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FLIR A40 Smart Sensor 29°

P/N: 89829-0601

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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 |
| Key Features |
| <ul style="list-style-type: none"> • Accurate and stable temperature measurement for 24/7 monitoring, when higher resolution is not required. • Narrow field of view option for system integrators. • Easy integration to existing IT systems with support for Industrial protocols, such as modbus TCP, EtherNet/IP, MQTT and REST API. • Small and rugged with various connections including: M12 Ethernet, Digital I/O, RS-232/485. • IP66 rated with diamond-like carbon coating on the lens for durability. |
| Main Applications |
| <ul style="list-style-type: none"> • On-camera analytics and alarm capabilities for condition monitoring and early fire detection. • Quickly access thermal characteristics to catch potential failures, and detect fires before signs of smoke or flames. • Simplify integration efforts with thermal smart sensors that communicate with standard industrial protocols and video management systems. |

| | |
|---------------------------------|--|
| Imaging and optical data | |
| Infrared resolution | 320 × 240 pixels |
| Thermal sensitivity (NETD) | 35 mK |
| Field of view (FOV) | 29° × 22° |
| Minimum focus distance | 0.25 m (0.82 ft) |
| Focal length | 14.3 mm (0.56 in) |
| Spatial resolution (IFOV) | 1.7 mrad/pixel |
| f-number | 1.4 |
| Image frequency | 30 Hz |
| Focus | Fixed, adjustable with included focus tool |

| | |
|----------------------------------|-----------------------------------|
| Detector data | |
| Focal plane array/spectral range | Uncooled microbolometer/7.5–14 μm |
| Detector pitch | 25 μm |

| | |
|--|--|
| Visual imaging and optical data | |
| Still image resolution | <ul style="list-style-type: none"> • Web UI: 640 × 480 pixels • Alarm and Scheduler: 640 × 480 pixels • REST API: 640 × 480 pixels, 1280 × 960 pixels |
| Focus | Fixed |

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| Visual imaging and optical data | |
|--|---|
| Field of view (FOV) | <ul style="list-style-type: none"> 320 × 240 pixels; according to IR FOV 1280 × 960 pixels; 67.2° (diagonal) |
| LED lamp | Built-in LED light |
| Measurement | |
| Camera temperature range | <ul style="list-style-type: none"> -20 to 175°C (-4 to 347°F) 175 to 1000°C (347 to 1832°F) |
| Object temperature range and accuracy (for ambient temperature 15–35°C (59–95°F)) | <ul style="list-style-type: none"> Range -20 to 175°C (-4 to 347°F): <ul style="list-style-type: none"> -20 to 100°C (-4 to 212°F), accuracy ±2°C (±3.6°F) 100 to 175°C (212 to 347°F), accuracy ±2% Range 175 to 1000°C (347 to 1832°F): accuracy ±2% |
| Measurement analysis | |
| Standard functions | <ul style="list-style-type: none"> 10 Spotmeters 10 Boxes or Polygons 3 Deltas (difference any value/reference/external lock) 2 Isotherm (above/below/interval) 2 Iso-coverage 2 Lines 1 Polyline 1 Reference temperature |
| Automatic hot/cold detection | Max./min. temperature value and position shown within Box |
| Schedule response | sftp (image), SMTP (image and/or measurement data/result) |
| Measurement presets | Yes |
| Atmospheric transmission correction | Based on inputs of distance, atmospheric temperature, and relative humidity |
| Lens transmission correction | Automatic, based on signals from internal sensors |
| Emissivity correction | Variable from 0.01 to 1.0 |
| Reflected apparent temperature correction | Based on input of reflected temperature |
| External optics/windows correction | Based on input of optics/window transmission and temperature |
| Measurement corrections | <ul style="list-style-type: none"> Global object parameters Local parameters per analyze function |
| Measurement frequency | Up to 10 Hz |
| Measurement result read-out | <ul style="list-style-type: none"> EtherNet/IP (pull) Modbus TCP Server (pull) MQTT (push) Query over REST API (pull) Measurements and still image (radiometric JPEG, visual 640 × 480, visual 1280 × 960), read access only. <ul style="list-style-type: none"> Web interface |

