

## P/N: 86401-0101

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### Website

<http://www.flir.com>

### Customer support

<http://support.flir.com>

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| General  |   |
|--|---|
| The FLIR GF77a allows oil and gas operators and other industrial markets a low-cost optical gas imaging solution for continuous and autonomous leak detection. With visual confirmation of a gas leak and the ability to identify a leaking component more effectively, the new uncooled fixed optical gas imaging camera from FLIR provides the operators in this industry the ability to better maintain valuable capital equipment while ensuring safer practices and meeting emission reduction metrics. |   |
| Imaging and optical data   |   |
| Infrared resolution  | 320 × 240 pixels  |
| Thermal sensitivity (NETD)   | < 25 mK at 30°C (86°F)  |
| Gas sensitivity (NECL)   | <ul style="list-style-type: none"> <li>CH<sub>4</sub>: &lt; 100 ppm x m</li> <li>N<sub>2</sub>O: &lt; 75 ppm x m</li> <li>C<sub>3</sub>H<sub>8</sub>: &lt; 400 ppm x m</li> <li>SO<sub>2</sub>: &lt; 30 ppm x m</li> <li>R-134a: &lt; 20 ppm x m</li> <li>R-152a: &lt; 100 ppm x m</li> </ul> (ΔT = 10°C, Distance = 1 m) |
| Field of view (FOV)  | 25° × 19°   |
| Minimum focus distance   | 0.3 m (0.98 ft), 25°  |
| Minimum focus distance with MSX  | 0.65 m (2.1 ft)   |
| Focal length   | 18 mm (0.71 in), 25°  |
| Spatial resolution (IFOV)  | 1.4 mrad/pixel, 25°   |
| Lens identification  | Automatic   |
| f-number   | 1.04  |
| Image frequency  | 30 Hz   |
| Focus  | <ul style="list-style-type: none"> <li>One-shot contrast</li> <li>Motorized</li> <li>Manual</li> </ul>  |
| Detector data  |   |
| Focal plane array/spectral range   | Uncooled microbolometer/7.0–8.5 μm  |
| Detector pitch   | 25 μm   |
| Visual imaging and optical data  |   |
| Still image resolution   | <ul style="list-style-type: none"> <li>Web UI: 640 × 480 pixels</li> <li>REST API: 640 × 480 pixels, 1280 × 960 pixels</li> </ul>   |
| Image stream resolution and formats  | See Video/Radiometric streaming RTSP and GVSP tables.   |



## FLIR GF77a 25° CH4 (7–8.5 μm)

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|   |  |
|---|--|
| <b>Visual imaging and optical data</b>    |  |
| Focus                                     | Fixed  |
| Field of view (FOV)                       | <ul style="list-style-type: none"> <li>640 × 480 pixels; according to IR FOV</li> <li>1280 × 960 pixels; 67.2° (diagonal)</li> </ul> |
| LED lamp                                  | Built-in LED light   |
| <b>Measurement</b>                        |  |
| Object temperature range                  | –20 to 70°C (–4 to 158°F)  |
| Accuracy                                  | ±5°C (±9°F) for ambient temperature 15–35°C (59–95°F) and object temperature above 0°C (32°F).                                       |
| <b>Measurement analysis</b>               |  |
| 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                   | Global object parameters   |
| <b>Configuration of camera</b>            |  |
| Web interface                             | Yes  |
| <b>Video/Radiometric streaming RTSP</b>   |  |
| Protocol                                  | RTSP   |
| Unicast                                   | Yes  |
| Multicast                                 | Yes  |
| Multiple image streams                    | Yes  |
| <b>Video streaming</b>                    |  |
| Image quality                             | Bit rate set through Camera web  |
| <b>Video streaming, Image source 0:</b>   |  |
| Resolution                                | 640 × 480 pixels   |
| Contrast enhancement                      | FSX / Histogram equalization (IR only)   |
| Overlay                                   | With / Without   |
| Image source                              | Visual / IR / MSX  |
| Pixel format                              | YUV411   |
| Encoding                                  | H.264 / MPEG4 / MJPEG  |
| <b>Video streaming, Image source 1:</b>   |  |
| Resolution                                | 1280 × 960 pixels  |
| Overlay                                   | No   |
| Image source                              | Visual   |
| Pixel format                              | YUV411   |
| Encoding                                  | H.264 / MPEG4 / MJPEG  |
| <b>Radiometric streaming</b>              |  |
| Resolution                                | 320 × 240 pixels   |
| Source                                    | IR   |



