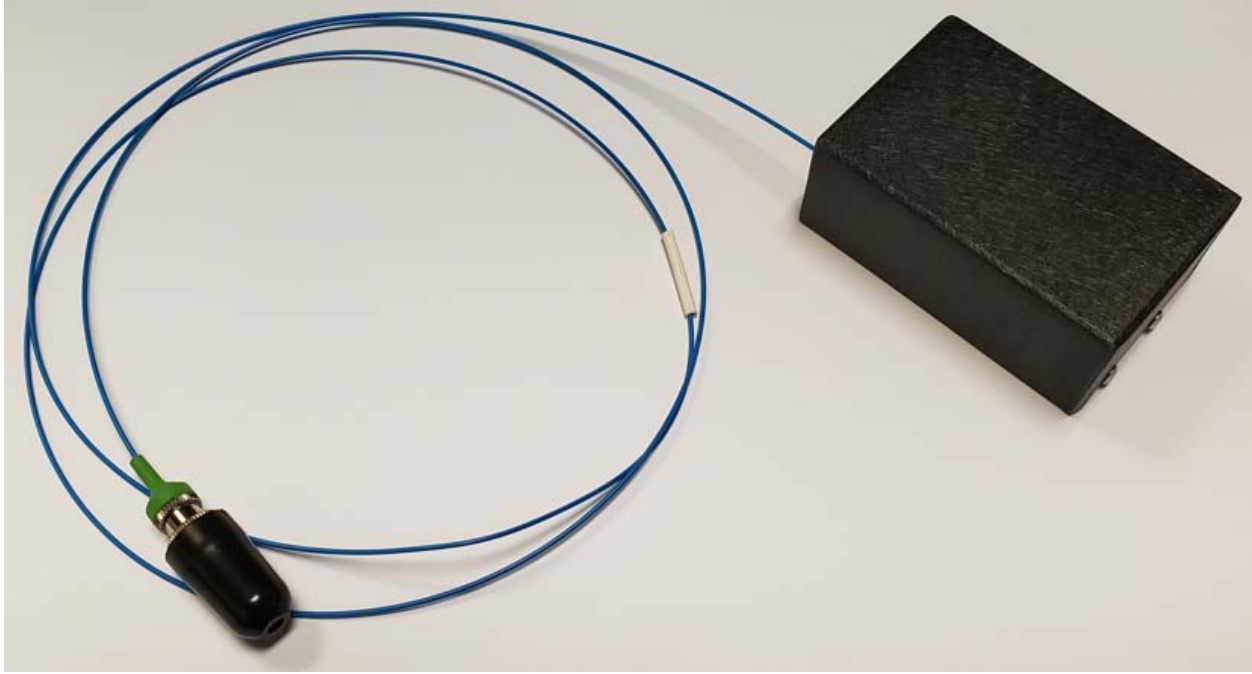


## Saturated Absorption Spectroscopy Laser Lock Modules

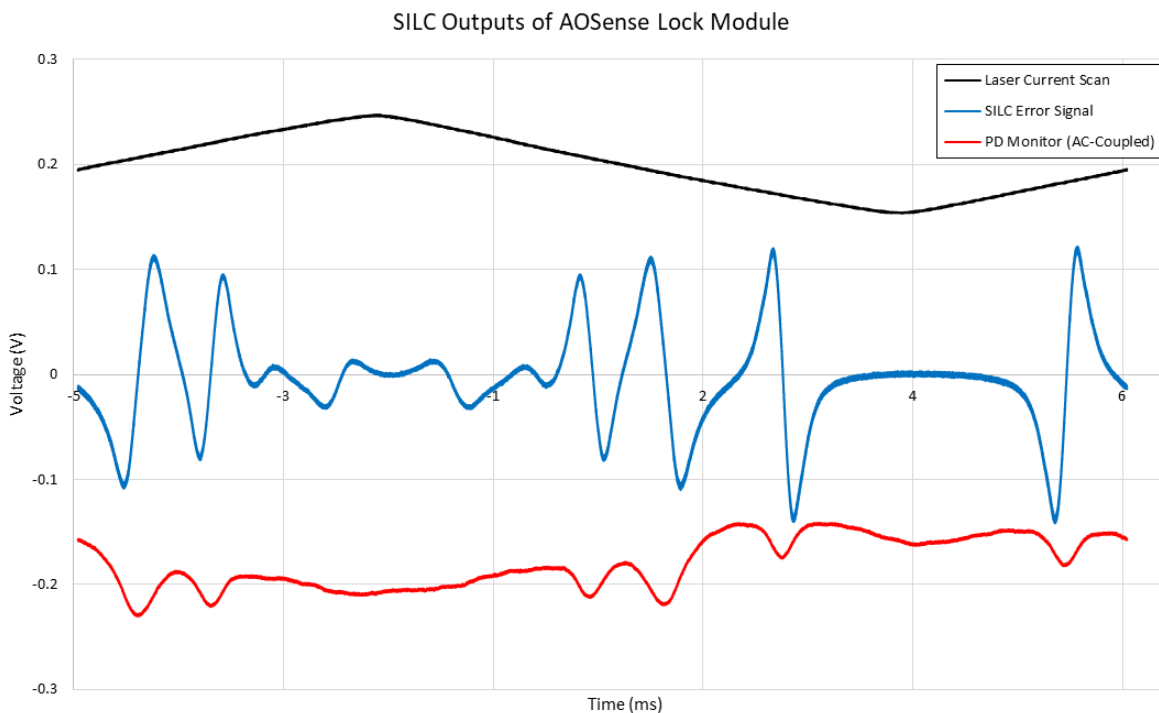


The AOSense Laser Lock Module (LLM) provides a compact, mechanically-robust laser frequency reference. An optional add-on for the AOSense Servo and Integrated Laser Controller (SILC), the LLM provides a convenient long-term frequency reference to stabilize a laser for atomic, molecular, or optical applications. Insensitivity to environmental magnetic field and temperature variations, a sturdy design, and fiber-coupled input enable its use in both field and laboratory systems. The LLM provides both a DC output to monitor power variations and an AC-coupled output that enables locking to a high-SNR error signal. Simply plug the LLM into an AOSense SILC and send in fiber-coupled light to view the absorption spectrum, with or without background subtraction; optionally modulate the laser polarization or frequency (for example, with an EOM) to create a high-quality error signal. The long-term frequency drift of