

P/N: 75050-0101

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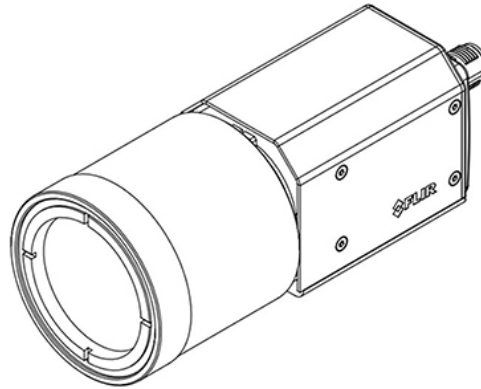
<http://www.flir.com>

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	
<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, Stemmers 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)	12.4° × 9.92°
Minimum focus distance	1.5 m (59 in.)
Focal length	50 mm (2 in.)
Spatial resolution (IFOV)	0.340 mrad
F-number	1.2
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



FLIR A65 FOV 12.4 (30 Hz, ver. 2016)

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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;"> <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 x W x H)	144.1 x 58.4 x 58.4 mm (5.7 x 2.3 x 2.3 in.)
Tripod mounting	1 x UNC ¼"-20 (with Base support accessory, included in the delivery box)
Base mounting	4 x 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 • Printed documentation
EAN-13	7332558012314
UPC-12	845188013424
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)
- T127605ACC; Cable M12 Pigtail



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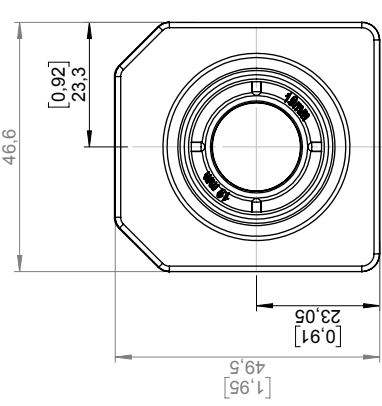
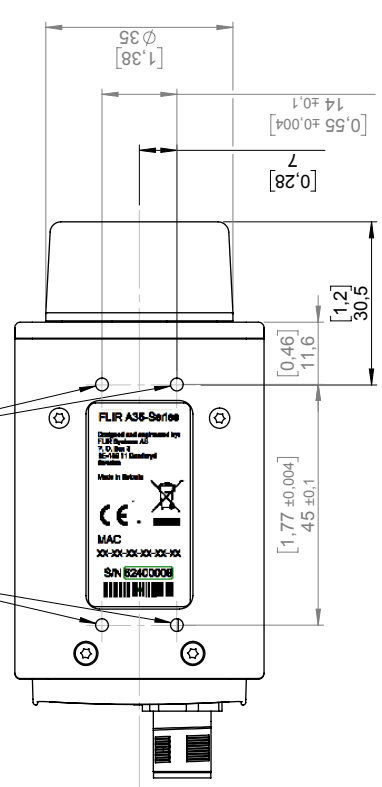
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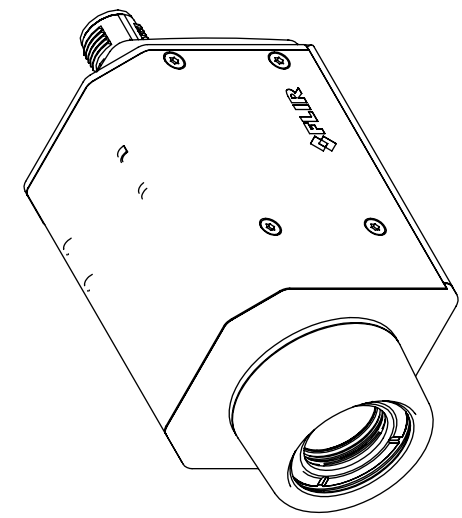
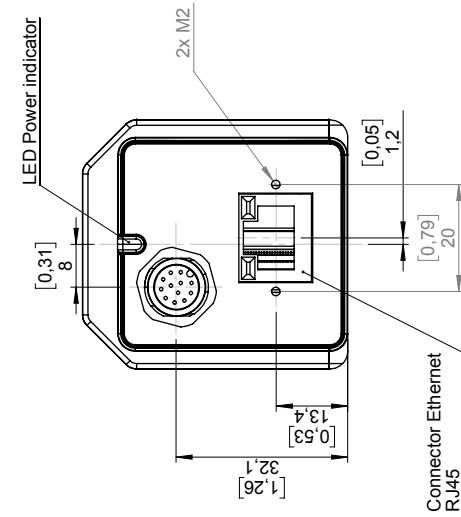
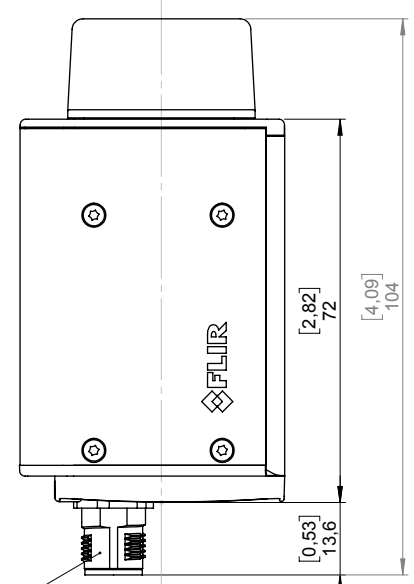
- T127606ACC; Cable M12 Sync
- T199698; Environmental housing for Ax5
- T199356; FLIR Ax5 accessory starter kit
- T911183; Gigabit PoE injector 16 W, with multi-plugs
- T198392; Table stand kit
- T198594ACC; Transport case Ax5
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB
- INST-EW-0135; Extended Warranty 1 Year for A35, A65
- INST-EWGM-0135; Extended Premier Warranty 1 Year for A35, A65, E50, E60, E63, E53, E75, E85, E95
- INST-GM-0125; Calibration incl General Maintenance for A35, A65, E30, E33, E40, E50, E60, E63, E53, E75, E85, E95, 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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Size
A3
Rev
-002