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|   |   |
|---|---|
| <b>Video/Radiometric streaming RTSP</b>               |   |
| Pixel format  | MONO 16   |
| Encoding  | <ul style="list-style-type: none"> <li>Compressed JPEG-LS</li> <li>FLIR Radiometric</li> </ul>  |
| <b>Video/Radiometric streaming GVSP (GigE Vision)</b> |   |
| Protocol  | GVSP  |
| Unicast   | Yes   |
| Multicast   | Yes   |
| Multiple image streams                                | No, 1 stream only   |
| <b>Video streaming</b>                                |   |
| <b>Video streaming, Image source 0:</b>               |   |
| Resolution  | 640 × 480 pixels  |
| Contrast enhancement                                  | FSX / Histogram equalization (IR only)  |
| Overlay   | With / Without  |
| Image source  | Visual / IR / MSX   |
| Pixel format  | YUV422 or MONO 8  |
| Encoding  | Un-compressed   |
| <b>Radiometric streaming</b>                          |   |
| Resolution  | 320 × 240 pixels  |
| Source  | IR  |
| Pixel format  | MONO 16   |
| Encoding  | <ul style="list-style-type: none"> <li>Compressed JPEG-LS</li> <li>Temperature linear</li> <li>FLIR Radiometric</li> </ul>  |
| <b>Ethernet</b>                                       |   |
| Interface   | <ul style="list-style-type: none"> <li>Wired</li> <li>Wi-Fi</li> </ul>  |
| Connector type  | <ul style="list-style-type: none"> <li>M12 8-pin X-coded, Female</li> <li>RP-SMA, Female</li> </ul>   |
| Ethernet, purpose                                     | Control, result, video, radiometric image, and power  |
| Ethernet, type  | 1000 Mbps   |
| Ethernet, standard                                    | IEEE 802.3  |
| Ethernet, communication                               | <ul style="list-style-type: none"> <li>GigE Vision ver. 1.2</li> <li>Client API GenICam compliant</li> <li>TCP/IP socket-based FLIR proprietary</li> </ul>  |
| Ethernet, power                                       | Power over Ethernet, PoE IEEE 802.3af class 3   |
| Ethernet, protocols                                   | <ul style="list-style-type: none"> <li>IEEE 1588</li> <li>ONVIF-S</li> <li>SNMP</li> <li>TCP, UDP, SNTP, RTSP, RTP, HTTP, HTTPS, ICMP, IGMP, sftp (server), FTP (client), SMTP, DHCP, MDNS (Bonjour), uPNP</li> </ul> |



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| <b>Digital Input/output</b>        |  |
|------------------------------------|--|
| Connector type                     | M12 12-pin A-coded, Male (shared with external power)  |
| Digital input                      | 2x opto-isolated<br>Vin(low)= 0–1.5 V, Vin(high)= 3–25 V   |
| Digital input, purpose             | <ul style="list-style-type: none"> <li>• NUC</li> <li>• NUC disable</li> <li>• Image tag (Start, Stop, General)</li> <li>• Image flow control (acc. SFNC 2.3)               <ul style="list-style-type: none"> <li>◦ Single frame (on trigg)</li> <li>◦ Multi-frame (on trigg)</li> <li>◦ Continuous</li> <li>◦ Frame rate</li> <li>◦ ROI</li> </ul> </li> </ul> |
| Digital output                     | <ul style="list-style-type: none"> <li>• 3x opto-isolated, 0–48 VDC, max. 350 mA (derated to 200 mA at 60°C)</li> <li>• Solid state relay</li> <li>• 1x dedicated as Fault output (NC)</li> </ul>  |
| Digital output, purpose            | <ul style="list-style-type: none"> <li>• Programmatically set</li> <li>• Fault (NC)</li> </ul>   |
| Digital I/O, isolation voltage     | 500 VRMS   |
| <b>Power system</b>                |  |
| Connector type                     | M12 12-pin A-coded, Male (shared with Digital I/O)   |
| Power consumption                  | <ul style="list-style-type: none"> <li>• 6.8 W at 24 V DC typical</li> <li>• 7.0 W at 48 V DC typical</li> <li>• 7.3 W at 48 V PoE typical</li> </ul>  |
| External power operation           | 24/48 V DC 8 W max   |
| External voltage                   | Allowed range 18–56 V DC   |
| <b>RS-232/485 serial interface</b> |  |
| Connector type                     | M8 A-coded, Male   |
| Prerequisite for use               | ONVIF must be enabled  |
| Serial communication, purpose      | Pan & Tilt control   |
| Serial communication, standard     | Pelco D  |
| Serial communication, HW interface | RS232 and RS485 exclusively  |
| Scanlist support                   | Yes  |
| <b>Wi-Fi</b>                       |  |
| Connector type                     | RP-SMA, Female   |
| Standard                           | IEEE802.11 a/b/g/n   |
| Antenna                            | Dipole antenna 2.4/5 GHz (gain: maximum 2 dBi)   |
| Connection type                    | Peer to peer (ad hoc) or infrastructure (network)  |



