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, Group IIIC (Dust)
- Certified up to a temperature of +80°C
- Maximum resistance in corrosive environments
- · Possibility of direct connection via fiber 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 $+80^{\circ}$ C. They have international certifications for use in Zone 1 and 2, Group IIC for gas, Zone 21 and 22, Group IIIC, Class 1 Div. 2, 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).

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.

INSTALLATION FLEXIBILITY

The SERIES2 range of cameras can easily connect the PTZ via fibre optic thanks to the SFP module slot installed directly into the junction box integrated into the base of the unit.

The double cable entry and the numerous accessories and supports available (washing system, communication box, pre-wired cables, cable glands, wall supports, railing supports, corners and pole), allow exceptional installation flexibility.

GEOMOVE FUNCTION

The GeoMove function offered by the new MAXIMUS MPXR SERIES2 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 MAXIMUS MPXR SERIES2 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

SERIES2 offers an integrated certified all-in-one professional solution. Since everything from mechanics to electronics, positioning and networking, software and firmware are all proudly developed end-to-end by Videotec's internal teams, as is the case for all the company's products, these PTZs come with the Videotec guarantee of being reliable, cyber-safe, future-proof and easily integrated with third-party products.

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.

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
- $\bullet \ definition \ of \ a \ specific \ area, if the \ thermal \ camera \ has \ advanced \ radiometric \ functions$

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: MSA compliant

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

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

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

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 $+80^{\circ}$ C ($+176^{\circ}$ 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 $+74^{\circ}$ 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), EN61000-6-4, 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) (not available for 100Vac and 220Vac versions): cULus Listed

Electromagnetic compatibility (North America) (not available for 100Vac and 220Vac versions): FCC part 15 (Class A), ICES-003 (Class A)

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

Level of protection Type (UL50E) (not available for 100Vac and 220Vac versions): 4X. 6P

RCM (Australian and New Zealand Regulatory Compliance Mark)

NDAA-compliant

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, ABNT NBR IEC 60079-1, 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

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
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))
OEXPLUG1/2P	Plug EX 1/2" NPT IECEX-ATEX-EAC Ex
OEXPLUG3/4P	Plug EX 3/4" NPT IECEX-ATEX-EAC Ex
FM1010	EMC filter for Marine certification
MPX2CABLARM4	Cabling for MAXIMUS MPX SERIES2, 4m (13.1ft), armoured cable, barrier cable gland: 1 Ethernet cable, 3 power supply conductors, 7 conductors for alarms and relay
MPX2CABL4	Cabling for MAXIMUS MPX SERIES2, 4m (13.1ft), unarmoured cable, barrier cable gland: 1 Ethernet cable, 3 power supply conductors, 10 conductors for alarms and relay
MPX2CABLARM10	Cabling for MAXIMUS MPX SERIES2, 10m (32.8ft), armoured cable, barrier cable gland: 1 Ethernet cable, 3 power supply conductors, 7 conductors for alarms and relay
MPX2CABL10	Cabling for MAXIMUS MPX SERIES2, 10m (32.8ft), unarmoured cable, barrier cable gland: 1 Ethernet cable, 3 power supply conductors, 10 conductors for alarms and relay

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

BRACKETS AND AI	DAPTORS			
MPXCW	AISI 316L stainless steel corner adapter module			
MPXWBA	AISI 316L stair	nless steel wall bracket		
MPXCOL	AISI 316L stair	nless steel pole adapter mod	ule	
MPXWBTA	AISI 316L stainless steel parapet or ceiling mounting bracket			
PACKAGE				
Model Number	Weight	Dimensions (WxHxL)	Master carton	
MPXR11A000C	29kg (64lb)	50x42x26cm (19.7x16.5x10.2in)	-	

	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)	✓	1	1	1	1
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°C ÷ +160°C (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F)
Scene range (Low Gain)	-40°C ÷ +550°C (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-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.

	Lens 19mm	Lens 25mm	Lens 35mm
Image Sensor	Uncooled VOx microbolometer	Uncooled VOx microbolometer	Uncooled VOx microbolomete
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)	✓	1	1
Digital Zoom	2x, 4x, 8x	2x, 4x, 8x	2x, 4x, 8x
Image updating frequency	7.5fps	7.5fps	7.5fps
lmage updating high frequency	30fps	30fps	30fps
Scene range (High Gain)	-40°C ÷ +160°C (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F)	-40°C ÷ +160°C (-40°F ÷ +320°F)
Scene range (Low Gain)	-40°C ÷ +550°C (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-40°F ÷ +1022°F)	-40°C ÷ +550°C (-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.

Туре	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)	20mm (0.79in) max
Cable gland with gasket	IECEX/ATEX/EAC Ex	-60°C (-76°F) / +100°C (+212°F)	Unarmoured cable	OCTEX3/4C	13.0 - 20.2mm (0.51-0.79in)	-
		-60°C (-76°F) / +80°C (+176°F)	Armoured cable	OCTEXA3/4C	16.9 - 26.0mm (0.66-1.02in)	11.1 - 19.7mm (0.44 - 0.78in)
	ATEX	TEX -40°C (-40°F) / +100°C (+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 (-76°F) / +80°C (+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	-	-

Part number	Certification	Marking	Ambient temperature	Cable entry temperature	
MPXR**A0**C*	ATEX	 ⊕ II 2 G Ex db IICT6T5 Gb ⊕ II 2D Ex tb IIICT85°CT100°C Db 	-40°C ≤ Ta ≤ $+60$ °C or $+70$ °C	80°C	
	IECEx	Ex db IICT6T5 Gb Ex tb IIICT85°CT100°C Db			
	EAC Ex	1Ex d IICT6T5 Gb X Ex tb IIICT85°CT100°C Db X			
	INMETRO	Ex db IICT6T5 Gb Ex tb IIICT85°CT100°C Db			
	KCs	Ex d IICT6T5 Ex tb IIICT85°CT100°C			
	UL Hazardous Location America	Class I, Zone 1, AEx db IIC T6T5 Gb Zone 21, AEx tb IIIC T85°CT100°C Db Class I, Div 2, Group A, B, C, D T6T5 Class II, Div 2, Group F, G T6T5		80° C with Ta = 69° C 81° C with Ta = 70° C	
	UL Hazardous Location Canada	Ex db IIC T6T5 Gb X Ex tb IIIC T85°CT100°C Db X Class I, Div 2, Group A, B, C, D T6T5 Class II, Div 2, Group F, G T6T5			
MPXR**D0**C*	ATEX		-40°C ≤ Ta ≤ +80°C	90℃	
	IECEx	Ex db IICT4 Gb Ex tb IIICT135°C Db			
	EAC Ex	1Ex d IICT4 Gb X Ex tb IIICT135°C Db X			
	INMETRO	Ex db IICT4 Gb Ex tb IIICT135°C Db			
	KCs	Ex d IIC T4 Ex tb IIIC T135°C			

	Voltage	Thermal Camera	Temperature class		Radiometry		Frequency
MPXR	1 230Vac	A Thermal camera 35mm, 336x256	A T6T5 -40°C/+60°C or +70°C	0	O Thermal camera with radiometric functions	0C	- 7.5Hz
	2 24Vac	B Thermal camera 25mm, 336x256	D T4-40°C/+80°C		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.





