

## SECTION 28 23 29

### PERFORMANCE SERIES 4MP TRUE DAY/NIGHT HIGH SPEED IP PTZ CAMERA

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Provide a 4MP true day/night, high speed IP PTZ dome camera with 30x optical zoom lens for video surveillance, including design, supply, installation and commissioning.

##### 1.2 RELATED SECTIONS

**NOTE TO SPECIFIER:** Include related sections as appropriate if video surveillance system is integrated to other systems.

- A. Section 26 05 00 – Common Work Results for Electrical, for interface and coordination with building electrical systems and distribution.
- B. Section 28 05 13 – Conductors and Cables for Electronic Safety and Security, for cabling between system servers, panels, and remote devices.
- C. Section 28 05 28 – Pathways for Electronic Safety and Security, for conduit and raceway requirements.
- D. Section 28 23 00 – Video Surveillance Equipment, for interface with, and administration of video recording devices and equipment.
- E. Section 28 23 23 – Video Surveillance Systems Infrastructure.
- F. Section 28 23 29 – Video Surveillance Remote Devices and Sensors.

##### 1.3 REFERENCES

- A. Reference Standards: Provide systems that meet or exceed the requirements of the following publications and organizations as applicable to the work of this Section:
  1. Australian Communications and Media Authority (ACMA).
  2. Canadian ICES-003.
  3. Canadian Standards Association (CSA).
  4. Conformity for Europe (CE).
  5. Federal Communications Commission (FCC).

6. Institute of Electronic and Electrical Engineers (IEEE).
7. Joint Photographic Experts Group (JPEG).
8. National Television Systems Committee (NTSC).
9. Phase Alternating Line (PAL).
10. Underwriters Laboratories Inc. (UL).
11. IP Code (Ingress Protection Rating) per IEC 60529.

#### 1.4 SYSTEM DESCRIPTION

- A. The Performance Series 30x Zoom TDN PTZ IP dome cameras shall use:
  1. HDZP304DI: A rugged, discreet, IP66-rated ingress-resistant enclosure that can be easily installed directly to a ceiling, wall or roof with either the wall or pendant mounting accessories.
- B. The Performance Series 4MP True Day/Night IP PTZ dome camera shall capture video in 4MP high definition resolution for clean, sharp images at up to 60 frames per second (NTSC) and 50 frames per second (PAL). With WDR capability, the camera ensures glare-free images in environments with high contrast or/and changing light conditions. The camera is designed for a broad range of surveillance applications and features user-adjustable resolution and frame rate to accommodate a wide variety of surveillance environments.
- C. The Performance Series 4MP True Day/Night IP PTZ dome camera shall capture video with excellent low-light performance with 3D noise reduction, saving storage and bandwidth together with H.265 codec.

#### 1.5 SUBMITTALS

- A. General: Submittals shall be made in accordance with the Conditions of the Contract and Submittal Procedure Section.
- B. Manufacturer's Product Data: Submit manufacturer's data sheets indicating systems and components proposed for use, including instruction manuals.
- C. Shop Drawings: Submit complete shop drawings including connection diagrams for interfacing equipment, list of connected equipment, and locations for major equipment components.
- D. Record Drawings: During construction maintain record drawings indicating location of equipment and wiring. Submit an electronic version of record drawings not later than Substantial Completion of the project.
- E. Operation and Maintenance Data: Submit manufacturer's operation and maintenance data, customized to the system installed. Include system and operator manuals.
- F. Field Tests: Submit results of field testing of every device including date, testing personnel, retesting date (if applicable), and confirmation that every device passed field testing.
- G. Maintenance Service Agreement: Submit a sample copy of the manufacturer's maintenance service agreement, including cost and services for a one year period for Owner's review.

Maintenance shall include, but not be limited to, labor and materials to repair the system, tests and adjustments, and regular inspections.

