ULISSE EVO THERMAL

PTZ THERMAL CAMERA WITH RADIOMETRY FUNCTIONS AND HIGH PERFORMANCE

IP66
IP67
IP68

TYPE 4X
TYPE 6P

IK10

IP

- **Designed to resist and last**
- **Thermal camera with radiometric functions**
- **Unbeatable solution for outdoor applications**
- **PoE compatible with standard IEEE.802.3bt**

Onvif® | QST

LR APPROVED TYPE APPROVAL SCHEME

DESIGNED TO ENDURE OUTDOOR APPLICATIONS

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. It is designed to guarantee total reliability and continuous operations in the most challenging outdoor environments. It is ultra-resistant to corrosion and can withstand a wide temperature range (from -40°C to +65°C). The extra-sturdy structure is guaranteed by IK10, IP66/IP67/IP68, NEMA TYPE 4X and TYPE 6P protection ratings. Exceptional wind resistance up to 230km/h with PTZ moving at maximum speed.

ULISSE EVO THERMAL has obtained Lloyd's Register Marine Type Approval for the maritime and shipping sector and complies with the standard for railway applications.

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. It can even be mounted upside down, in the typical speed domes position. The supports can be supplied with quick-fit connectors for Ethernet/PoE, power supply and I/O. This means the unit can be replaced quickly and easily in case of on-site intervention.

ULISSE EVO THERMAL can be powered with PoE 90W according to the IEEE.802.3bt standard. This guarantees compatibility with the most common power injectors available on the market, while maintaining backwards compatibility with PoH power injectors (OHEP90INJ or OHEP90INJO).

RADIOMETRIC FUNCTIONS FOR MEASURING TEMPERATURE

The integrated thermal camera can identify targets moving in the dark or at distance with extreme accuracy. As well as this, it has radiometric functions that allow precise temperature detection based on the image's 4 main pixels. The device can be configured so that it independently generates a Radiometric Alarm and/or Warning via ONVIF Events on the VMS. For example, an event can be sent when: the temperature is below a settable value; the temperature is above a settable value; the temperature is between two settable values; the temperature is outside two settable values. This function is particularly useful when monitoring industrial processes.

In camera models with advanced radiometric functions, up to 5 ROIs (Regions of Interest) can be set for each preset position. The defined ROIs are scaled proportionally to the digital zoom. So, when zooming in the ROI is increased and when zooming out the ROI is decreased. PTZ ROIs are set to preset PAN and TILT positions (not zoom) so they then change in relation to the zoom. In camera models with advanced radiometric functions, thermal cameras offer three temperatures: minimum, average and maximum. Radiometric rules can be linked to exceeding one of these three temperature thresholds.

GEOMOVE FUNCTION

The GeoMove function offered by the ULISSE EVO THERMAL uses two connected cameras that communicate with each other through intelligent language, meaning advanced actions can be carried out in even the most basic surveillance systems.

GeoMove can be used with fixed or PTZ cameras that have VIDEOTEC ANALYTICS and monitor a certain area. When a target is sighted, the camera sends the geo-coordinates of the target to a ULISSE EVO THERMAL PTZ that uses them to frame the target.

The GeoMove function can interface with third-party software that gives an objects geo-coordinates, such as Video Management Software (VMS) for traditional video surveillance where a target needs to be shown on a map, or Vessel Tracking Service (VTS) for navigation control services (also combined with radar control systems).

100% MADE IN VIDEOTEC

Videotec guarantees the excellent strength and reliability of the entire "all-in-one product" range with hundreds of verification tests. The mechanics, electronics, positioning, networking, software video analysis algorithms and firmware are designed by Videotec's in-house end-to-end team which, therefore, possesses 100% of the know-how of all the network products offered.

At the heart of Videotec's product development is the concept of cyber-sustainability. To help customers protect their video surveillance systems and keep them secure, Videotec provides constant updates, training and support throughout the lifecycle of its products, regardless of how old the device is or whether it is still for sale.

