**DIVISION 28 ELECTRONIC SAFETY AND SECURITY**

**SECTION 28 20 00 ELECTRONIC SURVEILLANCE**

**SECTION 28 23 00 VIDEO SURVEILLANCE**

**SECTION 28 23 29 VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS**

**1 General**

**1.1 General requirements**

A The components and materials used for the construction of the products are standard type, they are manufactured and available also as spare parts, as long as the products remain on the market.

B All products and versions will be severely tested and validated by the internal laboratories of the manufacturer before being released on the market.

C All products released on the market by the manufacturer are designed for 24x7x365 constant use.

D For all products a Technical Support service is available, for free, via phone, e-mail and ticketing system.

**1.2 Quality**

A The manufacturer has to repair or replace without charge any products in which construction and/or material defects are found for the stated warranty period, starting from the delivery date of the material.

B The specified devices must be manufactured in Italy following the standards of EN ISO 9001: 2008 and ISO/IEC 80079-34:2011certification.

**1.3 Environmental sustainability**

A All products must comply with RoHS-6/6 according to the specifications 2011/65/EU, 2005/717/EC, 2006/122/EC and REACH according to the specifications EC 1907/2006.

**1.4 Certifications**

A All products must have the following certifications:

01 ATEX (EN 60079-0: 2014, EN 60079-1: 2015, EN 60079-31: 2014):

a bEx II 2 G Ex d IIC T5 Gb
b II 2 D Ex tb IIIC T100°C Db IP66/IP68
-60°C ≤ Ta ≤ +65°C (versions with armoured cable)

b bEx II 2 G Ex d IIC T5 Gb
bEx II 2 D Ex tb IIIC T100°C Db IP66/IP68
-50°C ≤ Ta ≤ +65°C (versions with cable tail)

c bEx II 2 G Ex d IIC T6 Gb
bEx II 2 D Ex tb IIIC T85°C Db IP66/IP68
-60°C ≤ Ta ≤ +55°C (versions with armoured cable)

d bEx II 2 G Ex d IIC T6 Gb
bEx II 2 D Ex tb IIIC T85°C Db IP66/IP68
-50°C ≤ Ta ≤ +55°C (versions with cable tail)

02 IECEx (IEC 60079-0: 2011 Ed.6, IEC 60079-1: 2014-06 Ed.7, IEC 60079-31: 2013 Ed.2):

a Ex d IIC T5 Gb
Ex tb IIIC T100°C Db IP66/IP68
-60°C ≤ Ta ≤ +65°C (versions with armoured cable)

b Ex d IIC T5 Gb
Ex tb IIIC T100°C Db IP66/IP68
-50°C ≤ Ta ≤ +65°C (versions with cable tail)

c Ex d IIC T6 Gb
Ex tb IIIC T85°C Db IP66/IP68
-60°C ≤ Ta ≤ +55°C (versions with armoured cable)

d Ex d IIC T6 Gb
Ex tb IIIC T85°C Db IP66/IP68
-50°C ≤ Ta ≤ +55°C (versions with cable tail)

e IP66/IP68 (2 hours, 5m (16ft), EN/IEC60529)

03 INMETRO (ABNT NBR IEC 60079-0:2008 + Errata 1:2011, ABNT NBR IEC 60079-1:2009 + Errata 1:2011, ABNT NBR IEC 60079-31:2011):

a Ex d IIC T5 Gb
Ex tb IIIC T100°C Db IP66/IP68
-60°C ≤ Tamb ≤ +65°C (versions with armoured cable)

b Ex d IIC T5 Gb
Ex tb IIIC T100°C Db IP66/IP68
-50°C ≤ Tamb ≤ +65°C (versions with cable tail)

c Ex d IIC T6 Gb
Ex tb IIIC T85°C Db IP66/IP68
-60°C ≤ Tamb ≤ +55°C (versions with armoured cable)

d Ex d IIC T6 Gb
Ex tb IIIC T85°C Db IP66/IP68
-50°C ≤ Tamb ≤ +55°C (versions with cable tail)

04 EAC Ex:

a Ex II 2G Ex d IIC T5 Gb -60°C/+65°C

b Ex II 2D Ex tb IIIC T100°C Db -60°C/+65°C, IP66/IP68 (versions with armoured cable)

c Ex II 2G Ex d IIC T5 Gb -50°C/+65°C

d Ex II 2D Ex t IIIC T85°C Db -50°C/+65°C, IP66/IP68 (versions with cable tail)

e Ex II 2G Ex d IIC T6 Gb -60°C/+55°C

f Ex II 2D Ex tb IIIC T85°C Db -60°C/+55°C, IP66/IP68 (versions with armoured cable)

g Ex II 2G Ex d IIC T6 Gb -50°C/+55°C

h Ex II 2D Ex t IIIC T100°C Db -50°C/+55°C, IP66/IP68 (versions with cable tail)

