

Twin Photon Source for Quantum Innovation!



First worldwide self-contained Entangled Photon Pair Source

Features

- Very high brightness
- High wavelength stability
- Built-in pump laser source
- Easy-to-use Graphical User Interface
- High-speed USB 2.0 interface
- LabVIEW and C++ DLL libraries

Applications

- Quantum Cryptography
- Quantum Computing
- Quantum Teleportation
- Quantum Imaging
- Quantum Sensing

Options

- 2-channels output: Polarization or wavelength splitter
- Heralded photon source
- External pumping laser input
- 2-channels photon detectors
- Internal pulse pumping mode
- Narrow optical filter

AUREA Technology offers the first worldwide self-contained high-brightness Entangled Photon Pair Source at telecom wavelengths, ideal for quantum information technologies. With only 5 mW pump laser, it performs a spectral brightness of more than 10^5 photons/s/pm! This innovative efficient entangled photon source is very well designed. It is a very easy-to-use complete table-top system. It also provides a convenient front-panel touch-screen display and ergonomic PC Graphical User Interface managed via its fast USB connection. Moreover, DLL libraries are also provided for LabVIEW, C++, and Visual Basic user interface developments.

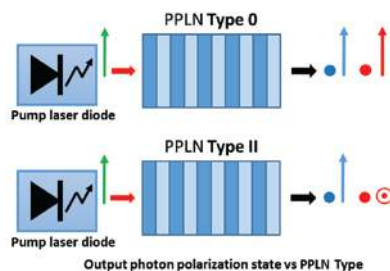
Entangled photons have appeared to be a promising way for both demonstrating quantum physics principles, and novel quantum information applications. For example, entangled photons allows the development of Quantum Key Distribution securing data networks over hundreds of kilometers. In biological imaging applications, entangled-photon light source allows yielding original dispersion-free measurements. Hence, the manipulation of the non-classical properties of such photon source have great potential for the development of very new quantum applications.

Principle

Twin photons are generated using Spontaneous Parametric Down-Conversion (SPDC) in Periodically Poled Lithium Niobate PPLN waveguide (Quasi Phase Matching-QPM),

An internal laser is pumping the PPLN to generate the photon pairs at the telecom wavelengths. External pump laser is also available in option.

Output options: Collinear Polarization (Type 0), or Orthogonal Polarization (Type II).



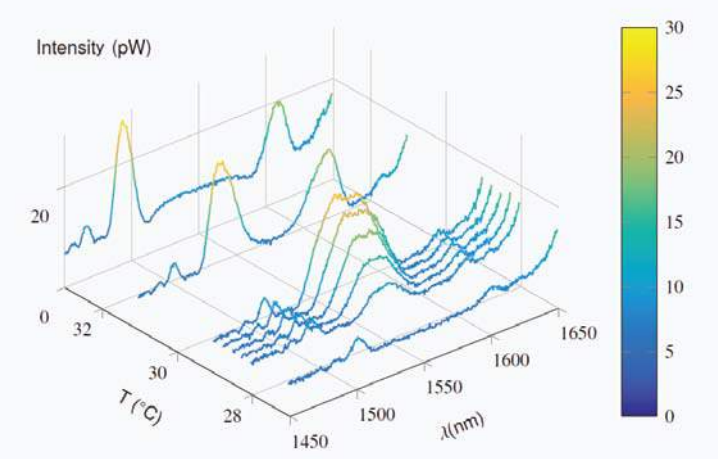
Typical Specifications

Wavelengths selection	810 nm, 1310 nm, or 1550 nm
Effective Spectral Brightness	$> 10^5$ pairs/s/pm
Spectral emission bandwidth	50 nm for Type 0 1 nm to 2 nm for Type II
Wavelength stability	5 pm
Wavelength range tunability	5 nm with external pumping
Wavelength tunability resolution	10 pm

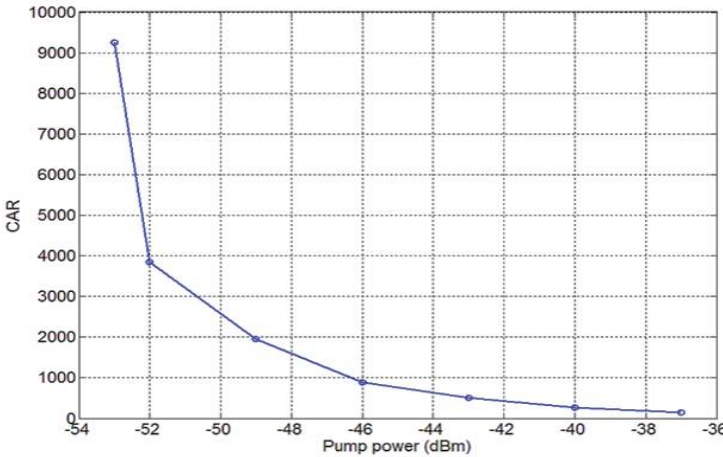


Photon pair correlation measurement

Spontaneous Parametric Down-Conversion Spectrum (SPDC) versus Temperature (775nm laser pump)



Coincidence-to-Accidental Ratio (CAR) versus pump power



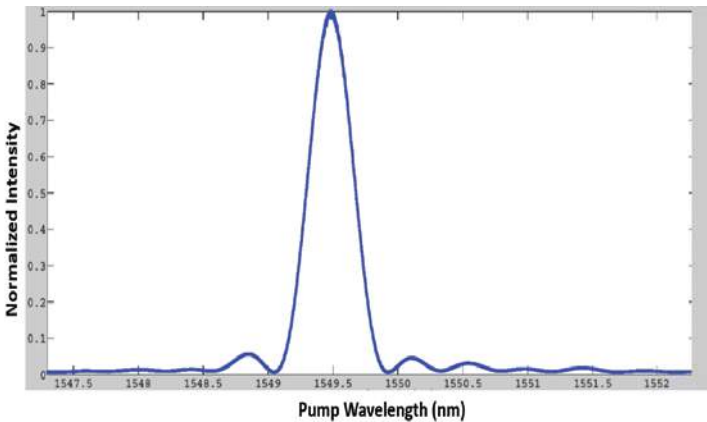
Connectors

Data transmission	Mini USB 2.0 type B
Optical output	PM FC/APC
Optical laser pump input	PM FC/APC (in option)

Electrical, Mechanical and Environmental

Power supply	110 – 230 VAC
Power consumption	< 10 Watts @ 5 VDC
Dimension (LxWxH)	315 x 285 x 85 mm ³
Weight	5 Kg
Operating temperature	+ 10°C to + 30°C
Storage temperature	- 40°C to + 70°C

Second Harmonic Generation versus Wavelength



Other available Photon Counting modules

AUREA Technology provides a large portfolio of high-performance Single Photon Counting, Time-Resolved Single Photon Counting, and picosecond pulsed laser modules from 400 nm to 1700 nm.



Ordering Information

TPS_XXXX_Y

XXXX

Y

810: 810 nm output

1300: 1300 nm output

1550: 1550 nm output

E: External pump input

Contact Information

For more information contact us at support@areatechnology.com