

P/N: 72501-0103

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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.




| General description | |
|---|----------------------------------|
| The FLIR T1020 is designed for the expert requiring the highest performance and the latest technology available. The camera combines excellent ergonomics and feature-rich flexibility with superior image quality at an infrared resolution of 1024 × 768 pixels. | |
| Benefits: | |
| <ul style="list-style-type: none"> Flexible and feature rich: A wide variety of measuring and analysis functions make the FLIR T1020 flexible for your every need. Two programmable buttons provide easy access to favorite functions. Highest performance with the latest technology: The FLIR T1020 is equipped with the innovative Multi Spectral Dynamic Imaging (MSX) feature, which produces an image richer in detail than ever before. With its continuous autofocus, the FLIR T1020 is a fully automatic infrared camera. Support for UltraMax: When enabling UltraMax in the camera, the resolution of images can be substantially enhanced when importing the images into FLIR Tools. | |
| Imaging and optical data | |
| IR resolution | 1024 × 768 pixels |
| MSX resolution | 1024 × 768 pixels |
| UltraMax | Yes |
| Thermal sensitivity/NETD | <20 mK @ +30°C (+86°F) |
| Field of view (FOV) | 45° × 34° |
| Minimum IR focus distance | 0.2 m (0.66 ft.) |
| Minimum IR-visual alignment distance | 0.5 m (1.64 ft.) |
| Focal length | 21.2 mm (0.83 in.) |
| Spatial resolution (IFOV) | 0.80 mrad |
| Lens identification | Automatic |
| F-number | 1.1 |
| Image frequency | 30 Hz |
| Focus | One shot or manual |
| Digital zoom | 1–8× continuous |
| Digital image enhancement | Adaptive digital noise reduction |

P/N: 72501-0103

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| Detector data | |
|--------------------------------------|---|
| Detector type | Focal plane array (FPA), uncooled microbolometer |
| Spectral range | 7.5–14 μm |
| Detector pitch | 17 μm |
| Image presentation | |
| Display | Built-in touch screen, 4.3 in. wide screen LCD, 800 × 480 pixels |
| Display type | Capacitive touch screen |
| Auto orientation | Automatic landscape or portrait |
| Viewfinder | Built-in 800 × 480 pixels |
| Automatic image adjustment | Continuous, histogram based |
| Automatic image adjustment, type | Standard or histogram based on the image content |
| Manual image adjustment | Linear based, possible to adjust level/span/max./min. |
| Image presentation modes | |
| Image modes | Thermal, thermal MSX, picture in picture, digital camera |
| Infrared image | Full color infrared image |
| Visual image | Full color visual image |
| Multi Spectral Dynamic Imaging (MSX) | Thermal image with enhanced detail presentation |
| Picture in Picture | Resizable and movable infrared area on the visual image |
| Gallery | <ul style="list-style-type: none"> Review thumbnail/full image on the camera Edit measurements/palettes/image modes on the camera |
| Measurement | |
| Object temperature range | <ul style="list-style-type: none"> –40 to +150°C (–40 to +302°F) 0 to +650°C (+32 to +1202°F) +300 to +2000°C (+572 to +3632°F) |
| Accuracy | <ul style="list-style-type: none"> ±1°C (±1.8°F) or ±1% @ 25°C (77°F) for temperatures between 5 and 150°C (41 and 302°F), in range –40 to 150°C (–40 to 302°F) ±2°C (±3.6°F) or ±2% of reading @ 25°C (77°F) for temperatures between –40 and 2000°C (–40 and 3632°F) <div>  NOTE For HSI use, above 30 Hz frame rate, the typical accuracy will be ±2.5°C (±4.5°F), or 2.5% of reading @ 25°C (77°F). </div> |
| Measurement analysis | |
| Spotmeter | 10 |
| Area | 5 + 5 areas (boxes and circles) with max./min./average |

