ZPA NDIR/O_2
Multichannel Analyzer

CAI ZPA Analyzers use NDIR technology to measure CO, CO_2, CH_4, SO_2, and NO and Oxygen by paramagnetic or electrochemical method.

Features

- Multi-Component analyzer—Up to Four NDIR Channels Plus Oxygen
- Measures from low ppm Up to 100% full scale
- Virtually unaffected by moisture interference
- Measures oxygen from 1% up to 100% via either paramagnetic or electrochemical Method
- Outputs: Voltage, Current, RS-485
- Compact size
- CE Mark

Applications

- Continuous emissions Monitoring (CEMS)
- Greenhouse gases
- Gas purity
- Process gas analysis
- Vehicle emissions
- Engine Testing

Options

- Oxygen only version
- Fault Alarm
- External NOx converter
- High/low Alarm
- Automatic Calibration

ZPA NDIR/Oxygen Analyzer

Method of Operation – NDIR

The ZPA NDIR analyzer is based on the infrared absorption characteristics of gases. Using a single infrared beam to measure gas concentrations, this analyzer produces highly stable and reliable results. A single infrared light beam is modulated by a chopper system and passed through a sample cell of predetermined length containing the gas sample to be analyzed. As the beam passes through the cell, the sample gas absorbs some of its energy. The attenuated beam (transmittance) emerges from the cell and is introduced to the front chamber of a two-chamber infrared microflow detector.

The detector is filled with the gas component of interest and consequently the beam experiences further energy absorption. This absorption process increases the pressure in both of the chambers. The differential pressure between the front and rear chambers of the detector causes a slight gas flow between the two chambers. This flow is detected by a mass-flow sensor and is converted into an output signal.

Method of Operation – Oxygen

The oxygen channel of the ZPA utilizes either the paramagnetic or fuel cell method to determine the percent level of oxygen contained in the sample gas.

The oxygen level is displayed on the LCD panel in percent concentration.

Specifications

IR Analysis Method – Non-Dispersive Infrared (NDIR)
NDIR Components – CO, CO_2, CH_4, SO_2, NO
Detector Type – Microflow
NDIR Ranges:

Gas	Minimum	Maximum
CO	0-200 ppm	0-100%
CO_2	0-200 ppm	0-100%
CH_4	0-500 ppm	0-100%
SO_2	0-200 ppm	0-10%
NO	0-200 ppm	0-5,000 ppm

Range Ratio – 10:1
Oxygen Analysis Method – Paramagnetic or Fuel Cell
RO_2 Ranges – 0-5% or 0-25% Full Scale
Response Time (IR) – 90% of Full Scale within 30 seconds **Depending on Cell Length, Flow Rate and Time Constant
IR Sample Cell – Stainless Steel
Resolution – Typically 0.1% of Full Scale
Repeatability – Better than 0.5% of Full Scale
Linearity – Better than 1.0% of Full Scale of Factory
Noise – Less than 1% of Full Scale Range
Zero and Span Adjustment – Via front panel or remote
Sample Flow Rate – 0.5 LPM
Purge Gas Flow Rate – 1 LPM
Outputs Available – RS-485 (MODBUS protocol), 0-1V / 4-20 mA
Digital Inputs – 9 maximum optically isolated signals for range switching, begin auto calibration, output signal hold, reset average value
Digital Outputs – 15 relays maximum, each is 1 form C for range ID, instrument failure, cal failure, cal in progress, high/low alarm limits, solenoid valve activation, external pump on/off
Display – Back lit LCD
Sample Temperature – Up to 50°C, Non-condensing
Ambient Temperature – –5 to 50°C
Ambient Humidity – Less than 90% RH (Non-condensing)
Fittings – ¼-inch NPT
Power Requirements – 100 to 240 VAC, 50/60 Hz, 100 VA
Dimensions – 5¼" H x 19" W x 15" D,
Weight – Approximately 18 lbs. (Depending on configuration)

Specifications subject to change without notice.

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