

P/N: 42701-1101

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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 A310 (9 Hz) provides an affordable and accurate temperature measurement solution for anyone who needs to solve problems that need built in "smartness" such as analysis, alarm functionality, and autonomous communication using standard protocols. The FLIR A310 also has all the necessary features and functions to build distributed single- or multi-camera solutions utilizing standard Ethernet hardware and software protocols.

The FLIR A310 also has built in support to connect to industrial control equipment such as PLCs, and allows for sharing of analysis and alarm results and simple control using the Ethernet/IP and Modbus TCP field bus protocols.

Key features:

- Support for the Ethernet/IP field bus protocol (analyze, alarm, and simple camera control).
- Support for the Modbus TCP field bus protocol (analyze, alarm, and simple camera control).
- Built-in extensive analysis functionality.
- Extensive alarm functionality, as a function of analysis and more.
- On schedule: file sending (FTP) or e-mail (SMTP) of analysis results or images.
- On alarms: file sending (FTP) or e-mail (SMTP) of analysis results or images.
- MPEG-4 streaming.
- PoE (Power over Ethernet).
- Built-in web server.
- General purpose I/O.
- 100 Mbps Ethernet (100 m cable, wireless, fiber, etc.).
- Synchronization through SNTP.
- Composite video output.
- Multi-camera utility software: FLIR IP Config and FLIR IR Monitor included.
- Open and well-described TCP/IP protocol for control and set-up.
- 16-bit 320 × 240 pixel images at 4.5 Hz, radiometric.
- Lenses: 25° included, 15° and 45° optional.

Typical applications:

- Safety with temperature alarms (multi-camera applications), fire prevention, critical vessel monitoring, and power utility asset management.
- Volume-oriented industrial control (multi-camera installation is possible).

Imaging and optical data

IR resolution	320 × 240 pixels
Thermal sensitivity/NETD	< 0.05°C @ +30°C (+86°F) / 50 mK
Field of view (FOV)	25° × 18.8°
Minimum focus distance	0.4 m (1.31 ft.)
Focal length	18 mm (0.7 in.)

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Imaging and optical data	
Spatial resolution (IFOV)	1.36 mrad
Lens identification	Automatic
F-number	1.3
Image frequency	9 Hz
Focus	Automatic or manual (built in motor)
Zoom	1–8× continuous, digital, interpolating zooming on images
Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–13 µm
Detector pitch	25 µm
Detector time constant	Typical 12 ms
Measurement	
Object temperature range	<ul style="list-style-type: none"> –20 to +120°C (–4 to +248°F) 0 to +350°C (+32 to +662°F)
Accuracy	±2°C (±3.6°F) or ±2% of reading
Measurement analysis	
Spotmeter	10
Area	10 boxes with max./min./average/position
Isotherm	1 with above/below/interval
Measurement option	Measurement Mask Filter Schedule response: File sending (ftp), email (SMTP)
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set or captured from any measurement function
Atmospheric transmission correction	Automatic, based on 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
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on input of optics/window transmission and temperature
Measurement corrections	Global and individual object parameters
Alarm	
Alarm functions	6 automatic alarms on any selected measurement function, Digital In, Camera temperature, timer
Alarm output	Digital Out, log, store image, file sending (ftp), email (SMTP), notification

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Set-up	
Color palettes	Color palettes (BW, BW inv, Iron, Rain)
Set-up commands	Date/time, Temperature (°C/°F)
Storage of images	
Storage media	Built-in memory for image storage
File formats	Standard JPEG, 16-bit measurement data included
Ethernet	
Ethernet	Control, result and image
Ethernet, type	100 Mbps
Ethernet, standard	IEEE 802.3
Ethernet, connector type	RJ-45
Ethernet, communication	TCP/IP socket-based FLIR proprietary
Ethernet, video streaming	MPEG-4, ISO/IEC 14496-1 MPEG-4 ASP@L5
Ethernet, image streaming	16-bit 320 × 240 pixels @ 4.5 Hz <ul style="list-style-type: none"> Radiometric
Ethernet, power	Power over Ethernet, PoE IEEE 802.3af class 0. <div> <div>  NOTE </div> <div> <p>In cameras manufactured before 2013, due to an error in the implementation of power over Ethernet, in some rare cases the camera will not be powered. In such cases, power the camera using the external power cable, or modify the camera according to Service bulletin SB14-006. For modification, please contact your local service department. See http://support.flir.com/service for contact details.</p> </div> </div>
Ethernet, protocols	Ethernet/IP, Modbus TCP, TCP, UDP, SNTP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP
Digital input/output	
Digital input, purpose	Image tag (start/stop/general), Input ext. device (programmatically read)
Digital input	2 opto-isolated, 0–1.5 V = low, 3–25 V = high
Digital output, purpose	As function of ALARM, Output to ext. device (programmatically set)
Digital output	2 opto-isolated, ON = supply (max. 100 mA), OFF = open
Digital I/O, isolation voltage	500 VRMS
Digital I/O, supply voltage	6–24 VDC, max. 200 mA
Digital I/O, connector type	6-pole jackable screw terminal

