

## **PERSONAL THERMAL IMAGING CAMERA SPECIFICATIONS**

### **Intent of Specifications:**

This specification covers a commercially produced Thermal Imaging Camera and its associated hardware and software. The Thermal Imaging Camera system delivered to these specifications shall be a standard commercial product that exactly meets the requirements of these specifications. Exceptions to any of the line items are not acceptable. Materials used in construction of the Thermal Imaging Camera system shall be new, unused, and not less than the quality conforming to modern engineering and manufacturing practices. Materials shall be free of defects and suitable for the service intended.

### **Specific Line Item Requirements:**

Bidders must indicate compliance with these specifications on a line item basis by placing a check mark in the yes/no column corresponding to each line item. Bidders must furnish descriptive literature and complete manufacturer specifications with the submission of this documentation.

### **Quality Assurance:**

The company manufacturing the Thermal Imaging Camera in response to this bid must furnish proof of current certification to the ISO9001-2008 quality standard.

### **Compliance Guarantee:**

Vendors answering this bid must guarantee that equipment tendered comply with all parts of this specification.

The purchasing entity reserves the right to require the bidder to submit a sample of the equipment being tendered to the purchasing entity for validation and verification that all items claimed to be in compliance are in fact true and correct. If a bidder is requested to supply a sample of the equipment being tendered for testing, the equipment shall be supplied to, and received by, the purchasing entity within one week of notice. Inability to meet the timeline provided herein shall disqualify the bidder.

	COMPLIANCE	
	YES	NO
<b><u>Warranty:</u></b>		
a) The camera shall be warranted by the manufacturer to be free of defects for a period of one year from the date of delivery.		
b) The manufacturer shall provide 48-hour turn-around time on warranty service work to the equipment in such a manner to return the Camera to the purchasing entity, in normal usable condition, within 72 hours, or to provide for the use of comparable equipment on loan until such time that the Camera is returned to the purchasing entity.		
c) The Camera shall be eligible for extended warranties, up to three years of coverage in total. Extended warranty contracts for the Camera shall be provided by the Camera's manufacturer. The warranty contract shall be eligible for purchase either at the time of original Camera purchase, or in one-year intervals after the initial purchase of the Camera.		
<b><u>Physical and Performance Specifications:</u></b>		
1. The Camera shall be capable of sensing, imaging, and displaying infrared radiation in the 8 to 14 micron spectral wavelengths and shall have been designed specifically for use within a firefighting environment.		
2. The Camera shall be hand-held and portable allowing it to be passed from one firefighter to another within a firefighting environment without removing any articles of personal protective equipment.		
3. In typical ambient temperature environments, when the Camera's on/off switch is activated to apply power to the Camera, the Camera shall render a usable thermal image in nominally five seconds.		
4. The Camera shall be equipped with an infrared imaging sensor in the 160 X 120 resolution format. Each imaging element or pixel on the camera's imaging sensor shall be of 25 microns in size.		
5. To facilitate imaging in extreme temperatures in excess of 2000°F, the camera shall have three operating sensitivities. High Sense or "Normal" mode, and Medium Sense and Low Sense ("Thousand Plus") mode. Each operating sensitivity shall be automatically selected by the camera's operating software with no firefighter intervention.		

	COMPLIANCE	
	YES	NO
6. The camera shall be equipped with a 37.5mm diameter Germanium window protecting the focal plane array optics. The window shall incorporate anti-reflective and hard carbon coating to minimize damage during operation.		
7. The camera shall use shades of red to depict the intensity of elevated temperatures in the camera's field of view. The camera shall also incorporate a stream targeting system that uses the color yellow to identify and highlight the presence of hot emitters in the camera's field of view.		
8. The Camera's infrared imaging engine technology shall be specifically designed for firefighting and shall be designed, developed, and manufactured by the same company who manufactures the finished camera product.		
9. In order to maximize the information provided to users of the Camera, the Camera shall perform non-uniformity correction (NUC) and mode switching rapidly. The freeze-frame associated with NUC and mode switching shall last no longer than 0.16 seconds.		
10. The Camera shall incorporate a video output that uses a standard BNC type connector to enable wired transmission to a remote location. Accessories that may be installed into the camera, such as transmitters, video capture capability, and digital frame capture capability, shall not prevent users from accessing and using the video output connector concurrent with the use of such accessories.		
11. The internal video signal shall be displayed on an LED backlit 3½ inch LCD with an aspect ratio of 4:3 consistent with the camera's sensor. The LCD shall have a resolution of 230,400 pixels.		
12. To ensure the waterproofing integrity of the Camera in all situations, the Camera shall be designed to isolate the internal electronic systems from all user accessible areas. The Camera shall conform to the IP67 standard, ability to withstand short-term immersion in water to a depth of three feet.		
13. The Camera shall withstand multiple drops from a distance of 6 feet on to a concrete surface without sustaining any measurable degradation in performance.		
14. The Camera shall be of the following dimensions: 5.4 X 6.5 X 4.5 inches.		
15. The Camera, excluding battery, shall weigh 2.6 pounds.		
16. The Camera shall be upgradeable to be operational using disposable AA type alkaline batteries and shall provide nominally two hours of operation with the internal display device in the ON position.		

