

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.

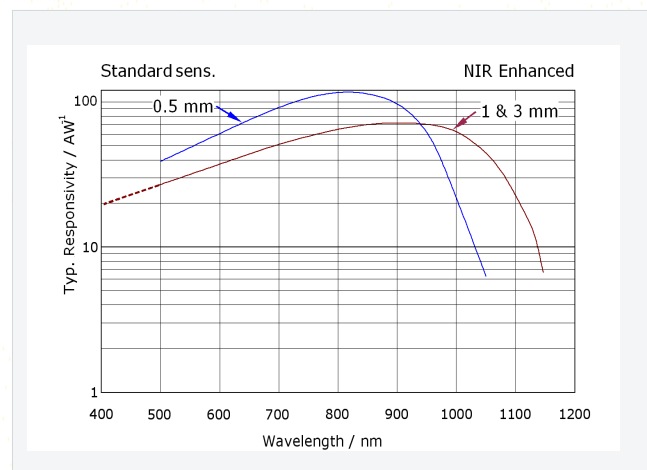
Features:

- 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.
QE @650 nm:	>80% ¹ , >55% ²
QE @ 900 nm:	65% ²
responsivity @ 1060 nm:	55 A/W ² typ., QE=50% ²
dark current @22°C:	5/50 nA typ/max (1 mm) ² 15/150 nA typ/max (3 mm) ²
spectral noise current: @10kHz	1 pA/√Hz typ., 2 pA/√Hz max.

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/√Hz
DC...10 MHz	7.2 pA/√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%

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:	4μm

Integrated TE cooler and temp. controller:

Detector temperature:	+0°C (-20°C for 0.5mm APD)
Temperature stability:	<0.5 K

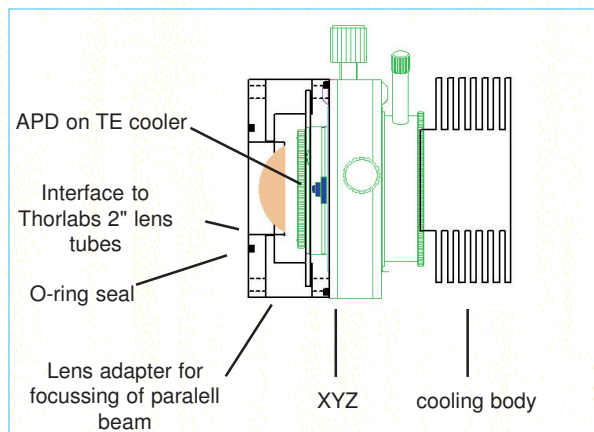
Power supply:

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

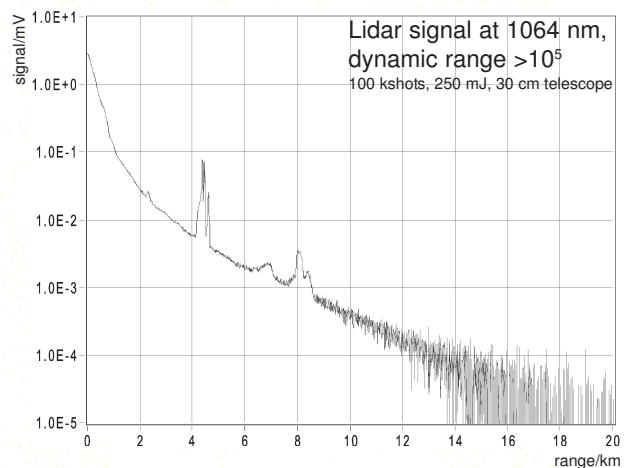
Environmental conditions:

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

Detector head



Signals



International distribution:

USA:

Boston Electronics Corp.
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