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Composite video	
Video out	Composite video output, PAL and NTSC compatible
Video, standard	CVBS (ITU-R-BT.470 PAL/SMPTE 170M NTSC)
Video, connector type	Standard BNC connector
Power system	
External power operation	12/24 VDC, 24 W absolute max.
External power, connector type	2-pole jackable screw terminal
Voltage	Allowed range 10–30 VDC
Environmental data	
Operating temperature range	–15°C to +50°C (+5°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25° C to +40°C (+77°F to +104°F)
EMC	<ul style="list-style-type: none"> EN 61000-6-2:2001 (Immunity) EN 61000-6-3:2001 (Emission) FCC 47 CFR Part 15 Class B (Emission)
Encapsulation	IP 40 (IEC 60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Physical data	
Weight	0.7 kg (1.54 lb.)
Camera size (L × W × H)	170 × 70 × 70 mm (6.7 × 2.8 × 2.8 in.)
Tripod mounting	UNC ¼"-20 (on three sides)
Base mounting	2 × M4 thread mounting holes (on three sides)
Housing material	Aluminum
Shipping information	
Packaging, type	Cardboard box
List of contents	<ul style="list-style-type: none"> Infrared camera with lens Ethernet cable Mains cable Power cable, pig-tailed Power supply Printed documentation Utility CD-ROM
Packaging, weight	
Packaging, size	495 × 370 × 192 mm (19.5 × 14.6 × 7.6 in.)
EAN-13	7332558003367
UPC-12	845188003111
Country of origin	Sweden

Supplies & accessories:

- 1196961; IR lens, f = 30 mm, 15° incl. case

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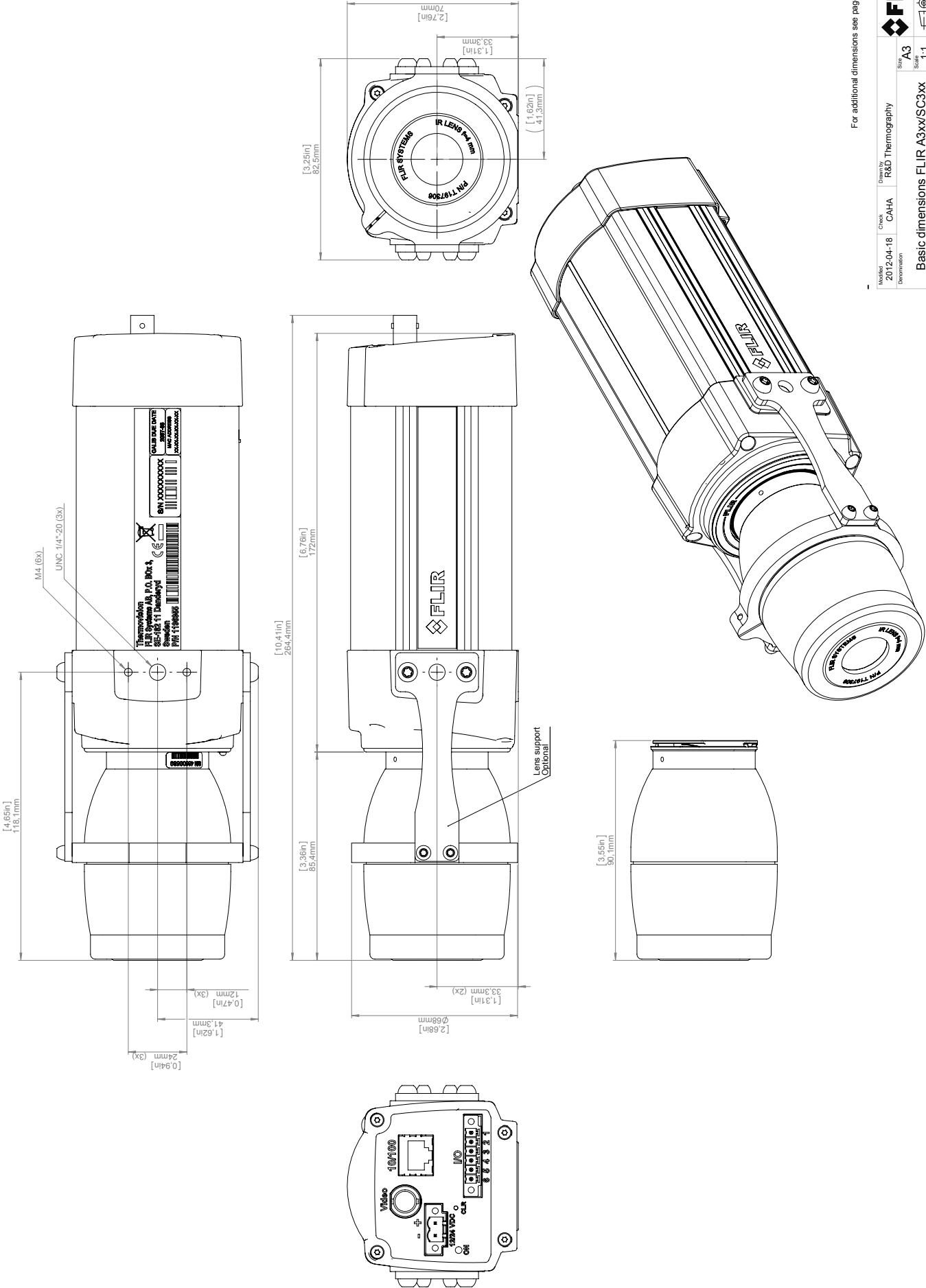
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- 1196960; IR lens, f = 10 mm, 45° incl. case
- T197215; Close-up 4× (100 µm) incl. case
- T197214; Close-up 2× (50 µm) incl. case
- T197407; IR lens, 76 mm (6°) with case and mounting support for A3xx, A3xxsc
- T197411; IR lens, 4 mm (90°) with case and mounting support for A3xx, A3xxsc
- T197415; Close-up 1× (25 µm) incl. case and mounting support for A3xx, A3xxsc
- T197000; High temp. option +1200°C (+2192°F)
- 1910400; Power cord EU
- 1910401; Power cord US
- 1910402; Power cord UK
- T910922; Power supply, incl. multi plugs, for A3xx, A3xxsc, A6xx and A6xxsc
- T911182; Power supply for A3xx f, IP66
- T951004ACC; Ethernet cable CAT6, 2 m/6.6 ft.
- T911307ACC; Ethernet cable, CAT6, 2 m/6.6 ft, 1 screw connector
- 1910586ACC; Power cable, pigtailed
- 908929; Video cable, 3.0 m/9.8 ft.
- T197871ACC; Hard transport case for A3xx/A6xx series
- T197870ACC; Cardboard box for A3xx/A6xx series
- 61301-0002; Fixed Housing for A3xx 25°/45°/90°
- 61301-0001; Fixed Housing for A3xx 7°/15°
- T130090; I/O module MIO-A310-1
- T130091; I/O module MIO-A310-7
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- T198567; ThermoVision™ System Developers Kit Ver. 2.6
- T198566; ThermoVision™ LabVIEW® Digital Toolkit Ver. 3.3