	COMPLIANCE	
	YES	NO
17. To eliminate confusion the camera shall not incorporate a “sleep” mode that turns-off the camera’s internal LCD display while the camera is “on”.		
18. The Camera shall incorporate an on-screen battery level indicator consisting of 10 battery level increments. The battery level indicator shall also incorporate a low battery warning that, when used with a wireless transmission device, transmits the battery level information and low battery warning information to the receiver located remotely from the camera.		
19. The Camera’s rechargeable batteries shall be capable of operating the camera with the camera’s internal display device ON for a minimum of 3 hours. The standard batteries shall be upgradeable to alternate batteries capable of operating the camera with its internal display device ON for 4 hours on each battery nominally.		
20. The camera shall have the option of a “pistol grip” style handle. The camera’s optional “pistol grip” handle shall be removable. To minimize hazards, the camera shall have no electrical interface and/or electrical connections between the handle and the camera’s main housing. The handle shall be easily attached and detached from the camera’s main housing without the use of tools to facilitate quick removal and attachment at a fire scene. The attachment point shall not use a thumb-screwing mechanism.		
21. The camera shall have the ability to be upgradeable to incorporate the capability of saving thermal images to on-board memory for download to a personal computer using a standard USB interface. A capacity of at least 500 images shall be incorporated and stored in the camera’s internal memory. When coupled to a personal computer using a USB interface, the computer shall recognize the camera as an external memory source similar to an external disk drive.		
22. The Camera shall incorporate through-the-lens direct temperature measurement capability that measures relative surface temperature readings. The direct temperature measurement readings shall be displayed, in numerical form, in the upper right hand corner of the internal display device.		
23. The direct temperature measurement capability incorporated into the Camera shall be capable of measuring temperatures in excess of 2,000°F.		
24. The camera shall be equipped with NiMH type rechargeable batteries. Lithium Ion type batteries are not acceptable.		
25. The camera shall be equipped with a minimum of one rechargeable battery.		
26. The camera shall be manufactured in the United States of America.		

	COMPLIANCE	
	YES	NO
27. The camera shall optionally be equipped with a truck mounted charging system capable of concurrently charging a battery installed in the camera, and an additional spare battery installed in the truck charging system.		
28. The camera's truck mounted charging system shall conform to the NFPA 1901, 2009 vibration & rollover requirements.		
29. The camera's truck mounted charging system shall be constructed on a 3/16 inch thick aluminum frame. The body of the truck charger system shall be made of thermoplastic with a ¼ inch nominal thickness. The truck charger shall be the following dimensions: 14.5 X 9.5 X 5.5 inches.		
30. The camera's truck mounted charging system shall be equipped with an in-line circuit breaker mechanism to protect against power surges and cross polarity. The truck mounted charging system shall operate on 12V DC. An amber LED shall illuminate when the truck mounted charging system is connected to an external power supply. Red and green LEDs shall be used to display the charging status of the camera's battery, and spare battery. The red and green LED lights shall also be used to alert the user of a system or battery fault. The legend describing the functionality of the LEDs shall be clearly printed on the truck mounted charging system.		
31. Purchasers of the Camera shall have the option of enrolling in a "battery for life" program to enable the purchaser a means to obtain refurbished and/or new batteries in replacement of defective batteries without incurring the cost purchasing new batteries.		
32. The camera shall be optionally equipped with a wireless video transmitter that transmits in the 2.4 GHz frequency band.		