

# tunable mid-IR external-cavity

# CW-PLS LASERS



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<b>Room Temperature — No Cryogenic Cooling</b>	(chiller required for CW operation)
<b>Operation:</b>	CW and pulsed (for pulsed operation specifications see our Pulsed laser datasheet)
<b>Center Wavelengths:</b>	4.9, 5.2, 6.1, 8.8*, 9.2, 9.7, 10.5 (* wavelength in development)
<b>Total Tuning Range:</b>	Up to 100 $\text{cm}^{-1}$ of the center wavelength
<b>Average Power Min.:</b>	1 mW
<b>Average Power Max.:</b>	up to 70 mW
<b>Min. Spot Size:</b>	<2.5 mm
<b>Pointing Stability:</b>	<1 mrad
<b>Beam Waist:</b>	30–50 cm from laser
<b>Beam Divergence:</b>	<5 mrad
<b>Polarization:</b>	Vertically Polarized >100:1
<b>Set Resolution:</b>	0.1 $\text{cm}^{-1}$
<b>Read Resolution:</b>	0.1 $\text{cm}^{-1}$
<b>Repeatability:</b>	<0.02 $\text{cm}^{-1}$
<b>Linewidth:</b>	<.003 $\text{cm}^{-1}$ , CW < 1 $\text{cm}^{-1}$ , Pulsed
<b>Accuracy:</b>	$\pm 1.5 \text{ cm}^{-1}$
<b>Tuning Speed:</b>	full range <1 sec
<b>Package Size:</b>	5.5" L x 3.45" W x 3.31" H
<b>Control:</b>	RS-232 and GPIB

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Daylight Solutions is pleased to provide the world's first broadly tunable mid-IR lasers based on quantum cascade technology. Center wavelengths span the mid-IR spectrum from 4  $\mu\text{m}$  to 12  $\mu\text{m}$  and provide continuous tuning of up to 100  $\text{cm}^{-1}$  ( $\pm 5\%$  for a 10  $\mu\text{m}$  center wavelength). CW-PLS lasers operate in both pulsed and CW modes. This laser is appropriate for applications requiring wavelength stability, though does not tune mode-hop-free in CW mode.

Designed by the world's leading experts in tunable lasers, these sources are small, robust, and utilize specially designed miniature lenses to optimize system performance. Each system integrates TEC technology for behind-the-scenes temperature control, so only a water chiller is needed when operating in CW mode—no cryogenic cooling!

To round out the turn-key system, each tunable laser is shipped with an intuitive, easy to use multifunction controller. The controller is accessible to a PC through RS-232 and GPIB interfaces, future firmware upgrades will enable USB interface. This allows external control of the tunable laser for a variety of applications, including scientific research and its development. The controller is also manually accessible through its easy to use front panel.

Daylight Solutions' overall system leverages the last 15 years in tunable laser development and manufacturing, and incorporates the company's latest patent-pending tuning and packaging technology for the mid-IR.

The availability of robust, easy-to-use tunable lasers in the 4-12  $\mu\text{m}$  region of the spectrum is now a reality. These lasers enable application research in the field of molecular detection and imaging, including applications such as industrial process controls, the detection of biomarkers in the breath, cellular imaging, and the detection of chemical and biological agents.

Daylight Solutions' mid-IR laser platform technology opens up the mid-IR to all researchers—today. Please see our web site for information on other mid-IR laser systems, including tunable CW lasers.

Call today for pricing and availability of specific wavelengths.

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