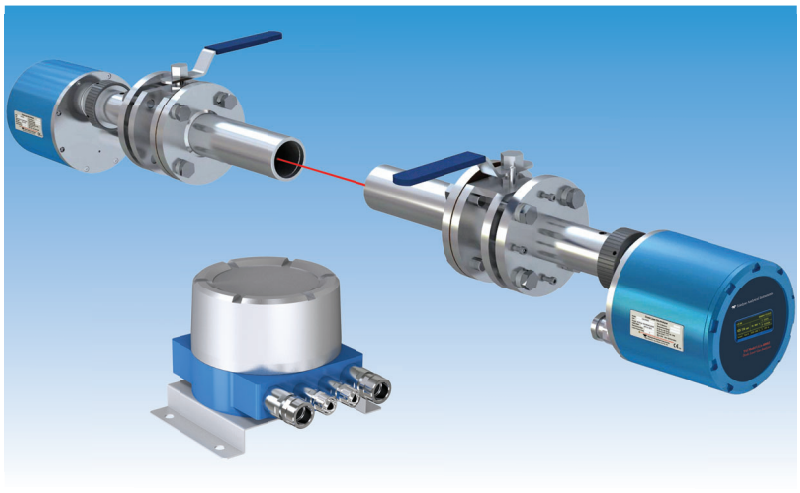
TELEDYNE
ADVANCED MONITORING SOLUTIONS
Everywhereyoulook™

MODEL LGA-4000Z

TUNABLE DIODE LASER GAS ANALYZER



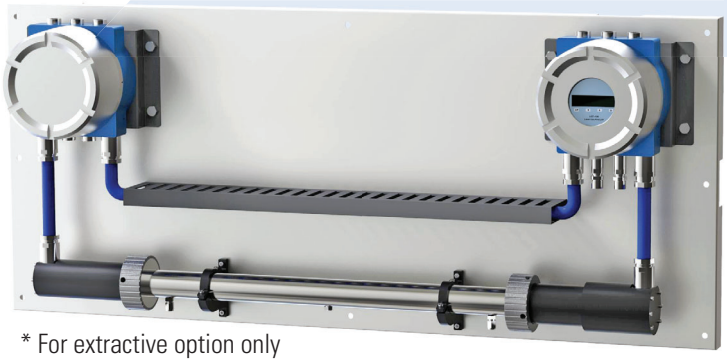
Teledyne's LGA-4000Z series leverages the latest in Tunable Diode Laser Spectroscopy (TDLAS) to achieve an ultra-fast gas measurement in-line without resorting to extraction and sample conditioning. By tuning the laser to a specific absorption wavelength, based on the gas of interest, the attenuation of the light through a sample cell and the detector can be correlated to the concentration of each gas, per Beer-Lambert Law. The laser provides a narrow absorption band which minimizes the effect of interfering compounds in the process

The System

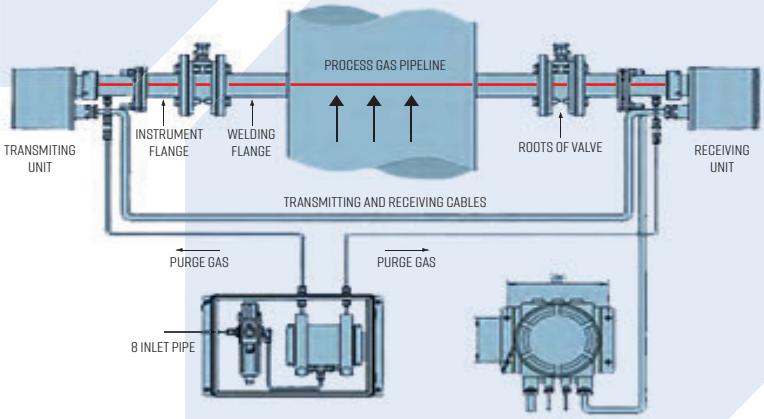
The LGA-4000Z consists of a transmitter, receiver and connection box. The transmitter drives the tunable diode to emit a laser of a certain wavelength to pass through the environment being measured until it reaches the receiver. The receiver then performs a photo-electrical conversion, signal processing and spectrum data analysis to obtain the measuring result. The connection box, containing the I/O Interface, makes the connection of the power cable and the signal cable convenient.

