

Ethernet based lidar components

Overview:

The Ethernet based components for Lidar automation provide remote control for laser monitoring, timing parameters, detectors and transient recorders. The modules are building blocks for highly integrated detection systems.

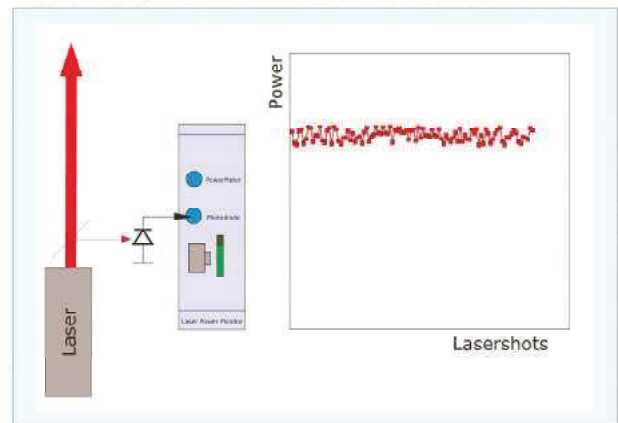
Ethernet is a modern, easy to use and very scalable system control technology. It fits perfectly to any PC. You can run your whole system from a laptop with an internet connection.

Laser Power Monitor:

Monitoring every laser shot is the optimum approach to detect laser pulse energy fluctuations, SHG and THG efficiency changes and flashlamp degradation of your laser . A laser spot reflection can be measured using a photodiode or a laser power meter.

specifications:

input:	photodiode/power meter
resolution:	10bit
max. rep. rate	100Hz

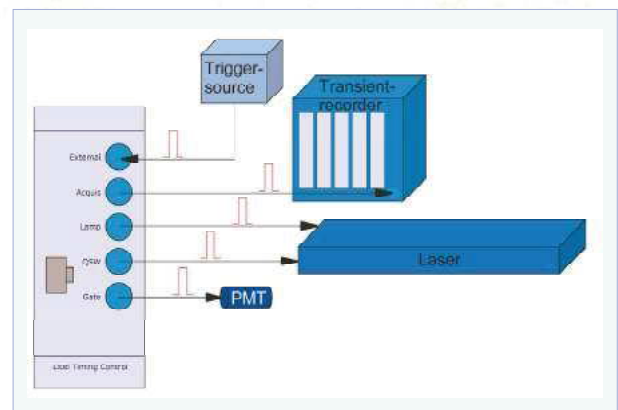


Timing Control:

Control the laser, the transient recorder and the gating from a single integrated module instead of using an external pulse generator. The module provides all necessary trigger signals: laser flashlamp, laser Q-switch, transient recorder and gating. Use these signals to setup a pretrigger solution where the laser can be either master or slave.

specifications:

Laser lamp out :	3.3V into 50 Ω , BNC
Lamp out frequency:	2.38 Hz - 78.125 kHz
Acquisition out :	3.3V into 50 Ω , BNC
Acquisition out delay:	88 ns - 819 μ s
Q-switch out:	3.3V into 50 Ω , BNC
Q-switch out delay:	50 ns - 819 μ s
Gate out delay:	75 ns - 819 μ s



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PMT/APD Control:

Remote controlling the detectors helps to optimize automated lidars. You can prevent signal saturation (low clouds), react on high or low solar background.

Without manual controls more compact systems can be built.

PMT Remote 8:

Remote control for PMT modules.

No. of PMTs to control: up to 8
high voltage set/read accuracy: +/-1V

APD Remote 4:

Remote control for APD modules.

No. of . APDs to control: up to 4
high voltage set/read accuracy: +/-1V
APD cooling control: on/off
Temp. in range monitor

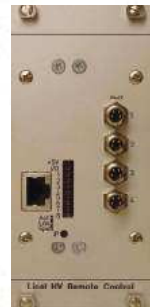
Transient Recorder Control:

Controlling the transient recorder over Ethernet allows to place the acquisition rack as close as possible to the detectors. The PC can be located anywhere in the LAN.

Older systems can be upgraded with this module, the software structure is very similar to make the transition smooth.

Transient recorder control:

No. of transient recorders: up to 16
trigger: global trigger input



Specifications for all Ethernet modules:

Data Interface:

Ethernet: 10/100 MB/s
Ethernet address: DHCP or manual

Software:

Executables and LabVIEW software source code is supplied. An additional C-based driver is available.

Mechanics:

All Ethernet modules can be mounted into 3 height unit cassettes or on the rear panel of the transient recorder rack.

Environmental conditions:

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

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