# FLIR E96 24° + 14°

## P/N: 90204-0101



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**Website**

http://www.flir.com

**Customer support**

http://support.flir.com

**Disclaimer**

Specifications subject to change without further notice. Camera models and accessories subject to regional market considerations. License procedures may apply. Products described herein may be subject to US Export Regulations. Please refer to exportquestions@flir.com with any questions.


| **Imaging and optical data** | |
|---|---|
| Infrared resolution | 640 × 480 pixels |
| UltraMax (super-resolution) | Yes |
| NETD | • <40 mK, 24° @ +30°C (+86°F)<br>• <50 mK, 14° @ +30°C (+86°F) |
| Field of view | • 24° × 18°<br>• 14° × 10° |
| Minimum focus distance | • 0.15 m (0.49 ft.), 24°<br>• 1.0 m (3.28 ft.), 14° |
| Minimum focus distance with MSX | • 0.5 m (1.64 ft.), 24°<br>• 1.0 m (3.28 ft.), 14° |
| Focal length | • 17 mm (0.67 in.), 24°<br>• 29 mm (1.41 in.), 14° |
| Spatial resolution (IFOV) | • 0.66 mrad/pixel, 24°<br>• 0.38 mrad/pixel, 14° |
| Available extra lenses | • 42° (AutoCal) |
| Lens identification | Automatic |
| f number | • 1.3, 24°<br>• 1.5, 14° |
| Image frequency | 30 Hz |

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| **Imaging and optical data** | |
|---|---|
| Focus | • Continuous LDM<br>• One-shot LDM<br>• One-shot contrast<br>• Manual |
| Field of view match | Yes |
| Digital zoom | 1–8× continuous |

| **Detector data** | |
|---|---|
| Focal plane array/spectral range | Uncooled microbolometer/7.5–14 µm |
| Detector pitch | 12 µm |

| **Image presentation** | |
|---|---|
| Resolution | 640 × 480 pixels (VGA) |
| Surface brightness (cd/m²) | 400 |
| Screen size | 4 in. |
| Viewing angle | 80° |
| Color depth (bits) | 24 |
| Aspect ratio | 4:3 |
| Auto-rotation | Yes |
| Touchscreen | Optically bonded PCAP |
| Display technology | IPS |
| Cover glass material | Dragontrail® |
| Programmable buttons | 1 |
| Viewfinder | No |
| Image adjustment | • Automatic<br>• Automatic maximum<br>• Automatic minimum<br>• Manual |

| **Image presentation modes** | |
|---|---|
| Infrared image | Yes |
| Visual image | Yes |
| Thermal fusion | No |
| MSX | Yes |
| Picture in Picture | Resizable and movable |
| Gallery | Yes |

| **Measurement** | |
|---|---|
| Camera temperature range | • –20 to 120°C (–4 to 248°F)<br>• 0 to 650°C (32 to 1202°F)<br>• 300 to 1500°C (572 to 2732°F) |
| Object temperature range and accuracy (for ambient temp. 15 to 35°C (59 to 95°F) | • Range –20 to 120°C (–4 to 248°F):<br>◦ –20 to 100°C (–4 to 212°F): ±2°C (±3.6°F)<br>◦ 100 to 120°C (212 to 248°F): ±2%<br>• Range 0 to 650°C (32 to 1202°F):<br>◦ 0 to 100°C (32 to 212°F): ±2°C (±3.6°F)<br>◦ 100 to 650°C (212 to 1202°F): ±2%<br>• Range 300 to 1500°C (572 to 2732°F): ±2% |

