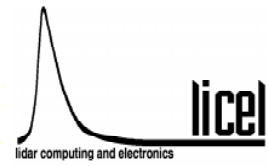


# Si-Avalanche Photodiode module



*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. Signals can be acquired using analog detection as well as

single photon counting mode.

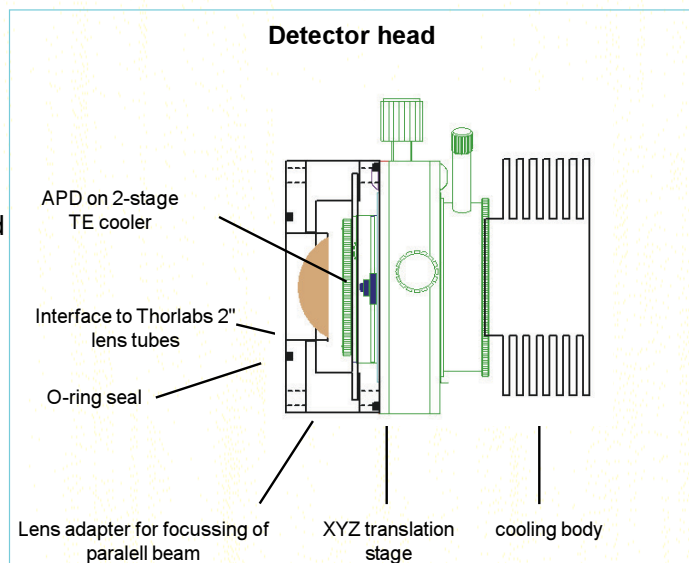
Integrated focussing optics and alignment mechanics allow easy integration into your optical setup. The increased sensitivity in the near infrared is a major advantage compared to photomultipliers.

## Features:

- 0.8, 1.5 or 3 mm dia. detector size
- thermoelectric cooled up to  $-20^{\circ}\text{C}$
- 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



## Specifications

### Detector:

detector size: 0.8, 1.5 or 3 mm dia.  
 QE @650 nm: > 80%  
 responsivity @ 1060 nm: 34 A/W typ., QE=38%  
 dark current @22°C: 50 nA (0.8 mm dia),  
 100 nA (1.5 mm dia.)  
 spectral noise current: 0.3 pA/sqrt (Hz) typ.,  
 0.5 pA/sqrt (Hz) max.

### Preamplifier:

bandwidth: DC-200 MHz  
 gain: 11mV/μA into 50 Ω  
 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: 5 mm  
 Z-axis travel: 6 mm  
 precision: 4μm

### Integrated TE cooler and temp. controller:

Detector temperature: +0°C (+25°C for 3mm APD)  
 Temperature stability: <0.5 K

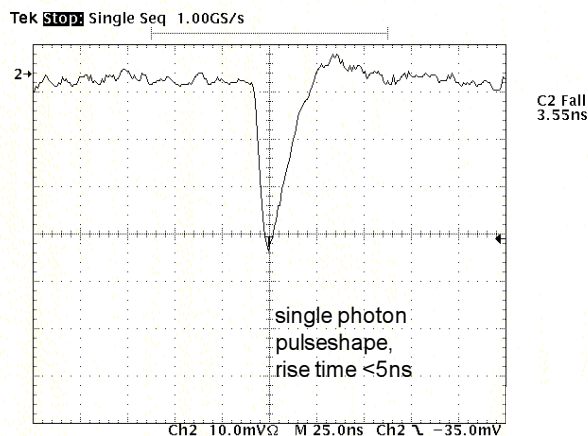
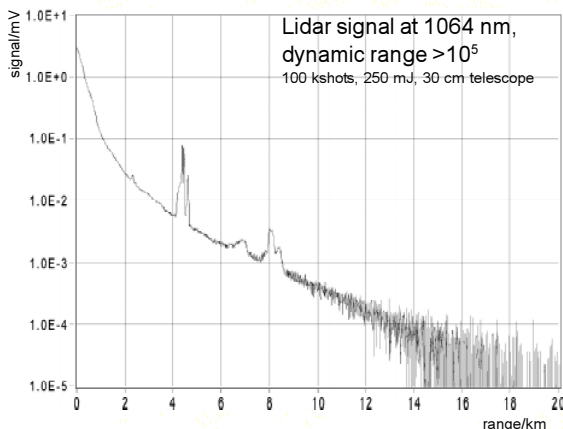
### Power supply:

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

### Environmental conditions:

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

## Signals



### International distribution:

#### USA:

Boston Electronics Corp.  
 91 Boylson Street  
 Brookline MA 02445  
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e-mail: [boselec@world.std.com](mailto:boselec@world.std.com)  
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#### Japan:

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 4-26-19, Koenzi-Minami-Ku  
 Tokyo 166, Japan  
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