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HIGH DEFINITION PTZ DOME VIDEO CAMERA

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

28 20 00 **Electronic Surveillance**

28 23 00 **Video Surveillance**

28 23 29 **Video Surveillance Remote Devices and Sensors**

Notes to Specifier:

1. Where several alternative parameters or specifications exist, or where, the specifier has the option of inserting text, such choices are presented in **<bold text>**.
2. Explanatory notes and comments are presented in **colored** text.

HIGH DEFINITION PTZ DOME VIDEO CAMERA

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes a 1080p high definition IP PTZ video camera with indoor ceiling or flush mount dome housing.
- B. Product - A high definition IP PTZ video camera, based on H.264, MPEG-4 and MJPEG compression, capable of streaming 30 fps at resolutions up to 1920 x 1080, with dual streaming capability in an indoor dome housing.
- C. Related Requirements
 - 1. 27 20 00 Data Communications
 - 2. 28 23 13 Video Surveillance Control and Management Systems
 - 3. 28 23 16 Video Surveillance Monitoring and Supervisory Interfaces
 - 4. 28 23 19 Digital Video Recorders and Analog Recording Devices
 - 5. 28 23 23 Video Surveillance Systems Infrastructure

1.02 REFERENCES

- A. Abbreviations
 - 1. AGC - Automatic Gain Control
 - 2. ARP – Address Resolution Protocol
 - 3. AWB - Automatic White Balance
 - 4. BLC – Back light compression
 - 5. DHCP - Dynamic Host Configuration Protocol
 - 6. DNR – Digital Noise Reduction
 - 7. DNS - Domain Name Server
 - 8. DDNS – Dynamic Domain Name Server
 - 9. fps - frames per second
 - 10. FTP - File Transfer Protocol
 - 11. GUI – Graphical User Interface
 - 12. HLC – Highlight Compensation
 - 13. HME – High Masking Exposure
 - 14. HTTP - Hypertext Transfer Protocol
 - 15. ICMP – Internet Control Message Protocol
 - 16. IGMP - Internet Group Management Protocol
 - 17. IP - Internet Protocol
 - 18. JPEG - Joint Photographic Experts Group
 - 19. MJPEG - Motion JPEG
 - 20. MPEG - Moving Pictures Experts Group
 - 21. NTP - Network Time Protocol
 - 22. PoE - Power over Ethernet
 - 23. PPPoE - Point-to-Point Protocol over Ethernet

24. QoS – Quality of Service
25. RARP – Reverse Address Resolution Protocol
26. RTP - Real-Time Transport Protocol
27. RTSP - Real-Time Streaming Protocol
28. SMTP - Simple Mail Transfer Protocol
29. SNMP – Simple Network Management Protocol
30. TCP - Transmission Control Protocol
31. UDP - User Datagram Protocol
32. UPnP – Universal Plug and Play
33. VMS - Video Management System
34. WDR – Wide Dynamic Range

B. Reference Standards

1. Network
 - a. IEEE - 802.3 Ethernet Standards
2. Video
 - a. ISO / IEC 14496 – MPEG-4
 - 1) ISO / IEC 14496–10, MPEG-4 Part 10 (ITU H.264)
 - b. ISO / IEC 10918 – JPEG
 - c. ONVIF – Profile S
3. Emissions
 - a. FCC-47 CFR Part 15 Class B
4. Environmental
 - a. ANSI / IEC60529 – Degrees of Protection Provided by Enclosures

1.03 SUBMITTALS

A. Product Data

1. Manufacturer's printed or electronic data sheets
2. Manufacturer's installation and operation manuals
3. Warranty documentation

1.04 QUALIFICATIONS

- A. Manufacturer shall have a minimum of five years' experience in producing IP video equipment.
- B. Installers shall be trained and authorized by the Manufacturer to install, integrate, test, and commission the system.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver the camera in the manufacturer's original, unopened, undamaged container with identification labels intact.
- B. Store the camera in a temperature environment of -10° C to 50° C (14° F to 122° F), protected from mechanical and environmental conditions as designated by the manufacturer.

1.06 WARRANTY AND SUPPORT

- A. Manufacturer shall provide a limited 2 year warranty for the product to be free of defects in material and workmanship.

END OF SECTION

PART 2 PRODUCTS**2.01 EQUIPMENT**

- A. Manufacturer: Digital Watchdog, Inc.
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- B. Model MPTZ5XFM

Digital Watchdog also offers the MPTZ5X surface mount version of this product.

