

# ULISSE EVO THERMAL

PTZ THERMAL CAMERA WITH RADIOMETRY FUNCTIONS AND HIGH PERFORMANCE



ULISSE EVO THERMAL + UEBPFOA



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## DESCRIPTION

ULISSE EVO THERMAL is a PTZ thermal camera, developed to provide a preventive video surveillance system in critical infrastructure, transport, marine applications and for fire detection.

The thermal camera offers temperature detection based on the 4 central pixels of the image and the option to send an alarm based on temperature rules. As well as this, the advanced version, can measure the temperature of a specific object at any point in the image just defining an ROI.

ULISSE EVO THERMAL maintains maximum operating efficiency with temperatures from -40°C (-40°F) to +65°C (149°F), while the levels of protection IK10, IP66/IP67/IP68, NEMA Type 4X and Type 6P guarantee maximum resistance against dust and bad weather, strong impact and vandalism.

ULISSE EVO THERMAL offers an unrivalled corrosion resistance, thanks to the special aluminum surface treatments and the technopolymer used for its construction.

The modern, linear design of ULISSE EVO THERMAL combines maximum strength and operational reliability with greatly reduced weight. This means easy and quick assembly and therefore lower installation costs and zero maintenance.

ULISSE EVO THERMAL can be installed in different ways, even in the inverted position typical of the speed domes, using the large variety of brackets and adaptors available to satisfy every installation need. The brackets are also available with quick connectors for Ethernet/PoE, for power and I/O, which allow fast and easy installation and maintenance.

ULISSE EVO THERMAL is available in two standard colours gray-white (RAL9002) or black (RAL9005) to suit specific application requirements.

## CERTIFICATIONS



## MAIN FEATURES

Thermal camera:

- Image Device: Uncooled VOx microbolometer
- Resolution: 336x256 or 640x512
- Lenses: 35mm, 25mm, 19mm, 13mm, 9mm
- Image update frequency: 7.5Hz or 30Hz

Radiometric analysis

Video compression: H.264/AVC, MJPEG, JPEG and MPEG4

Complies with ONVIF, Profile Q, Profile S and Profile T

Digitally signed firmware

Complies with ONVIF Security Service specifications

Up to 3 independent SD video streams

2 alarm inputs and 2 relay outputs

Variable speed: from 0.1°/s up to 250°/s horizontal and vertical movement

Horizontal continuous rotation, vertical from -90° up to +90°

Position accuracy: 0.05°

Up to 250 Presets

Speed proportional to Zoom

Power supply: 24Vac, 24Vdc, PoE 90W

Can be also installed in upside-down position (in speed-dome mode)

Compliance to railway applications standard EN50121-4

Marine Certification: Lloyd's Register Marine Type Approval

## TECHNICAL DATA

### GENERAL

Easy installation thanks to the self-centring connector

Zero backlash

Quick configuration and setup

Dynamic positioning control system

Functions: Preset, Preset Tour (Patrol), Autoflip, Autopan via Preset Tour

Maximum number of presets: 250

Radiometric analysis:

- on the 4 central pixels, if the thermal camera has radiometric functions
- definition of a specific area, if the thermal camera has advanced radiometric functions

Radiometric alarm activation: If the temperature is over the threshold set, under the threshold set, between two thresholds set or outside the two thresholds set.

Actions on alarm: Activation of digital output, preset tour recall, home position recall, preset position recall and http get request.