05 ETL pending

06 TYPE 6P, TYPE 4X (UL50E)

07 IP69 (EN/IEC60529), housing only

**2 Products**

**2.1 Technical data**

**A General**

01 AISI 316L stainless steel construction

02 Electropolished and silicon micro shot peened external surfaces

03 Silicone O-ring seals

04 Cable entry: 1 hole, 3/4", NPT

05 Cable gland with gasket Ex d 3/4"NPT and 4m/10m (13ft/33ft) preinstalled multipolar armored cable or with 4m/10m (13ft/33ft) cable tail

**B Mechanical**

01 Sunshield

02 Integrated wiper

03 Unit weight: 8kg (18lb)

**C Housing windows**

01 Material: Thermally tempered glass

02 Dimensions:

a Dimensions: 51x41mm

b Thick: 12mm

**D Electrical**

01 Power supply/Current consumption

a 24Vac, 2.2A, 50/60Hz

b 24Vdc, 2.2A

c 12Vdc, 3.5A

02 I/O alarm card

a Alarm inputs: 1

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

03 Heater (Ton 15°C±3°C (59°F ±5°F), Toff 22°C±3°C (77°F±5°F))

04 Armoured cable:

a external diameter = 18.0 ± 0.5mm

b colour blue RAL5015

05 Armoured cable composition:

a 1 x 3G1.5mm²

b 1 x 7 x 0.34mm²

c 4 x 2 x 0.22mm² (cat. 5E)

06 Cable tail composition:

a 1 x 3G2.5mm², rated external diameter = 8.7mm

b 1 x 7 x 0.34mm², rated external diameter = 6.4mm

c 4 x 2 x 0.21mm², (cat. 5E), rated external diameter = 6.7mm

**E Video**

01 Compression: H.264/AVC, MJPEG

02 2 independent video streams Full HD or 4 independent video streams depending on the configuration

03 Image resolution: from FullHD to 352x240 in 18 steps

04 Selectable frame rate from 1 to 60 images per second (fps)

05 Web Server

06 Certified ONVIF, Profile S

**F Camera**

**G. Day/Night Full HD 10x**

01 Image Device: 1/2.8 type Exmor™ CMOS sensor

02 Effective Pixels: approx. 2.38 Megapixels

03 Minimum Illumination, color (ICR-OFF):

a 1.4lx 1/30s 50% (Normal mode)

b 0.35lx, 1/30s, 50% (High sensitivity mode)

c 0.19lx 1/3s 50% (Normal mode)

d 0.05lx, 1/3s, 50% (High sensitivity mode)

04 Minimum Illumination, B/W (ICR-ON):

a 0.12lx 1/30s 50% (Normal mode)

b 0.03lx, 1/30s, 50% (High sensitivity mode)

c 0.002lx, 1/3s, 30% (High sensitivity mode)

05 Lens: f=3.8 mm (wide) ~ 38 mm (tele), from F1.8 to F3.4

06 Zoom: 10x (120x with digital zoom)

07 Horizontal Viewing Angle: 67° (wide end), 7.6° (tele end)

08 Minimum object distance: 10mm (wide) ~ 800mm (tele)

09 Electronic Shutter: 1/1 to 1/10000 s, 22 steps

10 White balance: Auto, ATW, Indoor, Outdoor, Outdoor Auto, Sodium vapor lamp (Fix, Auto, Outdoor Auto), One-push, Manual

11 Gain: Auto, Manual, Gain Limit (from 3dB up to 43dB, steps: 3dB)

12 Wide Dynamic Range: On/Off/Visibility enhancer, Light level, Brightness compensation selection, Compensation level

13 Focus System: Auto (Sensitivity: Normal, Low), One-push AF, Manual, Focus compensation with ICR On, Interval AF, Zoom trigger AF

14 Picture Effects: E-flip, Black & White, Mirror image, Color enhancement, Negative art

15 Exposure Control: Auto, EV Compensation, Manual, Priority (Shutter priority, Iris priority), Brightness, Slow AE

16 S/N Ratio: more than 50dB

17 Wide-D (wide dynamic range): 130dB

18 De-fog: On/Off

**H. Day/Night Full HD 30x**

01 Image Device: 1/2.8 type Exmor™ CMOS sensor

02 Effective Pixels: approx. 2.38 Megapixels

03 Minimum Illumination, color (ICR-OFF):

a 1.4lx, 1/30s, 50 IRE (Normal mode)

b 0.35lx, 1/30s, 50 IRE (High sensitivity mode)

c 0.19lx, 1/3s, 50 IRE (Normal mode)

d 0.05lx, 1/3s, 50 IRE (High sensitivity mode)