- C. Alternates: None

2.02 GENERAL DESCRIPTION

- A. The High Definition IP PTZ Dome Camera ("PTZ Dome camera") shall provide video performance capable of providing selectable resolutions up to 1920 x 1080 pixels at 30 frames per second (fps).
- B. The PTZ dome camera shall possess the following characteristics:
1. H.264, MPEG-4 and MJPEG compression
 2. 2.1 megapixels
 3. two independent IP video streams (dual streaming)
 4. day/night operation with IR cut filter
 5. 12 x digital zoom, 5 x optical zoom
 6. Wide Dynamic Range (WDR)
 7. 16 privacy masking regions
 8. integral motion detection
 9. 3D digital noise reduction
 10. two-way audio
 11. alarm input and output
 12. PoE capable
 13. multicast or unicast capable
 14. local storage via Micro SD or SDHC card
 15. Dynamic DNS (DDNS) support
 16. recessed ceiling or flush mount
 17. built-in fan

2.03 VIDEO

- A. Imager
1. Sensor: 1/2.8" Sony CMOS
 2. Minimum illumination
 - a. Color mode: 0.1 lux (F3.5 – 30IRE)
 - b. Black & white mode: 0.01 lux (F3.5 – 30IRE)

3. Scanning - Progressive
 4. Image Control Settings shall be available for:
 - a. Automatic white balance (AWB)
 - 1) Selectable for Auto, Indoor, Preset, Auto External, or Manual
 - a) Manual mode to provide the ability to configure red offset, blue offset and warmth or coolness of light.
 - b. Exposure modes: automatic or manual
 - 1) In manual exposure mode, configurable settings for:
 - a) brightness
 - b) shutter mode: automatic or manual - 1/30 to 1/60000
 - c) digital slow shutter up to 8x to decrease shutter speed in low light
 - d) AGC: 0 - 41 dB maximum
 - e) Backlight compensation (BLC)
 - f) Highlight compensation (HLC)
 - g) WDR level: 100 dB minimum
 - h) Highlight Masking Exposure (HME)
 - c. Day and night settings, to allow configuration for Day (color), Night (Black and White), or Automatic.
 - d. Frequency
 - e. Image sharpness
 - f. Chroma
 - g. Image mirror or flip
 - h. Digital noise reduction
 - i. Privacy zone definition, up to 16 zones
 5. Lens: 5 - 25 mm variable, F3.5 – F3.7, remote auto-focus
- B. Video Streams
1. The PTZ dome camera shall support two configurable video streams, each of which may have the following properties:
 - a. Resolution:
 - 1) Stream 1: 320 x 240 (4 x 3) to 1920 x 1080 (16:9)
 - 2) Stream 2: 320x176 to 960x544 (16:9)
 - b. Compression type:
 - 1) H.264
 - 2) MPEG-4
 - 3) MJPEG
 - c. Bit rate: 1.8 Mbps – 8 Mbps
 - d. Frame rate: 0 – 30 fps
- C. Motion Detection – The PTZ dome camera shall have the ability to detect motion within user defined areas of the video image.
1. Configuration settings shall be available for sensitivity and dwell time.
- D. Storage and Recording
1. The PTZ dome control shall have onboard SD card storage.

- a. Card type: Micro SDHC Class 10
- b. Capacity: 4 GB – 32 GB
2. Local recording on the SD card shall commence upon loss of network connectivity, based on a pre-programmed schedule.
3. The local SD storage shall have the ability to be backed up to alternate media without removal of the SD card from the camera.
- E. ONVIF – Video streams shall be capable of supporting ONVIF protocol, profile S.
- F. Pan Tilt
 1. Pan Range: 360°
 2. Tilt Range: 90°
 3. Presets: up to 255
 4. Sequences: up to 4
 5. Tours: up to 8
 - a. entries per tour: 20
 6. Speed: 120° per second
- G. Other
 1. Single Images - The PTZ dome camera shall support jpg file image screenshot and export.
 2. Discovery - Manufacturer shall offer a discovery program to identify all devices of his manufacture on the network.
 3. Emergency alarm – The PTZ dome camera shall allow sending of a video clip of configurable duration to up to five server locations.
 4. Access - The PTZ dome camera shall permit up to five users to simultaneously access the camera.
 5. Alarm/Sensors – The PTZ dome camera shall have one alarm/sensor input and one alarm/control output.

