SECTION 28 23 29

MEGAPIXEL TDN WDR IR IP BALL CAMERA

1. GENERAL
	1. SECTION INCLUDES
		1. Provide a 2 or 4 megapixel true day/night wide dynamic range infrared IP ball camera with a fixed or motorized focus/zoom lens for video surveillance, including design, supply, installation, and commissioning.
	2. RELATED SECTIONS

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

* + 1. Section 26 05 00 – Common Work Results for Electrical, for interface and coordination with building electrical systems and distribution.
		2. Section 28 05 13 – Conductors and Cables for Electronic Safety and Security, for cabling between system servers, panels, and remote devices.
		3. Section 28 05 28 – Pathways for Electronic Safety and Security, for conduit and raceway requirements.
		4. Section 28 23 23 – Video Surveillance Systems Infrastructure.
		5. Section 28 23 29 – Video Surveillance Remote Devices and Sensors.
	1. REFERENCES
		1. 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. Canadian ICES-003
			2. Canadian Standards Association (CSA)
			3. Conformity for Europe (CE)
			4. Electronic Industry Association (EIA)
			5. Federal Communications Commission (FCC)
			6. Joint Photographic Experts Group (JPEG)
			7. National Television Systems Committee (NTSC)
			8. Phase Alternating Line (PAL)
			9. Underwriters Laboratories Inc. (UL)
	2. SYSTEM DESCRIPTION
		1. The IP ball camera shall be equipped with a 1/2.7″ 2 MP or 1/3″ 4 MP progressive scan CMOS imager to capture 1920×1080 (25/30 fps) or 2688×1520 (20 fps) images; a 2.8 mm or 3.6 mm fixed lens or a 2.7–12 mm motorized focus/zoom lens; and a weatherproof IP66 enclosure. The camera shall also feature wide dynamic range capability up to 120 dB. As a true day/night solution, the camera shall use Smart IR technology and provide up to 130 ft (40 m) or 200 ft (60 m) of IR illumination. The camera shall accept PoE (802.3af) or 12 VDC power input.
	3. SUBMITTALS
		1. General: Submittals shall be made in accordance with the Conditions of the Contract and Submittal Procedure Section.
		2. Manufacturer’s Product Data: Submit manufacturer’s data sheets indicating systems and components proposed for use, including instruction manuals.
		3. Shop Drawings: Submit complete shop drawings including connection diagrams for interfacing equipment, list of connected equipment, and locations for major equipment components.
		4. 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.
		5. Operation and Maintenance Data: Submit manufacturer’s operation and maintenance data, customized to the system installed. Include system and operator manuals.
		6. 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.
		7. 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.
	4. QUALITY ASSURANCE
		1. Manufacturer: Minimum ten (10) years experience in manufacturing and maintaining video surveillance systems. Manufacturer shall provide toll-free technical assistance and support available 24/7.
		2. Manufacture Location: Provide equipment assembled in China.
		3. Installer: Minimum two (2) years experience installing similar systems, and acceptable to the manufacturer of the video surveillance system.
		4. Regulatory Requirements:
			1. Emissions: FCC, Part 15B, Class B.
		5. Environmental Requirements:
			1. Operating Temperature: –22°F to 140°F (−30°C to 60°C).
			2. Relative Humidity: 0% to 95%, non-condensing.
		6. Power Requirements: Input shall be PoE (802.3af) or 12 VDC.
	5. DELIVERY, STORAGE, AND HANDLING
		1. 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.
	6. WARRANTY
		1. 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.
1. PRODUCTS
	1. MANUFACTURER
		1. Camera Manufacturer: Honeywell Performance Series IP true day/night wide dynamic range IR ball camera, [www.honeywell.com/security](http://www.honeywell.com/security).
		2. Accepted Part Numbers:
			1. HEW2PR1: Network TDN WDR IR Ball Camera, 1/2.7″ CMOS, 2 MP, 3.6 mm Fixed, 1 High Power IR LED, PoE, H.264, Gray.
			2. HEW2PRW1: Network TDN WDR IR Ball Camera, 1/2.7″ CMOS, 2 MP, 3.6 mm Fixed, 1 High Power IR LED, PoE, H.264, White.
			3. HEW2PR2: Network TDN WDR IR Ball Camera, 1/2.7″ CMOS, 2 MP,
			2.7–12 mm MFZ, 2 High Power IR LEDs, PoE, H.264, White.
			4. HEW4PR2: Network TDN WDR IR Ball Camera, 1/3″ CMOS, 4 MP,
			2.7–12 mm MFZ, 2 High Power IR LEDs, PoE, H.264, White.
			5. HEW4PR3: Network TDN WDR IR Ball Camera, 1/3″ CMOS, 4 MP, 2.8 mm Fixed, 1 High Power IR LED, PoE, H.264, Gray.
			6. HEW4PRW3: Network TDN WDR IR Ball Camera, 1/3″ CMOS, 4 MP, 2.8 mm Fixed, 1 High Power IR LED, PoE, H.264, White.
	2. SYSTEM COMPONENTS
		1. Ball camera and cabling.
	3. OPERATIONAL REQUIREMENTS
		1. The IP ball camera system shall meet or exceed the following camera specifications:
			1. Image Sensor:
				1. HEW2PR(W)1/HEW2PR2: 1/2.7-inch 2 MP CMOS.
				2. HEW4PR2/HEW4PR(W)3: 1/3-inch 4 MP CMOS.