P/N: 72501-0103

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| | |
|---|--|
| Measurement analysis | |
| Profile | 1 line profile with max./min. temperature |
| Automatic hot/cold detection | Auto hot or cold spotmeter markers within the area and profile |
| Measurement presets | No measurements, Center spot, Hot spot, Cold spot, User preset 1, User preset 2 |
| User presets | The user can select and combine measurements from any number of spots/boxes/circles/profiles/delta |
| Difference temperature | Delta temperature between the measurement functions and the reference temperature |
| Reference temperature | Manually set using the difference temperature |
| Atmospheric transmission correction | Automatic, based on the inputs for distance, atmospheric temperature, and relative humidity |
| Optics transmission correction | Automatic, based on signals from internal sensors |
| Emissivity correction | Variable from 0.01 to 1.0 or selected from the materials list |
| Reflected apparent temperature correction | Automatic, based on the input of the reflected temperature |
| External optics/windows correction | Automatic, based on the inputs of the window transmission and temperature |
| Measurement corrections | Emissivity, reflected temperature, relative humidity, atmospheric temperature, object distance, external infrared window compensation |
| Colors (palettes) | Iron, Rainbow, Rainbow HC, White hot, Black hot, Arctic, Lava |
| Alarm | |
| Color Alarm (isotherm) | Above/below/interval |
| Measurement function alarm | Audible/visual alarms (above/below) on any selected measurement function |
| Set-up | |
| Set-up commands | Define user presets, Save options, Programmable button, Reset options, Set up camera, Wi-Fi, GPS & compass, Bluetooth, Language, Time & units, Camera information |
| Languages | Arabic, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, simplified Chinese, Swedish, traditional Chinese, Turkish |
| Service functions | |
| Camera software update | Use PC software FLIR Tools |
| Storage of images | |
| Image storage | Standard JPEG, including digital image and measurement data, on a memory card |
| Storage media | Removable media SD or SDHC card. Class 10 or better recommended |

P/N: 72501-0103

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| Storage of images | |
|------------------------------------|---|
| Image storage mode | <ul style="list-style-type: none"> Simultaneous storage of thermal and digital images in the same JPEG file Option to store a digital photo as a separate JPEG file |
| Time lapse | 15 seconds to 24 hours |
| File formats | <ul style="list-style-type: none"> Standard JPEG, measurement data included CSQ, measurement data included |
| File formats, visual | Standard JPEG, automatically associated with the corresponding thermal image |
| Image annotations | |
| Voice | 60 seconds (via Bluetooth) stored with the image |
| Text | Add table, select between predefined templates |
| Image description | Add short note (stored in the JPEG exif tag) |
| Sketch | <ul style="list-style-type: none"> Draw on the thermal/digital image or add predefined stamps Separate PC software with extensive report generation |
| Geographic Information System | |
| GPS | Location data automatically added to every image from the built-in GPS |
| Compass | Camera direction automatically added to every image |
| Video recording in camera | |
| Radiometric IR-video recording | Real-time radiometric recording (RTRR) to the memory card |
| Non-radiometric IR-video recording | H.264 to the memory card |
| Visual video recording | H.264 to the memory card |
| Video streaming | |
| Radiometric IR-video streaming | Real-time radiometric streaming (RTRS) via USB |
| Non-radiometric IR-video streaming | <ul style="list-style-type: none"> H.264 video using Wi-Fi H.264 video using USB |
| Visual video streaming | <ul style="list-style-type: none"> H.264 video using Wi-Fi H.264 video using USB |
| Digital camera | |
| Digital camera | Field of view adapts to the infrared lens |
| Video lamp | Built-in LED light |
| Laser pointer | |
| Laser | Activated by a dedicated button |
| Laser alignment | Position is automatically displayed on the infrared image |

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| | |
|--------------------------------------|---|
| Laser pointer | |
| Laser classification | Class 2 |
| Laser type | Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red) |
| Data communication interfaces | |
| Interfaces | USB Micro-B, Bluetooth, Wi-Fi, HDMI |
| Bluetooth | Communication with a headset |
| Wi-Fi | Infrastructure (network) or AP |
| SD Card | One card slot for removable SD memory cards |
| Audio | Microphone headset via Bluetooth for the voice annotation of images |
| USB | |
| USB | USB Micro-B: data transfer to and from a PC, uncompressed colorized video |
| USB, standard | <ul style="list-style-type: none"> • USB 2.0 High Speed • USB Micro-B connector |
| Video | |
| Video out | <ul style="list-style-type: none"> • HDMI 640 × 480 • HDMI 1280 × 720 • DVI 640 × 480 • DVI 800 × 600 |
| Video, connector type | HDMI type C |
| Radio | |
| Wi-Fi | <ul style="list-style-type: none"> • Standard: 802.11 b/g/n • Frequency range: 2412–2462 MHz • Max. output power: 15 dBm |
| Bluetooth | Frequency range: 2402–2480 MHz, supports 2.1, 4.0, and 4.0 BLE |
| Antenna | Internal |
| Power system | |
| Battery type | Rechargeable Li ion battery |
| 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 | 2.5 hours to 90% capacity, charging status indicated by LEDs |
| Charging temperature | 0–45°C (32–113°F) |
| External power operation | AC adapter 90–260 V AC, 50/60 Hz or 12 V from a vehicle (cable with a standard plug, optional) |
| Power management | Automatic power-off functionality, user configurable between 5 minutes, 20 minutes, and no automatic shutdown |

