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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 MIC SERIES 550 INFRARED 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

- A. European Norm
 - 1. EN 50121-4 Railway Applications - Electromagnetic Compatibility - Part 4: Emission and Immunity of the Signaling and Telecommunications Apparatus.
 - 2. EN 50130-4 Alarm Systems - Electromagnetic Compatibility - Product Family Standard: Immunity Requirements For Components Of Fire, Intruder And Social Alarm Systems.
 - 3. Complies with CE and EN Electromagnetic Compatibility regulations and Product Safety standards.
- B. Federal Communications Commission (FCC) (www.fcc.gov)
 - 1. FCC CFR 47 part 15 class A – Telecommunications – Radio Frequency Devices – Digital Device Emission.
- C. Industry Canada (ICES)
 - 1. Complies with ICES-003 - Digital Apparatus
- D. International Electrotechnical Commission (IEC)
 - 1. IEC 60529 Degrees of protection provided by enclosures (IP Code).
 - 2. IEC 60950 Information Technology Equipment – Safety.
- E. International Organization for Standardization (ISO)
 - 1. 9001 – Quality System.
- F. Underwriters Laboratories, Inc. (UL) (www.ul.com)
 - 1. UL 50 Enclosures for Electrical Equipment.
 - 2. UL 2043 Fire Test for Heat and Visible Smoke Release for Discrete Products and their Accessories Installed in Air-Handling Spaces.
 - 3. UL 60950-1 Information Technology Equipment - Safety.

1.3 DEFINITIONS

- A. Brushless Motor: A synchronous electric motor powered by direct-current electricity (DC) and has an electronically controlled commutation system, instead of a mechanical commutation system based on brushes.
- B. ANPR Systems: Automatic Number Plate Recognition (ANPR) is a mass surveillance method that uses optical character recognition on images to read the license plates on vehicles.
- C. Telemetry: Technology that allows remote measurement and reporting of information.

1.4 SYSTEM DESCRIPTION

- A. Video Surveillance Remote Devices
 - 1. PTZ Day/Night CCD Infrared camera
- B. Performance Requirements
 - 1. A day/night high-resolution CCD PTZ camera system that offers brushless motor technology.
 - 2. Twin integrated infrared illuminators
 - 3. Provide 24 hour security with detail images – day or night.
 - 4. Possesses advanced intelligence features.
 - 5. Have different mounting versions.

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.
 - 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 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 covering [3] years for replacement and repair 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:

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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 BOSCH MIC SERIES 550 INFRARED CAMERA

A. General Characteristics

1. The PTZ camera shall be a best-fit camera for a variety of security applications.
2. The PTZ camera shall incorporate twin integrated, long-life LED infrared lamps capable of illuminating a scene up to 60 m (197 ft) away.
3. The PTZ camera shall be certified to IP68 and be encased in a rugged, vandal-resistant, weather-resistant cast solid aluminum housing.
4. The PTZ camera shall be coated with a protective layer of Alodine 5200.
5. The PTZ camera shall be capable of operating submerged in up to 1 m (3.3 ft) of water for a maximum duration of 24 hours. (The PTZ camera is not rated to be installed permanently under water).
6. The PTZ camera shall offer brushless motor technology with full 360° continuous rotation pan and 186.6° tilt angle.
7. The PTZ camera shall have an integrated long life silicone wiper.
8. The PTZ camera shall offer a reversible rain shield.
9. The PTZ camera shall offer image stabilization that reduces the affects of camera shake in both the vertical and horizontal axis on the transmitted image without reducing camera sensitivity.

B. Imaging

1. [The PTZ camera shall consist of an integrated high-resolution Exview HAD CCD camera using a 1/4-inch imager, a 36x (3.4 – 122.4 mm, F1.6 to F4.5) auto-iris, auto-focus optical zoom lens.]
2. [The PTZ camera shall consist of an integrated high-resolution Exview HAD CCD camera using a 1/4-inch imager, a 28x (3.5 – 98.0 mm, F1.35 to F3.7) auto-iris, auto-focus optical zoom lens.]
3. The PTZ camera shall be designed to perform over a wide range of environmental and lighting conditions with a horizontal resolution of 550 TVL (NTSC/PAL) typical and sensitivity down to 0 lux with IR enabled.
4. The PTZ camera shall offer a choice of 36x or 28x day/night cameras with 12x digital zoom.
5. The PTZ camera shall offer a Wide Dynamic Range of 92 dB for clear images in extreme high-contrast environments.
6. The PTZ camera shall offer SensUp control to increase sensitivity by more than 50 times.
7. The PTZ camera shall offer a feature that restores image color when shooting images illuminated by a sodium vapor lamp.
8. The PTZ camera shall feature a Night mode to enhance night viewing by increasing the IR sensitivity. An internal IR filter will switch from color to monochrome mode automatically by sensing the illumination level. An internal through-the-lens IR detector will enhance the monochrome mode stability by preventing the camera from reverting to color mode when IR illumination is dominant.
9. The PTZ camera shall offer Back Light Compensation (BLC) to selectively amplify an area of interest in the image to compensate for large contrast differences when only a portion of the image is brightly lit.
10. The PTZ camera shall offer Automatic White Balance.
11. The PTZ camera shall offer Automatic Gain Control (AGC) with a range of – 3 dB to 28 dB in 2 dB steps.