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| **Inspection mode** | |
|---|---|
| FLIR Inspection route | Enabled in the camera |

| **Measurement analysis** | |
|---|---|
| Spotmeter | 3 in live mode |
| Area | 3 in live mode |
| Automatic hot/cold detection | Auto-maximum/minimum markers within area |
| Measurement presets | • No measurements<br>• Center spot<br>• Hot spot<br>• Cold spot<br>• User preset 1<br>• User preset 2 |
| Difference temperature | Yes |
| Reference temperature | Yes |
| Emissivity correction | Yes: variable from 0.01 to 1.0 or selected from materials list |
| Measurement corrections | Yes |
| External optics/windows correction | Yes |

| **Alarm** | |
|---|---|
| Color alarm (isotherm) | • Above<br>• Below<br>• Interval<br>• Condensation (moisture/humidity/dewpoint)<br>• Insulation |
| Measurement function alarm | Audible/visual alarms (above/below) on any selected measurement function |

| **Set-up** | |
|---|---|
| Color palettes | • Arctic<br>• White hot<br>• Black hot<br>• Iron<br>• Lava<br>• Rainbow<br>• Rainbow HC |
| Setup commands | Local adaptation of units, language, date and time formats |
| Languages | 21 |

| **Service functions** | |
|---|---|
| Camera software update | Using USB cable or SD card |

| **Storage of images** | |
|---|---|
| Storage media | Removable memory; SD card (8 GB) |
| Time lapse (periodic image storage) | 10 seconds to 24 hours (infrared) |
| Remote control operation | Using USB cable or Wi-Fi |
| Image file format | Standard JPEG, measurement data included. Infrared-only mode |

| **Image annotations** | |
|---|---|
| Voice | 60 seconds built-in microphone and speaker (and via Bluetooth) on still images and video |
| Text | Text from predefined list or soft keyboard on touchscreen |

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| **Image annotations** | |
|---|---|
| Visual image annotation | Yes |
| Image sketch | Yes: on infrared images only |
| Sketch | From touchscreen |
| METERLiNK | Wireless connection (Bluetooth) to:<br>FLIR meters with METERLiNK |
| Compass | Yes |
| Laser distance meter information | Yes |
| Area measurement information | Yes |
| GPS | Yes: location data automatically added to every still image and the first frame in video from built-in GPS |

| **Video recording in camera** | |
|---|---|
| Radiometric infrared-video recording | RTRR (.csq) |
| Non-radiometric infrared-video recording | H.264 to memory card |
| Visual video recording | H.264 to memory card |

| **Video streaming** | |
|---|---|
| Radiometric infrared–video streaming (compressed) | Over UVC |
| Non-radiometric video streaming (compressed: IR, MSX, visual, Picture in Picture) | • H.264 (AVC) over RTSP (Wi-Fi)<br>• MPEG4 over RTSP (Wi-Fi)<br>• MJPEG over UVC and RTSP (Wi-Fi) |
| Visual video streaming | Yes |

| **Digital camera** | |
|---|---|
| Resolution | 5 MP with LED light |
| Focus | Fixed |
| Field of view | 53° × 41° |
| Video lamp | Built-in LED light |

| **Laser pointer** | |
|---|---|
| Laser alignment | Position is automatically displayed on the infrared image |
| Laser distance meter | Activated by a dedicated button |
| Laser | Class 2, 0.05–40 m (1.6–131 ft.) ±1% of measured distance |

| **Data communication interfaces** | |
|---|---|
| Interfaces | USB 2.0, Bluetooth, Wi-Fi, DisplayPort |
| METERLiNK/Bluetooth | Communication with headset and external sensors |
| Wi-Fi | Peer to peer (*ad hoc*) or infrastructure (network) |
| Audio | Microphone and speaker for voice annotation of images |
| USB | USB Type-C: data transfer/video/power |
| USB standard | USB 2.0 High Speed |
| Video out | DisplayPort |
| Video connector type | DisplayPort over USB Type-C |

