

High Precision and High Performance Measurement  
from ppb to 100%

# Zirconia Oxygen Analyzer

Model : LC-860 series

Toray Oxygen analyzer, Model LC-860 series are developed for the application of controlling and monitoring in Electronic Industry, based on a long experience with Toray unique zirconium oxide sensing technology. It enables to measure a very wide range, ppb to % level. It can perform for years with stable, reliable, precise measurement.

## Features

- **Measurement Range** ppb to 100% level (\*1)
- **Easy Operation** Easy to operate by functional key
- **Purge Function** More precise measurement is available by more stable reference gas. (with purge function only)
- **High Reliability Sensor** Deterioration-free in the sensor is also available. (Optional)
- **Auto Range** It enables to measure from high to low concentration.
- **Measurement Alarm** Selectable for Normal Open or Closed. Alarm output for upper/lower limit is selectable.
- **Rapid Response** Rapid response is realized by bypass out and flow.
- **External Driving for Pump** Remote ON/OFF is available.
- **OCView Software** Concentration graph display is available on PC. (Optional)

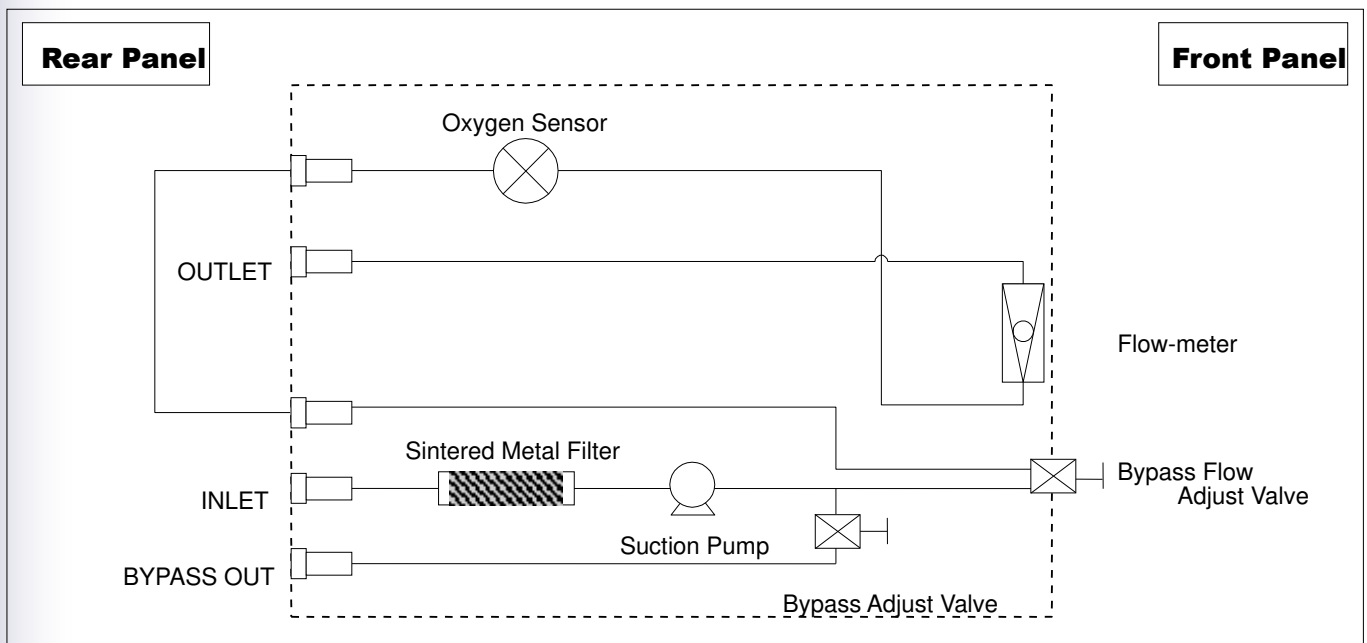
\*1 : 0-1ppm range : However this range is out of warranty (reference value).



Standard Specification

## Measurement Principles

Toray's Zirconia Oxygen analyzers determine oxygen concentration using the conductivity of a zirconia ceramic cell. Zirconia ceramic cell only allows oxygen ions to pass through at high temperatures. With reference gas on one side and sample gas on the other, oxygen ions move from the side with the highest concentration of oxygen to with the lowest concentration. The movement of ions generates an Electro Motive Force, which can be measured to determine the oxygen content. And it is accordance with it so called Nernst Equation.



