Technical Specifications of Thermal Imager

Bidder Eligibility Criteria-I

Sl. No	Bidder Eligibility Criteria-I	Complied / Not Complied	Reference Page No.	Remarks, If any
1	The bidder/OEM should have supplied at least similar items to IITs, NITs, IISERs, CSIR Labs or other Govt. organizations in the last 5 years, PO copies or installation certificates along with contact details of end user need to be submitted as the proof of supply. IIT Madras reserves its right to verify the claims submitted by the bidder and the feedback from the previous customers will be part of technical evaluation.			

Technical Specifications II

Description: A Thermal Imager, also called an infrared camera is a device that creates an image using emitted infrared (IR) radiation from a body, similar to how a visible camera creates an image. A thermal imager maps the spatiotemporal differences in the temperatures across a surface and converts those differences into an image(pixels), by assigning various colours/shades to each pixel. The colours being assigned depend on the type of colour palette used, with modern thermal imagers offering more than 5 to 6 such palettes. Each colour palette helps in easily visualizing the temperature changes as per the application. In the healthcare scenario, the thermal imager is used to track the temperature variation of the human body which helps in monitoring various physiological parameters such as human body temperature, and respiratory rate.

SNO	SPECIFICATION	COMPLIED/NOT COMPLIED	REFERENCE PG.NO
1	IR cameras require that precise temperature calibration is performed in a laboratory. Such cameras also need to compensate for the temperature drift of the detector, which requires a temperature sensor and compensation electronics inside the camera.		
2	The spectral range of the thermal camera required is Long Wave IR (LWIR) since the human body emits infrared radiation within this wavelength range.		
3	Noise-equivalent temperature difference (NETD) defines the detector's ability to distinguish between very small differences in thermal radiation in the image.		
4	Temporal sampling, that is, the number of images or frames an infrared camera can acquire per second.		
5	Thermal camera has a sighting area, which is called the field of view (FOV).		
6	The temperature range refers to the highest and lowest temperature		

	that the thermal imager can measure.			
7	Accuracy is the error in calculated values of the temperature by the thermal imager. For medical applications, a very low error is required since the human body temperature ranges between just 36.2°C and 37.1°C			
8	The interface is the required connection mode or protocol for the thermal imager to stream the images, and the software required is the SDK (Software Development Kit) required to interface the device with the high-level programming language platform, used for automating tasks and conducting data acquisition and analysis.			
9	Pixel Resolution (minimum)	512 x 512		
10	Spectral Range	7 µm to 14 µm (LWIR)		
11	Thermal Sensitivity (NETD)	<= 0.02°C at 30°C(20mK)		
12	Frame Rate (minimum)	50 Hz at Full Frame		
13	Dynamic Range	14-bit		
14	Temperature Range	25°C to 45°C		
15	Accuracy	± 0.1°C		
16	Interface	USB		
17	Software compatibility	National Instruments LabVIEW™		
18	Calibration	Preferably in-house calibration facility in India		

(Note: It is mandatory for the bidders to provide the compliance statement in tabular column format along with catalogue page number (comply/not comply) for the Above points with document proof as required. Failing which bidders will be technically disqualified)