



**PICOXEA features:**

- ✓ High-quality picosecond laser < 50 ps,
- ✓ High-QE Single Photon Detector,
- ✓ Fast timing TDC measurements 60ps,
- ✓ Remote control USB and wireless interface,
- ✓ Graphical User Interface,
- ✓ LabVIEW and C++ DLL libraries

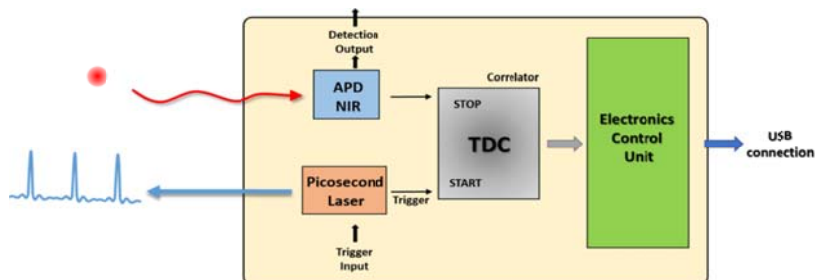
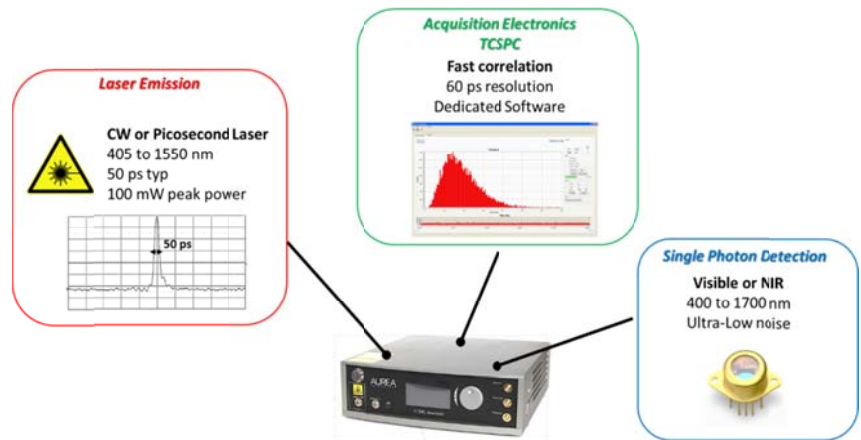
The PICOXEA from AUREA Technology is the first “all in one” and easy-to-use Time Correlated Single Photon Counting TCSPC ANALYSER.

Engineered with “high performance, and ease-of-use” innovative mindset, the PICOXEA fully integrates within the same box; the world’s most advanced Geiger-mode avalanche photodiode (Geiger-SPAD) and high efficient picosecond pulsed laser source and Time to Digital Converter (TDC) technologies. Moreover, it includes the fast data processing and also the most intuitive Graphical User Interfaces compatible with LabVIEW and most programming languages.

This newly design stand-alone PICOXEA TCSPC ANALYSER allows any very-low-level of light down to the single photon level required for fast event fluorescence, photoluminescence or Photon Source Time-Resolved measurements.

**Applications :**

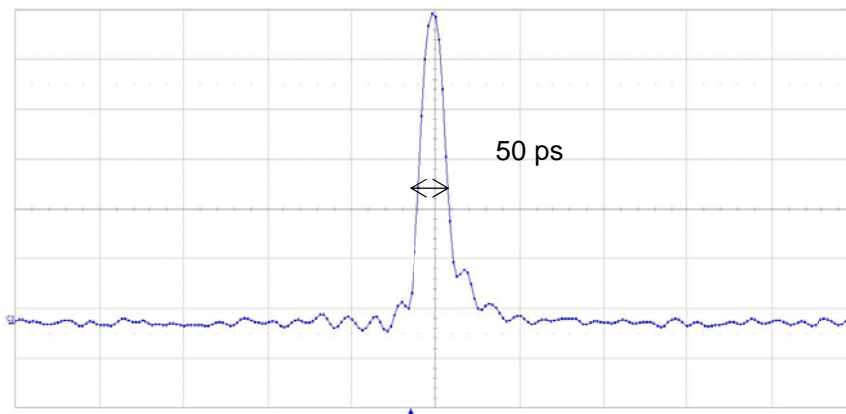
- Quantum Optics,
- Quantum Dots characterization
- Spectroscopy, Raman spectroscopy
- Photo-luminescence
- Singlet Oxygen measurement
- Eye-safe Laser Ranging (LIDAR)
- Fiber optics characterization (OTDR)
- Fluorescence life time
- Thin film characterization (OLED)



