

PURCHASE DESCRIPTION

THERMAL IMAGER

GMG: IMAGTHER-16 / SCAT: 4150
Solicitation No: SPRMM1-16-R-YR58

- 1.0 **GENERAL** This procurement requires a handheld thermal imager with the capability of measuring temperature using infrared detection and the capture and storage of images with measurement results.
- 2.0 **CLASSIFICATION** The equipment shall meet the requirements of MIL-PRF-28800F class 3 for Navy shipboard, submarine, shore, and Marine Corps applications with the exceptions specified in section 4.1.
- Loose cargo bounce is invoked.
- 3.0 **OPERATIONAL REQUIREMENTS** The specifications provided below are the minimum requirements and accuracies that will meet the Government's need. The thermal imager shall at least meet these requirements and accuracies and may provide better performance.
- 3.1 Temperature Measurement
- 3.1.1 Range: -10°C to +350°C.
- 3.1.2 Accuracy: $\pm 2\%$ or $\pm 2^\circ\text{C}$, whichever is greater.
- 3.1.3 Field of view: Minimum $20^\circ \times 15^\circ$.
- 3.1.4 Thermal sensitivity: $\leq 0.1^\circ\text{C}$ at 30°C .
- 3.1.5 Detector type: Focal plane array uncooled microbolometer with 160 x 120 sensor pixels.
- 3.1.6 Cursors: The equipment shall have the capability of on-screen automatic hot and cold temperature measurement markers plus a third user targeted temperature measurement cursor.
- 3.1.7 Emissivity correction: The equipment shall have an emissivity correction function.
- 3.1.8 Background temperature compensation: The equipment shall have a background temperature compensation function.
- 3.2 Display
- 3.2.1 Size: Minimum 3 inch diagonal.
- 3.2.2 Type: Color LCD.

3.2.3 Dual Image: The equipment shall be capable of displaying a visible image and infrared image concurrently in a picture-in-picture mode.

3.2.4 Blended Image: The equipment shall be capable of displaying a blended image that combines visible and infrared images in varying amounts.

3.3 Control

3.3.1 Temperature scale: User selectable °C or °F.

3.3.2 Span control: Automatic and manual.

3.3.3 Level control: Automatic and manual.

3.4 Image Capture

3.4.1 Image capture frequency: 9 Hz minimum.

3.4.2 Image storage: 500.

3.4.3 Stored image format: Thermal images shall be saved in fully radiometric format to allow image manipulation with included software.

3.5 Data Transfer and Analysis The equipment shall have the capability of data transfer to a PC computer running Microsoft® Windows 7 operating system through a USB cable or provided with a removable SD card (Micro SD card with SD card adapter is acceptable) with a SD to USB card reader. Software and accessories needed for data transfer, analysis, and printing of test results shall be provided (printer is not required).

3.6 Wireless Connectivity Any capability of the equipment to communicate wirelessly, including but not limited to Wi-Fi and Bluetooth, shall be disabled.

4.0 **GENERAL REQUIREMENTS**

4.1 Temperature

4.1.1 Operating temperature: 0°C to 45°C.

4.1.2 Non-operating temperature: - 20°C to +60°C.

4.2 Power The equipment shall be operational with an internal DC battery or AC adapter.

4.2.1 Internal DC battery: Internally rechargeable batteries shall be provided for portable operation. The battery's minimum operating time shall be at least 4 hours following a maximum recharge time of 4 hours. A charger that accepts 110/220 ±10% Volt @ 50/60 Hz single phase shall be provided for each unit.

4.2.2 Battery indicator: A battery life indicator shall be incorporated into the display.

4.2.3 Auto power off: The equipment shall automatically power off when the absence of activity exceeds 20 minutes nominal.

4.3 Battery Restrictions Per MIL-PRF-28800F, Lithium and Mercury batteries are prohibited without prior authorization. A request for approval for the use of Lithium and Mercury batteries shall be submitted with production lot delivery, after contract award. Approval shall apply only to the specific model proposed.