Sheet/Scale
1:1
ARNO.

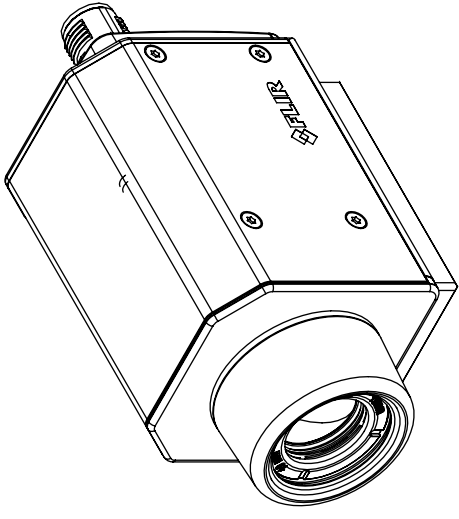
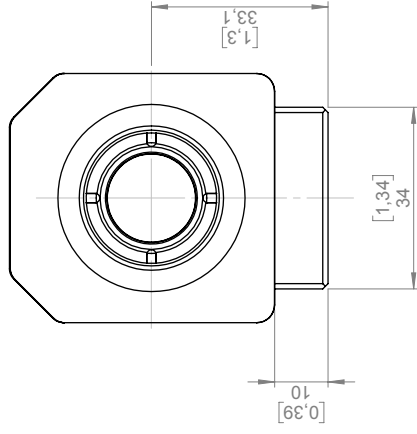
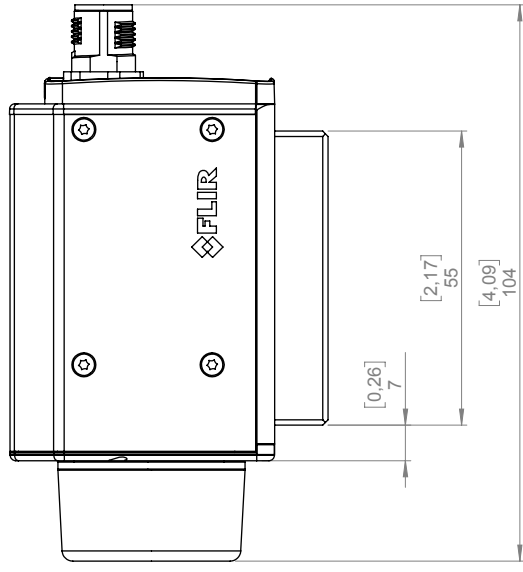
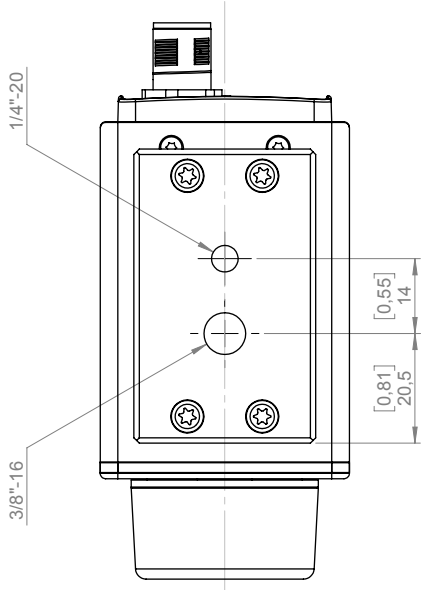
Rlin nr/Drawing No
T129297

