

## P/N: 62513-0102

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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"> <li>• Very affordable.</li> <li>• Compact (40 mm × 43 mm × 106 mm).</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 7.5 Hz, signal linear</li> <li>• 14-bit 640 × 512 pixel images streamed at 7.5 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, Stemmers 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)	45° × 37°
Focal length	13 mm (0.5 in.)
Spatial resolution (IFOV)	1.31 mrad
F-number	1.25
Image frequency	7.5 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 f=13 mm with SC kit (7.5 Hz)

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Measurement	
Object temperature range	-25 to +135°C (-13 to 275°F)
Accuracy	±5°C (±9°F) or ±5% of reading

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 @ 7.5 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 × 512 pixels @ 7.5 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, GigE Vision

Digital input/output	
Digital input, purpose	General purpose
Digital input	1× opto-isolated, "0" <2, "1"=2-12 VDC. NOTE: Maximum input 12 VDC. If the input is above 12 VDC without a resistor in series there is a risk of damaging the input. If the input is 24 VDC use a 1.2 kΩ resistor in series. In that case "1" = 3-24 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 sync 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 sync Out to control another 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)



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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 +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"> <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 (IEC 60068-2-6)
Physical data	
Weight	0.200 kg (0.44 lb.)
Camera size (L × W × H)	106 × 40 × 43 mm (4.2 × 1.6 × 1.7 in.)
Tripod mounting	UNC ¼"-20 (on three sides)
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"> <li>• Hard transport case</li> <li>• Infrared camera with lens</li> <li>• Base support</li> <li>• Cable tie (2 ea.)</li> <li>• Ethernet cable CAT-6, 2m/6.6 ft (2 ea.)</li> <li>• FLIR ResearchIR Standard 4</li> <li>• Focus adjustment tool</li> <li>• Gooseneck</li> <li>• Mains cable kit (UK,EU,US)</li> <li>• PoE Injector (power over Ethernet)</li> <li>• Printed documentation</li> <li>• Table stand</li> <li>• User documentation CD-ROM</li> </ul>
Packaging, weight	5.3 kg (11.7 lb.)
Packaging, size	370 × 180 × 320 mm (14.6 × 7.1 × 12.6 in.)
EAN-13	7332558008492
UPC-12	845188008857
Country of origin	Sweden

### Supplies & accessories:

- T951004ACC; Ethernet cable CAT-6, 2m/6.6 ft.
- T198349; Base support
- T198348; Cable kit Mains (UK,EU,US)
- T911112; PoE injector
- T198392; Table stand kit
- T911183; Gigabit PoE injector 16 W, with multi-plugs



## FLIR A65 f=13 mm with SC kit (7.5 Hz)

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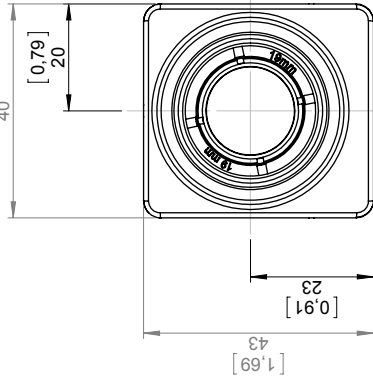
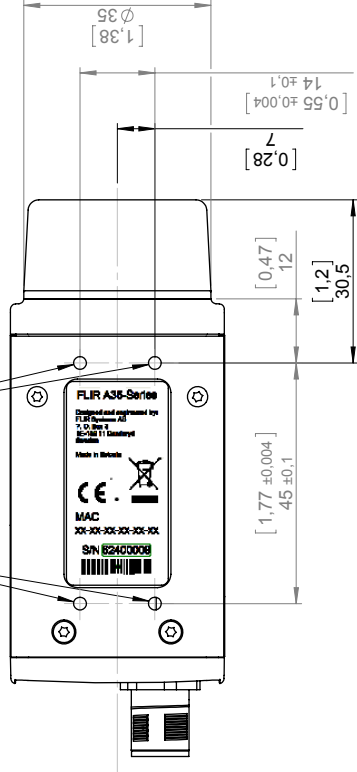
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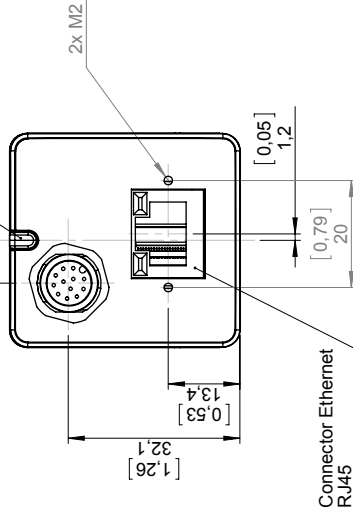
- T127605ACC; Cable M12 Pigtail
- T127606ACC; Cable M12 Sync
- T198342ACC; Focus adjustment tool
- T198584; FLIR Tools
- T198583; FLIR Tools+ (license only)
- DSW-10000; FLIR IR Camera Player

