

# TRACER 2+

## Precision Moisture Analyzer

Industrial Gas

Electronic Gas

Natural Gas

Medical & Aviation

Aerospace & Military

Glove Box

Specialty Gases

Known for advanced – and practical—trace moisture analyzers, MEECO proudly introduces the newly improved **TRACER 2+**<sup>TM</sup> modular moisture analyzer, our first parts-per-trillion (pptV) detector. The new **TRACER 2+** offers 700 pptV to 2000 ppbV level sensing in inert gases, along with greatly accelerated response! This latest advance continues our legacy of service to the electronic gas industry, going all the way back to the original and much-loved Aquamatic+, the world's first parts-per-billion analyzer introduced in 1987!

More, the **TRACER 2+** is easy to use. Hook it up and with a few keystrokes, you're ready to go. Whether installed in a stationary analytical rack or a portable cart, the **TRACER 2+** has the sensitivity and quick response to help you eliminate moisture as a yield detractor. Indeed, under standard operating conditions, the **TRACER 2+** tracks nicely with far more complex and expensive spectroscopic analyzers.

The **TRACER 2+** takes MEECO's NIST-certified, ultra-trace technology to the next level. It's direct and accurate, unlike the "smoke & mirrors" associated with competitive devices. Often, the simpler the design, the more powerful and classic the device. In addition, the **TRACER 2+** boosts highly curated features that save space, provide ease of operation, and boost confidence, such as:

- ❑ **Consistency and Precision:** The **TRACER 2+** takes MEECO's time-proven technology to the next level. Drawing upon Faraday's Law -- a fundamental principle of physics -- the **TRACER 2+** measures moisture through electrolysis. The electrical current generated relates directly to the moisture concentration in your gas.

**Moisture in = Current Out**

- ❑ **Low Cost of Ownership:** Highly reliable, the **TRACER 2+** does not require annual re-certification or the need for routine and costly factory service. Its unique flow system is free of permeation tubes, complex manifolds, or requirements for compressed air. Maintenance is further reduced by the minimal number of components used and easily upgradeable software via RS-232 port. In addition, its rugged design and easy access to the cell, the pressure regulator, and the microprocessor board speed service and minimize downtime.

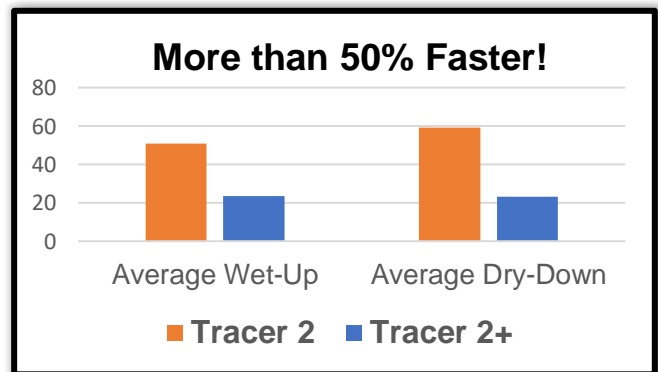


Photo courtesy of Dynamic Systems, Inc.

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- ❑ **High Performance:** The new **TRACER 2+** gives you the quick response required to maintain UHP levels of your gases. The short tubing from inlet to sensor, low dead-volume regulator, and improved electronics all contribute to performance. Indeed, our accelerated response is 50% faster than its predecessor, while the optional Heart ❤️ Cell gives you below 750 pptV detection for the first time in a MEECO analyzer!



- ❑ **Compact, Flexible Footprint:** Package two units, side-by-side, in one optional 19- inch rack mountable box and you have a **TRACER 2+ DUO**. Not only does the economical TRACER DUO save on space, but it allows you to monitor two sample lines concurrently or to have a handy back-up unit if needed. Alternately, you can use the extra space for much-needed storage or combine a **TRACER 2+** with any other instrument that fits in its optional rack. Whether installed in a stationary analytical rack or portable cart, the **TRACER 2+** is ready when you need it.
- ❑ **Ease of use:** User-friendly keypad interface, bright vacuum fluorescent display (VFD), and helpful menu-driven prompts make the **TRACER 2+** simple to specify, to configure, and to start up for your specific application. It arrives ready to use from the factory. All you need to do is: Check the pressure, connect the lines, select your gas type and go! No need to shut down your process, break the line for installation or follow complicated procedures.
- ❑ **Ideal for carts** in particular and transport in general, the **TRACER 2+** is lightweight and built to sustain mechanical shock. Plus, there's no need to restabilize, reset, recalibrate, or in any way reconfigure the **TRACER 2+** when you move from point to point, the unit responds in real-time, without delay. The **TRACER 2+** embodies the mechanical integrity associated with MEECO instruments for decades.
- ❑ **Adjustable Outputs:** Readily change output scales in the field. No need to replace electronic components or to open the analyzer and access internal components. Simply access the menu via the Mode/Enter key and select the output scale.
- ❑ **On-Line Verification:** Because it relies on an absolute measure, the **TRACER 2+** is free of drift and requires no sensor calibration. Simply verify your flow and current, and you meet the documented procedure for ISO 9001. Your **TRACER 2+** can stay online all the while.

