

P/N: 73513-0102

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Website

<http://www.flir.com>

Customer support

<http://support.flir.com>

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General description

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.

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.

Key features:

- Very affordable.
- Compact (40 mm × 43 mm × 106 mm).
- GigE Vision and GenICam compliant.
- GigE Vision lockable connector.
- PoE (power over Ethernet).
- 8-bit 640 × 512 pixel images streamed at 7.5 Hz, signal linear
- 14-bit 640 × 512 pixel images streamed at 7.5 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:

- 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)	45° × 37°
Minimum focus distance	7.6 cm (3.0 in.)
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

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Measurement	
Object temperature range	–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 @ 7.5 Hz - Signal linear/ DDE - Automatic/ Manual - Flip H&V 14-bit 640 × 512 pixels @ 7.5 Hz - 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



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

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Digital input/output	
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)
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)  NOTE The operating temperature range assumes that the camera is mounted on the base support (included in the package) or a similar type of heatsink.
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	• 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 (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	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	• Hard transport case • Infrared camera with lens • Base support • Cable tie (2 ea.) • Ethernet cable CAT-6, 2m/6.6 ft (2 ea.) • FLIR Research Studio 1-Year Subscription (license only) • Focus adjustment tool • Gooseneck • Mains cable kit (UK,EU,US) • PoE Injector (power over Ethernet) • Printed documentation • Table stand



