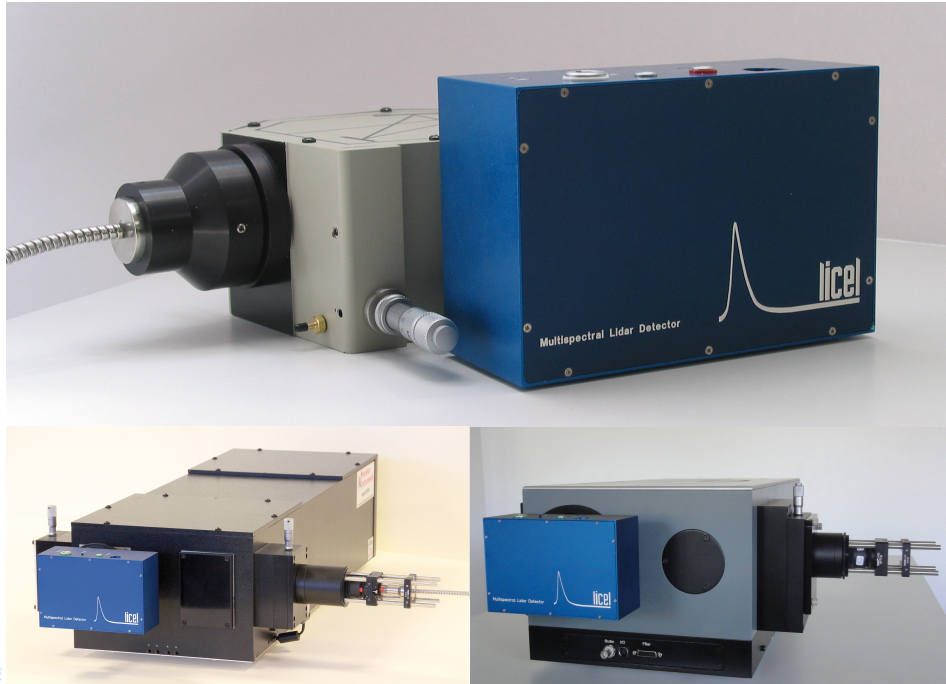


Multispectral Lidar Detector



High time resolution models: Sp32-xx-HR



Applications:

Time resolved multispectral data for

- Raman Lidar
- Fluorescence Lidar
- Temperature Lidar
- Aerosol studies (PM2.5, Pollen, etc.)
- Fluorescence lifetime measurements

Features:

- Multi anode PMT detector
- 32 channel single photon counting
- up to 0.3 nm/channel resolution
- 625 ps time resolution
- 230 MHz sustained photon count rate
- on board signal averaging
- integrated HV supply

System overview:

The Licel multispectral lidar detector allows simultaneous detection of multiple spectrometer wavelengths at high repetition rates.

It is based on a multianode, metal-channel-dynode photomultiplier. 32 photocathode elements together with 32 single photon counting systems provide 2-dimensional, spectral and time resolved data.

The high voltage supply, an adjustable discriminator and fast signal averaging are integrated on the module.

The Ethernet interface is used together with LabView software to control the measurement and readout the acquired data.

The Licel Multispectral Lidar Detector can be used with various flat field spectrographs.

Specifications

Single photon counting system:

Pulse pair resolution: 625 ps, 1/1.6 GHz
 Max. sustained photon count rate: (limited by detector): 230 MHz
 Bin width, select by software: 625 ps to 1 μ s
 No. of range bins: 32000 with 625 ps bins
 16000 with 10 ns-1 μ s bins
 Max. signal range: 3 km @625 ps binwidth
 2400km @1 μ s binwidth
 Max. fast mode trigger summation memory: 255 shots (625 ps binwidth), 4095 shots (10 ns binwidth)
 Max. summation memory: 10⁶ shots
 Max. acquisition rate in fast summation mode: 1/(tracelength + 5 bins)

Detector spectral sensitivity:

Ultra-Bialkali (-200): 300-650nm
 Multialkali (-20): 300-920nm

Detector geometry:

total detector area: 31.8 x 7mm
 single cathode area: 0.8 x 7mm (32 channels)
 inactive area between cathodes: 0.2 x 7mm

Anode uniformity, bialkali: 1:1.5 typ., 1:2 max
 multialkali: 1:1.7 typ., 1:2.5 max
 Cross-talk to channel n+1: 3%
 to channel n+2, n+3, n+4: 0.6%, 0.2%, 0.1%
 HV supply: 0... -1000 V
 max. total anode current: 100 μ A (30 sec)
 max. anode current per channel: 6 μ A (30 sec)

Power and dimensions:

SP32 size: 100 x 150 x 70 mm
 Power supply size: 91 x 128 x 220 mm, 3 HU cassette

Connectors:

Trigger input: +2.5V into 1 kOhm
 Computer Interface: 100/1000 Ethernet, RJ45
 AC Power supply: 100/110/230V 50/60 Hz
 DC Power: Lemo 1B307, Lemo 1B304
 Trigger input: Lemo Camac

order number: SP32-xx-HR

xx = cathode: -200 for bialkali or -20 for multialkali

Spectral range and resolution using different spectrometers:

spectrometer focal length	grating [lines/mm]	monochromator useful spectral range	32 channel detector wavelength span	spectral resolution
125 mm	600	317-850 nm	396 nm	12.4 nm/mm
	1200	317-850 nm	198 nm	6.2 nm/mm
	2400	317-500 nm	99.2 nm	3.1 nm/mm
500 mm	600	300-850 nm	101.4 nm	3.17 nm/mm @355nm
	1200	300-850 nm	48.6 nm	1.52 nm/mm @355nm
	2400	300-707 nm	21.1 nm	0.76 nm/mm @355nm
750 mm	300	300-850 nm	139.2-140 nm	4.35-4.38 nm/mm
	600	300-850 nm	68.8-69.4 nm	2.15-2.17 nm/mm
	2400	300-532 nm	12.2-15.1 nm	0.38-0.47 nm/mm



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