SECTION 28 23 29

H.264 1080p TRUE DAY/NIGHT INDOOR/OUTDOOR IR BULLET IP CAMERA

1. GENERAL
	1. SECTION INCLUDES
		1. Provide a high definition 1080p true day/night rugged indoor/outdoor bullet IP camera system 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 1080p true day/night rugged bullet IP camera shall use a compact one-piece enclosure that can be mounted to a ceiling, wall, or 4S electrical box.
		2. The 1080p true day/night rugged bullet IP camera shall provide 1080p (1920 × 1080) resolution, a 1/2.7-inch progressive scan CMOS sensor with true day/night functionality, H.264 (primary stream) and H.264/MJPEG (secondary stream) compression formats, and ONVIF (Profile S) support.
	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 installation drawings, including connection diagrams for interfacing equipment, list of connected equipment, and locations for major equipment components. Shop drawings shall indicate surrounding construction as provided for the Project.
		4. Project Record Drawings: Indicate location of equipment and wiring on project record drawings. Submit an electronic version of the project 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 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. Qualifications: Manufacturers shall have a minimum of 10 years full time experience in manufacturing and maintaining video surveillance systems. Manufacturer shall provide toll-free technical assistance and support available 24/7. Installers shall have a minimum of 2 years experience installing similar systems and shall be acceptable to the manufacturer of the video surveillance system.
		2. Regulatory Requirements:
			1. Emissions: FCC, Part 15; CE (EN 55022).
			2. Immunity: CE (EN 50130-4).
			3. Safety: UL/CSA 60950-1; CE (EN 60950-1).
	5. DELIVERY, STORAGE, AND HANDLING
		1. Packing and Shipping: Deliver products in manufacturer’s labeled packages.
		2. Storage and Protection: Store and handle products in accordance with manufacturer’s requirements in facility where environmental conditions are within recommended limits.
	6. PROJECT CONDITIONS
		1. Environmental Requirements: Comply with environmental requirements and recommendations of manufacturer for proper installation of products.
		2. Temperature Criteria:
			1. Operating temperatures shall be between –4° F (–20° C) and 122° F (50° C).
			2. Storage temperatures shall be between –40° F (–40° C) and 158° F (70° C).
		3. Power Requirements: Input voltage PoE IEEE 802.3af, Class 3.
	7. WARRANTY
		1. Manufacturer’s Guarantee: Three (3) years from the manufacture date code under normal use and service for the video surveillance system.
1. PRODUCTS
	1. MANUFACTURERS
		1. Specified Manufacturer: Honeywell, [www.honeywellvideo.com](http://www.honeywellvideo.com) or [www.honeywellintegrated.com](http://www.honeywellintegrated.com)
		2. Accepted Part Numbers:
			1. HBD2FR1.
			2. HBD2FR1X.
			3. HBD2FR2.
			4. HBD2FR2X.
	2. SYSTEM COMPONENTS
		1. Specified Product: Honeywell HBD2FR 1080p true day/night rugged bullet IP camera.
		2. Cabling.
	3. OPERATIONAL REQUIREMENTS
		1. The 1080p true day/night rugged bullet IP camera system shall meet or exceed the following camera specifications:
			1. Image Sensor: 1/2.7-inch CMOS.
			2. Total Pixels: 1920 (H) × 1080 (V).
			3. Lens Type:
				1. HBD2FR1: True day/night 3–9 mm motorized focus and zoom, F1.2.
				2. HBD2FR2: True day/night 10–23 mm motorized focus and zoom, F1.6.
			4. Minimum Illumination:
				1. HBD2FR1: 0.18 lux color/0.15 lux BW @ 50 IRE, F1.2; 0.11 lux color/0.09 lux BW @ 30 IRE, F1.2; 0 lux with IR LEDs on.
				2. HBD2FR2: 0.14 lux color @ 50 IRE, F1.6; 0 lux with IR LEDs on.
			5. Automatic Electronic Shutter Speed:
				1. NTSC: 1/30 to 1/130,000 seconds.
				2. PAL: 1/30 to 1/130,000 seconds.
			6. Video Output: Composite, 1.0 *V*P-P, 75 ohms (setup only).
			7. White Balance: AWC (Auto), AWC Push, Manual.
			8. Signal-to-Noise Ratio: 50 dB or higher (AGC off).
			9. Synchronization: Internal.
		2. The 1080p true day/night rugged bullet IP camera system shall provide true day/night functionality with an infrared (IR) cut filter for day mode.
