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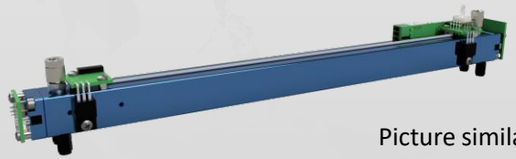
NEW SENSORS FOR N_2O MEASUREMENT

With the new nitrous oxid FLOW^{EVO} sensor we extend our NDIR FLOW^{EVO} family.
Nitrous oxide is used in different industries such as the medical sector, food sector or aerospace engineering.
Nitrous oxide is a green house gas which is 300 times more harmful than carbon dioxid (GWP = 300).
Its high density and low storage pressure (when maintained at low temperature) enable it to be highly competitive with stored high-pressure gas systems. N_2O is an oxidizing gas.

FLOW^{EVO}

Infrared gas Sensor
Nitrous oxide N_2O
500 ppm
smartGAS item number:
F3-272504-05000



Picture similar

Applications:

Aerospace engineering:
To oxidize unwanted exiting gases in rocket motors

Food sector:
As a food additive (E number: E942), specifically as an aerosol spray propellant. Its most common uses in aerosol whipped cream canisters and cooking sprays.

Medical sector:
As an analgesic (anti-pain) gas for anaesthesia purposes or in a fixed combination of 50 % nitrous oxide and 50 % oxygen (named “MEOPA”)

Semiconductor manufacturing:
For the reaction with silane to produce high-quality oxide films

Appearances:

Agriculture sector:
As an emission by using fertilizers

Energy sector:
As an emission in the burning of biomass or fossil fuels. Also by burning wood in fireplaces.

Public sewage sector:
As an emission of humane waste water

Chemical production:
As an emission in the production of nitrid acid

Natural environment:
Natural soils and oceans

Production of wooden goods:
As an emission in the production of wooden, cork and wicker goods

Further links:

https://en.wikipedia.org/wiki/Nitrous_oxide

https://www.eia.gov/environment/emissions/ghg_report/ghg_nitrous.php

https://www.cganet.com/nitrous-oxide-facts/

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500 ppm
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- **Pre calibrated**
- **Compact Design**
- **3/5 mm gas line connector**
- **3.3–6 V DC supply voltage**
- **Modbus ASCII or RTU**
- **Status indicated by LED**
- **Low drift**

Picture similar

Application examples
Gas analysis
Environmental monitoring
Medical application

Available equipment
Gas cooler
Particle filter
Gas pump
Calibration Software
Mounting equipment

Available design in support
Mechanical Installation
Data communication
Gas pre-treatment

FLOW^{EVO} I Nitrous oxide N_2O I F3-272504-05000

General features

Measurement principle:	Non-Dispersive Infra-Red (NDIR), dual wavelength
Measurement range:	0 ... 500 ppm Full Scale (FS)
Gas supply:	by flow (nearly atmospheric pressure)
Flow rate:	0.1 ... 1.0 l / min
Mounting dimensions:	336 mm x 30 mm x 50 mm (L x W x H)
Warm-up time:	< 2 minutes (start-up time) < 30 minutes (full specification)

Measuring response*

Digital resolution:	1 ppm	
Response time @ 0.7 l / min**:	*Standard:*	*Fast:*
t_{90} (10 to 90 % FS):	≤ 13.2 s	≤ 1.1 s
t_{on} (0 to 90 % FS):	≤ 17.5 s	≤ 1.7 s
Detection limit (3 σ):	≤ 0.6 ppm	≤ 2 ppm
Repeatability:	≤ ± 2.5 ppm	
Linearity error (straight line deviation):	≤ ± 4.9 ppm	
Long term stability (zero):	≤ ± 16 ppm over 1000 h period	
Long term stability (span):	≤ ± 22 ppm over 1000 h period	

Influence of T, P, flow rate, other*

Temp. dependence (zero):	≤ ± 0.1 ppm per °C
Temp. dependence (span):	≤ ± 0.4 ppm per °C
Pressure dependence:	+ 0.100 % of actual reading / hPa
Flow rate dependence:	≤ ± 0.5 ppm per 0.1 l / min
Cross sensitivity (zero) other gases:	≤ ± 0.1 ppm @ 5 ppm SO_2 ≤ ± 0.5 ppm @ 5 ppm CO ≤ ± 40 ppm @ 2000 ppm CO_2 ≤ ±225 ppm @ 20 Vol.-% CO_2 ≤ ±2.5 ppm @ 10.000 ppm H_2O
Gas dew point requirement:	< + 5°C dew point (stable), particle free and clean sample gas

Electrical parameters

Supply voltage	3.3 V ... 6.0 VDC
Supply current (peak):	< 400 mA @ 3.3 V, < 240 mA @ 5.0 V
Inrush current:	< 600 mA
Average power consumption:	< 800 mW
Digital output signal:	Modbus ASCII / RTU via UART, autobaud, autoframe
Calibration:	zero and span by SW

Climatic conditions

Operating temperature:	0 … +50 °C
Storage temperature:	-20 … +60 °C
Air pressure:	800 … 1150 hPa
Ambient humidity:	0 … 95 % relative humidity (not condensing)

* Typical values related to 1013 hPa, Ta = 22 °C, flow = 0.7 l / min for dry (not condensing) and clean sample gas.
Stated values exclude calibration gas tolerance.

** Adjustable only via smartGAS Calibration-Tool SW.