12. The PTZ camera shall offer an AutoScaling feature that reduce the pan/tilt speed as the camera zooms in on an object, so that the relative speed on the screen remains constant.
13. The PTZ camera shall offer an AutoPivot feature to automatically rotate and flip the camera as it tilts through the vertical position to maintain the correct orientation of the image.

C. Illumination

1. The PTZ camera shall incorporate two (2) 850 nm illuminators directly to the camera head.
2. The PTZ camera illuminators shall feature seven (7) LEDs per lamp.
3. The PTZ camera illuminators shall have a beam angle of 30°.
4. The PTZ camera illuminators shall be capable of illuminating a scene up to 60 m (197 ft) away.
5. The PTZ camera illuminators shall be rated to IP68.
6. The PTZ camera illuminators shall be made of aluminum with an acrylic front window.
7. The PTZ camera illuminators shall have a power consumption of 26 W maximum on full power.
8. The PTZ camera illuminators shall require 1 A per lamp.

D. Operation

1. The PTZ camera shall offer full 360° continuous rotation pan and 186.6° tilt angle.
2. The PTZ camera shall provide image stabilization using a dedicated digital signal processor (DSP) to minimize camera shake on both the horizontal and vertical axes while maintaining a clear image as the zoom range increases. The image stabilization algorithms do not reduce camera sensitivity.
3. The PTZ camera shall offer pan speeds from 0.2° to 120° per second and tilt speeds from 0.2° to 66° per second.
4. The PTZ camera shall offer a pre-position speed of 120° per second.
5. The PTZ camera shall be accurate to within 0.17° of pre-position settings.
6. The PTZ camera shall offer 99 pre-positions with 20-character titles.
7. The PTZ camera shall offer 16 sectors with 20 character-titles.
8. The PTZ camera shall offer two (two) preset tours:
 - a. One preset tour shall consist of up to 99 scenes, consecutively.
 - b. One present tour shall be capable of storing 99 pre-positions with a configurable dwell time and be customizable as to the order and frequency of the pre-positions visited.
9. The PTZ camera shall offer two (2) Record/Playback tours that allow the recording of two (2) separate tours of an operator's keyboard movements consisting of PTZ activities, for a total combined duration time of 15 minutes. The recorded tours can be continuously played back.
10. The PTZ camera shall offer 24 individual privacy masks.
11. The PTZ camera shall be capable of displaying eight (8) privacy masks in the same scene.
12. The PTZ camera shall be capable of defining the privacy masks using three (3), four (4) or five (5) anchor points to form different shapes to best fit the area to be masked. Mask selections will be black, white or blurred.

13. The PTZ camera shall provide advanced alarm handling to manage up to eight (8) alarm inputs and up to two (2) alarm outputs (with optional MIC-ALM card) by means of a programmable "Rules" engine. Any or all of the input contacts can be programmed upon activation to automatically move the camera to any preposition location, close an output relay for a programmed period of time, transmit an alarm signal (via Bilinx) and display an alarm indication on the on-screen display of the monitor.
14. The PTZ camera shall possess on-screen display menus that allow camera set-up via a remote keyboard.

E. Communications

1. The PTZ camera shall support a variety of data transmission methods, including Bilinx (over coax), Bosch Biphas (with optional converter), and RS485.
2. The PTZ camera shall natively support the Bosch (OSRD, Bilinx), Pelco P/ D (Bosch Biphas protocol converter, sold separately.).
3. The PTZ camera shall support remote control, configuration, and firmware updates over the coax cable.
4. The PTZ camera shall be compatible with Bosch Allegiant series switcher/controller, Divar and DiBos digital video recorders, and Bosch IP encoders/decoders.
5. The PTZ camera shall be compatible with a PC-based application that allows PTZ control, camera configuration, and firmware updates.
6. The PTZ camera shall offer embedded menus in English, Czech, Dutch, French, German, Italian, Polish, Portuguese, Russian, and Spanish.

F. Mounting

1. The PTZ camera shall allow operation while mounted in an upright, inverted, or canted position.
2. The PTZ camera shall feature a twist-lock canting feature to allow the camera to be canted to a 45° angle.
3. The PTZ camera shall offer wall, corner, or pole mounting options.

