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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 19**  
**DIGITAL VIDEO RECORDING DEVICES**  
**BOSCH DIVAR IP all-in-one 4000 IP VIDEO MANAGEMENT APPLIANCE**

**PART 1 – GENERAL**

1.1 SUMMARY

A. Section Includes

1. Section 28 23 23 – Video Surveillance Systems Infrastructure

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 23 – Video Surveillance Systems Infrastructure]
4. Section [28 23 29 – Video Surveillance Remote Devices]

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

## 1.2 REFERENCES

### A. Safety

1. EC/EN 62368-1 Audio/video, information and communication technology equipment Part1: safety requirements
2. UL 62368-1, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
3. Bureau of Standards, Metrology and Inspection (BSMI) CNS15598-1

### B. EMC – Emissions:

1. EN 55032 2015+A11:2020 Electromagnetic compatibility of multimedia equipment - Emission requirements
2. RCM: The Australian Standard AS/NZS 4417.1 and AS/NZS 4417.2 Marking of electrical products to indicate compliance with regulations
3. FCC CFR Title 47 Part 15 Subpart B:2020, Class B. ICES-003 Issue 7:2020, class B
4. VCCI CISPR32:2016-11 Class B
5. Korean Certification KS C 9832 KS C 9835
6. Bureau of Standards, Metrology and Inspection (BSMI) CNS 15936

### C. EMC – Immunity

1. EN 55035 2017+A11:2020 Electromagnetic compatibility of multimedia equipment - Immunity requirements
2. RCM: The Australian Standard AS/NZS 4417.1 and AS/NZS 4417.2 Marking of electrical products to indicate compliance with regulations

### D. Environmental

1. EN 63000 2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
2. REACH 223 Registration, Evaluation, and Authorization of Chemicals
3. ROHS EU, 2011/65 and (EU) 2015/863 Directive of the European Parliament and of the Council of 4 July 2012 on wasted electrical and electronic equipment (WEEE)
4. China ROHS. Administrative Measure on the Control of Pollution Caused by Electronic Information Products

### E. Energy savings

1. California Code of Regulations title 20 Division 2, chapter 4, article 4, section 1601-1605, 1607: Appliance efficiency Regulations-computers
2. EN 62623:2013 Desktop and notebook computers-Measurement of energy consumptions (ERP LOT3)

### F. Compliance Marks: CE, FCC, UL, WEEE, RCM, VCCI, KC, BSMI, BIS, CMIM, UKCA, China RoHS

### G. International Organization for Standardization (ISO)

1. ISO 9001 – Quality Management Systems.

## 1.3 DEFINITIONS

- A. SSD Solid-state, non-volatile memory module that contains a backup image of all system software needed to a full system recovery and holds the installed operating system.
- B. RAID: Redundant Array of Independent Disks is a technology that employs the simultaneous use of two or more hard disk drives to achieve greater levels of performance, reliability, and/or larger data volume sizes.

- C. iSCSI: Internet SCSI is a protocol that allows clients (called initiators) to send SCSI commands to SCSI storage devices (targets) on remote servers via an IP network.
- D. SNMP: Simple Network Management Protocol is a component of the Internet Protocol Suite as defined by the Internet Engineering Task Force (IETF). SNMP is used in network management systems to monitor network-attached devices for conditions that warrant administrative attention.

#### 1.4 SYSTEM DESCRIPTION

- A. Section Includes
  - 1. Digital Video Recorders
- B. Performance Requirements
  - 1. The IP Video Management Appliance shall be an all-in-one recording, viewing and management solution for network surveillance systems of up to 32 channels.
  - 2. The IP Video Management Appliance shall include pre-installed and pre-licensed video management software and up to 36 TB (2 x 18 TB) storage capacity.
  - 3. The IP Video Management Appliance shall offer a dual port Gigabit Ethernet network interface, 8 GB system memory and an Intel Core-i Processor.
  - 4. The IP Video Management Appliance shall offer remote health monitoring via a desktop application or a Web browser.
  - 5. The IP Video Management Appliance shall offer remote video monitoring via a desktop application, Web browser, or iOS-based mobile device.

#### 1.5 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.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer:

1. Minimum of [10] years experience in manufacture and design Video Surveillance Devices.

B. Video Surveillance System:

1. This product shall be manufactured by a firm whose quality system is in compliance with the I.S. /ISO 9001/EN 29001, QUALITY SYSTEM.

C. Installer:

1. Minimum of [5] years experience installing Video Surveillance System.

## 1.7 DELIVERY, STORAGE AND HANDLING

A. Comply with requirements of Section 01 60 00.

B. Deliver materials in manufacture'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.

E. Bosch provides off-the-shelf availability for our top selling products and same-day or 24-hour shipping.

## 1.8 WARRANTY

A. Provide manufacturer's warranty (Service Level Agreement) covering 5 years for parts replacement of defective equipment.

## 1.9 MAINTENANCE

A. Make ordering of new equipment for expansions, replacements, and spare parts available to dealers and end users.

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:  
 [Bosch Security Systems, Inc.  
 130 Perinton Parkway  
 Fairport, New York, 1450, USA  
 Phone: + 1 800 289 0096  
 Fax: + 1 585 223 9180  
[security.sales@us.bosch.com](mailto:security.sales@us.bosch.com)  
[www.boschsecurity.us](http://www.boschsecurity.us)]

[Bosch Security Systems B.V.  
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[Robert Bosch (SEA) Pte Ltd, Security Systems  
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Singapore 573943  
Phone: +65 6571 2600  
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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.]

