Zirconia Oxygen Analyzer

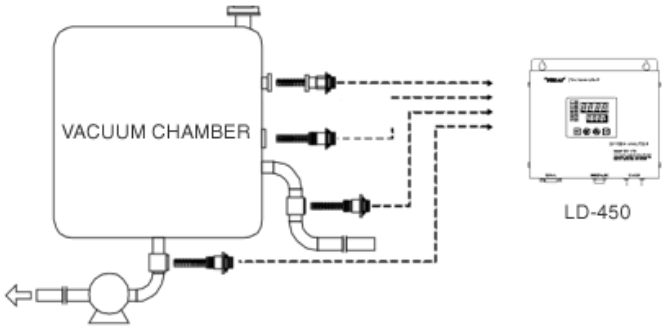
Compact, High Precision, with Remote Sensor, Ideal for Vacuums

Model: SD/LD-450

The SD/LD-450 is a high performance, compact, low cost analyser for precise ppm to volume Oxygen measurement.

Separating the Precision Zirconia Oxygen sensor (SD) from the analyser converter (LD-450) allows the unit to be wall mounted, with remote sensor flange mounted directly into a vacuum chamber or vacuum line; making it ideal for semiconductor deposition systems, glovebox, additive manufacturing (such as 3D metal printing), and other sealed chamber applications.

Features



- **Flexible Installation and Easy to Operate:**
  The remote SD oxygen sensor is separated from the LD-450 analyser converter via a standard 2m cable (up to 10m is available), allowing for a much more flexible and simpler installation.

- **Space Saving:**
  Since the LD-450 doesn't contain the sensor, nor associated sampling pump and pipework, the converter is very thin, small and lightweight allowing it to be wall mounted and better positioned.

- **Ultra-Fast Response:**
  The very quick response time is achieved by separating the sensor from the analyser; positioning where it is needed.

- **Highly Durable Sensor:**
  The specially treated Zirconia Oxygen Sensor results in unprecedented durability and reliability, leading to much longer sensor life and long-term stable precise measurements.

- **Wide measurement range:**
  The Toray SD/LD-450 is designed for monitoring oxygen content across a very wide range from ppm to 100% volume oxygen in a single device.

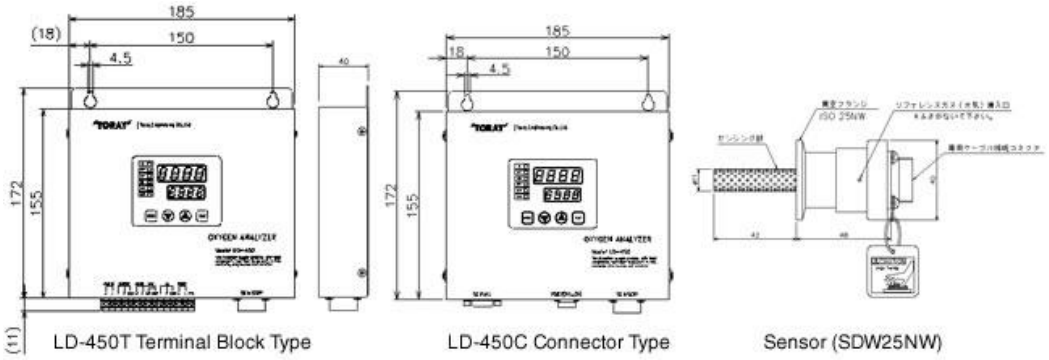
- **CE Compliant:**
  RoHS, EN61010-1, EN61326-1

Measurement Principle

Toray Zirconia Oxygen Analysers determine oxygen concentration by using the conductivity of a Zirconia ceramic cell. Zirconia ceramic cells allow only 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 to that with the lowest concentration. This movement of ions generates an Electro Motive Force (EMF) which can be measured to determine oxygen content. This process is in accordance with the Nernst Equation.

Specification

Type	Separation Type (Converter (LD-450): Wall mounted. Sensor (SD): Direct insert)
Display	LED Digital 3-digits + Unit (%) Auto Range(Concentration Display) : LED Digital 4-digits (Display Operation/Setting Content) 0.001ppm – 100 vol% O2 10^{-20} - 10^{-0} atm
Measurement Range	0-1 / 10 / 100 / 1000 / 10000 ppm 0-1 / 10 / 100% vol 10^{-20} - 10^{-0} atm **Values less than 1 ppm are reference values (not guaranteed)*
Sensor Connection	ISO Vacuum Flange NW16,25,40 or R3/8 screw
Reference Gas	Atmospheric Gas
Dimensions	85(W) × 155(H) × 40(D) mm (excluding protrusion)
Weight	LD-450 Converter: approx. 1.2 kg SD Sensor: approx. 0.5kg
Colour	LD-450 Converter : Matte White Sensor : not painted
Repeatability	±0.5%FS (1% range or more) ±1.0%F.S or ±0.1ppm whichever is bigger (Less than 1% range)
Air point stability	Within ±1 %FS or less / 24 hours
Measurement value output	LD-450T : DC 4-20 mA LD-450C : RS-232C
Recorder output range	Select 0-1%, 0-5%, 0-10%, 0-25% or 0-100%
Concentration Alarm Output	H/L LD-450T: 2 points non-voltage contact output LD-450C: Transmission Output
Equipment Error Output	LD-450T: 1 point non-voltage output LD-450C: Transmission Output
Sample gas conditions	Must not contain flammable components, halogen, silica, corrosive components or water droplets Pressure: Atmosphere – 1x10^{-3} Pa Flow: 500-2,000 mL/min Humidity: Dew point lower than ambient temperature
Power supply	Voltage: DC24V±10%
Installation conditions	Location : Indoors, Non Explosion Area Ambient Temperature : 0 - 40°C Ambient Humidity : 45 - 85%RH
Warm-up time	6 min. or less



LD-450T Terminal Block Type LD-450C Connector Type Sensor (SDW25NW)

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