# 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 55032 Class A

#### EN 55035

#### EN 61000-3-2

#### EN 61000-3-3

#### EN 61000-6-1

#### EN 61000-6-2

#### CISPR 35

#### EAC

#### EN 50121-4

#### Australia/New Zealand: RCM AS/NZS CISPR 32 Class A

#### Canada: ICES-3(A)/NMB-3(A)

#### Japan: VCCI Class A

#### Korea: KS C 9835, KS C 9832 Class A

#### USA: FCC Part 15 Subpart B Class A

#### Railway: IEC 62236-4

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

#### IEC/EN/UL 62368-1

#### CAN/CSA C22.2 No. 62368-1

#### IEC/EN 62471 risk group 2

#### IEC 60825-1 Class 1

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

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

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

#### SMPTE ST 2036-1 (UHDTV)

### The specified unit shall meet the following standards

#### MPEG-4:

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

##### ISO/IEC 23008-5 Advanced Video Coding (H.265)

#### AOMedia Video 1 Video Coding (AV1)

#### Networking:

##### IEEE 802.3bt (Power over Ethernet Plus ++)

##### IEEE 802.1x (EAP-TLS, PEAP-MSCHAPv2) (Authentication)

##### IPv4 (RFC 791)

##### IPv6 (RFC 2460)

##### QoS – DiffServ (RFC 2475)

##### NIST SP500-267

#### Cybersecurity

##### ETSI EN 303 645

##### BSI IT Security Label

##### FIPS 140

#### Environment:

##### IEC/EN 62262 IK10

##### IEC/EN 60529 IP66

##### IEC/EN 60529 IP67

##### NEMA 250

##### Type 4X

##### NEMA TS 2 (2.2.7–2.2.9)

##### IEC 60068-2-1

##### IEC 60068-2-2

##### IEC 60068-2-6

##### IEC 60068-2-14

##### IEC 60068-2-27

##### IEC 60068-2-78

##### ISO 21207 (Method B)

##### ISO 12944-6 C5

## 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.

## 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:

#### AI-powered 4K UHD PTZ camera shall be AXIS Q6358-LE PTZ Camera

## VIDEO SURVEILLANCE CAMERAS

### AI-powered 4K UHD PTZ camera

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

##### The camera shall operate on an open source and Linux-based
platform, and include a built-in web server.

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

##### The camera shall be equipped with a 4K image sensor with
support for laser- and auto focus and P-iris control. The camera shall
provide a horizontal field of view between 60.6°- 2.0°, a
vertical field of view between 36.5° - 1.1°, a focal length
of 6.91 - 214.64 mm, and a 31x optical zoom with a zoom speed of <1
between zoom values.

##### The camera shall incorporate functionality to vibrate the
dome in order to provide clear images in rainy weather and to simplify
dome cleaning.

##### The camera shall be designed to provide an image up to 20°
above the horizon without any loss of image quality.

##### The camera shall provide local video storage utilizing an
SD/SDHC/SDXC memory card expansion.

##### The camera shall be manufactured with a repaintable aluminum
casing.

##### The camera shall be manufactured with an IP66-, IP67-, NEMA
4X- and IK10-rated casing with a polycarbonate clear dome.

##### The camera shall provide options for clear and smoked lower
domes.

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

##### Minimum illumination

###### Color: 0.1 lux at 30 IRE, F1.36

###### B/W: 0.005 lux at 30 IRE, F1.36, 0 lux with IR illumination
on

###### Color: 0.2 lux at 50 IRE, F1.36

###### B/W: 0.009 lux at 50 IRE, F1.36, 0 lux with IR illumination
on

##### Resolution

###### The camera shall be designed to provide video streams up
to 3840x2160 4K UHD using AV1/H.264/H.265 or Motion JPEG, in all resolutions.