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| **Radio** | |
|---|---|
| Operating frequency | Bluetooth + EDR/LE: 2402–2480 MHz<br>WLAN 2.4 GHz: 2412–2462 MHz<br>WLAN 5 GHz: 5150–5350 MHz (DFS: only slave mode)<br>Note that frequency band 5150–5350 MHz is for indoor use only, see national regulations. |
| RF output (EIRP) | Bluetooth + EDR/LE: < 10 dBm<br>WLAN: < 17 dBm |
| Antenna | Integrated PIFA antenna (gain: maximum 1.4 dBi) |

| **Power system** | |
|---|---|
| Battery type | Rechargeable Li-ion battery |
| Battery voltage | 3.6 V |
| Battery operating time | > 2.5 hours at 25°C (68°F) and typical use |
| Charging system | In camera (AC adapter or 12 V from a vehicle) or two-bay charger |
| Charging time (using two-bay charger) | 2.5 hours to 90% capacity with charging status indicated by LEDs |
| Charging temperature | 0°C to +45°C (+32°F to +113°F), except for the Korean market: +10°C to +45°C (+50°F to +113°F) |
| External power operation | AC adapter 90–260 V AC, 50/60 Hz, or 12 V from a vehicle (cable with standard plug—optional) |
| Power management | Automatic shut-down and sleep mode |

| **Environmental data** | |
|---|---|
| Operating temperature range | –15 to +50°C (5–122°F) |
| Storage temperature range | –40 to +70°C (–40 to +158°F) |
| Humidity (operating and storage) | IEC 60068-2-30/24 hours/95% relative humidity 25–40°C (77–104°F)/two cycles |
| EMC | • ETSI EN 301 489-1 (radio)<br>• ETSI EN 301 489-17<br>• EN 61000-6-2 (immunity)<br>• EN 61000-6-3 (emission)<br>• FCC 47 CFR part 15 B, class B (emission) |
| Radio spectrum | • ETSI EN 300 328<br>• ETSI EN 301 893<br>• FCC 47 CFR part 15 C<br>• FCC 47 CFR part 15 E |
| Encapsulation | IP 54 (IEC 60529) |
| Shock | 25*g* (IEC 60068-2-27) |
| Vibration | 2*g* (IEC 60068-2-6) |
| Drop | Designed for 2 m (6.6 ft.) |
| Safety | Camera:<br>• IEC/EN 60950-1, IEC/EN 62368-1<br>Power supply:<br>• IEC/EN 62368-1<br>• CSA/UL/KC/SAA/PSE 60950-1 |

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| **Physical data** | |
|---|---|
| Weight (including battery) | 1 kg (2.2 lb.) |
| Size (L × W × H) | 278.4 × 116.1 × 113.1 mm (11.0 × 4.6 × 4.4 in.) |
| Battery weight | 140 g (4.9 oz.) |
| Battery size (L × W × H) | 150 × 46 × 55 mm (5.9 × 1.8 × 2.2 in.) |
| Tripod mounting | UNC ¼″-20 |
| Housing material | PCABS with TPE, magnesium |
| Color | Black |

| **Warranty and service** | |
|---|---|
| Warranty | http://www.flir.com/warranty/ |

| **Shipping information** | |
|---|---|
| Packaging, type | Cardboard box |
| Packaging, contents | • Accessory Box I:<br>  ◦ Power supply for battery charger<br>  ◦ Power supply, 15 W/3 A<br>  ◦ Printed documentation<br>  ◦ SD card (8 GB)<br>  ◦ USB 2.0 A to USB Type-C cable, 1.0 m<br>  ◦ USB Type-C to HDMI adapter, standard specification UH311<br>  ◦ USB Type-C to USB Type-C cable (USB 2.0 standard), 1.0 m<br>• Accessory box II:<br>  ◦ Accessory box III:<br>  – Front protection fastener<br>  – Hand strap bracket, left<br>  – Hand strap bracket, right<br>  – Screws<br>  – Torx T10 wrench<br>  ◦ Carabiner hook<br>  ◦ Front protection<br>  ◦ Hand strap<br>  ◦ Lanyard strap, camera<br>  ◦ Lens cap strap<br>  ◦ Wrist strap<br>• Battery (2 ea)<br>• Battery charger<br>• Extra lens, 14°<br>• FLIR Thermal Studio Starter<br>• Hard transport case<br>• Infrared camera with lens<br>• Lens cap, front<br>• Lens cap, front and rear (only for extra lenses) |
| Packaging, weight | 6.2 kg (13.7 lb.) |
| Packaging, size | 500 × 190 × 370 mm (19.7 × 7.5 × 14.6 in.) |
| EAN-13 | 4743254004559 |
| UPC-12 | 845188022280 |
| Country of origin | Estonia |