### MECHANICAL

Constructed from aluminium and tecnopolymer

Epoxy-polyester powder painted, standard colours RAL9002 or black (RAL9005)

Horizontal rotation: 360°, continuous rotation

Vertical rotation: from -90° up to +90° (with ceiling installation, from -40° up to +90°)

Horizontal speed (variable): from 0.1°/s up to 250°/s

Tilt speed (variable): from 0.1°/s up to 250°/s

Accuracy of preset positions: 0.05°

Cable glands: 2xM16 + 1xM20 + special gasket for RJ45 cables

Unit weight: 7.1kg (15.6lb)

### HOUSING'S WINDOW

Germanium window

- Thick: 1.5mm (0,06in)
- External treatment: antiscratch (Hard Carbon Coating - DLC), antireflection
- Internal treatment: antireflection
- Spectral range: from 7.5µm up to 14µm
- Medium transmittance (from 7.5µm up to 11.5µm): 91.2%
- Medium transmittance (from 11.5µm up to 14µm): 80.9%

### ELECTRICAL

Supply voltage/Current consumption:

- 24Vac ±20%, 5A, 50/60Hz
- 24Vdc ±10%, 5A
- PoE 90W (only with OHEP90INJ or OHEP90INJO accessories)

ECO-MODE function for energy saving: 21W, P&T static

Power consumption:

- 27W, P&T static, heating switched off
- 27W, P&T in motion, heating switched off
- 57W, peak at start-up, heating on and de-icing function

Cables input section: from 0.75mm<sup>2</sup> (18AWG) up to 2.5mm<sup>2</sup> (13AWG)

Cables signal section: from 0.14mm<sup>2</sup> (26AWG) up to 1mm<sup>2</sup> (17AWG)

Alarm inputs: 2 (auto-powered from 12Vdc up to 18Vdc)

Relay outputs: 2 (1A, 30Vac/30Vdc max)

### NETWORK

Ethernet connection: 100 Base-TX

Connector: RJ45

### CYBERSECURITY

Digitally signed firmware

Password restricted access (HTTP digest)

Support of various user access levels

Control of accesses IEEE 802.1X

HTTPS cryptography using TLS1.0, TLS1.1, TLS1.2 and TLS1.3

Centralised certificate management

Complies with ONVIF Security Service specifications

### VIDEO

Video encoder

- Communication protocol: ONVIF, Profile Q, Profile S and Profile T, ONVIF Thermal Service
- Device configuration: TCP/IPv4-IPv6, UDP/IPv4-IPv6, HTTP, HTTPS, NTP, DHCP, WSDISCOVERY, DSCP, IGMP (Multicast), SOAP, DNS
- Streaming: RTSP, RTCP, RTP/IPv4-IPv6, HTTP, Multicast
- Video compression: H.264/AVC, MJPEG, JPEG, MPEG4
- 3 independent video streams
- Image resolution: from 320x180pixel up to 720x480pixel in 4 steps
- Selectable frame rate from 1 to 30 images per second (fps)
- Web Server
- Directional OSD (maximum 4 settable areas)
- Motion Detection
- QoS: Differentiated DSCPs for streaming and device management
- SNMP and NTCIP protocols

## ENVIRONMENT

For indoors and outdoors installation

Operating temperature

- Continuous functioning: from -40°C (-40°F) up to +65°C (149°F) (+50°C (122°F) for versions painted black)
- Temperature test complies with NEMA-TS 2-2003 (R2008) par. 2.1.5.1, test profile fig. 2-1 (from -34°C (-29.2°F) to +74°C (165.2°F))
- De-icing function intervention: from -40°C (-40°F) up to -10°C (14°F)

Wind resistance

- PTZ static: 230km/h (143mph) max.
- PTZ operational at the maximum speed: 230km/h (143mph) max.

Relative humidity: from 5% up to 95%

## CERTIFICATIONS

Electrical safety (CE): EN60950-1, IEC60950-1, EN62368-1, IEC62368-1

Electromagnetic compatibility (CE): EN61000-6-4, EN50130-4, EN55032 (Class A)

Outdoor installation (CE): EN60950-22, IEC60950-22

IP protection degree (EN60529): IP66, IP67, IP68

Salty fog resistance: EN50130-5, EN60068-2-52

IK protection degree: IK10

UL certification (UL60950-1, CAN/CSA C22.2 No. 60950-1-07, UL62368-1 CAN/CSA C22.2 No. 62368-1-14): cULus Listed

Electromagnetic compatibility (North America): FCC part 15 (Class A), ICES-003 (Class A)

