

Americas

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, New York, 14450,
USA
Phone: + 1 800 289 0096
Fax: +1 585 223 9180
security.sales@us.bosch.com
www.boschsecurity.us

Europe, Middle East, Africa

Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: + 31 40 2577 284
Fax: +31 40 2577 330
emea.securitysystems@bosch.com
www.boschsecurity.com

Asia-Pacific

Bosch Security Systems Pte Ltd
38C Jalan Pemimpin
Singapore 577180
Phone: +65 6319 3450
Fax: +65 6319 3499
apr.securitysystems@bosch.com
www.boschsecurity.com

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 capture 5000**

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes

1. Security Lighting

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

- A. Canadian Standards Association (CSA)
 - 1. CAN/CSA E60065
- B. European Norm
 - 1. EN 50130-4 Alarm Systems - Electromagnetic Compatibility - Product Family Standard: Immunity Requirements For Components Of Fire, Intruder And Social Alarm Systems.
 - 2. EN 55022 class A (CE) – Information Technology Equipment – Radio Disturbance Characteristics – Limits and Methods of Measurement for Emission.
 - 3. EN 60065 (CE) Electromagnetic Compatibility – Immunity requirements for components for fire, intruder and social alarm systems.
 - 4. EN 60068-2-6 Environmental testing – Sinusoidal Vibration Testing
 - 5. EN 60068-2-27 Environmental testing – Shock Testing
 - 6. EN 60068-2-64 Environmental testing – Broad-band random Vibration Testing
- C. Federal Communications Commission (FCC) (www.fcc.gov)
 - 1. FCC CFR 47 part 15, Subpart A
- D. International Organization for Standardization (ISO)
 - 1. 9001 – Quality System.
- E. Underwriters Laboratories, Inc. (UL) (www.ul.com)
 - 1. UL 60065 – Audio, Video and Similar Electronic Apparatus – Safety Requirements.

1.3 SYSTEM DESCRIPTION

- A. Video Surveillance Remote Devices
 - 1. DINION capture 5000
- B. Performance Requirements
 - 1. The camera shall be specially designed to capture high-quality images of vehicle license plates.
 - 2. The camera shall feature offer analog and IP models.
 - 3. The camera shall include infrared illumination.
 - 4. The camera shall filter out visible light and eliminate the effects of headlight glare.
 - 5. The camera shall minimize plate overexposure from sunlight for more accurate automatic license plate recognition.
 - 6. The camera shall include adjustable imaging modes to fine-tune the imager for specific regions or license plate recognition algorithms.

1.4 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.

1.5 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 CSA.
 - 2. Certified compliant to FCC and CE for the required loads. Test methods are in accordance with Industry Canada and the IEC. Provide evidence of compliance upon request.
- C. Installer:
 - 1. Minimum of [5] years experience installing Video Surveillance System.

1.6 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.
- E. Bosch provides off-the-shelf availability for our top selling products and same-day or 24-hour shipping.

1.7 WARRANTY

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

1.8 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
www.boschsecurity.us]

[Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: + 31 40 2577 284
Fax: +31 40 2577 330
emea.securitysystems@bosch.com
www.boschsecurity.com]

[Bosch Security Systems Pte Ltd
38C Jalan Pemimpin
Singapore 577180
Phone: +65 6319 3450
Fax: +65 6319 3499
apr.securitysystems@bosch.com
www.boschsecurity.com]

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 DINION capture 5000 [VER-L2R1-1] [VER-L2R2-1] [VER-L2R3-1] [VER-L2R4-1] [VER-L2R5-1] [VER-L2R1-2] [VER-L2R2-2] [VER-L2R3-2] [VER-L2R4-2] [VER-L2R5-2] [NER-L2R1-1] [NER-L2R2-1] [NER-L2R3-1] [NER-L2R4-1] [NER-L2R5-1] [NER-L2R1-2] [NER-L2R2-2] [NER-L2R3-2] [NER-L2R4-2] [NER-L2R5-2]

A. General Characteristics:

1. The license plate capture camera shall be specially designed to capture high-quality images of vehicle license plates.
2. The license plate capture camera shall feature offer analog and IP models.
3. The license plate capture camera shall include infrared illumination.
4. The license plate capture camera shall filter out visible light and eliminate the effects of headlight glare.
5. The license plate capture camera shall minimize plate overexposure from sunlight for more accurate automatic license plate recognition.
6. The license plate capture camera shall include adjustable imaging modes to fine-tune the imager for specific regions or license plate recognition algorithms.

