

## P/N: 75050-0101

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### Document identity

Publ. No.: 75050-0101

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### Website

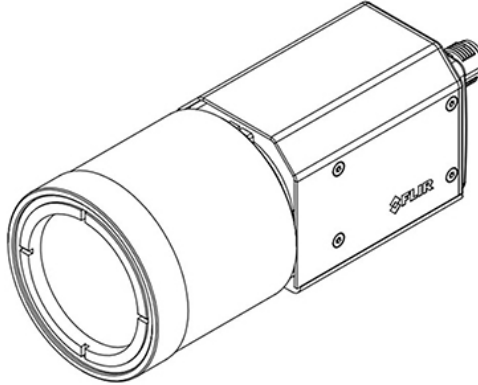
<http://www.flir.com>

### 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](mailto: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"> <li>• Very affordable.</li> <li>• Compact</li> <li>• GigE Vision and GenICam compliant.</li> <li>• GigE Vision lockable connector.</li> <li>• PoE (power over Ethernet).</li> <li>• 8-bit 640 × 512 pixel images streamed at 30 Hz, signal linear</li> <li>• 14-bit 640 × 512 pixel images streamed at 30 Hz, signal and temperature linear</li> <li>• Synchronization between cameras possible.</li> <li>• 1x+1x GPIO.</li> <li>• Compliant with any software that supports GenICam, including National Instruments IMAQ Vision, Stammers Common Vision Blox, and COGNEX Vision Pro.</li> </ul>	
Typical applications:	
<ul style="list-style-type: none"> <li>• Automation and thermal machine vision.</li> <li>• Entry level "high-speed" R&amp;D.</li> </ul>	
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°
Focal length	50 mm (2 in.)
Spatial resolution (IFOV)	0.340 mrad
F-number	1.2
Image frequency	30 Hz
Focus	Fixed

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<b>Detector data</b>	
Detector type	Focal plane array (FPA), uncooled VOX microbolometer
Spectral range	7.5–13 $\mu\text{m}$
Detector pitch	17 $\mu\text{m}$
Detector time constant	Typical 12 ms
<b>Measurement</b>	
Object temperature range	<ul style="list-style-type: none"> <li>–25 to +135°C (–13 to 275°F)</li> <li>–40 to +550°C (–40 to +1022°F)</li> </ul>
Accuracy	$\pm 5^\circ\text{C}$ ( $\pm 9^\circ\text{F}$ ) or $\pm 5\%$ of reading
<b>Measurement analysis</b>	
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
<b>Ethernet</b>	
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"> <li>Signal linear/ DDE</li> <li>Automatic/ Manual</li> <li>Flip H&amp;V</li> </ul> 14-bit 640 x 512 pixels @ 30 Hz <ul style="list-style-type: none"> <li>Signal linear/ DDE</li> <li>Temperature linear</li> </ul> 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
<b>Digital input/output</b>	
Digital input, purpose	General purpose
Digital input	1x opto-isolated, "0" <1.2 VDC, "1" = 2–25 VDC.
Digital output, purpose	General purpose output to ext. device (programmatically set)

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<b>Digital input/output</b>	
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
Synchronization out	1×, 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)
<b>Power system</b>	
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
<b>Environmental data</b>	
Operating temperature range	-15°C to +60°C (+5°F to +140°F)
	<div style="border: 1px solid black; padding: 5px;"> <p> <b>NOTE</b></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"> <li>• EN 61000-6-2 (Immunity)</li> <li>• EN 61000-6-3 (Emission)</li> <li>• FCC 47 CFR Part 15 Class B (Emission)</li> </ul>
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
<b>Physical data</b>	
Camera size (L × W × H)	144.1 × 58.4 × 58.4 mm (5.7 × 2.3 × 2.3 in.)
Tripod mounting	UNC ¼"-20 (on three sides)
Base mounting	4 × M3 thread mounting holes (bottom)
Housing material	Magnesium and aluminum



