

P/N: 42701-1101

Copyright

© 2019, FLIR Systems, Inc.

All rights reserved worldwide. Names and marks appearing herein are either registered trademarks or trademarks of FLIR Systems and/or its subsidiaries. All other trademarks, trade names or company names referenced herein are used for identification only and are the property of their respective owners.

Document identity

Publ. No.: 42701-1101

Commit: 46384

Language: en-US

Modified: 2017-11-16

Formatted: 2019-11-11

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 x 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 x 240 pixels
Thermal sensitivity/NETD	< 0.05°C @ +30°C (+86°F) / 50 mK
Field of view (FOV)	25° x 18.8°
Minimum focus distance	0.4 m (1.31 ft.)
Focal length	18 mm (0.7 in.)
Spatial resolution (IFOV)	1.36 mrad
Lens identification	Automatic
F-number	1.3
Image frequency	9 Hz

P/N: 42701-1101

© 2019, FLIR Systems, Inc.


#42701-1101; r. 46384; en-US

Imaging and optical data	
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 (with no image streaming)
Area	10 boxes with max./min./average/position (with no image streaming)
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
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

P/N: 42701-1101

© 2019, FLIR Systems, Inc.

#42701-1101; r. 46384; en-US

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>  NOTE 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. </div>
Ethernet, protocols	Ethernet/IP, Modbus TCP, TCP, UDP, SNMP, 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

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)

P/N: 42701-1101

© 2019, FLIR Systems, Inc.

#42701-1101; r. 46384; en-US

Environmental data	
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
- 1196960; IR lens, f=10 mm, 45° 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
- T129252; Special temperature range -20 to +700 deg C
- T129253; Special temperature range -20 to +500 deg C
- T129254; High temperature measurement option -20 to +2000 deg C
- T130151; Special temperature range -20 to +2000 deg C
- T130152; Special temperature range +200 to +1200 deg C
- 1910400; Power cord EU
- 1910402; Power cord UK
- 1910401; Power cord US
- T911803; Power supply, 24 VDC, 2 A, 50 W
- T910922; Power supply, incl. multi plugs, for A3xx, A3xxsc, A6xx and A6xxsc
- 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.
- T197870ACC; Cardboard box for FLIR A3xx/A6xx series
- T197871ACC; Hard transport case for FLIR A3xx/A6xx series