Level of protection Type (UL50E): 4X, 6P

EAC certification

Restriction of Hazardous Substances (RoHS), Directive 2011/65/EU

Waste Electrical and Electronic Equipment (WEEE), Directive 2012/19/EU

## CERTIFICATIONS - RAILWAY APPLICATIONS

Compliance to railway application standard: EN50121-4 (the product requires the filter accessory SURGEPR)

## CERTIFICATIONS - MARINE APPLICATIONS

Lloyd's Register Marine Type Approval certification (the product requires the filter accessory FM1010):

- Test Specification Number 1 (ENV1, ENV2, ENV3, ENV5)

Electromagnetic compatibility: EN60945

Salty fog resistance: EN60068-2-52

Tested at 70°C (158°F) for 16 hours in compliance with EN60068-2-2

## ACCESSORIES

OHEP90INJ	Power Injector PoE (90W), 1 channel, for indoor installations
OHEP90INJO	Power Injector PoE (90W), 1 channel, for outdoor installations
SURGEPR	Lightning surge protection device
FM1010	EMC filter for Marine certification
UPTIRPS100N	External power supply for ULISSE series, IN 100Vac, in weatherproof box
UPTIRPS120UL	External power supply for ULISSE series, IN 120Vac, in weatherproof box
UPTIRPS230N	External power supply for ULISSE series, IN 230Vac, in weatherproof box

## BRACKETS AND ADAPTORS

UEBP0AA	Parapet bracket with internal cable channel for ULISSE EVO, grey-white (RAL9002)
UEBP4AA	Parapet bracket with quick connectors RJ45 (Ethernet and PoE) + 4 poles with screw terminal (power supply and I/O) for ULISSE EVO grey-white (RAL9002)
UEBP7AA	Parapet bracket with quick connectors RJ45 (Ethernet and PoE) + 7 poles to weld (power supply and I/O) for ULISSE EVO, grey-white (RAL9002)
UEBP0FA	Parapet bracket with internal cable channel for ULISSE EVO, black colour (RAL9005)
UEBP4FA	Parapet bracket with quick connectors RJ45 (Ethernet and PoE) + 4 poles with screw terminal (power supply and I/O) for ULISSE EVO, black colour (RAL9005)
UEBP7FA	Parapet bracket with quick connectors RJ45 (Ethernet and PoE) + 7 poles to weld (power supply and I/O) for ULISSE EVO, black colour (RAL9005)
UEBWAA	Wall bracket for ULISSE EVO, grey-white (RAL9002)
UEBWFA	Wall bracket for ULISSE EVO, black colour (RAL9005)
UEAP	Pole adaptor in stainless steel AISI 316L
UEAC	Corner adaptor in stainless steel AISI 316L
UEAW	Counter-plate in stainless steel AISI 316L

## PACKAGE

Model Number	Weight	Dimensions (WxHxL)	Master carton
UET2DA000A	9.2kg (20.3lb)	27x30x50cm (10.6x11.8x19.6in)	-

