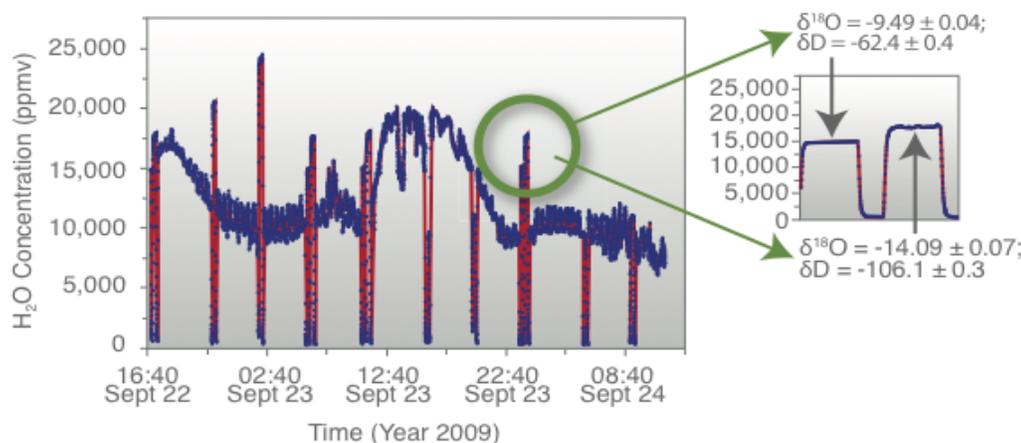


## PICARRO A0101 Standards Delivery Module

Automated water isotope standards delivery system for extended unattended operations

- Compact, self-contained, field deployable system
- Collapsible standards bag eliminates head space fractionation, ensures entire standard is usable
- Automated delivery of two standards at three concentrations per standard for verification of calibration and drift
- Automatic, reliable unattended operation for weeks after setup
- Simple batch post-processing of data with included intuitive software



Time series of H<sub>2</sub>O vapor concentration data showing multiple deliveries of standards at different concentrations, each with excellent precision.

System Specifications	
<b>δ<sup>18</sup>O Precision (6,000 - 25,000 ppmv)</b>	< 0.1 ‰
<b>δD Precision (6,000 - 25,000 ppmv)</b>	< 0.5 ‰
<b>Operational Concentration Range</b>	200 - 30,000 ppmv
<b>Standards Bag Size</b>	~ 150 mL
<b>Standard Required</b>	25-80 μL each delivery
<b>Dry Gas Supply</b>	Ambient air drawn by built-in pump (with user supplied dessicant)
<b>Attachments</b>	Includes injector assembly which attaches to Picarro A0211 vaporizer
<b>Installation</b>	Fits on top of analyzer
<b>Dimensions</b>	9" w x 9" h x 10" d (22.9 cm x 22.9 cm x 25.4 cm)
<b>Weight</b>	11.5 lbs (5.2 kg)
<b>Power Requirements</b>	90 - 240 VAC, autoswitched, 50/60 Hz, 25 W

**Advantage Note:** The Picarro Standards Delivery Module (SDM) is a breakthrough system that makes automated delivery of isotopic water vapor standards in the field simple and reliable. The SDM can operate autonomously for as long as four weeks unattended and can be fully remote-controlled via Internet connection. With the capability to deliver two standards, the Picarro SDM provides multiple calibration points to maximize data precision and accuracy as compared to other types of water vapor standards delivery systems. The Picarro SDM integrates seamlessly with Picarro isotopic water analyzers (L1115-*i*, L2120-*i*, L2130-*i*).

Unlike existing standards delivery systems reliant on nebulizer bottles, the Picarro SDM has a unique collapsible bag mechanism for storage of standards. The collapsible bag shrinks as standards are used, thus eliminating headspace and ensuring an entire standard can be used without data degradation due to evaporation and condensation. Elimination of these processes - common to rigid sample bottles - results in more reliable, accurate and precise data. As compared to the volume of standard required by most nebulizer-based systems, the Picarro SDM consumes significantly less standard per delivery.

Configuration of the integrated SDM and analyzer software is intuitive and fast. The SDM's default data output includes not only standards data but also ambient water vapor measurement data. The software eliminates the need for additional post-processing in Excel or other software packages and reduces the average processing time of water vapor data from over an hour to roughly 30 seconds.

Setup and installation of the SDM requires no special tools. The majority of installation processes are finger-tightening with a single step requiring a standard wrench. The SDM can be placed on top of a Picarro analyzer and does not require a separate surface or space. Physical setup requires roughly 10 minutes. The footprint of the SDM is significantly less than that of nebulizer systems and the combined footprint of the Picarro analyzer and SDM together is less than half that of competing isotopic analyzers and standards delivery systems. This means a single person can carry and install a complete field kit.

The SDM software allows Picarro analyzers to accept sample data from two collection points. The components of the SDM are robust and field ready. In summary, the SDM sets a new standard for throughput, data precision, and ease of use in isotopic water sample research.