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

1280x720 (HDTV 720p)

1920x1080 (HDTV 1080p)

3840x2160 (4K UHD)

###### Frame rate

50/60 fps with power line frequency 50/60 Hz in all resolutions

##### Video streaming

###### The camera shall provide independently configured AV1, H.264,
H.265 and Motion JPEG streams.

###### The camera shall provide configurable compression levels.

###### The camera shall provide a video streaming indicator.

###### The camera shall support standard baseline profile with motion
estimation.

###### The camera shall support motion estimation in H.264/MPEG-4
Part 10/AVC.

###### The camera shall support motion estimation in H.265 (MPEG-H
Part 2/HEVC)

###### The camera shall support motion estimation in AV1.

###### The camera shall support the following video encoding algorithms:

AV1 encoding in a selectable range from 1 up to 50/60 frames
per second.

Motion JPEG encoding in a selectable range from 1 up to 50/60
frames per second.

Baseline Profile H.264 encoding with motion estimation in
up to 50/60 frames per second.

Main Profile H.264 and H.265 encoding with motion estimation
and context-adaptive binary arithmetic coding (CABAC) in up to 50/60
frames per second.

High Profile H.264 encoding with motion estimation up to
50/60 frames per second.

###### The camera shall in AV1, H.264 and H.265 support Variable
Bit Rate (VBR), Average Bit Rate (ABR), and Maximum Bit Rate (MBR).

###### The camera shall be able to deliver predictable storage using
Average Bit Rate (ABR) bitrate controlling algorithm based on a bitrate
budget and selected retention time.

The camera shall be able to deliver predictable storage using
Average Bit Rate (ABR) bitrate controlling algorithm based on a bitrate
budget and the selected retention time.

The ABR bitrate algorithm, depending on the bitrate budget
and the selected retention time, shall adjust the bitrate to meet
the bitrate budget over the whole retention time.

The ABR algorithm shall have a method to keep the video quality
even during busy periods by allowing the current bitrate to be significantly
above the configured average bitrate during significant parts of the
retention time.

The camera shall in AV1, H.264 and H.265 support flexible
retention period for Average Bit Rate (ABR) algorithm up to 1 year.

When using Average Bit Rate (ABR) the camera shall keep bitrate
history up to at least 30 days.

The camera shall in AV1, H.264 and H.265 support reuse of
past Average Bit Rate (ABR) history if a stream is disconnected and
the camera reconnects with the same basic stream parameters.

When using Average Bit Rate (ABR), the camera shall in AV1,
H.264 and H.265 support multiple parallel stream with independent
ABR-history.

The camera shall issue bitrate degradation events when using
Average Bit Rate (ABR) if the configuration is predicted to be

unrealistic

not fulfilling basic quality requirements

not fulfilling the bitrate budget.

###### The camera shall support scene adaptive bitrate control with
one of the following capabilities to lower bandwidth and storage:

Automatic dynamic Region of Interest to reduce bitrate in
unprioritized regions in order to lower bandwidth and storage requirements.

Automatic dynamic Group of Pictures to lower bandwidth and
storage requirements

Automatic dynamic Frames per Second to lower bandwidth and
storage requirements

###### The camera shall support optimized image processing time
for live streams by reducing the latency in live streams to the minimum.

###### The camera shall support signal-to-noise ratio of >55 dB.

##### Transmission

###### The camera shall allow for video to be transported over:

HTTP (Unicast)

HTTPS (Unicast)

RTP (Unicast & Multicast)

RTP over RTSP (Unicast)

RTP over RTSP over HTTP (Unicast)

SRTP/RTSPS (Unicast & Multicast)

###### The camera shall support Quality of Service (QoS) to be able
to prioritize traffic.

##### Image

###### The camera shall incorporate automatic and manual white balance.

###### The camera shall incorporate an electronic shutter operating
in the range of 1/111000 s to 1/2 s.

###### The camera shall incorporate capture mode with the following
settings:

4K UHD 3840x2160: 60 fps (50/60 Hz)