## 1.6 QUALITY ASSURANCE

- A. Manufacturer: Minimum 10 years' experience in manufacturing and maintaining video surveillance systems. Manufacturer shall provide toll-free technical assistance and support available 24/7.
- B. Manufacture Location: Provide equipment assembled in China.
- C. Installer: Minimum 2 years experience installing similar systems, and shall be acceptable to the manufacturer of the video surveillance system.
- D. Regulatory Requirements:
  - 1. Emissions: FCC Part 15B; EN 55032:2012 +AC:2013 .
  - 2. Immunity: EN 50130-4:2011.
  - 3. Safety: North America UL Listed to UL/CSA 60950-1; EU – EN 60950-1.
  - 4. RoHS: EN 50581: 2012.
- E. Environmental Requirements:
  - 1. Operating temperatures: -40°C (-40°F) to 70°C (158°F).
  - 2. Relative Humidity: Less than 90%, non-condensing.
- F. Power Requirements:
  - 1. Input Voltage:
    - a. 24 V AC ±25%, 50/60 Hz.
    - b. PoE+ (802.3at) class 4.
  - 2. Power Consumption: 13 W (23 W maximum with IR LEDs on).

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's labeled packages. Store and handle in accordance with manufacturer's requirements, in a facility with environmental conditions within recommended limits.

## 1.8 WARRANTY

- A. Manufacturer's Warranty: Submit manufacturer's warranty of three (3) years from the manufacture date code under normal use and service for the video surveillance system.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. Performance Series Camera Manufacturer: Honeywell Performance Series 4MP True Day/Night IP PTZ dome camera, [www.honeywell.com/security](http://www.honeywell.com/security).
- B. Accepted Part Numbers:
  - 1. HDZP304DI – Network TDN PTZ 5" Dome, 4MP Resolution, 30x Zoom, WDR, H.265/H.264, NTSC/PAL, 6 IR LEDs, IP66, PoE+, microSD Card Compatible (Supports up to 128 GB cards, card not included).

### 2.2 SYSTEM COMPONENTS

- A. Dome housing, camera scan unit, cabling, and a web based GUI that provides complete control of the IP PTZ dome settings and live video access.

### 2.3 OPERATIONAL REQUIREMENTS

- A. The Performance Series 4MP True Day/Night IP PTZ dome camera system shall meet or exceed the following camera specifications:
  - 1. Image Sensor: 1/3 -inch Exmor CMOS.
  - 2. Total Pixels: 2592(H) x 1520(V).
  - 3. Optical Zoom: 30x.
  - 4. Digital Zoom: 16x.
  - 5. Focal Length: 4.5–135 mm.
  - 6. Focus Mode: Auto/Manual.
  - 7. Exposure Mode: Auto/Iris Priority/Shutter Priority/Gain Priority/Manual.
  - 8. Minimum Illumination: 0.005 lux color, 0 lux B/W (with IR LEDs on) @ F1.6.
  - 9. IR LEDs: 4.
  - 10. IR Distance: Up to 328 ft. (100 m), depending on scene reflectance.
  - 11. Shutter Speed: 1/1–1/30,000 seconds.
  - 12. Dual Audio Communication: G.711a, G.711Mu, AAC, G.722, G.726, G.729, MPEG2-L2.
  - 13. Communication: ONVIF Profile S support.
  - 14. White Balance: Auto/Indoor/Outdoor/ATW/Manual.
  - 15. Signal-to-Noise Ratio: >50 dB (AGC Off).

16. Backlight Compensation: BLC/HLC/WDR (120 dB).
- B. The Performance Series 4MP TDN IP PTZ camera shall support super high-resolution true day/night advanced digital signal processing (DSP) and 30x optical zoom (4.5–135 mm).
  - C. The Performance Series 4MP TDN IP PTZ camera shall utilize 1/3" Exmor CMOS technology with a minimum horizontal resolution of 4MP. The camera shall provide sharp, detailed images down to 0 lux (F1.6) in black-and-white, with IR LEDs on. The camera shall also utilize WDR technology, allowing for detail to be captured accurately even in high contrast scenes.
  - D. The Performance Series 4MP TDN IP PTZ camera shall support the following protocols: IPv4/v6, TCP/IP, UDP, RTP, RTSP, HTTP, HTTPS, SSL, FTP, SMTP, DHCP, PPPoE, UPnP, SNMP, Bonjour, DDNS, IEEE 802.1X, QoS, NTP, IP Filter, ONVIF.