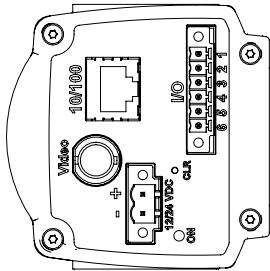
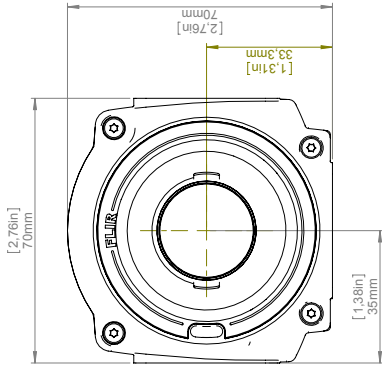
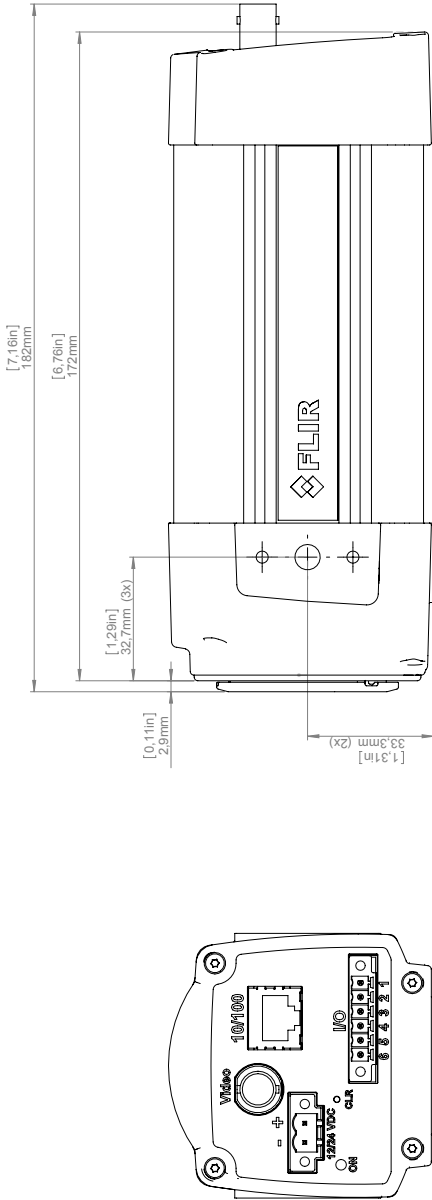
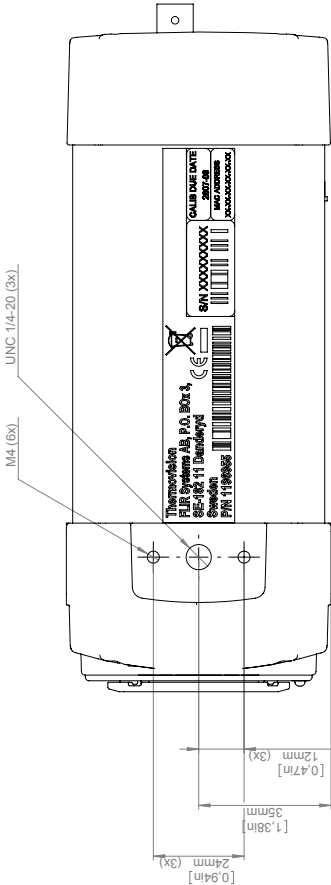
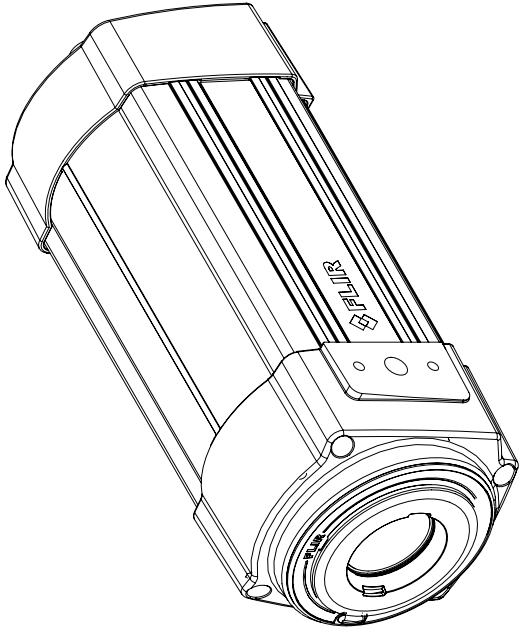
P/N: 42701-1101

© 2019, FLIR Systems, Inc.