Camera with built-in IR lens f=18 mm (25°)



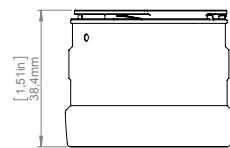
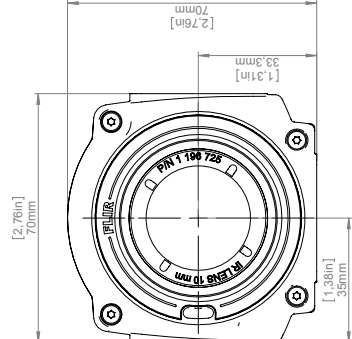
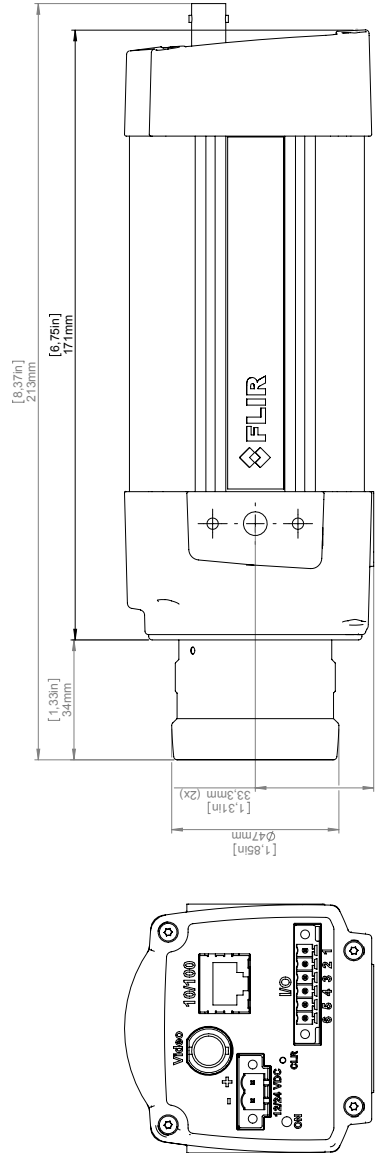
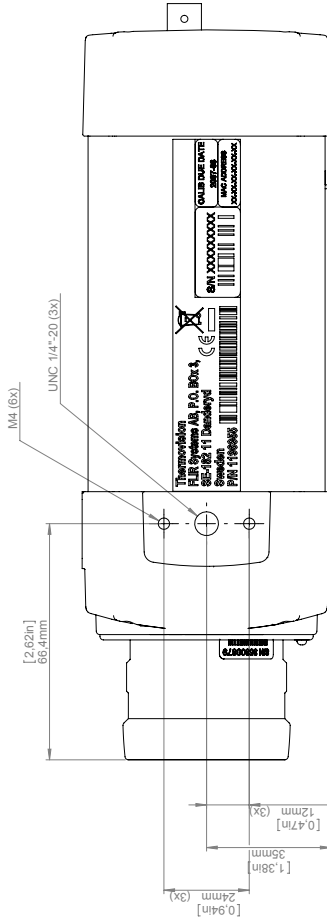
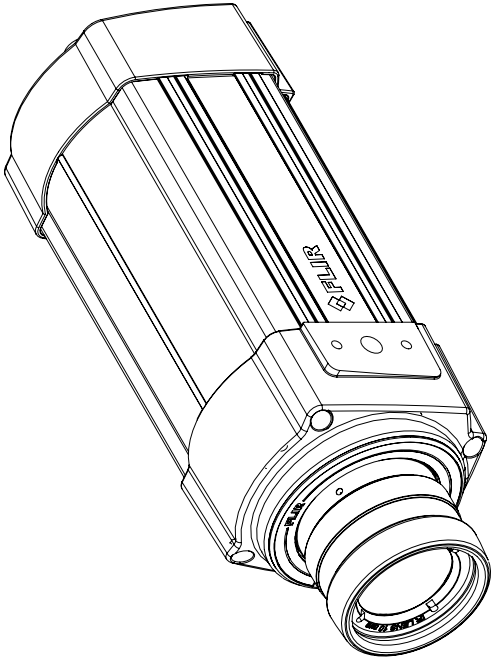
Camera with Lens IR f=4 mm (90°) incl support



