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Digital Watchdog® is a leading manufacturer of security and surveillance solutions, offering stunning image quality, advanced hardware capabilities, reliable customer support and lowest total cost of deployment to the analog & IP megapixel surveillance markets. Located in Cerritos, CA with manufacturing facilities in Seoul, Korea, Digital Watchdog® is committed to delivering powerful security solutions to its customers worldwide.

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**MEGApix® 2.1MP/1080P ULTRA LOW-PROFILE VANDAL DOME IP CAMERA**

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

**2820 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 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® 2.1MP/1080P ULTRA LOW-PROFILE VANDAL DOME IP CAMERA**

1. **GENERAL**
   1. **SUMMARY**
      1. The section includes a 2.1MP/1080p high definition indoor/outdoor IP video camera with vandal-resistant IP-66 rated, IK10 impact-resistant dome housing.
      2. Product - A high definition IP outdoor vandal dome camera, based on H.265, H.264 and MJPEG compression, capable of dual streaming 30 fps at resolutions up to 2001 X 1121, with a variable 2.8mm lens and built-in IR illuminator in an indoor/outdoor 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 Electro-technical Commission (IEC) – Ingress Protection Rating IP66
         3. European standard EN 62262 — equivalent to International Electro-technical 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 manufacturershall have a minimum of fiveyears experienceinproducing 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 -4° F to 122° F (-20° F to 50° F), protected from mechanical and environmental conditions as designated by the manufacturer.
  4. **WARRANTY AND SUPPORT**
     1. The manufacturer shall provide a 5-yearwarrantyfor theproduct 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-MV72Di28T
    2. Alternates: None
  1. **GENERAL DESCRIPTION**
     1. The high definition outdoor dome IPcamera (“IP camera”) shall provide video performance capable of providing selectable resolutions up to 2001 x 1121 pixels at 30 frames per second (FPS) within an IP-66 rated, IK10 impact-resistant dome housing.
     2. The IP camera shall possess the following characteristics:
        1. H.265, H.264 and MJPEG compression
        2. 2.1MP/1080p resolution
        3. Two independent IP video streams (dual streaming)
        4. Day/night operation with IR cut filter
        5. Option for Integral IR LED illuminator providing 80-foot distance
        6. Integral motion detection
        7. Digital Wide Dynamic Range
        8. 3D digital noise reduction
        9. PoE capable
        10. Multicast or unicast capable
        11. Built-in webserver
        12. Dynamic DNS (DDNS) support
        13. IP-66rated
        14. IK-10 impact resistant
  2. **VIDEO**
     1. Imager
        1. Sensor: 2.1MP/1080p 1/2.9“ CMOS
        2. Minimum illumination
           1. Color mode: 0.16 lux (F1.6)
           2. Black & white mode:0 lux (F1.6)
        3. Scanning - Progressive
        4. Image Control Settings shall be available for:
           1. Exposure modes: automatic or manual

In manual exposure mode, configurable settings for:

brightness

shutter mode: automatic, anti-flickering or manual – 1/15 to 1/32000

digital slow shutter to decrease the shutter speed in low light

Automatic Gain Control (AGC)

Backlight compensation (BLC)

Wide Dynamic Range (WDR) level

* + - * 1. Day and night settings, to 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
      1. Lens
         1. Lens type: 2.8mm fixed lens
         2. Field of view (FOV): 103o
         3. IR distance: 80ft range
         4. Shutter speed: 1/15 sec to 1/32000
    1. Video Streams
       1. The IP camera shall support two configurable video streams, selectable from H.265, H.264 and MJPEG.
       2. The IP camera shall support two configurable video streams, each of which may have the following properties:
          1. Compression Type and Resolution:

H.265: 2.1MP/1080p, 720p(main), CIF(sub)

H.264: 2.1MP/1080p, 720p(main), CIF(sub)

MJPEG: CIF

* + - * 1. Frame rate: 0 – 30fps
    1. IR Distance: 80 feet
    2. Motion Detection – The IP 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.
    3. ONVIF – Video streams shall be capable of supporting ONVIF protocol, profile S.
    4. Other
       1. Single Images - The IP 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 IP camera shall allow sending of a video clip of configurable duration to up to five server locations.
       4. Access- TheIP camera shall permit up to five users to simultaneously access the camera.
  1. **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: 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)
        5. Media: Real-Time Transport Protocol (RTP), Real-Time Streaming Protocol (RTSP)
     3. DDNS – The IP camera shall support DDNS services offered by the Manufacturer and other publicly available service offerings.
     4. Security
        1. The IP ball 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 ball camera shall provide digest authentication, ID and password protection.
        3. The IP ball camera shall provide three levels of user access with password protection.
  2. **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.
  3. **CAMERA SOFTWARE**
     1. The IP camera shall have a built-in web server that supports browser-based configuration using Internet Explorer, Google Chrome, Mozilla Firefox, Apple Safari.
     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 record 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. 12 VDC
           2. PoE (IEEE 802.3af. 802.3af class 2)
        2. Power Consumption
           1. DC12V: Max 3.7W
           2. PoE: Max 5.4W
     2. Connectors
        1. Ethernet: RJ-45connector
        2. External power (12 VDC): 2-conductor power-to-terminal block
  2. **MECHANICAL AND ENVIRONMENTAL**
     1. Housing Material: Die-cast Aluminum, polycarbonate dome
     2. Configuration: Outdoor vandal dome
     3. Environmental Rating: IP-66
     4. IK Rating: IK10
     5. Dimensions (D x H): 4.13 in. x 2.4 in. (105mm x 61 mm)
     6. Weight: 0.88 lbs (0.4 kg)
     7. Temperature:
        1. Operating: -4° F to 122° F (-20° C to 50° C)
     8. Humidity: 10 - 90%, 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 prior to camera installation.
   3. **INSTALLATION**
      1. 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 IPcamerahardwareshall be stored in an environment where temperature and humidity are in the range specified by the Manufacturer.

END OF SECTION