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

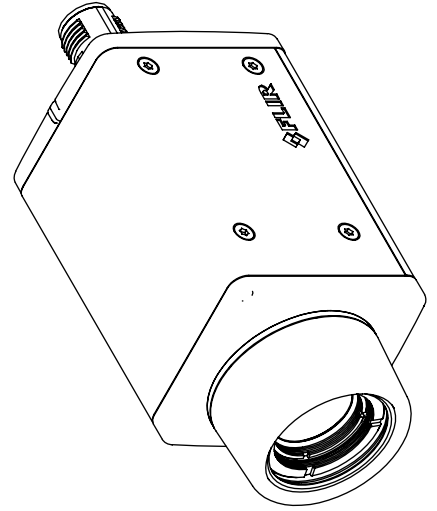
4x M3  
Depth max 4 mm



Connector GP I/O  
M12 12-pin



Connector Ethernet  
RJ45



<b>FLIR</b>		Material	
Konstr/Drawn <b>P. MARCUS</b>		-	
Datum/Date <b>2014-01-29</b>		Kontr/Check <b>MABR</b>	
Ändrad av/Modified by <b>P. MARCUS</b>		Ytbehandling/Roughness Ra $\mu\text{m}$	
Benämning/Denomination <b>Basic dimensions Ax5 f=7.5 mm to f=100 mm</b>		Ytbehandling/Surface treatment	
Dir ej ansvar änges/Unless otherwise stated <b>Gen tol ISO 2768-mk</b>		Skala/Scale <b>1:1</b>	
Utdrag ur/except 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		Aritm. <b>1:1</b>	
BlackSheet Size <b>A3</b>		BlindSheet Size <b>A3</b>	
Rev <b>A</b>		BlindSheet Rev <b>A</b>	
Ritn nr/Drawing No <b>T128116</b>		Ritn nr/Drawing No <b>T128116</b>	

