

# FLIR E86 24° + 14° & 42°



<b>Imaging and optical data</b>	
Infrared resolution	464 × 348 pixels
UltraMax (super-resolution)	Yes
NETD	<ul style="list-style-type: none"> <li>• &lt;30 mK, 42° @ +30°C (+86°F)</li> <li>• &lt;40 mK, 24° @ +30°C (+86°F)</li> <li>• &lt;50 mK, 14° @ +30°C (+86°F)</li> </ul>
Field of view	<ul style="list-style-type: none"> <li>• 42° × 32°</li> <li>• 24° × 18°</li> <li>• 14° × 10°</li> </ul>
Minimum focus distance	<ul style="list-style-type: none"> <li>• 0.15 m (0.49 ft.), 42°</li> <li>• 0.15 m (0.49 ft.), 24°</li> <li>• 1.0 m (3.28 ft.), 14°</li> </ul>
Minimum focus distance with MSX	<ul style="list-style-type: none"> <li>• 0.65 m (2.13 ft.), 42°</li> <li>• 0.5 m (1.64 ft.), 24°</li> <li>• 1.0 m (3.28 ft.), 14°</li> </ul>
Focal length	<ul style="list-style-type: none"> <li>• 10 mm (0.39 in.), 42°</li> <li>• 17 mm (0.67 in.), 24°</li> <li>• 29 mm (1.41 in.), 14°</li> </ul>
Spatial resolution (IFOV)	<ul style="list-style-type: none"> <li>• 1.66 mrad/pixel, 42°</li> <li>• 0.90 mrad/pixel, 24°</li> <li>• 0.52 mrad/pixel, 14°</li> </ul>
Lens identification	Automatic

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f number	<ul style="list-style-type: none"> <li>• 1.1, 42°</li> <li>• 1.3, 24°</li> <li>• 1.5, 14°</li> </ul>
Image frequency	30 Hz
Focus	<ul style="list-style-type: none"> <li>• Continuous LDM</li> <li>• One-shot LDM</li> <li>• One-shot contrast</li> <li>• Manual</li> </ul>
Field of view match	Yes
Digital zoom	1–4x continuous
<b>Detector data</b>	
Focal plane array/spectral range	Uncooled microbolometer/7.5–14 µm
Detector pitch	17 µm
<b>Image presentation</b>	
Resolution	640 × 480 pixels (VGA)
Surface brightness (cd/m <sup>2</sup> )	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	<ul style="list-style-type: none"> <li>• Automatic</li> <li>• Automatic maximum</li> <li>• Automatic minimum</li> <li>• Manual</li> </ul>
<b>Image presentation modes</b>	
Infrared image	Yes
Visual image	Yes
Thermal fusion	No
MSX	Yes
Picture in Picture	Resizable and movable
Gallery	Yes

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<b>Measurement</b>	
Camera temperature range	<ul style="list-style-type: none"> <li>• -20 to 120°C (-4 to 248°F)</li> <li>• 0 to 650°C (32 to 1202°F)</li> <li>• 300 to 1500°C (572 to 2732°F)</li> </ul>
Object temperature range and accuracy (for ambient temp. 15 to 35°C (59 to 95°F))	<ul style="list-style-type: none"> <li>• Range -20 to 120°C (-4 to 248°F):               <ul style="list-style-type: none"> <li>◦ -20 to 100°C (-4 to 212°F): ±2°C (±3.6°F)</li> <li>◦ 100 to 120°C (212 to 248°F): ±2%</li> </ul> </li> <li>• Range 0 to 650°C (32 to 1202°F):               <ul style="list-style-type: none"> <li>◦ 0 to 100°C (32 to 212°F): ±2°C (±3.6°F)</li> <li>◦ 100 to 650°C (212 to 1202°F): ±2%</li> </ul> </li> <li>• Range 300 to 1500°C (572 to 2732°F): ±2%</li> </ul>
<b>Inspection mode</b>	
FLIR Inspection route	Enabled in the camera
<b>Measurement analysis</b>	
Spotmeter	3 in live mode
Area	3 in live mode
Automatic hot/cold detection	Auto-maximum/minimum markers within area
Measurement presets	<ul style="list-style-type: none"> <li>• No measurements</li> <li>• Center spot</li> <li>• Hot spot</li> <li>• Cold spot</li> <li>• User preset 1</li> <li>• User preset 2</li> </ul>
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
<b>Alarm</b>	
Color alarm (isotherm)	<ul style="list-style-type: none"> <li>• Above</li> <li>• Below</li> <li>• Interval</li> <li>• Condensation (moisture/humidity/dewpoint)</li> <li>• Insulation</li> </ul>
Measurement function alarm	Audible/visual alarms (above/below) on any selected measurement function
<b>Set-up</b>	
Color palettes	<ul style="list-style-type: none"> <li>• Arctic</li> <li>• White hot</li> <li>• Black hot</li> <li>• Iron</li> <li>• Lava</li> <li>• Rainbow</li> <li>• Rainbow HC</li> </ul>
Setup commands	Local adaptation of units, language, date and time formats
Languages	21
<b>Service functions</b>	
Camera software update	Using USB cable or SD card