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| Alarm | |
| Alarm functions | <ul style="list-style-type: none"> On any selected measurement function Digital in Internal camera temperature |
| Alarm output | <ul style="list-style-type: none"> Digital out E-mail (SMTP) (push) EtherNet/IP (pull) File transfer (FTP) (push) Modbus TCP Server (pull) MQTT (push) Query over RESTful API (pull) Store image or video |
| Video/Radiometric streaming RTSP | |
| Protocol | RTSP |
| Unicast | Yes |
| Multicast | Yes |
| Multiple image streams | Yes |
| Video streaming | |
| Image quality | Bit rate set through Camera web |
| Video streaming, Image source 0: | |
| Resolution (source 0) | 640 × 480 pixels |
| Contrast enhancement | FSX / Histogram equalization (IR only) |
| Overlay (source 0) | With / Without |
| Image source (source 0) | Visual / IR / MSX |
| Pixel format (source 0) | YUV411 |
| Encoding (source 0) | H.264 / MPEG4 / MJPEG |
| Video streaming, Image source 1: | |
| Resolution (source 1) | 1280 × 960 pixels |
| Overlay (source 1) | No |
| Image source (source 1) | Visual |
| Pixel format (source 1) | YUV411 |
| Encoding (source 1) | H.264 / MPEG4 / MJPEG |
| Radiometric streaming | |
| Resolution (radiometric) | N/A |
| Source | N/A |
| Pixel format (radiometric) | N/A |
| Encoding (radiometric) | N/A |
| Ethernet | |
| Interface | <ul style="list-style-type: none"> Wired |
| Connector type | <ul style="list-style-type: none"> M12 8-pin X-coded, Female RP-SMA, Female (not used) |
| Ethernet, purpose | Control, result, image, and power |
| Ethernet, type | 1000 Mbps |
| Ethernet, standard | IEEE 802.3 |
| Ethernet, communication | TCP/IP socket-based FLIR proprietary |

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| Ethernet | |
| Ethernet, power | Power over Ethernet, PoE IEEE 802.3af class 3 |
| Ethernet, protocols | <ul style="list-style-type: none"> • EtherNet/IP • IEEE 1588 • Modbus TCP Server • MQTT • SNMP • TCP, UDP, SNTP, RTSP, RTP, HTTP, HTTPS, ICMP, IGMP, sftp (server), FTP (client), SMTP, DHCP, MDNS (Bonjour), uPnP |
| Digital Input/output | |
| Connector type | M12 12-pin A-coded, Male (shared with external power) |
| Digital input | 2x opto-isolated Vin(low)= 0–1.5 V, Vin(high)= 3–25 V |
| Digital input, purpose | <ul style="list-style-type: none"> • NUC • NUC disable • Alarm |
| Digital output | <ul style="list-style-type: none"> • 3x opto-isolated, 0–30 V DC, max. 300 mA (derated to 200 mA at 60C) • Solid state opto relay • 1x dedicated as Fault output (NC) |
| Digital output, purpose | <ul style="list-style-type: none"> • As function of alarm, output to external device • Fault (NC) |
| Digital I/O, isolation voltage | 500 VRMS |
| Power system | |
| External power | 18 VDC – 56 VDC, Max 8 W |
| Power over Ethernet (PoE) | 44 VDC – 56 VDC, Max 8.1 W |
| Connector type | External power: <ul style="list-style-type: none"> • M12 12-pin A-coded, Max 450 mA (shared with Digital I/O) PoE: <ul style="list-style-type: none"> • M12 8-pin X-coded, Max 350 mA |
| Environmental data | |
| Operating temperature range | <ul style="list-style-type: none"> • With cooling plates on at least three sides: –20 to 50°C (–4 to 122°F) • No cooling plates: –20 to 35°C (–4 to 95°F) |
| Storage temperature range | IEC 68-2-1 and IEC 68-2-2, –40 to 70°C (–40 to 158°F) for 16 hours |
| Humidity (operating and storage) | IEC 60068-2-30/24 hours, 95% relative humidity, 25–40°C (77–104°F)/2 cycles EN60068-2-38 |
| EMC | <ul style="list-style-type: none"> • ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 (radio) • EN 61000-4-8 (magnetic field) • FCC 47 CFR Part 15 Class B (emission US) • ISO 13766-1 (EMC - Earth-moving and building construction machinery) • EN ISO 14982 (EMC - Agricultural and forestry machinery) |
| Encapsulation | IEC 60529, IP66 |
| Shock | IEC 60068-2-27, 25 g |