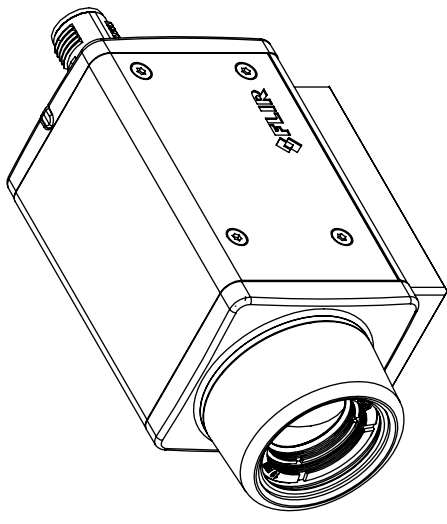
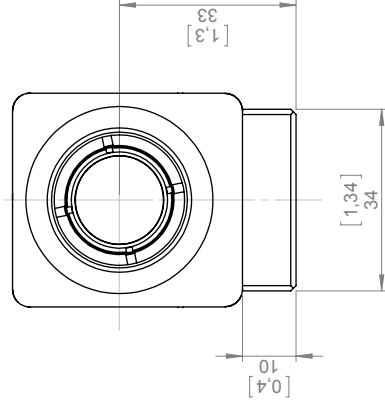
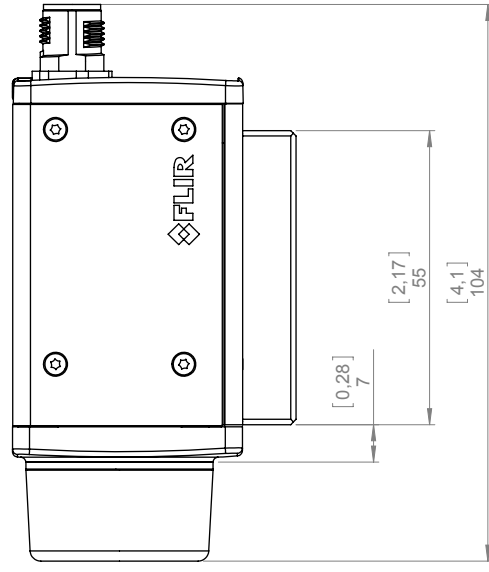
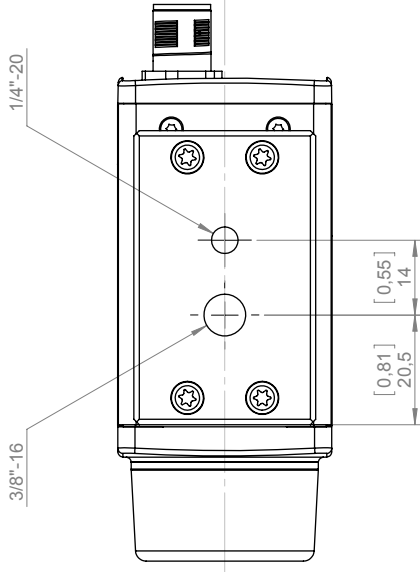
1 2 3 4 5 6 7 8 9 10

A B C D E F G

1 2 3 4 5

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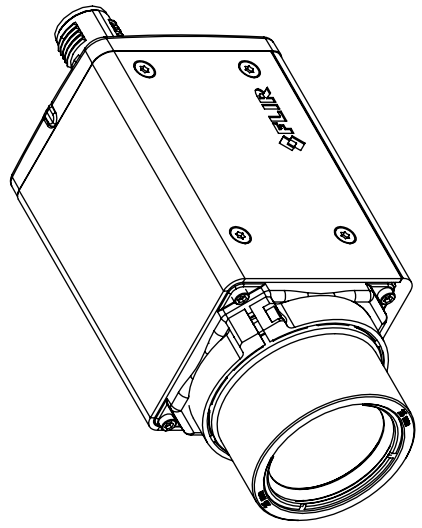
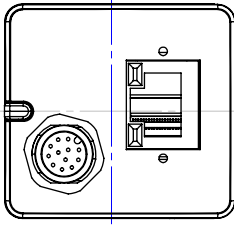
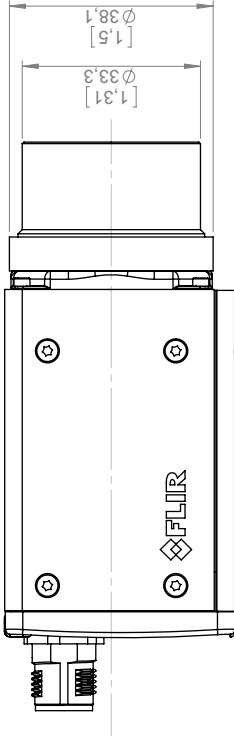
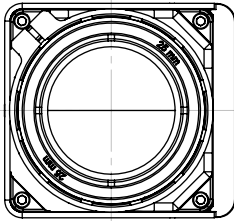
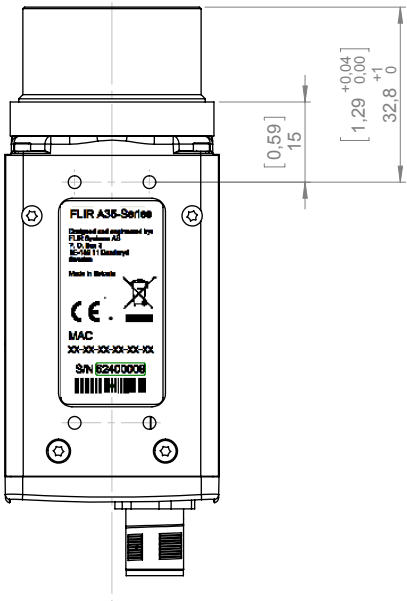
Basic dimensions for  
add-on base support



