MAXIMUS MPXR SERIES2

NEW GENERATION OF EXPLOSION-PROOF PTZ WITH THERMAL CAMERA

- **Certified explosion-proof for use in Zones 1 and 2, Group IIC (Gas), Zones 21 and 22, Unit IIIC (Dust)**
- **Certified up to a temperature of +80°C**
- **Maximum resistance in corrosive environments**
- **Possibility of direct connection via fibre optic**
- **Thermal camera with radiometric functions**

MAXIMUM RESISTANCE IN THE MOST CRITICAL ENVIRONMENTS

MAXIMUS MPXR SERIES2 is a certified explosion-proof PTZ thermal camera, ideal for effective video surveillance and process control in the Oil & Gas, marine or industrial sectors, in environments where the atmosphere is potentially explosive due to the presence of flammable gas or dust.

MAXIMUS MPXR SERIES2 offers maximum resistance in corrosive environments with industrial and marine environments thanks to construction in AISI 316L stainless steel and micro-shot peened and electro-polished surfaces. Furthermore, the IP66/IP67/IP68/IP69, NEMA Type 4X and Type 6P certification guarantees complete protection against water and dust entry, even in difficult conditions.

CERTIFIED QUALITY

Every version of MAXIMUS MPXR SERIES2 PTZ is explosion-proof certified with a ambient temperature of up to +80°C. They have international certifications for use in Zone 1 and 2, Group IIC for gas, Zone 21 and 22, Group IIIC for dust (ATEX, IECEx, UL/CSA, EAC Ex, INMETRO, KCs). Thanks to the double cable entry, both 120Vac and 230Vac voltage supply versions are compliant with UL/CSA standards.

MAXIMUS MPXR SERIES2 products are certified Lloyd's Register Marine Type Approval System Test Specification Number 1 and can be used in Marine and Offshore applications for type ENV1, ENV2, ENV3 and ENV5 environmental categories (for example passenger ships, open decks, enclosed spaces, technical premises subject to heat generated by other equipment, areas at risk of explosion and as visual support for mooring manoeuvres).

RADIOMETRY FUNCTIONS

The thermal camera offers radiometric functions that allow a precise detection of the temperature based on 4 central pixels of the image. Versions are also available with advanced radiometry which allow temperature measurement of an object in any point of the image through the definition of an ROI (Region Of Interest). The radiometric functions allow setting of an alarm based on the temperature thresholds, over which the alarm could activate.

INSTALLATION FLEXIBILITY

The SERIES2 PTZ cameras have an SFP module slot at the base of the unit to allow easy fiber optic connection. The double cable entry and the numerous accessories and support available – including front window washing kit, communication boxes, pre-wired cabling, cable glands, and wall, parapet, corner, and pole mounts – mean maximum flexibility when it comes to installation. As well as this, the compact design means the camera fits in the tightest spaces, while its reduced weight makes it easier to install.

100% MADE IN VIDEOTEC

All Videotec products are developed end-to-end by the dedicated internal R&D team who have the business know-how to design the mechanisms, electronics and software. This internal R&D presents a real competitive advantage as the team are able to create customised solutions or integrations with third-party systems. Videotec can respond to customers quickly and efficiently.

Mechanics, electronics, positioning and networking, software and firmware are proudly developed end to end internally by Videotec R&D, as is the case with all their network products. All products come with the company guarantee of being a reliable, cyber-safe and future-proof platform that can be integrated with third-party products easily. MPX SERIES2 offers an integrated and certified all-in-one professional solution.

In the SERIES2, Videotec has expanded the list of compatible software, but has not changed the tested and proven software functions and protocols already found in the MAXIMUS MPX series. As a result, Videotec can guarantee complete compatibility and interchangeability between the previous and new generations of PTZ, while protecting the investments made by its customers when it comes to validation and integration of MAXIMUS MPX.