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

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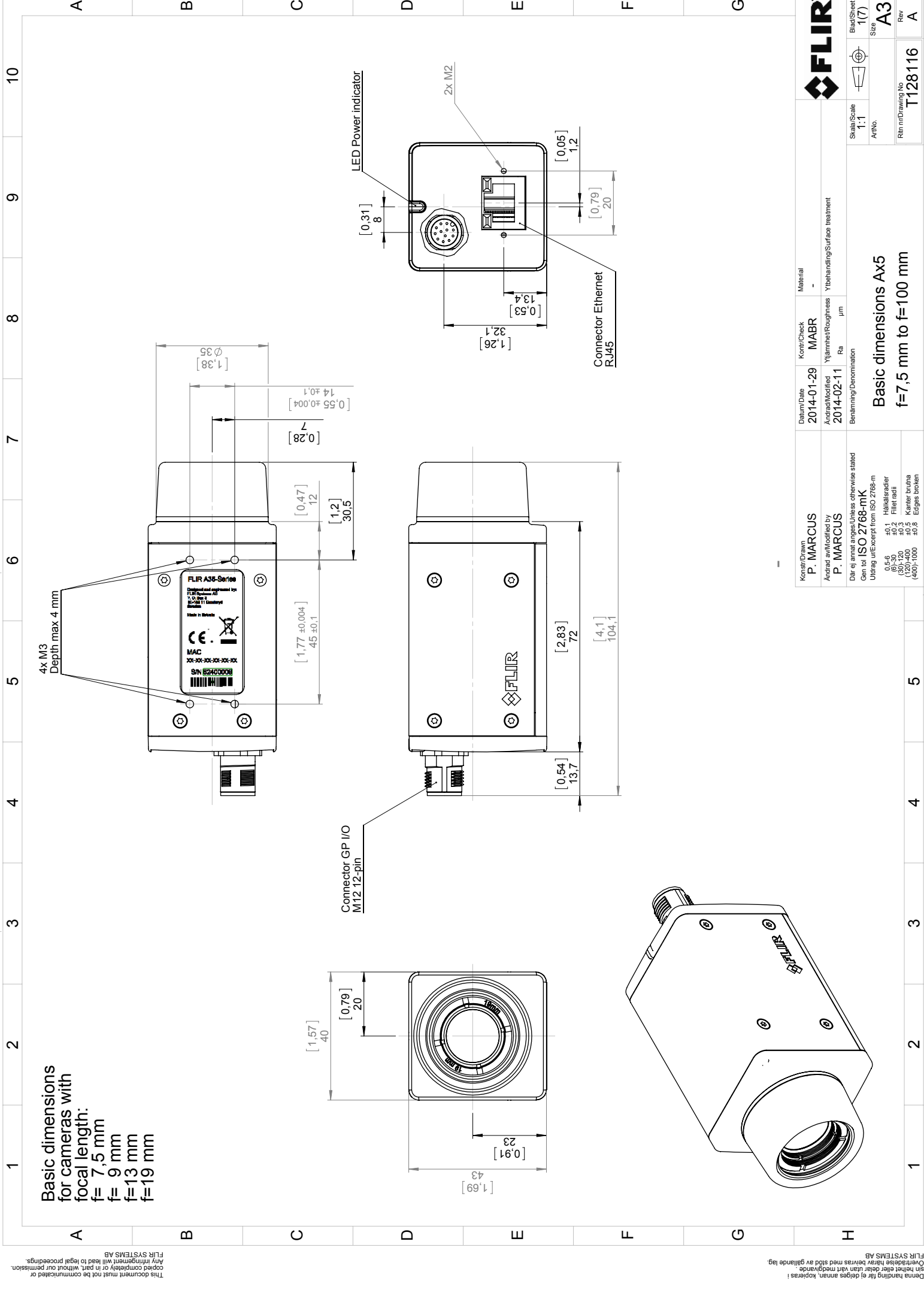
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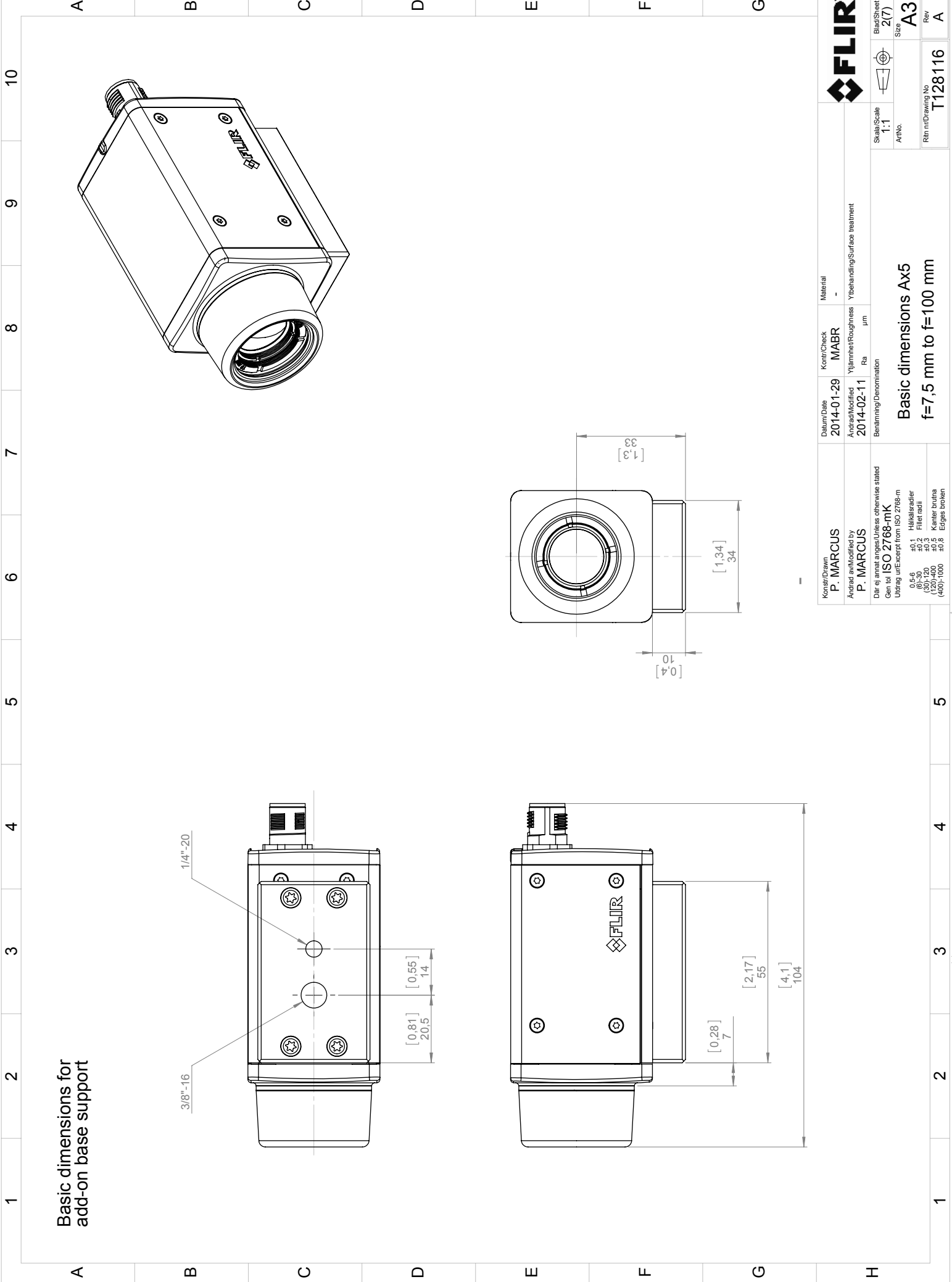
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Shipping information	
Packaging, weight	5.3 kg (11.7 lb.)
Packaging, size	370 × 180 × 320 mm (14.6 × 7.1 × 12.6 in.)
EAN-13	7332558010624
UPC-12	845188011291
Country of origin	Sweden

