

Ahmedabad University

Procurement of High-Speed Camera

Vendor Technical Pre-Qualification

Sr No.	Criteria
1	Bidder must have a minimum of more than 10 years of experience in the supply of related products within the respective industry. .
2	Should have installed at least 50 machines at different educational / private / public institutions and organizations.
3	Authorized dealer/distributor certification from original equipment manufacturers.
4	Bidder/authorized dealers' OEM must be capable of providing supply, servicing, spare parts, technical assistance, and training, along with periodic technical updates, for a minimum of 5 years after the machine's supply.
5	The warranty period should be clearly mentioned. The comprehensive warranty will commence from the date of the satisfactory installation/commissioning of the equipment against the defect of any manufacturing, workmanship and poor quality of the components. Annual maintenance charge (AMC) post-warranty period should be specified.

Technical Specifications

AURIS Requisition Number: 3039

Machine Type: High-Speed Camera

Quantity: One (01)

Technical Criteria: The technical evaluation of all the proposals will be done in the following parameters:

1. Sensor type: Backside illuminated CMOS, Mono.
2. Sensor's Full Resolution: Minimum 1 Mega-pixel or higher.
3. Sensor size: $\geq 23 \times 15$ mm.
4. Frames per Second at Full Resolution: $\geq 12,000$ fps at a resolution of 1280×832 or higher.
5. Maximum Frames per Sec at Minimum Resolution: $\geq 2,25,000$ fps at a resolution of 256×128 or higher.

6. 1280 x 832 Back-side Illuminated (BSI) sensor ensuring superior image performance.
7. Programmable I/O for advanced signals control, synchronization and precision triggering.
8. 10Gb Ethernet or higher.
9. With provision of hardware and software trigger.
10. I/O Signals: 3 ports for Strobe, Timecode Out, MultiStrobe, Auto Trigger(+ mode 2), SW Trigger, Recording, Event In, Memory Gate In, Pre-trigger In, Aux-trigger In.
11. Ports: At least - Ethernet - Fischer 8-pin; RDIO Range data + 2 Programmable I/O - Fischer 8-pin; 2 Dedicated BNCs for Trigger, Timecode-in and SDI Video 1 Dedicated BNC for Programmable I/O.
12. Control Software:
 - a. User friendly software needs to be quoted to control the camera & allow to play back the recorded video.
 - b. The camera control software should display the record parameters like frame rate, resolution, record duration, trigger mode, etc. before recording.
 - c. The camera control software should be capable of letting the user review/ crop recorded video before saving.
 - d. SDK available for C/C++, C#, Python, MATLAB and LabView.
 - e. Raw file analysis software for Tracking, Vibrations, Rotations, Subpixel tracking.
13. Internal Storage: ≥ 32 GB or more.
14. Non-volatile media slots: Option to use CF Cards or equivalent.
15. Pixel size: Standard: 18micron or more, and Hardware Binned: 36 micron or more
16. Bit depth: 12 bits
17. On camera control: Provision to use the monitor without the system for the camera basic function.
18. Port: Programable I/O
19. Mount: Standard F mount
20. Exposure time: 1.1 μ Sec at any speed

21. Connectivity option: Ethernet
22. Triggering Option: BNC- Trigger, Software trigger
23. Operating Temperature: 0 to 50 Deg. C
24. Power: AC 220-240 V, 150-200 W
25. Particle Image Velocimetry (PIV)
 - a. It should be possible to use this camera for PIV measurements.
 - b. Shutter off mode with straddle time: Minimum 240-250ns which supports burst mode.
26. Video Output: SDI and HDMI video outputs for continuous monitoring and smooth playback.
27. BNC for the external trigger should be available.
28. EMV A 1288 Measurement standards
29. Dynamic range: 51-53dB Temporal dark
30. Noise: 23-25 e-Max
31. SNR (dB): 39-41 or better
32. Quantum Efficiency (QE) > 80%.
33. Lightweight, compact size: less than 5 kg.
34. Lens: Minimum one lens Zeiss 100mm or equivalent macro lens.
35. Installation & commissioning Onsite
36. Include all cables necessary for satisfactory camera operations, including power cable, Ethernet cable, and mini. One BNC cable

Terms & Conditions

1. General Overview

This document outlines the terms and conditions (T&Cs) that apply to the procurement of High-Speed Camera, which will be provided as part of this tender. All prospective suppliers must adhere to these T&Cs to participate in the tender process.

