

P/N: 75007-0101

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Website

<http://www.flir.com>

Customer support

<http://support.flir.com>

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General description	
<p>The FLIR A65 has features and functions that make it the natural choice for anyone who uses PC software to solve problems and for whom 640 × 512 pixel resolution is sufficient.</p> <p>Among its main features are GigE Vision and GenICam compliance, which makes it plug-and-play when used with software packages such as IMAQ Vision and Halcon.</p>	
Key features:	
<ul style="list-style-type: none"> • Very affordable. • Compact. • GigE Vision and GenICam compliant. • GigE Vision lockable connector. • PoE (power over Ethernet). • 8-bit 640 × 512 pixel images streamed at 30 Hz, signal linear • 14-bit 640 × 512 pixel images streamed at 30 Hz, signal and temperature linear • Synchronization between cameras possible. • 1x+1x GPIO. • Compliant with any software that supports GenICam, including National Instruments IMAQ Vision, Stammers Common Vision Blox, and COGNEX Vision Pro. 	
Typical applications:	
<ul style="list-style-type: none"> • Automation and thermal machine vision. • Entry level "high-speed" R&D. 	
Imaging and optical data	
IR resolution	640 × 512 pixels
Thermal sensitivity/NETD	< 0.05°C @ +30°C (+86°F) / 50 mK
Field of view (FOV)	90° × 69°
Minimum focus distance	2.5 cm (0.98 in.)
Focal length	7.5 mm (0.30 in.)
Spatial resolution (IFOV)	2.27 mrad
F-number	1.4
Image frequency	30 Hz
Focus	Fixed
Detector data	
Detector type	Focal plane array (FPA), uncooled VOX microbolometer
Spectral range	7.5–13 μm
Detector pitch	17 μm
Detector time constant	Typical 12 ms

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Measurement	
Object temperature range	<ul style="list-style-type: none"> -25 to +135°C (-13 to 275°F) -40 to +550°C (-40 to +1022°F)
Accuracy	±5°C (±9°F) or ±5% of reading

Measurement analysis	
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 0.5 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 object parameters

Ethernet	
Ethernet	Control and image
Ethernet, type	Gigabit Ethernet
Ethernet, standard	IEEE 802.3
Ethernet, connector type	RJ-45
Ethernet, communication	GigE Vision ver. 1.2 Client API GenICam compliant
Ethernet, image streaming	8-bit monochrome @ 30 Hz <ul style="list-style-type: none"> Signal linear/ DDE Automatic/ Manual Flip H&V 14-bit 640 × 512 pixels @ 30 Hz <ul style="list-style-type: none"> Signal linear/ DDE Temperature linear GigE Vision and GenICam compatible
Ethernet, power	Power over Ethernet, PoE IEEE 802.3af class 0 Power
Ethernet, protocols	TCP, UDP, ICMP, IGMP, DHCP, GigEVision

Digital input/output	
Digital input, purpose	General purpose
Digital input	1× opto-isolated, "0" <1.2 VDC, "1" = 2–25 VDC.
Digital output, purpose	General purpose output to ext. device (programmatically set)
Digital output	1× opto-isolated, 2–40 VDC, max. 185 mA
Digital I/O, isolation voltage	500 VRMS
Digital I/O, supply voltage	2–40 VDC, max. 200 mA
Digital I/O, connector type	12-pole M12 connector (shared with Digital synchronization and External power)
Synchronization in, purpose	Frame synchronization in to control camera
Synchronization in	1×, non-isolated
Synchronization in, type	LVC Buffer @3.3V, "0" <0.8 V, "1">2.0 V.
Synchronization out, purpose	Frame synchronization out to control another FLIR Ax5 camera

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Digital input/output	
Synchronization out	1x, non-isolated
Synchronization out, type	LVC Buffer @ 3.3V, "0"=24 MA max, "1"= -24 mA max.
Digital synchronization, connector type	12-pole M12 connector (shared with Digital I/O and External power)

Power system	
External power operation	12/24 VDC, < 3.5 W nominal < 6.0 W absolute max.
External power, connector type	12-pole M12 connector (shared with Digital I/O and Digital Synchronization)
Voltage	Allowed range 10–30 VDC

Environmental data	
Operating temperature range	–15°C to +60°C (+5°F to +140°F) <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>NOTE</p> <p>The operating temperature range assumes that the camera is mounted on the base support (included in the package) or a similar type of heatsink.</p> </div>
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 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission)
Encapsulation	IP 40 (IEC 60529) with base support mounted
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC60068-2-6) and MIL-STD810G

Physical data	
Camera size (L × W × H)	104.1 × 49.6 × 46.6 mm (4.1 × 1.9 × 1.8 in.)
Tripod mounting	1 × UNC ¼"-20 (with Base support accessory, included in the delivery box)
Base mounting	4 × M3 thread mounting holes (bottom)
Housing material	Magnesium and aluminum

Shipping information	
Packaging, type	Cardboard box
List of contents	<ul style="list-style-type: none"> • Infrared camera with lens • Base support • Focus adjustment tool • Printed documentation
EAN-13	7332558011621
UPC-12	845188012571
Country of origin	Sweden

Supplies & accessories:

- T951004ACC; Ethernet cable CAT6, 2 m/6.6 ft.
- T198349; Base support
- T198348; Cable kit Mains (UK,EU,US)



FLIR A65 FOV 90 (30 Hz, ver. 2016)

