

Keysight Technologies TrueIR Series Thermal Imager

Data Sheet



See MORE. Accomplish MORE. Expect MORE.



Introduction

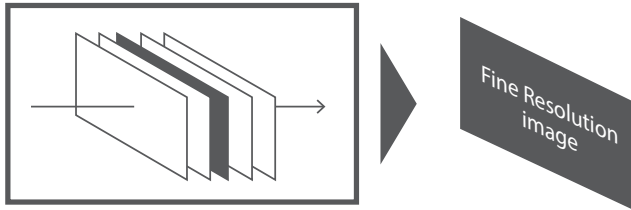
Reap the benefits of a high resolution thermal imager that fits within your available budget. With the Fine Resolution capability, you can achieve effective resolution of 320 x 240 pixels from a 160 x 120 pixels detector – four times more resolution, four times more detail.

- Four times more pixels with Fine Resolution capability
- View finer object details with 4x digital zoom
- Quick access buttons to easily change settings or functions
- Long product warranty – 3 years
- Ergonomically designed with evenly distributed weight
- In-camera monitoring for temperature trending
- Ability to focus on objects, as close as 10 cm away

See More with U5855A True/IR Series Thermal Imager

Get more details with Fine Resolution

Fine Resolution is a technology that restores the details originally inherent to the object while enhancing the resolution, at the same time minimizing fuzziness and noise. It is accomplished by performing sophisticated calculations on continuous multi-frames of the image – evaluated for misalignment caused mainly by hand tremor. The firmware then detects and corrects the information between images through one feature pixel.



Continuous multi-frames of low resolution images

Four times more resolution, noise eliminated

With Fine Resolution,

- Get an effective 320 x 240 pixels of radiometric JPEG IR image which is clearer and sharper.
- See fine details on objects as close as 10 cm, especially when measuring temperature on small components which are close to each other.
- With 4x digital zoom, magnify a thermal image of a far-away objects quickly to identify anomalies and to reveal even finer details.
- These are essential for industrial, building inspection, electronics, as well as medical research.

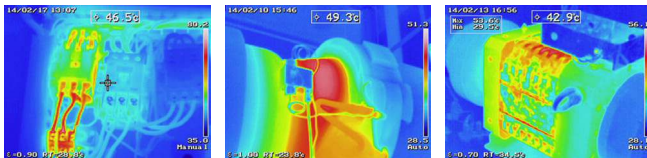


Figure 1. Samples of IR images

Perform more in-camera measurements and analysis

Capture thermal images effectively with its intuitive and easy to use tools:

- Configurable quick access buttons that are able to change functions based on user preference.
- Monitor temperature trends over time for quality checks when monitoring process parameters in industrial plant automation.
- Perform analysis using its extensive range of measurement tools.
- Coupled with the U5855A's high sensitivity of 0.07 °C, it can detect the slightest temperature difference to provide more accurate temperature readings.

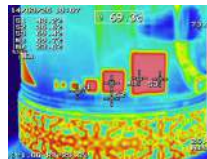


Figure 2. Center spot, min and max tracking, three moveable spots.

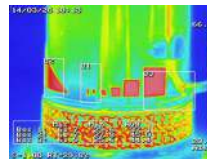


Figure 3. Three moveable boxes with statistics

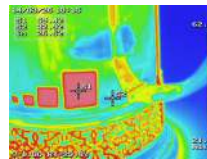


Figure 4. Delta temperature

Ergonomically designed for comfort

The ergonomically built TrueIR thermal imager is designed to let you carry out daily tasks comfortably. With its evenly distributed weight of only 746 grams and good stability, it fits comfortably in your palm

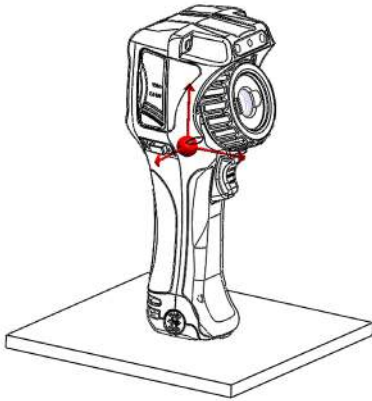


Figure 5. Ergonomically designed to have distributed weight. It can even stand on its own!

without straining your hands, even when used over a long period of time. With a stable grip, it allows you to single-handedly capture more images and to work more efficiently.



Figure 6. Good grip with belt support

TrueIR Analysis and Reporting Tool

Import, analyze, edit and present your thermal images to your clients swiftly with TrueIR analysis and reporting tool. With this PC software, you could change color settings and corrective parameters, add color alarm, or pick and choose any of the six measurement analysis tools or diagrams to help you present your findings to your customers clearly.

