Metadata

Part No.	73413-0102	73513-0102	75007-0101	75010-0101	75013-0101	75025-0101	75050-0101
Product name	FLIR A65 f=13 mm with SC kit (30 Hz)	FLIR A65 f=13 mm with SC kit (7.5 Hz)	FLIR A65 FOV 90 (30 Hz, ver. 2016)	FLIR A65 FOV 6.2 (30 Hz, ver. 2016)	FLIR A65 FOV 45 (30 Hz, ver. 2016)	FLIR A65 FOV 25 (30 Hz, ver. 2016)	FLIR A65 FOV 12.4 (30 Hz, ver. 2016)
Revision	47936	47943	47941	47940	47939	47938	47937
Last modified	2018-03-06	2018-03-06	2018-03-06	2018-03-06	2018-03-06	2018-03-06	2018-03-06

Imaging and optical data

IR resolution	640 × 512 pixels	640 × 512 pixels	640 × 512 pixels	640 × 512 pixels	640 × 512 pixels	640 × 512 pixels	640 × 512 pixels
Thermal sensitivity/NETD	< 0.05°C @ +30°C (+86°F) / 50 mK	< 0.05°C @ +30°C (+86°F) / 50 mK	< 0.05°C @ +30°C (+86°F) / 50 mK	< 0.05°C @ +30°C (+86°F) / 50 mK	< 0.05°C @ +30°C (+86°F) / 50 mK	< 0.05°C @ +30°C (+86°F) / 50 mK	< 0.05°C @ +30°C (+86°F) / 50 mK
Field of view (FOV)	45° × 37°	45° × 37°	90° × 69°	6.2° × 4.96°	45° × 37°	25° × 20°	12.4° × 9.92°
Minimum focus distance	7.6 cm (3.0 in.)	7.6 cm (3.0 in.)	2.5 cm (0.98 in.)	7 m (23 ft.)	7.6 cm (3.0 in.)	30 cm (12 in.)	1.5 m (59 in.)
Focal length	13 mm (0.5 in.)	13 mm (0.5 in.)	7.5 mm (0.30 in.)	100 mm (4 in.)	13 mm (0.5 in.)	25 mm (0.98 in.)	50 mm (2 in.)
Spatial resolution (IFOV)	1.31 mrad	1.31 mrad	2.27 mrad	0.170 mrad	1.31 mrad	0.68 mrad	0.340 mrad
F-number	1.25	1.25	1.4	1.6	1.25	1.25	1.2
Image frequency	30 Hz	7.5 Hz	30 Hz	30 Hz	30 Hz	30 Hz	30 Hz
Focus	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed

Detector data

Detector type	Focal plane array (FPA), uncooled VOX microbolometer	Focal plane array (FPA), uncooled VOX microbolometer	Focal plane array (FPA), uncooled VOX microbolometer	Focal plane array (FPA), uncooled VOX microbolometer	Focal plane array (FPA), uncooled VOX microbolometer	Focal plane array (FPA), uncooled VOX microbolometer	Focal plane array (FPA), uncooled VOX microbolometer
Spectral range	7.5–13 μm	7.5–13 μm	7.5–13 μm	7.5–13 μm	7.5–13 μm	7.5–13 μm	7.5–13 μm
Detector pitch	17 μm	17 μm	17 μm	17 μm	17 μm	17 μm	17 μm
Detector time constant	Typical 12 ms	Typical 12 ms	Typical 12 ms	Typical 12 ms	Typical 12 ms	Typical 12 ms	Typical 12 ms

Measurement

Object temperature range	• −25 to +135°C (−13 to 275°F) • −40 to +550°C (−40 to +1022°F)	• −25 to +135°C (−13 to 275°F) • −40 to +550°C (−40 to +1022°F)	• −25 to +135°C (−13 to 275°F) • −40 to +550°C (−40 to +1022°F)	• −25 to +135°C (−13 to 275°F) • −40 to +550°C (−40 to +1022°F)	• −25 to +135°C (−13 to 275°F) • −40 to +550°C (−40 to +1022°F)	• −25 to +135°C (−13 to 275°F) • −40 to +550°C (−40 to +1022°F)	• −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	±5°C (±9°F) or ±5% of reading	±5°C (±9°F) or ±5% of reading	±5°C (±9°F) or ±5% of reading	±5°C (±9°F) or ±5% of reading	±5°C (±9°F) or ±5% of reading	±5°C (±9°F) or ±5% of reading