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<b>Storage of images</b>	
Storage media	<ul style="list-style-type: none"> <li>Removable memory: SD card (8 GB)</li> <li>FLIR Ignite Cloud services (with Wi-Fi)</li> </ul>
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
<b>Image annotations</b>	
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
Visual image annotation	Yes
Image sketch	Yes: on infrared images only
Sketch	From touchscreen
METERLiNK	Wireless connection (Bluetooth) to: 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
<b>Video recording in camera</b>	
Radiometric infrared-video recording	RTRR (.csq)
Non-radiometric infrared-video recording	H.264 to memory card
Visual video recording	H.264 to memory card
<b>Video streaming</b>	
Radiometric infrared-video streaming (compressed)	Over UVC
Non-radiometric video streaming (compressed: IR, MSX, visual, Picture in Picture)	<ul style="list-style-type: none"> <li>H.264 (AVC) over RTSP (Wi-Fi)</li> <li>MPEG4 over RTSP (Wi-Fi)</li> <li>MJPEG over UVC and RTSP (Wi-Fi)</li> </ul>
Visual video streaming	Yes
<b>Digital camera</b>	
Resolution	5 MP with LED light
Focus	Fixed
Field of view	53° × 41°
Video lamp	Built-in LED light
<b>Laser pointer</b>	
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

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<b>Data communication interfaces</b>	
Interfaces	USB 2.0, Bluetooth, Wi-Fi, DisplayPort
METERLiNK/Bluetooth	Communication with headset and external sensors
Wi-Fi	Peer to peer ( <i>ad hoc</i> ) 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
Cloud services	FLIR Ignite Cloud services
<b>Radio</b>	
Operating frequency	Bluetooth + EDR/LE: 2402–2480 MHz WLAN 2.4 GHz: 2412–2462 MHz WLAN 5 GHz: 5150–5350 MHz (DFS: only slave mode)  Note that frequency band 5150–5350 MHz is for indoor use only, see national regulations.
RF output (EIRP)	Bluetooth + EDR/LE: < 10 dBm WLAN: < 17 dBm
Antenna	Integrated PIFA antenna (gain: maximum 1.4 dBi)
<b>Power system</b>	
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
Battery documents	For documents like MSDS and UN38.3 test reports/summaries, see: <a href="https://support.flir.com/resources/msds">https://support.flir.com/resources/msds</a>
<b>Environmental data</b>	
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	<ul style="list-style-type: none"> <li>• ETSI EN 301 489-1 (radio)</li> <li>• ETSI EN 301 489-17</li> <li>• EN 61000-6-2 (immunity)</li> <li>• EN 61000-6-3 (emission)</li> <li>• FCC 47 CFR part 15 B, class B (emission)</li> </ul>