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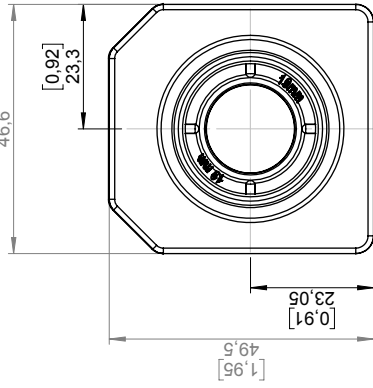
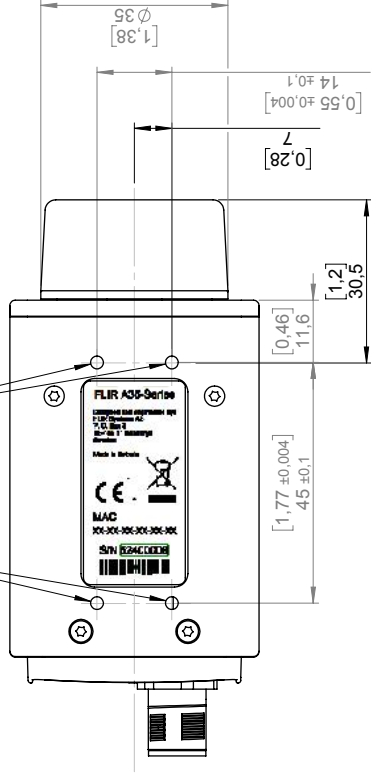
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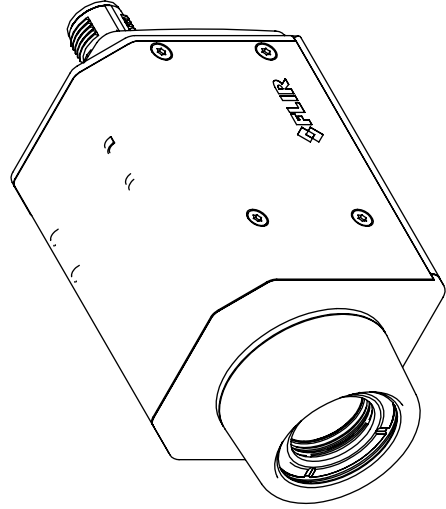
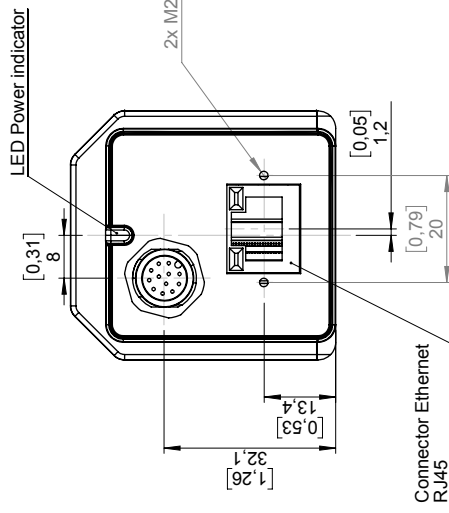
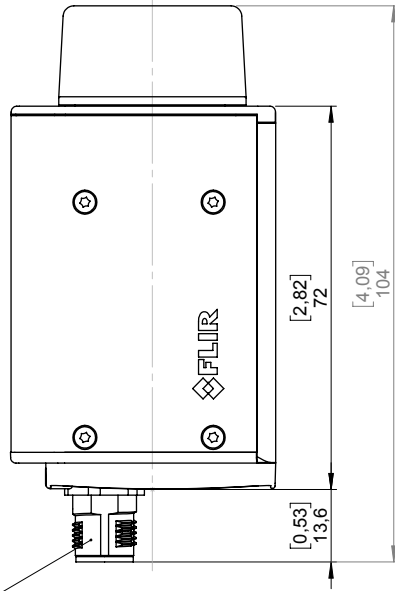
- T127605ACC; Cable M12 Pigtail
- T127606ACC; Cable M12 Sync
- T199356; FLIR Ax5 accessory starter kit
- T198342ACC; Focus adjustment tool
- T911183; Gigabit PoE injector 16 W, with multi-plugs
- T198392; Table stand kit
- T198594ACC; Transport case Ax5
- T199722; ThermoVision EFD, max. 2 cameras
- T199724; ThermoVision EFD, max. 4 cameras
- 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)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB
- 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)
- INST-EW-0135; Extended Warranty 1 Year for A35, A65
- INST-EWGM-0135; Premium Service Package for A35, A65, E53, E75, E85, E95
- INST-GM-0125; General Maintenance Package for A35, A65, Exx, Kxx

Basic dimensions
for cameras with
focal length:
f= 7,5 mm
f= 9 mm
f=13 mm
f=19 mm