7. The license plate capture camera shall integrate with the Bosch Divar 700 Digital Video Recorder, the Bosch Video Management System, and with the Bosch Video Client.
 8. The license plate capture camera shall integrate with third-party ANPR software.
- B. [Analog Imager Requirements]
1. The analog imager shall utilize DINION 2X technology with a 1/3-inch monochrome CCD image sensor capable of producing up to 540 TVL of resolution.
 2. The analog imager shall offer the following active pixels:
 - a. [PAL: 752 x 582]
 - b. [NTSC: 768 x 494]
 3. The analog imager shall be fitted with a 5-50 mm varifocal lens.
 4. The analog imager shall offer one fully programmable video motion detection area.
 5. The analog imager shall offer four fully programmable, independent privacy masks.
 6. The analog imager shall produce a composite video signal, via a BNC connector, for service or maintenance purpose that allows a direct input to conventional analog CCTV video equipment.
 7. The analog imager shall provide an on-screen display to simplify the illumination, and network configuration settings.]
- C. [IP Imager Requirements]
1. The IP imager shall utilize DINION 2X technology with a 1/3-inch monochrome CCD image sensor.
 2. The IP imager shall offer the following resolutions:
 - a. 4CIF: 704 x 576/480 (25/30 ips)
 - b. CIF: 352 x 288/240 (25/30 ips)
 3. The IP imager shall be fitted with a 5-50 mm varifocal lens.
 4. The IP imager shall offer one fully programmable video motion detection area.
 5. The IP imager shall offer four fully programmable, independent privacy masks.]
 6. The IP imager shall provide direct network connection using H.264 (ISO/IEC 14496-10); M-JPEG, and JPEG compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
 7. The IP imager shall offer Power over Ethernet Plus (IEEE 802.3at class 4) support.
 8. The IP imager shall conform to the ONVIF standard.]
- D. License Plate Capture Requirements
1. The license plate capture camera shall utilize the Night Capture Imaging System.
 2. The Night Capture Imaging System shall provide a burst of infrared illumination and simultaneously filter out visible light.
 3. The license plate capture camera shall utilize Advanced Ambient Compensation.
 4. Advanced Ambient Compensation shall utilize high-intensity pulsed infrared illumination and an ultra fast shutter.

5. The license plate capture camera shall be capable of capturing the following nominal plate widths (with 4CIF encoding over capture range):
 - a. North America: 110 pixels
 - b. Europe: 130 pixels
 6. The license plate capture camera shall be capable of capturing the following usable plate widths (with 4CIF encoding over capture range):
 - a. North America: 80 to 140 pixels
 - b. Europe: 100 to 170 pixels
 7. The license plate capture camera shall be optimized to capture:
 - a. 520 x 115 mm (approximate) license plates (European)
 - b. 12 x 6 in. (approximate) license plates (North America)
 8. The license plate capture camera shall be equipped with an 850 nm pulsed LED array IR illuminator.
 9. The license plate capture camera shall have a capture range of 3.8 to 28.0 m (12.5 to 92 ft).
 10. The license plate capture camera shall have an optimal distance of 4.9 m to 21.3 m (16.0 to 70.0 ft).
 11. The license plate capture camera shall be capable of capturing clear plate images from vehicles moving at speeds up to 225 km/h (140 mph) at 30° mounting angle.
- E. Installation Requirements
1. [The license plate capture camera shall provide power, video, and control via an Ethernet connection.]
 2. The license plate capture camera shall provide a built-in test pattern generator.
 3. The license plate capture camera shall provide a multi-language on-screen display.
 4. The license plate capture camera shall include a wall mount bracket.
- F. [IP Connectivity
1. The IP imager shall allow full camera control and configuration capabilities over the network except for mechanical adjustments.
 2. The IP imager shall offer Power over Ethernet Plus (IEEE 802.3at class 4) support.
 3. The IP imager shall be capable of capturing and storing images using H.264 and JPEG encoding and compression at 4CIF/D1 and CIF resolutions.
 4. The IP imager shall deliver DVD-quality 4CIF video, at rates up to 30 images per second, via TCP/IP over Shielded Cat5/Cat6 cable. Leverages bandwidth throttling and multicasting capabilities to manage bandwidth and storage requirements efficiently while delivering the best possible image quality and resolution.
 5. The IP imager shall generate two independent H.264 streams, an I-frame recording stream, and an M-JPEG stream simultaneously.
 6. The IP imager shall support iSCSI devices to allow video stream to be recorded directly to an iSCSI RAID array.
 7. The IP imager shall conform to the ONVIF standard.
 8. The IP imager shall integrate with the Bosch Divar 700 Digital Video Recorder, the Bosch Video Management System, and with the Bosch Video Client.]