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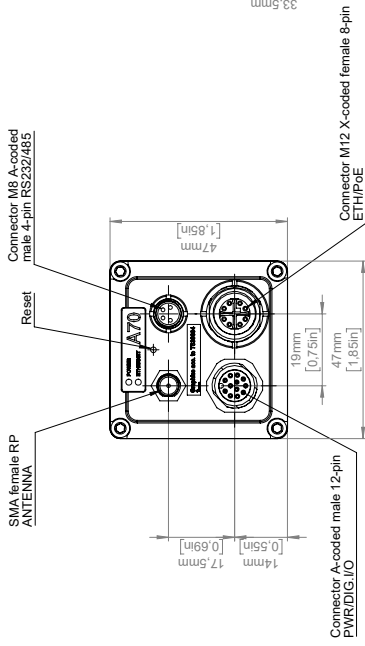
| | |
|-----------------------------|---|
| Environmental data | |
| Vibration | <ul style="list-style-type: none"> IEC 60068-2-6, 0.15 mm at 10–58 Hz and 2 g at 58–500 Hz, sinusoidal IEC 61373 Cat 1 (Railway) |
| Safety | IEC 62368-1 (IT equipment audio-visual products) |
| Corrosion | <ul style="list-style-type: none"> ISO 12944 C4 G or H EN60068-2-11 |
| Declaration of conformity | See: https://support.flir.com/resources/DoC |
| Physical data | |
| Weight (including lens) | 0.52 kg (1.1 lb) |
| Size (L x W x H) | 107 x 67 x 57 mm (4.21 x 2.64 x 2.24 in) |
| Base mount | 4 x M2.5 directly onto camera or 4 x 10-32 UNF onto bottom cooling plate |
| Tripod mounting | UNC 1/4"-20 on 2 sides |
| Housing material | Aluminium |
| Color | Black |
| Warranty and service | |
| Warranty | http://www.flir.com/warranty/ |
| Shipping information | |
| Packaging, type | Cardboard box |
| Packaging, contents | <ul style="list-style-type: none"> Infrared camera Cooling plate Focus adjustment tool Ethernet cable M12 to RJ45F (0.3 m), P/N T911869ACC Printed documentation including the username and password for log in to the web interface of the camera |
| Packaging, weight | 0.92 kg (2.0 lb) |
| Packaging, size | 182 x 128 x 109 mm (7.16 x 5.04 x 4.29 in) |
| EAN-13 | 7332558034200 |
| UPC-12 | 845188031749 |
| Country of origin | Sweden |

Supplies & accessories:

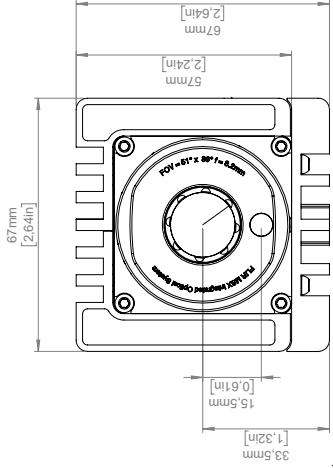
- T951004ACC; Ethernet cable CAT6, 2 m/6.6 ft.
- T300202; Connector cap kit
- T300268ACC; A-series connection board
- T300321ACC; Two-ball mounting bracket kit
- T911852ACC; Cable M12 to pigtail, 2 m
- T911853ACC; Cable M12 to pigtail, 10 m
- T911854ACC; Ethernet cable M12 to RJ45, 2 m
- T911855ACC; Ethernet cable M12 to RJ45, 10 m
- T911869ACC; Ethernet cable M12 to RJ45F, 0.3 m
- T911183; Gigabit PoE injector 16 W, with multi-plugs
- T911997; Tripod
- T199507; Gigabit PoE injector 15 W