4x M3
Depth max 4 mm



Connector GP I/O
M12 12-pin



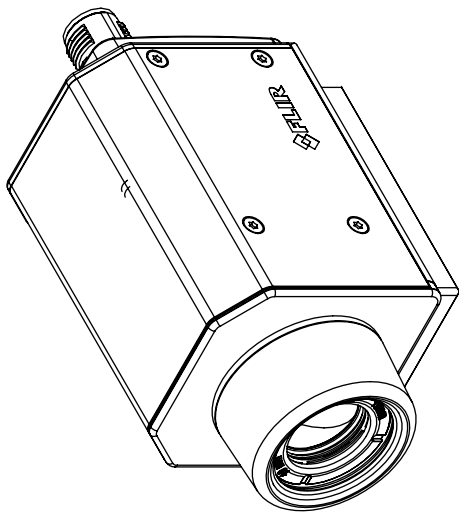
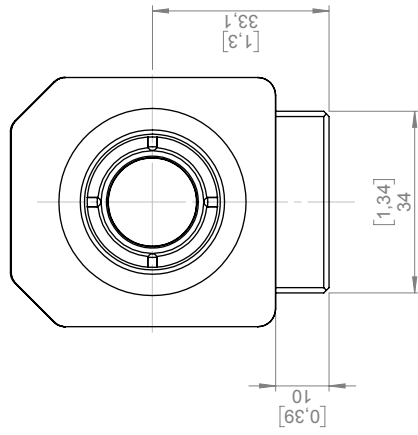
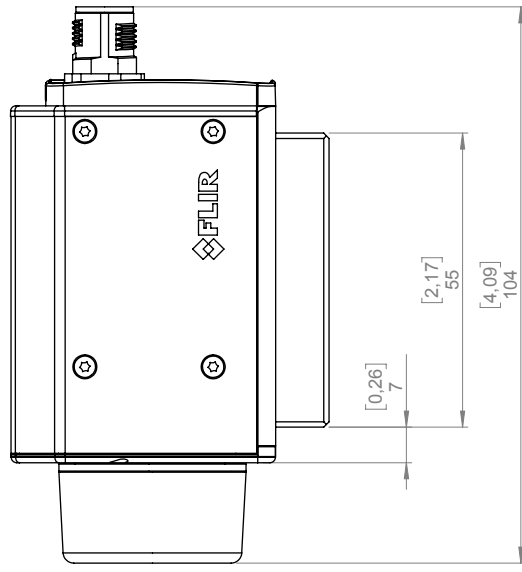
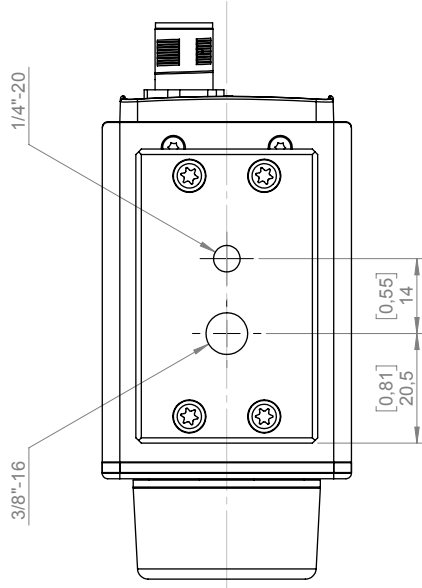
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Datum/Date 2015-12-14		Kontr/Check	
Ändrad av/Modified by P. MARCUS		Ytbehandling/Surface treatment	
Gen tol ISO 2768-mK		Ra μm	
Utdrag ur/Excerpt from ISO 2768-m		Benämning/Denomination	
0,5-6 ±0,1 Hållisradier		Basic dimensions Ax5 w. flag shutter	
(6)-30 ±0,2 Fillet radii		f=7,5 mm to f=100 mm	
(120)-400 ±0,5 Kanter brutna		Sheet/Scale	
(400)-1000 ±0,8 Edges broken		1:1	
Blad/Sheet		A3	
Size		Rev	
T129297		-002	