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

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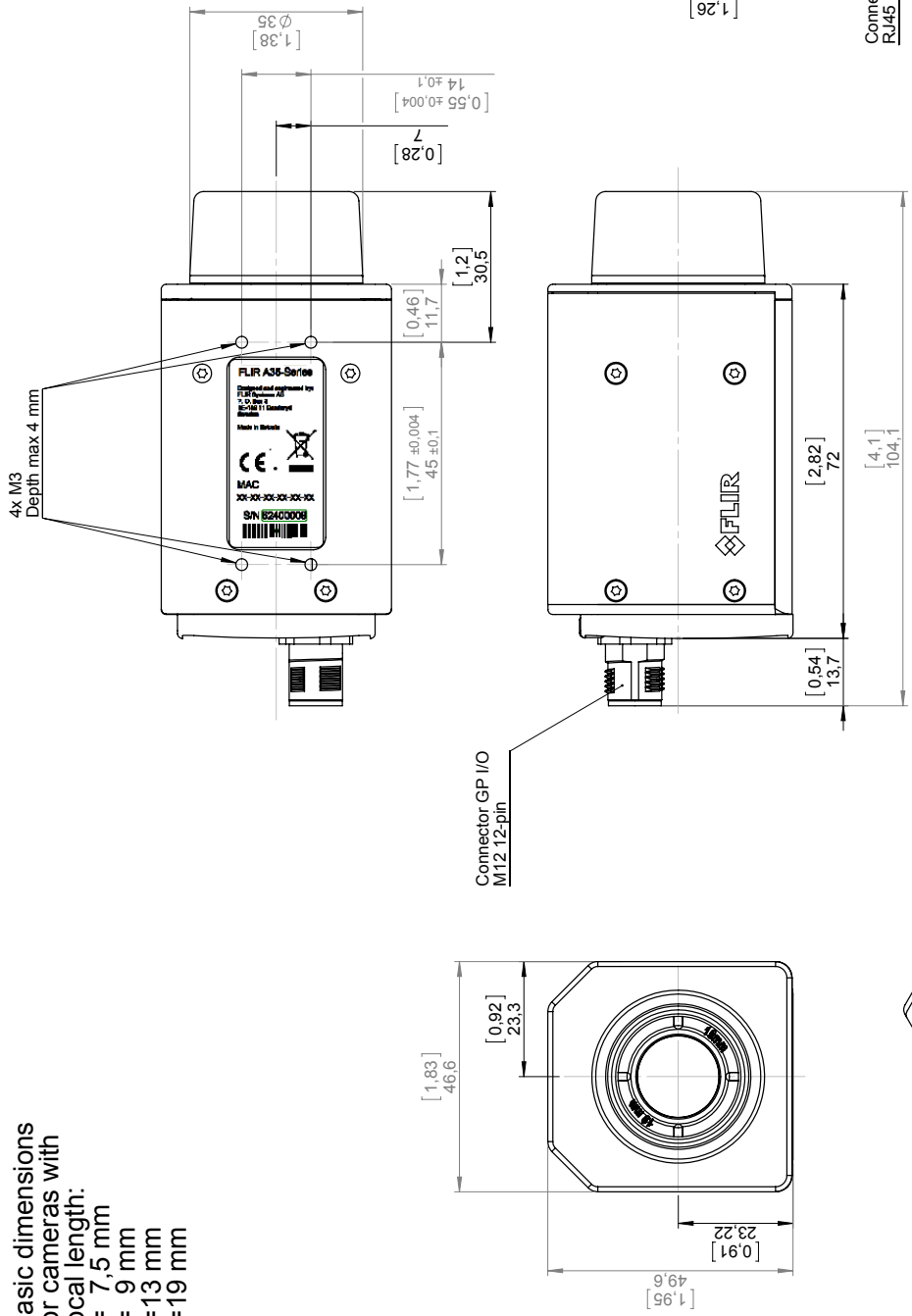
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Shipping information	
Packaging, type	Cardboard box
List of contents	<ul style="list-style-type: none"><li>• Infrared camera with lens</li><li>• Base support</li><li>• Printed documentation</li></ul>
EAN-13	7332558012314
UPC-12	845188013424
Country of origin	Sweden

### Supplies & accessories:

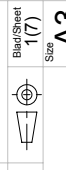
- T951004ACC; Ethernet cable CAT6, 2 m/6.6 ft.
- T198349; Base support
- T198348; Cable kit Mains (UK,EU,US)
- T198392; Table stand kit
- T911183; Gigabit PoE injector 16 W, with multi-plugs
- T127605ACC; Cable M12 Pigtail
- T127606ACC; Cable M12 Sync
- T198594ACC; Transport case Ax5
- T199356; FLIR Ax5 accessory starter kit
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- DSW-10000; FLIR IR Camera Player
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB

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

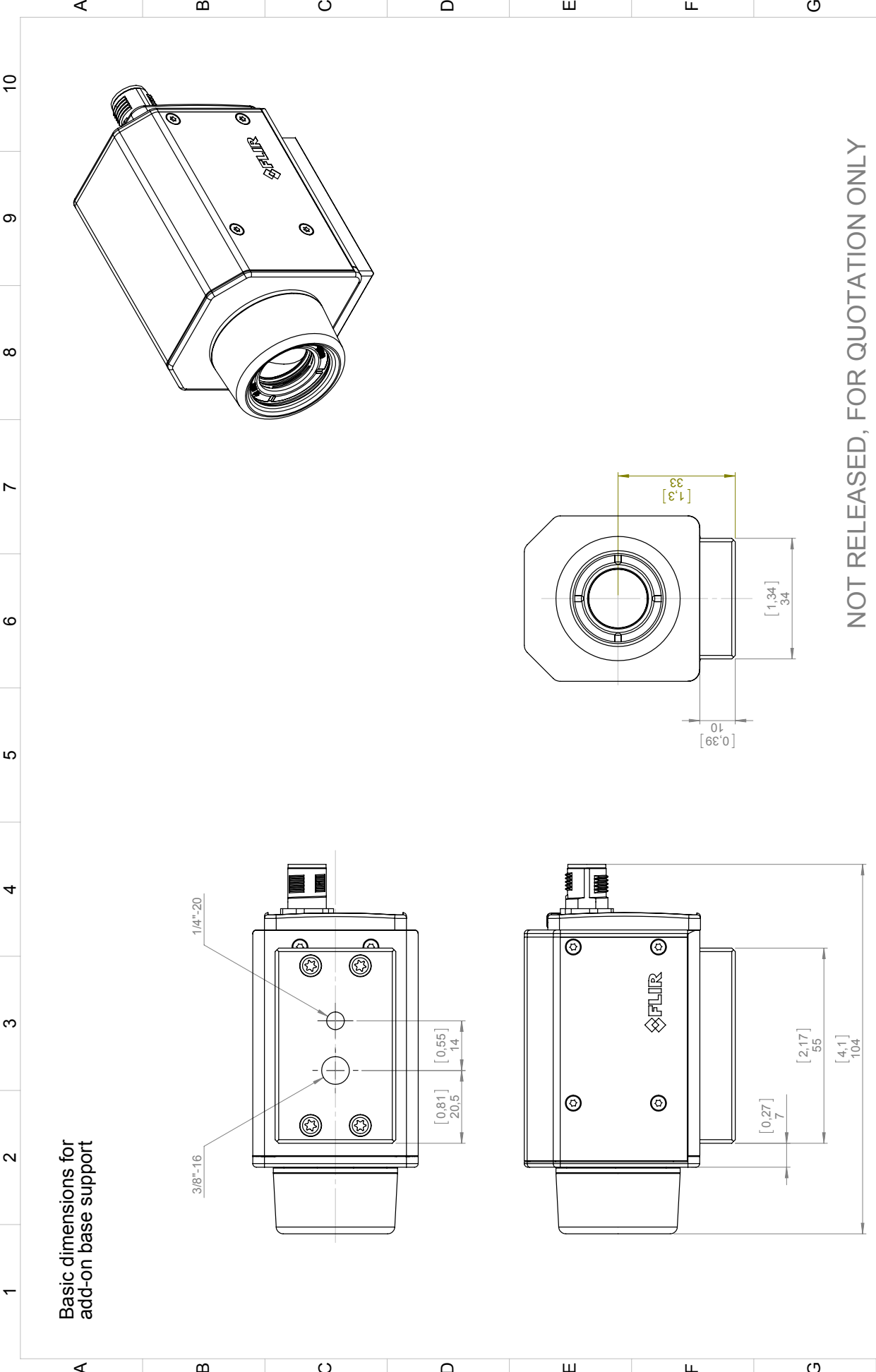


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Konstr/Drawing	P. MARCUS	Kontroll/Check	-	Material	-
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Ändrad av/Modified by	P. MARCUS	Ra	µm	Skala/Scale	1:1
Ändrad av/Modified by	P. MARCUS	Benämning/Denomination		ArtNo.	
Dir. ej ändrad utgåva/Version otherwise stated		Basic dimensions Ax5 w. flag shutter			
Gen. to ISO 2768-mK		f=7,5 mm to f=100 mm			
Utmått ut/Exception from ISO 2768-m					
0,5-6	±0,1	Hållfärdighet		Revidering/Revision	
80-120	±0,2	Fillet radi		Revidering/Revision	
(120)-400	±0,5	Kantfördjupning		Revidering/Revision	
(400)-1000	±0,8	Edges broken		Revidering/Revision	