Konstr/Drawn P. MARCUS	Datum/Date 2015-12-14	Kontri/Check -	Material -
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Benämning/Denomination Basic dimensions Ax5 w. flag shutter f=7.5 mm to f=100 mm			

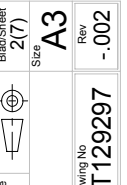
Dir ej ansvar ägare/Unless otherwise stated
Gen tol ISO 2768-mK
Utdrag ur/Excerpt from ISO 2768-m

0,5-6 ±0,1 Hållisradier
(6)-30 ±0,2 Fillet radii
(120)-400 ±0,5 Kanter brutna
(400)-1000 ±0,8 Edges broken

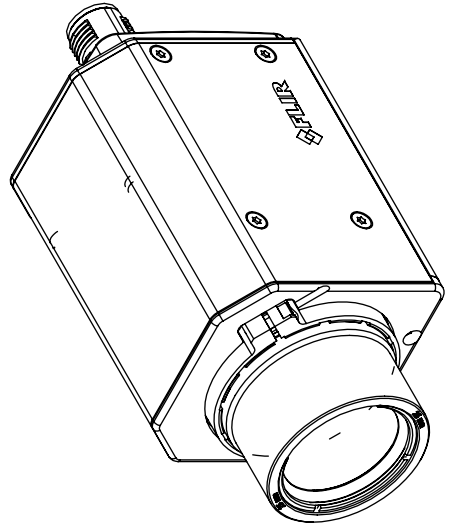
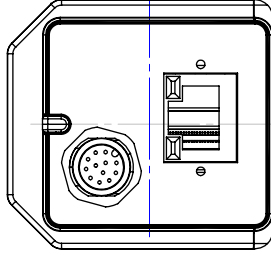
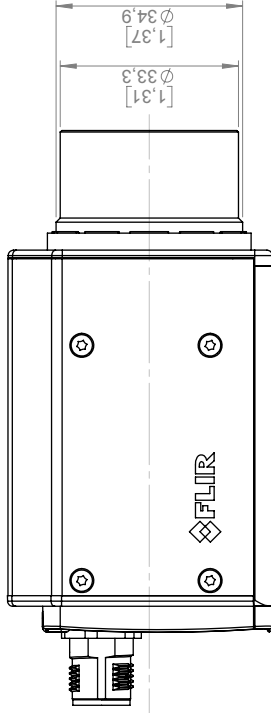
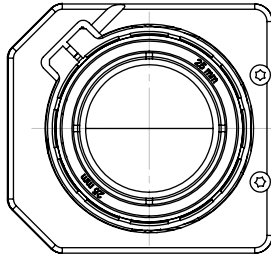
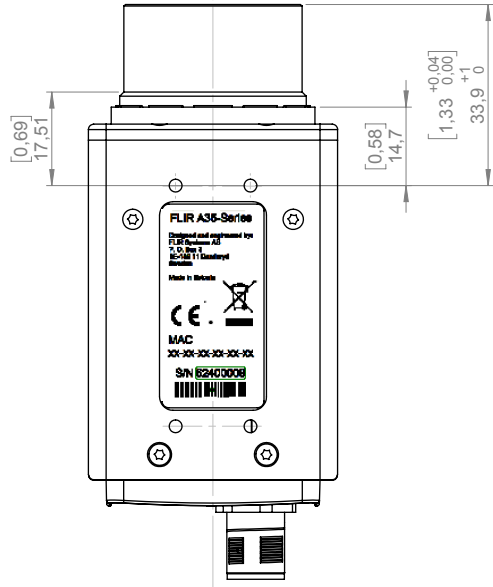
Basic dimensions for add-on base support



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
Cent till ISO 2768-mK Utdrag utifrån ISO 2768-m 0,5-6 ±0,1 Hållarsradier (6)-30 ±0,2 Fillet radii (120)-400 ±0,5 Kanter brutna (400)-1000 ±0,8 Edgcs broken	Benämning/Denomination	Scale/Scale 1:1	Blad/Sheet 2(7)
Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm			Rev A3
Rin nr/Drawing No T129297			Part No. -002