Exceptions: Per Naval Ordnance Safety and Security Activity (NOSSA), the use of Lithium primary (non-rechargeable) coin cell batteries meeting the following criteria is authorized for Naval personnel and on Naval activities, surface ships, submarines, and aircraft:

- Commercially available coin cell batteries, unmodified, and used in the device recommended by the application manufacturer.
- Coin cell batteries shall only be used in single cell configurations.
- Coin cell batteries shall not be rated for more than 3 volts (maximum nominal output voltage).
- Coin cell batteries shall not be rated for more than 1 Ampere-Hour nameplate capacity.

The coin cell manufacturer and model identification/part number shall be provided at the time of submission of proposals.

4.4 Calibration Interval The calibration interval shall be 12 months. At the end of this interval, a minimum of 85% of the equipment shall remain in tolerance.

4.5 Dimensions 280 mm (11 in) high, 125 mm (5 in) wide, and 175 mm (7 in) deep, nominal.

4.6 Weight 1.5 kg (3.3 lb) maximum.

4.7 Transit Case

4.7.1 Hard transit case: A protective hard carrying case according to PRF-28800F shall be provided. The case shall be capable of accommodating the equipment, accessories, and operator's manual.

4.8 Technical Manual The maintenance philosophy for this unit shall be level 2 (per MIL-PRF-28800F) and require maintenance to the module level of the unit. The technical manual shall conform to the level 2 maintenance philosophy. This level would be used for most equipment where maintenance and repair is an expected phase of equipment lifecycle. Board level maintenance and troubleshooting information is required. A Use and Installation manual (Operator's Manual) shall be provided separately. Maintenance and Servicing manual shall be provided to two levels of maintenance, unit operational verification level and the module level.

Information required for performance verification shall include:

- Instructions to verify equipment performance,
- List the equipment required for verification tests,
- Step-by-step instructions for test connections,
- Acceptable result criteria,

- Calibration information,
- Self-test routines.

Maintenance information shall include:

- Parts lists to the component level,
- Schematics and component layout drawings,
- Block and schematic diagrams.
- List of required test equipment and connection diagrams, and
- Sequential instructions for disassembly, repair, replacement, and reassembly shall be provided.
- Board level maintenance and troubleshooting information,
- Step-by-step instructions for troubleshooting and fault isolation,
- Expected signal levels,
- Test data sheets will be included, and as required,
- The instructions will define localizing a defective circuit card.

Parts lists shall include:

- Parts lists shall be shown on illustrations or a separate listing that includes an index or reference to other illustrations.
- Part number, cage code, and generic description.

The technical manual shall be provided in both printed and electronic formats. The printed format shall be otherwise normally provided. The electronic format shall be in Portable Document Format (PDF) - ISO 32000-1:2008. Two separate CD/DVDs are required, one shall contain the Use and Installation manual and one shall contain the Maintenance and Service manual.

The statement of copyright release:

“REPRODUCTION AND DISTRIBUTION OF THIS TECHNICAL MANUAL IS AUTHORIZED FOR U.S. GOVERNMENT PURPOSES.”

shall be printed in the first two pages of each technical manual and on the surface of the CD/DVD supplied.

4.9 Training materials Training materials that demonstrate the features, detailed operations and procedures with step-by-step instructions for using the equipment shall be provided. The training material shall be delivered in technical manual format or interactive CD-ROM format.

4.10 Additional Requirements

4.10.1 Human Readable Identification Labeling:

4.10.1.1 Equipment: Per MIL-PRF-28800F, a human readable label shall be provided for all production lot units conforming with MIL-STD-130N and permanently affixed on the equipment in an easily readable location. Required fields on the label are; CAGE, part number, and serial number. Size of the label shall conform to the size of the equipment.

4.10.1.2 Case labeling: When a hard transit case is required, a human readable metal plate per MIL-PRF-28800F shall be provided for all production lot units conforming with MIL-STD-130N and permanently affixed to the front of the transit case. Required fields on

the label are; CAGE, part number, and serial number. Size of the label shall conform to the size of the case. Pressure sensitive adhesive transfer tape is required to hold the plate to the hard transit case such as 3M™ 9472LE. When a soft transit case is required, labeling with permanent placement such as a metal plate affixed with rivets, screws or adhesives shall be provided.

- 4.10.2 Shipping container: For production lot units the package or carton containing the equipment for shipment shall be marked per MIL-STD-129P.
- 4.10.3 Other Additional Requirements: Shall be specified in the CDRL of the solicitation.

