SECTION 28 23 29

H.264 1080p WIDE DYNAMIC TRUE DAY/NIGHT BOX IP CAMERA, HCW2S2

1. GENERAL
	1. SECTION INCLUDES
		1. Provide a high definition 1080p wide dynamic true day/night indoor box 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 wide dynamic true day/night box IP camera shall provide 1080p (1920 × 1080) resolution, a 1/2.8-inch progressive scan CMOS sensor with true day/night functionality, H.264 (stream 1-3) and H.264/MJPEG (fourth 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 15B; EN 55022.
			2. Immunity: EN 50130-4.
			3. Safety: UL/CSA 60950-1; 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 a 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 14°F (−10°C) and 122°F (50°C).
			2. Storage temperatures shall be between −4°F (−20°C) and 158°F (70°C).
		3. Power Requirements: Input voltage shall be 12 V DC, 24 V AC, or PoE IEEE 802.3af.
	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.honeywell.com](http://www.honeywellvideo.com)/security or [www.honeywellintegrated.com](http://www.honeywellintegrated.com)
		2. Accepted Part Numbers:
			1. HCW2S2.
			2. HCW2S2X.
	2. SYSTEM COMPONENTS
		1. Specified Product: Honeywell HCW2S2 1080p wide dynamic true day/night box IP camera.
		2. Cabling.
	3. OPERATIONAL REQUIREMENTS
		1. The 1080p wide dynamic true day/night box IP camera system shall meet or exceed the following camera specifications:
			1. Image Sensor: 1/2.8-inch CMOS.
			2. Total Pixels: 1920 (H) × 1080 (V).
			3. Lens Options (sold separately):
				1. HLM45V13MPD: 4.5–13.2 mm high definition 3 megapixel lens, F1.8.
			4. Minimum Illumination:
				1. Color: 0.15 lux; 0.3 lux @ 50 IRE, F1.2 (2-shutter WDR).
				2. B/W: 0.01 lux; 0.02 lux @ 50 IRE, F1.2 (2-shutter WDR).
			5. Automatic Electronic Shutter Speed: 1 to 1/10,000 seconds (NTSC and PAL).
			6. Video Output: Composite, 1.0 *V*P-P, 75 ohms.
			7. White Balance: Auto, ATW, Manual, Indoor, Outdoor.
			8. Signal-to-Noise Ratio: 50 dB or higher (AGC off).
			9. Synchronization: Internal.
		2. The 1080p wide dynamic true day/night box IP camera system shall provide true day/night functionality with an infrared (IR) cut filter for day mode.
		3. The 1080p wide dynamic true day/night box IP camera system shall provide 3D digital noise reduction, smart picture quality (SPQ), backlight compensation, automatic light compensation, automatic gain control, flickerless mode, and digital slow shutter.
		4. The 1080p wide dynamic true day/night box IP camera system shall provide, in high contrast lighting conditions, higher quality images and significantly better dynamic range (>95 dB) than conventional IP cameras.
		5. The 1080p wide dynamic true day/night box IP camera system shall provide fully configurable motion detection settings.
		6. The 1080p wide dynamic true day/night box IP camera system shall provide up to 5 fully configurable privacy zones to mask sensitive areas of a video image.
		7. The 1080p wide dynamic true day/night box IP camera system shall support the ONVIF Profile S specification for interoperability between network video products.
		8. The 1080p wide dynamic true day/night box IP camera system shall support remote firmware updates.
		9. The 1080p wide dynamic true day/night box IP camera system shall support 20 user accounts, multiple user access levels, with password protection.
		10. The 1080p wide dynamic true day/night box IP camera system shall support IPv4/v6, HTTP, TCP/IP, RTSP, RTP, UDP, FTP, ICMP, DHCP, SMTP, IGMP, PPPoE, HTTPS, UPnP, SNMP, QoS, SSL, DDNS, and NTP protocols.

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

* + 1. The 1080p wide dynamic true day/night box IP camera system shall provide quad H.264 and/or H.264/MJPEG video streams simultaneously. It shall also provide controllable frame rates and bandwidth and constant or variable bit rates.
		2. The 1080p wide dynamic true day/night box IP camera system shall provide up to 16x digital zoom on the video image.
		3. The 1080p wide dynamic true day/night box IP camera system shall provide Network Time Protocol (NTP) synchronization support.
		4. The 1080p wide dynamic true day/night box IP camera system shall support embedded date/time stamps in the video stream.
		5. The 1080p wide dynamic true day/night box IP camera system shall support Internet Explorer 6 or later (32-bit), Mozilla Firefox®, Google Chrome, and Apple Safari web browsers.
		6. The 1080p true day/night box IP camera system shall support Windows 7 (32-bit / 64-bit), Windows XP, and Windows Vista operating systems.
		7. The 1080p wide dynamic true day/night box IP camera system shall support input and output alarm contacts and bidirectional audio.
		8. The 1080p wide dynamic true day/night box IP camera system shall provide an RJ45 network connection and a second video service connector (BNC).
		9. The 1080p wide dynamic true day/night box IP camera system shall provide 12 V DC, 24 V AC, or PoE IEEE 802.3af power input options.
		10. The 1080p wide dynamic true day/night box IP camera system shall have a micro SD card slot that supports up to 32 GB microSDHC cards for recording event video and images for backup when there is an event (alarm, motion detection, network failure detection, tampering) or scheduling. The administrator must have the ability to turn the recording function on or off through the web interface.

		**IMPORTANT**: Any damaged files on an installed microSDHC card incurred by malfunction or error in files saved on the microSDHC card, regardless of the cause, are not guaranteed by Honeywell.
		11. The 1080p wide dynamic true day/night box IP camera system shall have ¼-20 UNC top and underside mounting rings.
		12. The 1080p wide dynamic true day/night box IP camera system housing shall consist of die cast aluminum with a cool gray powder coat finish (closest matching RAL colors: front side body - RAL CODE 270 40 20; main body - RAL CODE 820-1).
	1. SYSTEM HARDWARE
		1. The 1080p wide dynamic true day/night box IP camera system shall have the following mechanical specifications:
			1. Unit Dimensions (L × W × H): 4.9 × 3.2 × 2.0 inches (125.0 × 82.0 × 52.0 mm), without a lens.
			2. Unit Weight: 0.73 lb (0.33 kg) camera only.
			3. Connectors:
				1. Video Output: BNC connector.
				2. Lens: 4-pin connector.
				3. Network: RJ45 connector.
				4. Power Input: DC jack/3-pin terminal block.
				5. Alarm I/O: Removable screw block.
				6. Audio In: 3.5 mm stereo phone jack.
				7. Audio Out: 3.5 mm stereo phone jack.
		2. The 1080p wide dynamic true day/night box IP camera system shall have the following electrical specifications:
			1. Voltage: 12 V DC, 24 V AC, or PoE IEEE 802.3af.
			2. Power Consumption:
				1. 12 V DC/24 V AC: 6.3 watts max.
				2. PoE: PD Type 1, Class 0, 12.95 watts (max).
		3. The 1080p wide dynamic true day/night box IP camera system shall be designed to meet the following environmental conditions:
			1. Operating temperature: 14°F (−10°C) to 122°F (50°C).
			2. Storage temperature: −4°F (−20°C) to 158°F (70°C).
			3. Relative Humidity: 10–90%, non-condensing.
			4. Emissions: FCC, Part 15B; EN 55022.
	2. 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.
1. 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 floor 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.
	3. FIELD COMMISSIONING AND CERTIFICATION
		1. Field Commissioning: Test 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 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