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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Ändrad av/Modified by P. MARCUS		Ändrad/Modified 2016-10-18	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment µm
Gen tel ISO 2768-mK Utöver utfr except from ISO 2768-m		Benämning/Denomination Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm		
0.5-6 0.1-30 0.2-400 0.5-1000 ±0.1 Hållarsradier ±0.2 Filter radii ±0.5 Kanter brutna ±0.8 Edges broken		Scale/Scale 1:1		
		Blad/Sheet 3(7)		
		Rev A3		
		Ritning/Drawing No. T129297		



Scale/Scale
1:1

Blad/Sheet
3(7)

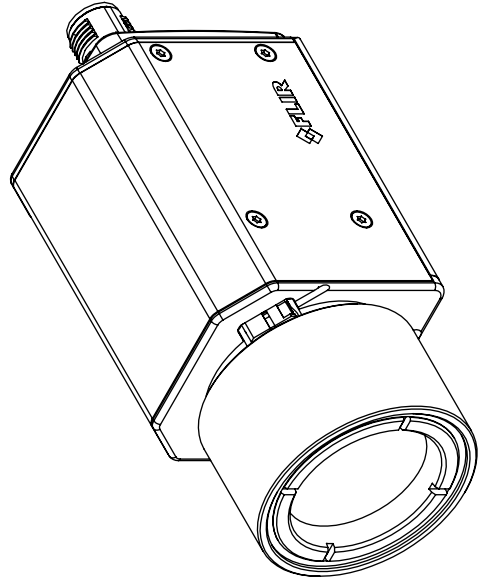
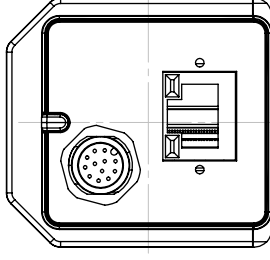
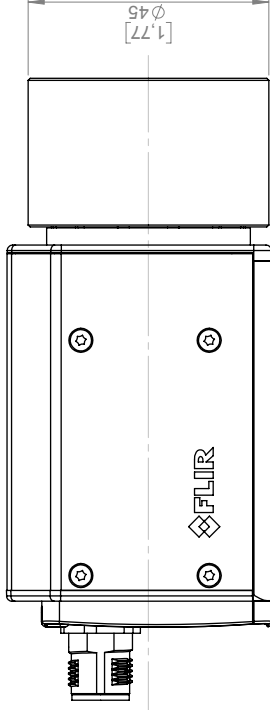
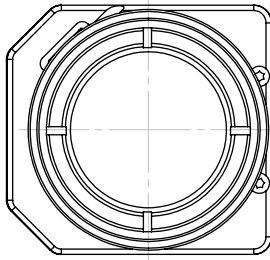
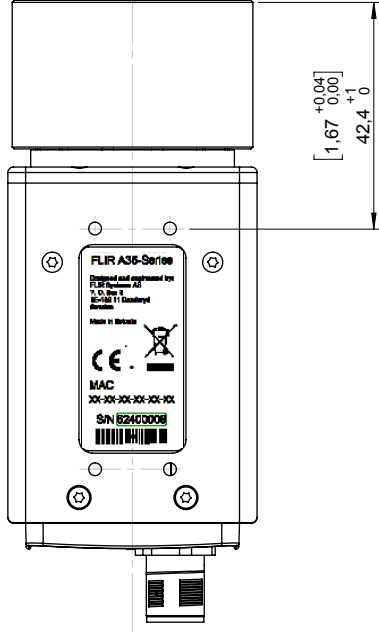
Rev
A3

