

PIXEA_1550

Picosecond Compact Laser Source

Excitation - Pump - Seed



The **PIXEA_1550** is a versatile, high-performance gain-switched **picosecond laser** designed for precision timing, demanding laboratory applications, and seamless integration into high-resolution optical instruments. Built with a **compact, self-contained design**, it combines precision drive electronics with intuitive software control to deliver **stable, repeatable pulses**. It serves as a flexible standalone laboratory source or a seed laser for pulsed amplification with direct **OEM integration**.

At **1550 nm** with **polarization-maintaining (PM) fiber output**, the PIXEA_1550 generates typical **50 to 70 ps** pulse width with timing jitter **below 5 ps**. Peak power is at **10 mW** typical. Repetition rate is continuously **adjustable from 5 kHz to 40 MHz**, with a **100 MHz option** available upon request.

The unit supports **internal or external clocking** and **master/slave operation**, with dedicated **UART and USB** interfaces as well as **Python/C++ APIs** for remote control. An intuitive software interface enables effortless parameter adjustment and output power optimization across the full operating range, making it a **plug-and-play** solution for various applications including **SPAD/SNSPD detector characterization**, **TCSPC/FLIM timing**, **high-resolution OTDR**, and time-resolved optical instruments.

Features

- All-in-one, 1U height design
- 5 kHz - 40 MHz adjustable
- 50 - 70 ps pulse width; reduced tails
- Timing jitter < 5 ps (typ.)
- Peak power ≥ 10 mW
- Power correction to pulse rate
- Ext./Int. trigger; master/slave
- USB remote controls
- GUI control
- Programming APIs: Python & C++

Applications

- QKD laser source
- Time-resolved spectroscopy
- Photodetector characterization
- TCSPC
- Seed laser & pump laser
- Semiconductor inspection
- LiDAR and range finder
- Optical fiber sensing

Options

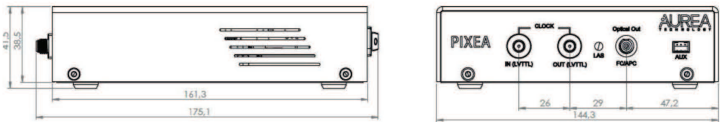
- 100 MHz rep. rate
- TTL to NIM converter
- Standard rack 19" 1U housing

TECHNICAL SPECIFICATIONS

OPTICAL & SPECTRAL PERFORMANCE	
Center Wavelength Pulse	1550 nm ± 1 nm
Peak Power ¹	≥ 10 mW
Laser Technology	Gain-switched laser diode
TIMING - FREQUENCY - SYNCHRONIZATION	
Pulse Width (FWHM)	50 - 70 ps typ. (< 100 max.)
Timing Jitter	< 5 ps typ.
Repetition Rate	5 kHz - 40 MHz
Operating / Trigger Modes	Internal / External Triggering
Sync Architecture	Master / Slave capability

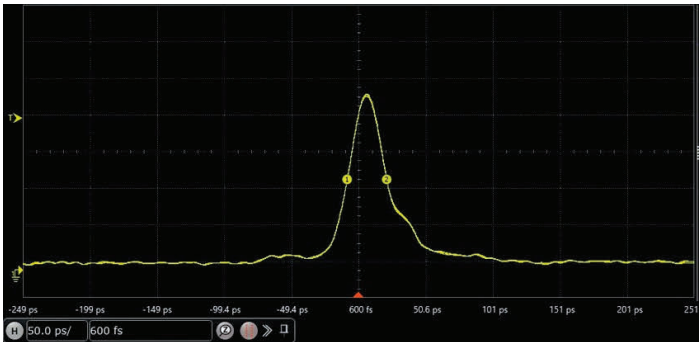
¹ Peak Power measured at 1550 nm.

MECHANICAL DRAWING



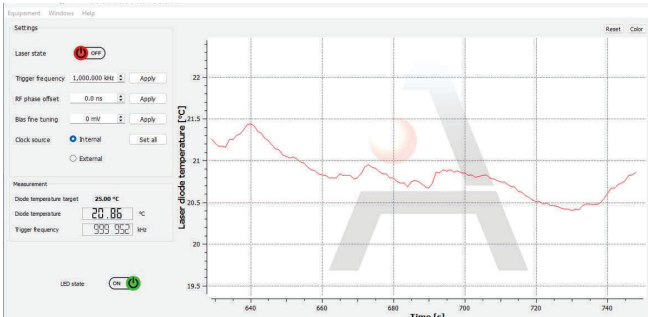
Compact OEM module footprint for seamless system integration

OPTICAL PULSE PROFILE & GUI



Sub-100 ps optical pulses optimized for precision timing

POWER - MECHANICAL - ENVIRONMENTAL	
Power Supply	+ 5 V DC (external adapter included)
Form Factor	1U rack compatible
Dimensions	161.3 x 144.3 x 38.5 mm ³
Weight	0.5 kg
Cooling System	Internal fan
Warm-up time	< 20 minutes
Operating Temperature	+15° C to + 35° C
Storage Temperature	0° C to + 65° C
Laser Safety	Interlock - Class 3B laser
INPUT/OUTPUT - DIGITAL INTERFACE - SOFTWARE	
Optical Output	FC/APC
Optical Fiber Type	PMF standard (SMF on request)
Embedded Interface	Dedicated UART Port
Host Interface	USB 2.0 Mini-B Port
Control Software	Dedicated GUI
Programming APIs	Python, C++
Supported OS	Windows, Linux



Intuitive GUI for live diode temperature tracking and parameter control

SOFTWARE

Control the PIXEA through its intuitive graphical user interface. Easily configure repetition rates (5 kHz to 40 MHz), master/slave operation modes, and trigger settings while monitoring laser status, clock source, and system temperature in real time.

For custom system integration, C++ DLLs and Python APIs with programming examples are provided. The software supports Microsoft Windows and Linux.

CUSTOMER SUPPORT

Integrating advanced technologies can be challenging, but AUREA Technology is here to help you achieve your objectives.

Work with AUREA Technology and benefit from our dedicated technical support team. Our experts in single-photon detection, low-light detection, and QKD systems are available to support you throughout your integration.

Contact our technical support team and receive an answer within a day at sales@aureatechnology.com.

ORDERING INFORMATION

PIXEA_1550

1310 nm wavelength and 100 MHz repetition-rate configurations are available on request.

WARRANTY

Any warranty shall be void if the Product has been damaged, disassembled, modified, misused, neglected, improperly installed, used beyond its specified ratings or operating conditions, otherwise abused, or used in hazardous activities.

DISCLAIMER

The manufacturer reserves the right to modify this document at any time without prior notice and disclaims liability for editorial, pictorial, or typographical errors.

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ACCESSORIES

- +5V, 12W, AC/DC power adapter, with AC power cord