P/N: 72501-0103

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#72501-0103; r. /36730; en-US

| Environmental data | |
|-------------------------------------|---|
| Operating temperature range | –15°C to +50°C (+5°F to +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) / 2 cycles |
| EMC | <ul style="list-style-type: none"> • ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) • ICES-003 |
| Radio spectrum | <ul style="list-style-type: none"> • ETSI EN 300 328 • FCC Part 15.247 • RSS-247 issue 1 |
| Encapsulation | IP 54 (IEC 60529) |
| Shock | 25 g (IEC 60068-2-29) |
| Vibration | 2 g (IEC 60068-2-6) |
| Safety | EN/UL/CSA/PSE 60950-1 |
| Ergonomics | The viewfinder plus the 120° rotating optical block allow you to point the camera in multiple directions while maintaining a comfortable position |
| Physical data | |
| Weight | 2.0 kg (4.3 lb.) |
| Camera size, excl. lens (L × W × H) | 167.2 mm × 204.5 mm × 188.3 mm (6.6 in. × 8.0 in. × 7.4 in.) |
| Tripod mounting | UNC ¼"-20 |
| Housing material | Magnesium |
| Warranty information | |
| Warranty | <ul style="list-style-type: none"> • 2 years parts and labor coverage on the camera • 5 years coverage on the battery • 10 years coverage on the detector – the most vital part of the whole camera |
| Shipping information | |
| List of contents | <ul style="list-style-type: none"> • Infrared camera with lens • Battery (2 ea.) • Battery charger • Bluetooth headset • Calibration certificate • FLIR Tools+ license card • Hard transport case • HDMI-HDMI cable • Lens cap • Memory card • Neck strap • Power supply, including multi-plugs • Printed documentation • USB cable, Std A to Micro-B |
| EAN-13 | 7332558010297 |



FLIR T1020 45°

P/N: 72501-0103

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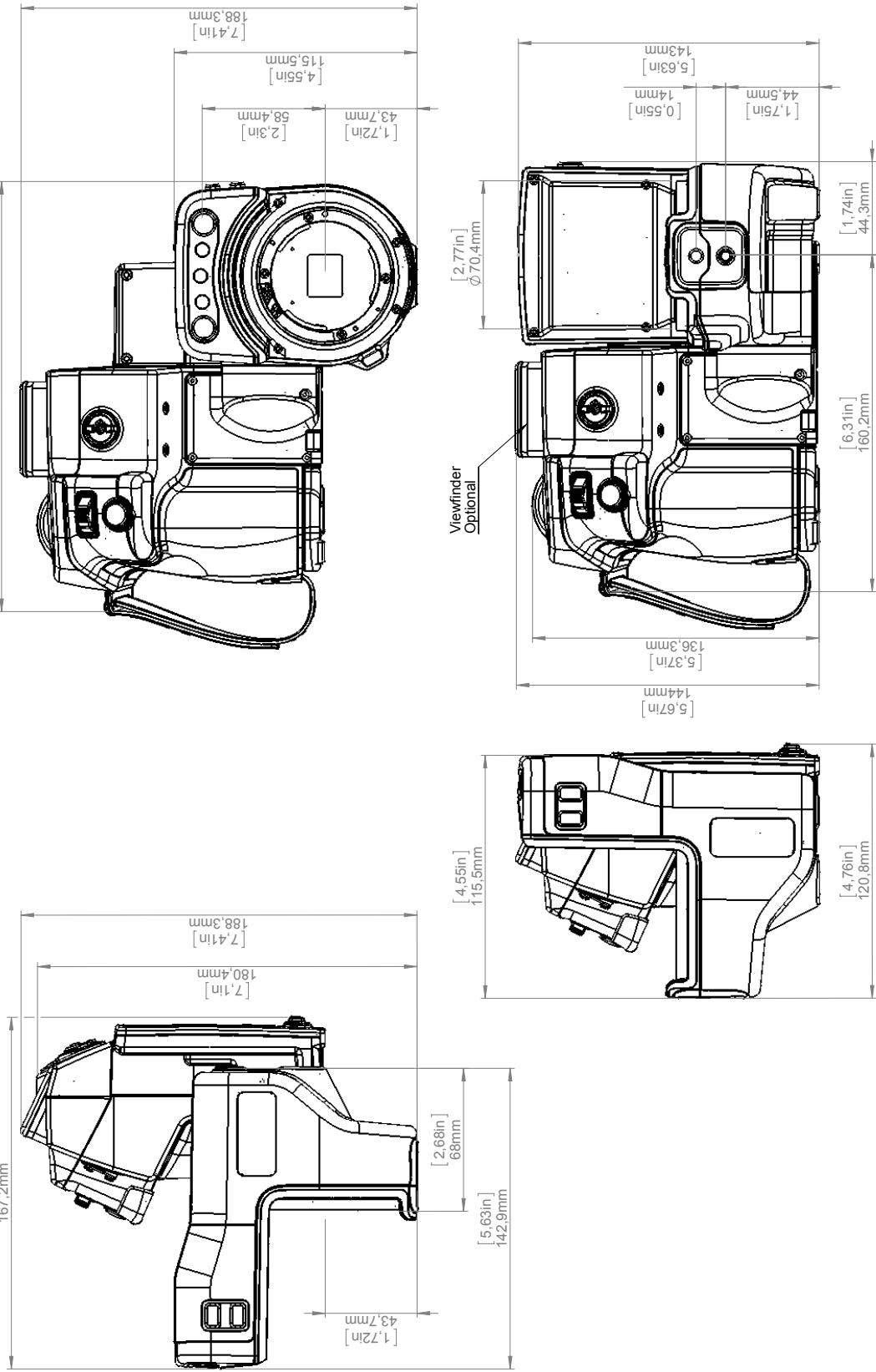
#72501-0103; r. /36730; en-US

