

Superconducting

Nanowire

Single

Photon

Detection

System

SINGLE QUANTUM B.V.

05 03 2024

Quotation 20240305 - SLAB

Mr. Zhang Jihua
 Songshan Lake Materials Laboratory (SLAB)
 Dongguan, China

Date: 05 March 2024
Expire Date: 04 June 2024

Description		Qty	Price
Single Quantum Eos Closed-cycle cryostat for up to 8 detector channels with He compressor.		1	€ 65,000. -
Electronics	Atlas 400 4-channel electronic driver providing computer controllable bias current; voltage pulse amplification; real-time photon counting; automated unlatching.	1	
Software	Single Quantum software Browser-based interface to provide fully computer-controlled operation.	1	
Detectors	Ch. 1-2 SSPD-1550-BB-80 (Price per Detector: € 20,500. -) Fiber-coupled SNSPD, Peak SDE>80%@1550nm SDE>70%@1310nm~1550nm (characterized SDE 80%@1550nm and SDE 70%@1310nm) DCR: ≤100 Hz, TJ: ≤40 ps, measured at 100 kcps incoming photon flux.	2	€ 41,000. -
	Ch. 3-8 Upgraded Positions TCSPC Module: Time Tagger Ultra - Performance Edition - Base System, 4 channel streaming time tagging system with 8 ps time resolution (RMS jitter), USB 3.0, 70 M tags / s, 2.1 ns dead time, +- 3.3 V input range, +- 2.5 V trigger level range, synchronizable, full software package, free software and firmware updates included.	1	€ 15,000. -
Other	Packaging and shipping, incl. insurance	1	€ 2,900. -
	On-site installation and training	1	€ 1900. -
	Special Discount for Academic	1	-€ 21,3000. -

TOTAL (excl. sales tax/CIP Shenzhen Airport)

€ 104,500. -

Billing address:

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C. of C. No.: 54424089

VAT No.: NL851299647B01

IBAN: NL66 RABO 0166 423 998

Terms and conditions

1. Unless explicitly otherwise agreed the General Conditions of Single Quantum Products are applicable, filed with the Chamber of Commerce under number 54424089. Please contact us if you would like to receive a hard copy.
2. Sales Tax is excluded in the price quoted.
3. Terms of Shipment: CIP, Incoterms 2020
4. Terms of Payment: 50% of the total amount to be paid in advance along with the order and the balance to be paid before delivery.
5. Delivery Date: 6-7 months after purchase order.
6. Installation and training take 2 days and include set up of the system, basic demonstration of operation and user training. With the remote installation, SQ Service Engineer will be available via videocall.
7. Condition for academic discount: The customer is expected to acknowledge the Single Quantum instrument when results measured with the instrument are published in scientific papers.
8. Abbreviations used in system specifications: SDE: System Detection Efficiency, TJ: Timing Jitter, DCR: Dark Count Rate, MCR: Maximum Count Rate, DT: Dead Time



Approved by  **SINGLE QUANTUM**
Excellence in photon detection
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Technical specifications and system configuration

Detector #1-2: SSPD-1550-BB-80 Detectors

System detection efficiency	SDE>70%@1310nm~1550nm (characterized SDE 80%@1550nm and SDE 70%@1310nm)	
Dark count rate	Standard	≤ 100 Hz
Maximum count rate		≥ 5MCps (at >50% of Peak SDE)
Timing jitter (FWHM) ²	Standard	≤ 40 ps
After-pulsing		None
Fiber Type - Connector type	Single mode fiber (SMF28) - FC/PC	

¹ Maximum continuous detection rates when the system detection efficiency decreases by ≤ 3dB, measured with a pulsed laser at 5MHz. At high count rate, the bias current may need to be adjusted which will influence the detection efficiency.

² Timing jitter is measured at 100 kCps count rate with pulsed laser and *high - end* oscilloscope.

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System Configuration

Output pulse height	≥ 200 mV	
Output pulse interface	SMA	
Electronic driver digital interface	Ethernet or USB	
Software ³	Browser-based software	
Continuous operation time	≥ 10,000 hours	
Detector unlatching	Automatically	
Operational temperature	~2.5 K	
Cooldown time	4 - 6 hours	
Cryostat dimension	240 × 340 × 590 mm	
Compressor type	Air-cooled or water-cooled	
Compressor dimension	Water-cooled, F-20L	617 x 444 x 453 mm
	Standard air-cooled, FA-20L	832 x 453 x 443 mm
	Compact air-cooled, CNA-11	610 x 383 x 450 mm
	Compact air-cooled, KDC 1000A	550 x 430 x 400 mm
Helium flex tubes	2 x 6 meters	
Maintenance Interval	Cold Head:	≥ 10.000 hours (cold head hot swap)
	Compressor:	≥ 30.000 hours (adsorber replacement)
Language of user manuals	English	

³ Computer with Windows 7 or higher is preferred. It is compatible with various programming languages.

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Delivery, installation, training and warranty

DELIVERY REPORT

The system is delivered after receiving an approval from the user on the system characterization report. The system characterization report includes the detection efficiency vs bias current graph and dark count rate vs bias current graph measured over a range of 0 uA up to and including the point of maximum efficiency per each channel. The timing jitter histogram and maximum count rate per channel is also included in the system characterization report. The measurement technique and experimental setup is explained in the report.

DELIVERY

The system will be delivered to the client address with DAP, Incoterms 2020 including insurance. Appropriate packaging material and insurance during the shipment are also included in the quotation final price.

INSTALLATION

The dates for installation and commissioning will be agreed in close consultation between the client and Single Quantum B.V. Installation and training will be performed together with a technical service engineer and the client. Installation and training take 2 days and include set up of the system, basic demonstration of operation and user training. A technical service engineer from Single Quantum B.V. will instruct the responsible employees of the client in its use, operation, and special features - especially with regard to occupational safety. Operating instructions / manual, technical data sheets will be provided with the system in English.

Warranty

The system has 12 months of full warranty on the entire system and on all components, starting after the date of installation of the SNSPD system. In case the installation is delayed by the buyer for more than 30 days after delivery, the warranty period starts with delivery date.

After-Sales Service

Single Quantum B.V. employs technical service engineers dedicated for customer service in English. The response time from a technical service engineer does not exceed one working day. The response from the technical service engineer does not require to offer an immediate solution. It is possible that understanding the source of faults and providing a solution can take more than one working day.

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