti recommends the CX-100 II for calibrating the ELP-200.

If you would like to read more about the CX-100 II, read the blog post.

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	General		
1	Model name	UV Absorption Ozone Water Sensors for Industrial & Research Use	
2	Model number	sensor_o3_water_concentration	
	Liquid	**Metric**	**Imperial**
3	Minimum flow / minute	0.1 Liter	0.0 Gallon
4	Maximum flow / minute	3.0 Liter	0.8 Gallon
5	Minimum flow / hour	3.0 Liter	0.8 Gallon
6	Maximum flow / hour	180 Liter	48 Gallon
7	water temperature minimum	5 °C	41 °F
8	water temperature maximum	40 °C	104 °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**

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	Electrical	Metric	Imperial
16	Unit phase Ø voltage	100-220V ±10% AC50/60Hz	
17	Unit power consumption	50VA	
18	Wetted parts	Synthetic quartz, PTFE, PFA	
19	Pump model		
20	Pump phase Ø voltage		
21	Pump phase Ø voltage 60Hz		
22	Pump pressure setting	0.3 MPa (G) or less	
23	Control		
	Pump Connections		
24	Water inlet		
25	Water outlet		
26	Gas inlet		
	Dimensions & weight	**Metric**	**Imperial**
27	Dim. (w) x (d) x (h)	220 x 105 x 150 mm	8.7 x 4.1 x 5.9 inch
28	weight	2.2 Kg	4.9 lbs.
29	HS code	9027-9090	

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el-610 ozone sensor: advanced uv monitor 0-50 mg/l | acniti

	General		
1	Model name	UV Absorption Ozone Water Sensors for Industrial & Research Use	
2	Model number	sensor_o3_water_concentration_EL-610	
	Liquid	**Metric**	**Imperial**
3	Minimum flow / minute	0.1 Liter	0.0 Gallon
4	Maximum flow / minute	3.0 Liter	0.8 Gallon
5	Minimum flow / hour	6.0 Liter	1.6 Gallon
6	Maximum flow / hour	180 Liter	48 Gallon
7	water temperature minimum	5 °C	41 °F
8	water temperature maximum	40 °C	104 °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**

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	Electrical	Metric	Imperial
16	Unit phase Ø voltage	100–220V AC, 50/60Hz	
17	Unit power consumption		
18	Wetted parts	Synthetic quartz, PTFE, PFA	
19	Pump model		
20	Pump phase Ø voltage		
21	Pump phase Ø voltage 60Hz		
22	Pump pressure setting		
23	Control		
	Connections		
24	Water inlet		
25	Water outlet		
26	Gas inlet		
	Dimensions & weight	**Metric**	**Imperial**
27	Dim. (w) x (d) x (h)	220 x 105 x 150 mm	8.7 x 4.1 x 5.9 inch
28	weight	2.2 Kg	4.9 lbs.
29	HS code	9027-9090	
	Remarks		
30	Other remarks	✓ Sensor and processing in one compact unit ✓ High accuracy and stability ✓ Resistant to aggressive water conditions ✓ Clear display and intuitive calibration ✓ Simple connection to your operating systems	

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cx-100ii portable ozone detector multi-gas analyzer | acniti

	General		
1	Model name	UV Absorption Ozone Water Sensors for Industrial & Research Use	
2	Model number	sensor_o3_water_detector_CX-100-II	
	Liquid	**Metric**	**Imperial**
3	water temperature minimum	4 °C	39 °F
4	water temperature maximum	30 °C	86 °F
5	Strainer availability and size		
	Gas	**Metric**	**Imperial**
6	Gas quality		
7	Gas remark		
	Connections		
8	Water inlet		
9	Water outlet		
10	Gas inlet		
	Dimensions & weight	**Metric**	**Imperial**
11	Dim. (w) x (d) x (h)	225 x 105 x 240 mm	8.9 x 4.1 x 9.4 inch
12	weight	2 Kg	4.4 lbs.
13	HS code	9027-9090	

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	Remarks	
14	Other remarks	✓ It is very small and lightweight and suitable for on-site measurement. ✓ Since it is aerated in a closed container, it can measure even low concentrations with high sensitivity. ✓ Calibration (standard solution) is not required during measurement ✓ The sample collection volume is as small as 10 or 50 mL. ✓ There is no need for temperature compensation, and measurement variations among operators have been reduced. ✓ Almost unaffected by coexisting substances in the sample. ✓ The cleaning filter is not affected by ambient gas. ✓ Dissolved ozone, trichlorethylene, tetrachlorethylene, dissolved sulfide, and ammonia can be measured simply by changing the detector tube.

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