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In addition, MEECO offers a comprehensive service program in support of the **TRACER 2+** and other instruments. This includes installation and start-up, operational training and troubleshooting assistance. We also offer in-field and in-house maintenance and recertification of our instruments as part of an ISO or other quality program.

Whether MEECO's moisture solution is your longtime companion or your new best friend, we welcome you to fire-up a **TRACER 2+** for a wide range of **applications**, including:

- **Semiconductor manufacturing.** Moisture specifications at the sub-ppb range are now the norm; the **TRACER 2+** detects leaks and purifier breakthroughs within the process, affording considerable savings in potential lost yield.
- **Inert and specialty gases.** The **TRACER 2+** detects moisture contamination in all major semiconductor process gases: Nitrogen, Argon, Helium, Hydrogen and Oxygen. Handled properly, it also measures moisture in many Electronic Specialty Gas (ESG) applications, Neon, Xenon, Sulfur Hexafluoride, and Carbon Tetrafluoride among them.
- **Component and system testing.** The **TRACER 2+** registers speed and level of dry down for systems, components, and tools. The **TRACER 2+** verifies the performance of purifiers; helps correlate between moisture content and product yield; and checks the validity of other instruments, such as APIMS and CRDS.
- **Laboratory research.** Given its repeatability and absolute technology, the **TRACER 2+**, like its predecessor, is ideal for on-going research to determine the relevance of moisture content to wafer yield in various processes
- **Other Applications.** Unique or otherwise routine circumstances can necessitate sub-ppb moisture analysis in various industries, including:
  - Pharmaceuticals
  - Electric power
  - Mobile carts for QA/QC
  - National Metrology Laboratories
  - Trailer and cylinder filling
  - Process control
  - Medical gases
  - Refrigeration
  - Welding gases
  - Pneumatic systems

In sum, The **TRACER 2+** is designed to be more reliable, easier to use, and to offer greater value than any system on the market.

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## Specifications:

Detection Limit (LDL):	0.7 ppbV with Heart ❤️ cell; 1.0 ppbV with Standard cell
Operating Range (for inert gases):	Inert Gases: 0 -2000 ppbV; Oxygen: 0 -1200 ppbV; Hydrogen: 0 -500 ppbV
Accuracy:	<u>Inert Mode</u> : 4% of reading or $\pm 4$ ppb, whichever is greater of reading  <u>O<sub>2</sub>/H<sub>2</sub> Mode</u> : For use in gases containing substantial amounts of Hydrogen or Oxygen, including Clean Dry Air (CDA). When the value is $< 50$ ppbV, the accuracy is 6% or $\pm 6$ ppbV, whichever is greater. When the value is $> 50$ ppbV, the accuracy is 2% of reading or $\pm 20$ ppbV, whichever is greater
Cell type (P <sub>2</sub> O <sub>5</sub> ):	RILR, RTL* NOTE: For sub-ppbV, please specify as Heart ❤️ cells
Gas Matrices Library:	Inert gases, Oxygen, Hydrogen and others, including gas mixtures. For other gases, please consult factory. *For Oxygen and Hydrogen the RTL* cell is required.
Inlet Pressure:	30-150 psig (2.1 – 10.3 barg).
Operating (Ambient) Conditions:	10° to 40° Celsius, 50° to 104° Fahrenheit, 20% to 80% RH, non-condensing, non-corrosive atmosphere. Optimal performance is achieved when temperature is maintained within $\pm 2^{\circ}\text{C}$
Flow Rate:	1200 sccm minimum
Display unit options:	ppbV
Gas Connections:	Inlet: 1/4" VCR, Outlet: 1/8" compression. Bypass outlet 1/8" compression. Purge outlet 1/8" compression.
Signal Output:	(Field Configurable Isolated 0-5 VDC or Isolated Current Output 4-20mA, 0-20mA, or 0-24 mA) RS - 232 Communications – Standard
Alarms:	One Form-C mechanical relay to monitor the following: cell response, flow, dry time-out alarm, and two Form-C relays for user-selectable moisture concentration levels
Electrical:	100 – 240 VAC, 50/60 Hz
User Interface:	5-key Membrane Keypad. 2-line x 20-character Vacuum Fluorescent Display (VFD).
Weight:	27 lbs. (12.3 kg)
H x W x D:	7" x 8" x 14" (17.8 cm x 20.3 cm x 35.6 cm)
Mounting:	Stand alone; Optional: 19"; Rack Mount - Size: 7"x 19" x 17" (17.8 cm x 20.3 cm x 35.6 cm)
Approvals:	CE Mark

**Service with a Big Smile 😊:** The **TRACER 2+** comes with a full two-year Certificate of Calibration. The cell can easily be replaced in the field, with no need to disconnect the unit from the sample stream! Also, spare cells now have a six-month storage life if maintained on battery.