Konstr/Drawn <b>P. MARCUS</b>	Datum/Date <b>2014-01-29</b>	Kontr/Check <b>MABR</b>	Material -
Ändrad av/Modified by <b>P. MARCUS</b>	Ändrad/Modified <b>2014-02-11</b>	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment µm
Den till ISO 2768-mK Utdrag ur/except from ISO 2768-m	Där ej annat anges/Unless otherwise stated		
0,5-6 60-30 120-400 400-1000	±0,1 Hållarsradier ±0,2 Fillet radii ±0,5 Kanter brutna ±0,8 Edges broken		
Scale/Scale 1:1			
Blad/Sheet 2(7)			
SIS A3			
Rev A			
Artno. T128116			
Ritning/Drawing No. T128116			
Basic dimensions Ax5 f=7,5 mm to f=100 mm			

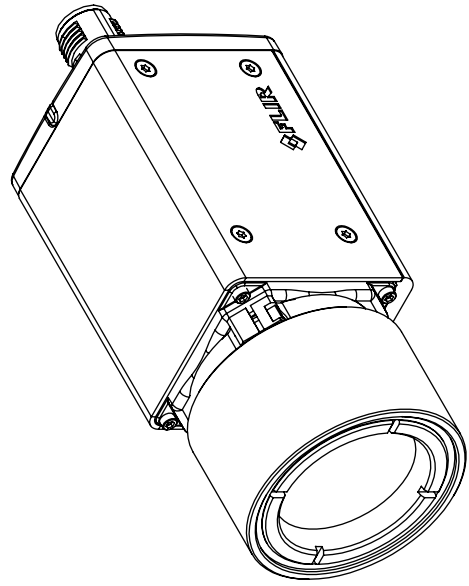
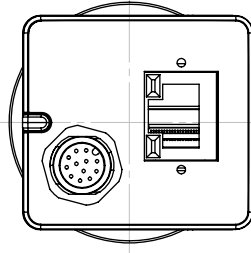
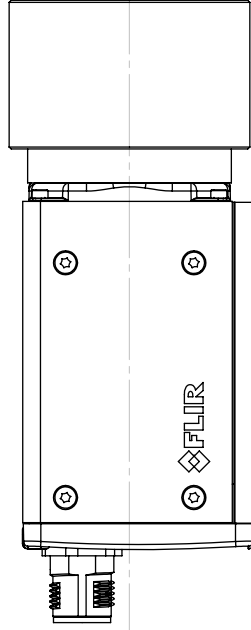
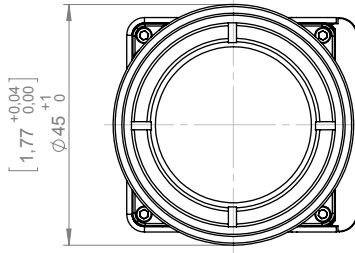
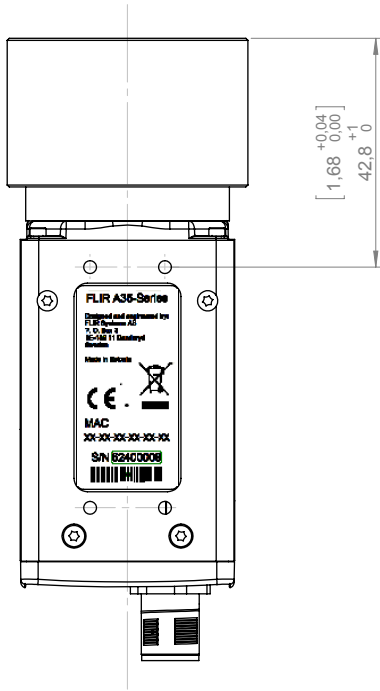


Basic dimensions:  
 Camera with focal length  
 f=25 mm IR lens.  
 Only dimensions valid for  
 this IR lens.  
 For all other dimensions see pages  
 1 and 2.