**NOTE TO SPECIFIER:** Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

- E. The Performance Series 4MP TDN IP PTZ camera shall be comprised of a high-speed pan/tilt assembly using precision stepper motors with a high-strength belt drive, resulting in quiet and accurate operation.
- F. The Performance Series 4MP TDN IP PTZ camera shall transmit images in simultaneous triple streams with H.265, H.264, and Motion JPEG (MJPEG) codecs. The streams shall have the following features:
  - 1. Support for 4MP resolution (2592 x 1520) at 30 frames per second (NTSC) or 25 frames per second (PAL), as well as support for lower resolutions: 720p, D1 (720x480/720x576), CIF (352x240/352x288).
  - 2. Transmittal of additional H.265, H.264, or MJPEG video streams simultaneously with the primary H.265, H.264, or MJPEG stream, up to three streams.
  - 3. The bit rate for the H.265, H.264, and MJPEG streams can be set to constant or variable bit rate. The resolutions and frame rates for all streams are adjustable by the administrator.
  - 4. Support for one H.265 profile and three H.264 profiles: High Profile, Main Profile, and Baseline Profile.
- G. The Performance Series 4MP TDN IP PTZ camera shall include as standard a web-based GUI that provides complete control of the IP PTZ dome settings. The web-based GUI shall:
  - 1. Permit 20 users in simultaneous unicast.
  - 2. Provide multiple user access levels with password protection.
  - 3. Offer video access from a web browser. The web client shall offer live viewing for up to 13 users in 4MP at 4 Mbps with full control of all camera settings available to the administrator.
  - 4. Be easily discovered by the Honeywell IPC Tool.

5. Be available to record streaming video or snapshot images to a PC hard disk. The administrator shall have the ability to turn the recording function on or off through the web-based GUI.
  6. Support the following hardware system requirements for the web client:
    - a. Operating system: Windows 7 (32-bit/64-bit).
    - b. Processor: Intel® Pentium® M processor 2.16 GHz or faster, Intel® Core™2 Duo processor 2 GHz or faster.
    - c. System memory: 2 GB RAM.
    - d. Graphics card: AGP graphics card 64 MB RAM, DirectDraw.
    - e. Network card: 10Base-T (10 Mbps) or 100Base-TX (100 Mbps).
    - f. Web browser: Microsoft Internet Explorer 11 or later.
    - g. Viewer: ActiveX control plug-in for Internet Explorer, Easy Viewer app for Chrome.
- H. The Performance Series 4MP TDN IP PTZ camera shall feature web GUI menus for programming camera parameters. A minimum of the following menus must be available:
1. Live
  2. Playback
  3. Setup
    - a. Camera Setup
      - a.properties
        - 1) Picture
        - 2) Exposure
        - 3) Backlight
        - 4) WB
        - 5) D&N Mode
        - 6) Focus & Zoom
        - 7) IR Light
        - 8) Defog
      - b. Profile Management
  4. Video Setup
    - a. Video
    - b. Snapshot
    - c. Overlay

- d. Path
- 5. Audio Setup
- 6. Network Setup
  - a. TCP/IP
  - b. P2P
  - c. Connection
  - d. PPPoE
  - e. DDNS
  - f. IP Filter
  - g. SMTP (Email)
  - h. UPnP
  - i. SNMP
  - j. Bonjour
  - k. Multicast
  - l. 802.1X
  - m. QoS
  - n. Certificate
- 7. PTZ
  - a. Function
    - 1) Preset
    - 2) Tour
    - 3) Scan
    - 4) Pattern
    - 5) Auto Pan
    - 6) PTZ Speed
    - 7) Idle Motion
    - 8) PowerUp
    - 9) Time Task
    - 10) PTZ Restart
    - 11) Default

