FLIR A500f Advanced Smart Sensor

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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
The FLIR A500f/A700f improves the environmental capabilities of the FLIR A500/A700 cameras, providing IP67 rating while maintaining high radiometric performance. The cameras are configured as Advanced Smart Sensors with the Visual camera activated. Wi-Fi and the torch LED are deactivated. If the heater inside of the housing is to be used, the PoE injector is sold separately; a PoE injector of at least 25 W is required. The camera supports all the necessary protocols needed for industrial integration into HMI/SCADA systems, as well as ONVIF-S conformance for integration with Video Management Systems. Typical applications are waste plant monitoring where there is a risk of spontaneous fires, and substation monitoring with critical components. The FLIR A500f/A700f is able to detect very small temperature differences and trigger alarms based on temperature thresholds. The alarms are easily available through MQTT, REST API, Modbus TCP (Client/Server), ONVIF-S, and the digital I/O interface. Mounting accessories for different types of installations are sold separately.

Imaging and optical data	
Infrared resolution	464 × 348 pixels
Thermal sensitivity (NETD)	<40 mK @ 30°C (86°F)
Field of view (FOV)	24° × 18°
Minimum focus distance	0.5 m (1.64 ft)
Spatial resolution (IFOV)	0.90 mrad/pixel
Lens identification	Automatic
f-number	1.3
Image frequency	30 Hz
Focus	• One-shot contrast • Motorized • Manual

Detector data	
Focal plane array/spectral range	Uncooled microbolometer/7.5–14 µm
Detector pitch	17 µm

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

Measurement analysis	
Standard functions	• 10 Spotmeters • 10 Boxes and Mask polygons (total number) • 3 Deltas (difference any value/reference/external lock) • 2 Isotherm (above/below/interval) • 2 Iso-coverage • 1 Reference temperature • 2 Lines • 1 Polyline
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	• Global object parameters • Local parameters per analyze function • External Black-body correction
Measurement frequency	Up to 10 Hz
Measurement result read-out	• Ethernet/IP (pull) • Modbus TCP Client (push) • 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. • Web interface

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Alarm	
Alarm functions	• On any selected measurement function • Digital in • Internal camera temperature
Alarm output	• Digital out • E-mail (SMTP) (push) • EtherNet/IP (pull) • File transfer (FTP) (push) • Modbus TCP Client write (push) • Modbus TCP Server (pull) • MQTT (push) • ONVIF events (push) • Query over RESTful API (pull) • Store image or video

Configuration of camera	
Web interface	Yes
REST API	Yes

Recording of still images/video	
Image storage	• Format: FLIR radiometric JPEG • Number of images: 100 • Storage as function of: ◦ Alarm ◦ Scheduling ◦ User interaction (camera web)
Video storage	• Format: H.264 • Number of videos: 10 • Storage as function of alarm; 5 sec. before alarm and 5 sec. after alarm.

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	

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Video/Radiometric streaming RTSP	
Resolution (radiometric)	464 × 348 pixels
Source	IR
Pixel format (radiometric)	MONO 16
Encoding (radiometric)	• Compressed JPEG-LS • FLIR Radiometric

Ethernet	
Interface	Wired
Connector type	RJ45, Female
Ethernet, purpose	Control, result, image, and power
Ethernet, type	10/100Base-T
Ethernet, communication	TCP/IP socket-based FLIR proprietary
Ethernet, power	IEEE 802.3at/PoE Plus
Ethernet, protocols	• EtherNet/IP • IEEE 1588 • Modbus TCP Client • Modbus TCP Server • MQTT • ONVIF-S • SNMP • TCP, UDP, SNTP, RTSP, RTP, HTTP, HTTPS, ICMP, IGMP, sftp (server), FTP (client), SMTP, DHCP, MDNS (Bonjour), uPnP

Digital Input/output	
Digital input	2x opto-isolated Vin(low)= 0–1.5 V, Vin(high)= 3–25 V
Digital input, purpose	• NUC • NUC disable • Alarm
Digital output	• 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	• As function of alarm, output to external device • Fault (NC)
Digital I/O, isolation voltage	500 VRMS

Power system	
Power consumption	21 W
External power operation	Compatible with IEEE 802.3af, IEEE 802.3at/PoE Plus
External voltage	PoE Class 4 (25W)

Environmental data	
Operating temperature range	–30 to 50°C (–22 to 122°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)	Relative humidity: from 5% up to 95%
EMC	• EN 55032:2015 Emission Requirements • EN 55035:2017 Immunity Requirements • FCC – Title 47 CFR Part 15:2019 • ICES-001 Issue 4:2014

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Environmental data	
Encapsulation	IP67
Safety	IEC 62368-1 (IT equipment audio-visual products)
Corrosion	Salty fog resistance: ISO9227, to 1000 hours
Declaration of conformity	See: https://support.flir.com/resources/DoC

Physical data	
Weight	5.90 kg (13.0 lb)
Size (L × W × H)	510 × 177 × 229 mm (20.1 × 6.97 × 9.02 in)
Housing material	Aluminium
Color	White

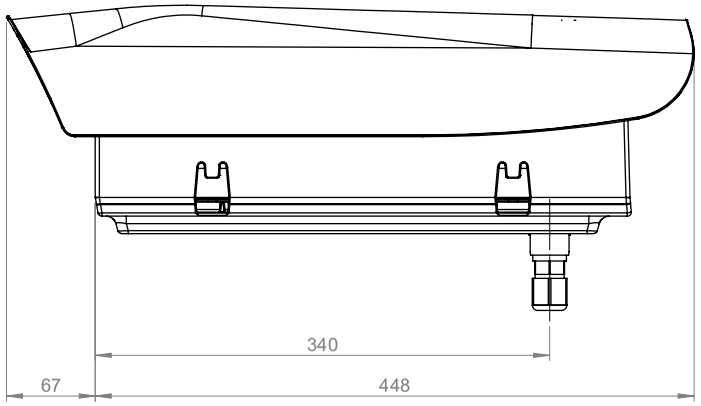
Warranty and service	
Warranty	http://www.flir.com/warranty/