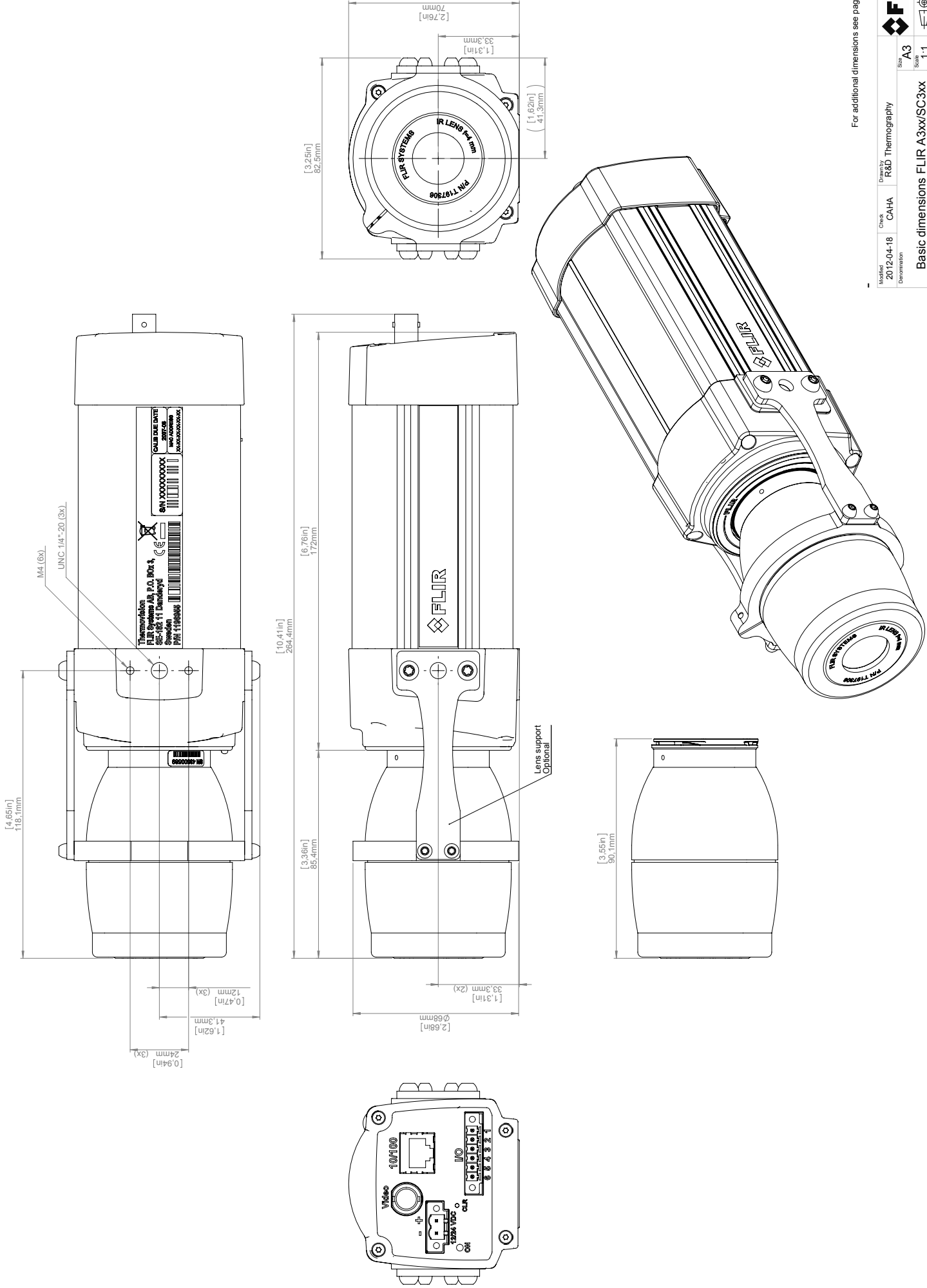
#42701-1101; r. 46384; en-US

- 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
- T199713; ThermoVision CM Panel, max. 4 cameras
- T199712; ThermoVision CM Panel, max. 9 cameras
- T130169; Thermovision CM, max. 4 cameras
- T130170; Thermovision CM, max. 9 cameras
- 500-1120-00; Pedestal Mount Assy, f-series
- 500-1121-00; Small Pole Adapter Assy, f-series
- 500-1123-00; Wall Mount Assy, f-series
- T197214; Close-up 2× (50 µm) incl. case
- T197215; Close-up 4× (100 µm) incl. case
- T300243; FLIR Thermal Studio Pro, 1 Year Subscription
- T300083; FLIR Thermal Studio Pro, Perpetual license
- T300258; FLIR Thermal Studio, Perpetual license
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- APP-10002; FLIR Tools Mobile (Android Application)
- 4220499; FLIR Research Studio - 1 Year Subscription (online activation)
- 4220500; FLIR Research Studio - Perpetual License (online activation)
- 4220646; FLIR Research Studio - Perpetual License (USB dongle)
- T198567; ThermoVision™ System Developers Kit Ver. 2.6
- T198566; ThermoVision™ LabVIEW® Digital Toolkit Ver. 3.3
- INST-EW-0150; Extended Warranty 1 Year for A3xx, T4xx mkII
- INST-EWGM-0155; Premium Service Package for A3xx, T4xx mkII, T530
- INST-GM-0145; General Maintenance Package for A3xx, T3/4xx

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

Modified	Check	Drawn by	Size	Scale	Sheet	Size
2012-04-18	CAHA	R&D Thermography	A3	1:1	2(8)	A
Basic dimensions FLIR A3xx/SC3xx						
T125002						



Camera with Lens IR f=10 mm (45°)

The drawing includes the following views and dimensions:

- Front View:** Shows the camera body with a lens diameter of $\phi 47\text{mm}$ [1.85in]. The mounting bracket has a width of 33.3mm [1.31in] (2x) and a height of 34mm [1.33in]. The total height of the camera body is 171mm [6.75in].
- Side View:** Shows the camera body with a length of 213mm [8.37in]. The mounting bracket has a width of 34mm [1.33in].
- Top View:** Shows the camera body with a width of 35mm [1.38in] and a height of 24mm [0.94in] (3x). The mounting bracket has a width of 12mm [0.47in] (3x) and a height of 66.4mm [2.62in].
- Bottom View:** Shows the camera body with a width of 35mm [1.38in] and a height of 24mm [0.94in] (3x). The mounting bracket has a width of 12mm [0.47in] (3x) and a height of 66.4mm [2.62in].
- Mounting Bracket:** Shows the mounting bracket with a width of 35mm [1.38in] and a height of 24mm [0.94in] (3x). The mounting bracket has a width of 12mm [0.47in] (3x) and a height of 66.4mm [2.62in].
- FLIR Logo:** The FLIR logo is located on the side of the camera body.
- Serial Number:** The serial number is located on the side of the camera body.
- Part Number:** The part number is located on the side of the camera body.

For additional dimensions see page 1

Model	Check	Drawn by	Decommission
2012-04-18	CAHA	R&D Thermography	

Size: A3
Scale: 1:1
Sheet: 3(6)
Drawing No: T125002

Basic dimensions FLIR A3xx/SC3xx

FLIR

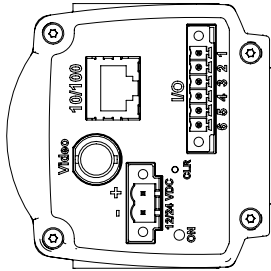
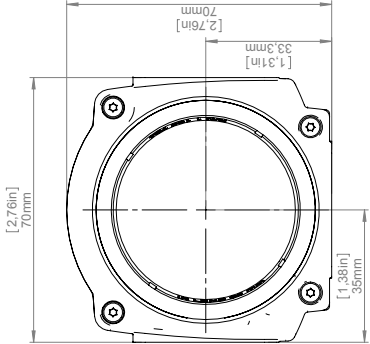
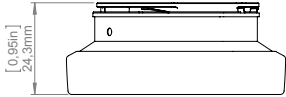
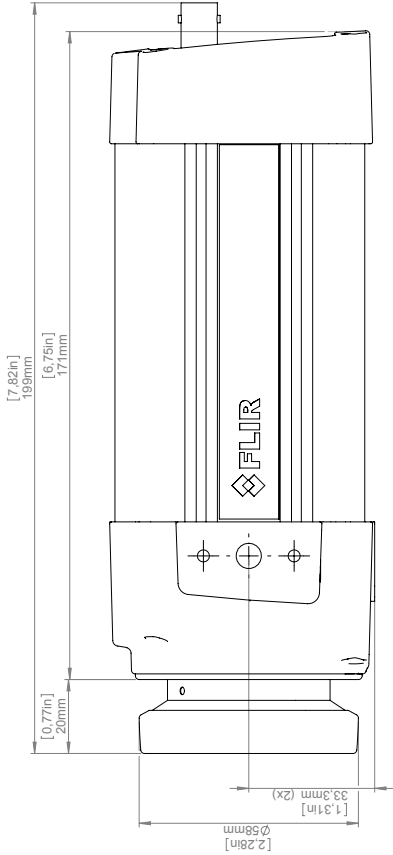
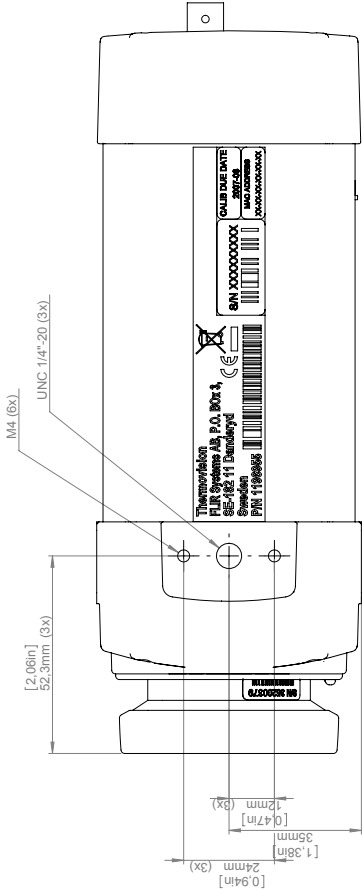
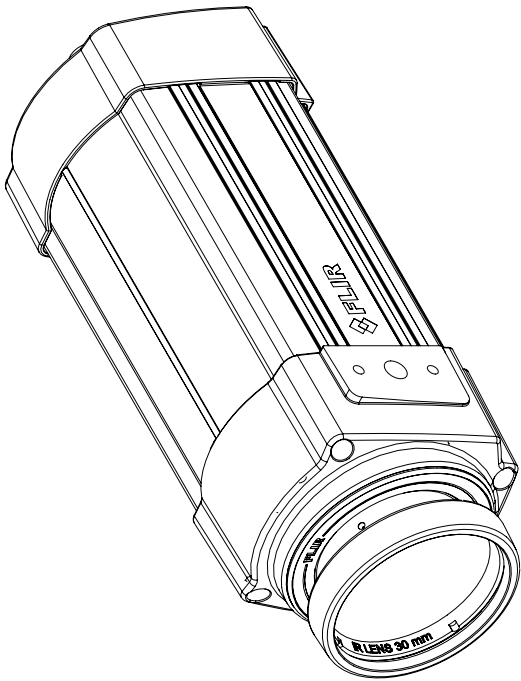
Modified 2012-04-18	Crack CAHA	Drawn by R&D Thermography	Size A3	
Basic dimensions FLIR A3xx/SC3xx			Scale 1:1	Sheet 3(6)
-			Drawing No. T125002	Size A