Measurement analysis

Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity	Automatic, based on inputs for distance, atmospheric temperature and relative humidity	Automatic, based on inputs for distance, atmospheric temperature and relative humidity	Automatic, based on inputs for distance, atmospheric temperature and relative humidity	Automatic, based on inputs for distance, atmospheric temperature and relative humidity	Automatic, based on inputs for distance, atmospheric temperature and relative humidity	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors	Automatic, based on signals from internal sensors	Automatic, based on signals from internal sensors	Automatic, based on signals from internal sensors	Automatic, based on signals from internal sensors	Automatic, based on signals from internal sensors	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.5 to 1.0	Variable from 0.5 to 1.0	Variable from 0.5 to 1.0	Variable from 0.5 to 1.0	Variable from 0.5 to 1.0	Variable from 0.5 to 1.0	Variable from 0.5 to 1.0
Reflected apparent temperature correction	Automatic, based on input of reflected temperature	Automatic, based on input of reflected temperature	Automatic, based on input of reflected temperature	Automatic, based on input of reflected temperature	Automatic, based on input of reflected temperature	Automatic, based on input of reflected temperature	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on input of optics/window transmission and temperature	Automatic, based on input of optics/window transmission and temperature	Automatic, based on input of optics/window transmission and temperature	Automatic, based on input of optics/window transmission and temperature	Automatic, based on input of optics/window transmission and temperature	Automatic, based on input of optics/window transmission and temperature	Automatic, based on input of optics/window transmission and temperature
Measurement corrections	Global object parameters	Global object parameters	Global object parameters	Global object parameters	Global object parameters	Global object parameters	Global object parameters

Ethernet

Ethernet	Control and image	Control and image	Control and image	Control and image	Control and image	Control and image	Control and image
Ethernet, type	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet
Ethernet, standard	IEEE 802.3	IEEE 802.3	IEEE 802.3	IEEE 802.3	IEEE 802.3	IEEE 802.3	IEEE 802.3
Ethernet, connector type	RJ-45	RJ-45	RJ-45	RJ-45	RJ-45	RJ-45	RJ-45
Ethernet, communication	GigE Vision ver. 1.2 Client API GenICam compliant	GigE Vision ver. 1.2 Client API GenICam compliant	GigE Vision ver. 1.2 Client API GenICam compliant	GigE Vision ver. 1.2 Client API GenICam compliant	GigE Vision ver. 1.2 Client API GenICam compliant	GigE Vision ver. 1.2 Client API GenICam compliant	GigE Vision ver. 1.2 Client API GenICam compliant
Ethernet, image streaming	8-bit monochrome @ 30 Hz • Signal linear/DDE • Automatic/Manual • Flip H&V	8-bit monochrome @ 7.5 Hz • Signal linear/DDE • Automatic/Manual • Flip H&V	8-bit monochrome @ 30 Hz • Signal linear/DDE • Automatic/Manual • Flip H&V	8-bit monochrome @ 30 Hz • Signal linear/DDE • Automatic/Manual • Flip H&V	8-bit monochrome @ 30 Hz • Signal linear/DDE • Automatic/Manual • Flip H&V	8-bit monochrome @ 30 Hz • Signal linear/DDE • Automatic/Manual • Flip H&V	8-bit monochrome @ 30 Hz • Signal linear/DDE • Automatic/Manual • Flip H&V