G. Environmental

1. The PTZ camera shall be rated to IP68 ingress protection.
2. The PTZ camera shall be capable of withstanding a sustained wind load of 209 km/h (130 mph).
3. The PTZ camera shall be capable of withstanding a wind gust up to 290 km/h (180 mph).
4. The PTZ camera shall conform to the IEC60068-2-6, Test Fc: Vibration (sinusoidal), 20m/s² (2.0g).
5. The PTZ camera shall conform to the IEC60068-2-7, Test Ea: Shock, 20g.
6. The PTZ camera shall operate within a temperature range of -40°C to +60°C (-40°F to +140°F).
7. The PTZ camera shall possess a cold start-up temperature of -40°C (-40°F).

H. Construction

1. The PTZ camera housing shall be constructed of cast solid aluminum with anti-corrosion pretreatment.
2. The PTZ camera housing shall be available in the following colors:
 - a. [Black (RAL9005)]
 - b. [White (RAL9003)]
 - c. [Grey (RAL7001) – available in specific regions]
3. The PTZ camera housing shall offer an Alodine 5200 surface treatment with a powder coat, sand finish.
4. The PTZ camera housing shall offer a tempered flat glass viewing window.
5. The PTZ camera housing shall offer a long-life silicone window wiper.
6. [The PTZ camera shall offer an optional washer kit.]

I. The PTZ Camera shall conform to the following specifications:

1. 36x Camera:
 - a. Imager: ¼ in.-type Exview HAD CCD (progressive scan)
 - b. Effective Picture Elements:
 - 1) PAL: Approx. 440,000; 752(H) x 582(V)
 - 2) NTSC: Approx. 380,000; 768(H) x 494(V)
 - c. Lens: 36x Zoom (3.4 to 122.4 mm), F1.6 to F4.5
 - d. Zoom Movement Speed: 2.1 to 6.2 seconds, depending on model
 - e. Focus: Automatic with manual override
 - f. Iris: Automatic with manual override
 - g. Field of View: 1.7° to 57.8°
 - h. Video Output: 1.0 Vp-p, 75 Ohm
 - i. Gain Control: Auto/Manual/Max (-3 dB to 28 dB 2 dB steps)
 - j. Aperture Correction: Horizontal and vertical
 - k. Digital Zoom: 12x
 - l. Horizontal Resolution: 550 TVL (NTSC, PAL) typical
 - m. Sensitivity:
 - 1) Day Mode, SensUp Off
 - a) 30 IRE: 0.66 lux
 - b) 50 IRE: 1.4 lux
 - 2) Day Mode, SensUP On
 - a) 30 IRE: 0.04 lux
 - b) 50 IRE: 0.1 lux
 - 3) Night Mode, with Infrared (B/W):
 - a) 30 IRE: 0 lux
 - b) 50 IRE: 0 lux
 - 4) Night Mode, SensUp Off:
 - a) 30 IRE: 0.104 lux
 - b) 50 IRE: 0.209 lux
 - 5) Night Mode, SensUp On:
 - a) 30 IRE: 0.0052 lux
 - b) 50 IRE: 0.0103 lux
 - n. Electronic Shutter Speed: 1/1 to 1/10,000 sec., 22 steps
 - o. SNR: >50 dB
 - p. White Balance: 2000 K to 10,000 K

