# GENERAL

## SYSTEM DESCRIPTION

### General Requirements

#### The specified unit shall be of manufacturer’s official product line, designed for commercial and/or industrial 24/7/365 use.

#### The specified unit shall be based upon standard components and proven technology using open and published protocols.

#### Related Requirements

##### 28 05 07.21 PoE Power Sources for Electronic Safety and Security

##### 28 05 11 Cyber Security Requirements for Electronic Safety and Security

##### 28 05 19 Storage Appliances for Electronic Safety and Security

##### 28 05 21 Network Attached Storage for Electronic Safety and Security

##### 28 05 23 Storage Area Network for Electronic Safety and Security

##### 28 23 11 Video Management System Analytics

##### 28 23 13 Video Management System Interfaces

### Sustainability

#### The specified unit shall be manufactured in accordance with ISO 14001.

#### The specified unit shall be compliant with the EU directives 2011/65/EU (RoHS) and 2012/19/EU (WEEE).

#### The specified unit shall be compliant with the EU regulation 1907/2006 (REACH).

#### The specified unit, including all its components, shall not contain any added PVC, BFR and CFR.

#### The manufacturer shall have signed and support the UN Global Compact initiative as defined by United Nations.

## CERTIFICATIONS AND STANDARDS

### General abbreviations and acronyms

#### AGC: Automatic gain control

#### ABR: Average Bit Rate

#### AES: Advanced Encryption Standard

#### API: Application Programming Interface

#### Aspect ratio: A ratio of width to height in images

#### Bit Rate: The number of bits/time unit sent over a network

#### Bonjour: Enables automatic discovery of computers, devices, and services on IP networks.

#### DHCP: Dynamic Host Configuration Protocol

#### DNS: Domain Name System

#### EIS: Electronic Image Stabilization

#### FPS: Frames per Second

#### FTP: File Transfer Protocol

#### SFTP: Secure File Transfer Protocol

#### H.264 (Video Compression Format)

#### H.265 (Video Compression Format)

#### HSMS: Hosted Security Management System (SaaS PACS Application)

#### IEEE 802.1x: Authentication framework for network devices

#### IP: Internet Protocol

#### IR light: Infrared light

#### ISO: International Standards Organization

#### JPEG: Joint Photographic Experts Group (image format)

#### LAN: Local Area Network

#### LED: Light Emitting Diode

#### LPR: License Plate Recognition

#### Lux: A standard unit of illumination measurement

#### MBR: Maximum Bit Rate

#### MPEG: Moving Picture Experts Group

#### Multicast: Communication between a single sender and multiple receivers on a network

#### NTP: Network Time Protocol

#### NTSC: National Television System Committee – a color encoding system based on 60Hz

#### ONVIF: Global standard for the interface of IP-based physical security products

#### PACS: Physical Access Control System

#### PAL: Phase Alternating Line – a color encoding system based on 50Hz

#### PoE: Power over Ethernet (IEEE 802.3af/at) standard for providing power over network cable

#### Progressive scan: An image scanning technology which scans the entire picture

#### PTZ: Pan/Tilt/Zoom

#### QoS: Quality of Service

#### RAID: Redundant Array of Independent Disks

#### RMD: Radar Motion Detection

#### RPC: Remote Procedure Call

#### SaaS: Software as a Service

#### SIP: Session Initiation Protocol

#### SMTP: Simple Mail Transfer Protocol

#### SMPTE: Society of Motion Picture and Television Engineers

#### SNMP: Simple Network Management Protocol

#### SSL: Secure Sockets Layer

#### TCP: Transmission Control Protocol

#### TLS: Transport Layer Security

#### Unicast: Communication between a single sender and single receiver on a network

#### UPnP: Universal Plug and Play

#### UPS: Uninterruptible Power Supply

#### VBR: Variable Bit Rate

#### VMS: Video Management System

#### WDR: Wide dynamic range

### The specified unit shall carry the following EMC approvals:

#### EN 55035

#### EN 55032 Class B

#### EN 50121-4

#### EN/IEC 61000-6-1

#### EN/IEC 61000-6-2

#### FCC Part 15 Subpart B Class B

#### IEC 62236-4

#### VCCI Class B

#### RCM AS/NZS CISPR 32 Class B

#### ICES-3(B)/NMB-3(B)

#### KS C 9935

#### KS C 9832

### The specified unit shall meet the following product safety standards:

#### CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN/UL 62368-1 ed. 3

#### IEC/EN 62471 (risk group exempt)

### The specified unit shall meet the following Special Purpose Food Equipment and Devices industry standards:

#### NFS/ANSI Standard 169

### The specified unit shall meet relevant parts of the following video standards:

#### SMPTE 296M (HDTV 720p)

#### SMPTE 274M (HDTV 1080p)

### The specified unit shall meet the following standards

#### MPEG-4:

##### ISO/IEC 14496-10 Advanced Video Coding (H.264)

#### Mechanical Environment:

##### IEC/EN 60529 IP66/67/69

##### NEMA 250 Type 4X

##### IEC/EN 62262 IK10

##### IEC 60068-2-1

##### IEC 60068-2-2

##### IEC 60068-2-6

##### IEC 60068-2-14

##### IEC 60068-2-27

##### IEC 60068-2-64

##### IEC 60068-2-78

## QUALITY ASSURANCE

### The contractor or security sub-contractor shall be a licensed security Contractor with a minimum of five (5) years’ experience installing and servicing systems of similar scope and complexity and evidence that is completed at least three (3) projects of similar design and is currently engaged in the installation and maintenance of systems herein described.

