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Product Guide Specification

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, based on *MasterFormat 2004* and *The Project Resource Manual—CSI Manual of Practice*. The Manufacturer is responsible for technical accuracy.

The section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the project and local building code. Words and sentences within brackets [] are choices to include or exclude a particular item or statement. Coordinate this section with other specification sections and the Drawings. Delete all “Specifier Notes” after editing this section.

SECTION 28 23 29
VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS
Bosch DINION IP 7000 HD Camera

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes

1. Video Surveillance Remote Devices.

B. Related Sections

1. Section [28 23 13 – Video Surveillance Control and Management Systems].
2. Section [28 23 16 – Video Surveillance Monitoring and Supervisory Interfaces].
3. Section [28 23 19 – Digital Video Recorders and Analog Recording Devices].
4. Section [28 23 23 – Video Surveillance Systems Infrastructure].

*****Specifier’s note: Include those standards referenced elsewhere in this SECTION.

1.2 REFERENCES

Standards	
Emission	EN55022 Class B FCC Part 15, class B
Immunity	EN50130-4 (PoE, +12 VDC, 24 VAC)* EN50121-4
Safety	EN60950-1 UL60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
HD (Resolution: 1280x720)	274M-2008
HD (Resolution: 1920x1080)	296M-2001
Color representation	ITU-R BT.709
Vibration	Camera with lens as per IEC60068-2-6 (5 m/s ² , operational)
ONVIF conformance	EN 50132-5-2; IEC 62676-2-3

* Chapters 7 and 8 (mains voltage supply requirement) are not applicable to the camera. However, if the system in which this camera is used needs to comply with this standard, then any power supplies used must comply with this standard.

1.1 SYSTEM DESCRIPTION

- A. Video Surveillance Remote Devices
 - 1. NBN-71022 DINION IP 7000 HD Camera
- B. Performance Requirements
 - 1. High resolution 1080p, HD format
 - 2. Intelligent noise reduction reduces bandwidth and storage requirements by up to 30%
 - 3. Auto back focus for fast installation
 - 4. Content-based scene analysis optimizes the image processing
 - 5. Hybrid operation for easy migration from analog to IP systems

1.2 SUBMITTALS

- A. Submit under provisions of Section [01 33 00].
- B. Product Data:
 - 1. Manufacturer's data, user and installation manuals for all equipment and software programs including computer equipment and other equipment required for complete video management system.
- C. Shop Drawings; include
 - 1. System device locations on architectural floor plans.
 - 2. Full Schematic of system, including wiring information for all devices.

- D. Closeout Submittals
 - 1. User manual.
 - 2. Parts list.
 - 3. System device locations on architectural floor plans.
 - 4. Wiring and connection diagram.
 - 5. Maintenance requirements.

1.3 QUALITY ASSURANCE

- A. Manufacturer:
 - 1. Minimum of [10] years experience in manufacture and design Video Surveillance Devices.
 - 2. Manufacturer's quality system: Registered to ISO 9001 Quality Standard.
- B. Video Surveillance System
 - 1. Listed by [UL] [EN] [FCC] specifically for the required loads. Provide evidence of compliance upon request.
- C. Installer:
 - 1. Minimum of [5] years experience installing Video IP Surveillance System.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Comply with requirements of Section [01 60 00].
- B. Deliver materials in manufacturer's original, unopened, undamaged containers; and unharmed original identification labels.
- C. Protect store materials from environmental and temperature conditions following manufacturer's instructions.
- D. Handle and operate products and systems according to manufacturer's instructions.

1.5 WARRANTY

- A. Provide manufacturer's warranty covering [3] years for replacement and repair of defective equipment.

1.6 MAINTENANCE

- A. Make ordering of new equipment for expansions, replacements, and spare parts available to dealers and end users (up to 5 years after the EOL announcement).
- B. Provide factory direct technical support from 8:00 a.m. to 8:00 p.m. via phone and e-mail.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer:

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B. Substitutions: [Not permitted.] [Under provisions of Division 1.]

1. [All proposed substitutions must be approved by the Architect or Engineer professional.]
2. [Proposed substitutions must provide a line-by-line compliance documentation.]