For additional dimensions see page 1

Model	Check	Drawn by	FLIR
2012-04-18	CAHA	R&D Thermography	
Denomination			
Basic dimensions FLIR A3xx/SC3xx			
Size	A3	Scale	1:1
Sheet	2(e)	Drawing No.	T125002
Size	A		

Camera with Lens IR f=10 mm (45°)

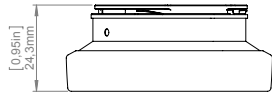
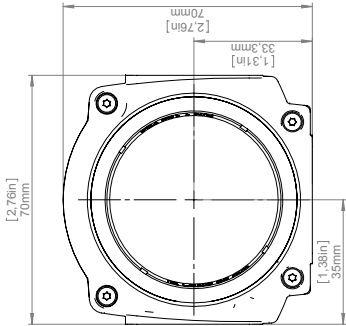
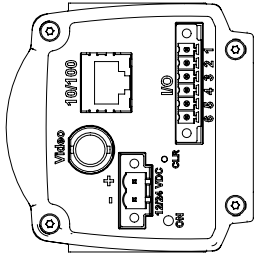
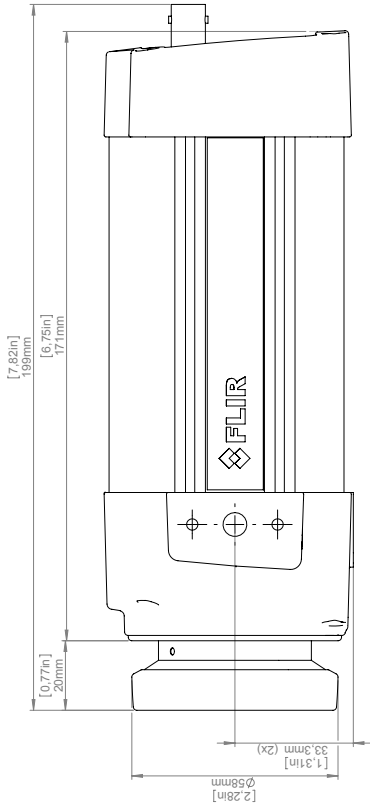
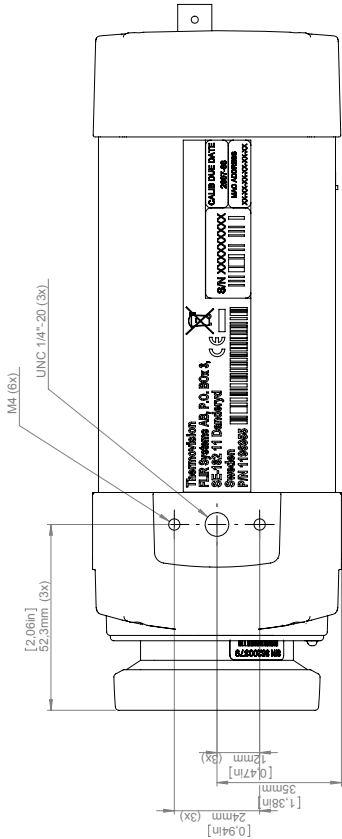
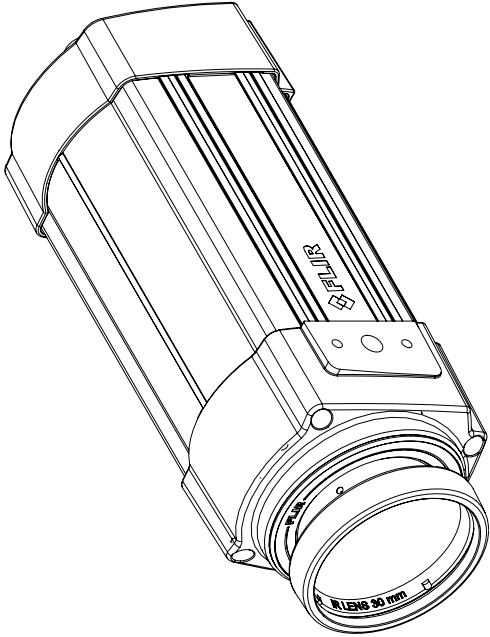


For additional dimensions see page 1

Model	Check	Drawn by	FLIR
2012-04-18	CAHA	R&D Thermography	
Denomination			
Size	A3		
Scale	1:1		
Sheet	3(e)		
Drawing No.	T125002		
Size	A		

