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Precision Gas Detection Modules

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Electro Optical Components offers 2 types of Precision Gas Detection Technologies.

NDIR or **N**on **D**ispersive **I**nfra**R**ed

and

TDLAS or **T**unable **D**iode **L**aser **A**bsorption **S**pectroscopy

Both use the same physics. Gases have unique infrared absorption bands and using this you can measure them with the right tools very accurately (precision).

[smartGAS Mikrosensorik GmbH makes the NDIR Precision and Long Life Sensor modules.](#)

NDIR uses a broadband IR source at one end of a gold plated tube illuminating and an infrared detector module (multiple channels) at the other end. Gas is pumped through the tube. A channel in the detector has a narrow bandpass filter in front, so it only sees the gas absorption band. Gas concentration changes, detector signal does too. Higher the gas concentration, weaker the signal (gas is absorbing). A reference channel monitors for background changes.



smartGAS has made this a precise way to measure ppm or %. [smartGAS has taken the precision of NDIR to another level](#) by software and hardware improvements to lower noise and speed up measurements in the 2 channel FLOW^{EVO} PLUS and the 4 channel SILAREX PLUS, making theirs the gold standard of NDIR.

smartGAS NDIR Performance

- **Ranges** **0...50ppm up to %**
- **Linearity Error** **$\leq \pm 1\%$ (FS)**
- **T90 Time vs Noise** $\leq 14 \text{ sec } \leq \pm 0.1\%$ (FS)
- **Detection Limit** **$\leq \pm 0.5\%$ FS)**

Beamonics AB offers the next generation TDLAS Laser Based Gas Analysis for Mission Critical Applications. TDLAS relies on the same physics as NDIR, the absorption bands of the gases you want to measure. Instead of a broadband Mid IR source, it uses a narrow band IR laser with the wavelength of one of the gases absorption bands plus an IR detector. Again, as the gas concentration goes up the signal goes down. Beamonics precision modules are really fast with ppb level measurements. Very accurate measurements are improved by monitoring the laser output and temperature, humidity & pressure.

Beamonics TDLAS Performance

- **Speed** **100 μ s** Measurement Time
- **Sensitivity** **ppb** level without Crosstalk
- **Calibration Free**

There are three types of configurations for TDLAS.



BeamCell uses a chamber like NDIR. BeamStack has the laser and detector modules separated across a path where you want to measure the gas concentration. BeamSight has the laser and detector in the same module and measures the reflected signal.

Experience unmatched sensitivity, selectivity, and reliability in even the harshest environments with Beamonics next-generation TDLAS gas analyzers. They empower you with the real-time data you need for safe and efficient operations.

If you need precision and accurate gas monitoring, EOC's **NDIR** and **TDLAS** modules do exactly that.

Precision NDIR –

Precision TDLAS -

Call us at +1-707-568-1642

Email us at info@eoc-inc.com

Visit these products on our website – www.eoc-inc.com