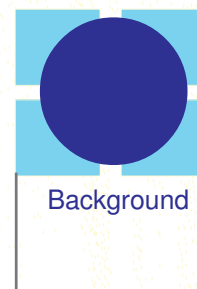


Boresite Alignment Sensor

4- quadrant, range resolved photon counting detector



Signals on Multi Anode PMT



Continuous alignment control:

In many LIDAR applications, daylight is among the major limiting parameters for the achievable signal range.

By implementing a continuous monitoring and correction of the alignment, the telescope field of view can be reduced close to the laser beam divergence. This can improve operation of narrow field of view Raman or micropulse lidars and unattended operation.

Method:

The LICEL bore sight alignment controller evaluates the image of the laser return from two user defined height ranges on a multi anode photomultiplier. It computes correction parameters for the beam steering.

Image the fieldstop on
Multi-Anode PMT

Measure signals at
two height ranges

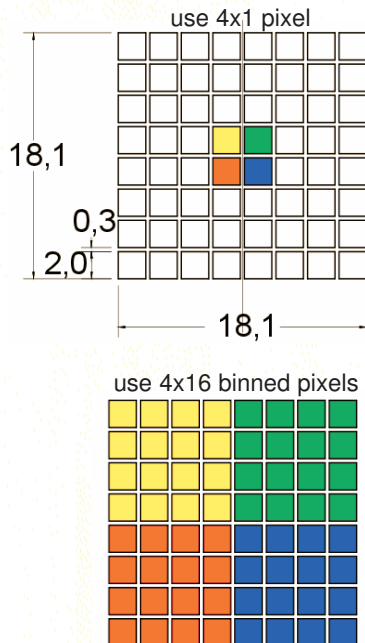
Compute signal spot
displacement

Correct beam steering

Method and Specifications

Pixel size configuration:

The pixels on the Multi Anode PMT can be binned to achieve 4 sensitive surfaces from 2x2mm up to 9,2x9,2mm.



Detector:

PMT: Hamamatsu H7546B
 spectral sensitivity : 300 nm - 650 nm
 Pixel size: 64x 2x2 mm

acquisition:

signal start height h_1 : 15m-15.36 km
 signal stop height h_2 : $h_1 + 15m-15.36 km$
 background start h_3 : $h_2 + 15m-15.36 km$
 background stop h_4 : $h_3 + 15m-15.36 km$
 max. count rate: 180 MHz
 max. integr. counts: 8192 photons/signal

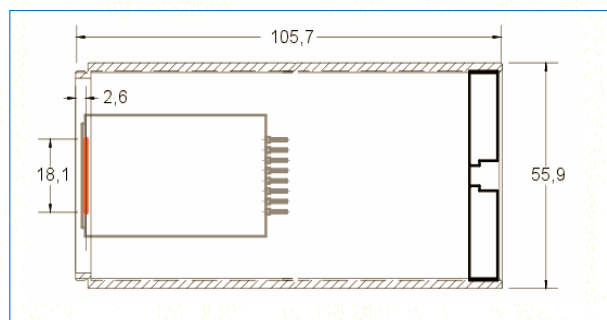
Mechanics:

Detector assembly: 56 x 106 mm, 350 g
 Ethernet Controller: 55 x 128 x 100mm, 400 g
 Interface to Thorlabs 2" lens tube system

Software control:

- set h_1 to h_4 with 15m resolution
- set discriminator level
- set HV
- variable number of shots to average
- height scan
- single photon pulse height distribution
- integrated number of photons for each pixel
- LabView source code supplied

Mechanics:



Data Interface:

Ethernet: 10/100 MB/s

Power requirements:

DC supply (not incl.): +5V, 1A, -5V, 0.2A, +15V, 0.2A

Environmental conditions:

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

International distribution:

USA:

Boston Electronics Corp.
 91 Boylson Street
 Brookline MA 02445
 phone (800)347-5445
 fax (617)731-0935

e-mail: boselec@boselec.com
 www.boselec.com

Asian Pacific Rim:

Electronics Optics Res., Ltd.
 3-fl., Onoda Building,
 4-26-19, Koenzi-Minami-Ku
 Tokyo 166, Japan
 phone 03-3314-5699
 fax 03-3314-2333
 email eor@tkd.att.ne.jp
 www.eor.jp

United Kingdom:

Photonic Solutions PLC
 Gracemount Business Pavillons,
 40 Captains Road,
 Unit A2/A3, Edinburgh, EH17 8QF
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