Basic dimensions FLIR A3xx/SC3xx

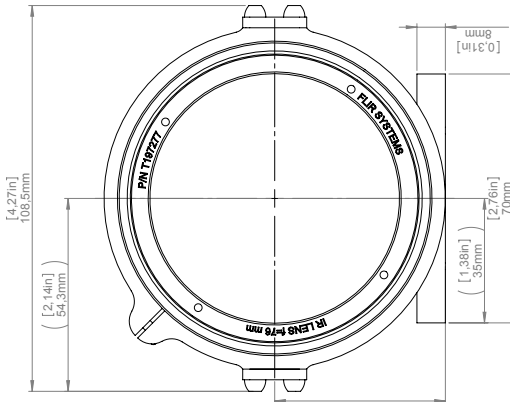
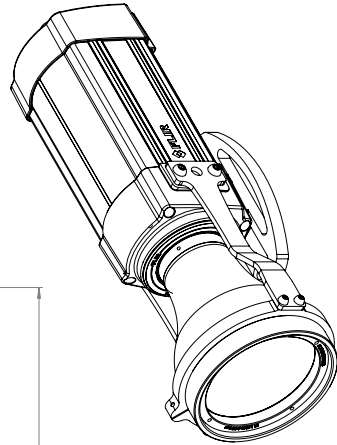
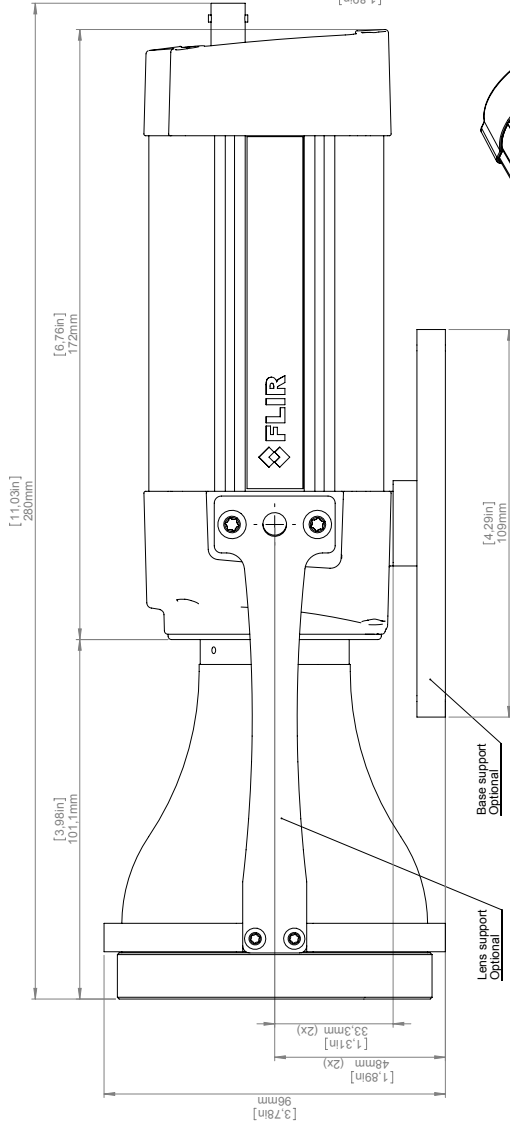
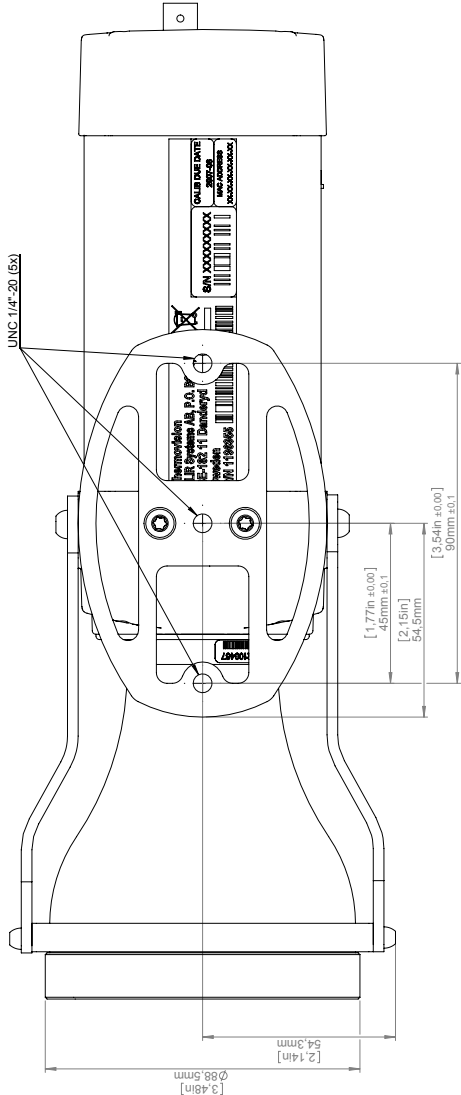
Camera with Lens IR f=30 mm (15°)



For additional dimensions see page 1

Model	2012-04-18	Check	CAHA	Drawn by	R&D Thermography	Size	A3	FLIR	
Modified								Sheet	4(6)
Denomination	Basic dimensions FLIR A3xx/SC3xx					Scale	1:1		Size
						Drawing No.	T125002	A	
	-								

Camera with Lens IR f=76 mm (6") incl support



For additional dimensions see page 1

Model	Check	Drawn by	FLIR
2012-04-18	CAHA	R&D Thermography	
Denomination			
Size	A3	Sheet	5(6)
Scale	1:1	Drawing No.	T125002
Size			

Basic dimensions FLIR A3xx/SC3xx

Figure 1: Camera with Close-up lens 1X (25 μm) incl support. The figure shows a top-down view of a camera system. A central lens is labeled "Close-up lens 1X (25 μm)". Below the lens is a support structure. Dimensions are given: "WD = 2.1mm" for the lens width, "0.83in" for the lens height, and "7.67in" for the total height. The total width is "194.8mm". The figure is labeled "A" at the top and bottom.

