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Technical Specifications for Custom photonic characterization setup SNSPD.

Sl. No	Description	Specification/Details	Technical Compliance (Yes/No)
1	Each detector wavelength range	1200 nm -1600 nm	
2	Number of channels	2 or more	
3	Detection Efficiency	> 70% in the whole range of 1200 nm-1600 nm System detection efficiency (in %), including a potential loss at fiber connection box on the system, with the polarization set to obtain the maximum efficiency	
4	Timing Jitter	< 35 ps Jitter: FWHM value (in ps) of the timing jitter histogram (also called Instrument response function). The equivalent RMS value is obtained by dividing this value by 2.355.	

5	Dark Count Rate	<p>≤ 100 cps at peak efficiency; provision to reduce dark counts via software</p> <p>DCR: Dark count rate (in counts per second, cps) of the detector when measured with a metal cap put on the fiber input connector.</p>	
6	Optical input	Fiber-coupled, Single Mode Fiber (SMF28) – FC/PC, should support the mentioned range	
7	Maximum detection rate	> 50 Mcps (Million counts per second)	
8	Recovery time (RT)	< 30 ns Recovery time (RT) : time (in ns) for the system detection efficiency (SDE) to recover to 50% of its nominal value after a detection	
9	Output pulse format	TTL	
10	Output pulse width and height	> 5 ns, > 100 mV	
11	Latch-free operation	Yes, detectors should not suffer from latching. No unlatching mechanism in any operating condition.	
12	Latency between input and output	Any latency between input and output to be specified	

13	Fiber input and connector	Single-mode fiber, with FC/PC or FC/APC	
14	Electrical output port	SMA connectors	
15	Cryostat Specifications	<p>Compact and low-noise air-cooled He compressor</p> <p>Operating Temperature (at the best detector efficiency) : ≤ 2.5 K</p> <p>Temperature stability: < 10 mK</p> <p>Cryostat Compressor type: Air-cooled (water chiller-based systems not acceptable)</p> <p>Temperature controller: To be included</p> <p>Vacuum pump: To be included</p> <p>Helium Flex Lines: 6 meters or longer included</p> <p>Runtime at base temperature: uninterrupted SNSPD operation</p> <p>Cryostat Operation: Continuous operation $\geq 10,000$ hours without intervention</p> <p>All the accessories and cables: To be included</p> <p>Cryostat dimensions: To be specified</p>	

		Rack-mountable: Yes	
16	Software to control and process data from the detector	Must be included with capabilities for controlling	
17	Any cables, connectors or other accessories required to connect the TCSPC to the single photon detectors	Must be included	
18	Installation and training	Should be Included	
19	Warranty	Minimum of one year	
20	Detector Integration Capability	Supports up to 12 detectors for current and future applications	