*****Specifier's note: Select Camera System Series based on project requirement.

2.2 DINION IP 7000 HD

[NBN-71022-BA], [NBN-71022-B]

A. General Characteristics:

1. The camera shall be a true day/night camera with a mechanical filter for truly outstanding nighttime performance. The filter can be switched remotely, or automatically via a light level sensor or contact input.
2. The camera shall offer Content-based Imaging Technology (C-BIT).
3. The camera shall utilize Intelligent Dynamic Noise Reduction (iDNR) technology to reduce the bitrate and storage requirements by removing noise artifacts.
4. The camera shall offer 1080 HD resolution.
5. The camera shall accept power via Power-over-Ethernet (IEEE 802.3af compliant).

6. The camera shall offer video motion analysis with Motion+ standard.
 7. The camera [NBN-71022-BA] shall offer latest generation Intelligent Video Analysis (IVA).
 8. The camera shall provide four independent, fully programmable privacy mask areas.
 9. The camera shall provide an on-screen display to simplify the camera/lens back focus and network configuration settings.
 10. The camera shall utilize pixel-by-pixel analysis to automatically compensate for bright areas of a high contrast scene (Back light) without having to define a window or area.
 11. The camera shall be easy to install.
 12. The camera shall have six configurable user modes with the best settings for a variety of applications.
 13. The camera shall allow users to set up to 10 separate recording profiles based on day/night or holiday schedules.
- B. Image processing and compression
1. The camera shall offer a 1/2.7-inch CMOS image sensor.
 2. The camera shall offer 2.03MP sensor pixels.
 3. The camera shall offer the following minimum sensitivity:
 - a. Color: 0.22 lx
 - b. Mono: 0.05 lx
 4. The camera shall use intelligent Dynamic Noise Reduction (iDNR) to actively analyze the contents of a scene and reduce noise artifacts accordingly.
 5. The low-noise image and efficient H.264 compression technology shall provide clear images while reducing bandwidth and storage by up to 30% compared to other H.264 cameras.
 6. The camera shall provide the most usable image possible by cleverly optimizing the detail-to-bandwidth ratio.
 7. The camera shall use C-BIT to improve image quality in all lighting conditions.
- C. Network Video
1. The camera shall provide direct network connection.
 2. The camera shall allow full camera control and configuration capabilities over the network.
 3. The camera shall be capable of capturing and storing images using the following compression standards:
 - a. H.264 MP (Main Profile)
 - b. M-JPEG
 4. The camera shall deliver video, at rates up to 30 images per second, over a 10/100 Base-T, auto-sensing, half/full duplex, RJ45 Ethernet connection.
 5. The camera shall comply with the IEEE 802.3af Power over Ethernet standard.
 6. The camera shall conform to the ONVIF standard.
- D. Video Motion Analysis
1. The camera shall be capable of processing and analyzing video within the camera itself, with no extra hardware required.
 2. The camera shall be capable of detecting and sending alarms for abnormal events.

3. The camera [NBN-71022-BA] shall offer Intelligent Video Analysis (IVA) that uses an Intelligent tracker to follow objects within the defined regions of interest.
 4. The camera [NBN-71022-B] shall offer MOTION+ video motion analysis that uses an algorithm based on pixel change and includes object size filtering and tamper-detection capabilities.
- E. Surveillance Software
1. The camera shall be accessible from a web browser, and using the Bosch Video software.
 2. The camera shall be accessible from the Bosch Security System iPad App. The App shall allow complete camera control and shall display images over low bandwidth connections.
- F. Access Security
1. The camera shall offer three levels of password protection.
 2. The camera shall support 802.1x authentication using a RADIUS (Remote Authentication Dial In User Service) server.
 3. The camera shall store a SSL certificate for use with HTTPS.
 4. [The camera shall be capable of being independently AES encrypted with 128-bit keys.]
- G. Image Posting
1. The camera shall offer periodic JPEG image posting to an FTP server or a Dropbox account.
 2. The camera shall offer best face detection and JPEG best face image posting to an FTP server or to a Dropbox account.
- H. Alarm Handling Features:
1. The camera shall provide an alarm input that may be triggered by either a normally opened or normally closed contact.
 2. The camera shall provide the capability on alarm to display up to a 31 character, programmable alarm message.
 3. The camera shall provide a relay output that may be selected for normally opened or normally closed operation. The relay can be activated from an external alarm input to the camera, manual activation from the browser, upon video motion detection, an alarm task script or video loss.
 4. The camera shall provide email alarm messaging with optional JPEG posting.
- I. Storage Management
1. The camera shall support iSCSI devices to allow video stream to be recorded directly to an iSCSI RAID array.
 2. The camera shall support iSCSI storage targets to enable the camera to function as a conventional DVR.
 3. The camera shall have a microSD card slot that uses standard; off-the-shelf microSD (SDHC and SDXC) cards for local storage (up to 2 TB).
 4. The local storage feature shall be capable of storage for Automatic Network Replenishment (ANR).