2.04 AUDIO

- A. The PTZ dome camera shall provide one line level input and one line level output.
- B. Compression and Sampling Rate
 1. G.711 (8 kHz)
 2. AAC (48 kHz)

2.05 NETWORK

- A. Connectivity: 100 BASE-TX Ethernet with RJ-45 connector
- B. Protocols supported
 1. Transmission Control Protocol (TCP), Internet Protocol (IP) v4 and v6, User Datagram Protocol (UDP)
 2. Configuration: Dynamic Host Configuration Protocol (DHCP)
 3. Web services: Hypertext Transfer Protocol (HTTP)
 4. Network services: Domain Name System (DNS), Network Time Protocol (NTP), Internet Control Message Protocol (ICMP), Simple Network Management Protocol (SNMP), Universal Plug and Play (UPnP)
 5. Media: Real-Time Transport Protocol (RTP), Real-Time Streaming Protocol (RTSP)

6. Multicast: Internet Group Management Protocol (IGMP)
 7. Notifications: File Transfer Protocol (FTP), Simple Mail Transfer Protocol (SMTP)
 8. Remote Access: Point-to-Point Protocol over Ethernet) (PPPoE)
- C. Flow Control – The PTZ dome camera shall support TCP and Layer 3 QoS protocols to control network congestion.
- D. DDNS – The PTZ dome camera shall support DDNS services offered by the Manufacturer and other publicly available service offerings.
- E. Security
1. The PTZ dome camera shall support IP address filtering whereby users can enter a list of allowed or blocked IP addresses for viewing video and configuring camera settings
 2. The PTZ dome camera shall provide three levels of user access with password protection.

2.06 ADDITIONAL FEATURES

A. System Information

1. The system settings of the PTZ dome camera shall be exportable as a separate file.
2. The PTZ dome camera shall maintain an accessible log of system and motion-triggered events.
 - a. The log shall be exportable to an Excel spreadsheet file.

2.07 CAMERA SOFTWARE

- A. The PTZ dome camera shall have a built in web server which supports browser-based configuration using Internet Explorer, Google Chrome, Mozilla Firefox, Apple Safari.
- B. The software GUI shall allow access to camera information and all primary software functions, including:
1. Camera network address
 2. Configuration
 3. Stream control
 4. Screen snapshot, print and export
 5. Start and stop recording
- C. The Manufacturer shall offer video viewer and configuration to implement the following actions:
1. Camera discovery
 2. Configuration
 - a. video parameters
 - b. events and notifications
 - 1) motion related
 - 2) emergency
 - c. camera network parameters
 - d. SD card storage recording management
 - e. image capture, export, and print
 3. Viewer - view video streams through the web browser
 4. Image print and export
 5. Instant record and playback
 6. Alerts

- a. e-mail setup
 - b. define web addresses for notifications
7. System
- a. firmware upgrade
 - b. reset to factory default
 - c. set date, time, and NTP server synchronization
 - d. user access control
 - e. view and export camera settings
 - f. view system logs

2.08 ELECTRICAL

A. Power

- 1. Sources
 - a. 12 VDC
 - b. PoE (IEEE 802.3af. 802.3at Class 3) - 48 VDC
- 2. Power Consumption: 8 W, 670 mA maximum
- 3. Ethernet: RJ-45 connector
- 4. External power (12 VDC): 2-conductor power to terminal block
- 5. Audio and alarm: 8 conductor cable to terminal strip

2.09 MECHANICAL AND ENVIRONMENTAL

- A. Housing Material: polycarbonate
- B. Configuration: PTZ dome
- C. Dimensions (D x H): 4.3 in. x 5.8 in. (110 mm x 149 mm)
- D. Temperature:
 - 1. Operating: -10° C to 55° C (14° F to 131° F)
- E. Humidity: 0 - 90%, non-condensing

END OF SECTION

PART 3 EXECUTION**3.01 INSTALLERS**

- A. Contractor personnel shall comply with all applicable state and local licensing requirements.

3.02 PREPARATION

- A. The network design and configuration shall be verified for compatibility and performance with the camera(s). Network configuration shall be tested and qualified by the Contractor prior to camera installation.

3.03 INSTALLATION

- A. Before permanent installation of the system, the system shall be factory tested in conditions simulating the final installed environment
 - 1. A report indicating successful test results shall be produced.

3.04 STORAGE

- A. The PTZ dome camera hardware shall be stored in an environment where temperature and humidity are in the range specified by the Manufacturer.

END OF SECTION