Generic dimensions for all FOV

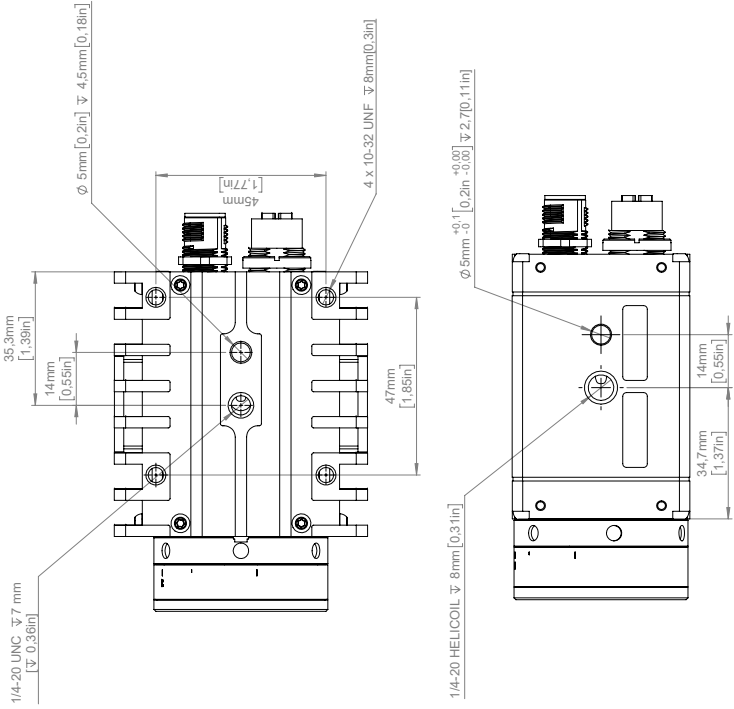
Back View



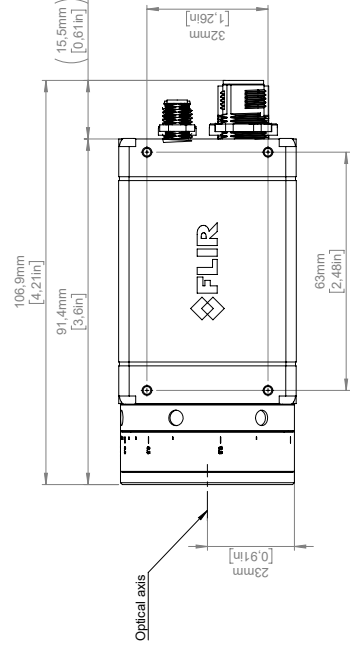
Front View



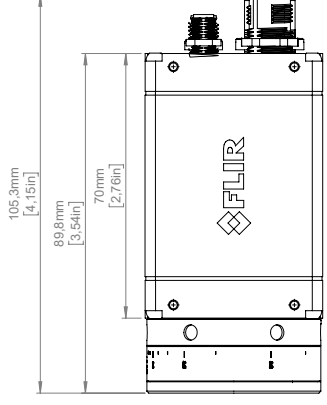
Bottom View



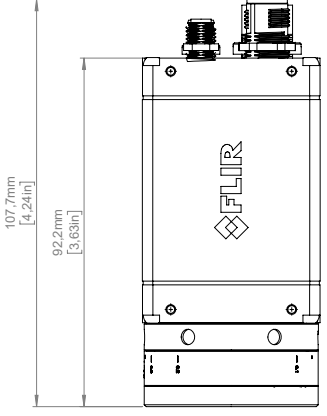
IR Lens 29 deg



IR Lens 51 deg



IR Lens 95 deg



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