J. Electrical

1. The camera shall accept either +12 VDC, 24 VAC or Power over Ethernet.
2. The camera shall consume 10.8 W (max.).

K. Audio

1. The camera shall offer one (1) line in jack connector and one (1) line out jack connector.
2. The camera shall offer two-way, full/half duplex audio communication.
3. The camera shall offer G.711, AAC and L16 audio compression (live and recording).

L. Environmental

1. The camera shall operate in -20°C to +55°C (-4°F to +131°F) temperature range (or -20°C to +50°C (-4°F to +122°F) for IVA versions).

M. Technical Specifications:

Power	
Power Supply	24 VAC 50/60 Hz 12 VDC Power-over-Ethernet 48 VDC nominal
Current Consumption	400 mA 500 mA IVA (12 VDC) 350 mA 450 mA IVA (24 VAC) 150 mA 175 mA IVA (PoE 48 VDC)
Power Consumption	4.8 W 6 W IVA (12 VDC) 8.4 W 10.8 W IVA (24 VAC) 7.2 W 8.4 W IVA (PoE 48 VDC)
PoE	IEEE 802.3af (802.3at Type 1)

Sensor	
Type	1/2.7-inch CMOS
Pixels	1952 x 1092 (2.03MP)

Video performance	
Sensitivity – (3200K, reflectivity 89%, F1.2, 30IRE)	
• Color	0.22 lx (0.022 fc)
• Mono	0.05 lx (0.005 fc)
Dynamic range	76 dB Wide Dynamic Range (WDR)

Video streaming	
Video compression	H.264 (MP); M-JPEG
Streaming	Multiple configurable streams in H.264 and M-JPEG, configurable frame rate and bandwidth. Regions of Interest (ROI)
Overall IP Delay	Min. 120 ms, Max. 240 ms
GOP structure	IP, IBP, IBBP
Encoding interval	1 to 30 (25) ips
Resolutions (H x V)	
• 1080p HD	1920 x 1080
• 960p HD 4:3 (cropped)	1280 x 960
• 720p HD	1280 x 720
• Upright 9:16 (cropped)	400 x 720
• D1 4:3 (cropped)	704 x 480
• 480p SD	Encoding: 704 x 480; Displayed: 854 x 480
• 432p SD	768 x 432
• 288p SD	512 x 288
• 240p SD	Encoding: 352 x 240; Displayed: 432 x 240
• 144p SD	256 x 144

Video functions	
Day/Night	Color, Mono, Auto
White Balance	ATW (2500 to 10000K), ATW hold and manual
Shutter	Automatic Electronic Shutter (AES) Fixed (1/30 [1/25] to 1/15000) selectable Default shutter
Backlight compensation	Off, Auto
Contrast enhancement	On/off
Sharpness	Sharpness enhancement level selectable
Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	Motion+ or IVA option

Audio streaming	
Audio Streaming	Full duplex / half duplex
Signal-to-noise ratio	> 50 dB
Audio compression	AAC-LC, G.711, L16 (live and recording)