04 Minimum Illumination, B/W (ICR-ON):

a 0.05lx, 1/30s, 50 IRE (Normal mode)

b 0.013lx, 1/30s, 50 IRE (High sensitivity mode)

c 0.002lx, 1/3s, 30 IRE (High sensitivity mode)

05 Lens: f=4.3 mm (wide) ~ 129.0 mm (tele), from F1.6 to F4.7

06 Zoom: 30x (360x with digital zoom)

07 Horizontal Viewing Angle: from 63.7° (wide end) up to 2.3° (tele end)

08 Minimum object distance: from 10mm (wide) up to 1200mm (tele)

09 Electronic Shutter: 1/1 to 1/10000 s, 22 steps

10 White balance: Auto, ATW, Indoor, Outdoor, Outdoor Auto, Sodium vapor lamp (Fix, Auto, Outdoor Auto), One-push, Manual

11 Gain: Auto, Manual, Gain Limit (from 3dB up to 43dB, steps: 3dB)

12 Wide Dynamic Range: On/Off/Visibility enhancer, Light level, Brightness compensation selection, Compensation level

13 Focus System: Auto (Sensitivity: Normal, Low), One-push AF, Manual, Focus compensation with ICR On, Interval AF, Zoom trigger AF

14 Picture Effects: E-flip, Black & White, Mirror image, Color enhancement, Negative art

15 Exposure Control: Auto, EV Compensation, Manual, Priority (Shutter priority, Iris priority), Brightness, Slow AE

16 S/N Ratio: more than 50dB

17 Wide-D (wide dynamic range): 130dB

18 De-fog: On/Off

**I Network**

01 Cable length: 100m (328ft) max

02 Ethernet connection: IEEE 802.3 100Base-Tx

**J Network protocols**

01 Protocol: ONVIF, Profile S

02 Device configuration: TCP/IPv4-IPv6, UDP/IPv4-IPv6, HTTP, NTP, DHCP, WS-DISCOVERY, QoS, IGMP (Multicast)

03 Streaming: RTSP, RTCP, RTP

**K Camera**

01 Power consumption (assembly, camera and lens)

a Without video encoder IP: 8W

b With video encoder IP: 6W

02 Minimum distance between camera and housing's window: 4mm (0.2in)

03 Cameras dimensions/Lenses that can be installed (WxHxL)

a Without video encoder: 70x65x140mm (2,6x2,5x5,5in)

b With video encoder: 70mmx65mmx100mm

**L Environment**

01 Indoor/Outdoor

02 Operating temperature: from -40°C (-40°F) up to +65°C (149°F)

03 Relative Humidity 10-95% (no condensation)

**B Accessories**

1 WASEX2T4AT Tank 10l with integrated manual pump controlled by ATEX certified solenoid valve, delivery head up to 20m (66ft) max, IN 24Vac/Vdc

2 WASEX2T4GOR Tank 10l with integrated manual pump controlled by EAC EX certified solenoid valve, delivery head up to 20m (66ft) max, IN 24Vac/Vdc

3 WASEX2T4IN Tank 10l with integrated manual pump controlled by INMETRO certified solenoid valve, delivery head up to 20m (66ft) max, IN 24Vac/Vdc

4 OCTEXP3/4C Conduit cable gland nickel-plated brass 3/4" NPT IECEX-ATEX-EAC EX

**C Brackets and adaptors**

1 NXWBS1 AISI 316L stainless steel wall bracket with joint

2 MHXWFWCA AISI316L stainless steel ball joint

3 NXFWBT AISI 316L stainless steel parapet mounting bracket

4 NXCOL AISI 316L stainless steel pole adapter module

5 NXCW AISI 316L stainless steel corner adapter module

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| MAXIMUS MVXHD - Configuration options |
|   | **Voltage** | **Camera** |   | **Connections** | **Video Output** | **Models** |   |
| **MVXHD** | **2** 12-24Vdc/24Vac | **G0** Day/Night camera 10X zoom, FullHD | **W** With wiper | **A** Cable gland with gasket Ex d 3/4" NPT and 4m (13ft) armored cable | **Z** IP H.264/AVC control, Protocol ONVIF Profile S | **00** T5 -60°C/+65°C | **A** |
|  |  | **F0** Day/Night camera 30X zoom, FullHD |  | **B** Cable gland with gasket Ex d 3/4" NPT and 10m (33ft) armored cable |  | **01** T5 -50°C/+65°C 1 |  |
|  |  |  |  | **F** 4m (13ft) cable tail |  | **02** T6 -60°C/+55°C |  |
|  |  |  |  | **G** 10m (33ft) cable tail |  | **03** T6 -50°C/+55°C 1 |  |

1 The versions with cable tail have a temperature range of -50°C/+65°C or -50°C/+55°C depending on the temperature class of the product.