2. Submission Guidelines

- i) **Submission Deadline:** Bids must be submitted no later than 21 days from publication on the Ahmedabad University Portal. Late submissions will not be accepted.
- ii) **Submission Format:** All tender submissions must be made through a sealed copy to the Procurement Office, Ahmedabad University, Gate No. 2, Commerce Six Roads, Navrangpura, Ahmedabad – 380009.
- iii) **Tender Validity:** The tender must remain valid for a minimum of 60 days from the submission deadline.

3. Technical Specifications

- i) **Product Requirements:** Tenderers must provide an High Speed Camera that meets the specified technical and performance criteria outlined in Technical Specifications Sheet (attached technical specification).
- ii) The Supplier is responsible for ensuring that all equipment and material are delivered in full working order and meet the specified technical requirements.
- iii) The Supplier shall also provide any necessary training, documentation, or additional services as stipulated in the tender.

4. Pricing and Payment Terms

- i) **Price Structure:** The tender price must be inclusive of all costs, including but not limited to delivery, installation, training, and any other charges.
- ii) The bidder should submit an accessory one-year AMC proposal along with the commercial proposal.
- iii) **Payment Schedule:** The payment terms will be processed against satisfactory delivery and installation.
- iv) **The payment shall be processed through the Public Financial Management System (PFMS) Portal upon the receipt of funds from the Ministry of Textiles to Ahmedabad University.**
- v) **Taxes:** The price should be exclusive of any applicable taxes, which must be indicated separately.

5. Delivery and Installation

- i) **Delivery Timeline:** The High-Speed Camera must be delivered within 10 weeks of the date of order confirmation.
- ii) **Installation:** The Supplier must be responsible for the installation of the High-Speed Camera at the Composites Laboratory or at the dedicated space as instructed by the University.

6. Inspection and Testing

- i) **Pre-Delivery Inspection:** The Contractor must provide pre-delivery inspection and acceptance testing for the High-Speed Camera.
- ii) **Post-Delivery Testing:** Upon installation, the machine must undergo functional testing to ensure it meets the specified technical requirements.

- iii) Defects and Non-Conformance: If any defects or non-conformance to specifications are identified during testing, the tenderer shall correct them at their own cost.

7. Training and Documentation

- i) Operator Training: The tenderer must provide on-site training on the operation and maintenance of the High-Speed Camera.
- ii) Documentation: The tenderer shall provide detailed user manuals, technical documentation, and maintenance guidelines in both hard copy and electronic format.

8. Warranty and Support

- i) Warranty Period: The High-Speed Camera shall have a warranty period of One (01) year from the date of installation.
- ii) Warranty Coverage: The warranty should cover repairs, parts replacement, and labor for any defects in materials or workmanship.
- iii) Service Level Agreement (SLA): The Contractor must provide an SLA for post-installation support, including response times for maintenance and repairs.

9. Confidentiality

- i) Confidential Information: Both parties should treat all information shared during the tender process and contract execution as confidential.

10. Termination Clause

- i) The University reserves the right to terminate the Agreement without cause by providing 30 days written notice to the Supplier. In such cases, the University shall pay for any Goods delivered and accepted by the Buyer up to the date of termination.

11. Dispute Resolution

- i) Any disputes arising out of or in connection with this Agreement shall be resolved through amicable negotiations between the parties.
- ii) If the dispute cannot be resolved through negotiations, the parties agree to submit the dispute to Arbitration in accordance with the rules of Arbitration and Conciliation Act 1996.

12. Force Majeure

- i) Impact on Obligations: Neither party shall be held liable for failure to fulfil obligations under this contract due to force majeure events.

13. Compliance with Laws and Regulations

- i) Legal Compliance: The Contractor must comply with all applicable laws, regulations, and standards governing the manufacture, delivery, and installation of the High-Speed Camera.
- ii) Environmental Compliance: The High-Speed Camera must meet environmental standards and regulations related to energy consumption, material disposal, and recycling.

14. Governing Law

- i) Jurisdiction: This contract is governed by the laws of India, and any disputes will be resolved within the courts of Ahmedabad.