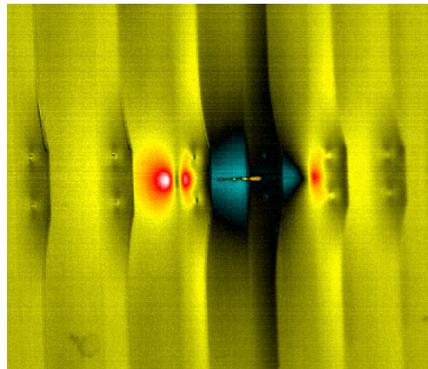


## Next Generation Stress Sensing Solutions

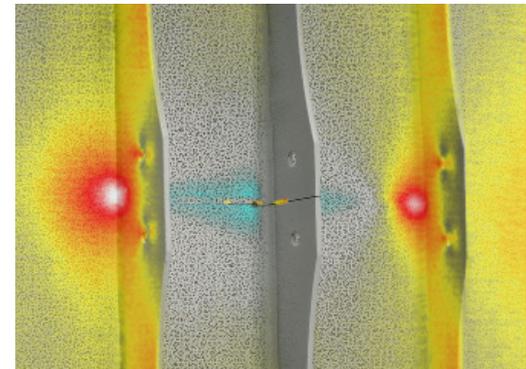
Developed in collaboration with the Australian Department of Defence (Defence Science and Technology Group), the 1MILLIKELVIN **LTS 640•V** combines advanced uncooled thermal detector and cmos imaging technologies to create an advanced stress visualisation capability, without the complexity.



**Visual Image:** Complex aircraft wing structure



**Stress Image:** Stress image showing fatigue crack



**Visual-Stress Fusion:** Visual-Stress overlay identifying precise location of fatigue crack

### A World First

The LTS 640•V boasts the fidelity of a high-end R&D instrument with the ruggedness, versatility and ease-of-use of an industrial tool.

Applications include:

- + Validation of structural FEA (Finite Element Analysis)
- + Identification of areas of structural weakness
- + Structural health monitoring
- + Detection, monitoring and characterisation of fatigue cracks
- + Non-Destructive Inspection (NDI)
- + Research and teaching in structural mechanics

### Advanced Stress Imaging, Simplified

With an ultimate stress sensitivity of  $< 1 \text{ MPa}^1$ , the 1MILLIKELVIN LTS 640•V has ample precision for the most demanding of applications, but none of the complexity you might expect. Getting started is a matter of 'plug and play'.

The in-built visual sensor along with the visual-stress fusion function allows for easy identification and location of critical stress regions.

### 1MILLIKELVIN MiTE Suite

Packaged with all systems is the powerful MiTE Suite software package, providing:

- + Full complex-valued thermoelastic response
- + Real-time display for Visual and Infrared
- + Semi real-time display (user selectable frame rate) for Stress and Stress-Visual Fusion
- + Real-time stress monitoring for damage detection and trend analysis
- + Plotting functions
- + Point and ROI metrics
- + Stress and strain calibrations

**IMAGING**

**INFRARED SENSOR**

Detector	Uncooled microbolometer, VOx
Detector Array	640 x 512 pixels
Spectral Range	LWIR (Long Wave Infrared): 7.5 – 13.5 $\mu\text{m}$
Frame Rate	60 Hz
Lens	14 mm focal length, 32° HFOV
Stress Sensitivity	< 1 MPa <sup>1</sup>
Thermal Sensitivity	< 1 mK processed <sup>2</sup>

**VISUAL SENSOR**

Sensor Resolution	5 Megapixels
Pixel size	1.4 x 1.4 $\mu\text{m}$
Shutter	Rolling
Video Resolution	1280 x 720, 30 fps 1920 x 180, 10 fps 2592 x 1944, 15 fps



**CONNECTIVITY**

PC Connection	USB-B (camera) to USB-A (computer)
Load Signal Input	2-pin terminal connector or MMCX connector
Power Input	12 V DC (AC-DC power supply included)

**MECHANICAL**

Dimensions	67 mm x 85 mm x 140 mm (W x H x L)
Weight	650 g
Tripod Mount	1/4"-20 & 3/8"-16 UNC



**ELECTROMAGNETIC COMPATIBILITY**

EMC Compliance	EN 55032: 2015 AS/NZS CISPR 32: 2015 EN IEC 61000-6-4: 2019 AS/NZS 61000.6.4: 2012 EN IEC 61000-6-2: 2019
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<sup>1</sup> Typical value for aircraft grade aluminium alloy. Varies with processing time.

<sup>2</sup> Varies with processing time.



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Advanced Stress Imaging, Simplified.

1MILLIKELVIN PTY LTD  
ABN 55 624 227 765

22B Trade Park Drive  
Tullamarine VIC 3043

T +61 3 9338 1655  
E enquiries@1millikelvin.com  
1millikelvin.com