| Shipping information | |
|----------------------|--------------|
| UPC-12 | 845188010935 |
| Country of origin | Sweden |

Supplies & accessories:

- T199064; IR lens f=36mm (28°) with case
- T199066; IR lens f=21.2mm (45°) with case
- T199077; IR lens f=83.4mm (12°) with case
- T910814; Power supply, incl. multi plugs
- T198126; Battery charger, incl. power supply with multi plugs T6xx
- T198506; Li-Ion Battery pack 3.7V 29Wh
- T199406ACC; Battery Li-ion 3.7 V, 7.8 Ah, 29 Wh
- T911230ACC; Memory card SDHC 4 GB
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- T910930ACC; HDMI type C to DVI cable 1.5 m
- T910891ACC; HDMI type C to HDMI type A cable 1.5 m
- T198497; Large eyecup
- T197771ACC; Bluetooth Headset
- T911093; Tool belt
- T198533; USB cable Std A <-> Micro B
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- APP-10003; FLIR Tools Mobile (iPad/iPhone Application)
- APP-10004; FLIR Tools (MacOS Application)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

Camera housing

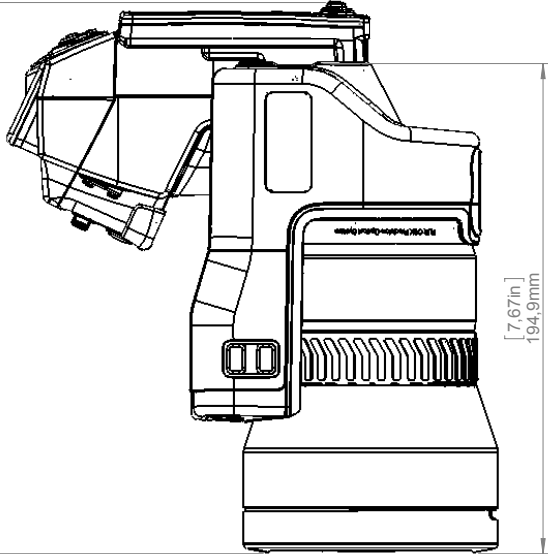


| | | | | | |
|------------------------|--|---------------|------------------------------|------------------------|--|
| Modified 2015-09-17 | | Check JOTA | Drawn by R&D Thermography | Size A3 | |
| Denomination | | Scale 1:2 | | Sheet 1(7) | |
| Drawing No. T128849 | | Size D | | Drawing No. T128849 | |

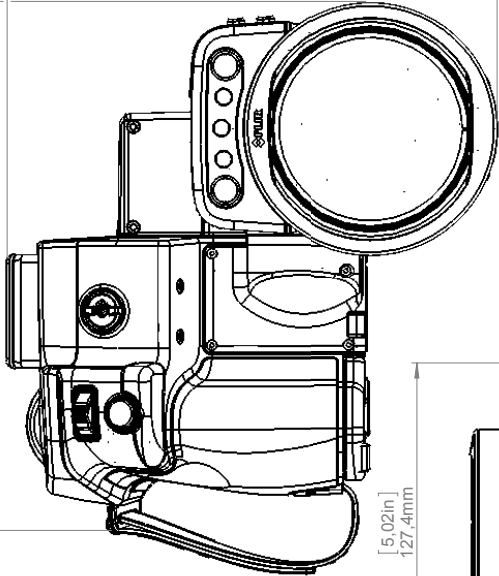
Basic dimensions FLIR T10xx

IR-LENS 12° (f=83,4mm)