Also, generate reports quickly with the help of ready templates and then customize them accordingly based on your clients' requirements.

Features:

- Change color settings and corrective parameters, like emissivity, ambient temperature, atmospheric temperature, and more
- Set color alarm
- Choose between six measurement analysis tools or diagrams like spot, line, line profile, box, histogram and delta temperature
- Capable to display thermal image, visual image, thermal-visual side-by-side, or fusion images as well as its associated photo or note tags
- Create reports based on available templates and then customize them to suit your client' needs
- Generate reports in Microsoft Words or PDF
- Eleven local languages to choose from – English, Spanish, Italian, French, German, Portuguese, simplified Chinese, traditional Chinese, Japanese, Korean and Russian

Download for free from www.keysight.com/find/TrueIR_ART

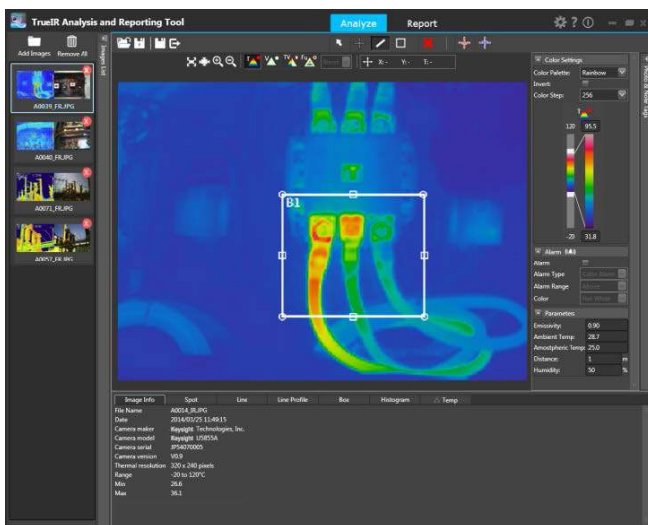


Figure 7. TrueIR Analysis and Reporting Tools GUI

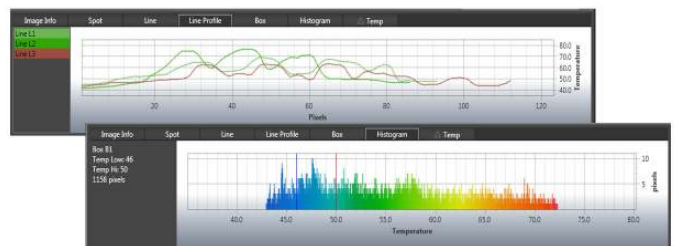
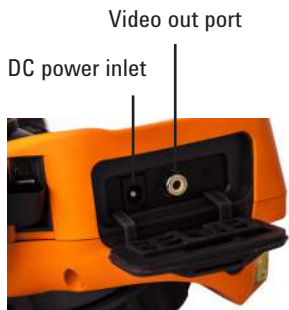


Figure 8. Sample of measurement analysis diagrams

Front and Back Panels

Front panel



Back panel



Specifications

Specifications are warranted in the temperature range of 0 to 40 °C and after 2 minutes of power up, unless otherwise noted. Supplemental characteristics – which are not warranted, but are descriptions of performance – are determined either by design or testing.

Performance specifications

| Parameter | Specification |
|---|---|
| Basic Performance | |
| Temperature measurement range | -20 ~ 350 °C Range 1: -20 to 120 °C Range 2: 0 to 350 °C |
| Thermal sensitivity | Range 1: 0.07 °C (at 30 °C) Range 2: 0.1 °C (at 30 °C) |
| Accuracy ¹ At 0 ~ 40 °C ambient temperature | ±2 °C or ±2% (whichever is greater) |
| Detector type | Uncooled Focal Plane Array (α-Si) |
| Detector Resolution | 160 × 120 |
| Fine Resolution | 320 × 240 (IR pixels) |
| Spectral range | 8 to 14 μm |
| Frame rate | 9 Hz |
| Field of view (FOV) | 28° (H) × 21° (V) |
| Spatial resolution (IFOV) | Fine Resolution OFF: 3.1 mrad Fine Resolution ON: 2.1 mrad |
| Focal distance | 10 cm to infinity |
| Focus mechanism | Manual focus |
| Image Processing and Enhancement | |
| Correction parameters | Emissivity, reflected temperature, object distance, ambient temperature, humidity, transmissivity |
| Emissivity correction | 0.1 to 1.0 Predefined emissivity table |
| Digital zoom | Zoom ratio: 4× continuous |
| Color palette | Rainbow, iris, hot iron, gray, inverted gray |
| Camera mode | IR image, visible image, picture in picture, blend |
| Measurements and Alarm | |
| Measurements | Center spot, 3x moveable spots, max/min tracking, delta temperature, 3x moveable boxes (with min/max/avg) |
| Color alarm | High/low temperature in all areas Alarm zones: Above/below/inside/outside |