THERMAL CAMERAS (RESOLUTION 336X256)					
	Lens 9mm	Lens 13mm	Lens 19mm	Lens 25mm	Lens 35mm
Image Device	Uncooled VOx microbolometer	Uncooled VOx microbolometer	Uncooled VOx microbolometer	Uncooled VOx microbolometer	Uncooled VOx microbolometer
Interpolated resolution	720x480	720x480	720x480	720x480	720x480
Pixel dimensions	17µm	17µm	17µm	17µm	17µm
Spectral response - long wave infrared (LWIR)	from 7.5µm to 13.5µm	from 7.5µm to 13.5µm	from 7.5µm to 13.5µm	from 7.5µm to 13.5µm	from 7.5µm to 13.5µm
Internal shutter (only for sensor compensation)	Video stop < 1s	Video stop < 1s	Video stop < 1s	Video stop < 1s	Video stop < 1s
Digital Detail Enhancement (DDE)	√	√	√	√	√
Digital Zoom	2x, 4x	2x, 4x	2x, 4x	2x, 4x	2x, 4x
Image updating frequency	7.5fps	7.5fps	7.5fps	7.5fps	7.5fps
Image updating high frequency	30fps	30fps	30fps	30fps	30fps
Scene range (High Gain)	-40°C ÷ +160°C (-40°F ÷ +320°F) (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F) (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F) (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F) (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F) (-40°F ÷ +320°F)
Scene range (Low Gain)	-40°C ÷ +550°C (-40°F ÷ +1022°F) (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F) (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F) (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F) (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F) (-40°F ÷ +1022°F)
Horizontal field of view	35°	25°	17°	13°	9,3°
Vertical field of view	27°	19°	13°	10°	7,1°
F-number	F/1.25	F/1.25	F/1.25	F/1.1	F/1.2
Thermal sensitivity (NETD), Thermal camera with radiometric functions	< 50mK at f/1.0	< 50mK at f/1.0	< 50mK at f/1.0	< 50mK at f/1.0	< 50mK at f/1.0
Thermal sensitivity (NETD), Thermal camera with advanced radiometric functions	< 30mK at f/1.0	< 30mK at f/1.0	< 30mK at f/1.0	< 30mK at f/1.0	< 30mK at f/1.0
Person (detection / recognition / identification)	285m / 71m / 36m (935ft / 233ft / 118ft)	440m / 112m / 56m (1443ft / 2368ft / 183ft)	640m / 160m / 80m (2099ft / 524ft / 262ft)	930m / 230m / 116m (3051ft / 754ft / 380ft)	1280m / 320m / 160m (4199ft / 1050ft / 525ft)
Car (detection / recognition / identification)	880m / 220m / 108m (2887ft / 722ft / 354ft)	1340m / 340m / 170m (4396ft / 1115ft / 557ft)	1950m / 500m / 250m (6397ft / 1640ft / 820ft)	2800m / 710m / 360m (9186ft / 2329ft / 1181ft)	3850m / 950m / 295m (12631ft / 3116ft / 967ft)

Radiometric analysis does not affect camera performance.

THERMAL CAMERAS (RESOLUTION 640X512)					
	Lens 9mm	Lens 13mm	Lens 19mm	Lens 25mm	Lens 35mm
Image Device	Uncooled VOx microbolometer	Uncooled VOx microbolometer	Uncooled VOx microbolometer	Uncooled VOx microbolometer	Uncooled VOx microbolometer
Interpolated resolution	720x480	720x480	720x480	720x480	720x480
Pixel dimensions	17µm	17µm	17µm	17µm	17µm
Spectral response - long wave infrared (LWIR)	from 7.5µm to 13.5µm	from 7.5µm to 13.5µm	from 7.5µm to 13.5µm	from 7.5µm to 13.5µm	from 7.5µm to 13.5µm
Internal shutter (only for sensor compensation)	Video stop < 1s	Video stop < 1s	Video stop < 1s	Video stop < 1s	Video stop < 1s
Digital Detail Enhancement (DDE)	√	√	√	√	√
Digital Zoom	2x, 4x, 8x	2x, 4x, 8x	2x, 4x, 8x	2x, 4x, 8x	2x, 4x, 8x
Image updating frequency	7.5fps	7.5fps	7.5fps	7.5fps	7.5fps
Image updating high frequency	30fps	30fps	30fps	30fps	30fps
Scene range (High Gain)	-40°C ÷ +160°C (-40°F ÷ +320°F) (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F) (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F) (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F) (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F) (-40°F ÷ +320°F)
Scene range (Low Gain)	-40°C ÷ +550°C (-40°F ÷ +1022°F) (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F) (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F) (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F) (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F) (-40°F ÷ +1022°F)
Horizontal field of view	69°	45°	32°	25°	18°
Vertical field of view	56°	37°	26°	20°	14°
F-number	F/1.4	F/1.25	F/1.25	F/1.1	F/1.2
Thermal sensitivity (NETD), Thermal camera with radiometric functions	< 50mK at f/1.0	< 50mK at f/1.0	< 50mK at f/1.0	< 50mK at f/1.0	< 50mK at f/1.0
Thermal sensitivity (NETD), Thermal camera with advanced radiometric functions	< 30mK at f/1.0	< 30mK at f/1.0	< 30mK at f/1.0	< 30mK at f/1.0	< 30mK at f/1.0
Person (detection / recognition / identification)	250m / 63m / 31m (820ft / 207ft / 102ft)	390m / 95m / 47m (1280ft / 312ft / 154ft)	570m / 144m / 72m (1870 / 472 / 236ft)	820m / 210m / 104m (2690ft / 689ft / 341ft)	1140m / 280m / 142m (3740ft / 919ft / 466ft)
Car (detection / recognition / identification)	720m / 175m / 88m (2362 / 574 / 289ft)	1080m / 275m / 140m (3543ft / 902ft / 459ft)	1550m / 400m / 200m (5085ft / 1312ft / 656ft)	2200m / 580m / 290m (7218ft / 1903ft / 951ft)	3000m / 800m / 200m (9843ft / 2625ft / 656ft)