8. Alarm
  - a. Alarm
  - b. Event
  
9. IVS Analysis
  - a. Video Detection
    - 1) Motion Detection
    - 2) Video Tamper
  - b. Audio Detection
  - c. Smart Plan
  - d. Auto Tracking
  - e. Face Detection
  
10. Storage Setup
  - a. Schedule
    - 1) Record Schedule
    - 2) Snapshot Schedule
    - 3) Holiday Schedule
  - b. Destination
    - 1) Path
    - 2) Local
    - 3) FTP
    - 4) NAS
  - c. Record Control
  
11. System Setup
  - a. General
  - b. Date&Time
  - c. Account
  - d. Default
  - e. Import/Export
  - f. Auto Maintain
  - g. Upgrade



12. Information
  - a. Version
  - b. Log
  - c. Online User
- I. The Performance Series 4MP TDN IP PTZ camera shall include as standard the following PTZ features and functions:
  1. A sealed, precision gold slip ring to provide 360 degrees of continuous rotation. The dome shall automatically adjust pan and tilt speed in proportion to the zoom position for greater control. The same amount of picture shall appear to move across the monitor regardless of the zoom factor. Manual pan speed shall achieve up to 200 degrees per second. Manual tilt speeds shall achieve up to 120 degrees per second.
  2. Five (5) patterns. The administrator or user with privilege shall perform a series of pan, tilt, zoom movements that the dome must "learn." When the pattern is recalled, the dome automatically repeats the movements.
  3. One auto pan and one auto scan. The administrator or user with privilege shall perform an auto pan by 360 degrees endless, or perform an auto scan by a limited pan angle set by the administrator/user.
  4. Up to eight (8) programmable preset tours, each with up to 32 pre-programmed positions. Each position can include a preset position, the speed, and the duration (duration defines the time the dome rests before going to the next preset position). The tour can be programmed to run continuously until halted by the operator. All programming of preset tours shall be done using web GUI controls. A list of each dome's programmed preset tours, displaying the tour numbers and titles, shall be available for viewing on the web UI.
  5. A text overlay with up to 31 characters for the channel title and 22 characters for other text. This text overlay and its position shall be editable by the administrator.
  6. Twenty-four (24) programmable dynamic privacy zones, configurable by the administrator or user with privilege.
  7. Flash memory to retain the programming of privacy zones if power is lost. The flash memory shall retain the programming for a minimum of 20 years. If the privacy zones have been programmed and the unit loses power, the video shall remain blank until the dome finds its index position to prevent any area covered by a privacy zone from being seen when power is restored.
  8. Auto-pivot tracking (flip) circuitry to allow the dome to automatically turn 180 degrees when reaching its lower limit, allowing the camera to track an individual moving directly below it. The camera shall also be able to flip the image when tilt exceeds 90°.
  9. Position zoom (smart zoom) mode and joystick mode. In position zoom (smart zoom) mode, the camera zooms in automatically when drawing a rectangle on the picture. In joystick mode, pan/tilt is controlled by clicking the joystick controls with a mouse.
  10. Pan azimuth and tilt elevation/declination (in degrees) displayed on the video. The administrator shall have the ability to turn the coordinates on or off.

