

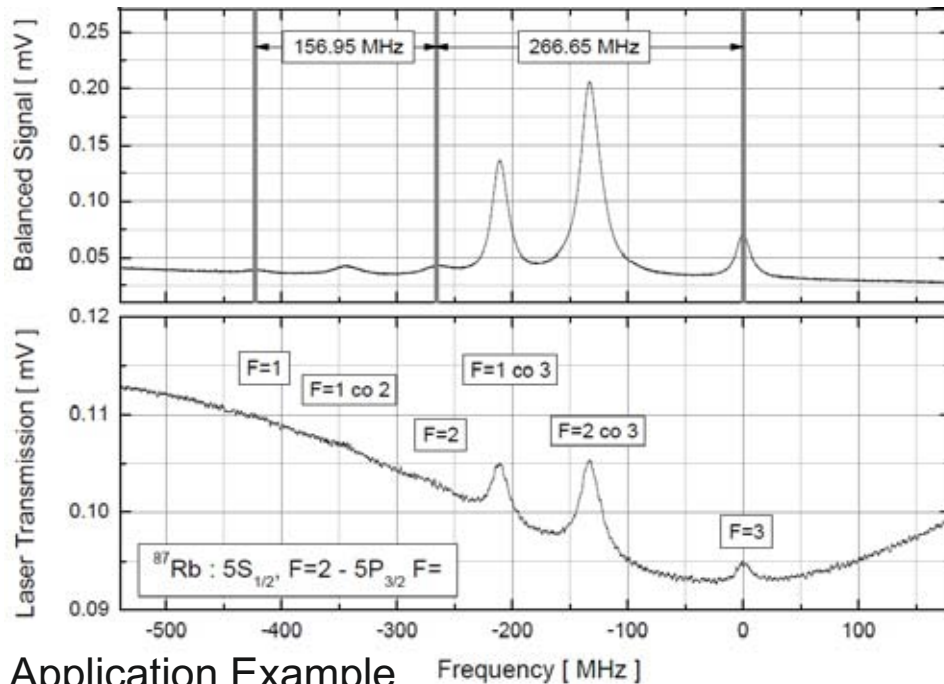
PilotPZ

External Cavity Diode Laser Controller
Low Current Noise, High Temperature Stability
Low Noise Piezo Amplifier, Ramp Generator

Electronic Systems & Devices



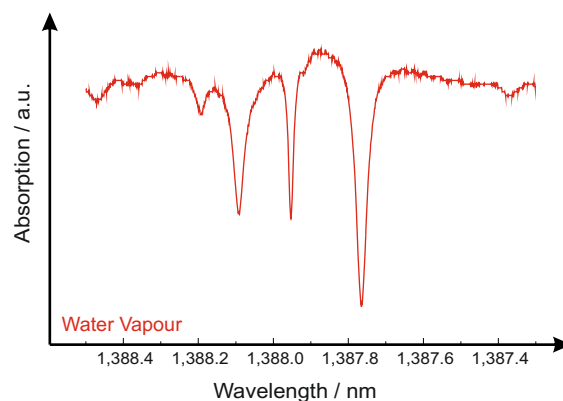
Automated Wavelength Scans via Remote Control



Application Example

Sub-Doppler Spectroscopy

High resolution spectroscopy requires laser features like narrow linewidth, high passive stability, exact adjustable wavelength as well as an excellent fine tuning ability. The figure summarizes experimental data which have been determined with our Littrow laser system. The blue trace shows an absorption trace of the D_2 -line of Rubidium. More demanding is the Doppler-free detection of the Lamb-dips (c/f W. Demtröder, Laser Spectroscopy, Springer 1998). The red trace shows the doppler-free measurement of the Lamb-dip of the D_2 -line of Rubidium.



Application Example

Water Vapor Spectroscopy

Water vapor show various absorption bands. Typical wavelength for spectroscopy of water vapor are 935nm or 1410nm. The figure summarizes experimental data which have been determined with our Littman/Metcalf laser system in the 1410nm wavelength range. The trace shows an absorption signal of an optical water vapor concentration measurement in ambient air. The total tuning range is 1nm with 1388nm as center wavelength of the scan.