2.2 BOSCH DIVAR IP all-in-one 4000 [DIP-4420IG-00N] [DIP-4424IG-2HD] [DIP-4428IG-2HD] [DIP-442IIG-2HD]

A. General Characteristics:

1. The IP Video Management Appliance shall be an all-in-one recording, viewing and management solution for network surveillance systems of up to 32 channels.
2. The IP Video Management Appliance shall come with a pre-installed Bosch VMS license for connecting 8 concurrent recordable cameras (extendable to 32).
3. The IP Video Management Appliance shall utilize "enterprise-rated" hard drives.
4. The IP Video Management Appliance shall be a pre-configured and pre-installed video management solution with up to 36 TB (2 x 18 TB) of gross storage capacity.
5. The IP Video Management Appliance shall offer up to 33516 GB of net capacity storage.
6. The IP Video Management Appliance shall offer a recording bandwidth of 250 Mbit/s.
7. The IP Video Management Appliance shall offer a dual port Gigabit Ethernet network interface, 8 GB system memory and an Intel Core-i Processor.
8. The IP Video Management Appliance shall offer remote monitoring via a desktop application or a Web browser.

B. Functions

1. The IP Video Management Appliance shall offer front-swappable SATA-III hard drives providing up to 36 TB of gross storage capacity.
2. The IP Video Management Appliance shall come pre-installed and pre-configured with all necessary software.

3. The IP Video Management Appliance shall be configurable in three Operation modes: Full video recording and management system, Pure video recording system, iSCSI storage expansion.
4. The IP Video Management Appliance shall utilize Microsoft Windows Server IoT 2022 for Storage Workgroup.
5. The Operating System of the IP Video Management Appliance shall run on solid-state disk (SSD).
6. The IP Video Management Appliance shall provide three digital Hi-resolution video outputs (DisplayPort, HDMI).

#### C. Access to Video

1. The IP Video Management Appliance shall deliver high-quality HD/UHD video despite low or limited bandwidth connections.
2. The IP Video Management Appliance shall offer Dynamic Transcoding technology that retrieves data and subsequently decodes and decompresses the data stream to a lower bit stream.
3. The IP Video Management Appliance shall instantly enhance the video detail to full HD / UHD quality when the video is paused.

#### D. Management

1. The IP Video Management Appliance shall come with the Bosch VMS management application pre-configured and pre-licensed.
2. The IP Video Management Appliance shall come with the System Manager software utility, that shall allow selection and installation of operation mode, as well as future application software upgrades.
3. The IP Video Management Appliance shall allow operators to use one central tool for configuration and operations management.

#### E. Health Monitoring

1. The IP Video Management Appliance shall provide SNMP, Remote Desktop and HTTP monitoring support.
2. The IP Video Management Appliance shall offer high-availability hardware, embedded design, and system wide monitoring.

#### F. Processor

1. The IP Video Management Appliance shall contain an Intel Core i3-10100E processor
2. The IP Video Management Appliance processor shall feature 6 MB Intel® Smart Cache.
3. The IP Video Management Appliance processor shall include ECC Unbuffered memory protection.
4. The IP Video Management Appliance processor shall include Intel® UHD Graphics 630.

#### G. Memory

1. The IP Video Management Appliance shall have 8GB DDR4-2666 1RX8 LP SODIMM of memory installed.

#### H. Storage

1. The IP Video Management Appliance shall contain up to two (2) 3.5 in. SATA storage trays.

2. The IP Video Management Appliance shall have up to 2 x 18 TB SATA (7,200 RPM, 256 MB cache, 3.5 in.) hard drives installed.
3. The IP Video Management Appliance shall include 1 NVMe M.2 SSD drives (with 256 GB capacity).

I. Electrical:

1. [Input: 120 VAC
  - a. Actual Output Wattage from Power Supply: 131 W
  - b. Efficiency of Power Supply: 90%
  - c. Total System Power Consumption: Maximum 145 W
  - d. Total BTU/h: 496 BTU/h
  - e. Power Factor: 0.98
  - f. System AC Input VA Requirement: 148 VA
2. [Input: 240 VAC
  - a. Actual Output Wattage from Power Supply: 131 W
  - b. Efficiency of Power Supply: 92%
  - c. Total System Power Consumption: Maximum 142 W
  - d. Total BTU/h: 485 BTU/h
  - e. Power Factor: 0.96
  - f. System AC Input VA Requirement: 148 VA
3. Power supply: 1x 350W 80 PLUS GOLD

J. Mechanical

1. Form Factor: Compact mini-tower
2. USB Ports: Front: 2 USB 2.0 ports, Rear: 4 USB 3.2 Gen2 ports
3. Network: 2 RJ45 Gigabit Ethernet LAN ports (teamed)
4. Dimensions (H x W x D): 240 x 210 x 281 mm (9.5 x 8.3 x 11 in)
5. Weight:
  - DIP-4420IG-00N: 5.5 kg (12.1 lb)
  - Others: 6.5 kg (14.3 lb)

K. Environmental:

1. Operating Temperature: 0°C to +40°C (+32°F to +104°F)
2. Non-operating Temperature: -40°C to +70°C (-40°F to +158°F)
3. Operating Relative Humidity: 8 to 90%, non-condensing
4. Non-operating Relative Humidity: 5 to 95%, non-condensing

L. Accessories:

1. DIP-AIO4-HDD 4TB HDD DIVAR IP all-in-one
2. DIP-AIO8-HDD 8TB HDD DIVAR IP all-in-one
3. DIP-AIO18-HDD 18TB HDD DIVAR IP all-in-one
4. KBD-UXF Keyboard, USB CCTV-oriented

## **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. Perform installation with qualified service personnel.
- C. Install devices in accordance with the National Electrical Code or applicable local codes.
- D. Ensure selected location is secure and offers protection from accidental damage.
- E. 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 functions properly.

END OF SECTION