

**Technical Specifications for Handheld Infrared Thermal Imaging system**

S.No.	Description of BHEL Requirement	Accepted (Yes / No)	Deviations	Remarks
1	<b>Purpose :-</b>			
1.1	The Handheld Infrared Thermal imaging System will be mainly used for Predictive Maintenance of Electrical / Mechanical systems through identification of the high temperature points (hot spots) in the electrical & mechanical systems, caused due to loose or improper connections especially in the overhead bus-bar joints, electrical connections and terminations, overheating due to improper lubrication and friction in rotating or moving parts etc. The temperature readings and thermal images so obtained will be utilized for taking corrective action for elimination of the defects causing high temperature in the system to ensure reduction of unscheduled breakdown and also for re- assurance of the corrective job thereafter.			Information to vendor
2	<b>Technical Specifications :-</b>			
2.1	<b>General :</b> The Handheld Infrared Thermal imaging System shall be a portable equipment, which is handy, compact & lightweight and simple to use with interactive menu. The Camera and Display should be in a single unit with Pistol Grip type design for single hand operation.			Vendor to confirm & provide Make & Model details of the system.
2.2	<b>Detector Type :</b> The detector of Handheld Infrared Thermal imaging System shall be focal plane array (FPA), un-cooled micro bolometer type operating in Infra Red Spectral Band range of 8 μm to 13 μm or better with a resolution of at least 320 x 240 Pixels.			Vendor to confirm & provide details
2.3	<b>Temperature Measurement Range :</b> The infrared camera shall be capable of measuring temperature from -20 degree Centigrade (or less) to +500 Degree Centigrade (or more) with +/- 3 % or better accuracy. The measured temperature should be displayed on the screen in real time.			Vendor to confirm
2.4	<b>Measurement Analysis Mode :</b> High/Low Temperature, Hot/Cold Spot Marker, Isotherm			Vendor to confirm
2.5	<b>Laser Pointer :</b> The system shall have a laser Pointer for targeting the hot or cold spot in the infra red image with the physical target in the field.			Vendor to confirm
2.6	<b>Focus :</b> Manual or Auto / Manual			Vendor to confirm
2.7	<b>Display :</b> The Thermal imaging system shall have a 3.5" (or more) Color LCD display (320x240 pixels) for user interface and displaying thermal and visual images			Vendor to confirm
2.8	<b>Digital Camera :</b> The Thermal imaging system shall have an inbuilt digital camera for capturing visual images and the digital camera resolution shall be at least 3.1 mega pixel			Vendor to confirm


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2.9	<b>Image Storage :</b> The camera should have a Sd memory and it should be capable of storing Thermal and Visual images in JPEG compatible format. The memory card suitable for storing at least 1000 images shall be supplied with suitable adaptors for usage with the camera and card readers.			Vendor to confirm
2.10	<b>Battery :</b> Rechargeable Li Ion battery of suitable rating for a minimum of 4 hours continuous operation after full recharge and it shall be field replaceable.			Vendor to confirm
2.11	<b>Battery Charger :</b> Suitable Battery charger operating on 230VAC/50Hz shall also be provided by the supplier to ensure smooth and continuous operation.			Vendor to confirm
2.12	<b>Data Communication &amp; Software :</b> USB Port for direct transfer of images to PC/Laptop. The software for downloading and analyzing the images and for creating the reports shall be supplied along with the camera.			Vendor to confirm
2.13	<b>Protection :</b> IP54 (protected against dust, limited ingress; protection against water spray from all directions)			Vendor to confirm
2.14	<b>Accessories to be supplied :</b> Carrying case, Rechargeable Battery, Battery Charger, SD Memory Card, Power Cable, Charger Cable, USB Cable for data transfer, Lens Cleaning Cloth, Camera Lens Cap, Software CD etc. shall be supplied with the system. (Qty = 1 No. each)			Vendor to confirm
2.15	<b>Documentation :</b> Calibration certificate & Instruction Manual - 2 Sets (soft & hard copy) shall be supplied with the system.			Vendor to confirm
<b>3</b>	<b>Warranty of Equipment :</b>			
3.1	2 years from the date of successful commissioning at BHEL, Haridwar.			Vendor to confirm
<b>4</b>	<b>Commissioning &amp; Training:</b>			
4.1	Vendor shall depute their manpower for commissioning of the equipment at BHEL, Haridwar. During Commissioning, the Vendor shall demonstrate all the operations of the supplied system and shall provide training at BHEL, Haridwar for proper operation of the supplied system.			Vendor to confirm
<b>5</b>	<b>Acceptance Criteria:</b>			
5.1	Acceptance shall be at BHEL, Haridwar after successful commissioning and testing of the supplied equipment for all operation of the system for which the same was procured.			Vendor to confirm

  
 May 20/2014  
 P.C. SINHA  
 Dy. Mgr (W&E - BHEL-3/NBS/NIS)

  
 20/5/14  
 (Ashish Gupta)  
 Dy. Mgr (W&E - BHEL)

  
 22.05.2014  
 S.V.S. Party  
 Dy. Mgr (W&E - BHEL)

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