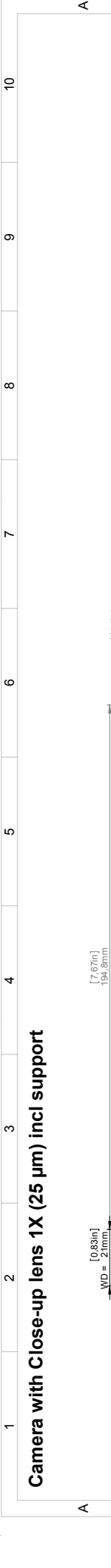
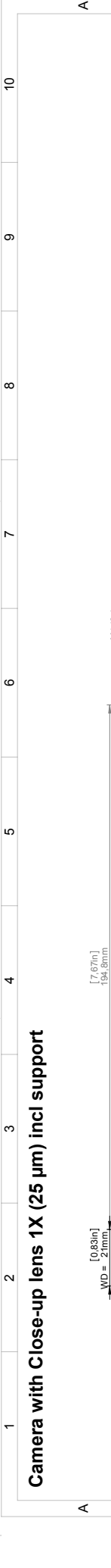
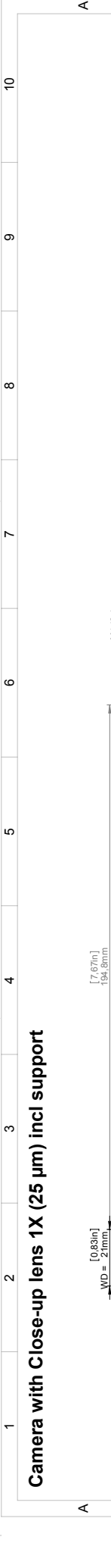
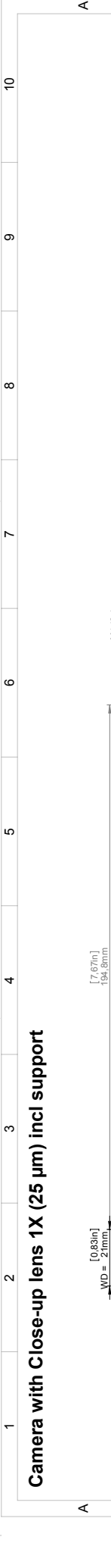
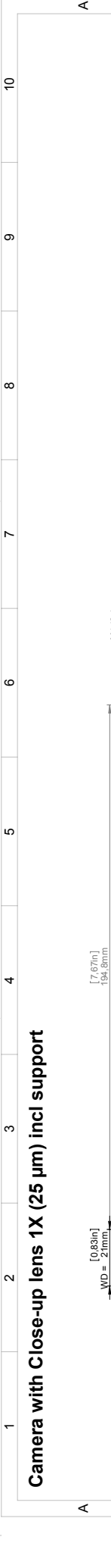
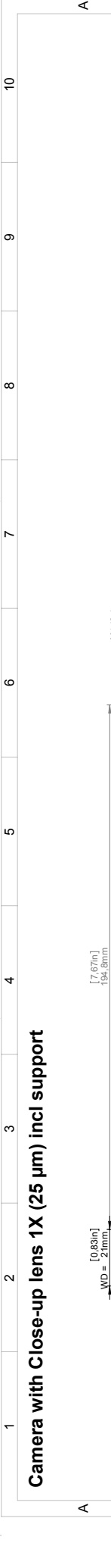


Figure 1: Camera with Close-up lens 1X (25 μm) incl support. The diagram shows a camera system with a close-up lens and a support. The camera is labeled "Camera with Close-up lens 1X (25 μm) incl support". The distance from the camera to the support is labeled "7.67in" and "194.8mm". The distance from the support to the camera is labeled "0.83in" and "21mm".

Figure 1: Camera with Close-up lens 1X (25 μm) incl support. The diagram shows a camera system with a close-up lens and a support. The camera is labeled "Camera with Close-up lens 1X (25 μm) incl support". The distance from the camera to the support is labeled "7.67in" and "194.8mm". The distance from the support to the camera is labeled "0.83in" and "21mm".

Camera with Close-up lens 2X (50 µm)

Dimensions:

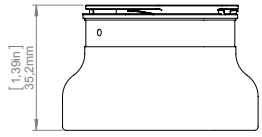
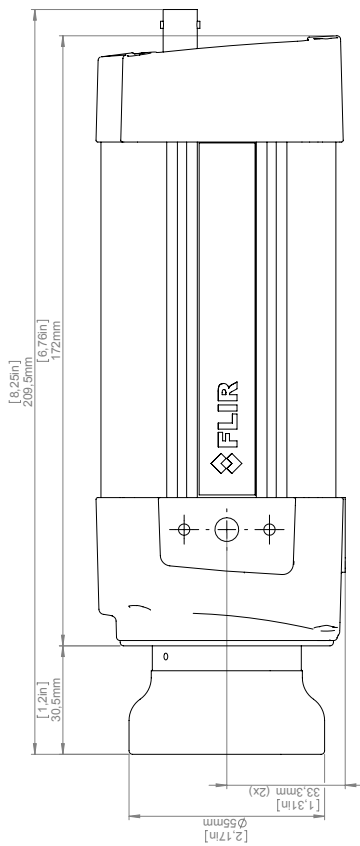
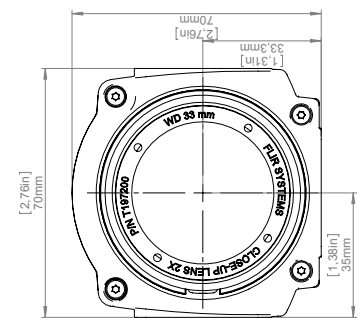
- Front View:**
 - WD = 33mm (1.31in)
 - Object plane
 - 24mm (0.94in) (3x)
 - 12mm (0.47in) (3x)
 - 35mm (1.38in) (3x)
 - 63.2mm (2.49in) (3x)
 - UNC 1/4"-20 (3x)
 - M4 (6x)
- Side View:**
 - 1.2in (30.5mm)
 - 8.25in (209.5mm)
 - 6.76in (172mm)
- Top View:**
 - 33.3mm (1.31in) (2x)
 - 2.17in (55mm)
 - 35.2mm (1.39in)
- Bottom View:**
 - 10400
 - Video
 - 12VDC 1.5A
 - IO
 - 0 0 0 3 X 1
- Front View (Close-up):**
 - WD 33 mm
 - FLIR A3xx/SC3xx
 - SN 1197800
 - Close-up Lens 2X
 - 1.38in (35mm)
 - 2.76in (70mm)
 - 33.3mm (1.31in)
 - 2.76in (70mm)