**Supplies and accessories:**

- T300238; Macro lens 2.0x with case
- T131171ACC; Remote operation button
- T300030; Option, No radio
- T911997; Tripod

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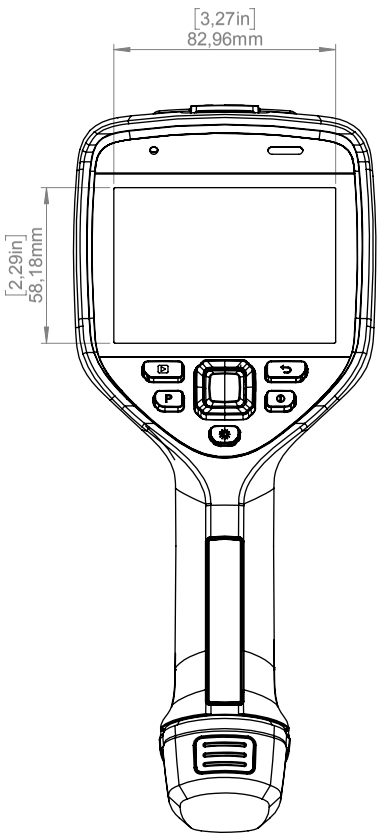
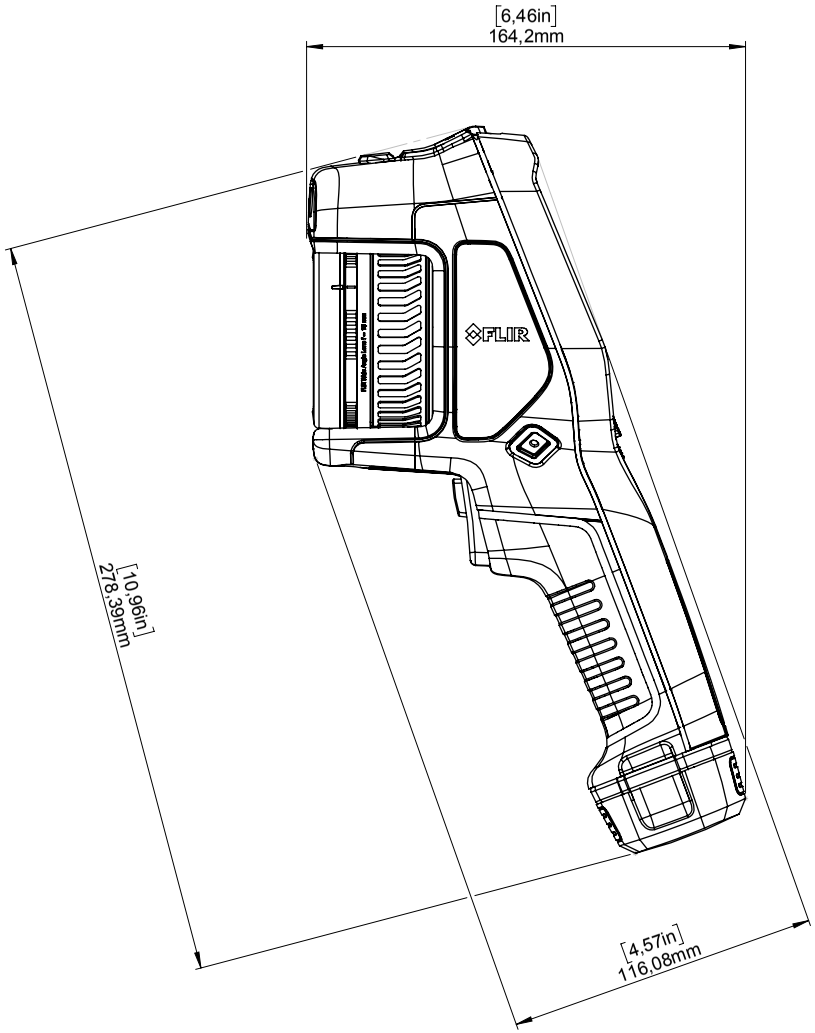
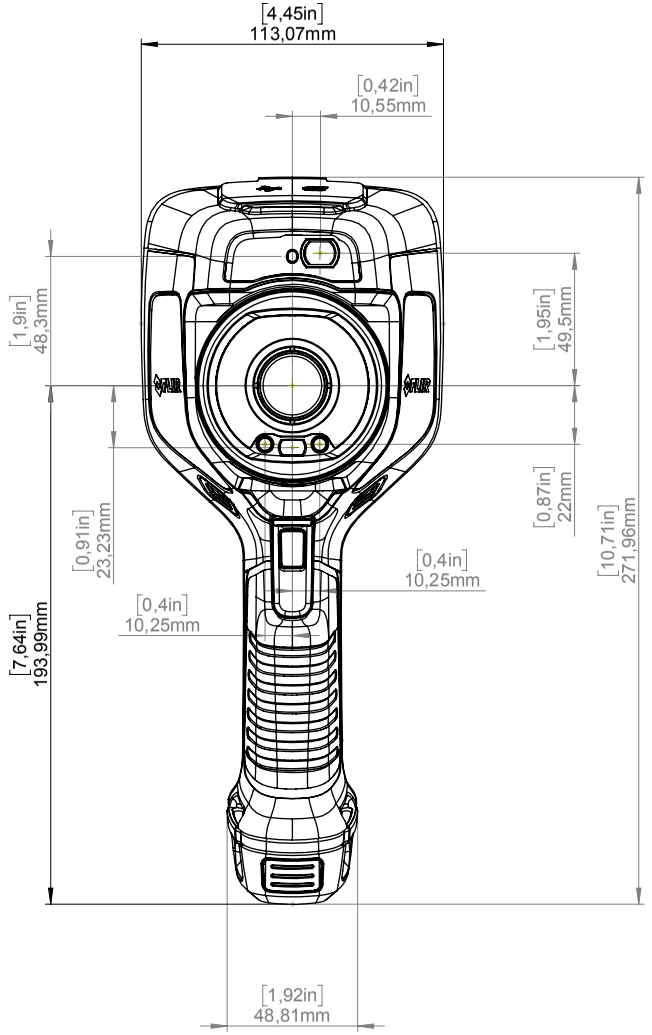
- T911998; HDMI 2-port video splitter
- T300369; Mounting kit (FLIR T5xx, T8xx, Exx)
- T850111; Option, Dual streaming
- T130337ACC; Calibration target
- T199330ACC; Battery
- T199346ACC; Hard transport case for FLIR Exx series
- T199425ACC; Battery charger
- T199557ACC; Accessory Box II
- T911630ACC; Power supply for camera, 15 W/3 A
- T911631ACC; USB 2.0 A to USB Type-C cable, 0.9 m
- T911633ACC; Power supply for battery charger
- T911689ACC; Pouch for FLIR E-series
- T911705ACC; USB Type-C to USB Type-C cable (USB 2.0 standard), 1.0 m
- T911706ACC; Car adapter 12 V
- T911845ACC; USB Type-C to HDMI and PD adapter
- T911846ACC; USB 2.0 A to USB Type-C with Power supply
- T300437ACC; Lens case
- T199589; IR lens, f=17 mm (24°) with case
- T199588; IR lens, f=29 mm (14°) with case
- T199590; IR lens, f=10 mm (42°) with case
- T197771ACC; Bluetooth Headset
- T300244; FLIR Route Creator Plugin for FLIR Thermal Studio Pro, 1 Year Subscription