4K UHD 3840x2160 with WDR: 30 fps (50/60 Hz)

###### The camera shall incorporate wide dynamic range – forensic
WDR functionality.

###### The camera shall incorporate forensic wide dynamic range
functionality providing up to 120 dB dynamic range.

###### The camera shall support manually defined values for:

Brightness

Sharpness

Contrast

###### The camera shall support multiple scene profiles for:

Outdoor

Indoor

Forensic

Traffic overview

###### The camera shall incorporate a function for optimization
of low-light behavior at different light levels.

###### The camera shall incorporate automatic defog functionality.

###### The camera shall allow for rotation of the image.

###### The camera shall incorporate a function for Electronic Image
Stabilization (EIS) for real-time image stabilization.

##### Audio

###### The camera shall support two-way audio connectivity via portcast
technology.

##### IR Illumination

###### The camera shall be equipped with built-in IR LEDs, with
a range of up to 300 m (984 ft) with a wavelength of 850 nm.

###### The camera shall be equipped with built-in IR LEDs with automatic
seamless adapting angle of illumination and intensity.

##### User Interface

###### Web server

The camera shall contain a built-in web server making video
and configuration available to multiple clients in a standard operating
system and browser environment using HTTP, without the need for additional
software.

Optional components downloaded from the camera for specific
tasks shall be signed by an organization providing digital trust services.

###### Language Specification

The camera shall provide a function for altering the language
of the user interface, and shall include support for at least 19 different
languages.

###### IP addresses

The camera shall support both fixed IP addresses and dynamically
assigned IP addresses provided by a Dynamic Host Control Protocol
(DHCP) server.

The camera shall allow for automatic detection of the camera
based on UPnP and Bonjour when using a computer with an operating
system supporting this feature.

The camera shall provide support for both IPv4 and IPv6.

The camera shall provide support for IPv6 USGv6.

##### PTZ functionality

###### The camera shall:

Provide 300 manually set preset positions.

Provide On-screen directional indicator (OSDI) functionality.

Be equipped with accurate pan and tilt functionality with
a range of:

Pan: 360° to endless

Tilt +20° to -90°

Provide pan and tilt speed in a range of:

Pan: 0.05°– 550°/s

Tilt: 0.05°– 500°/s

Provide optical and digital zoom functionality:

Optical zoom: 31x

Digital zoom: 12x

Provide adjustable zoom speed.

Provide nadir flip functionality, which will mechanically
move the camera when following a moving object passing under the camera’s
nadir point.

Provide a guard tour functionality which allows the dome
to automatically move between selected presets using an individual
speed and viewing time for each preset.