1 2 3 4 5 6 7 8 9 10

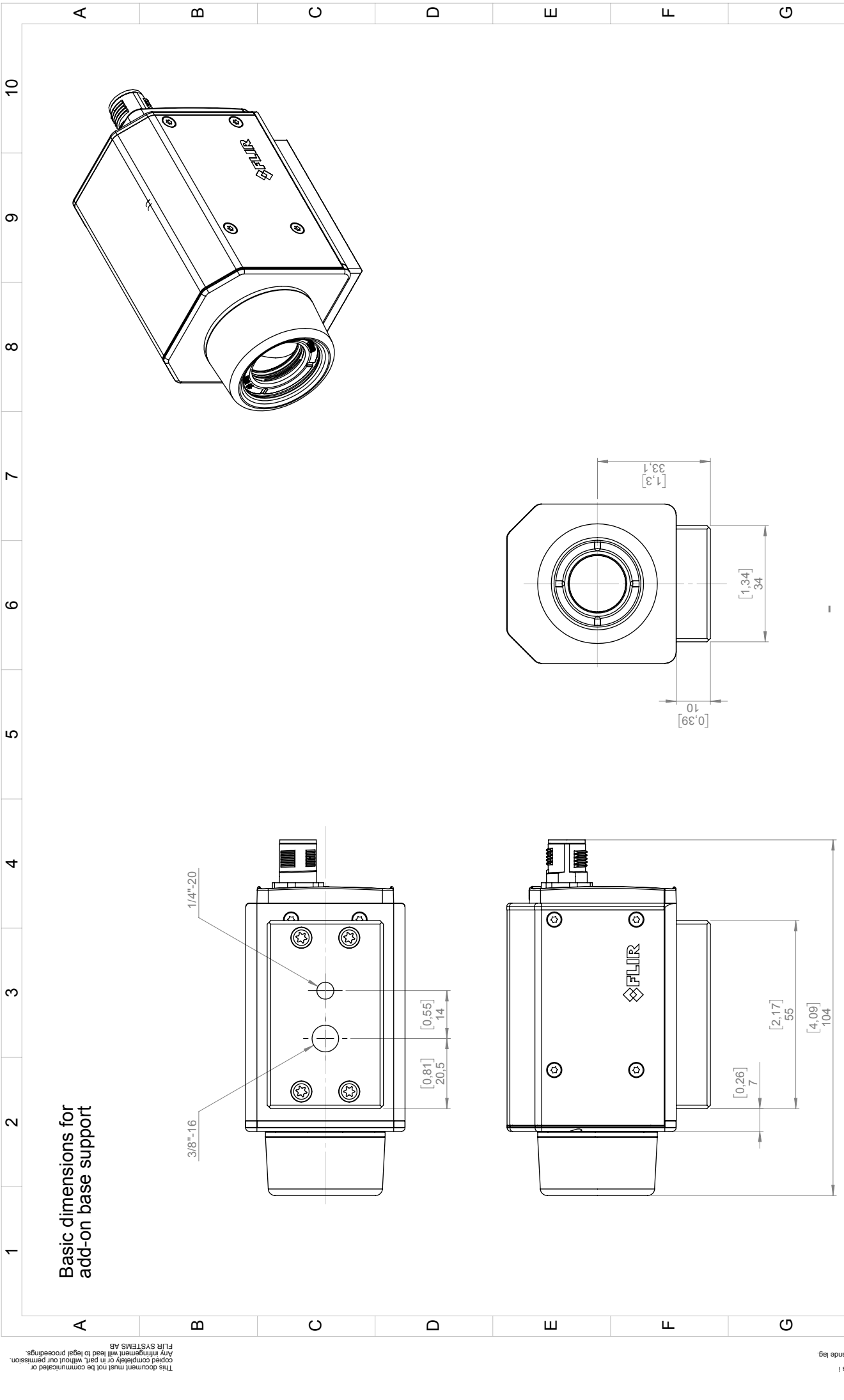
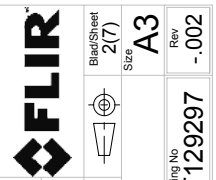
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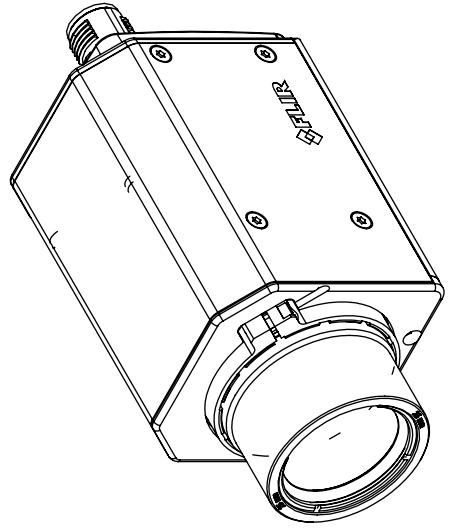
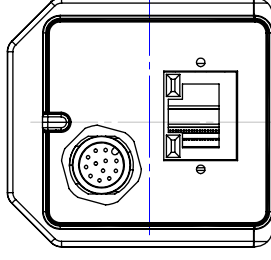
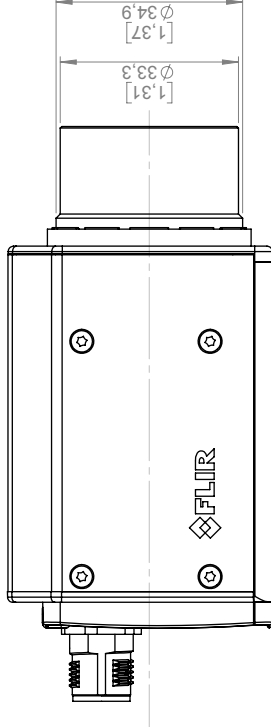
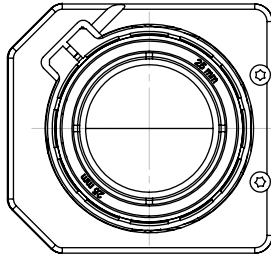
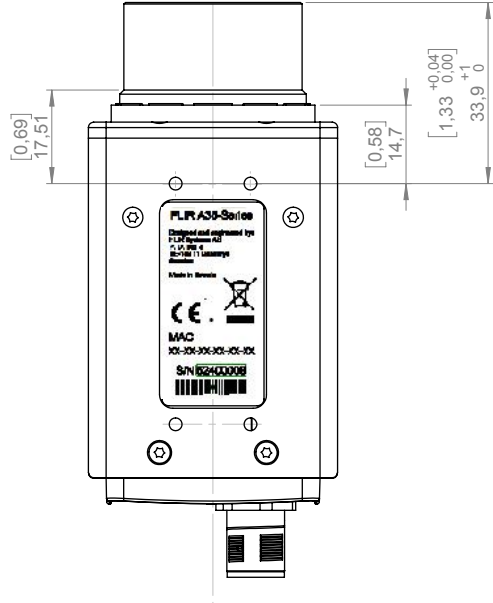
Basic dimensions for
add-on base support



Konstr/Drawn P. MARCUS		Datum/Date 2015-12-14	Kontr/Check -	Material -
Ändrad av/Modified by P. MARCUS		Ändrad/Modified 2016-10-18	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment µm
Där ej annat anges/Unless otherwise stated Utdrag ur/Excerpt from ISO 2768-m		Scale/Scale 1:1		
0,5-6 ±0,1 Hålkälsradier (60)-30 ±0,2 Filer radii (120)-400 ±0,5 Kantler brutna (400)-1000 ±0,8 Edgcs broken		Blad/Sheet 2(7)		
Seri/Serial No. T129297		Rev A3		
Part/Part No. T129297		Title Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm		



Basic dimensions:
 Camera with focal length
 f=25 mm IR lens.
 Only dimensions valid for
 this IR lens.
 For all other dimensions see pages
 1 and 2.