11. Date and time displayed on the video. The administrator shall have the ability to turn it on or off.
  12. Camera ID/name displayed on the video. The administrator shall have the ability to turn it on or off.
  13. Digital zoom magnification displayed on the video during zoom in/out.
- J. The Performance Series 4MP TDN IP PTZ camera shall provide the option of restoring all displays, alarms, camera settings, and diagnostic settings to factory default settings from the web GUI. In addition, there shall be an option to reboot the camera automatically at set times.
- K. The Performance Series 4MP TDN IP PTZ camera shall provide a warning message through relay output or email; initiate a preset, preset tour, auto pan, or pattern; upload an image to an FTP, NAS or email server; and/or record video to a microSD card, FTP, NAS, or network head-end recorder when motion or video tampering is detected. The administrator shall have the ability to turn the motion/video tampering detection function on or off.
- L. The Performance Series 4MP TDN IP PTZ camera shall provide a warning message through relay output or email, and/or record video to a microSD card, FTP, or NAS when a network failure is detected. The detection shall be based on RTSP session count. If the count drops to zero for at least ten seconds, a network failure event is detected. The administrator shall have the ability to adjust the detecting period and turn the network failure detection function on or off.
- M. The Performance Series 4MP TDN IP PTZ camera shall provide a warning message through relay output; upload an image to a NAS, FTP, or microSD card; initiate a preset, preset tour, auto pan, or pattern; and/or record video to a NAS, FTP, or microSD card when an alarm input signal is detected. The administrator shall have the ability to turn the alarm function on or off.
- N. The Performance Series 4MP TDN IP PTZ camera shall record video to a microSD card during an alarm, motion/video tampering detection, or network failure event, or as scheduled by the administrator. The administrator shall have the ability to turn the recording function on or off. The camera shall support a microSD card from 16 GB to 32 GB in FAT32 format, or from 64 GB to 128 GB in exFAT format. The card is not supplied with the camera.

**NOTE TO SPECIFIER: IMPORTANT!** Any damaged files on an installed micro SD card incurred by malfunction or error in files saved on the microSD card, regardless of the cause, are not guaranteed by Honeywell.

- O. The Performance Series 4MP TDN IP PTZ camera shall include two (2) onboard alarm inputs for normally open or normally closed dry contacts. The camera shall have the ability to go to a preset position, start a preset tour, or start a pattern when an alarm occurs.
- P. The Performance Series 4MP TDN IP PTZ camera shall include one (1) onboard alarm outputs for normally open or normally closed dry contacts. The camera shall have the ability to deliver the relay-out signal to the alarm equipment.
- Q. The Performance Series 4MP TDN IP PTZ camera shall be available in a pendant housing. The pendant housing shall be IP66 rated. The housing shall consist of die-cast aluminum with a matte texture and white (RAL 9003) finish.

- R. The Performance Series 4MP TDN IP PTZ camera shall support special presets for specific actions on the integration end. The special presets shall be accessible from the web client. Refer to the following table for special preset details:

<b>Preshot</b>	<b>Preshot Call Function</b>	
1 to 79	Normal Preset operation	
80	Run Auto Pattern 1	
81	Run Auto Pattern 2	
82	Run Auto Pattern 3	
87	Run Auto Tour 1	
88	Run Auto Tour 2	
89	Run Auto Tour 3	
92	Toggle Auto IRIS	Toggle between AUTO and IRIS priority.
93	Toggle BLC	Toggle between OFF and ON.
94	Toggle Day/Night mode	Toggle between DAY and NIGHT.
98	PTZ Reset	Restart PTZ
99	Toggle EIS	Toggle between OFF and ON.
100	Toggle Defog	Toggle between OFF and AUTO.
101	Toggle Auto focus	Toggle between semi-auto and manual auto focus.
104	Toggle Relay 1	Toggle between ON and OFF.
105	Toggle Relay 2	Toggle between ON and OFF.
106	Toggle WDR	Toggle between OFF and WDR value.
112	Future reserved	
113	Future reserved	
114	Future reserved	
115	Future reserved	
116 to 250	Normal preset operation	

