LDSENZ

PST PROCESS SENSING TECHNOLOGIES | LDetek A PST BRAND

MOST COMPACT TRACE NITROGEN AND OXYGEN ANALYSER

LDSENZ ▲

The LDSENZ is our most compact nitrogen and/or oxygen analyser using our well proven plasma emission detector (PED) and the Senz-Tx (electrochemical/ zirconia) series from NTRON. Combining both trace nitrogen and oxygen in the same instrument makes it compact and ideal for any of your applications.

APPLICATIONS

- Industrial/medical/laboratory
- Glovebox/Purged box/Additive manufacturing/Purification

CONFIGURATION

The module has its own integrated ultra high purity mini pressure regulator to reduce and maintain the inlet pressure of the sensors stable. A dedicated flow orifice is mounted before each sensor inlet to maintain a static flow based on the regulated pressure inlet. At the outlet of each detector, a flow sensor is mounted to measure the real flow going through each sensor. Continuous trace N2 & O2 analysis is performed in parallel. The Ethernet port gives an easy access to the interface. An optional 4-20mA output is available per sensor. Each of the analog output comes with a dry contact which can be used to trig some alarms.

SPECIFICATIONS

SENSOR MODEL	Senz-Tx	Senz-Tx	PED
MEASUREMENT TECHNOLOGY	Zirconia (ZR)	Electrochemical (EC)	Plasma emission detector
SENSOR MANUFACTURER	NTRON	NTRON	LDetek
IMPURITY DETECTED	O2	O2	N2
SAMPLE GAS	multiple gases	multiple gases	Argon/Helium
RANGES* (DEFAULT)	0-10ppm (resolution 0.5ppm) 0-100ppm (resolution 1ppm) 0-1000ppm (resolution 1ppm) up to 96% available	0-10ppm (resolution 0.1ppm) 0-100ppm (resolution 1ppm) 0-1000ppm (resolution 1ppm) up to 25% available	0-10ppm (resolution 100ppb) 0-100ppm (resolution 1ppm) 0-1000ppm (resolution 1ppm) up to 5000ppm available
LIMIT OF DETECTION (LDL)	1ppm	0.5ppm	10ppb
ACCURACY	<+/- 1% of scale	<+/- 1% of scale	<+/- 1% of scale
RESPONSE TIME (T90)	<10 sec	<10 sec	<10 sec
SENSOR LIFE EXPECTATION	3-5 years	1 year	>10 years
OPERATING TEMPERATURE RANGE	5-45 Celsius		
SAMPLE GAS TEMPERATURE	0-100 Celsius		
SAMPLE FLOW REQUIREMENT	100ml/min per sensor installed		
OPERATING SAMPLE PRESSURE RANGE	3-30psig (for lower sample pressure requirement, an additional high purity pump is used)		
OUTLET PRESSURE	Atmospheric		
INLET FITTINGS	1/8" or 1/4" Swagelok compression or VCR		
OUTLET FITTINGS	1/8" or 1/4" Swagelok compression or VCR		
STANDARD FEATURES	Modbus, Web interface(admin)		
OPTIONS	4-20mA outputs, Dry contact outputs		
SUPPLY	24VDC		

*One range available per sensor. Other ranges available on request.

TECHNOLOGY

PLASMA EMISSION DETECTOR

Plasma emission detector
It is uses to trace nitrogen in Argon or Helium to offer fully stable/repeatable/linear and accurate response to nitrogen.

Plasma emission detector principle
The PED uses Helium or Argon as discharge gas in a sealed quartz chamber dedicated for measuring trace nitrogen at its specific wavelength. Nitrogen impurity is measured continuously through a quartz window that allow the light generated by the passage of nitrogen in the quartz chamber to be measured with its proper optical design.

Plasma emission module principle
The module is calibrated using a zero reference and a span reference. Generally, the zero comes from a grade 99.999% Argon or Helium that goes in our LDP1000 purifier series to generate grade 99.999999%. Going that way, it ensures the zero gas is well referenced to avoid negative reading. A second source of gas named span gas is used for the nitrogen span reference of the sensor. In this case, a certified gas containing about 10ppm N2 in a balance Argon or Helium is then required. The module is then calibrated, accurate and linear within its operating range.