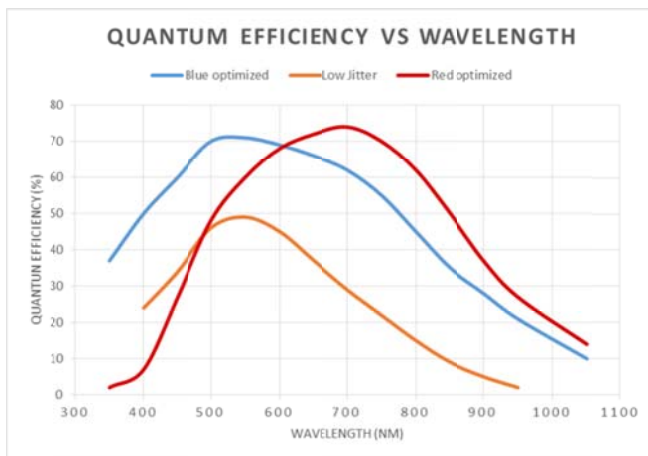
<b>SPECIFICATIONS</b>		
<b>LASER EMISSION</b>		
Wavelength	405 to 1550 nm (see table 1)	
Optical pulse width	35 to 80 ps (see table 1)	
Peak power	Adjustable to 250 mW max	
Repetition Rate	120 MHz max	
CW	Continuous laser emission available in option (typ 30 mW)	
<i>Other wavelength and pulse width available on request</i>		
Optical output	Single mode fiber , FC/PC Connector	
Laser Mode	Manual or Auto  Manual: the user choose the peak power  Auto: the peak power is automatically adjusted to keep a good and short pulse shape.	
<b>PHOTON DETECTION</b>	<b>@ 1550 nm</b>	<b>@750 nm</b>
Detector	InGaAs APD in Geiger mode	SI APD
Spectral range	900 to 1700 nm	400 to 900nm
Detection efficiency	10 to 25 % (adjustable)	Up to 75 %
Dark Count rate	< 5000 cps @ 10% Efficiency  < 1000 cps @ 10% Efficiency (champion "AC" option )	< 250 cps grade C  < 100 cps grade B  < 50 cps grade A
Timing Jitter	< 200 ps @ 20% QE	< 280 ps, (<50ps in option)
Dead Time range	Adjustable 500ns to 1 ms. (100ns increments)	60 ns typ
After pulsing Probability	< 0.1% at 100 kHz @ 10 ns gate and 10% QE  < 5% at 1 MHz @ 10 ns gate and 10% QE	< 0,5% à 10MHz @ 500 ns gate
Detection output signal	TTL signal [20 ns width]	TTL or NIM
Delay	Variable from 0 to 128ns [0.5ns increments]	Variable from 0 to 128ns [0.5ns increments]
<b>TRIGGER SIGNAL (Gate)</b>		
External trigger	Variable up to 20 MHz, TTL	Variable up to 20 MHz, TTL
Internal trigger generator	Variable up to 20 MHz (generator provided)	Variable up to 20 MHz, TTL
Effective gate width	Adjustable from 1 to 100 ns [0.5ns increments]	Adjustable from 1 to 100 ns [0.5ns increments]
<b>CORRELATION</b>		
Resolution	60 ps (time bin)	
Measurement range	0 to 500 ns	
Correlation Data rate	up to 0.5 million correlation/sec	