## 2.4 PERFORMANCE SERIES INTEGRATIONS

- A. The following embedded NVRs are recommended for the Performance Series 4MP TDN IP PTZ camera:
1. HEN081\*4: 8-channel, 2 HDD, 8 PoE, 4K, H.265
  2. HEN161\*4: 16-channel, 2 HDD, 16 PoE, 4K, H.265
  3. HEN321\*4: 32-channel, 2 HDD, 16 PoE, 4K, H.265
  4. HEN162\*4: 16-channel, 4 HDD, 16 PoE, 4K, H.265
  5. HEN322\*4: 32-channel, 4 HDD, 16 PoE, 4K, H.265
  6. HEN642\*4: 64-channel, 4 HDD, 16 PoE, 4K, H.265
  7. HEN163\*4: 16-channel, 8 HDD, 16 PoE, 4K, H.265, RAID 5&6
  8. HEN323\*4: 32-channel, 8 HDD, 16 PoE, 4K, H.265, RAID 5&6
  9. HEN643\*4: 64-channel, 8 HDD, 16 PoE, 4K, H.265, RAID 5&6
  10. HEN041\*3: 4-channel, 4 PoE,H.265
  11. HEN081\*3: 8-channel, 8 PoE,H.265
  12. HEN161\*3: 16-channel, 16 PoE,H.265
  13. HEN081\*3L: 8-channel, No PoE,H.265
  14. HEN161\*3L: 16-channel, No PoE,H.265
  15. HEN321\*3L: 32-channel, No PoE,H.265

NOTE TO SPECIFIER: \* = hard drive capacity in TB.

## 2.5 SYSTEM HARDWARE

- A. The Performance Series 4MP TDN IP PTZ camera shall have the following mechanical specifications:
1. Unit Dimensions: Ø 7.32" x 12,17" (Ø 186.0 mm x 309.0 mm).
  2. Unit Weight: 7.72 lb (3.5 kg).
  3. Waterproof Standard: IP66.
- B. The Performance Series 4MP TDN IP PTZ camera shall have the following electrical specifications:
1. Input Voltage: 24 V DC ±10%, or PoE+ (802.3at).
  2. Power Consumption: 13 W (23 W maximum with IR LEDs on).

- C. The Performance Series 4MP TDN IP PTZ camera shall be designed to meet the following environmental conditions:
  - 1. Operating Temperatures: -40°F (-40°C) to 158°F (70°C).
  - 2. Relative Humidity: Less than 90%, non-condensing.
  - 3. Emissions: FCC Part 15B; EN 55032.
  - 4. Immunity: EN 50130-4, EN 55024.
  - 5. Safety: UL Listed to UL/CSA 60950-1; EU – EN 60950-1.
  - 6. RoHS: EN 50581: 2012.

## 2.6 MANUFACTURER SUPPORT

- A. Manufacturer shall provide customer service, pre-sales applications assistance, after-sales technical assistance, access to online technical support, and online training using Web conferencing.
- B. Manufacturer shall provide 24/7 technical assistance and support by means of a toll-free telephone number at no extra charge.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine site conditions prior to installation. Notify Architect and Owner in writing if unsuitable conditions are encountered. Do not start installation until site conditions are acceptable.

### 3.2 INSTALLATION

- A. All components of the camera system shall be thoroughly tested before shipping to the project location.
- B. Camera system shall be installed, programmed, and tested in accordance with manufacturer's installation instructions.
  - 1. Coordinate interfaces with Owner's representative where appropriate.
  - 2. Provide conduit, cable and wire for a complete and reliable installation. Obtain Owner's approval for exact location of the camera and all boxes, conduit, cable, and wiring runs prior to installation.
  - 3. Install conduit, cable, and wire parallel and square with building lines, including raised floors areas. Do not exceed 40 percent fill in conduits. Gather wires and tie to create an orderly installation.

4. Coordinate with other trades to provide proper sequencing of installation.

### 3.3 FIELD COMMISSIONING AND CERTIFICATION

- A. Field Commissioning: Test dome camera system as recommended by manufacturer, including the following:
  1. Conduct complete inspection and testing of equipment, including verification of operation with connected equipment.
  2. Test devices and demonstrate operational features for Owner's representative and authorities having jurisdiction, as applicable.
  3. Correct deficiencies until satisfactory results are obtained.
  4. Submit written copies of test results.

### 3.4 TRAINING

- A. Conduct on-site system administrator and security/surveillance operator training, with the number of sessions and length of sessions as recommended by the video surveillance system manufacturer. Training shall include, but not limited to camera administration, provisioning, configuration, operation, and diagnostics.

END OF SECTION