

THE TECHNOLOGY

ETG uses technology-enhanced TDLS for gas detection, where a 0.1 nm narrow bandwidth diode laser beam scans across an absorption band of the target gas, performing a high-resolution near-infrared absorption measurement. Electronic lock-in technology allows separating the gas absorption information from electro-optical system information, leading to a detection method eliminating the need for a physical reference channel and offering continuous sensor status monitoring. Thus, ETG TDL 6900 series present a clear alternative to current sub-optimal detection solutions and combine precise, contact-less optical measurements with high target gas selectivity, calibration-free operation, low cost-of-ownership and easy operation.

The ETG 6900 series are ready-to-use devices for the measurement of gases such as NH₃, HCl, CH₄, CO₂, (H₂O). These lines of instrument are ready to use in the field of gas detection and monitoring in diverse industries. The high sensitivity and large dynamic range of the Tunable Diode Laser Spectrometry (TDLS) detection technology enables measurement from sub-ppm level to high percentage concentration without physical adaptation of the device.

SPECIFICATIONS

Target Gas	Lower Detection Limit	Typical Measuring Ranges
NH₃, (H₂O) Ammonia *** (Hot-wet measurement)	0.8 ppm	0 – 20, 50, 100, (500) ppm
HCl, (H₂O) Hydrogen chloride *** (Hot-wet measurement)	0.8 ppm	0 – 50, 100, (500) ppm
NH₃ Ammonia	0.4 ppm	0 – 100 (500) ppm
CH₄ Methane	0.4 ppm	0 – 100 (40'000) ppm
CO₂ Carbon Dioxide	4.0 ppm	0 – 1000 (300'000) ppm

* Other gases on request. ** Detection limits at constant system temperature, 20°C, 1013 hPa and 50 ± 1.5 % r.H. Detection limits may change where system temperature changes occur significantly faster than concentration changes, and/or where a difficult gas matrix is present. *** Detection limits degrade at higher temperatures due to spectroscopic reasons; e.g. NH₃ at 190°C.

Accuracy	± 2% full scale reading depending on integration stability (temperature & pressure)
Precision	gas dependent
Zero drift	over 2 h period - within accuracy
Span drift	over 8 h period - within accuracy
Max. error on temp.	comp. % of < 0.1 reading/°C
Linearity & Repeatability	included in the accuracy
Cross talk/interference	Gas matrix and application dependent
Displayed resolution	ppm 0.1 (negative values can also be displayed)
Refresh rate	s 1 (integration time can be selected, max. 120 s) up to 2 s in case no target gas is present
T90 time	s 2 (at gas flow rate of 3 L/min)
Ambient temp. compensat.	°C -10 ... 65 (as narrow as possible, application defined)
Meas. gas max. humidity	% abs. H ₂ O application dependent, needs calibration Input for external parameter compensation pressure, temperature or matrix gas concentration (optional customization)
Maximum measurement	mL / min 5'000 (1'000); std. calibration carried out at 3'000 gas flow (Minimum)
Electrical supply	Vac 220-230/115 50/60 Hz
Enclosure	19" Rack HE 4 (depth 500 mm)
Pneumatic connections	Swagelok 6 mm O.D.
Sample pump	Internal
Analog Outputs	4-20 mA (not isolated)
Ports	Ethernet
Monitor	5.7" Resistive Touch Screen
Data logging	by USB port

* The image showed could be only as indicative

**ETG reserves the right to modify or change the characteristics of the product without notice

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