Basic dimensions FLIR A3xx/SC3xx

Drawing No. **T125002**
Size **A**

© 2012 FLR Systems, Inc. All rights reserved worldwide. No part of this drawing may be reproduced, stored in a retrieval system, or transmitted in any form, or by any means, electronic, mechanical, photocopying, recording, or otherwise, without written permission from FLR Systems, Inc. Specifications subject to change without further notice. Dimensions are based on nominal values. Products may be subject to regional market considerations. License procedures may apply. Product may be subject to US Export Regulations. Please refer to exportquestions@flr.com for any questions. Diversion contrary to US law is prohibited.

Camera with Lens IR f=30 mm (15°)



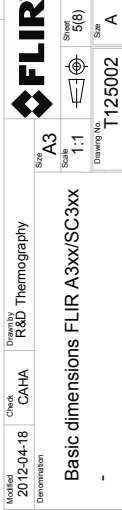
For additional dimensions see page 1

Modified 2012-04-18	Check CAHA	Drawn by R&D Thermography	Size A3	FLIR
Denotation			Scale 1:1	
			Sheet 4(8)	
			Drawing No. T125002	
			Size A	

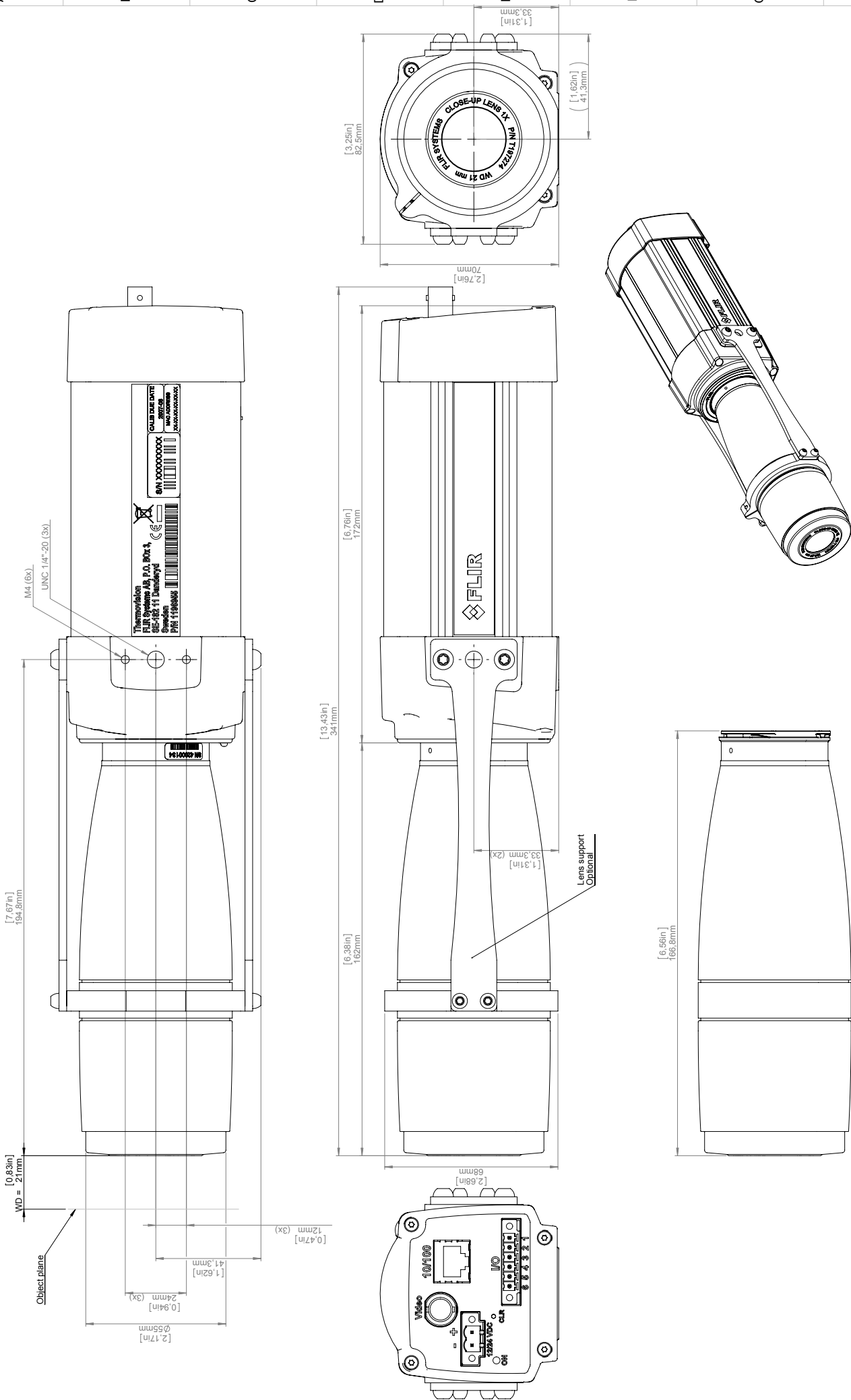
Basic dimensions FLIR A3xx/SC3xx

[illegible]

For additional dimensions see page 1



Camera with Close-up lens 1X (25 µm) incl support



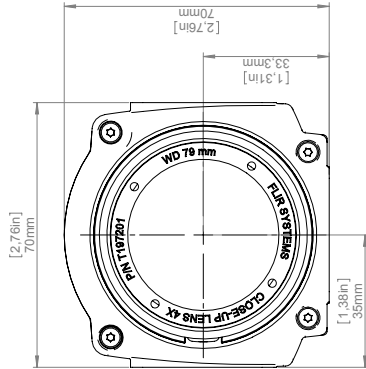
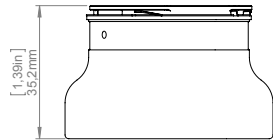
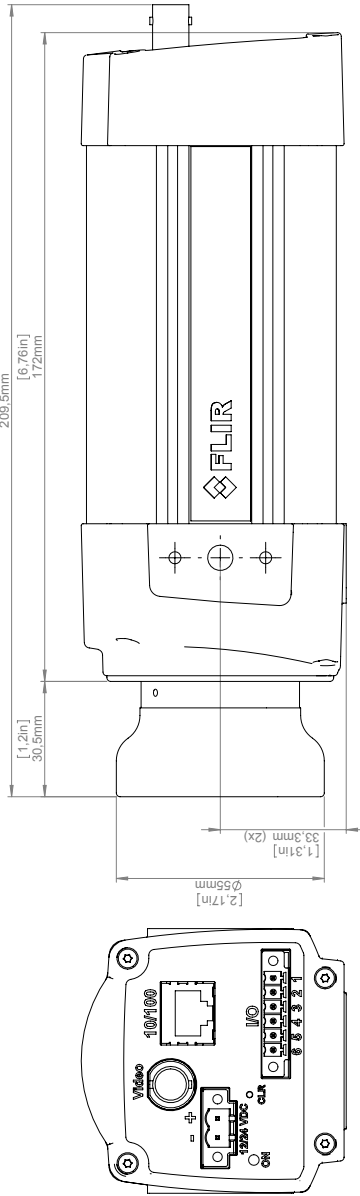
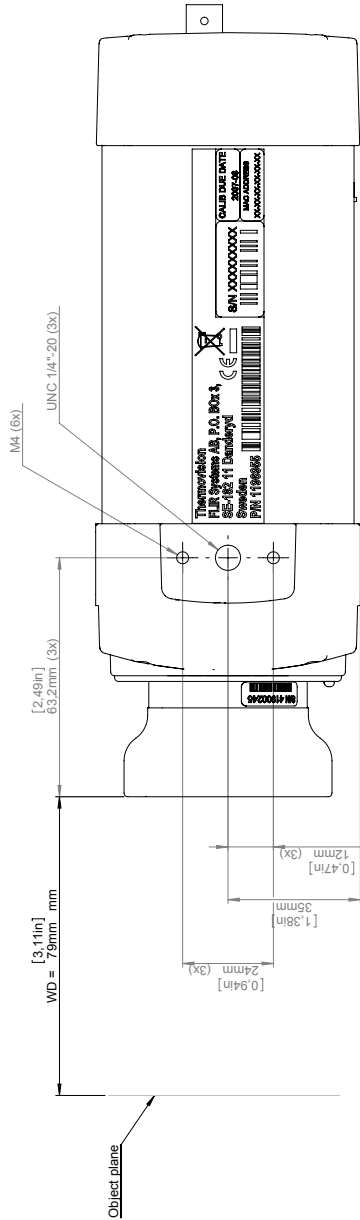
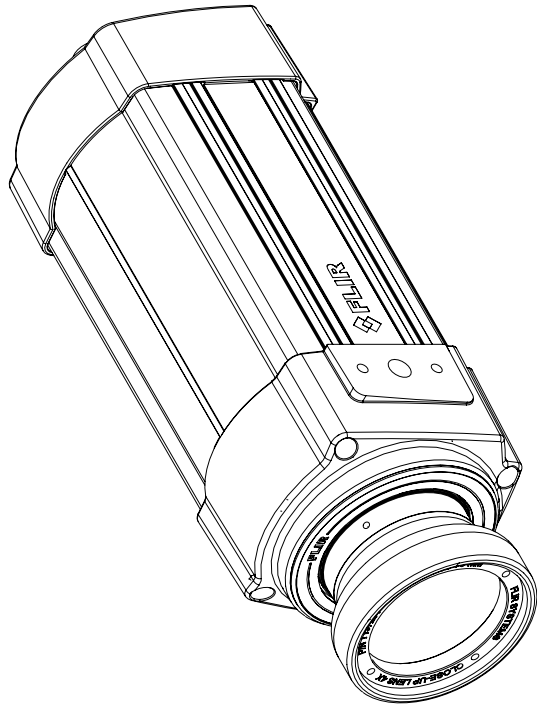
For additional dimensions see page 1

