

# HALO-H<sub>2</sub>O-LP

## Trace Moisture Analyzer for Hydride Gases

The HALO-H<sub>2</sub>O-LP moisture 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. The HALO moisture analyzer features Tiger Optics' patented Cavity Ring-Down Spectroscopy-based moisture sensor in a very compact and economic analyzer design. The LP (low pressure) version of this analyzer allows users to measure moisture in hydride gases, such as ammonia, arsine, and phosphine, plus inerts. Users enjoy freedom from requirements such as periodic sensor maintenance, span calibrations, purifier replacement and pump rebuilds. The HALO-H<sub>2</sub>O-LP differs from the HALO-H<sub>2</sub>O in that it incorporates an absolute pressure controller to provide the precise control needed for accurate measurements in hydride gases.



### PERFORMANCE

<b>Lowest Detection Limit*:</b>	12 ppb in NH <sub>3</sub> (1.4 ppb in inerts)
<b>Sensitivity:</b>	6 ppb in NH <sub>3</sub> (0.7 ppb in inerts)
<b>Accuracy (greater of):</b>	4% of reading or ± 6ppb(0.7ppb)
<b>Speed of Response (typical):</b>	95% Response < 3 minutes
<b>Operating Range:</b>	0-20 ppm
<b>Environmental Conditions:</b>	10°C-40°C
<b>Storage Temperature:</b>	-10°C-50°C

\* Based on 24-hour peak-to-peak variation

### MATERIALS OF CONSTRUCTION

<b>Materials of Construction:</b>	316L stainless steel (optional Hastelloy®)
<b>Wetted Components:</b>	10 Ra surface finish
<b>Gas Connection:</b>	1/4" M VCR Inlet & Outlet
<b>Leak Tested to:</b>	<2 X 10 <sup>-8</sup> mbar • l/sec

### ELECTRICAL

<b>Alarm Indicators:</b>	User programmable set points
<b>Power Requirements:</b>	90-240 VAC, 50/60 Hz
<b>Power Consumption:</b>	40 Watts max.
<b>Output Signals:</b>	
• Recorder	Isolated 4-20 / 0-5VDC
• Alarm	Form-C relay
<b>Communications:</b>	RS-232, Wireless (Optional)
<b>User Interface:</b>	5.6" LCD touch screen, 10/100BaseT Ethernet, RS-232

### DIMENSIONS

<b>Mounting (H x W x D):</b>	8.75" x 8.5" x 22.5" (22.2cm x 21.6 x 57.2)
<b>Weight:</b>	33 pounds (15 kg)

### GAS SAMPLE CONDITIONS\*\*

<b>Sample Inlet Pressure:</b>	Opsig - 125psig
<b>Flow Rate:</b>	up to 1,000 sccm
<b>Sample Gases:</b>	Ammonia, Phosphine & Inerts
<b>Sample Line Temperature:</b>	Up to 60°C
** Vacuum pump required	

### TECHNOLOGY

<b>Approvals:</b>	CE: LVD & EMC
<b>Method:</b>	Cavity Ring-Down Spectroscopy
<b>Patents:</b>	U.S. Patent # 5,528,040 Other Patents Pending