Fast response time
Plasma emission detector responds very quickly to nitrogen concentrations with a T90 of less than 10 seconds within a set range.

SENZ-TX OXYGEN SENSOR

With a choice of either zirconia or electrochemical sensor technology the SenzTx offers reliability, accuracy, and flexibility. Both technologies have a broad measurement capability allowing the user to measure from selected ranges from 1ppm to 96% oxygen.

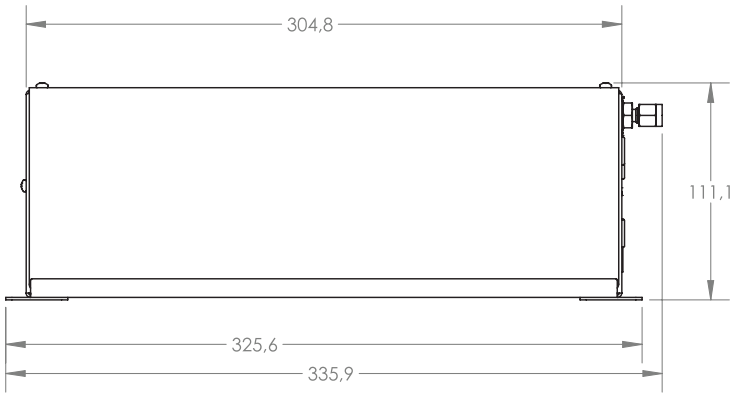
Zirconia sensor
The Ntron zirconia oxygen sensor is a nondepleting zirconia solid electrolyte sensor. A small capillary on the sensor controls the diffusion of oxygen into the sensor. When heated to over 400°C oxygen is electronically reduced causing current flow through the zirconia electrolyte. Zirconiumoxide allows the movement of oxygen ions through the substrate from a high to a low concentration. The measurement of oxygen is determined by the current flowing through the electrodes. The zirconia sensor has an unlimited shelf life without the loss of calibration and has an expected life in excess of 5 years. The zirconia sensor is not position sensitive and has low cross sensitivity to other gases and does not dry out.

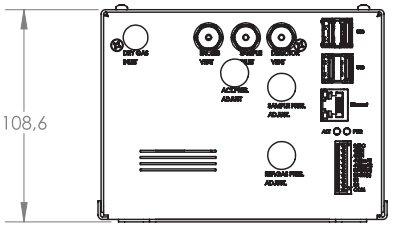
Low maintenance and cost of ownership
Due to the highly stable nature of the sensor, a calibration interval of once per year is required, allowing for significant cost savings. The construction of our zirconia oxygen sensor means that only 100 mL/min of sample gas is required, providing application flexibility and further potential cost savings.

Fast response time
Zirconia oxygen sensors respond very quickly to oxygen concentrations in both directions with a T90 of less than 10 seconds within a set range.

Electrochemical sensor
The key elements of the electrochemical sensors are a membrane, cathode, anode, electrolyte and measurement circuit. The sensing membrane (covering the cathode) is made of PTFE and is mounted over a metal perforated electrode. The space between the membrane and the electrode is filled either with an aqueous alkaline or an acid electrolyte. In normal operation, all portions of the anode and cathode are immersed in the electrolyte. As oxygen diffuses through the membrane into the electrolyte it causes a reaction between the cathode and anode generating an EMF. This current is proportional to the amount of oxygen present in the sample gas. In the absence of oxygen there is no output from the electrochemical sensor, meaning only one calibration is required.

DIMENSIONS





ORDERING INFORMATION

LDSENZ	-XXX	-XX	-XX	-XX
	PED : N2 plasma emission	**EC :** O2 electrochemical **ZI :** O2 zirconia	**2S :** 1/8'' Compression **4S :** 1/4'' Compression **2FS :** 1/8'' face seal (VCR) **4FS :** 1/4'' face seal (VCR)	**mA :** 4-20mA

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