- T300342; FLIR Screen-EST, Perpetual license
- T300083; FLIR Thermal Studio Pro, Perpetual license
- T300341; FLIR Thermal Studio Standard, 1 Year Subscription
- T300258; FLIR Thermal Studio Standard, Perpetual license
- T198583; FLIR Tools+ (download card incl. license key)
- 4232535; FLIR Research Studio, Professional Edition - 1 Year Subscription (online activation)
- 4232556; FLIR Research Studio, Professional Edition - Perpetual License (online activation)
- 4232590; FLIR Research Studio, Professional Edition - Perpetual License (USB dongle)
- 4232557; FLIR Research Studio, Professional Edition - USB dongle only
- 4220499; FLIR Research Studio, Standard Edition - 1 Year Subscription (online activation)
- 4220500; FLIR Research Studio, Standard Edition - Perpetual License (online activation)
- 4220646; FLIR Research Studio, Standard Edition - Perpetual License (USB dongle)
- 24971-010; FLIR Research Studio, Standard Edition - USB dongle only
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- 4232591; FLIR ResearchIR to Research Studio, Professional Edition - 1 Year License Upgrade
- INST-EW-0140; Extended Warranty 1 Year for E53, E75, E85, E95
- INST-EWGM-0135; Premium Service Package for A35, A65, E53, E75, E85, E95
- INST-GM-0125; General Maintenance Package for A35, A65, Exx, Kxx