Ritning/Drawing No.
T129297

Basic dimensions Ax5 w. flag shutter
f=7,5 mm to f=100 mm

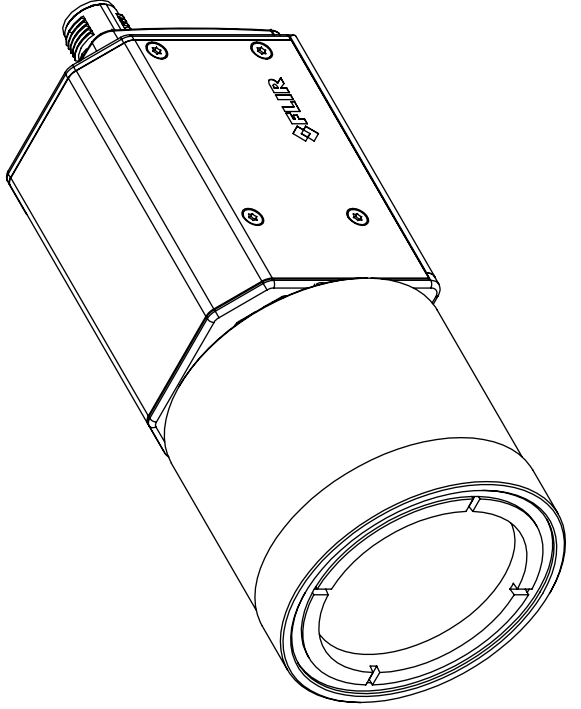
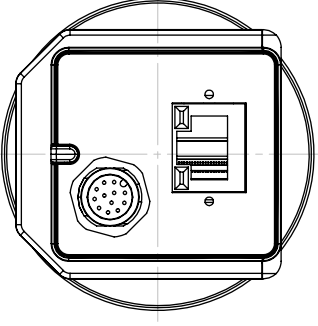
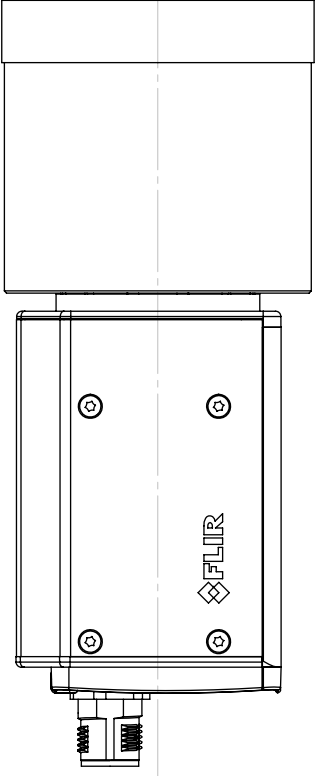
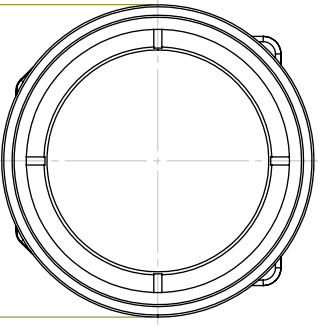
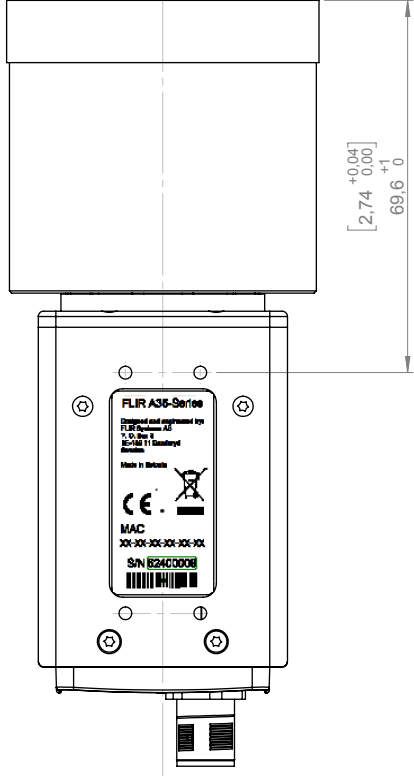
Benämning/Denomination
**Basic dimensions Ax5 w. flag shutter
f=7,5 mm to f=100 mm**

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	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 Utgång ur/except from ISO 2768-m 0,5-6 ±0,1 Hållradier 6,3-30 ±0,2 Fillet radii 120-400 ±0,5 Kanter brutna (400)-1000 ±0,8 Edgese broken			
Benämning/Denomination Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm			

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.