G. Environmental Requirements

1. The license plate capture camera shall conform to the IP 67, Type 4X (NEMA 4X) standard.
2. The license plate capture camera shall have the following operating temperatures:
 - a. PoE+: -20°C to 50°C (-4°F to 122°F)
 - b. 11-30 VDC or 24 VAC: -40°C to 50°C (-40°F to 122°F)
3. The license plate capture camera shall feature a cold start temperature of 40°C (-40°F). (Typically requires a 15-minute warm up prior to operation).
4. The license plate capture camera shall be capable of withstanding a wind load of 144 km/h (90 mph).

H. Construction Requirements

1. The housing for the license plate capture camera shall be made of robust, weather sealed aluminum casting and extrusion.
2. The window for the license plate capture camera shall be made of borosilicate.
3. The license plate capture camera shall have an all-weather finish coating in Bosch White.

I. Technical Specifications:

1. [Analog Camera:
 - a. Sensor
 - 1) Type: 1/3-inch CCD, monochrome
 - 2) Active Pixels (PAL): 752 x 582
 - 3) Active Pixels (NTSC): 768 x 494
 - b. Horizontal Resolution: 540 TVL
 - c. Video Output: Composite video 1 Vpp, 75 Ohm
 - d. Synchronization: Internal only
 - e. Auto Black: Automatic continuous, off
 - f. Dynamic Range: 120 dB (20-bit image processing)
 - g. Dynamic Noise Reduction: Auto, on/off selectable
 - h. Sharpness: Sharpness enhancement level selectable
 - i. AGC: Of or off (0 – 30 dB) selectable
 - j. Cable Compensation: Up to 1000 m (3000 ft) coax without external amplifiers
 - k. Camera ID: 17 character editable string, position selectable
 - l. Test Pattern Generator: Color bars 100%, Grayscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane
 - m. Modes: 6 preset programmable modes
 - n. Remote Control: Bilinx coaxial bi-directional communication
 - o. Video Motion Detection: One are, fully programmable
 - p. Privacy Masking: Four independent areas, fully programmable
 - q. Controls: OSD operation (multi-lingual)
 - r. Lens: 5-50 mm varifocal, calibrated to optimal capture distance]
2. [IP Camera:
 - a. Sensor
 - 1) Type: 1/3-inch CCD, monochrome
 - 2) Active Pixels (PAL): 752 x 582
 - 3) Active Pixels (NTSC): 768 x 494
 - b. Video Compression: H.264 (ISO/IEC 14496-10), M-JPEG, JPEG
 - c. Data Rate: 9.6 kbps to 6 Mbps