<b>FLIR</b>		Blad/Sheet 3(7)	
Konstr/Drawn <b>P. MARCUS</b>		Kontr/Check <b>MABR</b>	Material -
Ändrad av/Modified by <b>P. MARCUS</b>		Datum/Date 2014-01-29	Ytbehandling/Surface treatment
Där ej annat anges/Unless otherwise stated		Ändrad/Modified 2014-02-11	Ytämne/Roughness Ra
Utdrag ur/Excerpt from ISO 2768-m		Benämning/Denomination	
0.5-6 ±0.1 Hållisradier (0.5)-30 ±0.2 Fillet radii (120)-400 ±0.5 Kanter brutna (400)-1000 ±0.8 Edges broken		Basic dimensions Ax5 f=7.5 mm to f=100 mm	
Stapel/Scale 1:1		Rev A	
ÄRNO.		Ritning/Drawing No. T128116	

Basic dimensions:  
 Camera with focal length  
 f=35 mm IR lens.  
 Only dimensions valid for  
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 For all other dimensions see pages  
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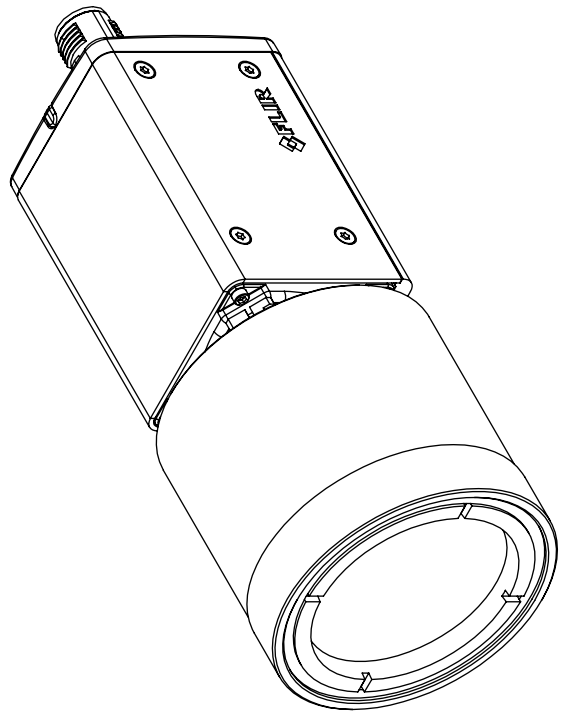
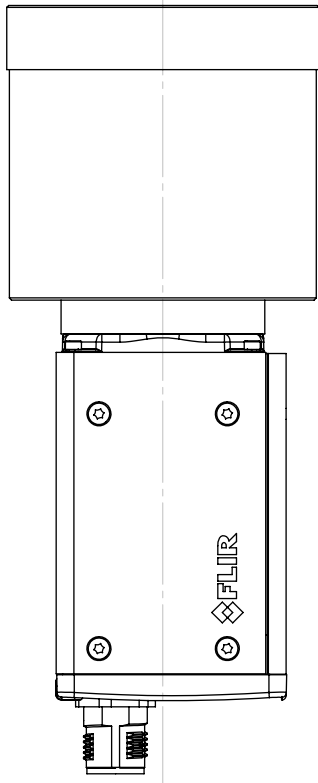
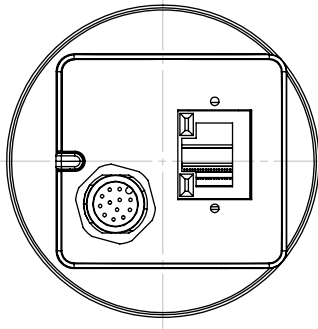
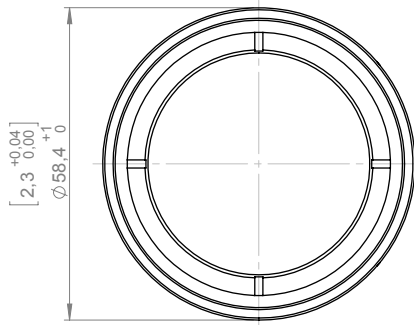
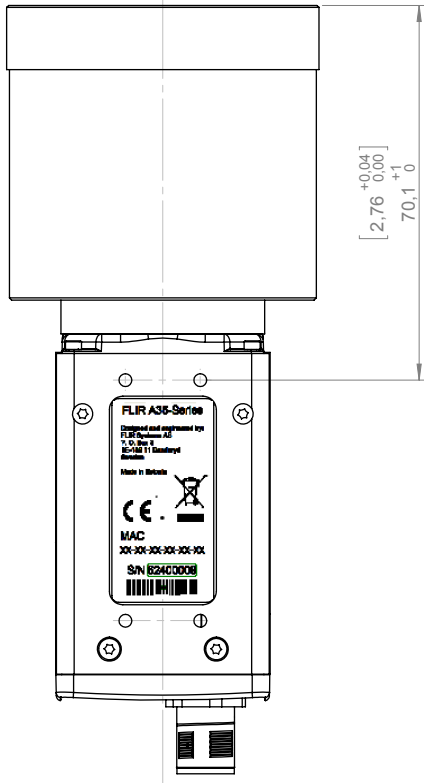
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Ändrad av/Modified by <b>P. MARCUS</b>		Ändrad/Modified <b>2014-02-11</b>		Ytjämnhet/Roughness <b>Ra</b>		Ytbehandling/Surface treatment <b>µm</b>	
Övrigt utöver ISO 2768-mK 0.5-6 ±0.1 Hållradier (6)-30 ±0.2 Filler radii (120)-400 ±0.5 Kanter brutna (400)-1000 ±0.8 Edgese broken		Där ej annat anges/Unless otherwise stated		Benämning/Denomination <b>Basic dimensions Ax5 f=7.5 mm to f=100 mm</b>		Stapel/Scale <b>1:1</b>	
		Blad/Sheet <b>4(7)</b>		SÄS <b>A3</b>		Rev <b>A</b>	
		Ritning/Drawing No. <b>T128116</b>					