1. Minimum distance with accuracy, 10 cm to 50 cm: ±4 °C or ±4%.

Supplemental characteristics

| Parameter | Characteristic |
|-------------------------------|---|
| Storage device | Supports up to 32 GB SDHC memory card with class 4 and above |
| Image format | IR image: Radiometric JPEG Visible image: JPEG |
| Image logging | Logs IR, visible or fusion images at a defined interval (7 to 3600 seconds) |
| State storage memory | Three user-configurable stored states |
| Tagging/annotation | 3 photo tags, note tag, note tag from template (downloadable from the Keysight Technologies, Inc. Web site) |
| I/O | USB 2.0 mass storage NTSC/PAL via video RCA cable |
| Language | English, French, German, Italian, Japanese, Korean, Portuguese, Russian, Spanish, Simplified Chinese, Traditional Chinese |
| Built-in quick start tutorial | Available |

Product characteristics






| Product | Characteristic |
|------------------------|--|
| Power supply | |
| Power adapter | <ul style="list-style-type: none"> - Line voltage range: 50/60 Hz, 100 – 240 VAC (Auto/Universal voltage), 1.2 A - MAINS supply voltage fluctuations not to exceed $\pm 10\%$ of the nominal voltage - Output voltage: 12 VDC, 3 A - Installation Category I (Isolated ELV supply source – connected to MAINS through an AC/DC power adapter) |
| Battery | <ul style="list-style-type: none"> - Li-Ion rechargeable battery, 7.4 VDC, 2500 mAh - Operating time: 4 hours |
| Display | 3.5" TFT |
| Visible camera | 3.1 MP |
| Built-in led torch | Available |
| Laser pointer | Class 2 |
| Warm-up time | 2 minutes |
| Operating environment | |
| Temperature | -15 °C to 50 °C |
| Humidity | 50% RH to 95% RH at 40 °C |
| Storage compliance | |
| Temperature | -40 °C to 70 °C |
| Humidity | 95% RH at 40 °C |
| Altitude | Up to 2000 m |
| Pollution degree | 2 |
| Safety compliance | <ul style="list-style-type: none"> - Laser safety: IEC 60825-1:2001/EN 60825-1:2001 (Laser Class 2) - IEC 61010-1:2010/EN 61010-1:2010 |
| EMC compliance | <ul style="list-style-type: none"> - IEC 61326-1:2005/EN61326-1:2006 - CISPR11:2003/EN55011:2007, Group 1 Class A - Canada: ICES/NMB-001: Issue 4, June 2006 - Australia/New Zealand: AS/NZS CISPR 11:2004 |
| Shock | Tested to IEC 60068-2-27 Ed. 3.0 |
| Vibration | Tested to IEC 60068-2-6 |
| Tripod mount thread | ISO 1222:2010 Standard screw thread, 1/4 - 20 UNC |
| Drop test | 2 m |
| Protection class | 2 |
| IP rating | IP 54 |
| Dimensions (W × H × D) | 95 × 250 × 85 mm |
| Weight | 0.746 kg (with battery) |
| Warranty | Refer to www.keysight.com/go/warranty_terms 3 years for the product 3 months for the standard accessories unless otherwise specified |
| Calibration cycle | 1 year |

Ordering information

- Standard shipped accessories**
- Power adapter with power cord
 - Rechargeable Li-Ion battery
 - SD memory card
 - Video RCA to RCA interface cable, 2 m
 - USB Standard-A to Mini Type-B interface cable, 1 m
 - Hand strap
 - Rugged, hard carrying case
 - Quick start guide
 - Certificate of calibration



U5855A

| Optional accessories | | |
|----------------------|---|--|
| U5751A | Power adapter (with power cord) |  |
| U5752A | Rechargeable Li-Ion battery |  |
| U5753A | External battery charger (2-bay) |  |
| U5761A | Video RCA to RCA interface cable, 2 m |  |
| U5762A | USB Standard-A to Mini Type-B interface cable, 1 m |  |
| U5771A | Rugged carrying case, hard |  |
| U5772A | Hand strap, Adjustable for right-handed and left-handed use |  |

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A personalized view into the information most relevant to you.



Three-Year Warranty

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Keysight's commitment to superior product quality and lower total cost of ownership. The only test and measurement company with three-year warranty standard on all instruments, worldwide.



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For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

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