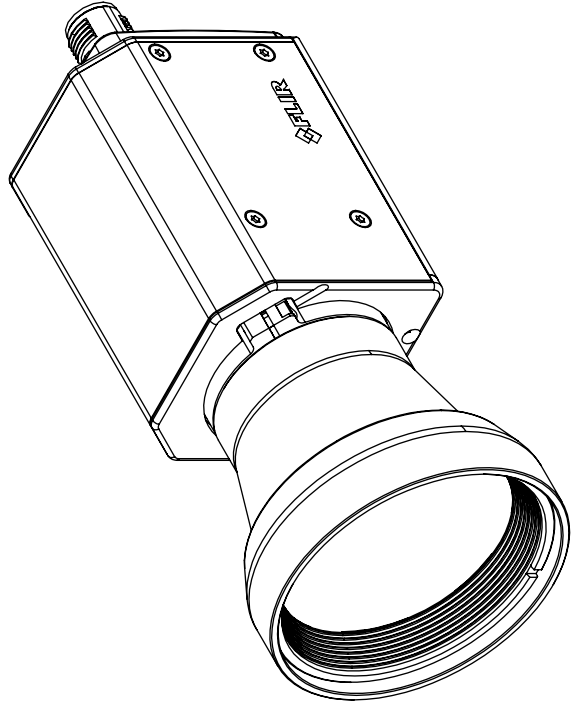
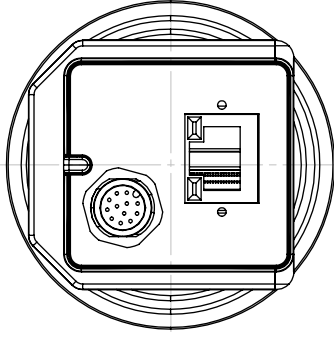
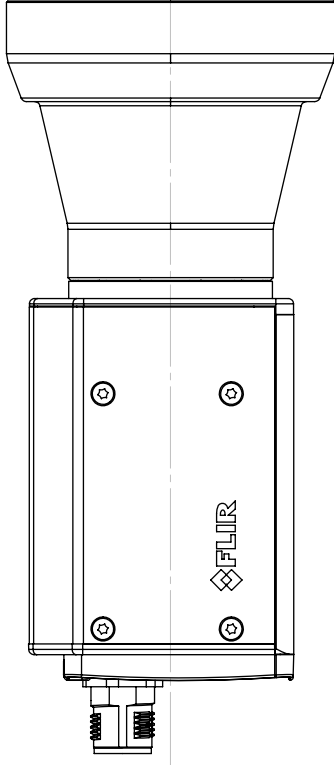
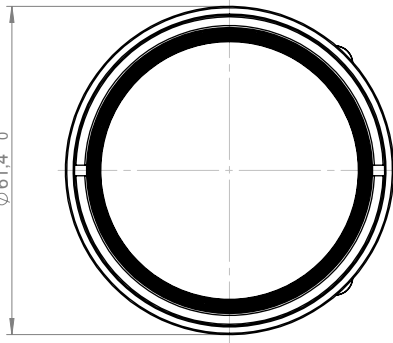
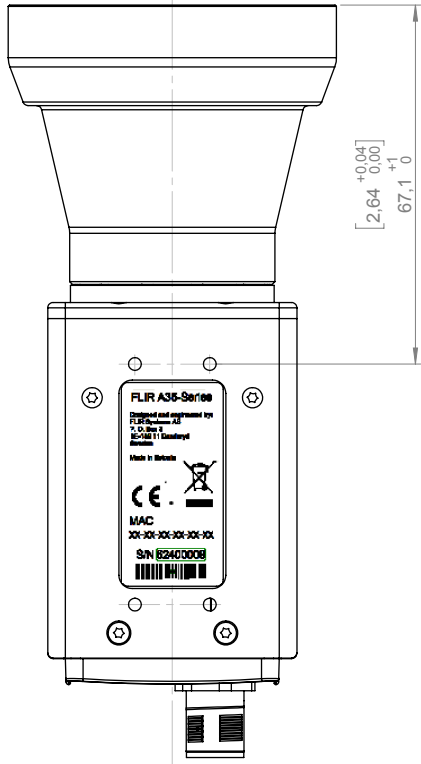
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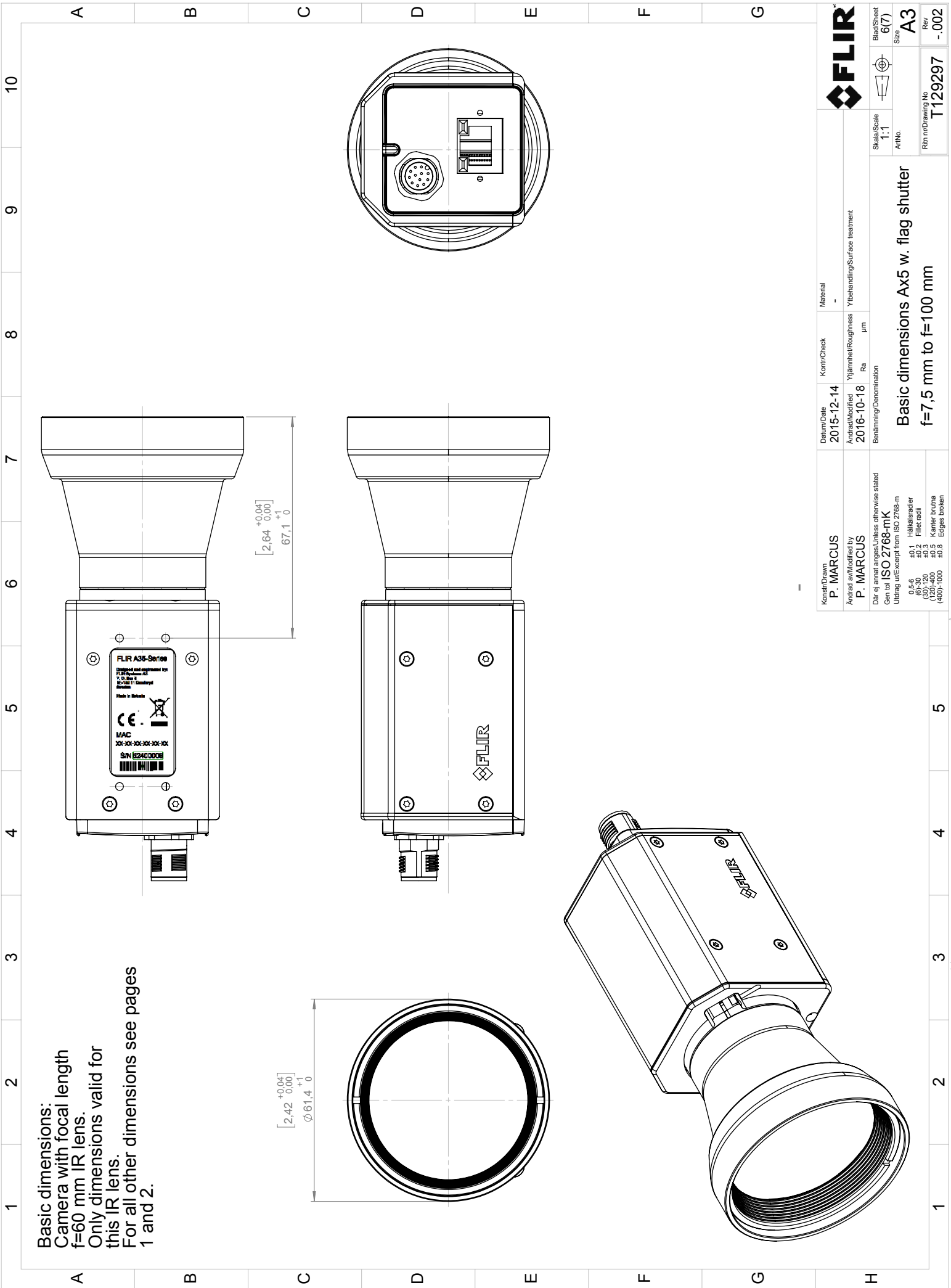
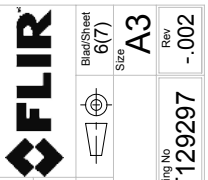
Konstr/Drawn P. MARCUS		Datum/Date 2015-12-14	Kontr/Check -	Material -
Ändrad av/Modified by P. MARCUS		Ändrad/Modified 2016-10-18	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment µm
Där ej annat anges/Unless otherwise stated Utdrag ur/Excerpt from ISO 2768-m		Benämning/Denomination Basic dimensions Ax5 w. flag shutter f=7.5 mm to f=100 mm		
0.5-6 6.3-30 30-120 120-400 400-1000		±0.1 Hållslärdier ±0.2 Filter radii ±0.5 Kanter brutna ±0.8 Edges broken		
Stapel/Scale 5(7)		ARNo. T129297		
Blad/Sheet A3		Rev -002		
Ritning/Drawing No. T129297		Scale/Scale 1:1		