##### Event conditions

###### The camera shall be equipped with an integrated event functionality:

Device status

Above operating temperature

Above or below operating temperature

Below operating temperature

Fan failure

IP address removed

IP address blocked

Live stream active

Network lost

New IP address

PTZ power failure

System ready

Within operating temperature

Edge storage

Recording ongoing

Storage disruption

Storage health issues detected

I/O

Manual trigger

Virtual input

MQTT

MQTT client connected

PTZ

PTZ malfunctioning

PTZ movement

PTZ preset position reached

PTZ ready

Scheduled and recurring

Schedule

Video

Average bitrate degradation

Day-night mode

###### Response to triggers shall include event actions:

Day-night mode: Use day-night mode while the rule is active

Defog: set defog mode, set defog mode while the rule is active

Illumination: use lights, use lights while the rule is active

Images: FTP, SFTP, HTTP, HTTPS, network share and email

MQTT: MQTT publish

Notification: email, HTTP, HTTPS, TCP

Overlay text: use overlay text, use overlay text while the
rule is active

Recordings: record video, record video while the rule is
active

Security: erase configuration

SNMP: trap messages, trap messages while the rule is active

Video clips: FTP, HTTP, HTTPS, SFTP, email, network share

###### The camera shall provide memory for pre- and post-alarm recordings.

##### Storage

###### The camera shall support continuous and event-controlled
recording to:

Local memory added to the cameras SD-card slot

Network-attached storage, located on the local network

###### The camera shall incorporate encryption functionality for
the SD card (AES-XTS-Plain64 256bit).

###### The camera shall be able to detect and notify edge storage
disruptions.

##### Protocol

###### The camera shall incorporate support for at least IPv4, IPv6
USGv6, ICMPv4/ICMPv6, HTTP, HTTPS, HTTP/ 2, TLS, QoS Layer 3 DiffServ,
FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP, SNMP v1/v2c/v3 (MIBII),
DNS/DNSv6, DDNS, NTP, NTS, RTSP, RTCP, RTP, SRTP/ RTSPS, TCP, UDP,
IGMPv1/v2/v3, DHCPv4/v6, ARP, SSH, NTCIP, LLDP, CDP, MQTT v3.1.1,
Secure syslog (RFC 3164/5424, UDP/TCP/TLS), Link-Local address (ZeroConf).

###### The SMTP implementation shall include support for SMTP authentication.

##### Text overlay

###### The camera shall:

Provide embedded on-screen text with support for date &
time, and a customer-specific text, camera name, of at least 45 ASCII
characters.

Provide the possibility to choose different font sizes for
embedded on-screen text, and to use white or black text on at least
four different backgrounds.

Provide the ability to manually set up and configure privacy
masks to the image.

Allow for the overlay of a graphical image, such as a logotype,
into the image.

Provide the ability to manually set up and configure up to
100 polygon privacy masks to the image.

##### Security

###### The camera shall support the following:

Secure web browsing

The use of HTTPS and TLS, providing the ability to upload
signed certificates to encrypt and secure authentication and communication
of both administration data and video streams.

Restrict access to the built-in web server by usernames and
passwords at three different levels.

Certificate management

Provide centralized certificate management, with both pre-installed
CA certificates and the ability to upload additional CA certificates.
The certificates shall be signed by an organization providing digital
trust services.

Enhanced security features

The collection of certificates (using IEEE 802.1AR) proves
that the device and its software are authentic and produced by
the manufacturer.

The product shall include a cryptographically verifiable
hardware module where a collection of certificates, required to verify
device identification, is installed.

The product shall include a tamper-resistant hardware module,
certified to at least Common Criteria EAL6+ and FIPS 140-3 level
3.

The product shall include a tamper-resistant hardware module.
The module shall use a Trusted Execution Environment (TEE), providing
a set of cryptographic features suitable for protecting private keys
from unauthorized access.

The product shall support for encrypted filesystem (AES-XTS-Plain64
256bit).

The use of signed video (adding cryptographic checksum to
H.264 videos signed by the manufacturer’s secured device ID) provides
support for validating the video’s authenticity and origin.

The use of signed OS validates the software’s integrity before
accepting to install it.

The use of a secure boot process, based on the use of signed
OS, ensures that the camera can boot only with authorized software.

Authentication

IEEE 802.1x (EAP-TLS, PEAP-MSCHAPv2) authentication.

IEEE 802.1AE (MACsec PSK/EAP-TLS) authentication.

Restrict access to pre-defined IP addresses via a host-based
firewall.

Brute force delay protection

###### Software support

The manufacturer should provide a Software Bill of Material
(SBOM) for each device software in machine-readable format (CycloneDX,
SPDX) that contains information about the software composition of
the device’s operating system, publicly available for download.

The manufacturer must provide device software with long-term
support that only contains corrections for critical bugs, security
flaws and performance issues.

The device should maintain high-level cybersecurity without
introducing any significant functional changes or affecting any existing
integrations.

##### System integration

###### The camera 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.

###### The camera shall be fully supported by the manufacturer’s
own application platform, including Native SDK and Computer vision
SDK.