Thanks to digitally signed firmware, password-restricted access, access control, centralised management of certificates and compliance with ONVIF Security Service specifications, Videotec guarantees that all its IP products will have the highest level of security during data transfer and device access.

The products of the ULISSE EVO family are reliable, cyber-safe, future-proof and easily integrated with third-party products.

TECHNICAL DATA

GENERAL

Easy installation thanks to the self-centering 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 technopolymer

Epoxy-polyester powder painted, standard colours grey-white (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 pre-wired Ethernet cables

Unit weight: 7.1kg (15.6lb)

HOUSING'S WINDOW

Germanium window

- Thick: 1.5mm (0.06in)
- External treatment: antiscratch (Hard Carbon Coating - DLC)
- 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 compatible with standard IEEE802.3bt CLASS 8 (LLDP protocol not supported)
- PoH 90W (backward compatibility mode usable with accessory OHEP90INJ, OHEP90INJO)

Power consumption:

- 21W, PTZ camera stationary, heating switched off (with the ECO-MODE function enabled, energy saving function that is activated only when the PTZ camera is stationary)
- 27W, PTZ camera stationary, heating switched off (with the ECO-MODE function not enabled)
- 27W, PTZ camera moving, heating switched off
- 57W, peak at start-up, heating and de-icing functions switched on

Power supply cables section: from 0.75mm² (18AWG) up to 2.5mm² (13AWG)

Cables signal section: from 0.14mm² (26AWG) up to 1mm² (17AWG)

Multipolar cable sheath diameter:

- Cable glands M16: from 4.5mm (0.2in) up to 10mm (0.4in)
- Cable glands M16 with reduction gasket : from 2mm (0.08in) up to 6mm (0.24in)
- Cable glands M20: from 8mm (0.3in) up to 13mm (0.5in)

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

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

Ethernet cable features

- Minimum cable features: Class D (ISO/IEC11801:1995) or Category 5 (ANSI/EIA/TIA-568-A:1995)
- Shielded twisted cable (STP)
- Pair: 4
- DC loop resistance: 25Ohm max
- Connector: Shielded RJ45

NETWORK

Ethernet connection: 100 Base-TX

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, MPEG4, snapshot JPEG
- 3 independent video streams
- Image resolution: from 160x120pixel up to 720x480pixel in 5 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 camera static: 230km/h (143mph) max.
- PTZ camera moving, 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

Vibration test: EN50130-5, EN60068-2-6

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

IK protection degree: IK10 (except germanium window)

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

NDAA-compliant

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 if powered in 24Vac or 24Vdc):

- 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

COMB100A	Communication box in polycarbonate, IN from 220Vac up to 230Vac, OUT 24Vac
COMB200A	Communication box in polycarbonate, IN 24Vac, OUT 24Vac
COMB300A	Communication box in polycarbonate, IN from 120Vac up to 127Vac, OUT 24Vac
FM1010	EMC filter for Marine certification
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

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	13mm	19mm	25mm	35mm
VOx microbolometer sensor not cooled	√	√	√	√	√
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℃ ÷ +160℃ (-40°F ÷ +320°F)	-40℃ ÷ +160℃ (-40°F ÷ +320°F)	-40℃ ÷ +160℃ (-40°F ÷ +320°F)	-40℃ ÷ +160℃ (-40°F ÷ +320°F)	-40℃ ÷ +160℃ (-40°F ÷ +320°F)
Scene range (Low Gain)	-40℃ ÷ +550℃ (-40°F ÷ +1022°F)	-40℃ ÷ +550℃ (-40°F ÷ +1022°F)	-40℃ ÷ +550℃ (-40°F ÷ +1022°F)	-40℃ ÷ +550℃ (-40°F ÷ +1022°F)	-40℃ ÷ +550℃ (-40°F ÷ +1022°F)
Horizontal field of view (HFOV)	35°	25°	17°	13°	9.3°
Vertical field of view (VFOV)	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)