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.

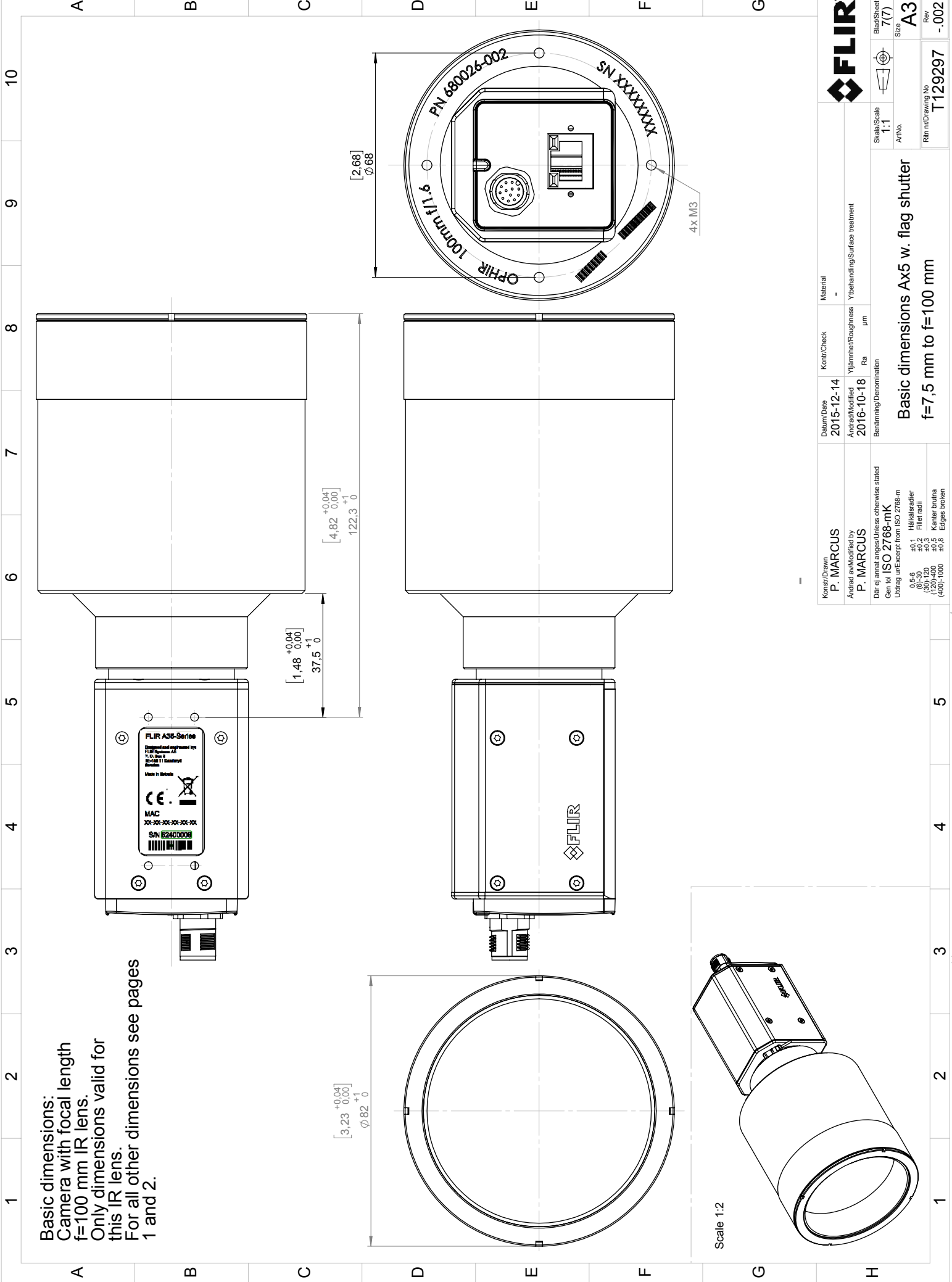


Konstr/Drawn P. MARCUS		Datum/Date 2015-12-14	Kontr/Check -	Material -
Ändrad av/Modified by P. MARCUS		Ändrad/Modified 2016-10-18	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment µm
Där ej annat anges/Unless otherwise stated		Benämning/Denomination		
Utdrag ur/Excerpt from ISO 2768-m		Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm		
0,5-6 (6,3)-30 (120)-400 (400)-1000		±0,1 Hållarsradier ±0,2 Filter radii ±0,5 Kanter brutna ±0,8 Edgese broken		
Blad/Sheet 6(7)		Skala/Scale 1:1		Rev A3
SIS		Artno. T129297		Ritning/Drawing No. T129297



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

Basic dimensions:
 Camera with focal length
 f=100 mm IR lens.
 Only dimensions valid for
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Scale/Scale 1:1		ArtNo. T129297		Rin nr/Drawing No. T129297			
Konstr/Drawn P. MARCUS	Datum/Date 2015-12-14	Kontr/Check -	Material -	Basic dimensions Ax5 w. flag shutter f=7.5 mm to f=100 mm			
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							
0.5-6							
6.3-30							
(120)-400							
(400)-1000							
±0.1							
±0.2							
±0.5							
±0.8							

CE Declaration of Conformity

This is to certify that the System listed below have 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 AXX series**

FLIR Systems AB
Quality Assurance



Björn Svensson
Director