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
- 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
- T300243; FLIR Thermal Studio Pro, 1 Year Subscription
- T300083; FLIR Thermal Studio Pro, Perpetual license
- T300341; FLIR Thermal Studio Standard, 1 Year Subscription
- T300258; FLIR Thermal Studio Standard, 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
- 4232535; FLIR Research Studio, Professional Edition - 1 Year Subscription (online activation)
- 4232556; FLIR Research Studio, Professional Edition - Perpetual License (online activation)
- 4232590; FLIR Research Studio, Professional Edition - Perpetual License (USB dongle)
- 4232557; FLIR Research Studio, Professional Edition - USB dongle only
- 4220499; FLIR Research Studio, Standard Edition - 1 Year Subscription (online activation)
- 4220500; FLIR Research Studio, Standard Edition - Perpetual License (online activation)
- 4220646; FLIR Research Studio, Standard Edition - Perpetual License (USB dongle)
- 24971-010; FLIR Research Studio, Standard Edition - USB dongle only
- 4232591; FLIR ResearchIR to Research Studio, Professional Edition - 1 Year License Upgrade
- 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

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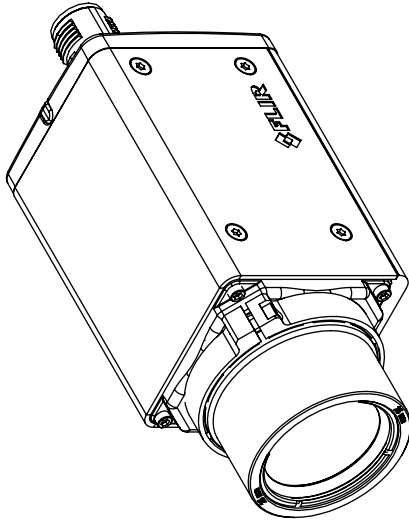
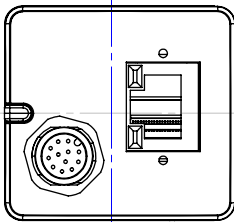
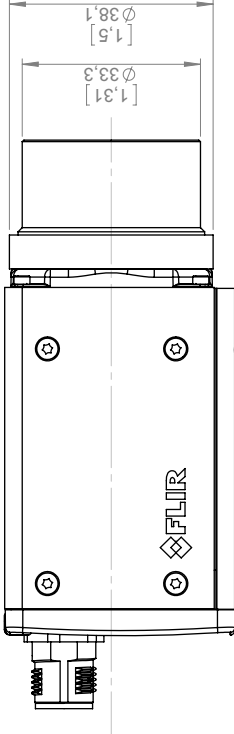
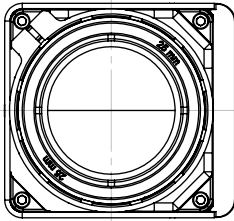
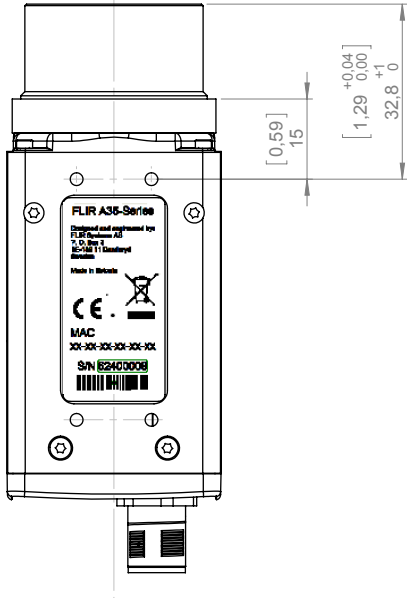
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Konstr/Drawn P. MARCUS		Datum/Date 2014-01-29		Kontr/Check MABR		Material -	
Ändrad av/Modified by P. MARCUS		Ändrad/Modified 2014-02-11		Ytlämne/Roughness Ra		Ytbehandling/Surface treatment µm	
Gen töl ISO 2768-mK		Utdrag ur/Excerpt from ISO 2768-m		Där ej annat anges/Unless otherwise stated		Benämning/Denomination	
0.5-6		±0.1		Höjlsradier		Scale/Scale	
(6)-30		±0.2		Fillet radii		1:1	
(120)-400		±0.5		Kantlar brutna		A/Nr.	
(400)-1000		±0.8		Edges broken		Rev	
						T128116	
						A3	
						2(7)	
						A	