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<b>Environmental data</b>	
Radio spectrum	<ul style="list-style-type: none"> <li>• ETSI EN 300 328</li> <li>• ETSI EN 301 893</li> <li>• FCC 47 CFR part 15 C</li> <li>• FCC 47 CFR part 15 E</li> </ul>
Encapsulation	IP 54 (IEC 60529)
Shock	25g (IEC 60068-2-27)
Vibration	2g (IEC 60068-2-6)
Drop	Designed for 2 m (6.6 ft.)
Safety	Camera: <ul style="list-style-type: none"> <li>• IEC/EN 60950-1, IEC/EN 62368-1</li> </ul> Power supply: <ul style="list-style-type: none"> <li>• IEC/EN 62368-1</li> <li>• CSA/UL/KC/SAA/PSE 60950-1</li> </ul>
Declaration of conformity	See: <a href="https://support.flir.com/resources/DoC">https://support.flir.com/resources/DoC</a>
<b>Physical data</b>	
Weight (including battery)	1 kg (2.2 lb.)
Size (L x W x H)	278.4 x 116.1 x 113.1 mm (11.0 x 4.6 x 4.4 in.)
Battery weight	140 g (4.9 oz.)
Battery size (L x W x H)	150 x 46 x 55 mm (5.9 x 1.8 x 2.2 in.)
Tripod mounting	UNC ¼"-20
Housing material	PCABS with TPE, magnesium
Color	Black
<b>Warranty and service</b>	
Warranty	<a href="http://www.flir.com/warranty/">http://www.flir.com/warranty/</a>

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Shipping information	
Packaging, type	Cardboard box
Packaging, contents	<ul style="list-style-type: none"> <li>• Accessory Box I:               <ul style="list-style-type: none"> <li>◦ Power supply for battery charger</li> <li>◦ Power supply, 15 W/3 A</li> <li>◦ Printed documentation</li> <li>◦ SD card (8 GB)</li> <li>◦ USB 2.0 A to USB Type-C cable, 1.0 m</li> <li>◦ USB Type-C to HDMI adapter, standard specification UH311</li> <li>◦ USB Type-C to USB Type-C cable (USB 2.0 standard), 1.0 m</li> </ul> </li> <li>• Accessory box II:               <ul style="list-style-type: none"> <li>◦ Accessory box III:                   <ul style="list-style-type: none"> <li>– Front protection fastener</li> <li>– Hand strap bracket, left</li> <li>– Hand strap bracket, right</li> <li>– Screws</li> <li>– Torx T10 wrench</li> </ul> </li> <li>◦ Carabiner hook</li> <li>◦ Front protection</li> <li>◦ Hand strap</li> <li>◦ Lanyard strap, camera</li> <li>◦ Lens cap strap</li> <li>◦ Wrist strap</li> </ul> </li> <li>• Battery (2 ea)</li> <li>• Battery charger</li> <li>• Extra lens, 14°</li> <li>• Extra lens, 42°</li> <li>• FLIR Thermal Studio Starter</li> <li>• Hard transport case</li> <li>• Infrared camera with lens</li> <li>• Lens cap, front</li> <li>• Lens cap, front and rear (only for extra lenses)</li> </ul>
Packaging, weight	6.4 kg (14.1 lb.)
Packaging, size	500 × 190 × 370 mm (19.7 × 7.5 × 14.6 in.)
EAN-13	4743254004719
UPC-12	845188022716
Country of origin	Estonia