| Modified | Check | Drawn by |
|---|---|---|
| 2016-12-20 | FRGU | R&D Instruments |

Denomination

Basic dimension drawing Exx

| Size | Sheet |
|---|---|
| A3 | 1(1) |

Scale 1:2

| Drawing No. | Rev |
|---|---|
| T130127 | B |

July 07, 2021 Täby, Sweden AQ320222

**CE Declaration of Conformity – EU Declaration of Conformity**

Product: FLIR E53 /E54 /E75 /E76 /E85 /E86 /E95 /E96 -series
Name and address of the manufacturer:
FLIR Systems AB
PO Box 7376
SE-187 15 Täby, Sweden

This declaration of conformity is issued under the sole responsibility of the manufacturer.
The object of the declaration: FLIR E53 /E54 /E75 /E76 /E85 /E86 / E95 /E96-series (Product Model Name FLIR-E7850).
The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

**Directives:**

| | | |
|---|---|---|
| Directive | 2012/19/EU | Waste electrical and electric equipment |
| Directive | 2014/53/EU | Radio Equipment Directive (RED) |
| Directive | 1999/519/EC | Limitation of exposure to electromagnetic fields (SAR) |
| Directive | 2011/65/EU | RoHS and 2015/830/EU |

**Standards:**

| | | |
|---|---|---|
| Emission: | EN 61000-6-3/A1:2011 | Electromagnetic Compability<br>Generic standards – Emission |
| Immunity: | EN 61000-6-2:2005<br>Draft EN 301489-1:2016 v2.1.0<br>EN 301489-17:2012 v2.2.1 | Electromagnetic Compability<br>Generic standards – Immunity |
| Laser: | EN 60825-1 | Safety of laser products |
| Radio: | ETSI EN 300 328 v2.2.2 | Harmonized EN covering essential requirements of the R&TTE Directive |
| | ETSI EN 301 893 v1.8.1 | Harmonized EN covering essential reqs |
| SAR: | EN 62209-2 | Human exposure Wireless |
| Safety (Battery charger): | | Information technology equipment |
| | IEC 62368-1: 2014 (2.Edition) and Cor. 1: 2015<br>EN 62368-1: 2014/AC: 2015/A11: 2017/AC:2017 | |
| RoHS: | EN 50581:2012 | Technical documentation |

**FLIR Systems AB**
Quality Assurance

Lea Dabiri
Quality Manager