For additional dimensions see page 1

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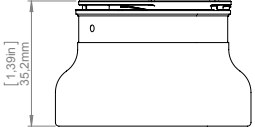
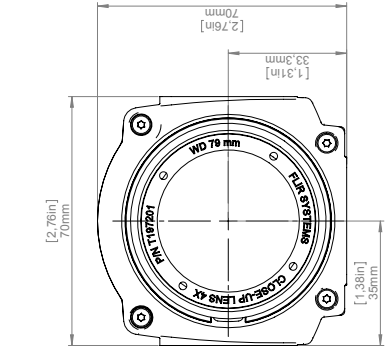
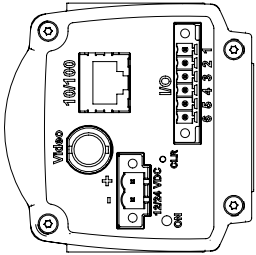
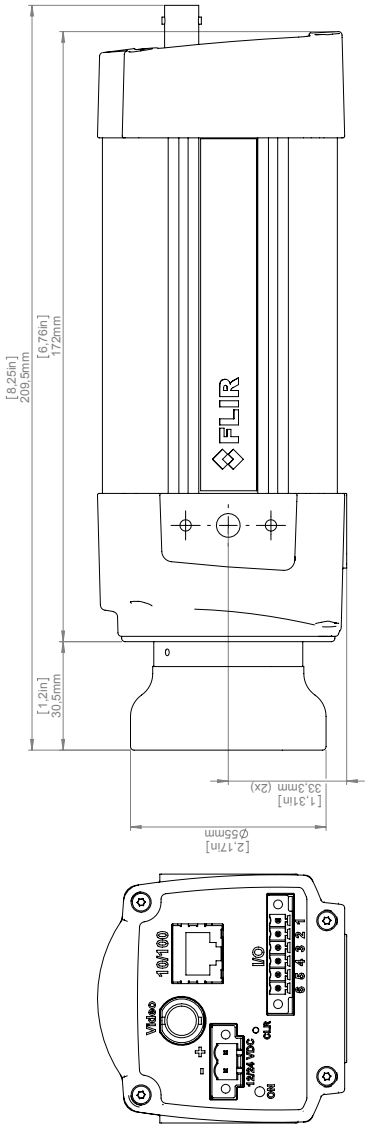
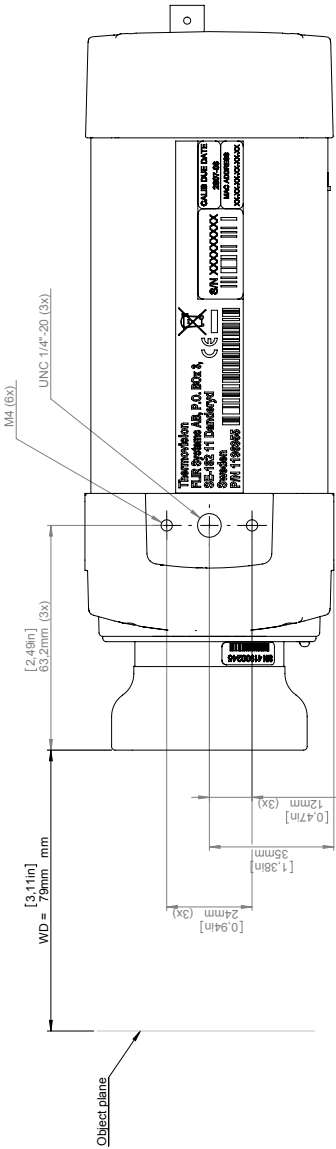
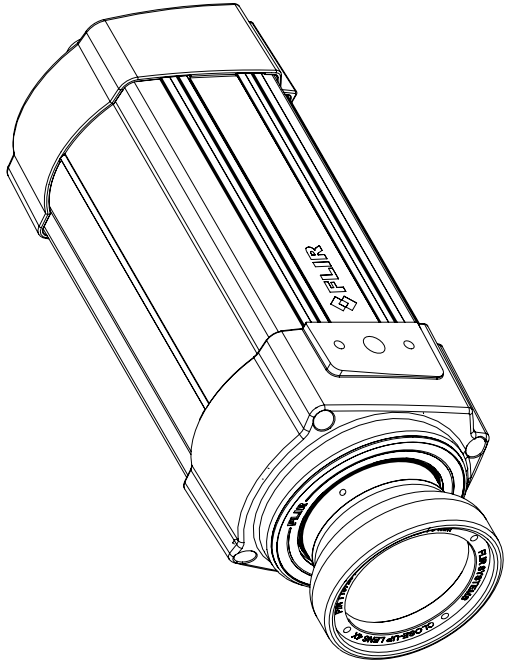
Basic dimensions FLIR A3xx/SC3xx

Modified: 2012-04-18
Checked: CAHA
Drawn by: R&D Thermography
Sheet: 7(6)
Scale: 1:1
Drawing No.: T125002



