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**MEGApix® 4MP VARI-FOCAL LENS VANDAL DOME IP CAMERA**

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

**28 20 00 Video Surveillance**

**28 21 00 Surveillance Cameras**

**28 21 13 IP Cameras**

**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.

3. CSI MasterFormat 2016 incorporates numerous significant changes affecting electronic safety and security. This document is written to provide flexibility in using either format, although the adoption of MasterFormat 2016 is encouraged. The following is a guide to the MasterFormat numbers relevant to the product referenced in this specification.

4. MasterFormat 2014 Specification Category:

28 23 29 - Video Surveillance Remote Devices and Sensors

**MEGApix® 4MP VARI-FOCAL LENS VANDAL DOME IP CAMERA**

1. **GENERAL**
   1. **SUMMARY**
      1. The section includes a 4MP high-definition IP video camera with vandal-resistant IP67-rated, IK10 impact-resistant dome housing.
      2. Product - A high-definition IP vandal dome housing, based on H.265, H.264 and MJPEG compression, capable of dual streaming 30fps at resolutions up to 4MP (2560 × 1440), with 2.8mm ~ 12mm vari-focal lens in a weather-resistant dome housing.
      3. Related Requirements
         1. 27 15 01.13 – Video Surveillance Communications Conductors and Cables
         2. 28 05 03 – Safety and Security Network Communications Equipment
         3. 28 05 19 – Storage Appliances for Electronic Safety and Security
         4. 28 06 20 – Schedules for Video Surveillance
         5. 28 23 00 – Video Management System
   2. **REFERENCES**
      1. Abbreviations
         1. AGC - Automatic Gain Control
         2. ARP – Address Resolution Protocol
         3. AWB - Automatic White Balance
         4. BLC – Backlight 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. HTTP - Hypertext Transfer Protocol
         14. ICMP – Internet Control Message Protocol
         15. IGMP - Internet Group Management Protocol
         16. IP - Internet Protocol
         17. JPEG - Joint Photographic Experts Group
         18. MJPEG - Motion JPEG
         19. NTP - Network Time Protocol
         20. PoE - Power over Ethernet
         21. QoS – Quality of Service
         22. RARP – Reverse Address Resolution Protocol
         23. RTP - Real-Time Transport Protocol
         24. RTSP - Real-Time Streaming Protocol
         25. SMTP - Simple Mail Transfer Protocol
         26. TCP - Transmission Control Protocol
         27. UDP - User Datagram Protocol
         28. VMS - Video Management System
         29. WDR – Wide Dynamic Range
      2. Reference Standards
         1. Network
            1. IEEE - 802.3 Ethernet Standards
         2. Video
            1. ISO / IEC 14496 – MPEG-4

ISO / IEC 14496–10, MPEG-4 Part 10 (ITU H.264)

* + - * 1. ISO / IEC 10918 – JPEG
        2. ONVIF – Profile S
      1. Emissions
         1. FCC-47 CFR Part 15 Class B
      2. Environmental
         1. ANSI / IEC60529 – Degrees of Protection Provided by Enclosures
         2. International Electrotechnical Commission (IEC) – Ingress Protection Rating IP67
         3. European standard EN 62262 — equivalent to International Electrotechnical Commission (IEC) – Impact Protection Rating IK10
  1. **SUBMITTALS**
     1. Product Data
        1. Manufacturer’s printed or electronic datasheets.
        2. Manufacturer’s installation and operation manuals.
        3. Warranty documentation.
  2. **QUALIFICATIONS**
     1. The Manufacturer shall have at least five years of experience producing IP video equipment.
     2. Installers shall be trained and authorized by the Manufacturer to install, integrate, test, and commission the system.
  3. **DELIVERY, STORAGE, AND HANDLING**
     1. Deliver the camera in the Manufacturer’s original, unopened, and undamaged container with identification labels intact.
     2. Store the camera in a temperature environment of -22°F ~ 140°F (-30°C ~ 60°C), protected from mechanical and environmental conditions as designated by the Manufacturer.
  4. **WARRANTY AND SUPPORT**
     1. The Manufacturer shall provide a 5-year warranty for the product to be free of defects in material and workmanship.