	14-bit 640 × 512 pixels @ 30 Hz • Signal linear/DDE • Temperature linear	14-bit 640 × 512 pixels @ 7.5 Hz • Signal linear/DDE • Temperature linear	14-bit 640 × 512 pixels @ 30 Hz • Signal linear/DDE • Temperature linear	14-bit 640 × 512 pixels @ 30 Hz • Signal linear/DDE • Temperature linear	14-bit 640 × 512 pixels @ 30 Hz • Signal linear/DDE • Temperature linear	14-bit 640 × 512 pixels @ 30 Hz • Signal linear/DDE • Temperature linear	14-bit 640 × 512 pixels @ 30 Hz • Signal linear/DDE • Temperature linear
	GigE Vision and GenICam compatible	GigE Vision and GenICam compatible	GigE Vision and GenICam compatible	GigE Vision and GenICam compatible	GigE Vision and GenICam compatible	GigE Vision and GenICam compatible	GigE Vision and GenICam compatible
Ethernet, power	Power over Ethernet, PoE IEEE 802.3af class 0 Power	Power over Ethernet, PoE IEEE 802.3af class 0 Power	Power over Ethernet, PoE IEEE 802.3af class 0 Power	Power over Ethernet, PoE IEEE 802.3af class 0 Power	Power over Ethernet, PoE IEEE 802.3af class 0 Power	Power over Ethernet, PoE IEEE 802.3af class 0 Power	Power over Ethernet, PoE IEEE 802.3af class 0 Power
Ethernet, protocols	TCP, UDP, ICMP, IGMP, DHCP, GigEVision	TCP, UDP, ICMP, IGMP, DHCP, GigEVision	TCP, UDP, ICMP, IGMP, DHCP, GigEVision	TCP, UDP, ICMP, IGMP, DHCP, GigEVision	TCP, UDP, ICMP, IGMP, DHCP, GigEVision	TCP, UDP, ICMP, IGMP, DHCP, GigEVision	TCP, UDP, ICMP, IGMP, DHCP, GigEVision

Digital input/output

Digital input, purpose	General purpose	General purpose	General purpose	General purpose	General purpose	General purpose	General purpose
Digital input	1× opto-isolated, "0" <1.2 VDC, "1" = 2–25 VDC.	1× opto-isolated, "0" <1.2 VDC, "1" = 2–25 VDC.	1× opto-isolated, "0" <1.2 VDC, "1" = 2–25 VDC.	1× opto-isolated, "0" <1.2 VDC, "1" = 2–25 VDC.	1× opto-isolated, "0" <1.2 VDC, "1" = 2–25 VDC.	1× opto-isolated, "0" <1.2 VDC, "1" = 2–25 VDC.	1× opto-isolated, "0" <1.2 VDC, "1" = 2–25 VDC.
Digital output, purpose	General purpose output to ext. device (programmatically set)	General purpose output to ext. device (programmatically set)	General purpose output to ext. device (programmatically set)	General purpose output to ext. device (programmatically set)	General purpose output to ext. device (programmatically set)	General purpose output to ext. device (programmatically set)	General purpose output to ext. device (programmatically set)
Digital output	1× opto-isolated, 2–40 VDC, max. 185 mA	1× opto-isolated, 2–40 VDC, max. 185 mA	1× opto-isolated, 2–40 VDC, max. 185 mA	1× opto-isolated, 2–40 VDC, max. 185 mA	1× opto-isolated, 2–40 VDC, max. 185 mA	1× opto-isolated, 2–40 VDC, max. 185 mA	1× opto-isolated, 2–40 VDC, max. 185 mA
Digital I/O, isolation voltage	500 VRMS	500 VRMS	500 VRMS	500 VRMS	500 VRMS	500 VRMS	500 VRMS
Digital I/O, supply voltage	2–40 VDC, max. 200 mA	2–40 VDC, max. 200 mA	2–40 VDC, max. 200 mA	2–40 VDC, max. 200 mA	2–40 VDC, max. 200 mA	2–40 VDC, max. 200 mA	2–40 VDC, max. 200 mA
Digital I/O, connector type	12-pole M12 connector (shared with Digital synchronization and External power)	12-pole M12 connector (shared with Digital synchronization and External power)	12-pole M12 connector (shared with Digital synchronization and External power)	12-pole M12 connector (shared with Digital synchronization and External power)	12-pole M12 connector (shared with Digital synchronization and External power)	12-pole M12 connector (shared with Digital synchronization and External power)	12-pole M12 connector (shared with Digital synchronization and External power)
Synchronization in, purpose	Frame synchronization in to control camera	Frame synchronization in to control camera	Frame synchronization in to control camera	Frame synchronization in to control camera	Frame synchronization in to control camera	Frame synchronization in to control camera	Frame synchronization in to control camera
Synchronization in	1×, non-isolated	1×, non-isolated	1×, non-isolated	1×, non-isolated	1×, non-isolated	1×, non-isolated	1×, non-isolated
Synchronization in, type	LVC Buffer @3.3V, "0" <0.8 V, "1">2.0 V.	LVC Buffer @3.3V, "0" <0.8 V, "1">2.0 V.	LVC Buffer @3.3V, "0" <0.8 V, "1">2.0 V.	LVC Buffer @3.3V, "0" <0.8 V, "1">2.0 V.	LVC Buffer @3.3V, "0" <0.8 V, "1">2.0 V.	LVC Buffer @3.3V, "0" <0.8 V, "1">2.0 V.	LVC Buffer @3.3V, "0" <0.8 V, "1">2.0 V.
Synchronization out, purpose	Frame synchronization out to control another FLIR Ax5 camera	Frame synchronization out to control another FLIR Ax5 camera	Frame synchronization out to control another FLIR Ax5 camera	Frame synchronization out to control another FLIR Ax5 camera	Frame synchronization out to control another FLIR Ax5 camera	Frame synchronization out to control another FLIR Ax5 camera	Frame synchronization out to control another FLIR Ax5 camera
Synchronization out	1×, non-isolated	1×, non-isolated	1×, non-isolated	1×, non-isolated	1×, non-isolated	1×, non-isolated	1×, non-isolated
Synchronization out, type	LVC Buffer @ 3.3V, "0"=24 MA max, "1"= –24 mA max.	LVC Buffer @ 3.3V, "0"=24 MA max, "1"= –24 mA max.	LVC Buffer @ 3.3V, "0"=24 MA max, "1"= –24 mA max.	LVC Buffer @ 3.3V, "0"=24 MA max, "1"= –24 mA max.	LVC Buffer @ 3.3V, "0"=24 MA max, "1"= –24 mA max.	LVC Buffer @ 3.3V, "0"=24 MA max, "1"= –24 mA max.	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)	12-pole M12 connector (shared with Digital I/O and External power)	12-pole M12 connector (shared with Digital I/O and External power)	12-pole M12 connector (shared with Digital I/O and External power)	12-pole M12 connector (shared with Digital I/O and External power)	12-pole M12 connector (shared with Digital I/O and External power)	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.	12/24 VDC, < 3.5 W nominal < 6.0 W absolute max.	12/24 VDC, < 3.5 W nominal < 6.0 W absolute max.	12/24 VDC, < 3.5 W nominal < 6.0 W absolute max.	12/24 VDC, < 3.5 W nominal < 6.0 W absolute max.	12/24 VDC, < 3.5 W nominal < 6.0 W absolute max.	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)	12-pole M12 connector (shared with Digital I/O and Digital Synchronization)	12-pole M12 connector (shared with Digital I/O and Digital Synchronization)	12-pole M12 connector (shared with Digital I/O and Digital Synchronization)	12-pole M12 connector (shared with Digital I/O and Digital Synchronization)	12-pole M12 connector (shared with Digital I/O and Digital Synchronization)	12-pole M12 connector (shared with Digital I/O and Digital Synchronization)
Voltage	Allowed range 10–30 VDC	Allowed range 10–30 VDC	Allowed range 10–30 VDC	Allowed range 10–30 VDC	Allowed range 10–30 VDC	Allowed range 10–30 VDC	Allowed range 10–30 VDC