### All installation, configuration, setup, program and related work shall be performed by electronic technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.

### The contractor or designated sub-contractor shall submit credentials of completed manufacturer certification, verified by a third-party organization, as proof of the knowledge.

### The specified unit shall be manufactured in accordance with ISO9001.

## WARRANTY

### The manufacturer shall provide a five (5) year limited hardware warranty for product that is free from defects in design, workmanship and materials under substantiated normal use. Defective products under the warranty period will be either repaired or replaced by the manufacturer.

# PRODUCTS

## GENERAL

### The product shall be IP-based and comply with established network and video standards.

### The product shall be powered by the switch utilizing the network cable.

### The product shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third-party applications.

## GENERAL

### The product shall be IP-based and comply with established network and video standards.

## VIDEO SURVEILLANCE SCHEDULE

### The product or product types listed below describing various resolutions, form-factor and features shall be supplied by a single manufacturer for video surveillance system.

### The product name and model numbers will be as follows:

#### Fixed 1080p sensor unit shall be AXIS F4105–SLRE Dome Sensor

## VIDEO SURVEILLANCE CAMERAS

### Fixed 1080p sensor unit

#### The specified product shall meet or exceed the following design specifications:

##### The camera shall be equipped with an IR-sensitive progressive scan megapixel sensor.

##### The camera shall provide a removable IR-cut filter, providing day/night functionality.

##### The camera shall be equipped with a 2.8 mm fixed iris and fixed focus lens with a 1/2.8” progressive scan image sensor.

##### The camera shall be manufactured with a metal (stainless steel) casing.

##### The camera shall be manufactured with an IP66-, IP67-, IP6K9K and NEMA 250 4X-rated, IK10 impact-resistant casing with polycarbonate hard-coated dome.

#### The specified product shall meet or exceed the following performance specifications:

##### Illumination

###### The camera shall meet or exceed the following illumination specifications:

Color: 0.3 lux at 50 IRE, F2.0

Color: 0 lux with IR illumination on

##### Resolution

###### The camera shall be designed to provide video streams in HDTV 1080p (1920x1080) at up to 60 frames per second (60Hz mode) or 50 frames per second (50Hz mode).

###### The camera shall be designed to provide video streams in HDTV 720p (1280x720) at up to 180 frames per second (60Hz mode) or 175 frames per second (50Hz mode).

###### The camera shall support video resolutions including:

1920x1080 (HDTV 1080p)

1280x720 (HDTV 720p)

##### IR Illumination

###### The camera shall be equipped with built-in IR LEDs with adjustable angle of illumination and intensity and with a range of up to 10 m (33 ft) with a wavelength of 940 nm.

##### Enclosure

###### The camera shall:

Be manufactured with IP66-, IP67-, and IP69-rated, IK10 impact-resistant stainless steel casing.

Be fitted with a dehumidifying membrane.

##### Environmental

###### The camera shall:

Operate in a temperature range of –30 °C to +55 °C (–22 °F to 131 °F) (IR illumination OFF)

Operate in a temperature range of –30 °C to +45 °C (–22 °F to 113 °F) (IR illumination ON)

Operate in a maximum temperature (according to NEMA TS 2 (2.2.7) of 74 °C (140 °F)

Operate in a humidity range of 10–100% RH (condensing).

# EXECUTION

## INSTALLATION

### The contractor’s or subcontractor’s main resources within the project shall carry proper professional certification issued by the manufacturer and verified by a third-party organization to confirm sufficient product and technology knowledge.

### The contractor shall carefully follow instructions in documentation provided by the manufacturer to ensure all steps have been taken to provide a reliable, easy-to-operate system.

### All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation.

### All firmware found in products shall be the latest and most up-to-date version as specified by the manufacturer, or by the product component provider.

### All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.

### A proper installation shall meet NEC (National Electrical Code – US only) per the guidelines of that year’s revision. When properly installed equipment meets Low Voltage, Class 2 classification of the NEC.

END OF SECTION