

# Dual frequency SRS detector set

The Dual frequency SRS Detection Set consists of a large area sensor and a dual frequency lock-in amplifier. The set has been developed specifically for demanding dual color SRS imaging applications.

Very high sensitivity in combination with very short integration times down to 100 ns make it the ideal choice for fast and accurate video rate imaging at two vibrational frequencies.

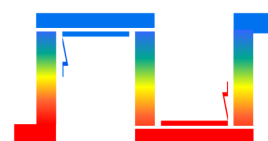


Other applications include dual frequency stimulated emission (SE) imaging and FD-FLIM.

The set comes optimized for frequencies of 13 MHz and 20 MHz (other frequencies on request).

## Specifications

<b>Frequency</b>	<b>8 MHz ... 30 MHz</b>
<b>Amplification</b>	<b>0 dB ... 58 dB</b>
<b>Typical Sensitivity</b>	$\Delta I/I = 5 \times 10^{-7}$ for 100 ns integration time $\Delta I/I = 2.5 \times 10^{-7}$ for 10 $\mu$ s integration time  (@ 50 mW / 800 nm shot noise limited laser radiation. Signal recovery below $\Delta I/I = 1 \times 10^{-7}$ possible with reduced SNR)
<b>Time constants</b>	100 ns; 300 ns; 2 $\mu$ s; 10 $\mu$ s; 20 $\mu$ s
<b>Synchronization signal</b>	100 mV ... 1 V @ 50 $\Omega$
<b>Phase</b>	0 ... 360° in steps of 1°
<b>Detection Sensor</b>	Large area silicon photodiode; 10 x 10 mm active area, 340 ... 1100 nm spectral response, (1030 nm optimized sensor on request)
<b>Maximum laser power</b>	50 mW @ 800 nm (unfocused)
<b>Demodulation signal frequency</b>	0 ... >5 MHz
<b>Rise time</b>	100 ns
<b>Insertion delay</b>	200 ns
<b>Output offset setting</b>	- 2000 mV ... 2000 mV; setting accuracy <2 mV
<b>Output swing</b>	-2.8 ... 3.5 V
<b>Unmodulated laser power Monitor output</b>	0 ... 5 V; small signal bandwidth > 50 MHz
<b>USB Communication</b>	Either GUI or MATLAB (< 10 ms settings refresh time)



MW Elektrooptik  
Rübenkamp 315  
22337 Hamburg

Tel.: (+49) 40 36199510  
E-Mail: [info@mwelektrooptik.de](mailto:info@mwelektrooptik.de)  
Web: [www.mwelektrooptik.de](http://www.mwelektrooptik.de)