ArtNo. T129297  
Rev. -002



Basic dimensions for  
add-on base support

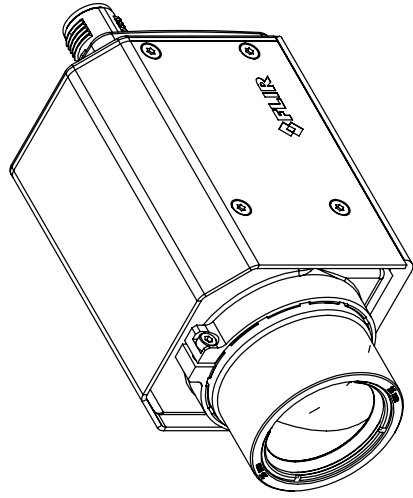
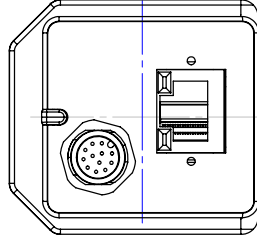
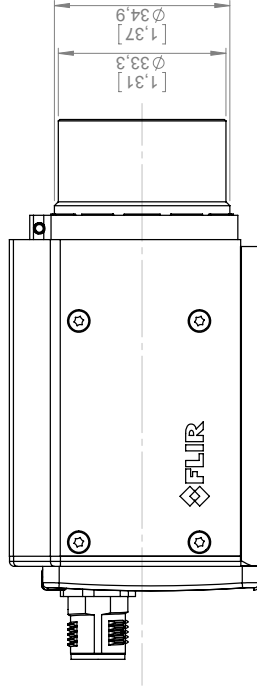
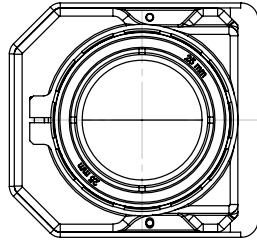
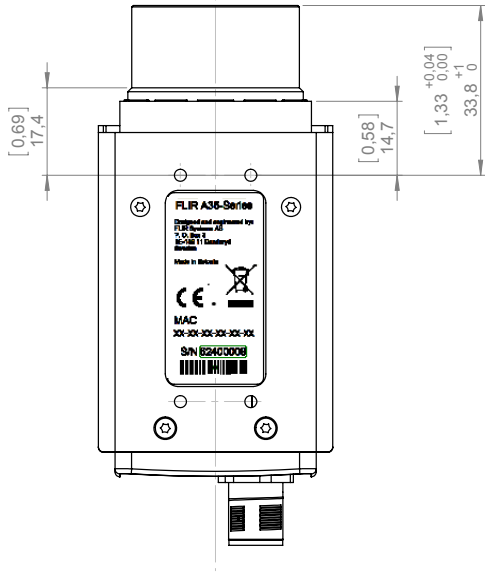
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Använd av/Modified by <b>P. MARCUS</b>		Använd/Modified 2015-12-18		Ytfinish/Roughness Ra		Ytbehandling/Surface treatment -		Skala/Scale 1:1	
Ditt ej annat anges/Unless otherwise stated Genför ISO 2768-mK Utmått ut/Except from ISO 2768-m		Benämning/Denomination <b>Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm</b>		Blad/Sheet 2(7)		AritNö. -		Rev -002	
0,50 ±0,1 Hållåtgärder (30)-120 ±0,3 FLIR-cert. (40)-400 ±0,5 Kontrollera (40)-1600 ±0,5 Edges broken		Ritz/T129297		Ritz/T129297		Ritz/T129297		Ritz/T129297	

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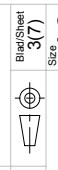
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 eller i sin helhet eller delvis utan vårt medgivande.  
 Om någon ändå gör detta kan det leda till rättsliga  
 åtgärder.