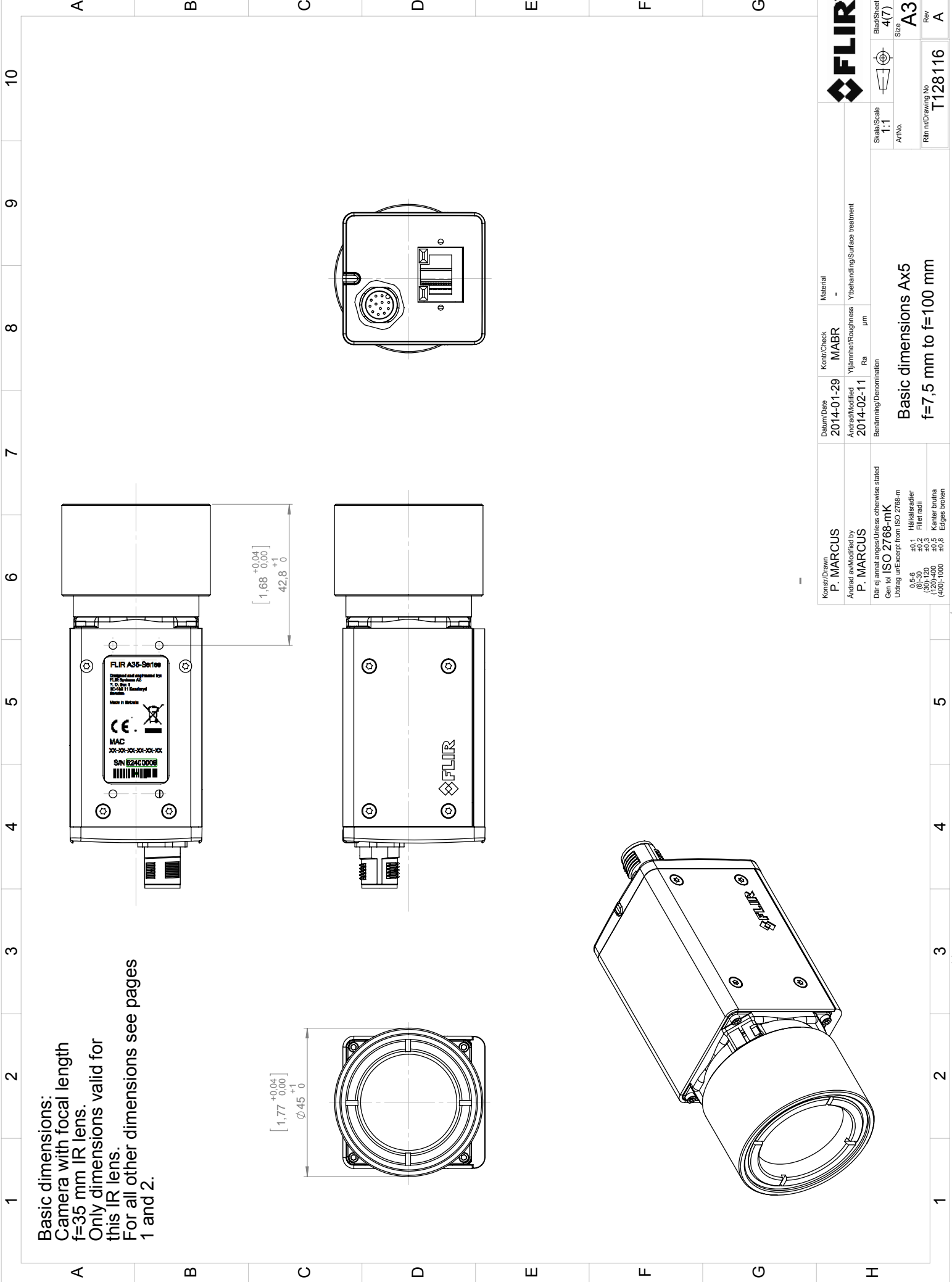


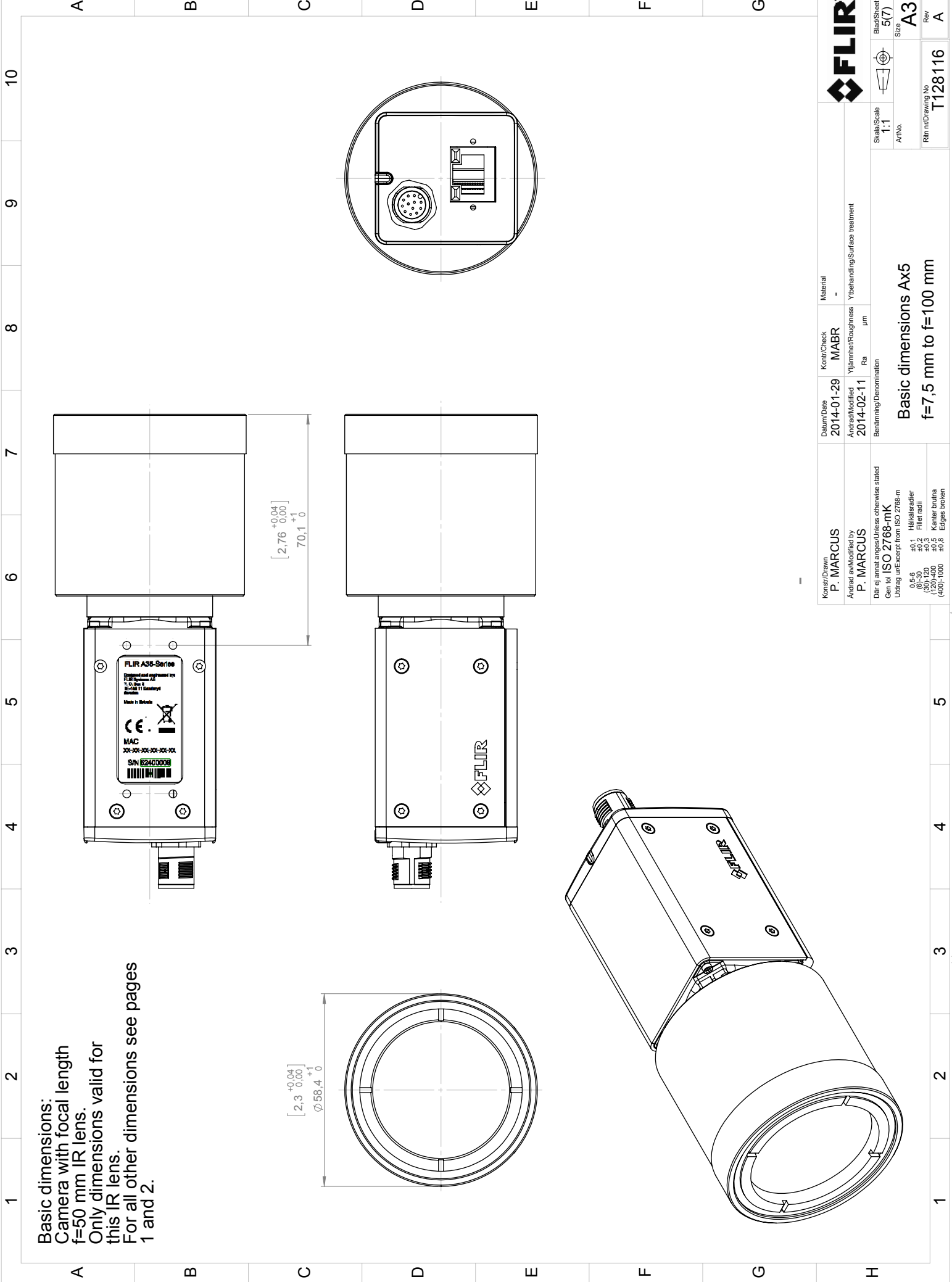
Basic dimensions Ax5
f=7.5 mm to f=100 mm

