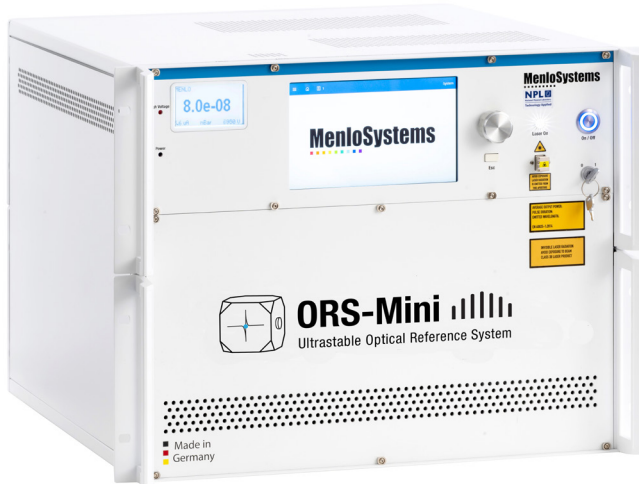


# ORS-Mini

## Ultrastable Laser System



The rack-mountable ORS-Mini Ultrastable Laser System is designed for field applications and OEM integration. It delivers ultra-narrow linewidth laser light with excellent frequency stability.

The system's centerpiece is a high-finesse Fabry-Pérot cavity (cubic spacer with a length of 5 cm) serving as a reference for a CW laser. The cavity is made out of ultra-low expansion glass (ULE) and is operated in vacuum at the point of zero thermal expansion. The reference cavity is acoustically isolated allowing for excellent performance also in rough laboratory environments. Rigid mounting of the cavity ensures portability without realignment of the optical paths.

The system electronics is based on the newest generation of Menlo Systems' proprietary SYNCRO controller—a modular platform designed for versatility and intuitive use. It incorporates all required electronics, e.g., a low-noise laser driver and a very fast (analog) servo loop for laser frequency stabilization. The user controls all parameters using either the 7" front-panel touchscreen or a GUI on a remote PC. The onboard software ensures automatic cavity locking and system monitoring.

**MenloSystems**

### KEY SPECIFICATIONS

- Stability  $<5 \times 10^{-15}$  at 1 s
- Linewidth  $<2$  Hz
- Output Power  $>10$  mW
- Wavelength 1542 nm or 1064 nm

### APPLICATIONS

- Quantum Computing
- Ultra-low Noise Microwave Generation
- Frequency Comb Stabilization
- High Resolution Spectroscopy
- Laser Cooling and Trapping

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### SPECIFICATIONS

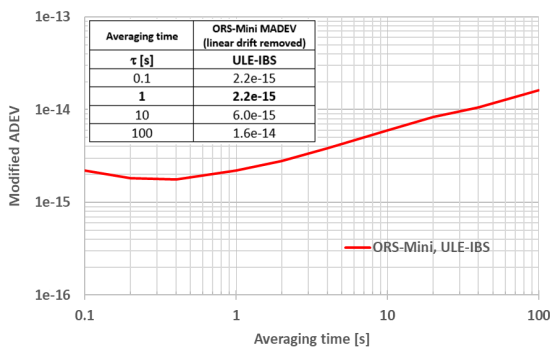
Wavelength	1542 nm or 1064 nm
Stability (MADEV at 1 s, Linear Drift Removed)	$<5 \times 10^{-15}$
Linewidth	$<2$ Hz
Phase Noise	-33 dBc/Hz (at 10 Hz Offset) -94 dBc/Hz (at 10 kHz Offset)
Output Power	$>10$ mW (SC/APC Connector)
PDH Servo Bandwidth	1.5 MHz
Cavity Spacer	5 cm, ULE, Cubic Design (Developed in Collaboration with the NPL, UK)
Free Spectral Range	3 GHz
Linear Drift Rate	approx. 150 mHz/s
Vibration Isolation Platform	Not Included
System Dimensions	450 x 550 x 360 mm (8U)
Weight	35 kg

### REQUIREMENTS

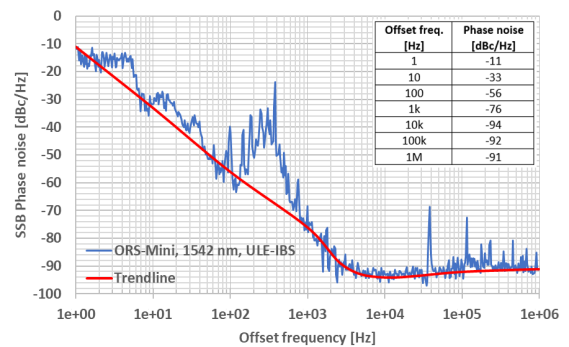
Operating Voltage	100 / 115 / 230 VAC
Line Frequency	50 to 60 Hz
Operating Temperature	$22 \pm 5$ °C
Power Consumption	$<100$ W

## STABILITY AND PHASE NOISE

ORS-Mini Fractional Frequency Stability



ORS-Mini Phase Noise



## ORDERING INFORMATION

**Product Code** ORS-Mini

Please call for pricing. Specifications are subject to change without notice. Custom modifications are available, please inquire. The cubic cavity is a patented design that is sold under a licensing agreement with the National Physical Laboratory. This configuration of the NPL cavity is intended for terrestrial use only. For further information on space-customised or space-qualified cavities, please contact NPL.



Invisible laser radiation  
avoid exposure to beam  
Class 3b laser

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