###### The camera shall conform to ONVIF profile G as defined by
the ONVIF Organization.

###### The camera shall conform to ONVIF profile M as defined by
the ONVIF Organization.

###### The camera shall conform to ONVIF profile S as defined by
the ONVIF Organization.

###### The camera shall conform to ONVIF profile T as defined by
the ONVIF Organization.

##### Analytics

###### The camera shall provide a platform allowing the upload of
third-party applications into the camera.

###### The camera shall be equipped with a built-in, deep-learning
processing unit capable of executing neural network algorithms, such
as object detection, classification and segmentation (including vehicle
types, license plates, people and faces). The deep-learning
processing unit shall contain multiple parallel hardware accelerated
compute recourses capable of performing real-time video inference.
The camera manufacturer shall support approved third-party developers
to enable custom made deep-learning applications using the DLPU to
accelerate custom trained deep-learning networks with commonly available
network architectures.

###### The camera shall be supplied with preinstalled advanced video
analytics capabilities, capable of detecting and classifying humans
and vehicles in non-critical indoor and outdoor spaces.

The camera shall provide a function to measure how long an
object (human or vehicle) stayed in a monitored area.

##### Installation and maintenance

###### The camera shall be supplied with Windows-based management
software which allows the assignment of IP addresses, upgrade of device
software and backup of the cameras’ configuration.

###### The camera shall support the use of SNMP-based management
tools according to SNMP v1, 2c & 3 / MIB-II.

###### The camera shall allow updates of the software over the network,
using FTP or HTTP.

###### The camera shall store all customer-specific settings in
a non-volatile memory that shall not be lost during power cuts or
soft reset.

###### The camera shall accept external time synchronization from
an NTP (Network Time Protocol) server.

##### Access log

###### The camera shall provide a log file, containing information
about the 250 latest connections and access attempts since the unit’s
latest restart. The file shall include information about the connecting
IP addresses and the time of connecting.

###### The camera shall provide a connection list of all currently
connected viewers. The file shall include information about connecting
IP address, time of connecting and the type of stream accessed.

##### Camera diagnostics

###### The camera shall be equipped with LEDs, capable of providing
visible status information. LEDs shall indicate the camera’s operational
status and provide information about power, communication with receiver,
the network status and the camera status.

###### The camera shall be monitored by a Watchdog functionality,
which shall automatically re-initiate processes or restart the unit
if a malfunction is detected.

###### The camera shall send a notification when the unit has rebooted
and all services are initialized.

##### Hardware interfaces

###### Network interface

The camera shall be equipped with one 10BASE-T/100BASE-TX/1000BASE-T
Ethernet-port using a RJ45 connector and shall support auto negotiation
of network speed and transfer mode (full and half duplex).

The camera shall be equipped with one IP66-rated RJ45 Push-pull
Connector.

###### Inputs/Outputs

The camera shall provide I/O connectivity via portcast technology
with an accessory audio and I/O interface device.

###### Audio

The camera shall provide audio connectivity via portcast
technology with an accessory audio and I/O interface device.

##### Enclosure

###### The camera shall:

Be manufactured with an IP66-, IP67-, NEMA 4X- and IK10-rated
aluminum enclosure with a polycarbonate dome.

##### Power

###### The camera shall support power over Ethernet IEEE802.3bt
Type 3 Class 6

Full power:

Max: 51 W

Typical: 13.7 W (no IR)

Low power:

Max: 30 W (With IR: 40 W)

Typical: 13.7 W (no IR)

###### The camera shall be equipped with a power meter.

###### The camera shall include support for power profiles.

##### Environmental

###### The camera shall:

Operate at full power in a temperature range of -50 °C
to 55 °C (-58 °F to 131 °F)

Operate at low power in a temperature range of -10 °C
to 55 °C (14 °F to 131 °F)

Operate at a maximum temperature of 74 °C (165 °F)

Start-up at -40 °C (-40 °F) with arctic temperature
control

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.

### Software 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