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.



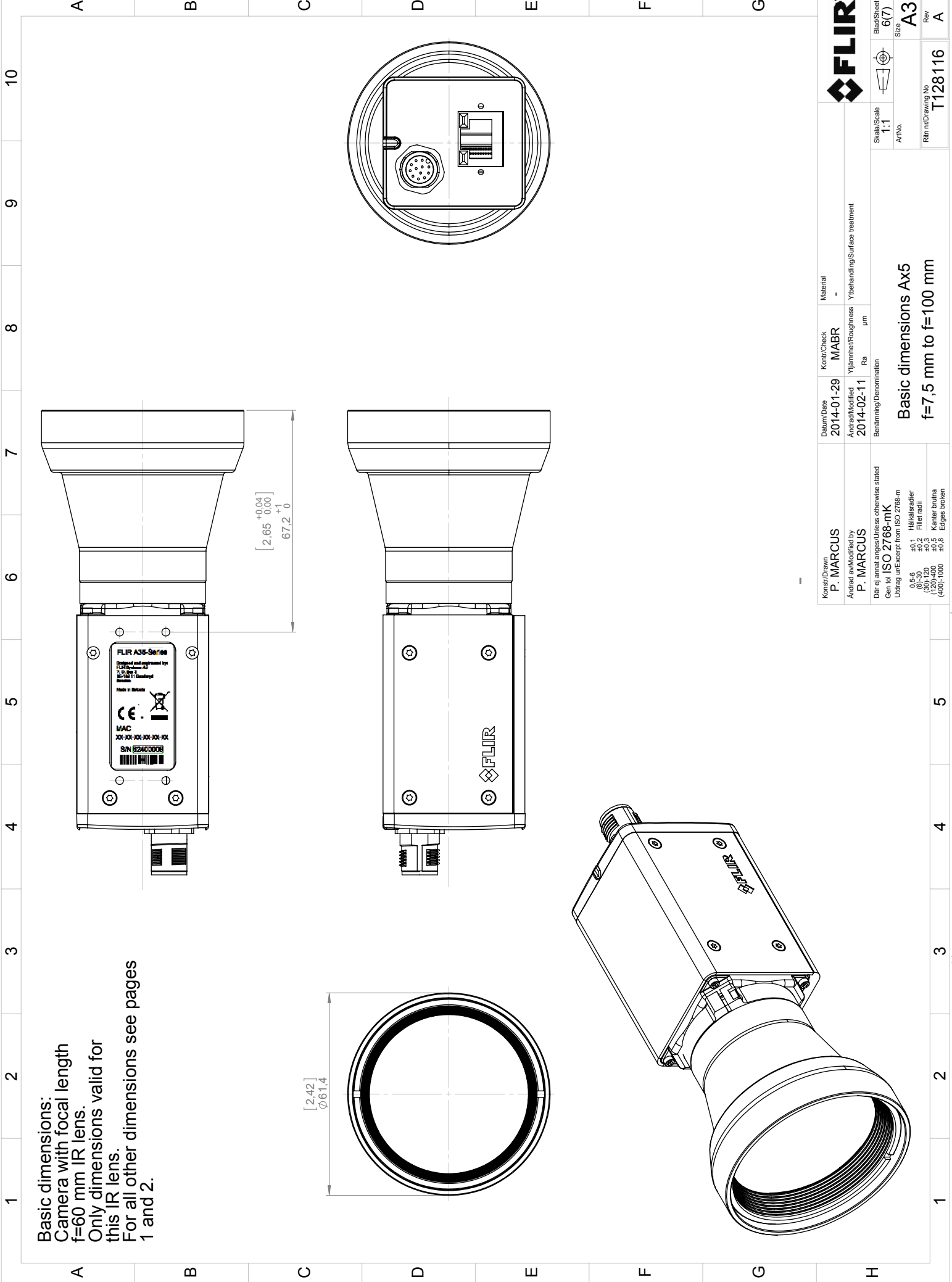
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Ändrad av/Modified by P. MARCUS		Ändrad/Modified 2014-02-11		Ytämne/Roughness Ra μm		Ytbehandling/Surface treatment
Där ej annat anges/Unless otherwise stated		Benämning/Denomination		Scale/Scale 1:1		Blad/Sheet 3(7)
Utdrag ur/Excerpt from ISO 2768-m		Gen tol ISO 2768-mK		Ändrad/Modified 2014-02-11		Ändrad/Modified 2014-02-11
0.5-6 ± 0.1 Hållarsradier		0.5-6 ± 0.1 Hållarsradier		Ändrad/Modified 2014-02-11		Ändrad/Modified 2014-02-11
6.3-30 ± 0.2 Fillet radii		6.3-30 ± 0.2 Fillet radii		Ändrad/Modified 2014-02-11		Ändrad/Modified 2014-02-11
(120)-400 ± 0.5 Kanter brutna		(120)-400 ± 0.5 Kanter brutna		Ändrad/Modified 2014-02-11		Ändrad/Modified 2014-02-11
(400)-1000 ± 0.8 Edges broken		(400)-1000 ± 0.8 Edges broken		Ändrad/Modified 2014-02-11		Ändrad/Modified 2014-02-11
Basic dimensions Ax5		Basic dimensions Ax5		Ändrad/Modified 2014-02-11		Ändrad/Modified 2014-02-11
f=7.5 mm to f=100 mm		f=7.5 mm to f=100 mm		Ändrad/Modified 2014-02-11		Ändrad/Modified 2014-02-11
T128116		T128116		Ändrad/Modified 2014-02-11		Ändrad/Modified 2014-02-11
A3		A3		Ändrad/Modified 2014-02-11		Ändrad/Modified 2014-02-11
Rev		Rev		Ändrad/Modified 2014-02-11		Ändrad/Modified 2014-02-11
A		A		Ändrad/Modified 2014-02-11		Ändrad/Modified 2014-02-11