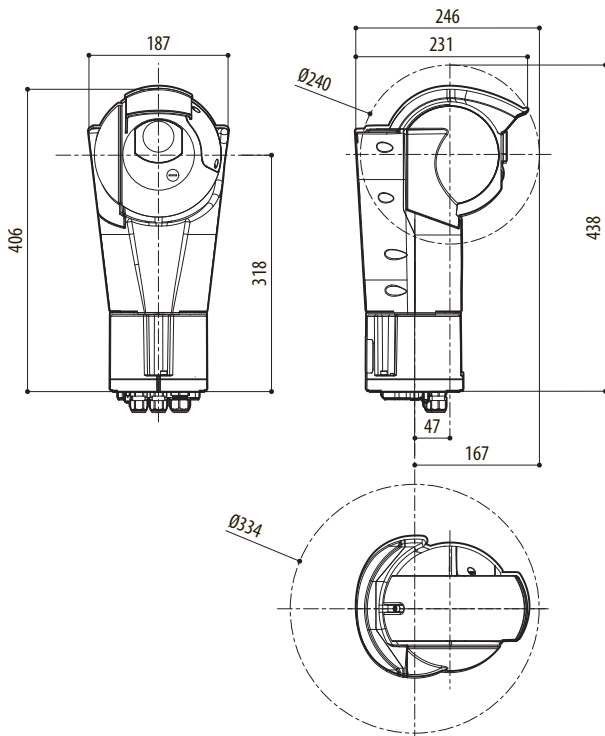| Lens	9mm	13mm	19mm	25mm	35mm
VOx microbolometer sensor not cooled	√	√	√	√	√
Interpolated resolution	720x480	720x480	720x480	720x480	720x480
Pixel dimensions	17μm	17μm	17μm	17μm	17μm
Spectral response - long wave infrared (LWIR)	from 7.5μm to 13.5μm	from 7.5μm to 13.5μm	from 7.5μm to 13.5μm	from 7.5μm 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℃ ÷ +160℃ (-40°F ÷ +320°F)	-40℃ ÷ +160℃ (-40°F ÷ +320°F)	-40℃ ÷ +160℃ (-40°F ÷ +320°F)	-40℃ ÷ +160℃ (-40°F ÷ +320°F)	-40℃ ÷ +160℃ (-40°F ÷ +320°F)
Scene range (Low Gain)	-40℃ ÷ +550℃ (-40°F ÷ +1022°F)	-40℃ ÷ +550℃ (-40°F ÷ +1022°F)	-40℃ ÷ +550℃ (-40°F ÷ +1022°F)	-40℃ ÷ +550℃ (-40°F ÷ +1022°F)	-40℃ ÷ +550℃ (-40°F ÷ +1022°F)
Horizontal field of view (HFOV)	69°	45°	32°	25°	18°
Vertical field of view (VFOV)	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 (UET) - CONFIGURATION OPTIONS

	Voltage		Camera		Colour		Radiometry		Revision	Frequency	
UET	**2**	24Vac, 24Vdc, PoE 90W	**I**	9.3° HFOV, Thermal camera 35mm, 336x256	**A**	Grey-white (RAL9002)	**000**	Thermal camera with radiometric functions	**A**	**-**	7.5Hz
			L	13° HFOV, Thermal camera 25mm, 336x256	**F**	Black (RAL9005)	**0R0**	Thermal camera with advanced radiometric functions		**H**	30Hz
			Z	17° HFOV, Thermal camera 19mm, 336x256							
			M	25° HFOV, Thermal camera 13mm, 336x256							
			Q	35° HFOV, Thermal camera 9mm, 336x256							
			D	18° HFOV, Thermal camera 35mm, 640x512							
			E	25° HFOV, Thermal camera 25mm, 640x512							
			U	32° HFOV, Thermal camera 19mm, 640x512							
			G	45° HFOV, Thermal camera 13mm, 640x512							
			H	69° HFOV, Thermal camera 9mm, 640x512							

TECHNICAL DRAWINGS

The indicated measurements are expressed in millimetres.

ULISSE EVO THERMAL