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/Drawing	P. MARCUS		Datum/Date	2015-12-14	Kontroll/Check	-	Material	-
Ändrad av/Modified by	P. MARCUS		Ändrad/Modified	2015-12-18	Ytjämnhet/Roughness	Ra	Y-behandling/Surface treatment	-
Dir. ej annat angavs/Unless otherwise stated	Gen. tol. ISO 2768-mK		Benämning/Denomination	Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm				
UTSÄG ur/Exempt from ISO 2768-m	0,50		Bladd/Sheet Size 3(7)					
0,30	40,1		A3					
(30)-120	40,3		Rev					
(20)-400	40,5		Ritn nr/Drawing No T129297					
(40)-1600	40,6		-002					

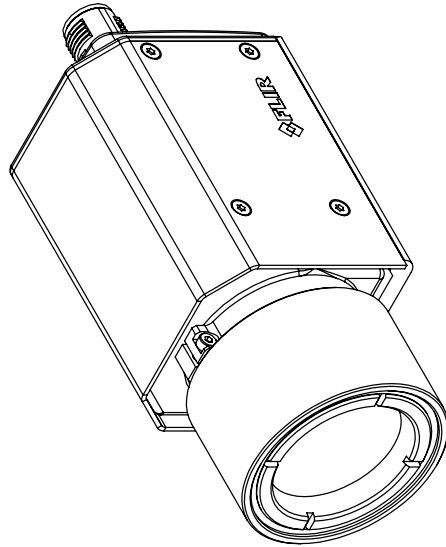
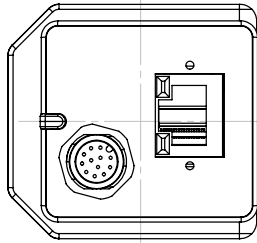
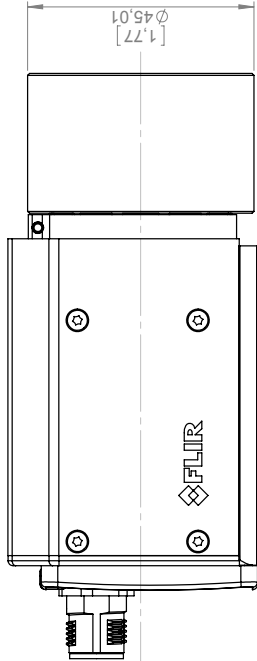
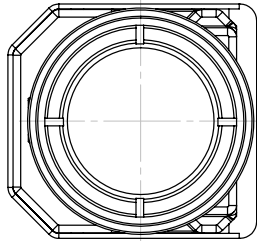
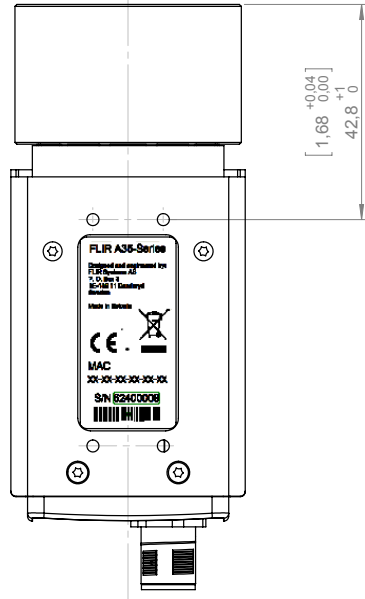


Scale/Scale 1:1  
 ATRN  
 Rev  
 Ritn nr/Drawing No T129297  
 -002

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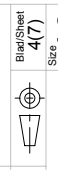
Basic dimensions:  
 Camera with focal length  
 f=35 mm IR lens.  
 Only dimensions valid for  
 this IR lens.  
 For all other dimensions see pages  
 1 and 2.



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Konstruktör/Drawn <b>P. MARCUS</b>	Datum/Date <b>2015-12-14</b>	Kontroll/Check -	Material -
Ändrad av/Modified by <b>P. MARCUS</b>	Ändrad/Modified <b>2015-12-18</b>	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment
Dir. ej annat anges/Unless otherwise stated Gen. tol. ISO 2768-mK UTdrag ur/Excerpt from ISO 2768-m	Benämning/Denomination	Skala/Scale 1:1	Blad/Sheet 4(7)
0,50 (30)-120 (120)-400 (400)-1600		Årt.Nr. -	Size A3
40,1 Hållåtgärder 30,3 FLIR CAD 40,5 Kontur brutna 40,0 20,0			Rev T129297
			Rev -002