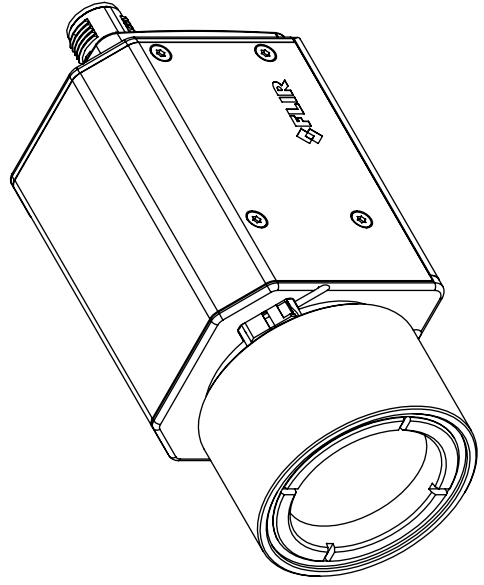
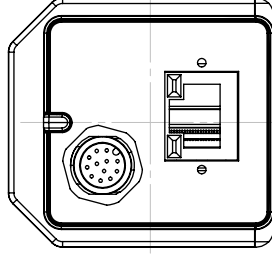
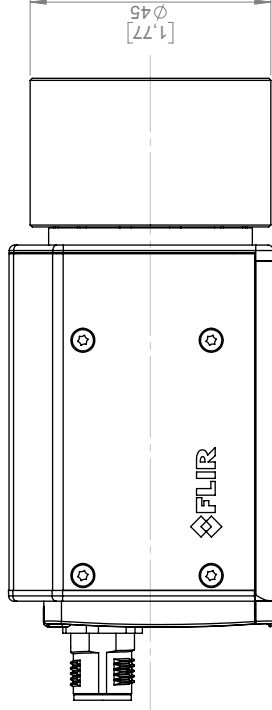
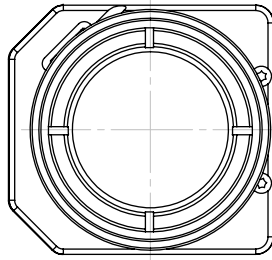
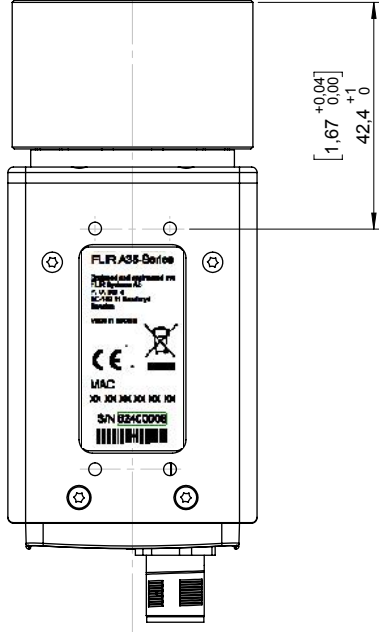


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Konstr/Drawn P. MARCUS	Datum/Date 2015-12-14	Kontr/Check -	Material -
Ändrad av/Modified by P. MARCUS	Ändrad/Modified 2016-10-18	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment µm
Övrigt utifrån ISO 2768-m 0.5-6 6.3-30 120-400 400-1000	Benämning/Denomination Basic dimensions Ax5 w. flag shutter f=7.5 mm to f=100 mm	Scale/Scale 1:1	Blad/Sheet 3(7)
Genfel ISO 2768-m ±0.1 Hållarsradier ±0.2 Filter radii ±0.5 Kanter brutna ±0.8 Edges broken	Rev A3	ArtNo. T129297	Rev -002

Basic dimensions:
 Camera with focal length
 f=35 mm IR lens.
 Only dimensions valid for
 this IR lens.
 For all other dimensions see pages
 1 and 2.

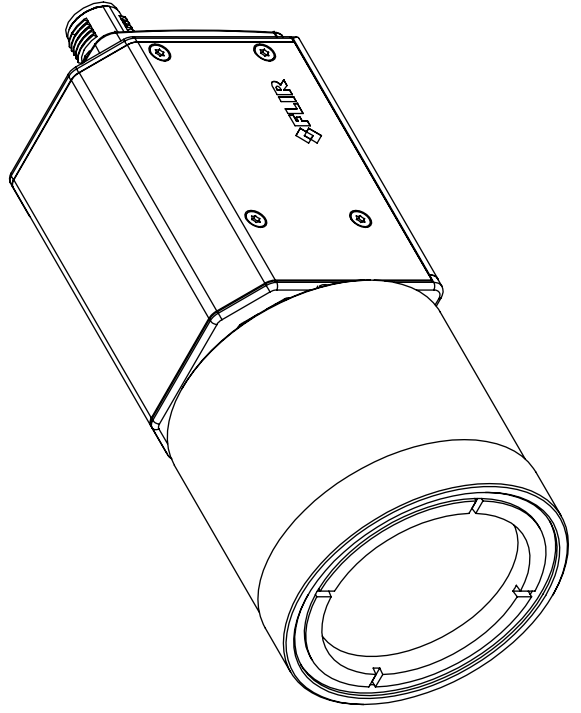
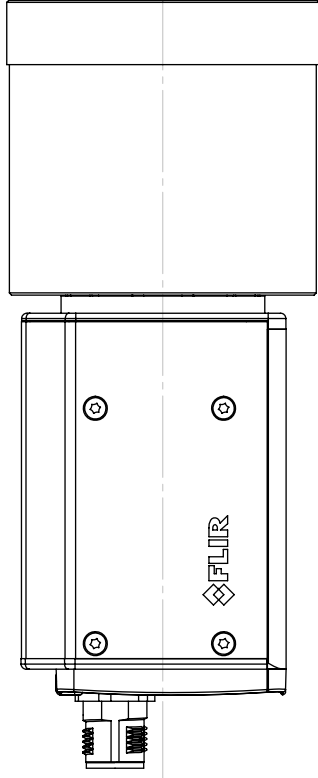
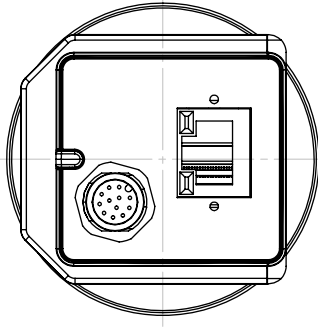
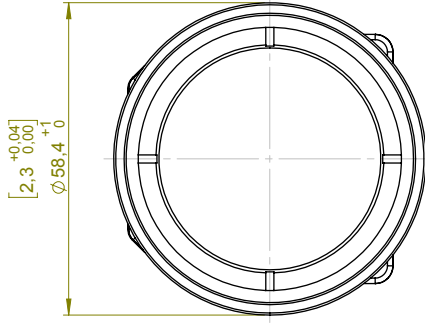
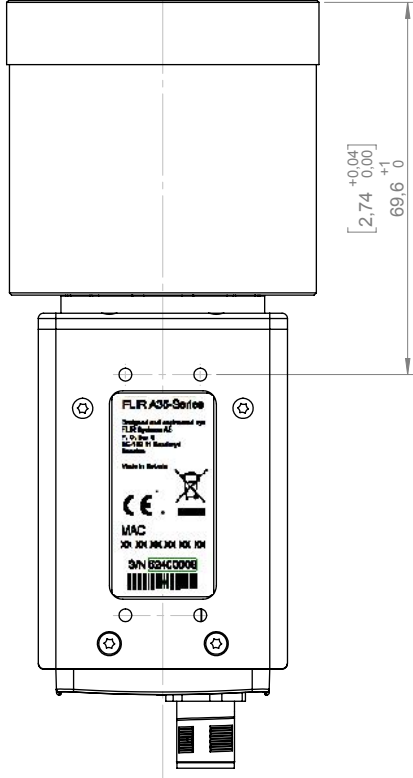