the AOSense LLM has been characterized with a GPS-synchronized frequency comb, and has seen use in a variety of atomic physics applications that demand high performance in a small package. The LLM comes standard with either rubidium or cesium; other species are available on request.

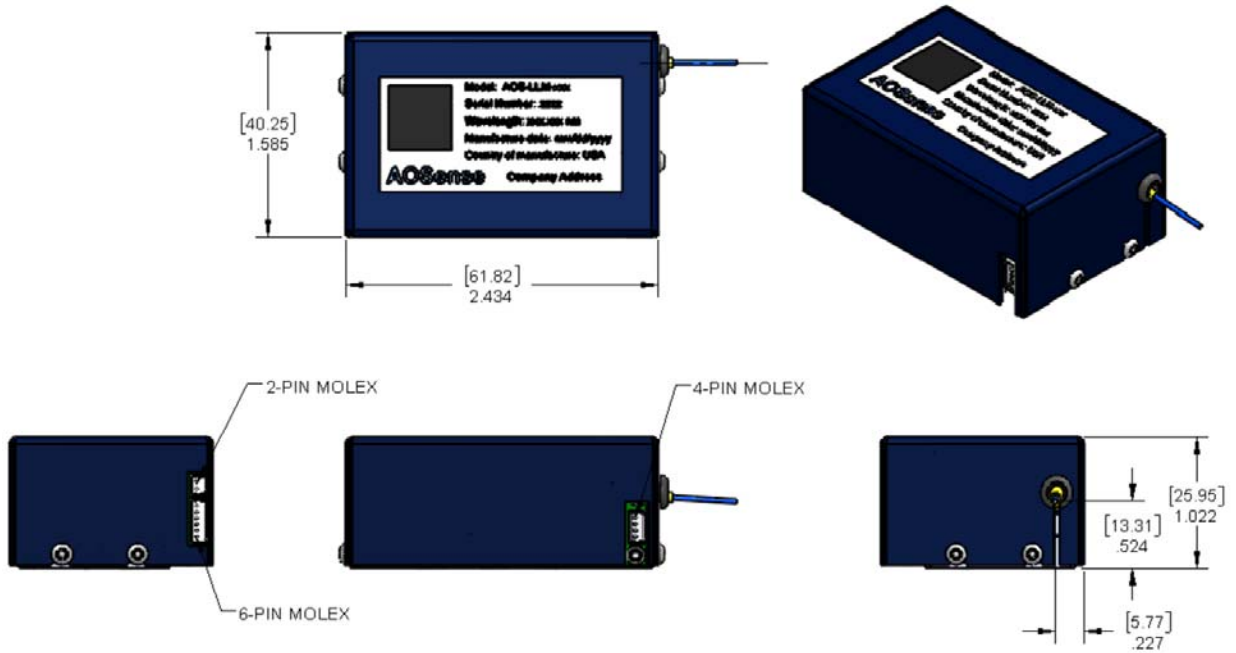
**Features:**

- Small size and weight
- Low power Consumption
- Long-term frequency stability:
- Atomic Species: Rb, Cs

Laser Lock Module Model No.	AOS-LLM-xx
Dimensions (mm/inch)	62 (2.44") x 40.3 (1.59") x 26 (1.02")
Weight (g/oz.)	95.3 (3.36)
Power Consumption (W)	0.5 W
Vapor Cell Temperature Tunability (°C)	15 - 50
Input Optical Power (mW)	0.010 - 10
Long-term Frequency Stability	< 50 kHz @ 7 hours
Atom Species	Rb, Cs
Ambient Operating Range (°C)	10 - 50



**Figure 1. Error Signal output from AOSense SILC when using the AOSense Spectroscopy Laser Lock Module. Shown is the <sup>87</sup>Rb D<sub>2</sub> manifold from F = 2.**



NOTE: To use the LLM with the AOSense SILC customers will have to order cable #AOS 0105143.