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.

		Konstruktör/Drawn		Datum/Date		Material	
P. MARCUS		2014-01-29		MABR		-	
Ändrad av/Modified by		Ändrad/Modified		Ytämne/Roughness		Ytbehandling/Surface treatment	
P. MARCUS		2014-02-11		Ra		µm	
Där ej annat anges/Unless otherwise stated		Benämning/Denomination					
Gen töl ISO 2768-mK							
Utdrag ur/Excerpt from ISO 2768-m							
0,5-6		±0,1		Hållsläsradier			
(60-300)		±0,2		Fillet radii			
(120-400)		±0,5		Kantler brutna			
(400-1000)		±0,8		Edges broken			



Konstr/Drawn P. MARCUS		Datum/Date 2014-01-29	Kontr/Check MABR	Material -
Ändrad av/Modified by P. MARCUS		Ändrad/Modified 2014-02-11	Ytjämnhet/Roughness Ra	Ytbehandling/Surface treatment µm
Där ej annat anges/Unless otherwise stated Gen töl ISO 2768-mK Utdrag ur/Excerpt from ISO 2768-m		Benämning/Denomination Basic dimensions Ax5 f=7,5 mm to f=100 mm		
0,5-6 60-300 120-400 (400)-1000		±0,1 Hållarsradier ±0,2 Fillet radii ±0,5 Kanter brutna ±0,8 Edges broken		
Skala/Scale 1:1		Blad/Sheet 6(7)		
AritNo.		Rev A3		
Ritning/Drawing No. T128116		FLIR		