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| <b>Environmental data</b>        |   |
|----------------------------------|---|
| Operating temperature range      | –20 to 50°C (–4 to 122°F): <ul style="list-style-type: none"> <li>–20 to –10°C (–4 to 14°F), mounted with heating accessory is recommended</li> <li>–10°C to 40°C (14 to 104°F), in free air</li> <li>40 to 50°C (104 to 122°F), mounted with cooling accessory is recommended</li> </ul> Maximum camera case temperature: 65°C (149°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   |
| EMC                              | <ul style="list-style-type: none"> <li>ETSI EN 301 489-1 (radio)</li> <li>ETSI EN 301 489-17 (radio)</li> <li>EN 61000-4-8 (magnetic field)</li> <li>FCC 47 CFR Part 15 Class B (emission US)</li> <li>EN ISO 14982 (EMC - Agricultural and forestry machinery)</li> </ul>  |
| Radio spectrum                   | <ul style="list-style-type: none"> <li>FCC 47 CFR Part 15 Class C (2.4 GHz band US)</li> <li>FCC 47 CFR Part 15 Class E (5 GHz band US)</li> <li>RSS-247 (2.4 GHz and 5 GHz band Canada)</li> <li>ETSI EN 300 328 V2.1.1 (2.4 GHz band EU)</li> <li>ETSI EN 301 893 V2.1.1 (5 GHz band EU)</li> </ul>                                   |
| Encapsulation                    | IEC 60529, IP 54, IP66 with accessory   |
| Shock                            | IEC 60068-2-27, 25 g  |
| Vibration                        | <ul style="list-style-type: none"> <li>IEC 60068-2-6, 0.15 mm at 10–58 Hz and 2 g at 58–500 Hz, sinusoidal</li> <li>IEC 61373 Cat 1 (Railway)</li> </ul>  |
| Safety                           | IEC 62368-1 (IT equipment audio-visual products)  |
| Corrosion                        | <ul style="list-style-type: none"> <li>ISO 12944 C4 G or H</li> <li>EN60068-2-11</li> </ul>   |
| <b>Physical data</b>             |   |
| Weight                           | 0.82 kg (1.8 lb)  |
| Size (L × W × H)                 | 123 × 77 × 77 mm (4.84 × 3.03 × 3.03 in)  |
| Base mount                       | 4× M4 on 4 sides  |
| Tripod mounting                  | UNC ¼"-20 on 2 sides  |
| Housing material                 | Aluminium   |
| Color                            | Black   |
| <b>Warranty and service</b>      |   |
| Warranty                         | <a href="http://www.flir.com/warranty/">http://www.flir.com/warranty/</a>   |
| <b>Shipping information</b>      |   |
| Packaging, type                  | Cardboard box   |
| Packaging, contents              | <ul style="list-style-type: none"> <li>Infrared camera with lens</li> <li>Ethernet cable M12 to RJ45F (0.3 m)</li> <li>Antenna for WLAN 2.4/5 GHz</li> </ul>  |
| Packaging, weight                | 1.14 kg (2.51 lb.)  |
| Packaging, size                  | 207 × 142 × 129 mm (8.1 × 5.6 × 5.1 in.)  |
| EAN-13                           | 7332558026380   |



