Zirconia Oxygen Analyzer

Compact Design, High Precision, Easy to Install in Production Equipment

Model: LC-450A

The **LC-450A from Toray Engineering Co Ltd**, is a highly advanced, high performance Zirconia Oxygen Analyser. Designed and manufactured by Toray Engineering, who have been at the forefront of Zirconia Oxygen Analyser design for over 30 years.

The **LC-450A** features very high levels of durability and reliability. It combines this with a desirable set of features, making it ideal for many applications in the electronics and process control industries.

Features

- **Excellent Repeatability and Accuracy:**
  The Toray LC-450A has a unique, ultra-compact Zirconia sensor with special coating, which results in extremely reliable, repeatable, and highly accurate readings over time.

- **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.

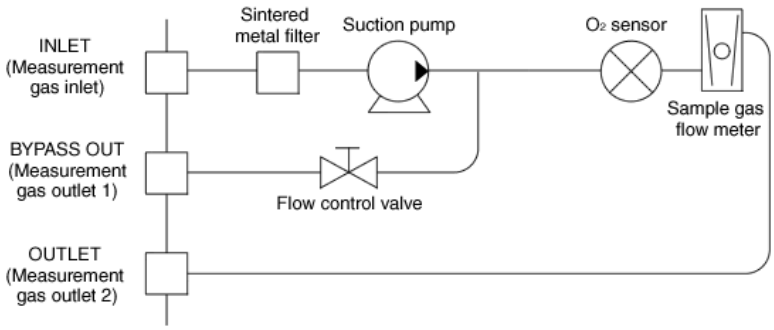
- **Fast Response:**
  The Toray LC-450A has a fast response time (T90 within 30 seconds).

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

- **Easy to operate, and flexible installation:**
  This is an easy to operate, compact oxygen analyzer, ideal for many applications such as semiconductor, LCD, glove box, 3D printing, food packaging, etc.
  The compact dimensions make installation simple (portable or panel-mounted).

- **100-240VAC Power Supply:**
  24VDC version also available (LC-450D)

- **CE Compliant:**
  RoHS, EN61010-1:2002, EN61326-1:+A3:2003

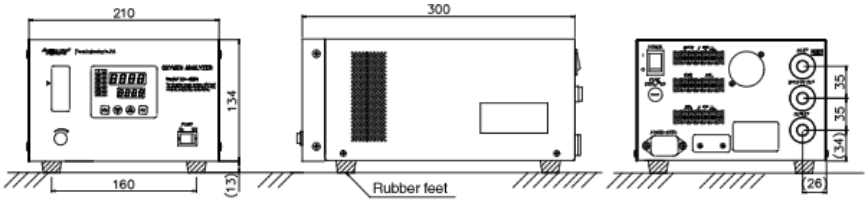


Measurement Principle

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	Portable or Panel Mounted
Display	Digital 4-digit display (O2 concentration)
Measurement Range	Display : Auto Range or 4 Ranges Recorder: 0-10 / 100 / 1000 ppm / 100 % The following ranges can be used in any combination: 1 / 10 / 100 / 1000 / 10000 ppm 1 / 10 / 100%, 10^{-20} - 10^{-0}atm *Values less than 1 ppm are reference values (not guaranteed)*
Sampling Method	Continuous suction using a built-in pump
Supply Gas Rate	Approx. 1.5 L/min
Sensor Gas Rate	60 ±10 mL/min
Gas Connection	INLET (sample gas inlet): Rc1/4 BYPASS OUT (bypass outlet): Rc1/4 OUTLET (sample gas outlet): Rc1/4
Reference Gas	Air
Dimensions	210(W) × 134(H) × 300(D) mm
Weight	Approx. 6 kg
Paint Colour	Matte black
Repeatability	Within ±1 % of full scale (at or above 0-10 ppm range) (not guaranteed for the 0-1 ppm display range or below)
Air point stability	Within ±1 % of full scale / 24 hours
Gas Response	Within 30 sec (90 % response)
Recorder output	External output: 4-20 mA or 0-20 mA (DC 0-10 V is optional)
Communication output	RS-232C standard (unidirectional)
Contact output	Equipment error (No-voltage contact) Concentration error (No-voltage contact) Warmup signal (No-voltage contact) [Contact capacity: DC/AC30V, 0.5A max.]
Range marker output	2-point output (Voltage contact) [Contact capacity: DC/AC 30 V, 0.3 A max.]
Self-diagnosis functions	Sensor temperature error, Calibration error, Internal temperature error CPU error, Furnace temperature error, Warmup error Asymmetry potential error, Sensor resistance error AIR point calibration error SPAN point calibration error
Sample gas conditions	Must not contain flammable components, halogen, silica, corrosive components or water droplets Pressure: Pressurized at 29 kPa max. Flow rate: 1,000-2,000 mL/min Temperature: 50 °C max. Humidity: Dew point lower than ambient temperature
Power supply	Voltage: 100-240 VAC, (35 VA, when steady supply)
Installation conditions	Set up location: Indoors, Non-explosion-proof zone Ambient temperature: 0-40 °C Ambient humidity: 45-85 %RH, No condensation
Equipment options	Activated carbon filter, Sintered metal filter



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