Konstr/Drawn	P. MARCUS	Kontr/Check	-	Material	-
Datum/Date	2015-12-14	Ytjämnhet/Roughness	µm	Ytbehandling/Surface treatment	
Ändrad/Modified	2016-10-18	Ra			
Benämning/Denomination	Basic dimensions Ax5 w. flag shutter				

Blad/Sheet	4(7)
Storlek/Scale	1:1
Rev	A3
Ritning/Drawing No	T129297
Part No.	-002

Där ej annat anges/Unless otherwise stated	
Utdrag ur/except from ISO 2768-m	
0.5-6	±0.1
6.5-30	Höjlsradier
30-120	±0.2
120-400	Filter radi
400-1000	±0.5
(400)-1000	Kanter brutna
	±0.8
	Edgess broken

Basic dimensions:
 Camera with focal length
 f=50 mm IR lens.
 Only dimensions valid for
 this IR lens.
 For all other dimensions see pages
 1 and 2.



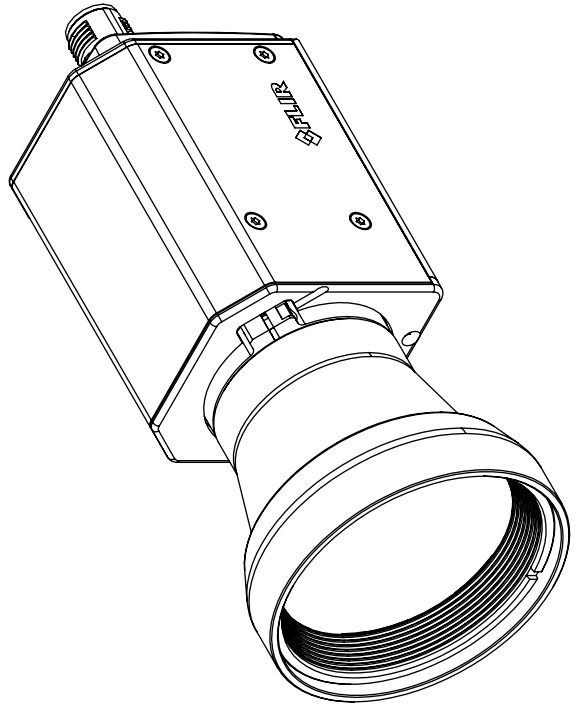
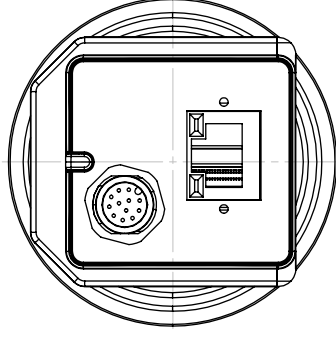
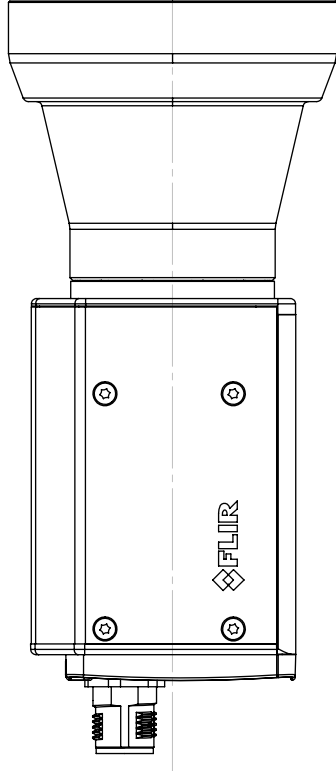
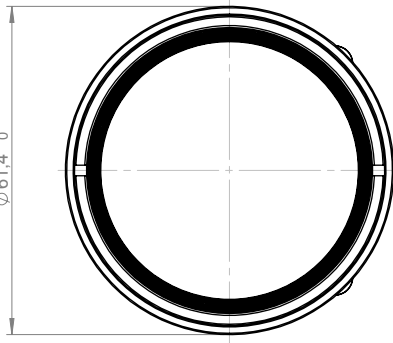
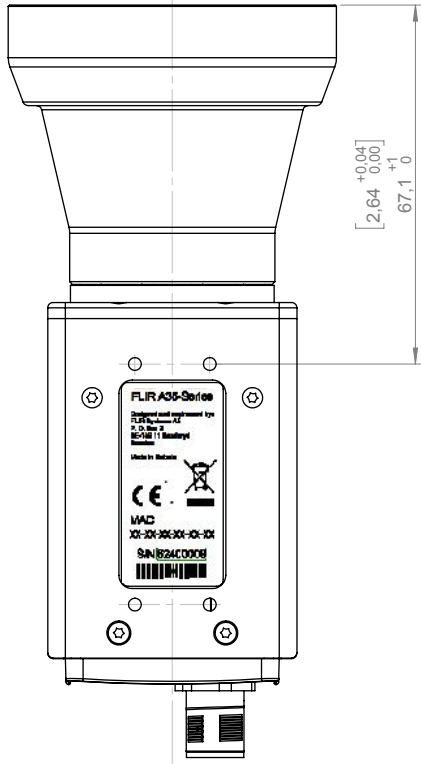
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Konstr/Drawn P. MARCUS		Datum/Date 2015-12-14	Kontr/Check -	Material -
Ändrad av/Modified by P. MARCUS		Ändrad/Modified 2016-10-18	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment µm
Där ej annat anges/Unless otherwise stated Utdrag ur/except from ISO 2768-m		Benämning/Denomination Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm		
0,5-6 (6)-30 (120)-400 (400)-1000		Hålkalibrer +0,1 +0,2 +0,5 +0,8		
-		Kantlar brutna Edges broken		
-		Stapel/Scale 1:1		
-		Blad/Sheet 5(7)		
-		SIS A3		
-		Rev -002		
-		Ritning/Drawing No. T129297		