## Supplies and accessories:

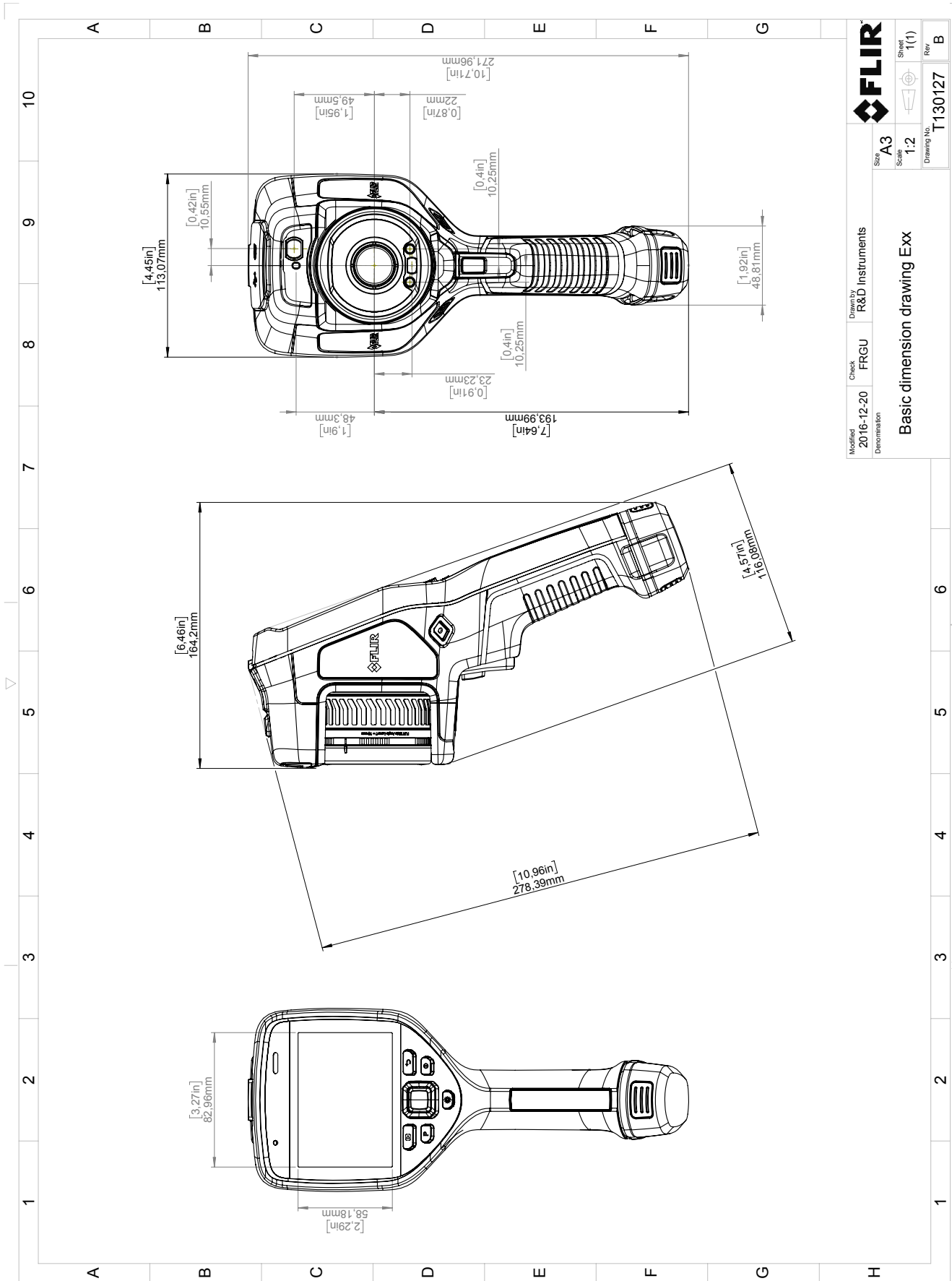
- T131171ACC; Remote operation button
- T300030; Option, No radio
- T911997; Tripod
- T911998; HDMI 2-port video splitter
- T300369; Mounting kit (FLIR T5xx, T8xx, Exx)
- T300493ACC; Industrial protective lens window
- T850111; Option, Dual streaming
- T130337ACC; Calibration target
- T199330ACC; Battery
- T199346ACC; Hard transport case for FLIR Exx series
- T199425ACC; Battery charger
- T199557ACC; Accessory Box II
- T911630ACC; Power supply for camera, 15 W/3 A
- 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

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- T911846ACC; USB 2.0 A to USB Type-C with Power supply
- T911940ACC; USB 2.0 A to USB Type-C cable, 1.0 m
- 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
- T300439; FLIR Route Creator Plugin for FLIR Thermal Studio Pro, Perpetual license
- T300342; FLIR Screen-EST, Perpetual license
- T300243; FLIR Thermal Studio Pro, 1 Year Subscription
- T300083; FLIR Thermal Studio Pro, Perpetual license
- T300341; FLIR Thermal Studio Standard, 1 Year Subscription
- T300258; FLIR Thermal Studio Standard, Perpetual license
- 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)
- 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)
- 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





Modified 2016-12-20	Check FRGU	Drawn by R&D Instruments	FLIR
Denomination <b>Basic dimension drawing Exx</b>			Size A3
			Scale 1:2
			Sheet (1)
			Rev B
			Drawing No. T130127