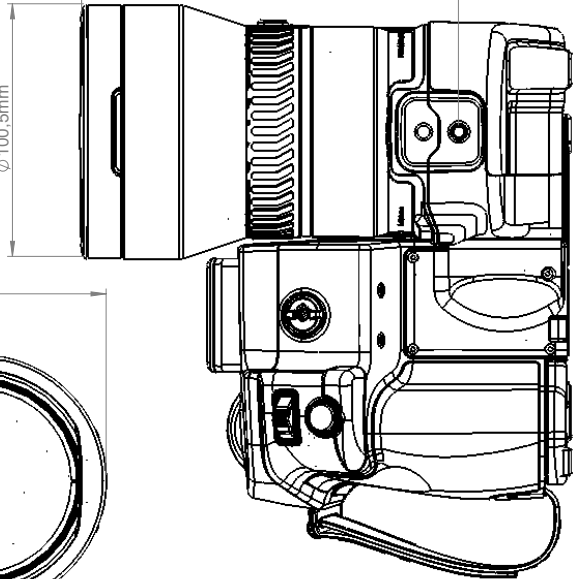
[8,63in]
219,2mm



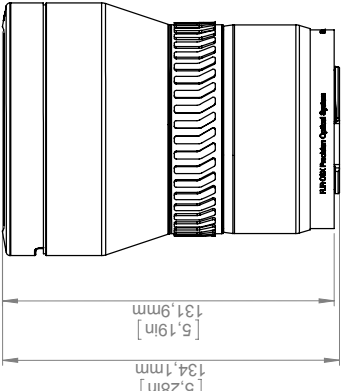
[8,29in]
210,4mm



[3,96in]
Ø 100,5mm



[5,91in]
149,9mm



[5,28in]
134,1mm

[5,19in]
131,9mm



Size
A3

Scale
1:2



Sheet
2(7)

Drawn by
R&D Thermography

Check
JOTA

Modified
2015-09-17

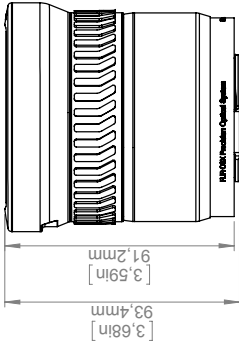
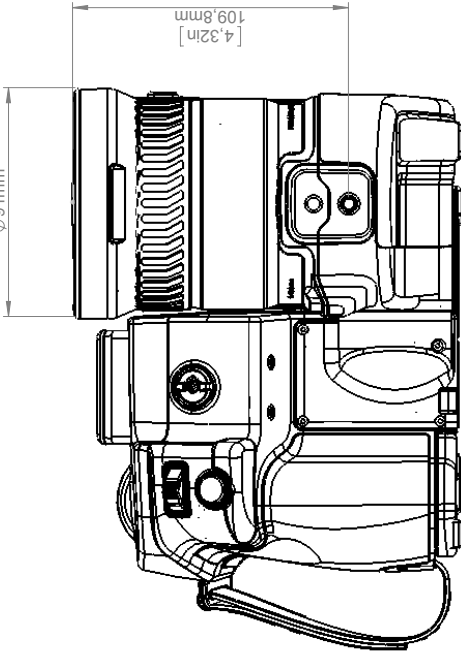
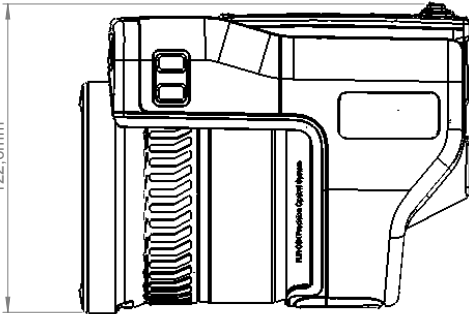
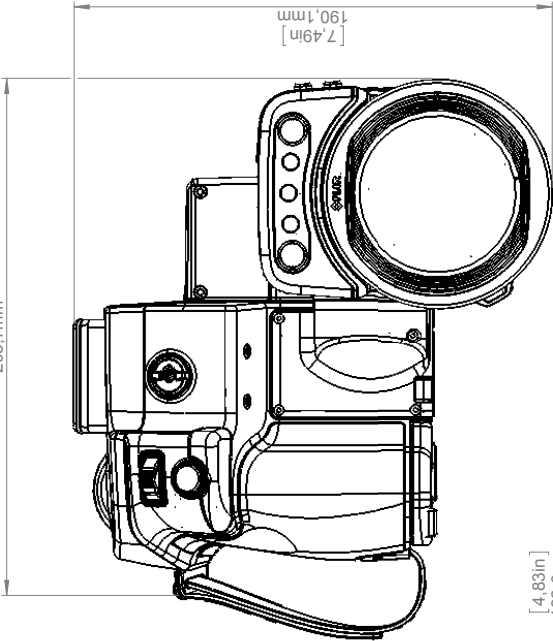
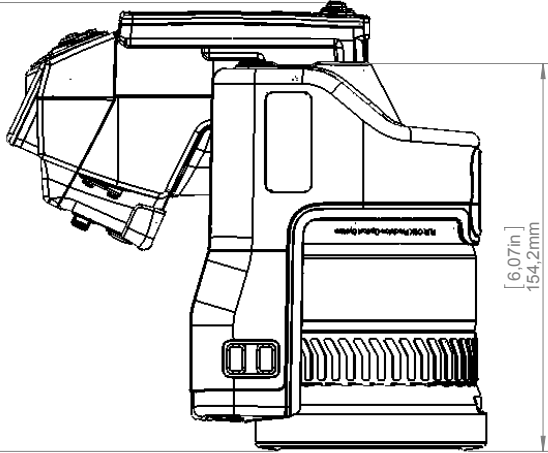
Denomination

