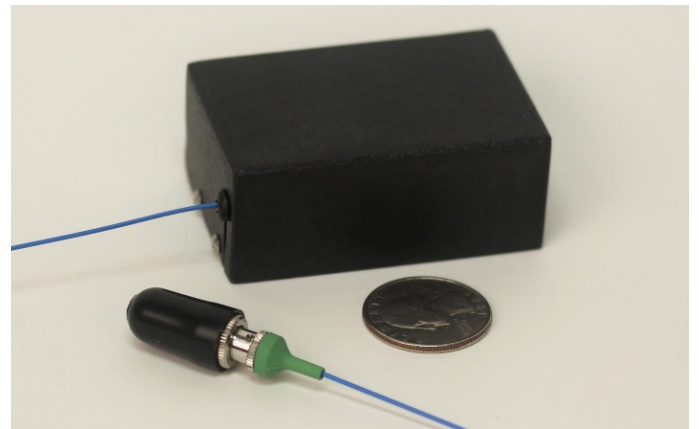


Saturable Spectroscopy Laser Lock Module

The AOSense Laser Lock Module (LLM) provides a compact, mechanically robust laser frequency reference with an optional add-on for 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. The laser module is a sturdy design that is insensitive to magnetic fields and temperature variations and can be coupled to a fiber input for 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. The LLM can be easily connected to a SILC and a fiber-coupled light to view the absorption spectrum; with or without background subtraction; optionally modulating the laser polarization or frequency to create a high-quality error signal. The long-term frequency drift of the LLM has been characterized with a GPS-synchronized frequency comb and has been used in atomic physics applications that demand high performance in a small package. The LLM comes standard with either rubidium or cesium with other species available on request.



Features

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

Specifications

Laser Lock Module Properties

Dimensions	62 mm x 40.3 mm x 26 mm
Weight	95.3 grams
Power consumption	0.5 W
Vapor cell temperature tunability	15 – 50 °C
Input optical power	0.010 – 10 mW
Long-term frequency stability	< 50 kHz @ 7 hours
Atomic species	Rb, Cs
Ambient operating range	10 – 50 °C

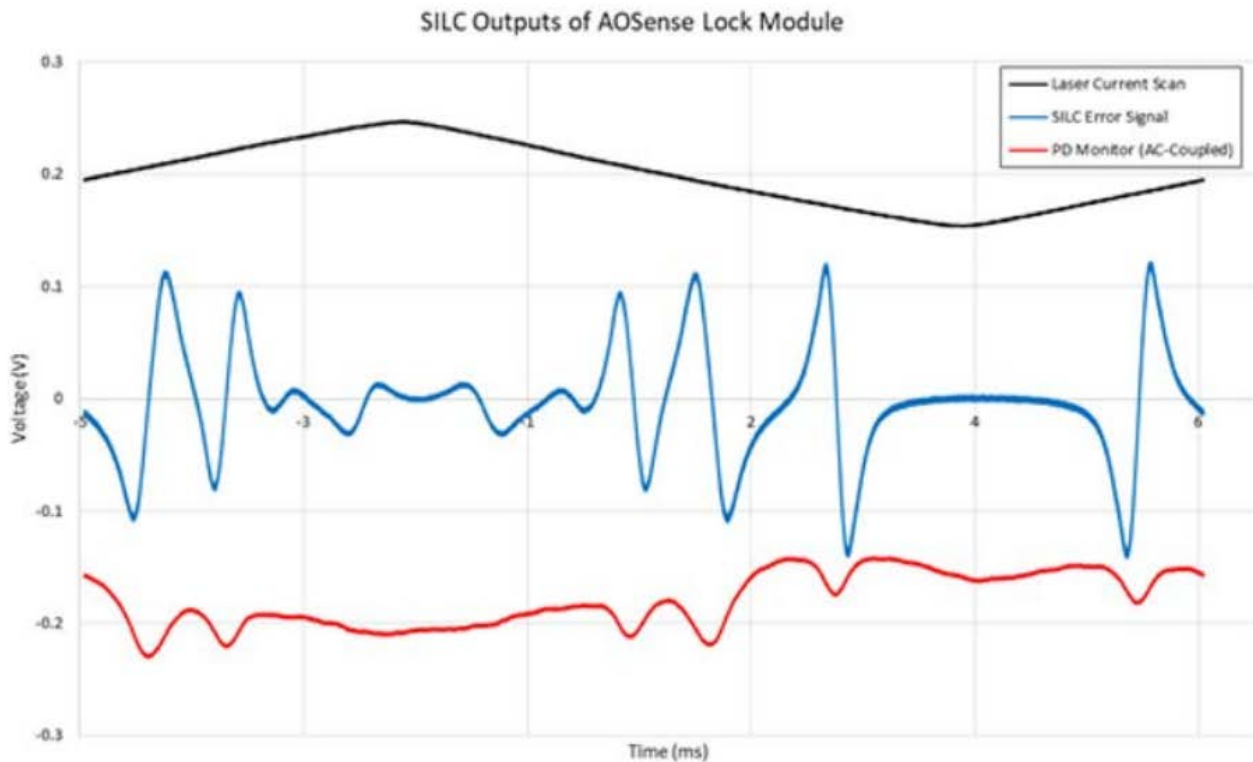
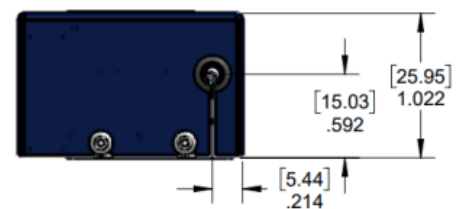
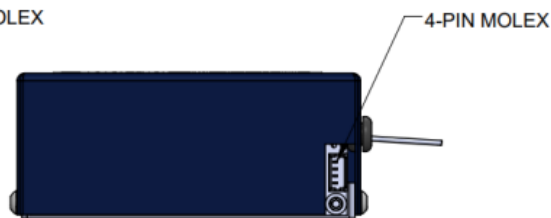
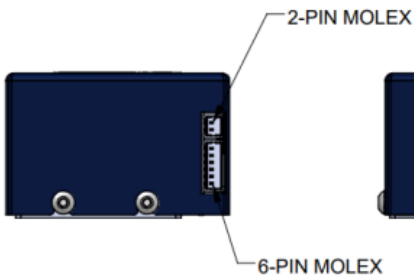
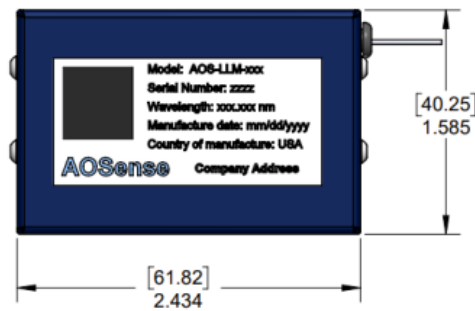


Figure 1. Error Signal output from AOSense SILC when using the AOSense Spectroscopy Laser Lock Module. Shown is the ^{87}Rb D_2 manifold from $F = 2$.



PIN	DESCRIPTION
1	TEC +
2	TEC -
3	PD D2
4	THERM +
5	-4 V
6	+4 V
7	GND
8	SIGNAL +
9	SIGNAL -



For more information, contact us at sales@aosense.com