LC-860 Flow Diagram

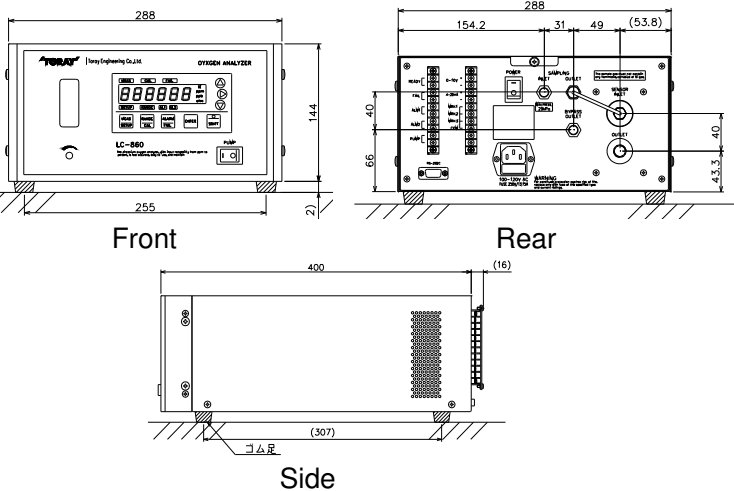
# Specifications

## 1. Instruments Specifications

Type	Portable, or Panel Mounted
Display	O <sub>2</sub> conc.; LED Digital, 6 Digits
Meas. Range	0.1 ppm ~100%. (Oxygen Concentration (less than 1ppm) and 0-1ppm or less is out of warranty.)
Analog Range	0-1/10/100/1000ppm/1/10/100% (out of warranty for 0-1ppm), Specified Range (Specify range max value.)
Sampling	Continuous Suction
Supplied Gas	1000 ~ 2000 ml/min
Supplied Gas Pressure	Approx. 300Pa
Sensor Gas	200 ± 50 ml/min
Gas Connection	INLET (Sample Gas); Rc 1/8 BYPASS OUT ; Rc 1/8 OUTLET (Sample Gas); Rc 1/4
Reference Gas	Atmospheric Gas
Weight	Approx. 10 kg
Color	Black, Semi-Glossed
Dimensions	288W x 144H x 400D (Excluding protrusion)

## 2. Performance

Air Point Stability	± 1%FS/24h
Gas Response	In 30 sec. after changing sampling gas from Inlet. (90% response)
Warming-up time	In 20 min.



## 3. Engineering Specifications

Device Error Output	No-voltage Contact Output: 1 Contact Output Contact Capacity; 24V DC • 0.1A or less
Concentration Error	No-voltage Contact Output: 2 Contact Output Contact Capacity; 24V DC • 0.1A or less
LED Display (Upper/Lower limit)	Contact Output: a or b contact, selectable
Warm-up Signal	No-voltage Contact Output: 1 Contact Output Contact Capacity; 24V DC • 0.1A or less
Range Marker	No-voltage Contact Output: 3 Contact Output Contact Capacity; 24V DC • 0.1A or less
Communication	Conformed to RS-232C (Ref. LC-860 Communication Function)
Recorder	DC0-10V/500kΩ or more DC4-20mA/600Ω or less
Self Diagnosis	Warm-up Error, CPU Error, Instruments Over Heat Error, RAM Error, Heater Error, Thermocouple Error, Conc. Unstable Error, Asymmetry Potential Error, Sensor Resistance Error, Air Point Calibration Error, SPAN Point Calibration Error
Pump Contact Input	For No-voltage Contact Output Connection; 1 Contact Input Contact Capacity; 24V DC • 0.01A or less
Sample Gas Conditions	Flow Rate; 1000~2000 ml/min Pressure; 0.03MPa or less Humidity; Dew point shall be lower than ambient temperature.
	No Flammable Gas, No Halogen Gas, Silica, Corrosive Gas nor Vapor shall be contained.
Self-refresh Function	Apply current to sensor automatically in detecting the deterioration of sensor during air calibration
Power Source	Voltage; AC 100V ± 10 V Frequency; 50/60 Hz
Installed Location	Indoors, Non Expressive Area Ambient Temperature; 0~ 40deg.C Ambient Humidity; 45~85% RH



**Cautions.** For your safety and to insure correct use of this product please read the instruction manual carefully before use.

■ The design and specifications may be changed without notice for improvement.

■ Please send any questions or requests to the following address.

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Therefore, we ask Customer to perform the necessary procedures such as application for export permission required by Customer's country's law if Customer exports (and/or provides to non-residents) these items.