## FLIR GF77a 25° CH4 (7–8.5 μm)

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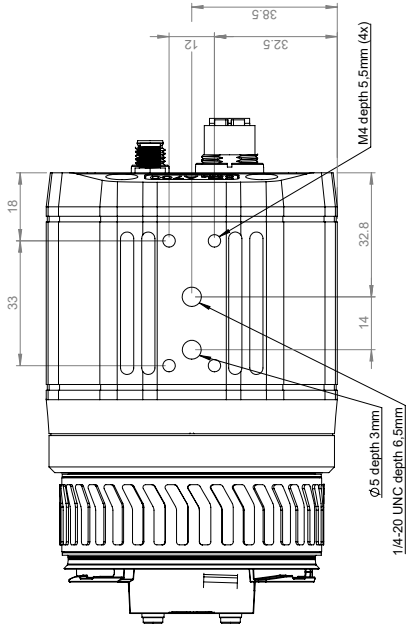
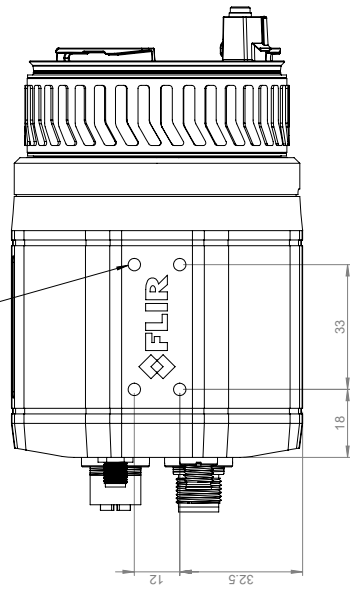
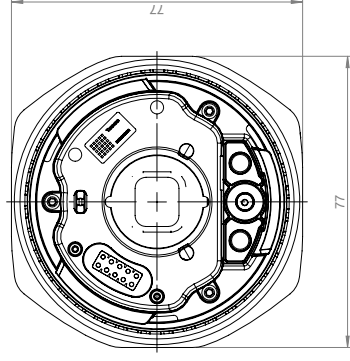
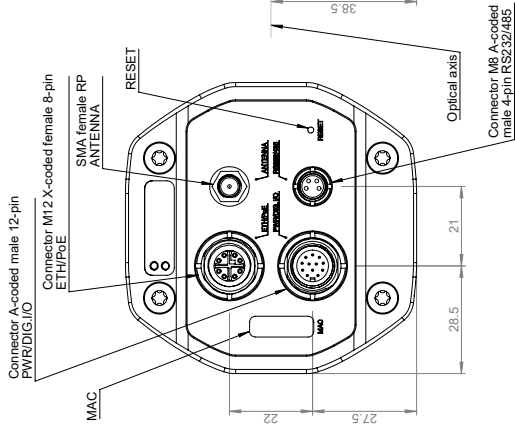
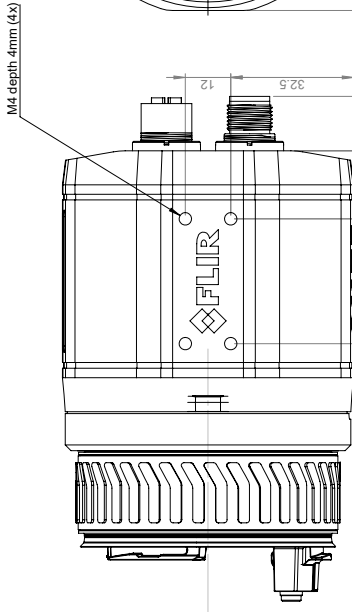
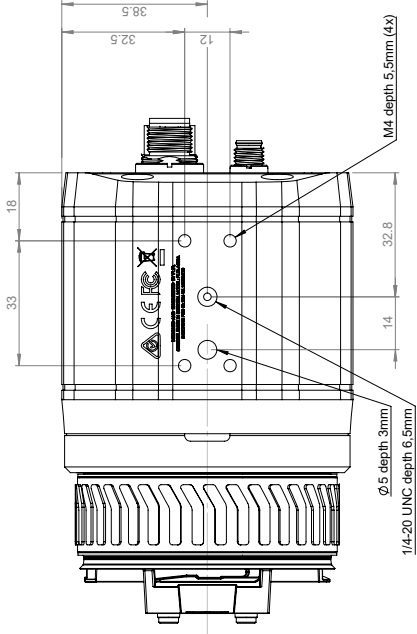
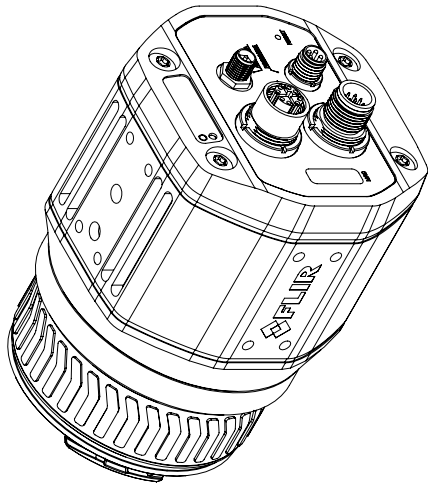
#86401-0101; r. 65597;

