**Technical specification for Single Photon Counting Camera – Electron Multiplier Charge-Coupled Device**

**Accessories which need to be included in the quote/bid for price comparison**

* All electronics and cables required up to transferring data to computer
* Software drivers, SDKs and programmes with User-interface should be provided
* Drivers/DLLs for LabView and/or Matlab should included
* Warranty for 1 year, minimum.

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| **Single Photon Counting Camera** | | |
|  | **Specification** | **Value** |
| 1 | Vacuum warranty : | Minimum 7 years (please submit certificate from OEM stating that any repairs to warranty in this period will be without any cost to user, all charges of freight, clearance, customs and taxes will have to be borne by the OEM.) |
| 2 | Technology | Electron Multiplier Charge-Coupled Device |
| 3 | Image sensor size / active pixels | at least 512 x 512 pixels |
| 4 | Pixel size | 16 x 16 μm or larger for good dynamic range |
| 5 | Image area | 8 x 8 mm or larger, with 100% fill factor minimum |
| 6 | Cooling | Air-cooled with option to add water cooling at a later date with addition of a chiller (no hardware changes to the camera head should be required) |
| 7 | Detector type | Back-illuminated with standard AR coating |
| 8 | Peak Quantum Efficiency | > 95% with fringe suppression |
| 9 | Triggering | Internal, External, External start, External Exposure, Software trigger |
| 10 | Digitization | 16-bit or better (at all speeds) |
| 11 | PC interface | USB 2.0 (or higher) or Gig E |
| 12 | Lens mount | C-Mount |
| 13 | Dark current (e-/pixel/sec) @ max cooling | **0.00020** or better  (This specification has to be guaranteed and detector has to be tested at deepest cooling and shown to meet this specification. Test report has to be submitted prior to shipping.) |
| 14 | Pixel readout rates | EM Mode:   * Flexible readout rates with highest frame rate of 50 frames per second at full resolution or higher; and * Max. read out noise of 15 electrons when EM gain is OFF.   Conventional mode:   * Flexible readout rates with minimum read noise of 3 electrons * Minimum Read noise: < 1 with EM multiplication |
| 15 | Linear absolute Electron Multiplier gain | 1 - 1000 times or better with calibration stable at all cooling temperatures (Temperature-compansated EM gain)  EM calibration via software routine is essential. |
| 16 | Linearity | Better than 99.5% |
| 17 | Vertical clock speed | 0.3 to 3 μs selectable by software |
| 18 | Time stamp accuracy | 10 ns or better. |

**Optional Accessories (please quote for these in addition)**

* Any other relevant optional accessories.