# Mi-TIC 320 THERMAL IMAGER TECHNICAL SPECIFICATION GUIDE

## Mi-TIC-320-3

| POINT | TECHNICAL SPECIFICATIONS |
|---|---|
| | **Operational Requirements** |
| 1.1 | The fire fighter must be able to easily carry and operate the camera with one gloved hand (either hand), weighing no more than 800g/28oz including the standard battery. |
| 1.2 | Operating buttons should number no more than 3 and must be large enough to ensure there is low risk of hitting the wrong button when wearing gloves even in situations where there is no visibility e.g. thick smoke. |
| 1.3 | The fire fighter's vision or movement must not be impaired or encumbered when the camera is not in use. Multiple wear options such as a SCBA/BA compatible pocket clip and retractable lanyard are required. |
| 1.4 | The fire fighter must be able to see a thermal image and start using the camera within 5 seconds or less of turning it on from completely off (not from sleep mode) or from inserting the battery. |
| 1.5 | The fire fighter must be able to achieve battery changeover in a timely and simple manner on the scene without the use of tools, and on insertion comply with point 1.4. |
| 1.6 | The fire fighter must be able to clearly see an uncluttered display in all routine lighting conditions. Therefore the diagonal LCD display should be 2.7" (69mm) minimum. This includes direct sunlight, though accessories are permitted to achieve this. |
| 1.7 | The firefighter should be able to resolve exit points, obstacles and casualties/team members even when using the camera to view a fully developed fire. Therefore, the camera must be able to resolve detail in the entire fire scene across a dynamic temperature range of -40°C (-40°F) to over 1000°C (1832°F) without white-out. (It is not uncommon for fully developed fires to reach this temperature). |
| 1.8 | The fire fighter must be able to quickly scan and search entire rooms. Therefore a Thermal imager shall have a 47-53 degree horizontal field of view. |
| 1.9 | The fire fighter must be able to see small details from one end of the fire scene to another; therefore a Thermal Imager shall have a minimum of a 384x288 resolution sensor. |
| 1.10 | When switching sensitivity modes and/or performing a Non-Uniformity Correction, the image on the camera should be interrupted for no more than 1 second. |
| 1.11 | The fire fighter must be able to distinguish temperatures in the scene through colourisation. Colourisation must be intuitive and not open to misinterpretation. Any defined colour-temperature mode must not vary for any scene image. The thermal imager must have simple understandable colourisation that remains continuous through the cameras dynamic range. |
| 1.12 | The fire fighter must be able to record images and video when using the camera without reducing the operating time. Continuous 'Black Box' recording feature is also required. These features must be available at no additional cost. |
| 1.13 | Users should be able to quickly share the view of the fire scene with an 'Image Freeze' function to allow Investigation of high temperature areas in the fire scene (e.g. loft space) with the shortest possible exposure time. |
| 1.14 | Users must be able to identify and track the hottest point in the scene with a hot spot tracker that can be overlaid on all application modes. |
| 1.15 | Hot spot tracker and cold spot tracker should be operable simultaneously. |
| | **Equipment Safety And Durability For Fire Fighters On A Fire Scene** |
| 2.1 | The camera shall be compliant with NFPA 1801:2018. |

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| 2.2 | The camera must be able to withstand temperatures that exceed the temperatures that a firefighter can withstand. There must not be an automatic shutdown feature to protect the camera, and the camera must continue working for at least 10 minutes in 150°C (300°F). |
| 2.3 | The fire fighter must not be left on the fire scene without a working camera after a drop of up to 2 meters. A minimum of 7 consecutive drops from two meters onto concrete should cause no critical damage to the camera. |
| 2.4 | The fire fighter must not be left on the fire scene without a working camera after a drop into water. Therefore the camera must have Water and Dust Ingress Protection: EN 60529 IP67 – a certification stating that the camera is waterproof to 1 m for 30 minutes. |
| 2.5 | The fire fighter must never be at risk of an exploding battery. To negate this risk supplied battery technology must be certified to operate above 80°C (176°F). The battery must also be able to take severe mechanical shock. Lithium Iron Phosphate and Nickel Metal Hydride are accepted - Lithium Ion (Cobalt/Manganese/Trimetal etc) is not acceptable. (Manufacturer battery certification will be required to demonstrate safe operation above 85°C (185°F), UL1642 is not an adequate assurance of suitability). |
| 2.6 | The charging station must be capable of charging spare battery and camera separately. |
| 2.7 | The battery life should be in excess of 3hrs and each battery should be capable of at least 2000 recharge cycles. |
| | **Equipment Care** |
| 3.1 | The fire fighter must be able to decontaminate or clean the camera using standard service procedures, including washing down with detergent and water. |
| 3.2 | The lens assembly shall be protected by a user replaceable germanium window to provide a fast repair without the need to return to manufacturer. |
| | **Accessories** |
| 4.1 | The Camera should be supplied with the following items as standard:<br>■ Thermal imaging camera.<br>■ Truck/desktop charger dock with mains plug and universal mounting plate.<br>■ 12 volt DC (cigarette lighter adapter) battery charger.<br>■ A minimum of two rechargeable batteries compliant with point 2.5.<br>■ A retractable lanyard or pocket clip that complies with point 1.3.<br>■ Data transfer software and hardware. |
| 4.2 | The following optional accessories should be available:<br>■ Sun shroud.<br>■ Large Lithium Iron Phosphate battery.<br>■ Hard carry case. |
| | **Warranty** |
| 5.1 | 5 Year Camera Warranty.<br>5 year Battery Warranty.<br>10 year focusing lens and Sensor Warranty. |
| | **Company** |
| 6.1 | The manufacturer shall be certified to ISO9001 to ensure all quality, manufacturing and design systems are being met. |
| 6.2 | The manufacturer shall be certified to the Environmental Certification ISO 14001 to maintain all end of use devices are dealt with in the correct manner. |
| 6.3 | The camera and all associated accessories shall be RoHS compliant. |