Input/output	
Analog video out	CVBS (PAL/NTSC), 1 Vpp, SMB, 75 Ohm (surge protected)
Analog video aspect ratio	4:3 letterbox, 4:3 cropped, or 16:9 mode
Audio	1 x mono line in, 1 x mono line out
<ul style="list-style-type: none"> connector 	3.5 mm stereo jack
<ul style="list-style-type: none"> signal line in 	12 kOhm typical, 1 Vrms max
<ul style="list-style-type: none"> signal line out 	1 Vrms at 1.5 kOhm typical,
Alarm	2 inputs
<ul style="list-style-type: none"> connector 	Clamp (non-isolated closing contact)
<ul style="list-style-type: none"> activation voltage 	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)
Relay	1 output
<ul style="list-style-type: none"> connector 	Clamp
<ul style="list-style-type: none"> voltage 	30 VAC or +40 VDC Maximum 0.5 A continuous, 10VA
Data port	RS-232/422/485

Local storage	
Internal RAM	10 s pre-alarm recording
Memory card slot	Supports up to 32 GB SDHC / 2 TB SDXC card. (An SD card of Class 6 or higher is recommended for HD recording)
Recording	Continuous recording, ring recording. alarm/events/schedule recording

Network	
Protocols	IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/RTCP, IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, Telnet, ARP, DHCP, SNTP, SNMP (V1, MIB-II), 802.1x, DNS, DNSv6, DDNS, SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDP, SOAP, Dropbox, CHAP, Digest Authentication.
Encryption	TLS 1.0, SSL, DES, 3DES, AES (optional)

Network	
Ethernet	10/100 Base-T, auto-sensing, half/full duplex
Ethernet connector	RJ45
Connectivity	ONVIF Profile S, Auto-MDIX

Software	
Unit Configuration	Via web browser or Configuration Manager
Firmware update	Remotely programmable
Software viewer	Bosch Video Client

Optical	
Lens mount	CS mount (C-mount with adapter ring)
Lens connector	Standard 4-pin DC-iris connector
Lens Types	Manual and DC-Iris auto-detect with override DC-iris drive: max. 50 mA continuous
Lens Controls	Wizard from web page or camera button

Mechanical	
Dimensions (W x H x L)	78 x 66 x140 mm (3.07 x 2.6 x 5.52 inch) without lens
Weight	690 g (1.52 lb) without lens
Color	RAL 9007 Metallic Titanium
Tripod Mount	Bottom (isolated) and top 1/4-inch 20 UNC

Environmental	
Operating Temperature	-20°C to +55°C (-4°F to 131°F)
Operating Temperature (IVA)	-20°C to +50°C (-4°F to 122°F)
Storage Temperature	-30°C to +70°C (-22°F to +158°F)
Operating Humidity	20% to 93% RH
Storage Humidity	up to 98% RH

2.3 ACCESSORIES

- A. Monitor cables
 - 1. NBN-MCSMB-03M analog cable
 - 2. NBN-MCSMB-30M analog cable
- B. Software Options

1. MVC-FENC-AES BVIP AES 128 bit Encryption License
- C. Power supplies
 1. UPA-2410-60 power supply
 2. UPA-2430-60 power supply
- D. Lens
 1. LVF-5005C-S0940 Varifocal SR Megapixel Lens
 2. LVF-5005C-S3813 Varifocal SR Megapixel Lens
 3. LVF-5005C-S1803 Varifocal SR Megapixel Lens
 4. S1374 Adapter
- E. Transcoder
 1. VJT-XTCXF

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive devices and notify adverse conditions affecting installation or subsequent operation.
- B. Do not begin installation until unacceptable conditions are corrected.

3.2 PREPARATION

- A. Protect devices from damage during construction.

3.3 INSTALLATION

- A. Install devices in accordance with manufacturer's instruction at locations indicated on the floor drawings plans.
- B. Ensure selected location is secure and offers protection from accidental damage.
- C. Location must provide reasonable temperature and humidity conditions, free from sources of electrical and electromagnetic interference.

3.4 FIELD QUALITY CONTROL

- A. Test snugness of mounting screws of all installed equipment.
- B. Test proper operation of all video system devices.
- C. Determine and report all problems to the manufacturer's customer service department.

3.5 ADJUSTING

- A. Make proper adjustment to video system devices for correct operation in accordance with manufacturer's instructions.
- B. Make any adjustment of camera settings to comply with specific customer's need.

3.6 DEMONSTRATION

- A. Demonstrate at final inspection that video management system and devices function properly.

END OF SECTION