TECHNICAL DATA

GENERAL

AISI 316L stainless steel construction

External surfaces micro-shot peened and electro-polished

Dynamic positioning control system

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

Cable inputs: 2 x 3/4" NPT

Zero backlash

Horizontal rotation: 360°, continuous rotation

Vertical rotation: from -90° up to +90°

Horizontal speed (variable): from 0.1°/s to 100°/s

Tilt speed (variable): from 0.1°/s to 100°/s

Accuracy of preset positions: 0.02°

Unit weight: 26.5kg (58lb)

HOUSING'S WINDOW

Germanium window

- Thick: 8mm (0.3in)
- 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): 87.5%
- Medium transmittance (from 11.5µm up to 14µm): 72.1%

ELECTRICAL

Supply voltage/Current consumption:

- 230Vac ±10%, 0.5A, 50/60Hz
- 24Vac ±10%, 5A, 50/60Hz
- 120Vac ±10%, 1A, 50/60Hz

Power consumption:

- 120W max

NETWORK

RJ45 port

- Ethernet connection: 10BASE-T/100BASE-T

Slot SFP (SMALL FORM FACTOR PLUGGABLE)

- Ethernet connection:100BASE-FX
- Supply voltage: 3.3V
- Standard: compliant MSA

The SFP module (not supplied by VIDEOTEC) must meet the following requirements:

- Laser: Class 1, complies with EN60825-1
- UL/IEC 60950-1 or UL/IEC 62368-1 Certification

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

CAMERAS

Please refer to the relevant table

I/O INTERFACE

Input for remote reset: 1

Alarm inputs: 1

Relay outputs: 1 (1A, 30Vac/60Vdc max)

ENVIRONMENT

For indoors and outdoors installation

Certification temperature: from -40°C (-40°F) up to +80°C (+176°F)

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 (cold start): 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: 210km/h (130.5mph) max.

Relative humidity: from 5% up to 95%

CERTIFICATIONS

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

Electromagnetic compatibility (CE): EN50130-4, EN55032 (Class A), EN61000-6-3, EN61000-3-2, EN61000-3-3

RoHS (CE): EN50581

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

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

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)

IP protection degree (EN/IEC60529): IP66, IP67, IP68, IP69

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

RCM (Australian and New Zealand Regulatory Compliance Mark)

CERTIFICATIONS - EXPLOSION-PROOF APPLICATIONS

ATEX (EN IEC 60079-0, EN 60079-1, EN 60079-31)

IECEX (IEC 60079-0, IEC 60079-1, IEC 60079-31)

UL listed for USA (UL 60079-0, UL 60079-1, UL 60079-31)

UL listed for Canada (CAN/CSA-C22.2 NO. 60079-0, CAN/CSA-C22.2 NO. 60079-1, CAN/CSA-C22.2 NO. 60079-31)

EAC Ex (TR CU 012/2011)

INMETRO (ABNT NBR IEC 60079-0 + Errata 1, ABNT NBR IEC 60079-1 + Errata 1, ABNT NBR IEC 60079-31)

KCs (Employment and labor department 2016-54)

For further details on certifications and markings, consult the relevant table.

CERTIFICATIONS - MARINE APPLICATIONS

Lloyd's Register Marine Type Approval certification (with MAXIMUS MBX communication box or with FM1010 filter):
Test Specification Number 1 (ENV1, ENV2, ENV3, ENV5)

Electromagnetic compatibility: EN60945

Salty fog resistance: EN60068-2-52

BRACKETS AND ADAPTORS

MPXCW	AISI 316L stainless steel corner adapter module
MPXWBA	AISI 316L stainless steel wall bracket
MPXCOL	AISI 316L stainless steel pole adapter module
MPXWBTA	AISI 316L stainless steel parapet or ceiling mounting bracket