Basic dimensions FLIR T10xx

Drawing No.
T128849

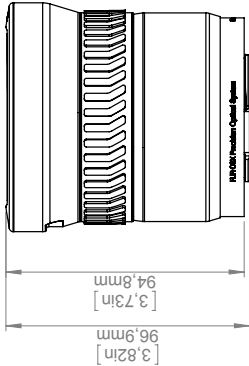
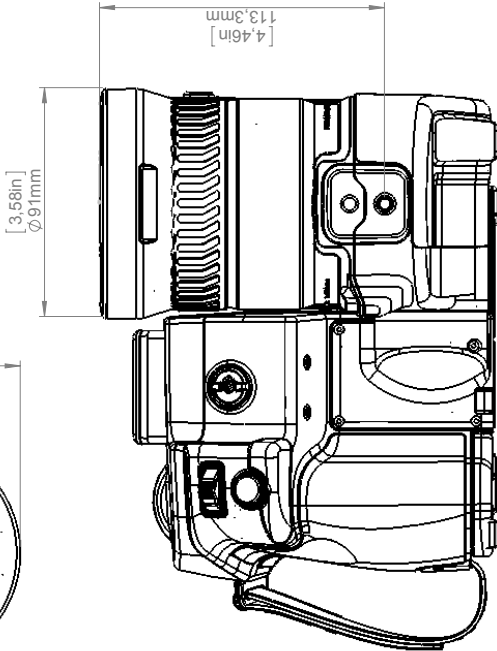
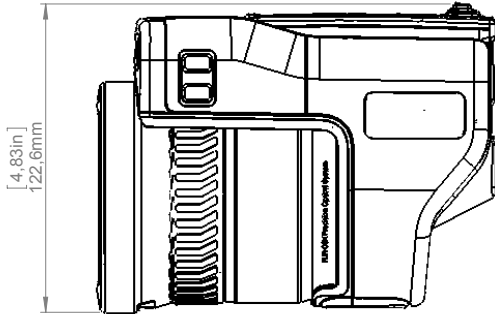
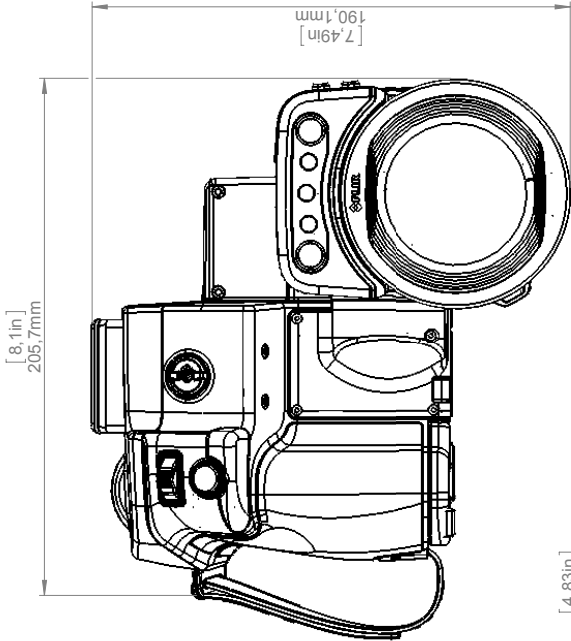
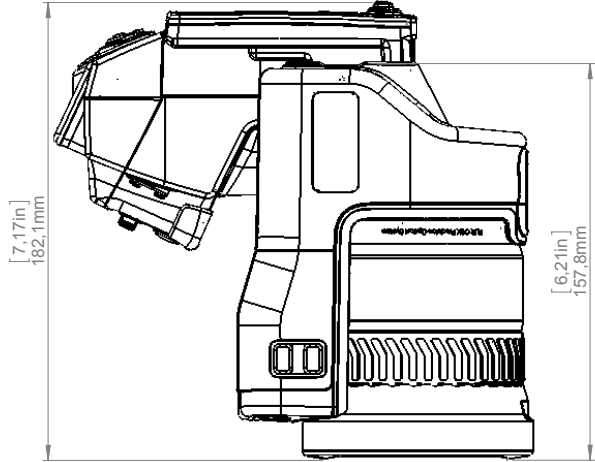
Size
D

