# HALO $H_2O$

## Trace Level Moisture Analyzer for Nitrous Oxide

GASES & CHEMICALS | CEMS | ENERGY | ATMOSPHERIC | SEMI & HB LED | SYNGAS | LAB & LIFE SCIENCE

**Designed for trace level moisture analysis in nitrous oxide, the HALO $H_2O$ offers:**

- Low parts per billion (ppb) moisture detection capability in medical $N_2O$
- Absolute measurement (freedom from calibration gases)
- Wide dynamic range—over four orders of magnitude
- Low cost of ownership and operational simplicity
- Clean technology—no external calibration gases required
- Compact analyzer footprint

The HALO $H_2O$ analyzer provides users with the unmatched accuracy, reliability, speed of response and ease of operation that users of Tiger Optics analyzers have come to expect. Featuring Tiger Optics' powerful Cavity Ring-Down Spectroscopy-based moisture sensor in a compact and economical package, this versatile analyzer allows users to measure trace moisture in nitrous oxide ($N_2O$) and other gases.

Users can also expect significant cost savings, with no need for periodic sensor maintenance, span calibrations, purifier replacements, and pump rebuilds. As a result, the HALO $H_2O$ analyzer is ideally suited to many applications where moisture measurement is extremely critical. These applications include process control, continuous quality control, and cylinder analysis for medical and calibration gases and more.

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## Trace Level Moisture Analyzer for Nitrous Oxide


| Performance | |
|---|---|
| Operating range | See table below |
| Detection limit (LDL, | See table below |
| 24 h peak-to-peak variation) | |
| Sensitivity (3σ) | See table below |
| Precision (1σ, greater of) | ± 0.75% or 1/3 of Sensitivity |
| Accuracy (greater of) | ± 4% or 1/2 of LDL |
| Speed of response | < 1 minute to 90% |
| Environmental conditions | 10°C to 40°C |
| | 30% to 80% RH (non-condensing) |
| Storage temperature | -10°C to 50°C |

| Gas Handling System and Conditions | |
|---|---|
| Wetted materials | 316L stainless steel |
| | 10 Ra surface finish |
| Gas connections | 1/4" male VCR inlet and outlet |
| Leak tested to | 1 x $10^{-9}$ mbar l / sec |
| Inlet pressure | 10 – 125 psig (1.7 – 9.6 bara) |
| Flow rate | Up to 1.8 slpm |
| Sample gases | Most inert, toxic, passive |
| | and corrosive matrices |
| Gas temperature | Up to 60°C |

| Dimensions | H x W x D [in (mm)] |
|---|---|
| Standard sensor | 8.73 x 8.57 x 23.6 (222 x 218 x 599) |
| Sensor rack | 8.73 x 19.0 x 23.6 (222 x 483 x 599) |
| (fits up to two sensors) | |
| **Weight** | |
| Standard sensor | 28 lbs (12.7 kg) |

| Electrical | |
|---|---|
| Alarm indicators | 2 user programmable |
| | 1 system fault |
| | Form C relays |
| Power requirements | 90 – 240 VAC, 50/60 Hz |
| Power consumption | 40 Watts max. |
| Signal output | Isolated 4–20 mA per sensor |
| User interfaces | 5.7" LCD touchscreen |
| | 10/100 Base-T Ethernet |
| | 802.11g Wireless (optional) |
| | RS-232 |
| | Modbus TCP (optional) |

| Performance, $H_2O$: | Range | LDL | Sensitivity |
|---|---|---|---|
| In Nitrogen | 0 – 20 ppm | 3 ppb | 2.2 ppb |
| In Nitrous Oxide ($N_2O$) | 0 – 20 ppm | 10 ppb | 7.5 ppb |

Contact us for additional analytes and matrices.
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