ACCESSORIES

MBX1MAA	Explosion-proof communication box in stainless steel, IN 230Vac, with EMC filter for marine certification
MBX2MAA	Explosion-proof communication box in stainless steel, IN 24Vac, with EMC filter for marine certification
MBX3MAA	Explosion-proof communication box in stainless steel, IN 120Vac, with EMC filter for marine certification
MBA1S5A	Explosion-proof communication box in aluminium, IN 230Vac
MBA2S5A	Explosion-proof communication box in aluminium, IN 24Vac
MBA3S5A	Explosion-proof communication box in aluminium, IN 120Vac
OCTEX3/4C	Cable gland in nickel-plated brass with gasket EX 3/4" NPT, unarmoured cable IECEX-ATEX-EAC Ex
OCTEXA3/4C	Cable gland in nickel-plated brass with gasket EX 3/4" NPT, armoured cable IECEX-ATEX-EAC Ex
OCTEXB3/4P	Barrier cable gland in nickel-plated brass EX 3/4" NPT, unarmoured cable IECEX-ATEX-EAC Ex
OCTEXBA3/4P	Barrier cable gland in nickel-plated brass EX 3/4" NPT, armoured cable IECEX-ATEX-EAC Ex
OCTEX3/4	Cable gland in nickel-plated brass with gasket EX 3/4" NPT, unarmoured cable ATEX
OCTEXA3/4	Cable gland in nickel-plated brass with gasket EX 3/4" NPT, armoured cable ATEX
OCTEX1/2-3/4P	Cable glands reduction in nickel-plated brass Ex 3/4" - 1/2" NPT IECEX-ATEX-EAC Ex
OEXPLUG3/4P	Plug EX 3/4" NPT IECEX-ATEX-EAC Ex
OCTEXP3/4C	Conduit cable gland nickel-plated brass 3/4" NPT IECEX-ATEX- c CSA us - EAC Ex (operating temperature: from -60°C (-76°F) up to +80°C (+176°F))
FM1010	EMC filter for Marine certification
MPX2CABLARM4	Cabling for MAXIMUS MPX SERIES2, 4m (13.1ft), armoured cable, barrier cable gland
MPX2CABL4	Cabling for MAXIMUS MPX SERIES2, 4m (13.1ft), unarmoured cable, barrier cable gland
MPX2CABLARM10	Cabling for MAXIMUS MPX SERIES2, 10m (32.8ft), armoured cable, barrier cable gland
MPX2CABL10	Cabling for MAXIMUS MPX SERIES2, 10m (32.8ft), unarmoured cable, barrier cable gland

For further details about cable glands part numbers, please refer to the relevant table.

PACKAGE

Model Number	Weight	Dimensions (WxHxL)	Master carton
MPXR11A000C	29kg (64lb)	50x42x26cm (19.7x16.5x10.2in)	-

THERMAL CAMERAS (RESOLUTION 336X256)

	Lens 9mm	Lens 13mm	Lens 19mm	Lens 25mm	Lens 35mm
Image Sensor	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 19mm	Lens 25mm	Lens 35mm
Image Sensor	Uncooled VOx microbolometer	Uncooled VOx microbolometer	Uncooled VOx microbolometer
Interpolated resolution	720x480	720x480	720x480
Pixel dimensions	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
Internal shutter (only for sensor compensation)	Video stop < 1s	Video stop < 1s	Video stop < 1s
Digital Detail Enhancement (DDE)	√	√	√
Digital Zoom	2x, 4x, 8x	2x, 4x, 8x	2x, 4x, 8x
Image updating frequency	7.5fps	7.5fps	7.5fps
Image updating high frequency	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)
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)
Horizontal field of view	32°	25°	18°
Vertical field of view	26°	20°	14°
F-number	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
Thermal sensitivity (NETD), Thermal camera with advanced radiometric functions	< 30mK at f/1.0	< 30mK at f/1.0	< 30mK at f/1.0
Person (detection / recognition / identification)	570m / 144m / 72m (1870 / 472 / 236ft)	820m / 210m / 104m (2690ft / 689ft / 341ft)	1140m / 280m / 142m (3740ft / 919ft / 466ft)
Car (detection / recognition / identification)	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.

CABLE GLANDS AND ACCESSORIES 3/4" NPT

Type	Certification	Operating temperature	Cable		Model Number	Diameter of the external cable	Under armor cable diameter
Barrier cable gland	IECEX/ATEX/EAC Ex	-60°C (-76°F) / +135°C (275°F)	Unarmoured cable		OCTEXB3/4P	17.8 - 20.0mm (0.70-0.79in)	–
			Armoured cable		OCTEXBA3/4P	16.8 - 23.9mm (0.66-0.94in)	–
Cable gland with gasket	IECEX/ATEX/EAC Ex	-60°C / +100°C (-76°F / +212°F)	Unarmoured cable		OCTEX3/4C	13.0 - 20.2mm (0.51-0.79in)	–
		-60°C / +80°C (-76°F / +176°F)	Armoured cable		OCTEXA3/4C	16.9 - 26.0mm (0.66-1.02in)	11.1 - 19.7mm (0.44 - 0.78in)
	ATEX	-40°C / +100°C (-40°F / +212°F)	Unarmoured cable		OCTEX3/4	14.0 - 17.0mm (0.55-0.67in)	–
			Armoured cable		OCTEXA3/4	18.0 - 23.0mm (0.71-0.91in)	14 - 17mm (0.55 - 0.67in)
Plug EX 3/4"NPT	IECEX/ATEX/EAC Ex	-100°C (-148°F) / +400°C (752°F)	–		OEXPLUG3/4P	–	–
Conduit sealing fitting	IECEX-ATEX- c CSA us - EAC Ex	-60°C / +80°C (-76°F / +176°F)	–		OCTEXP3/4C	–	–
Reduction 3/4" NPT x 1/2" NPT	IECEX/ATEX/EAC Ex	-100°C (-148°F) / +400°C (752°F)	–		OCTEX1/2-3/4P	–	–