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



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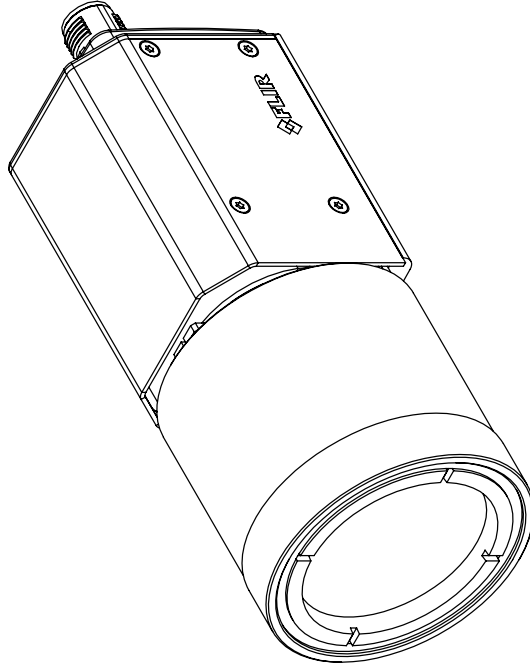
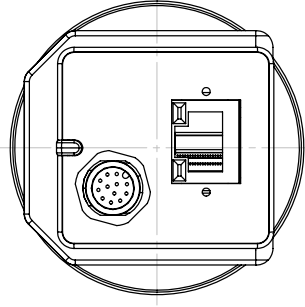
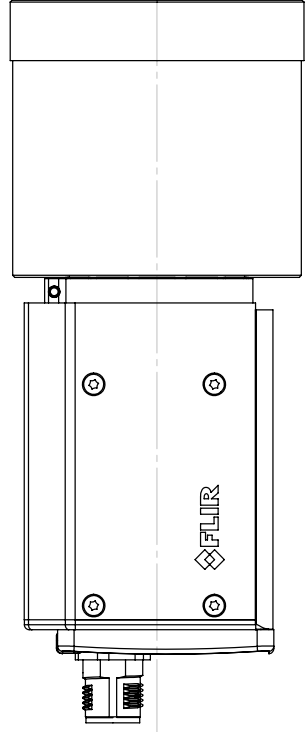
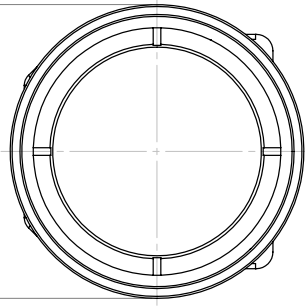
Rev  
-002



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.

$[2,3 \begin{smallmatrix} +0,04 \\ 0,00 \\ +1 \end{smallmatrix}]$   
 $\varnothing 58,4 \ 0$

$[2,76 \begin{smallmatrix} +0,04 \\ 0,00 \\ +1 \end{smallmatrix}]$   
 70,1  $\begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$



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Konstr/Drawing	P. MARCUS		Datum/Date	2015-12-14	Kontroll/Check	-	Material	-		
Ändrad av/Modified by	P. MARCUS		Ändrad/Modified	2015-12-18	Ytjämnhet/Roughness	Ra	Ytbehandling/Surface treatment			
Gen/Gen	ISO 2768-mK		Benämning/Denomination	URTRAG ur/Except from ISO 2768-m				Bladd/Sheet Size	5(7)	
UVRAG ur/Except from	ISO 2768-m		Material					Skala/Scale	1:1	
0,50	40,1	Hålåbådder							Ättno.	
(30)-120	40,3	Fläkt/cast							Ritn nr/Drawing No	T129297
(20)-400	40,5	Kontur brutna							Rev	-002
(40)-1600	40,6	Edgar brutna								
Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm										



5(7)