Product Features

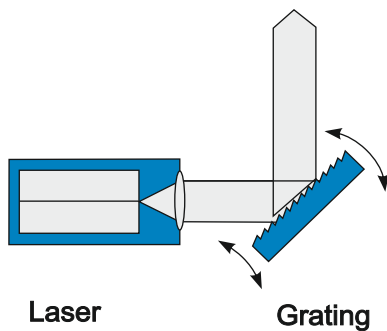
- Frontpanel graphic interface
- 500mA / 3000mA LD current source with forward voltage measurement
- Const current or const power mode
- 16 W / 32 W TEC control
- Various laser protection features
- - 13V .. +13V Piezo Voltage
- 0.1Hz .. 10kHz Piezo Scan Rate
- Current coupling for mode-hop free tuning
- GPIB, USB and RS232 remote interface
- Automated wavelength scans via remote control
- Signal monitoring for closed loop applications



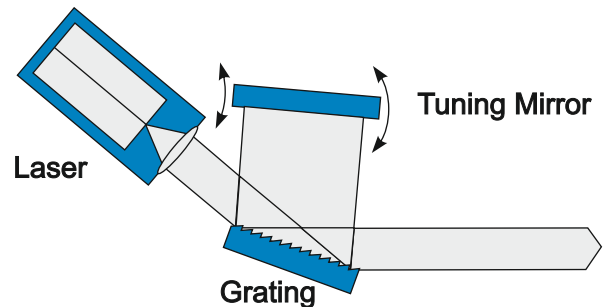
Specifications

Laser Current Source		Temperature Control	
PC500 Drive Current Output		TEC Output	
Output Current Range	0-500mA	Output Type	Bipolar Constant Current Source
Setpoint Resolution	0.1mA	Compliance Voltage	8V
Setpoint Accuracy	±0.1%	Maximum Output Current	-3A to 3A
Noise (10Hz to 10MHz)	< 5µA	Maximum Power	32 Watt
Compliance Voltage	0-7V adjustable		
PC4000 Drive Current Output		Sensor	
Output Current Range	0-4000mA	Temperature Sensor	Thermistor (10k NTC)
Setpoint Resolution	1.0mA		IC Temp Sensor AD590
Setpoint Accuracy	±0.1%	Temperature Control Range	-5°C to 30°C
Noise (10Hz to 10MHz)	< 20µA	Setpoint Resolution	1mK (-5°C to 30°C)
Compliance Voltage	0-7V adjustable		
Photodiode Feedback		Common Data	
Photodiode Current Range	0-5000µA	Dimension (WxHxD)	270 x 110 x 320 mm
Type	Diff. 100R	Weight	< 5kg
		Line Voltage	110V / 115V / 230V +/- 10%
Piezo Amplifier		Line Frequency	50 .. 60Hz
Voltage Range	-13V .. +13V	Warm-up Time	10min
Setpoint Resolution	<1mV	Storage Conditions	-25 .. 70°C
Scan Rate	0.1 Hz .. 10kHz	Operating Temperature	0 .. 40°C

Littrow - Configuration



Littman/Metcalf - Configuration



Application Example

External Cavity Diode Laser

The principle application of our PilotPZ laser controller are diode lasers with an external cavity. Typical laser configurations are Littrow- and Littman/Metcalf-cavity. We offer special plug-in modules for most measurement applications which are needed for state of the art measurements in spectroscopy such as trace gas analysis as well as for metrology. Please check our web-page for details.

About Sacher Lasertechnik

Company Profile

Sacher Lasertechnik is leading manufacturer of tunable external cavity diode lasers (ECDLs) with more than 15 years of experience. The product range includes anti-reflection coated diode lasers, ECDLs in Littrow and in Littman/Metcalf configuration as well as driver electronics for the LD and sophisticated measuring electronics. Please contact us with your measurement requirements. We would be proud to support you with our competence.

Please contact us

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