Modified 2012-04-18	Check CAHA	Drawn by R&D Thermography	Size A3	Scale 1:1	Sheet (76)	Sheet Size A
Basic dimensions FLIR A3xx/SC3xx						
-			Drawing No. T125002			

Camera with Close-up lens 4X (100 µm)

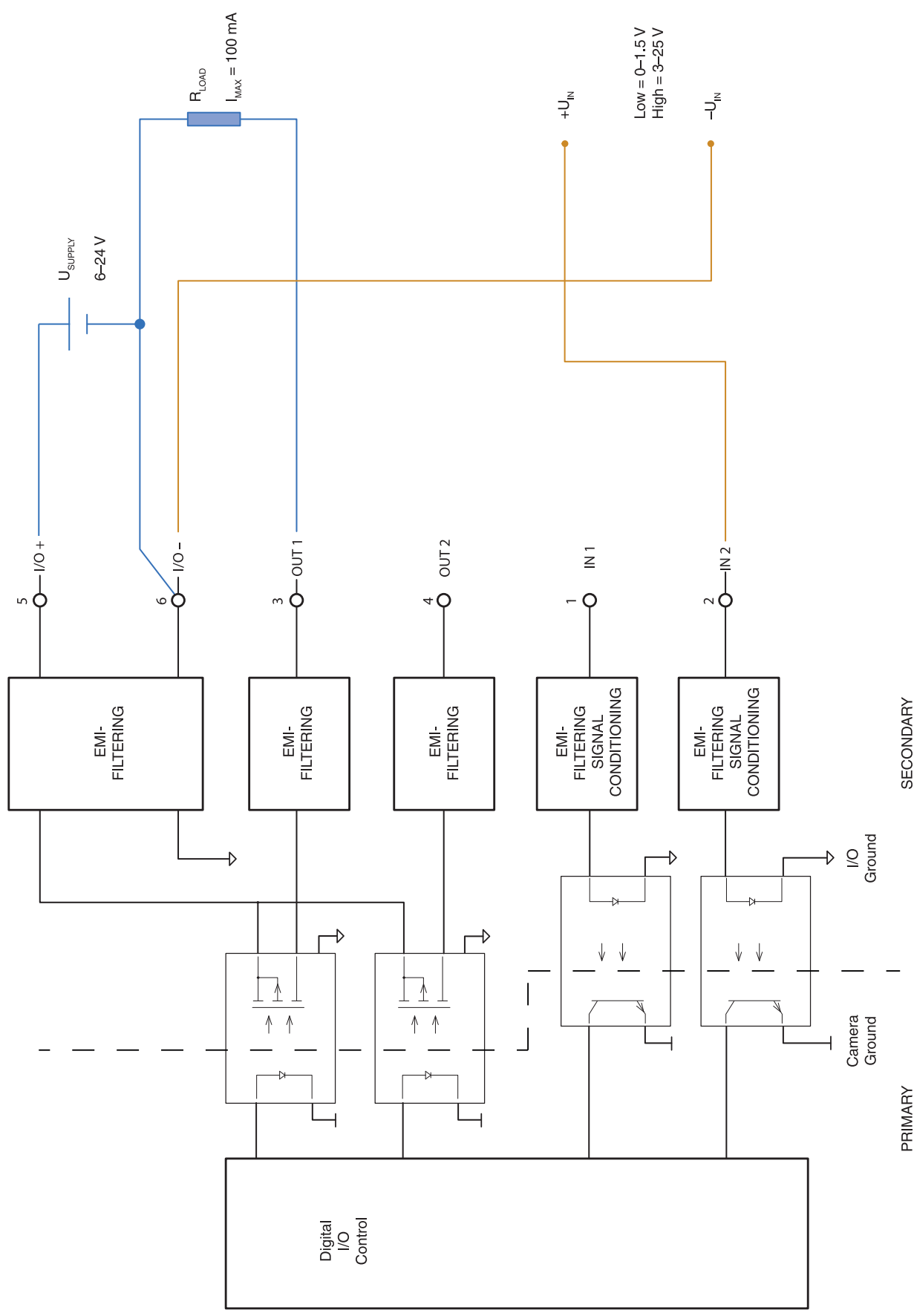


For additional dimensions see page 1

Model	Check	Drawn by	FLIR
2012-04-18	CAHA	R&D Thermography	
Denomination			
Size	A3	Scale	1:1
Sheet	8(e)	Drawing No.	T125002
Size	A		

Basic dimensions FLIR A3xx/SC3xx

Digital I/O connection diagrams for FLIR A3xx/A6xx series



October 28, 2011

AQ115813

Certificate of Conformity

This is to certify that the System listed below has 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:

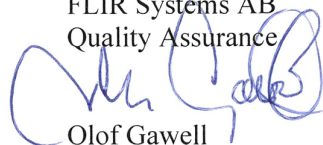
Directive 2004/108/EC;	Electromagnetic Compatibility
Directive 2006/95/EC;	"Low voltage Directive" (Power Supply)
Directive 2002/96/EC	Waste electrical and electronic equipment; WEEE (As applicable)

Standards:

Emission:	EN 61000-6-3; Electromagnetic Compatibility Generic standards - Emission
Immunity:	EN 61000-6-2; Electromagnetic Compatibility; Generic standards – Immunity
Safety (Power Supply):	EN 60950 (or other) Safety of information technology equipment

System: FLIR A3xx Series

FLIR Systems AB
Quality Assurance



Olof Gawell
Director

The Forward Looking Infrared Company