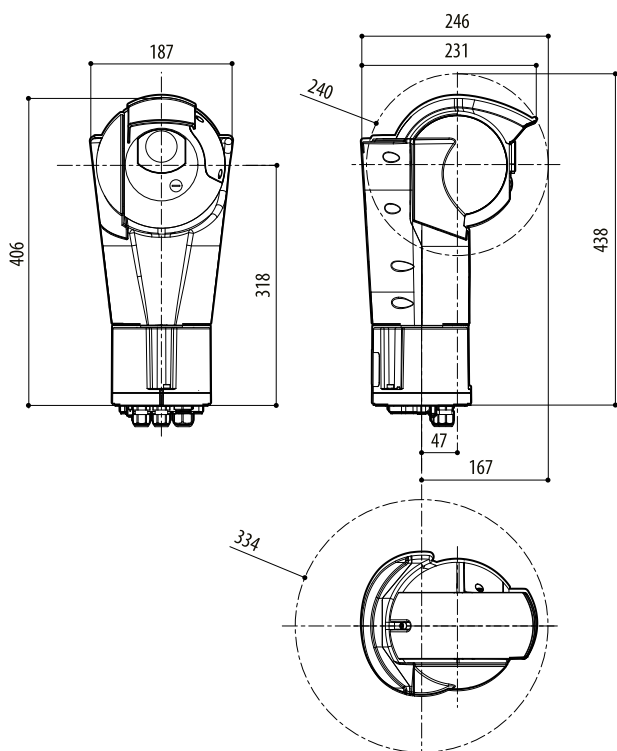
Radiometric analysis does not affect camera performance.

## ULISSE EVO THERMAL - CONFIGURATION OPTIONS

	Voltage	Camera	Colour	Radiometry	Frequency
<b>UET</b>	<b>2</b> 24Vac, 24Vdc, PoE 90W	<b>I</b> Thermal camera 35mm, 336x256	<b>A</b> Grey-white (RAL9002)	<b>000</b> Thermal camera with radiometric functions	<b>A</b> - 7.5Hz
		<b>L</b> Thermal camera 25mm, 336x256	<b>F</b> Black (RAL9005)	<b>ORO</b> Thermal camera with advanced radiometric functions	<b>H</b> 30Hz
		<b>Z</b> Thermal camera 19mm, 336x256			
		<b>M</b> Thermal camera 13mm, 336x256			
		<b>Q</b> Thermal camera 9mm, 336x256			
		<b>D</b> Thermal camera 35mm, 640x512			
		<b>E</b> Thermal camera 25mm, 640x512			
		<b>U</b> Thermal camera 19mm, 640x512			
		<b>G</b> Thermal camera 13mm, 640x512			
		<b>H</b> Thermal camera 9mm, 640x512			

## TECHNICAL DRAWINGS

The indicated measurements are expressed in millimetres.



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