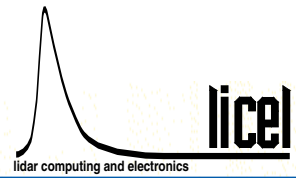


Si-Avalanche Photodiode module



Low noise - high speed detector @ 400 nm-1100nm



High NIR Quantum Efficiency

Now you can measure optical signals in the near IR with high quantum efficiency, comparable to UV-Vis detectors. Our Si-APD Module consists of a TE-cooled detector, a high-speed low-noise preamplifier and HV supply.

Integrated focussing optics and alignment

mechanics allow easy integration into your optical setup. The increased sensitivity in the near infrared is a major advantage compared to photomultipliers.

Enhanced and standard NIR sensitivity versions available.

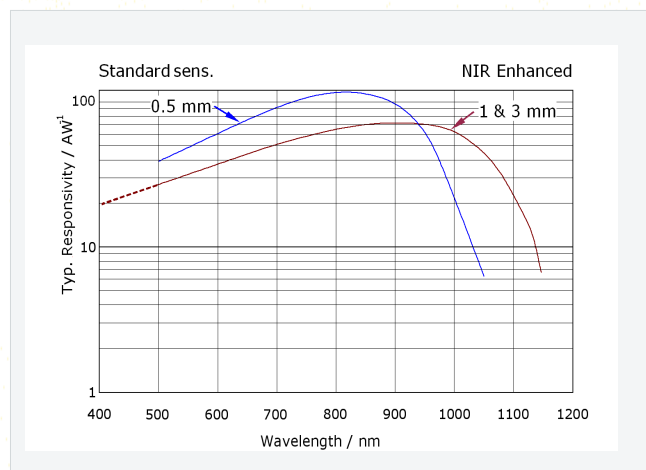
Features:

- 0.5, 1.0 or 3 mm dia. detector size
- thermoelectric cooled
- low noise, high gain preamplifier
- easy system integration with integrated alignment optics and mechanics
- integrated HV- and AC-power supply

Applications:

- LIDAR (Light Detection and Ranging)
- fluorescence detection
- replacement for photomultipliers >800nm

Spectral Sensitivity:



Specifications

Detector:

detector size: 0.5, 1.0, 3.0 mm dia.
responsivity @650 nm: $>50\text{A/W}^1$, 30A/W^2
responsivity @ 900 nm: 67A/W^2
responsivity @ 1060 nm: 42A/W^2 typ., $\text{QE}=38\%^2$
dark current @22°C: 5/50 nA typ/max (1 mm)²
9/90 nA typ/max (3 mm)²

¹ standard sensitivity: 0.5mm, ² NIR enhanced: 1mm, 3mm

Preamplifier for analog detection:

bandwidth: DC-10 MHz
gain: 11mV/ μA into 50 Ω
spectral noise current:
DC...1MHz 2 pA/ $\sqrt{\text{Hz}}$
DC...10 MHz 7.2 pA/ $\sqrt{\text{Hz}}$
output polarity: negative
output signal: 0...-1V (max), 0...-100mV
(typ. operation) into 50 Ω

HV supply:

voltage range: 0...+450V
max. current: 0.6 mA
voltage ripple: $<0.005\%$

Integrated TE cooler and temp. controller:

Detector temperature: $+0^\circ\text{C}$ (-20°C for 0.5mm APD)
Temperature stability: $<0.5\text{ K}$

Power supply:

input: 100V, 110V, 230V, 50/60 Hz
output: +5V, -5V, +15 V, linear regulated.

Environmental conditions:

Operating temperature: 0°C to 30°C (non condens.)
Storage temperature: -40°C to 70°C

Mechanics:

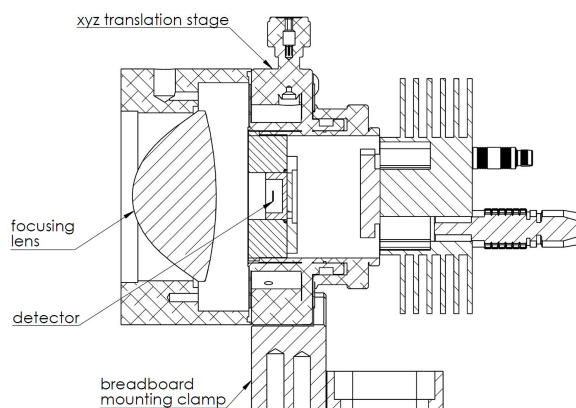
The compact APD/preamp/TEC controller unit is mounted in a XYZ translation stage for easy integration and alignment in detection systems.

XY axis travel: 6 mm
Z-axis travel: 6 mm
precision: 4 μm

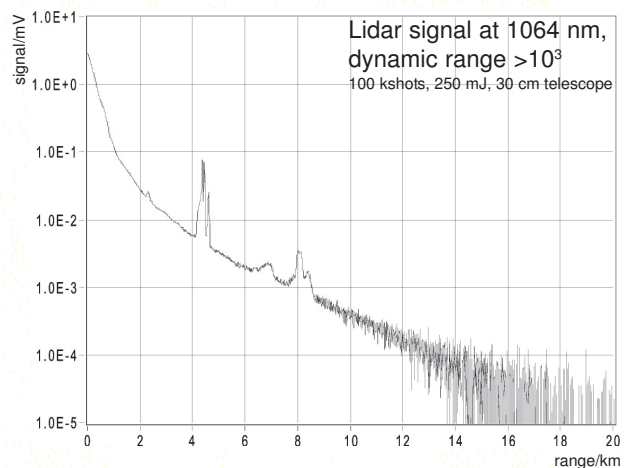
Dimensions and weight

Detector: 92 x 92 x 140mm, Power: 61 x 129 x 220mm
APD detector head: 875 g + cable 350 g
APD HV-Cassette: 1425 g
APD total = 2650 g

Detector head



Signals



International distribution:

USA:

Boston Electronics Corp.
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fax (617)731-0935
e-mail: boselec@boselec.com
www.boselec.com

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