Modified 2012-04-18		Check CAHA	Drawn by R&D Thermography	Size A3	
Denotation		Scale 1:1		Sheet 6(8)	
Basic dimensions FLIR A3xx/SC3xx		Drawing No. T125002		Size A	



© 2012 FLIR Systems, Inc. All rights reserved worldwide. No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, or by any means, electronic, mechanical, photocopying, recording or otherwise, without written permission from FLIR Systems, Inc. Specifications subject to change without further notice. Dimensional data is based on nominal values. Products may be subject to regional market considerations. Licensee procedures may apply.

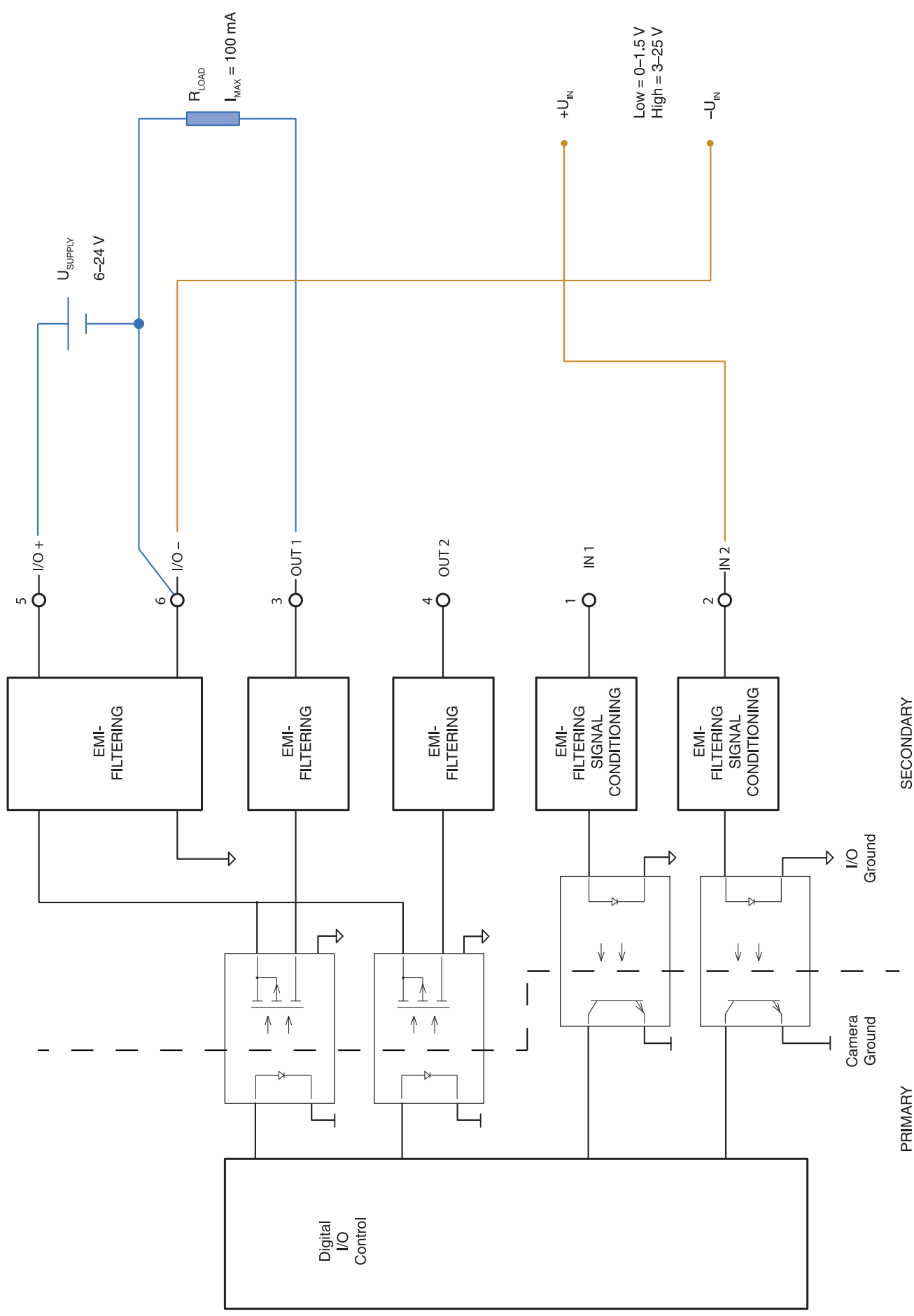
Camera with Close-up lens 4X (100 µm)



For additional dimensions see page 1

Modified 2012-04-18	Check CAHA	Drawn by R&D Thermography	Size A3	Scale 1:1	Sheet 8(8)	Size A
Basic dimensions FLIR A3xx/SC3xx						T125002
Drawing No.						

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





The World's Sixth Sense™

April 24, 2017 Täby, Sweden

AQ320234

CE Declaration of Conformity – EU Declaration of Conformity

Product: FLIR A3XX -series including A3XXSC

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 A3XX -series including A3XXSC.

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Directives:

Directive	2014/30/EU	Electromagnetic Compatibility