Wavelength Modulation Spectroscopy (WMS)

WMS is a method used to significantly increase the sensitivity by reducing the low-frequency noise. The laser light's intensity is modulated at a high frequency to create a periodic signal to the detector. The signal is then encoded and measured at a high frequency, eliminating the effect of low frequency noise.



* For extractive option only



Features

- Flame proof design, IP-66 rated enclosure, ATEX and IECEx Zone 1 IIC T6 Certified
- Modular design simplifies service and field part replacements
- Integral automatic gain control (AGC) algorithm ensure optimal signal integrity
- Excellent long-term drift characteristics, less than ±1% FS over 6 months
- Local OLED display with magnetic buttons to maintain area classfication
- Low power (rated 10W)
- 2 x 4-20mA outputs, 2 x alarm relays, RS-485 / RS-232/ GPRS communications

SPECIFICATIONS

Certifications	ATEX and IECEx Zone 1 IIC T6
Path Length	Typically 2-65 feet (0.6-20 meters), application-dependent
Repeatability	± 1% FS
Linearity	± 1% FS
Response Time	Typically < 1 second (application-dependent)
Utility Gases	Air or Nitrogen for purge (application-dependent), 30-115 psig (0.3-0.8 MPa)
Outputs	Analog: 2 x 4-20mA (isolated), 750 ohm max load Discrete: 2 x relay contact, Form-C type, rated 1A @ 24 VDC Communications: RS-485 / RS-232
Inputs	2 x 4-20mA (for pressure and temperature compensation)
Power	24 VDC 10 W
Tempearture	-4° to 140°F (-20° to 60°C)

GAS DETECTION PARAMETERS

Gas	Min Range	Max Range	Detection Limit
Acetylene (C_2H_2)	0-50 ppm	0-100%	0.5 ppm
Ammonia (NH_3)	0-10 ppm	0-100%	0.5 ppm
Carbon Dioxide (CO_2)	0-1000 ppm	0-100%	40 ppm
Carbon Monoxide (CO)	0-1000 ppm	0-100%	40 ppm
Ethylene (C_2H_4)	0-100 ppm	0-100%	1 ppm
Hydrochloric Acid (HCl)	0-100 ppm	0-50%	0.1 ppm
Hydrofluoric Acid (HF)	0-20 ppm	0-50%	0.05 ppm
Hydrogen Sulfide (H_2S)	0-100 ppm	0-100%	5 ppm
Methane (CH_4)	0-200 ppm	0-100%	10 ppm
Oxygen (O_2)	0-1%	0-25%	0.01%
Water / Moisture (H_2O)	0-100 ppm	0-100%	0.1 ppm

TELEDYNE
ADVANCED MONITORING SOLUTIONS
Everywhereyoulook™

CALIFORNIA OFFICE
CITY OF INDUSTRY, CA
UNITED STATES OF AMERICA (USA)
TEL: +1 626.934.1500

COLORADO OFFICE
ENGLEWOOD, CO
UNITED STATES OF AMERICA (USA)
TEL: +1 303.792.3300

MIDDLE EAST OFFICE
SHARJAH
UNITED ARAB EMIRATES (UAE)
TEL: +971.6557.9727

SOUTHEAST ASIA OFFICE
PETALING JAYA
MALAYSIA
TEL: +603.7805.7712

ASK_TAI@TELEDYNE.COM
WWW.TELEDYNE-AI.COM

GOTML@TELEDYNE.COM
WWW.TELEDYNE-ML.COM

Rev-A 1/17/2019