Basic dimensions:
 Camera with focal length
 f=60 mm IR lens.
 Only dimensions valid for
 this IR lens.
 For all other dimensions see pages
 1 and 2.

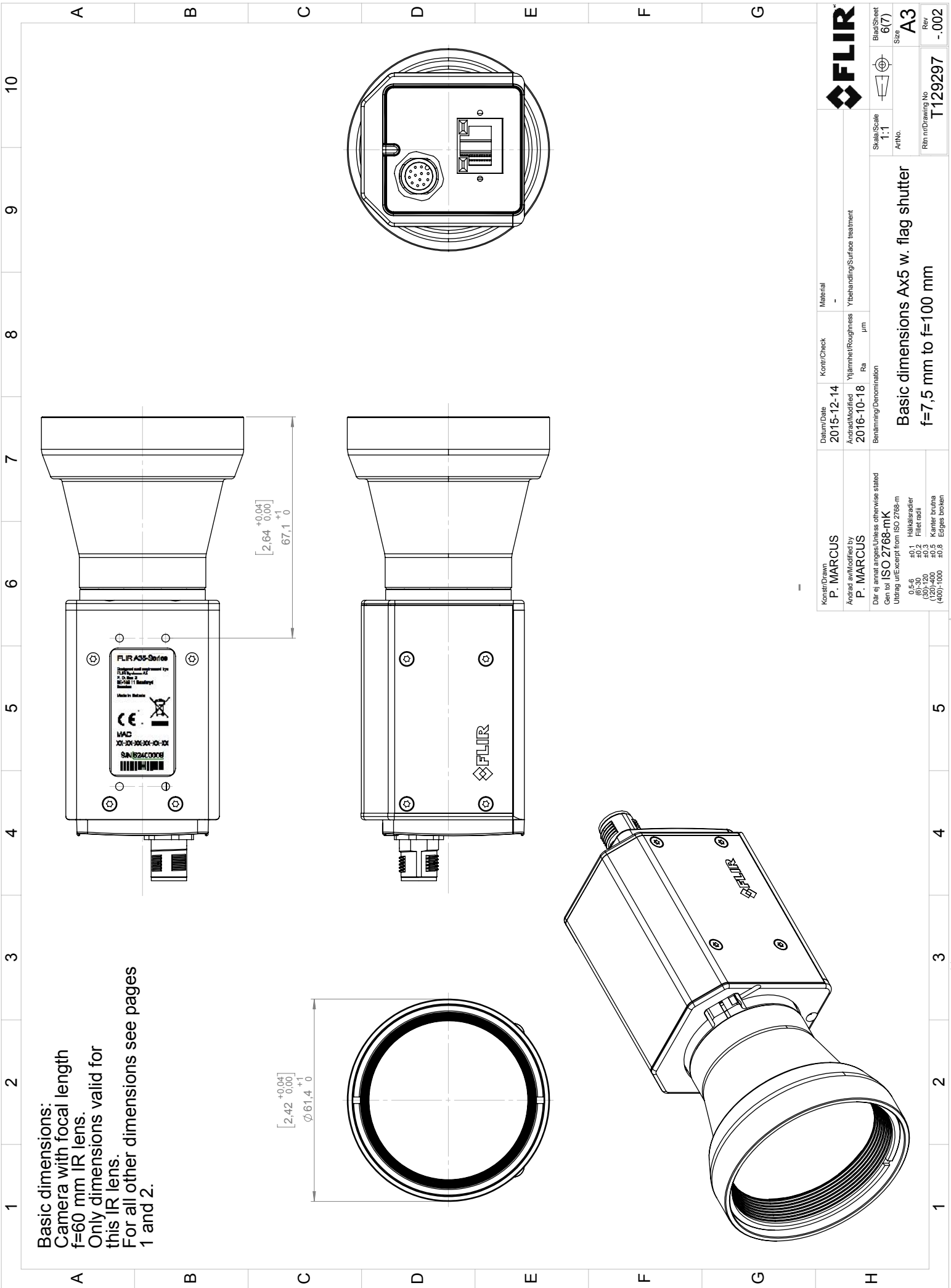


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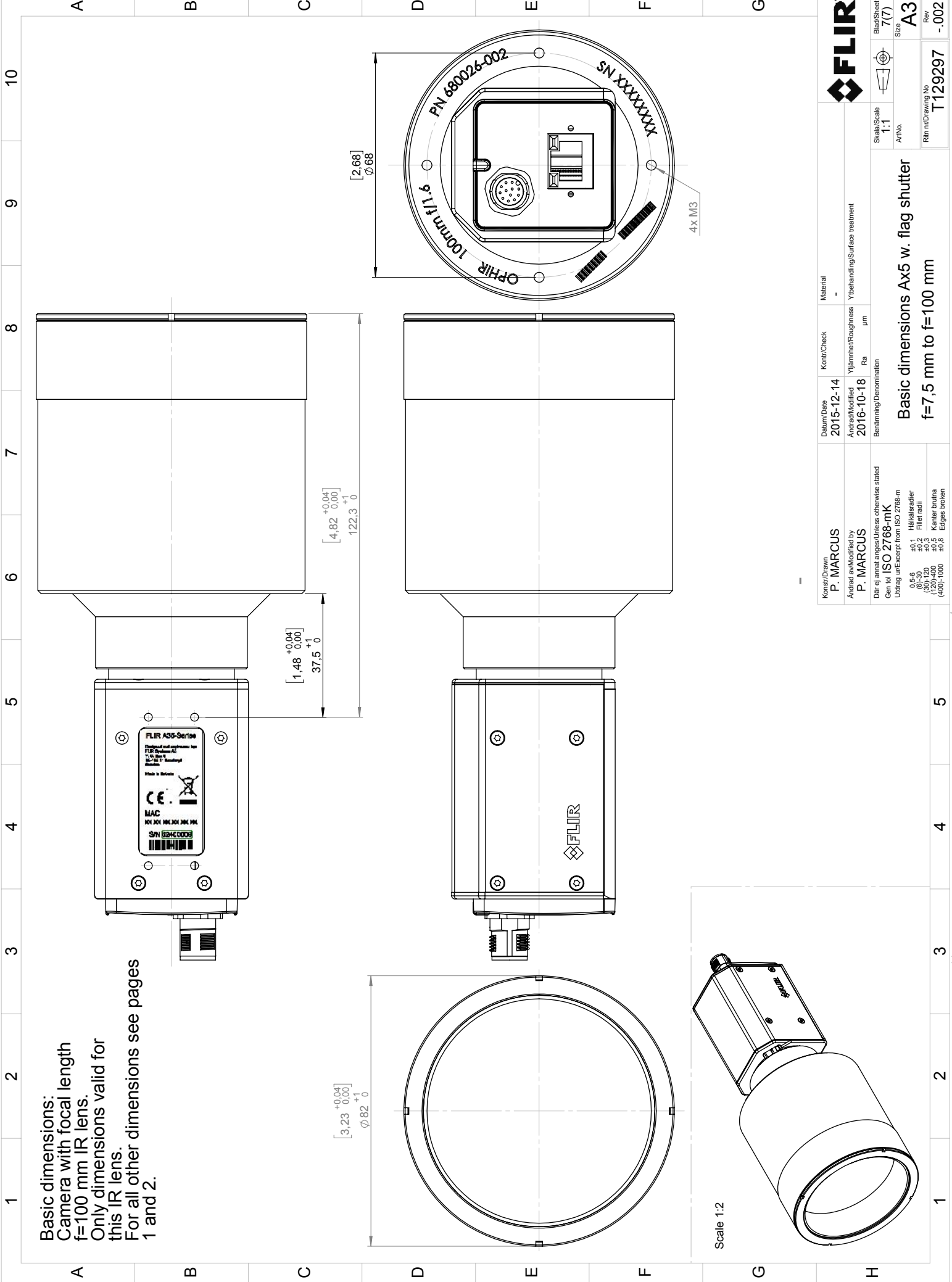
Överlämnelse härav beivras med stöd av gällande lag. FLIR SYSTEMS AB

Den här handling är ett tekniskt dokument. Överlämnelse härav beivras med stöd av gällande lag. FLIR SYSTEMS AB

Konstr/Drawn P. MARCUS	Datum/Date 2015-12-14	Kontr/Check -	Material -
Ändrad av/Modified by P. MARCUS	Ändrad/Modified 2016-10-18	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment µm
Där ej annat anges/Unless otherwise stated Utdrag ur/Excerpt from ISO 2768-m	Benämning/Denomination	Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm	
0.5-6 6.3-30 120-400 400-1000	+0.1 +0.2 +0.5 ±0.8	Hål/sår/radii Kantler brutna Edgse broken	
Scale/Scale 1:1		Blad/Sheet 6(7)	
Artno. T129297		SIS A3	
Rev -		Rin nr/Drawing No -002	



Basic dimensions:
 Camera with focal length
 f=100 mm IR lens.
 Only dimensions valid for
 this IR lens.
 For all other dimensions see pages
 1 and 2.