- d. Resolution:
 - 1) 4CIF: 704 x 576/480 (25/30ips)
 - 2) CIF: 352 x 288/240 (25/30 ips)
- e. Overall IP Delay: Min. 120 ms, Max. 240 ms
- f. GOP Structure: I, IP, IBBP
- g. Frame Rate (per stream):
 - 1) 1 to 25/30 (PAL/NTSC) H.264
 - 2) 1 to 25/30 (PAL/NTSC) M-JPEG
- h. Modes: 6 preset programmable modes
- i. Dynamic Range: 120 dB (20-bit image processing)
- j. AGC: Of or off (0 – 30 dB) selectable
- k. Auto Black: Automatic continuous, off
- l. Dynamic Noise Reduction: Auto, on/off selectable
- m. Sharpness: Sharpness enhancement level selectable
- n. Privacy Masking: Four independent areas, fully programmable
- o. Controls: OSD operation (multi-lingual)
- p. Video Motion Detection: One are, fully programmable
- q. Test Pattern Generator: Color bars 100%, Grayscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane
- r. Camera ID: 17 character editable string, position selectable
- s. Synchronization: Internal only
- t. Lens: 5-50 mm varifocal, calibrated to optimal capture distance
- u. Network and Storage
 - 1) Protocols: RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNTP, SNMP, 802.1x, UPnP
 - 2) Encryption: TLS 1.0, SSL, AES (optional)
 - 3) Ethernet: STP, 10/100 Base-T, auto-sensing, half/full duplex, RJ45
 - 4) PoE Supply: IEEE 802.3at compliant
 - 5) Local Storage: Supports microSD cards (SDHC)
- 3. Electrical
 - a. Input Voltage
 - 1) Analog Camera: 11-30 VDC or 24 VAC \pm 10%
 - 2) IP Camera: 11-30 VDC, or 24 VAC \pm 10%, Power over Ethernet+ (IEEE 802.3at, class 4)
 - b. Power Consumption:
 - 1) All Models: 22 W, maximum
 - 2) 12 VDC: 20 W, typical at -40°C (-40°F); 13 W typical at 20°C (68°F)
 - 3) 24 VAC: 18 W, typical at -40°C (-40°F); 11 W typical at 20°C (68°F)
 - 4) PoE+: 13 W, maximum; 11 W, typical
- 4. User Connection
 - a. Power
 - 1) [Analog Camera: Two-wire flying leads]
 - 2) [IP Camera: Two-wire flying leads and RJ-45 100 Base-TX Ethernet PoE+ IEEE 802.3at, class 4]
 - b. Video and Control
 - 1) [Analog Camera: BNC]
 - 2) [IP Camera: RJ-45 100 Base-TX Ethernet, BNC (setup only)]
- 5. Environmental:
 - a. Weatherproofing: IP 67, Type 4X (NEMA 4X)
 - b. Operating Temperature Range:
 - 1) [PoE+: -20°C to 50°C (-4°F to 122°F)]

- 2) [11-30 VDC or 24 VAC: -40°C to 50°C (-40°F to 122°F)]
- c. Storage Temperature: -40°C to +70°C (-40°F to 158°F)
- d. Cold Start-up Temperature: -40°C (-40°F), typically requires a 15-minute warm up prior to operation
- e. Operating/Storage Humidity: 0% to 100% relative, condensing
- f. Storage Humidity: up to 100% relative humidity (non-condensing)
- g. Wind Load: 144 km/h (90 mph)
- 6. Construction
 - a. Dimensions (H x W x L): 340 x 154 x 139 mm (13.3 x 6.1 x 5.5 in.) housing with sunshield only
 - b. Weight: 4.4 kg (9.7 lb)
 - c. Construction Material
 - 1) Housing: Robust, weather sealed aluminum casting and extrusion
 - 2) Window: Borosilicate
 - d. Color: Bosch White
 - e. Finish: All-weather coating
 - f. Bracket: Wall mount included

2.3 ACCESSORIES

- A. Power Supplies
 - 1. Bosch UPA-2450-50 – 220 VAC, 50 Hz, 24 AVC, 50 VA Out
 - 2. Bosch UPA-2450-60 – 120 VAC, 60 Hz, 24 AVC, 50 VA Out
 - 3. Bosch PSU-124-DC050 – 120 to 240 VAC, 50/60 Hz, 24 VDC, 50 W Out
- B. Mounts
 - 1. Bosch MBE-15W – White Pole mount adapter plate
 - 2. Bosch MBE-17W – White Wall mount adapter plate
- C. Software Options
 - 1. Bosch VP-CFGSFT – Configuration software with USB adapter

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 function properly.

END OF SECTION