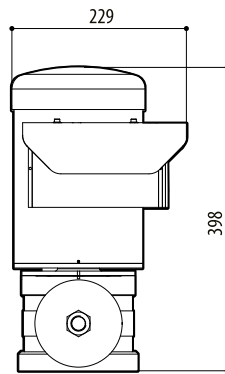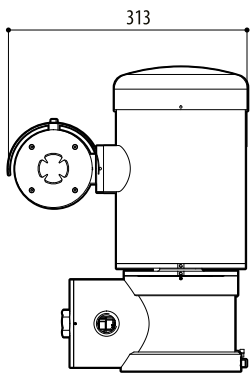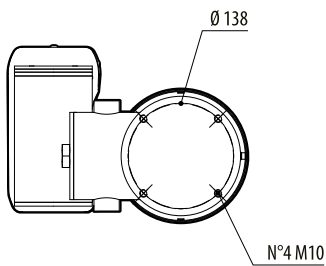## MAXIMUS MPXR SERIES2 - CERTIFICATIONS AND MARKINGS

Part number	Certification	Marking	Ambient temperature	Cable entry temperature
MPXR**A0**C*	ATEX	ⓔ II 2 G Ex db IIC T6...T5 Gb ⓔ II 2D Ex tb IIIC T85°C...T100°C Db	-40°C ≤ Ta ≤ +60°C or +70°C	80°C
	IECEx	Ex db IIC T6...T5 Gb Ex tb IIIC T85°C...T100°C Db		
	EAC Ex	1Ex d IIC T6...T5 Gb X Ex tb IIIC T85°C...T100°C Db X		
	INMETRO	Ex db IIC T6...T5 Gb Ex tb IIIC T85°C...T100°C Db		
	KCs	Ex d IIC T6...T5 Ex tb IIIC T85°C...T100°C		
	UL Hazardous Location America	Class I, Zone 1, AEx db IIC T6...T5 Gb Zone 21, AEx tb IIIC T85°C...T100°C Db Class I, Div 2, Group A, B, C, D T6...T5 Class II, Div 2, Group F, G T6...T5		80°C with Ta = 69°C 81°C with Ta = 70°C
	UL Hazardous Location Canada	Ex db IIC T6...T5 Gb X Ex tb IIIC T85°C...T100°C Db X Class I, Div 2, Group A, B, C, D T6...T5 Class II, Div 2, Group F, G T6...T5		
MPXR**D0**C*	ATEX	ⓔ II 2G Ex db IIC T4 Gb ⓔ II 2D Ex tb IIIC T135°C Db	-40°C ≤ Ta ≤ +80°C	90°C
	IECEx	Ex db IIC T4 Gb Ex tb IIIC T135°C Db		
	EAC Ex	1Ex d IIC T4 Gb X Ex tb IIIC T135°C Db X		
	INMETRO	Ex db IIC T4 Gb Ex tb IIIC T135°C Db		
	KCs	Ex d IIC T4 Ex tb IIIC T135°C		

MAXIMUS MPXR SERIES2 - CONFIGURATION OPTIONS

		Voltage		Thermal Camera		Temperature class		Radiometry			Frequency
MPXR	1	230Vac	A	Thermal camera 35mm, 336x256	A	T6...T5 -40℃/+60℃ or +70℃	0	0	Thermal camera with radiometric functions	0C	- 7.5Hz
	2	24Vac	B	Thermal camera 25mm, 336x256	D	T4 -40℃/+80℃		R	Thermal camera with advanced radiometric functions		H 30Hz
	3	120Vac	V	Thermal camera 19mm, 336x256							
			F	Thermal camera 13mm, 336x256							
			C	Thermal camera 9mm, 336x256							
			D	Thermal camera 35mm, 640x512							
			E	Thermal camera 25mm, 640x512							
			U	Thermal camera 19mm, 640x512							

TECHNICAL DRAWINGS

The indicated measurements are expressed in millimetres.

Ø 138

N°4 M10

313

229

398

MAXIMUS MPXR SERIES2