1:1

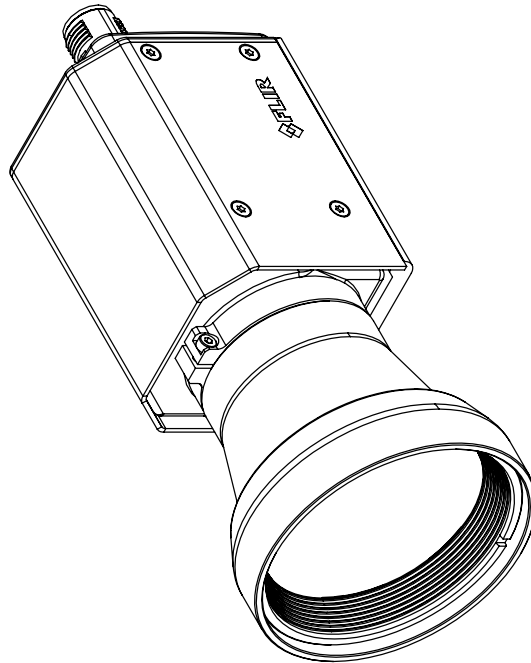
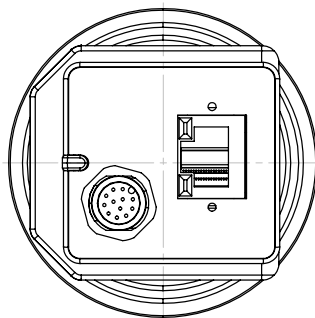
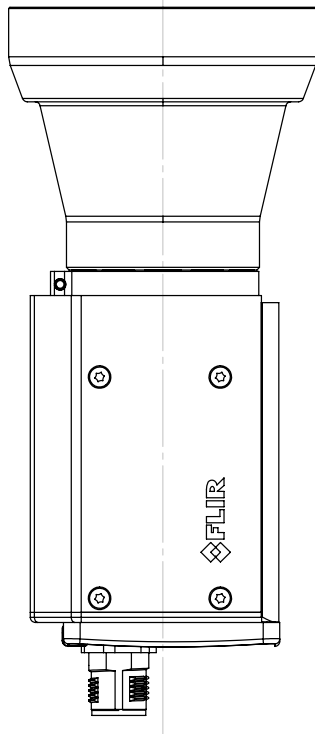
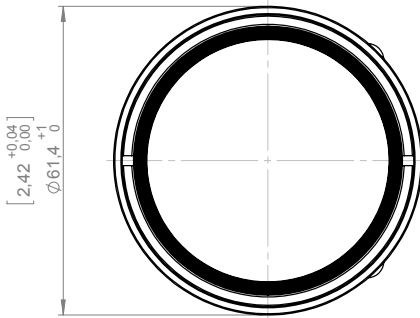
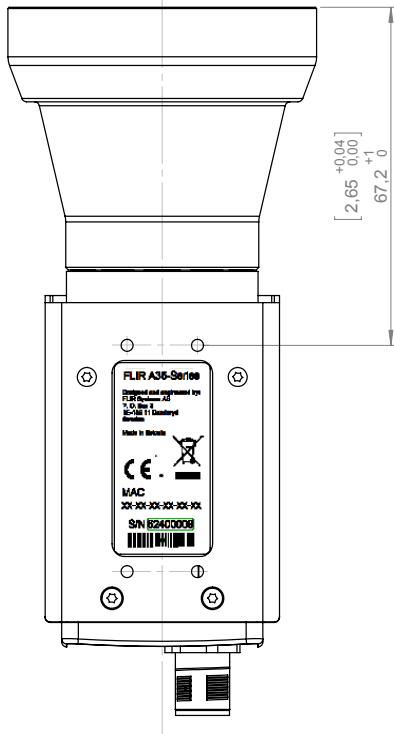
Ättno.

T129297

Rev

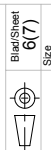
-002

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.