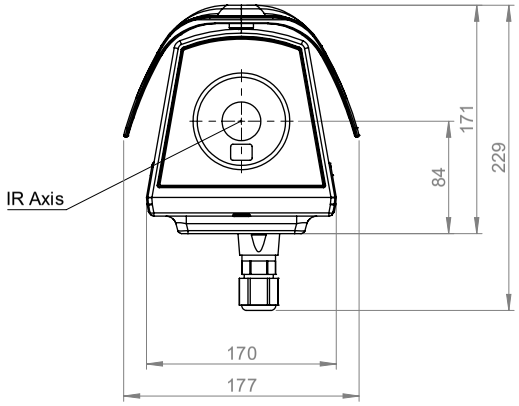
Shipping information	
Packaging, type	Cardboard box
Packaging, contents	• Thermal camera in protective housing • Extra cable glands for auxiliary cables • Printed documentation including the username and password for log in to the web interface of the camera
Packaging, weight	6.8 kg (15.0 lb)
Packaging, size	645 × 207 × 225 mm (25.4 × 8.15 × 8.86 in)
EAN-13	7332558027721
UPC-12	845188023980
Country of origin	Sweden

Supplies & accessories:

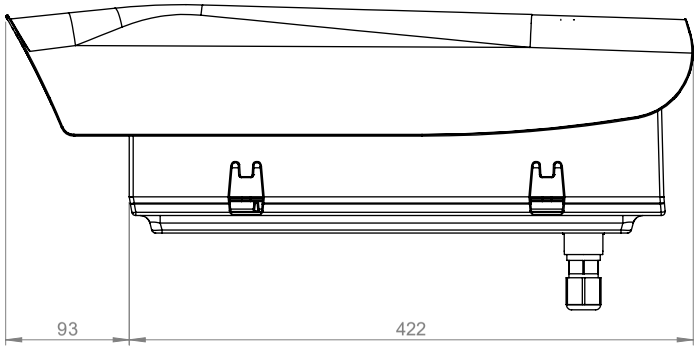
- T951004ACC; Ethernet cable CAT6, 2 m/6.6 ft.
- T131367; FLIR Bridge
- T131369; FLIR Bridge Pro
- T300268ACC; A-series connection board
- T911916ACC; Wall mount bracket
- T911917ACC; Pole mount adaptor, diam. 210-225 mm
- T911918ACC; Corner mount adaptor
- T911919ACC; Pole mount adaptor, diam. 65-140 mm
- T911920ACC; Reinforcing support plate
- T912049ACC; Gigabit PoE Injector 30W
- T300572; Option, Force password change at first-time use

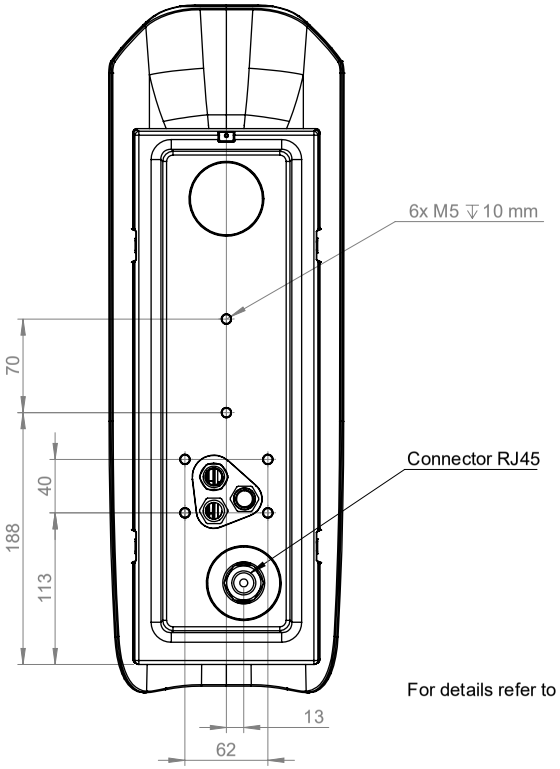
SUNSCREEN CENTERED POSITION



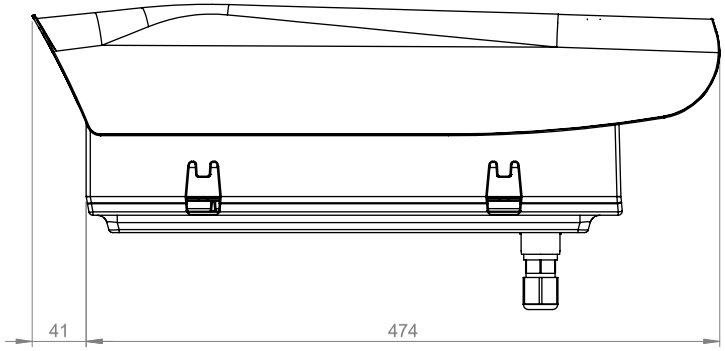


SUNSCREEN FORWARD POSITION





SUNSCREEN BACKWARD POSITION



For details refer to article T300233

Modified	Check	Drawn by
2022-10-19	FRGU	R&D Instruments

Denomination

Basic Dimension Env. Housing Axxx

Size	Scale	Sheet
A3	1:4	1(1)

Drawing No.	Rev
T131399	B

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