| Shipping information |              |
|----------------------|--------------|
| UPC-12               | 845188022235 |
| Country of origin    | Sweden       |

### Supplies & accessories:

- T911850ACC; Antenna for WLAN 2.4/5 GHz
- T300268ACC; A-series connection board
- T911853ACC; Cable M12 to pigtail, 10 m
- T911852ACC; Cable M12 to pigtail, 2 m
- T300202; Connector cap kit
- T911855ACC; Ethernet cable M12 to RJ45, 10 m
- T911854ACC; Ethernet cable M12 to RJ45, 2 m
- T911869ACC; Ethernet cable M12 to RJ45F, 0.3 m
- T300163; Hard case for FLIR A400/A700 series
- T300075ACC; IP hood for lens
- T951004ACC; Ethernet cable CAT6, 2 m/6.6 ft.
- T911183; Gigabit PoE injector 16 W, with multi-plugs
- T199507; Gigabit PoE injector 15 W

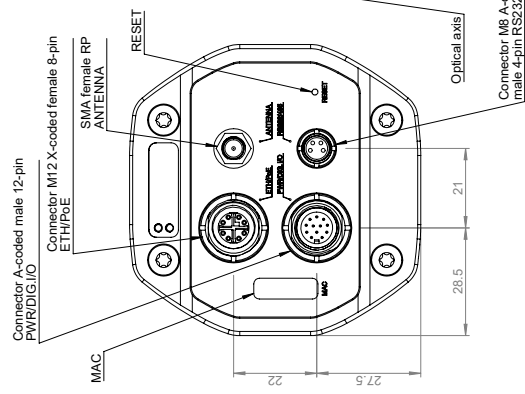
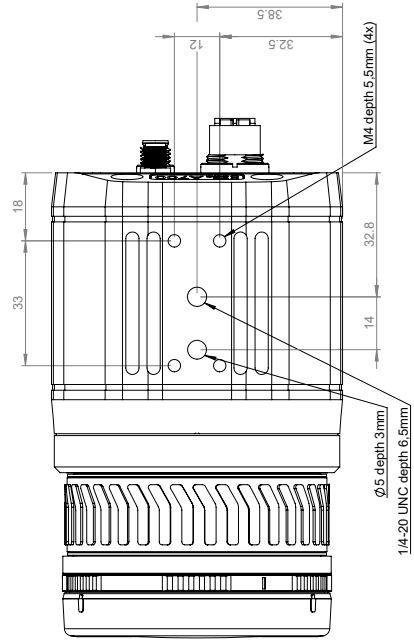
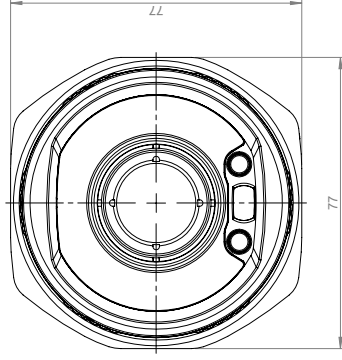
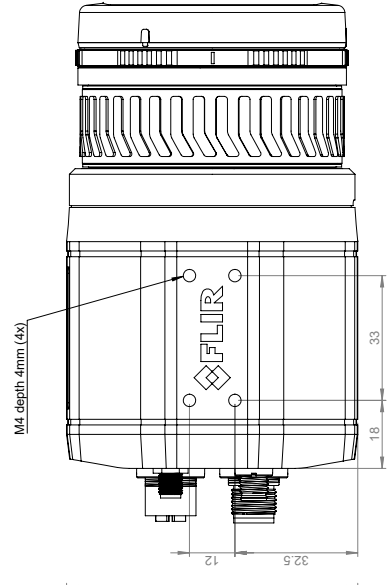
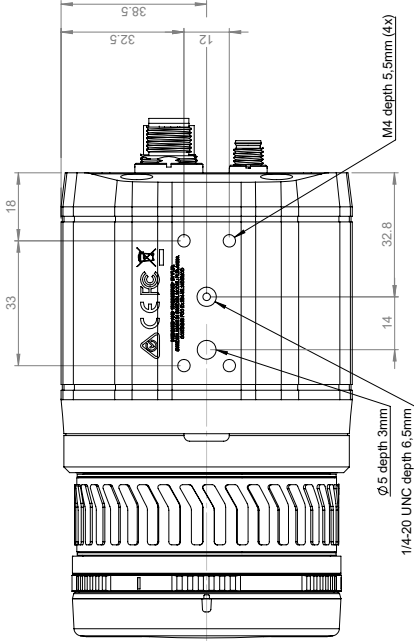
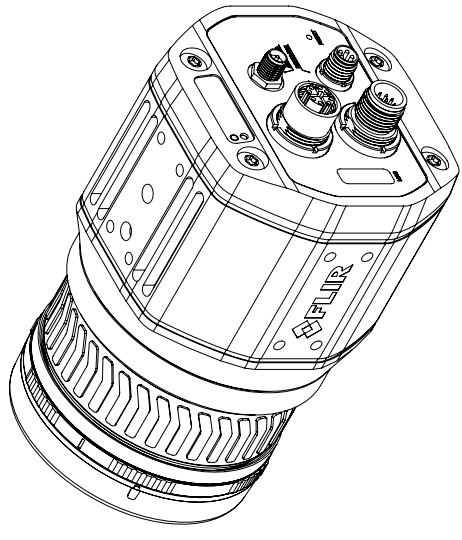
# Default