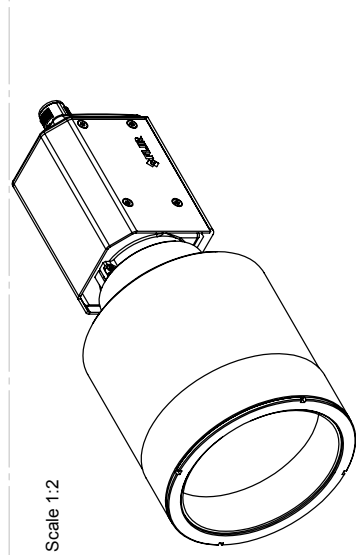
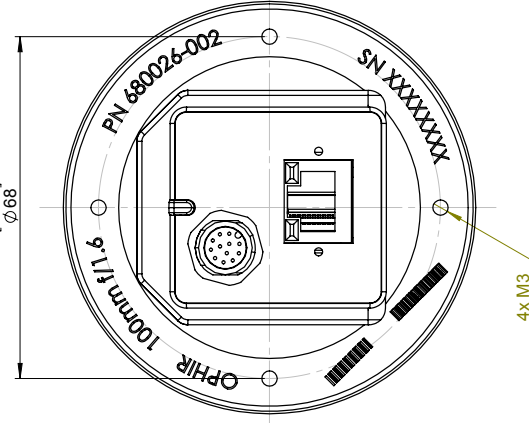
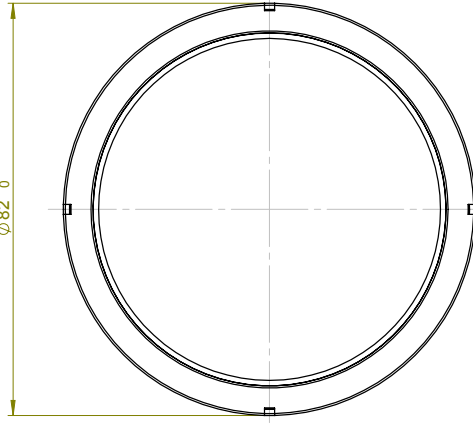
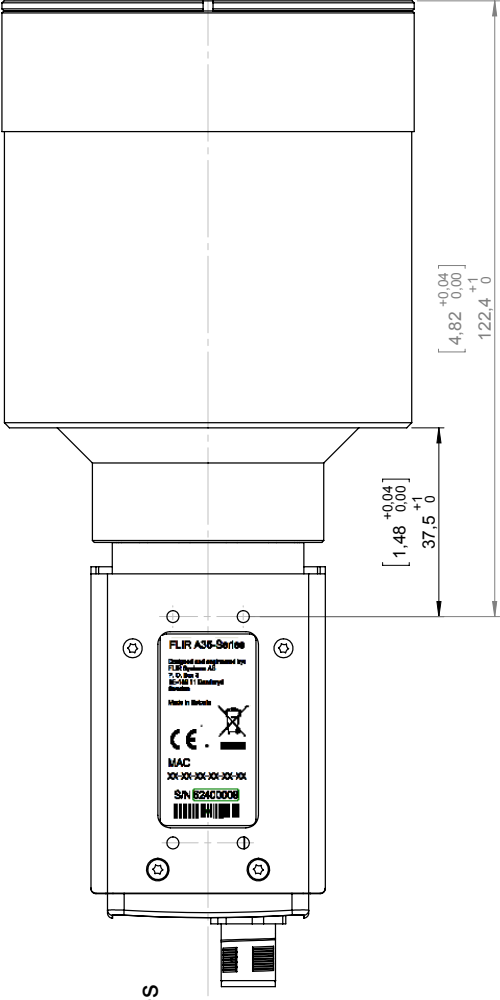
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Konstr/Drawn	Datum/Date		Kontroll/Check	Material
P. MARCUS	2015-12-14		-	-
Ändrad av/Modified by	Ändrad/Modified		Ytbehandling/Roughness	Ytbehandling/Surface treatment
P. MARCUS	2015-12-18		Ra	µm
Benämning/Denomination				
Dir ej ansvar angår/Unless otherwise stated				
Genför ISO 2768-mK				
Utmått ur/Exempt from ISO 2768-m				
0,50	40,1	Hållfasthet		
(30)-120	40,3	Flökt/raft		
(120)-400	40,5	Kantlar brutna		
(40)-1600	40,6	Edges broken		
Skala/Scale 1:1 AritNo.				
Blad/Sheet 6(7) Size A3				
Riktning/Ren T129297 Rev -002				
Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm				



Rev  
 -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.



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Konstruktör/Drawn	P. MARCUS	Datum/Date	2015-12-14	Kontroll/Check	-	Material	-
Ändrad av/Modified by	P. MARCUS	Ändrad/Modified	2015-12-18	Ytfinish/Roughness	Ra	Ytbehandling/Surface treatment	-
Dir. ej ansvar angavs/Unless otherwise stated		Urtage ur/Except from ISO 2768-m		Benämning/Denomination		Basic dimensions Ax5 w. flag shutter f=7,5 mm to f=100 mm	
0,50 0,63 (30)-120 (40)-160 (40)-160		40,1 40,3 40,5 40,5		Hålsläpplig Flät i rad Kantströmt Ej i 90°		Bladd/Sheet Size 7(7) A3 Rev T129297 -002	



Scale/Scale  
1:1  
A/Nr.  
Ritn nr/Drawing No  
T129297



July 2, 2013

AQ320030

## 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