FLIR		Blad/Sheet 7(7)		Scale/Scale 1:1	
Konstr/Drawn P. MARCUS		Kontr/Check -		Material -	
Datum/Date 2015-12-14		Ytämhet/Roughness Ra		Ytbehandling/Surface treatment	
Ändrad av/Modified by P. MARCUS		Benämning/Denomination		Artno. T129297	
Där ej annat anges/Unless otherwise stated		Utdrag ur/Excerpt from ISO 2768-m		Rin nr/Drawing No. T129297	
0.5-6		±0.1		Höjlsradier	
(0.5)-20		±0.2		Fileradii	
(120)-400		±0.5		Kantler brutna	
(400)-1000		±0.8		Kantler brutna	
				Edges broken	
Basic dimensions Ax5 w. flag shutter f=7.5 mm to f=100 mm				Rev -002	



The World's Sixth Sense™

May 25, 2018 Täby, Sweden

AQ320295

CE Declaration of Conformity – EU Declaration of Conformity

Product: FLIR Ax5 -series

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 Ax5 -series.

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

Directives:

Directive: 2011/65/EU

RoHS

Directive 2014/30/EU

Electromagnetic Compatibility

Standards:

Emission: EN 61000-6-3:2007

EMC Emission residential, commercial, light-industrial

Immunity: EN 61000-6-2:2005

EMC Immunity for industrial environments

FLIR Systems AB

Quality Assurance

Lea Dabiri

Quality Manager