END OF SECTION

1. **PRODUCTS**
   1. **EQUIPMENT**
      1. Manufacturer: Digital Watchdog, Inc.

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* + 1. Models: DWC-VSDG04Mi
    2. Alternates: None
  1. **GENERAL DESCRIPTION**
     1. The High-Definition IP Video Vandal Dome Camera with embedded video analytics (“IP camera”) shall provide video performance capable of providing selectable resolutions up to 2560 × 1440 pixels at 30 frames per second (fps) and contained within an IP67, IK10-rated dome housing.
     2. The IP camera shall possess the following characteristics:
        1. H.265, H.264 and MJPEG compression
        2. 4MP
        3. Two independent IP video streams (dual streaming)
        4. Day/night operation with IR cut filter
        5. Built-in IR LEDs providing 164-foot coverage
        6. Double-Shutter True Wide Dynamic Range (WDR), 120dB
        7. Eight privacy masking zones
        8. Integral motion detection
        9. 3D digital noise reduction
        10. Audio input
        11. Audio output
        12. SD card slot
        13. PoE capable
        14. Multicast or unicast capable
        15. Built-in web server
        16. Dynamic DNS (DDNS) support
        17. IP67-rated
        18. IK10 impact-resistant rated
  2. **VIDEO**
     1. Imager
        1. Sensor: 4MP 1/3" CMOS
        2. Minimum illumination
           1. Color mode: 0.005 lux (F1.6)
           2. Black and white mode:0 lux (F1.6)
        3. Scanning - Progressive
        4. Image Control Settings shall be available for:
           1. Automatic white balance (AWB)

Selectable for Auto or Manual

Manual mode provides the ability to configure red offset, blue offset and warmth or coolness of light.

* + - * 1. Exposure modes: automatic or manual

In manual exposure mode, configurable settings for:

Brightness

Shutter mode: automatic, anti-flickering, or manual

Shutter speed: 1/2 sec to 1/100000

Digital slow shutter to decrease the shutter speed in low light

Automatic Gain Control (AGC)

Backlight compensation (BLC)

True Wide Dynamic Range (WDR) level

* + - * 1. Day and night settings allow configuration for Day (color), Night (Black and White), or Automatic.
        2. Frequency
        3. Image sharpness
        4. IR LED control
        5. Chroma
        6. Image mirror or flip
        7. Digital noise reduction
        8. Privacy zone definition, up to 8 zones
      1. Lens
         1. Lens type: 2.8 ~ 12mm, F1.4 Vari-focal Lens
         2. Field of view (FOV): 92° ~ 31°
         3. Double shutter Wide Dynamic Range
         4. Shutter speed: 1/2 sec to 1/100000
    1. Video Streams
       1. The IP camera shall support three configurable video streams, each of which may have the following properties:
          1. Compression Type:

H.265

H.264

MJPEG

* + - * 1. Resolution:

4MP

3MP

2.1MP/1080P

720P

D1

480x240

CIF (60Hz: 1 ~ 30fps; 50Hz: 1~25fps)