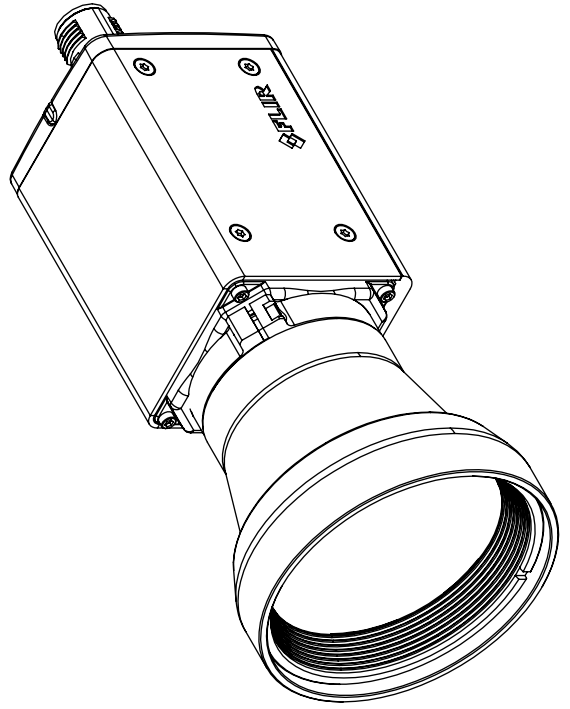
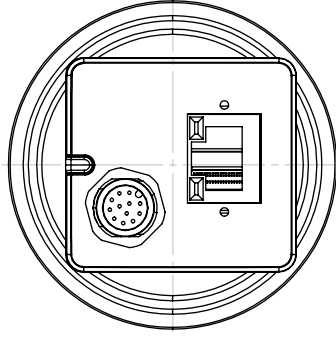
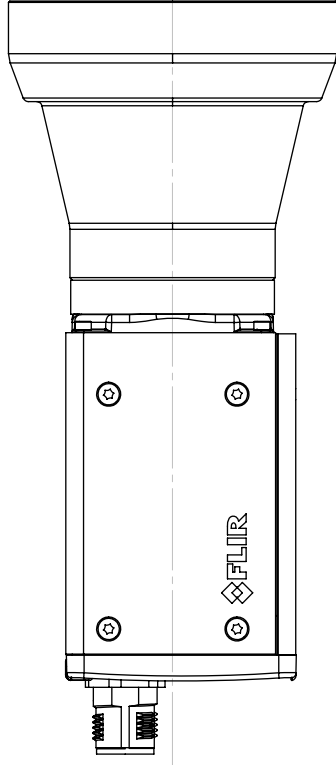
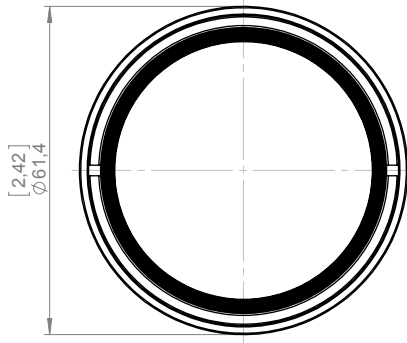
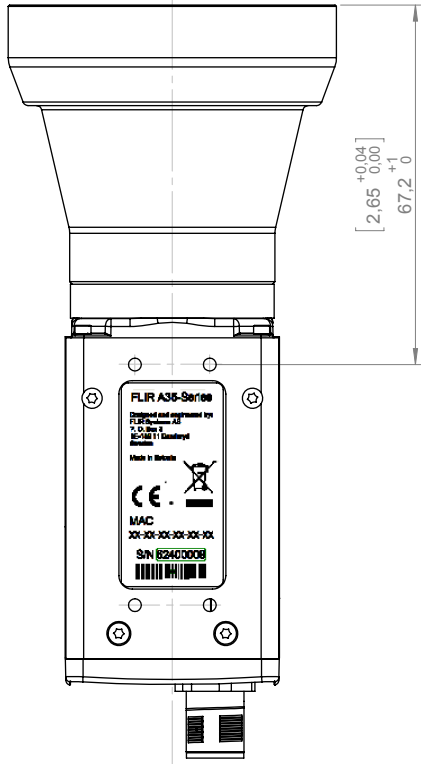
Basic dimensions:  
 Camera with focal length  
 $f=50$  mm IR lens.  
 Only dimensions valid for  
 this IR lens.  
 For all other dimensions see pages  
 1 and 2.