			2. Total Effective Pixels:
				1. HEW2PR(W)1/HEW2PR2: 1920 (H) × 1080 (V).
				2. HEW4PR2/HEW4PR(W)3: 2688 (H) × 1520 (V).
			3. Lens Type:
				1. HEWPR(W)3: 2.8 mm fixed, F2.0.
				2. HEW2PR(W)1: 3.6 mm fixed, F2.0.
				3. HEW2PR2/HEW4PR2: 2.7–12 mm motorized focus/zoom, F1.4.
			4. Horizontal Angle of View:
				1. HEW2PR(W)1: 91°.
				2. HEW2PR2/HEW4PR2: 86°–30°.
				3. HEW4PR(W)3: 110°.
			5. IR LEDs:
				1. HEW2PR(W)1/HEW4PR(W)3: 1 high power LED.
				2. HEW2PR2/HEW4PR2: 2 high power LEDs.
			6. IR Illumination Distance:
				1. HEW2PR(W)1/HEW4PR(W)3: Up to 130 ft (40 m), depending on scene reflectance.
				2. HEW2PR2/HEW4PR2: Up to 200 ft (60 m), depending on scene reflectance.
			7. Minimum Illumination:
				1. HEW2PR2/HEW4PR2: 0.1 lux @ F1.4, 0 lux (IR LEDs on).
				2. HEW2PR(W)1/HEW4PR(W)3: 0.01 lux @ F2.0, 0 lux (IR LEDs on).
			8. Shutter Speed: 1/3–1/100,000 s.
			9. Signal-to-Noise Ratio: 50 dB or more (AGC off).
			10. Video Compression: H.264 (Main/High/Baseline Profile), MJPEG.
			11. Resolution:
				1. HEW2PR(W)1/HEW2PR2: 2 MP (1920×1080), 720p (1280×720), D1 (704×576/704×480), CIF (352×288/352×240).
				2. HEW4PR2/HEW4PR(W)3: 4 MP (2688×1520), 3 MP (2304×1296), 1080p (1920×1080), 720p (1280×720), D1 (704×576/704×480), CIF (352×288/352×240).
			12. Frame Rate Main Stream:
				1. HEW2PR(W)1/HEW2PR2: 1080p/720p (1–25/30 fps).
				2. HEW4PR2/HEW4PR(W)3: 4 MP (1–20 fps), 3 MP (1–25/30 fps).
			13. Frame Rate Sub Stream: D1/CIF (1–25/30 fps).
			14. Bit Rate (H.264): 32 Kbps–10 Mbps.
		2. The IP ball camera shall provide true day/night (TDN) functionality with Smart IR illumination. When ambient light drops below the factory-defined threshold, the IR LEDs activate, and the camera changes automatically from color to black and white. Smart IR technology ensures even distribution of the IR.
		3. The IP ball camera shall provide digital wide dynamic range (WDR) capability up to 120 dB.
		4. The IP ball camera shall provide 3D Noise Reduction (3DNR) to save storage and bandwidth.
		5. The IP ball camera shall plug-and-play with Honeywell Performance Series NVRs.
		6. The IP ball camera shall be ONVIF Profile S (HEW2PR[W]1/HEW4PR[W]3) or Profile S/G (HEW2PR2/HEW4PR2) compliant.
		7. The IP ball camera shall provide configurable motion detection and camera tamper detection settings with email notification capability.
		8. The IP ball camera shall provide privacy masking for up to four areas.
		9. The IP ball camera shall provide the ability to monitor video remotely using the HonView Touch mobile app for Apple and Android smart phone and tablet devices.
		10. The IP ball camera shall provide PoE (802.3af) or 12 VDC operation.
		11. The IP ball camera shall provide 3-axis rotation for precise camera positioning.
		12. The IP ball camera housing shall be constructed of die-cast aluminum with a white (RAL 9003) or gray (RAL 7022) powder finish and shall be weatherproof, rated to IP66.
		13. The HEW2PR2 and HEW4PR2 IP ball cameras shall support a microSDHC (Class 10) card up to 128 GB for local video storage during network interruptions.
	4. SYSTEM HARDWARE
		1. The IP ball camera shall have the following mechanical specifications:
			1. Unit Dimensions (W × H):
				1. HEW2PR(W)1/HEW4PR(W)3: 4.17 × 3.69 in. (106.0 × 93.7 mm).
				2. HEW2PR2/HEW4PR2: 4.80 × 4.02 in. (122.0 × 102.0 mm).
			2. Unit Weight:
				1. HEW2PR(W)1/HEW4PR(W)3: 1.04 lb (0.47 kg).
				2. HEW2PR2/HEW4PR2: 1.21 lb (0.55 kg).
		2. The IP ball camera shall have the following electrical specifications:
			1. Power Supply: PoE (802.3af) or 12 VDC.
			2. Power Consumption:
				1. HEW4PR(W)3: 3.7 W maximum (IR LEDs on).
				2. HEW2PR(W)1: 4.0 W maximum (IR LEDs on).
				3. HEW2PR2: 7.0 W maximum (IR LEDs on).
				4. HEW4PR2: 7.5 W maximum (IR LEDs on).
		3. The IP ball camera shall be designed to meet the following environmental conditions:
			1. Operating Temperature: –22°F to 140°F (–30°C to 60°C).
			2. Relative Humidity: 0% to 95%, non-condensing.
	5. MANUFACTURER SUPPORT
		1. Manufacturer shall provide customer service, pre-sales applications assistance, after-sales technical assistance, access to online technical support, and online training using Web conferencing.
		2. Manufacturer shall provide 24/7 technical assistance and support by means of a toll-free telephone number at no extra charge.
2. EXECUTION
	1. EXAMINATION
		1. 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.
	2. INSTALLATION
		1. All components of the camera system shall be thoroughly tested before shipping to the project location.
		2. 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. FIELD COMMISSIONING AND CERTIFICATION
		1. Field Commissioning: Test ball 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.
	4. TRAINING
		1. 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