* + - * 1. Frame rate: 0 – 30 fps
    1. IR Distance: 164 feet
    2. Motion Detection – The IP camera shall be able to detect motion within user-defined areas of the video image.
       1. Configuration settings shall be available for sensitivity and dwell time.
    3. Storage and Recording
       1. The IP camera shall have onboard SD card storage.
          1. Card Type: Micro SD/SDHC/SDXC Class 10
       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 be able to be backed up to alternate media without removing the SD card from the camera.
    4. ONVIF – Video streams shall be capable of supporting ONVIF protocol, profile S.
    5. Other
       1. Single Images - The IP camera shall support the .JPG image screenshot and export.
       2. Discovery - The Manufacturer shall offer a discovery program to identify all devices of his manufacture on the network.
       3. Emergency alarm – The IP camera shall allow the sending of a video clip of configurable duration to up to five server locations.
       4. Access - The IP camera shall permit up to five users to simultaneously access the camera.
  1. **AUDIO**
     1. The IP camera shall provide one-line level input.
     2. The IP camera shall provide a built-in microphone.
     3. The IP camera shall provide a one-line level output.
     4. Compression and Sampling Rate: G.711 (8 kHz)
  2. **NETWORK**
     1. Connectivity: 10/100 BASE-TX Ethernet with RJ-45 connector
     2. Protocols supported
        1. Transmission Control Protocol (TCP), Internet Protocol (IP) v4, User Datagram Protocol (UDP)
        2. Configuration: Dynamic Host Configuration Protocol (DHCP)
        3. Web services: Secure Sockets Layer (SSL)
        4. Network services: Domain Name System (DNS), Network Time Protocol (NTP)
        5. Media: Real-Time Streaming Protocol (RTSP)
        6. Notifications: File Transfer Protocol (FTP), Simple Mail Transfer Protocol (SMTP)
     3. DDNS – The IP camera shall support DDNS services offered by the Manufacturer and other publicly available service offerings.
     4. Security
        1. The IP 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 IP camera shall provide digest authentication, ID and password protection.
        3. The IP camera shall provide three levels of user access with password protection.
  3. **EMBEDDED ANALYTICS**
     1. The IP camera shall provide the following configurable video analytics:
        1. Line crossing video analytics.
        2. Perimeter intrusion video analytics.
        3. Video tampering with scene change detection video analytics.
        4. Video tampering with video blur detection video analytics.
        5. Video tampering with abnormal color detection video analytics.
  4. **ADDITIONAL FEATURES**
     1. System Information
        1. The system settings of the IP camera shall be exportable as a separate file.
        2. The IP camera shall maintain an access log of the system and motion-triggered events.
           1. The log shall be exportable to an Excel spreadsheet file.
  5. **CAMERA SOFTWARE**
     1. The IP camera shall have a built-in web server that supports browser-based configuration using Internet Explorer.
     2. 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
     3. The Manufacturer shall offer a video viewer and configuration to implement the following actions:
        1. Camera discovery
        2. Configuration
           1. video parameters
           2. events and notifications

motion-related

emergency

* + - * 1. camera network parameters
        2. SD card storage recording management
        3. image capture, export, and print
      1. Viewer - view video streams through the web browser
      2. Image print and export
      3. Instant recording and playback
      4. Alerts
         1. e-mail setup
         2. define web addresses for notifications
      5. System
         1. firmware upgrade
         2. reset to factory default
         3. set date, time, and NTP server synchronization
         4. user access control
         5. View and export camera settings
         6. view system logs
  1. **ELECTRICAL**
     1. Power
        1. Sources
           1. DC 12V
           2. PoE IEEE 802.3af Class 3.
           3. Adapter not included
        2. Power Consumption
           1. <7.5W
     2. Connectors
        1. Ethernet: RJ-45 connector
        2. External power (DC 12V): Power adapter cable
  2. **MECHANICAL AND ENVIRONMENTAL**
     1. Housing Material: Metal housing
     2. Configuration: Dome
     3. Environmental Rating: IP67
     4. IK rating: IK10
     5. Dimensions (D x H): 5.55" x 3.93"

141 x 100 mm

* + 1. Weight: 1.94 lbs

0.88 kg

* + 1. Temperature:
       1. Operating: -22°F ~ 140°F

-30°C ~ 60°C

* + 1. Humidity: 0–95% RH (non–condensing)

END OF SECTION

1. **EXECUTION**
   1. **INSTALLERS**
      1. Contractor personnel shall comply with all applicable state and local licensing requirements.
   2. **PREPARATION**
      1. The network design and configuration shall be verified for compatibility and performance with the camera(s).
      2. Network configuration shall be tested and qualified by the Contractor before camera installation.
   3. **INSTALLATION**
      1. The Contractor shall follow all Manufacturer published installation procedures and guidelines.
      2. 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.
   4. **STORAGE**
      1. The IP camera hardware shall be stored in an environment where temperature and humidity are in the range specified by the Manufacturer.

END OF SECTION