Konstr/Drawn <b>P. MARCUS</b>		Datum/Date <b>2014-01-29</b>	Kontr/Check <b>MABR</b>	Material -
Ändrad av/Modified by <b>P. MARCUS</b>		Ändrad/Modified <b>2014-02-11</b>	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment µm
Övrigt utöver utgåvan från ISO 2768-m 0.5-6 ±0.1 Hållarsradier 6.3-30 ±0.2 Filtradii 120-400 ±0.5 Kanter brutna 400-1000 ±0.8 Edgess broken		Benämning/Denomination <b>Basic dimensions Ax5 f=7.5 mm to f=100 mm</b>		
FLIR SYSTEMS AB		Skala/Scale 1:1	Blad/Sheet 5(7)	Rev A3
FLIR SYSTEMS AB		Ärtno. T128116	Ritning/Drawing No. T128116	



Basic dimensions:  
 Camera with focal length  
 f=60 mm IR lens.  
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Ändrad av/Modified by <b>P. MARCUS</b>		Ändrad/Modified <b>2014-02-11</b>	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment µm
Där ej annat anges/Unless otherwise stated Utdrag ur/Excerpt from ISO 2768-m		Benämning/Denomination <b>Basic dimensions Ax5 f=7.5 mm to f=100 mm</b>		
0.5-6 ±0.1 Hållradier (0.5-6) ±0.2 Fillet radii (120-400) ±0.5 Kanter brutna (400-1000) ±0.8 Edges broken		Stapel/Scale 1:1		
		AritNo. 6(7)		
		Blad/Sheet A3		
		Rev A		
		Ritning/Drawing No. T128116		