|                            |            |       |   |          |                 |             |         |
|----------------------------|------------|-------|---|----------|-----------------|-------------|---------|
| Modified                   | 2020-01-10 | Check | - | Drawn by | R&D Instruments | Size        | A2      |
| Determination              |            |       |   |          |                 | Scale       | 1:1     |
|                            |            |       |   |          |                 | Sheet       | 1(3)    |
|                            |            |       |   |          |                 | Rev         | A       |
|                            |            |       |   |          |                 | Drawing No. | T130771 |
| Basic dimension Axxx/GF7xa |            |       |   |          |                 |             |         |

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# Incl. STD Lenses & Macro



Basic dimensions for cameras with focal length:  
 f = 10mm  
 f = 14mm  
 f = 20mm  
**Macro WD=18mm**

|              |                            |       |     |          |                 |
|--------------|----------------------------|-------|-----|----------|-----------------|
| Modified     | 2020-01-10                 | Check | -   | Drawn by | R&D Instruments |
| Denomination | Basic dimension Axxx/GF7xa |       |     |          |                 |
| Size         | A2                         | Scale | 1:1 | Sheet    | 2(3)            |
| Drawing No.  | 1130771                    |       |     |          |                 |
| Rev.         | A                          |       |     |          |                 |



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April 17, 2020 Täby, Sweden

AQ320379

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

Product: FLIR A4XX-, A7XX-series and GF7Xa

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 A4XX-, A7XX-series and GF7Xa (Product Model Name FLIR-A8590).

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 | 2011/65/EU | RoHS and 2015/830/EU (Phtalates)        |
| Directive | 2014/53/EU | Radio Equipment Directive (RED)         |

**Standards:**

|           |  |  |
|-----------|--|--|
| Emission: | EN 55032:2015  | Electromagnetic compability multimedia                               |
| Immunity: | EN 55035:2017  | Electromagnetic Compability Multimedia                               |
|           | ETSI EN 301489-1 v2.2.1  | ERM – EMC for radio equipment  |
|           | ETSI EN 301489-17 v3.2.0   | ERM – EMC Wideband data  |
| Radio:    | ETSI EN 300 328 v2.1.1   | Harmonized EN covering essential requirements of the R&TTE Directive |
|           | ETSI EN 301 893 v.2.1.1  | 5GHz WLAN  |
| Safety:   | IEC 62368-1:2014 (2nd Edition) + Cor.1:2015 + Cor.2: 2015 and EN62368-1:2014 + AC: 2015 + A11: 2017 + AC: 2017 Video, information and communication tech |  |
| RoHS      | EN 50581:2012  | Technical documentation  |

**FLIR Systems AB**

Quality Assurance

Lea Dabiri  
Quality Manager