		3. The 1080p true day/night rugged bullet IP camera system shall include 48 LEDs that provide up to 100 ft (30 m) of illumination (HBD2FR1) or up to 150 ft (45 m) of illumination (HBD2FR2), depending on scene reflectance.
		4. The 1080p true day/night rugged bullet IP camera system shall provide digital noise reduction and automatic gain control.
		5. The 1080p true day/night rugged bullet IP camera system shall provide fully configurable motion detection and tamper detection settings.
		6. The 1080p true day/night rugged bullet IP camera system shall support ONVIF (Profile S) specification for interoperability between network video products.
		7. The 1080p true day/night rugged bullet IP camera system shall support remote firmware updates.
		8. The 1080p true day/night rugged bullet IP camera system shall support the HTTP, TCP, RTSP, RTP, UDP, ARP, NTP, RTCP, ICMP, DHCP, Bonjour, IGMP, and SSH protocols.
		9. The 1080p true day/night rugged bullet IP camera system shall provide dual H.264 and/or H.264/MJPEG video streams. It shall also provide controllable frame rates and bandwidth and constant or variable bit rates.
		10. The 1080p true day/night rugged bullet IP camera system shall provide Network Time Protocol (NTP) synchronization support.
		11. The 1080p true day/night rugged bullet IP camera system shall support embedded date/time stamps in the video stream.
		12. The 1080p true day/night rugged bullet IP camera system shall support Internet Explorer 8 and 9, Mozilla Firefox, and Google Chrome web browsers.
		13. The 1080p true day/night rugged bullet IP camera system shall support input and output alarm contacts and bidirectional audio.
		14. The 1080p true day/night rugged bullet IP camera system shall provide an RJ45 connection and a second video service connector (2-pin Molex).
		15. The 1080p true day/night rugged bullet IP camera system shall support PoE IEEE 802.3af.
		16. The 1080p true day/night rugged bullet IP camera system shall have an adjustable mounting bracket for precise camera positioning.
		17. The 1080p true day/night rugged bullet IP camera system shall provide an adapter plate for installation to a 4S electrical box.
		18. The 1080p true day/night rugged bullet IP camera system shall provide a breather vent.
		19. The 1080p true day/night rugged bullet IP camera system housing shall consist of die-cast aluminum with a cool gray finish (RAL 9002).
	4. SYSTEM HARDWARE
		1. The 1080p true day/night rugged bullet IP camera system shall have the following mechanical specifications:
			1. Unit Dimensions (W x H): 11.83 × 4.3 inches (300.5 × 109.1 mm).
			2. Unit Weight: 3.92 lb (1.78 kg) camera only.
			3. Connectors:
				1. Network: RJ45 connector.
				2. Power Input: RJ45 connector.
				3. Aux Video Output: 2-pin Molex connector.
		2. The 1080p true day/night rugged bullet IP camera system shall have the following electrical specifications:
			1. Voltage: PoE IEEE 802.3af.
			2. Power Consumption: PoE, PD Type 1 Class 3, 12.5 W (max).
		3. The 1080p true day/night rugged bullet IP camera system shall be designed to meet the following environmental conditions:
			1. Operating Temperature: –4° F (–20° C) and 122° F (50° C).
			2. Storage Temperature: –40° F (–40° C) and 158° F (70° C).
			3. Relative Humidity: 0–85%, non-condensing.
			4. Ingress Protection Rating: IP66.
	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 instructions and recommendations.
			1. Coordinate interfaces with other products with Owner’s representative where appropriate.
			2. Provide conduit, cable, and wire for complete and reliable installation. Obtain Owner’s approval for exact location of cameras, 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 and tie wires for orderly installation.
			4. Coordinate with other trades to provide proper sequencing of installation.

* 1. FIELD COMMISSIONING AND CERTIFICATION
		1. Field Commissioning: Test bullet 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.
	2. TRAINING
		1. Conduct on-site system administrator and security/surveillance operator training in accordance with the manufacturer’s instructions and recommendations. Training shall include, but not be limited to: camera administration, provisioning, configuration, operation, and diagnostics.

 END OF SECTION