IR-LENS 28° (f=36mm)

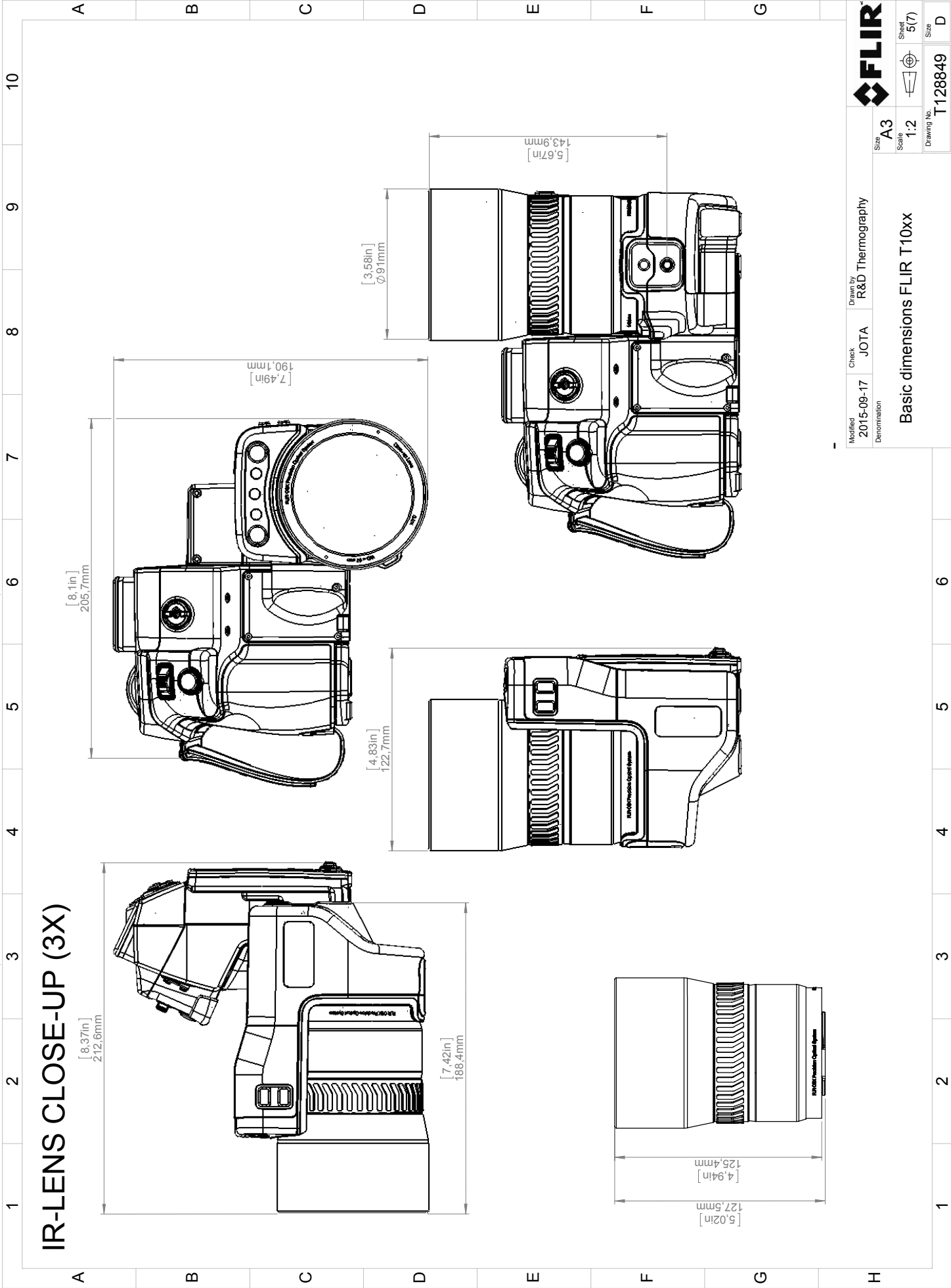


| | | | | | |
|------------------------|--|-----------------------------|------------------------------|------------------------|---------------|
| Modified 2015-09-17 | | Check JOTA | Drawn by R&D Thermography | FLIR | |
| Denomination | | Basic dimensions FLIR T10xx | | Size A3 | Sheet 3(7) |
| | | | | Scale 1:2 | Size D |
| | | | | Drawing No. T128849 | |

IR-LENS 45° (f=21,2mm)



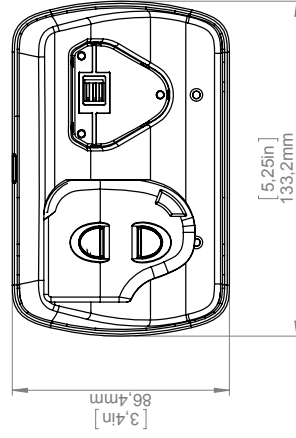
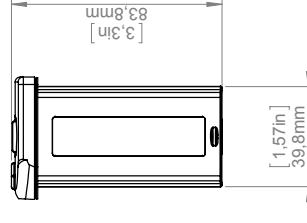
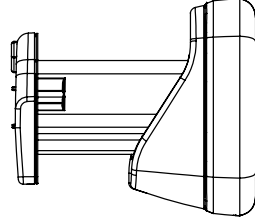
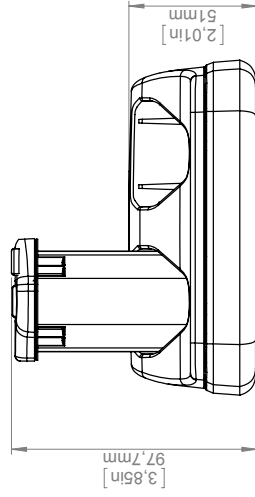
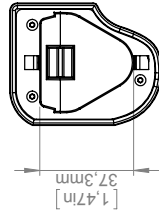
| | | | | | | | |
|--|--|--|---------------|------------------------------|-------------------|-----------------------------|--|
| Modified 2015-09-17 Denomination | | | Check JOTA | Drawn by R&D Thermography | FLIR [™] | | |
| Size A3 | | | Scale 1:2 | | | Sheet 4(7) | |
| Drawing No. T128849 | | | Size D | | | Basic dimensions FLIR T10xx | |



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| | | | | | |
|--|--|---------------|------------------------------|------------------------|--|
| Modified 2015-09-17 Denomination | | Check JOTA | Drawn by R&D Thermography | Size A3 | |
| Basic dimensions FLIR T10xx | | Scale 1:2 | Sheet 5(7) | Drawing No. T128849 | |
| | | | | Size D | |

Battery Charger



| | | | |
|--|-----------------|------------------------------|--|