Directive	2014/35/EU	Low Voltage Directive (Power Supply)
Directive	2012/19/EU	Waste electrical and electric equipment

Standards:

Emission:	EN 61000-6-3:2006	Electromagnetic Compatibility Generic standards – Emission
Immunity:	EN 61000-6-2:2005	Electromagnetic Compatibility Generic standards – Immunity
Safety (Power supply):	EN 60950-1	Information technology equipment

FLIR Systems AB

Quality Assurance

Lea Dabiri

Quality Manager



The World's Sixth Sense™

October 11, 2017 Täby, Sweden

AQ320260

CE Declaration of Conformity – EU Declaration of Conformity

Product: I/O module MIO -boards
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:

I/O module MIO -boards:

T130087 I/O module MIO-AX8-7
T130089 I/O module MIO-FCR-7
T130091 I/O module MIO-A310-7
T130086 I/O module MIO-AX8-1
T130088 I/O module MIO-FCR-1
T130090 I/O module MIO-A310-1

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Directives:

Directive	2014/30/EU	Electromagnetic Compatibility
Directive	2011/65/EU	RoHS and 2015/863/EU

Standards:

EMC:	EN 55022:2010	Information technology equipment – radio disturbance
	EN 55024:2010	Information technology equipment - immunity
RoHS	EN 50581:2012	Technical documentation

FLIR Systems AB
Quality Assurance

Lea Dabiri
Quality Manager