Environmental data

Operating temperature range	−15°C to +50°C (+5°F to +122°F) The operating temperature range assumes that the camera is mounted on the base support (included in the package) or a similar type of heatsink.	−15°C to +50°C (+5°F to +122°F) The operating temperature range assumes that the camera is mounted on the base support (included in the package) or a similar type of heatsink.	−15°C to +60°C (+5°F to +140°F) The operating temperature range assumes that the camera is mounted on the base support (included in the package) or a similar type of heatsink.	−15°C to +60°C (+5°F to +140°F) The operating temperature range assumes that the camera is mounted on the base support (included in the package) or a similar type of heatsink.	−15°C to +60°C (+5°F to +140°F) The operating temperature range assumes that the camera is mounted on the base support (included in the package) or a similar type of heatsink.	−15°C to +60°C (+5°F to +140°F) The operating temperature range assumes that the camera is mounted on the base support (included in the package) or a similar type of heatsink.	−15°C to +60°C (+5°F to +140°F) 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)	−40°C to +70°C (−40°F to +158°F)	−40°C to +70°C (−40°F to +158°F)	−40°C to +70°C (−40°F to +158°F)	−40°C to +70°C (−40°F to +158°F)	−40°C to +70°C (−40°F to +158°F)	−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)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F)	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)	• EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission)	• EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission)	• EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission)	• EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission)	• EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission)	• 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	IP 40 (IEC 60529) with base support mounted	IP 40 (IEC 60529) with base support mounted	IP 40 (IEC 60529) with base support mounted	IP 40 (IEC 60529) with base support mounted	IP 40 (IEC 60529) with base support mounted	IP 40 (IEC 60529) with base support mounted
Shock	25 g (IEC 60068-2-27)	25 g (IEC 60068-2-27)	25 g (IEC 60068-2-27)	25 g (IEC 60068-2-27)	25 g (IEC 60068-2-27)	25 g (IEC 60068-2-27)	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)	2 g (IEC 60068-2-6)	2 g (IEC60068-2-6) and MIL-STD810G	2 g (IEC60068-2-6) and MIL-STD810G	2 g (IEC60068-2-6) and MIL-STD810G	2 g (IEC60068-2-6) and MIL-STD810G	2 g (IEC60068-2-6) and MIL-STD810G