| Modified 2015-09-17 | Checked JOTA | Drawn by R&D Thermography |  |
| Size A3 | | | |
| Scale 1:2 | | | |
| Drawing No. T128849 | | | Sheet 6(7) |
| Denomination Basic dimensions FLIR T10xx | | | Size D |

September 17, 2015 AQ320143

CE Declaration of Conformity

This is to certify that the System listed below have been designed and manufactured to meet the requirements, as applicable, of the following EU-Directives and corresponding harmonising standards. The systems consequently meet the requirements for the CE-mark.

Directives:

| | |
|-------------------------------|---|
| Directive 2004/108/EC; | Electromagnetic Compatibility |
| Directive 2006/95/EC; | "Low voltage Directive" |
| Directive 1999/5/EC | "R&TTE on radio equipment and telecommunications terminal equipment" |
| Directive 2002/96/EC | Waste electrical and electronic equipment; WEEE (As applicable) |

Standards:

| | |
|------------------|--|
| Emission: | EN 61000-6-3; Electro magnetic Compatibility EN 301489-1 Generic standards - Emission EN 301489-17 |
| Immunity: | EN 61000-6-2; Electro magnetic Compatibility; EN 301489-1 Generic standards – Immunity EN 301489-17 |
| Safety: | EN 60950-1; Information technology equipment Safety |
| Laser: | EN 60825-1; Safety of laser products |
| Radio | ETSI EN 300 328 |

System: FLIR T1XXX series

FLIR Systems AB
Quality Assurance



Björn Svensson
Director