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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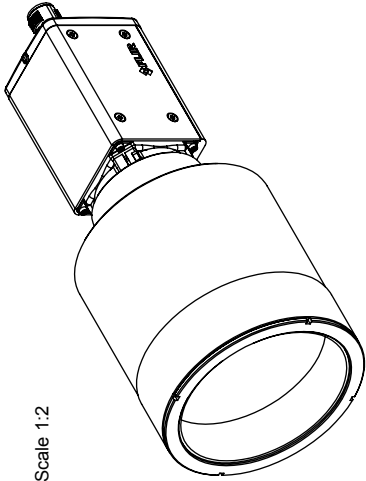
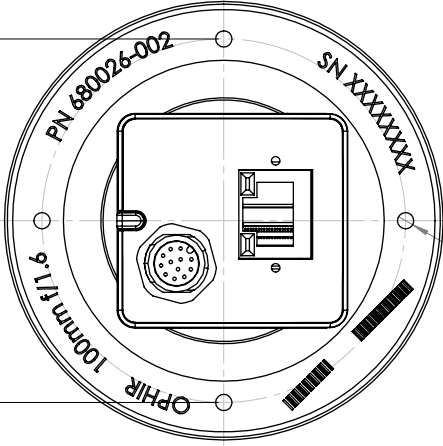
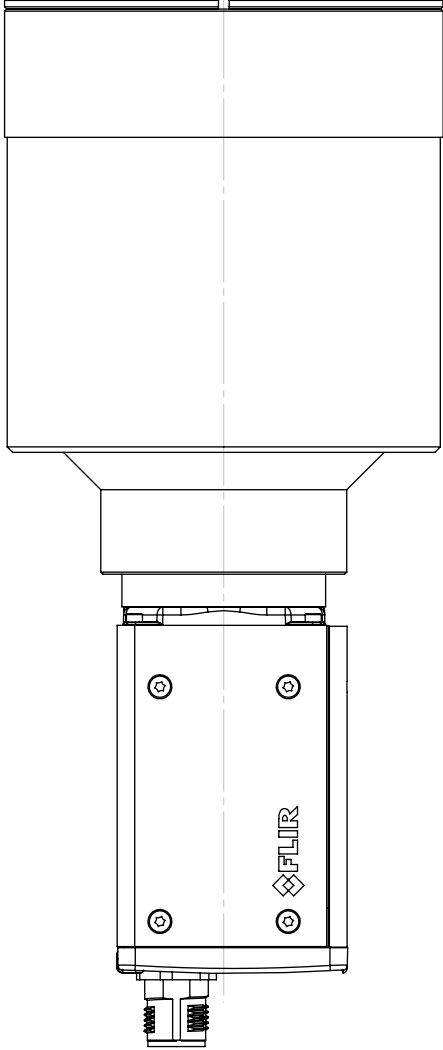
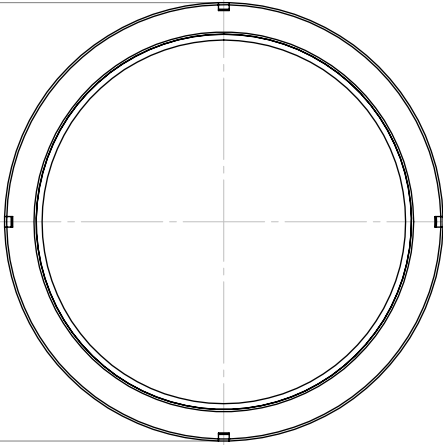


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+1
122 0

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Ø 82

[2,68]
Ø 68



Scale 1:2



Konstr/Drawn	P. MARCUS	Datum/Date	2014-01-29	Kontr/Check	MABR	Material	-
Ändrad av/Modified by	P. MARCUS	Ändrad/Modified	2014-02-11	Ytlämne/Roughness	Ra	Ytbehandling/Surface treatment	
Gen tid ISO 2768-mK		Benämning/Denomination					

Blad/Sheet	7(7)	Scale/Scale	1:1
Size	A3	ArtNo.	
Rev	A	Ritning/Drawing No	T128116

Basic dimensions Ax5
f=7,5 mm to f=100 mm



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