2. 28x Camera:
 - a. Imager: ¼ in.-type Exview HAD CCD (progressive scan)
 - b. Effective Picture Elements:
 - 1) PAL: Approx. 440,000; 752(H) x 582(V)
 - 2) NTSC: Approx. 380,000; 768(H) x 494(V)
 - c. Lens: 28x Zoom (3.5 to 98.0 mm), F1.35 to F3.7
 - d. Focus: Automatic with manual override
 - e. Iris: Automatic with manual override
 - f. Field of View: 2.1° to 55.8°
 - g. Video Output: 1.0 Vp-p, 75 Ohm
 - h. Gain Control: Auto/Manual/Max (-3 dB to 28 dB 2 dB steps)
 - i. Aperture Correction: Horizontal and vertical
 - j. Digital Zoom: 12x
 - k. Horizontal Resolution: 550 TVL (NTSC, PAL) typical
 - l. Sensitivity:
 - 1) Day Mode, SensUp Off
 - a) 30 IRE: 0.33 lux
 - b) 50 IRE: 0.66 lux
 - 2) Day Mode, SensUP On
 - a) 30 IRE: 0.02 lux
 - b) 50 IRE: 0.04 lux
 - 3) Night Mode, with Infrared (B/W):
 - a) 30 IRE: 0 lux
 - b) 50 IRE: 0 lux
 - 4) Night Mode, SensUp Off:
 - a) 30 IRE: 0.066 lux
 - b) 50 IRE: 0.166 lux
 - 5) Night Mode, SensUp On:
 - a) 30 IRE: 0.0026 lux
 - b) 50 IRE: 0.0082 lux
 - m. Electronic Shutter Speed: 1/1 to 1/10,000 sec., 22 steps
 - n. SNR: >50 dB
 - o. White Balance: 2000 K to 10,000 K
3. IR Illuminators
 - a. LED Array: High-efficiency Surface Mount (SMT) LEDs
 - b. Number of LEDs: 7 per lamp
 - c. Wavelength: 850 nm (semi-covert)
 - d. Beam Angle: 30°
 - e. IR Distance: 60 m (197 ft)
 - f. Weatherproofing: IP68
 - g. Construction Material: Aluminum with acrylic front window
4. Mechanical:
 - a. Drive Unit: Brushless, integral pan/tilt motor drive
 - b. Pan Range: 360° continuous rotation
 - c. Tilt Angle: 186.6°
 - d. Variable Speed:
 - 1) Pan: 0.2°/s-120°/s
 - 2) Tilt: 0.2°/s-60°/s
 - e. Pre-position Speed: 120°/s
 - f. Preset Accuracy: 0.17°
 - g. Proportional Pan/Tilt to Zoom: Yes

- h. Audible Noise: <66 dB
- 5. Electrical
 - a. Input Voltage:
 - 1) Camera: 18 VAC nominal
 - 2) IR Illuminator: 26 VDC nominal
 - b. Power Consumption:
 - 1) Camera: 18 W maximum
 - 2) IR Illuminator: 26 W maximum
 - c. Current Consumption
 - 1) Camera: 1 A maximum
 - 2) IR Illuminator: 1 A maximum
- 6. Miscellaneous
 - a. Sectors/Titling: 16 independent sectors with 20-character titles
 - b. Privacy Masking: 24 individually configurable
 - c. Pre-positions: 99 with 20-character titles
 - d. Camera Setup/Control: RS-485, Bilinx (coax); also Bosch Biphase with converter (sold separately)
 - e. Communications Protocol: Bosch (OSRD, Bilinx), Pelco P/ D (Bosch Biphase protocol converter, sold separately.)
 - f. Guard Tours:
 - 1) Two (2) recorded tours, total duration 15 minutes
 - 2) One (1) preset tour consisting of 99 scenes, consecutively
 - 3) One (1) preset tour with up to 99 customized scenes
 - g. Window Wiper: Standard
 - h. [Washer Drive: Optional with MIC-WKT kit]
 - i. Supported Languages: English, Czech, Dutch, French, German, Italian, Polish, Portuguese, Russian, and Spanish
- 7. Environmental
 - a. Design Rating: IP68
 - b. Operating Temperature: -40°C to $+60^{\circ}\text{C}$ (-40°F to $+140^{\circ}\text{F}$)
 - c. Cold Start-up Temperature: -40°C (-40°F)
 - d. Storage Temperature: -40°C to $+70^{\circ}\text{C}$ (-40°F to $+158^{\circ}\text{F}$)
 - e. Humidity: 0-100%
 - f. Wind Load:
 - 1) Sustained: 209 km/h (130 mph)
 - 2) Gust: up to 290 km/h (180 mph)
 - g. Vibration: IEC60068-2-6, Test Fc: Vibration (sinusoidal), 20m/s^2 (2.0g)
 - h. Shock: IEC60068-2-7, Test Ea: Shock, 20g
- 8. User Connections
 - a. Power (Camera): Via composite cable
 - b. Power (Heater): Via composite cable
 - c. RS-485 Biphase \pm : Control data
 - d. Video: Coaxial via composite cable
 - e. Alarm Inputs: Four (4) standard inputs
 - f. Alarm Communication: Tamper switch (ground connection)

9. Construction:
 - a. Dimensions:
 - 1) Upright and Inverted: 399 x 355 x 178 mm (15.71 x 14.0 x 7.0 in.)
 - 2) Canted: 399 x 312 x 255 mm (15.71 x 12.3 x 10.0 in.)
 - b. Weight: 7.75 kg (17.06 lb)
 - c. Viewing Window: Tempered flat glass
 - d. Construction Material: Cast solid aluminum
 - e. Standard Colors:
 - 1) [Black (RAL9005)]
 - 2) [White (RAL9010)]
 - 3) [Gray (RAL9006) – available only in specific regions]
 - f. Standard Finish: Alodine 5200 surface treatment with powder coat paint, sand finish
 - g. Window Wiper: Standard, long-life silicone wiper
 - h. Canting: Twist Lock canting secured by two (2) security screws

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