**Table 1 : Laser specifications by wavelength**

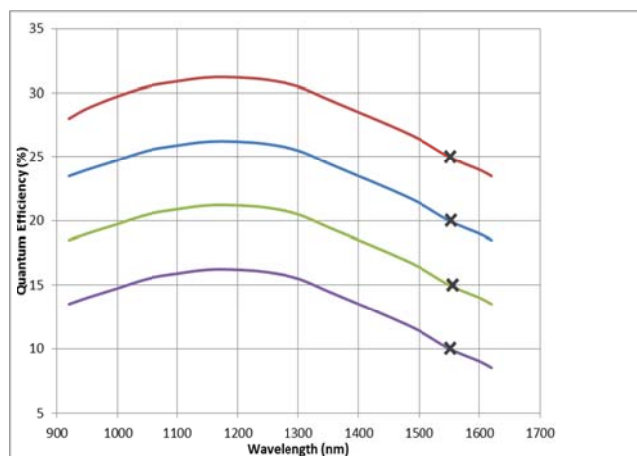
Las-xxx	Wavelength (nm)	Pulse width (ps)	Peak power (mW)	Spectral width (nm)
LAS-440	440	< 60	> 150	< 5
LAS-470	470	< 60	> 150	< 5
LAS-510	510	< 80	> 100	< 10
LAS-635	635	< 45	> 200	< 7
LAS-665	665	< 45	> 200	< 7
LAS-690	690	< 50	> 200	< 7
LAS-770	770	< 50	> 100	< 7
LAS-830	830	< 45	> 100	< 10
LAS-850	850	< 50	> 100	< 10
LAS-905	905	< 50	> 100	< 10
LAS-106	1060	< 60	> 100	< 15
LAS-131	1310	< 35	> 50	< 15
LAS-155	1550	< 35	> 50	< 15
<b>Other wavelengths, pulse widths or power available on request</b>				



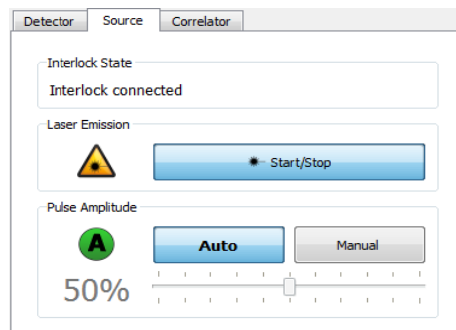
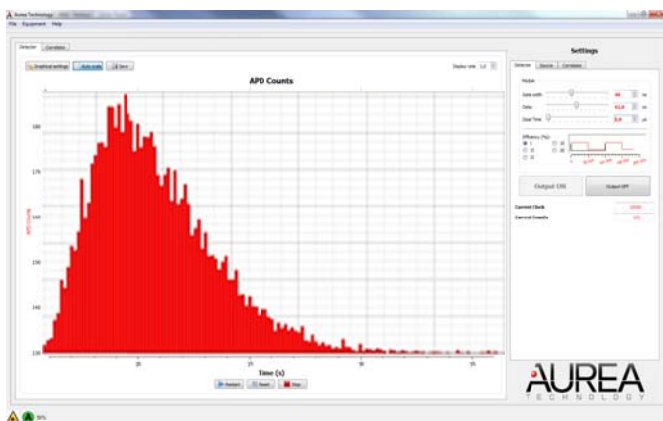
**Measure of picosecond laser excitation @ 650nm for 80 MHz repetition rate**



QE vs Wavelength for VIS detection (3 different options)



QE vs Wavelength for NIR detection



Screen-shots of the software

- **Connector :**

<b>CTL_USB</b>	Mini USB 2.0 type B
<b>Opt IN</b>	FC/PC optical connector (other types on request)
<b>Opt OUT</b>	FC/PC optical connector (other types on request)
<b>Detection OUT</b>	SMA female type
<b>Trigger (Clock IN &amp; OUT)</b>	SMA female type

- **Electrical, Mechanical and Environmental :**

<b>Power supply</b>	110 – 230 VAC
<b>Power consumption</b>	< 10 Watts @ 5 VDC
<b>Dimension (LxWxH)</b>	330 x 280 x 80 mm3
<b>Weight</b>	4 kg
<b>Operating temperature</b>	+ 10°C to + 30°C
<b>Storage temperature</b>	- 40°C to + 70°C

- **Quality control**

A complete test sheet and user manual is provided for each system.

- **Ordering Information**

**PICOXEA\_LASXXX\_YYY\_ZZ\_00**

**YYY: VIS** for visible range or **NIR** for Infra-red range

**ZZ : BL** for blue, **RD** for red and **LJ** for low jitter

00 for FC/PC laser output and detector input
01 for FC/PC laser output and FC/APC for detector input
10 FC/APC laser output and FC/PC for detector input
11 FC/APC laser output and for detector input

- **Contact Information**

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