Physical data

Weight	0.200 kg (0.44 lb.)	0.200 kg (0.44 lb.)	-	-	-	-	-
Camera size (L × W × H)	106 × 40 × 43 mm (4.2 × 1.6 × 1.7 in.)	106 × 40 × 43 mm (4.2 × 1.6 × 1.7 in.)	104.1 × 49.6 × 46.6 mm (4.1 × 1.9 × 1.8 in.)	196.4 × 82.0 × 82.0 mm (7.7 × 3.2 × 3.2 in.)	104.1 × 49.6 × 46.6 mm (4.1 × 1.9 × 1.8 in.)	107.8 × 49.6 × 46.6 mm (4.2 × 1.9 × 1.8 in.)	144.1 × 58.4 × 58.4 mm (5.7 × 2.3 × 2.3 in.)
Tripod mounting	1 × UNC ¼"-20 (with Base support accessory, included in the delivery box)	1 × UNC ¼"-20 (with Base support accessory, included in the delivery box)	1 × UNC ¼"-20 (with Base support accessory, included in the delivery box)	1 × UNC ¼"-20 (with Base support accessory, included in the delivery box)	1 × UNC ¼"-20 (with Base support accessory, included in the delivery box)	1 × UNC ¼"-20 (with Base support accessory, included in the delivery box)	1 × UNC ¼"-20 (with Base support accessory, included in the delivery box)
Base mounting	4 × M3 thread mounting holes (bottom)	4 × M3 thread mounting holes (bottom)	4 × M3 thread mounting holes (bottom)	4 × M3 thread mounting holes (bottom)	4 × M3 thread mounting holes (bottom)	4 × M3 thread mounting holes (bottom)	4 × M3 thread mounting holes (bottom)
Housing material	Magnesium and aluminum	Magnesium and aluminum	Magnesium and aluminum	Magnesium and aluminum	Magnesium and aluminum	Magnesium and aluminum	Magnesium and aluminum

Shipping information

Packaging, type	Cardboard box	Cardboard box	Cardboard box	Cardboard box	Cardboard box	Cardboard box	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 ResearchIR Standard 4 • Focus adjustment tool • Gooseneck • Mains cable kit (UK,EU,US) • PoE Injector (power over Ethernet) • Printed documentation • Table stand	• Hard transport case • Infrared camera with lens • Base support • Cable tie (2 ea.) • Ethernet cable CAT-6, 2m/6.6 ft (2 ea.) • FLIR ResearchIR Standard 4 • Focus adjustment tool • Gooseneck • Mains cable kit (UK,EU,US) • PoE Injector (power over Ethernet) • Printed documentation • Table stand	• Infrared camera with lens • Base support • Focus adjustment tool • Printed documentation	• Infrared camera with lens • Base support • Printed documentation	• Infrared camera with lens • Base support • Focus adjustment tool • Printed documentation	• Infrared camera with lens • Base support • Printed documentation	• Infrared camera with lens • Base support • Printed documentation
Packaging, weight		5.3 kg (11.7 lb.)	-	-	-	-	-
Packaging, size	295 × 200 × 105 mm (11.6 × 7.9 × 4.1 in.)	370 × 180 × 320 mm (14.6 × 7.1 × 12.6 in.)	-	-	-	-	-
EAN-13	7332558011829	7332558010624	7332558011621	7332558012321	7332558011102	7332558011119	7332558012314
UPC-12	845188012915	845188011291	845188012571	845188013431	845188011970	845188011987	845188013424
Country of origin	Estonia	Sweden	Sweden	Sweden	Sweden	Sweden	Sweden