A&E System Specification

iDS-2CD7126G2-IZ(H)S(Y)

iDS-2CD7146G2-IZ(H)S(Y)(1T)

iDS-2CD7186G2-IZ(H)S(Y)

iDS-2CD7186G2-IZS

Division 28 – Electronic Safety and Security

Section 28 20 00 – Video Surveillance
Section 28 21 00 – Surveillance Cameras
Section 28 21 13 – IP Cameras
Section 28 27 00 – Video Surveillance Sensors

Part 1 General:

1.1 Summary of Requirements

A. Camera

1. DeepinView Moto Varifocal Dome Camera

B. Related Requirements

1.	Section 27 15 01.13	Video Surveillance Communications Conductors and Cables
2.	Section 27 20 00	Data Communications
3.	Section 28 05 07.13	Power Sources for Video Surveillance
4.	Section 28 05 07.21	Poe Power Sources for Electronic Safety and Security
5.	Section 28 05 33	Safety and Security Network Communications Equipment
6.	Section 28 06 10	Schedules for Access Control
7.	Section 28 23 00	Video Management System
8.	Section 28 23 11	Video Surveillance – Video Management System Analytics
9.	Section 28 23 13	Video Surveillance – Video Management System Interfaces
10.	Section 28 33 00	Video Surveillance – Security Monitoring and Control

1.2 References

A. Abbreviations

1.	ABF	Auto Back Focus
2.	AES	Advanced Encryption Standard
3.	AGC	Automatic Gain Control
4.	AWB	Automatic White Balance
5.	BLC	Back Light Compensation
6.	DSCP	Differentiated Services Code Point
7.	DHCP	Dynamic Host Configuration Protocol
8.	DNR	Digital Noise Reduction
9.	DNS	Domain Name Server
10.	DDNS	Dynamic Domain Name Server
11.	FPS	frames per second
12.	FTP	File Transfer Protocol
13.	GUI	Graphical User Interface
14.	HLC	Highlight Compensation

15. HTTP Hypertext Transfer Protocol
16. HTTPS Secure HTTP
17. ICMP Internet Control Message Protocol
18. ICR Infrared Cut-off Filter
19. IGMP Internet Group Management Protocol
20. IP Internet Protocol
21. JPEG Joint Photographic Experts Group
22. MicroSD Removable Miniaturized Secure Digital flash memory card
23. MPEG Moving Pictures Experts Group
24. MWB Manual White Balance
25. NAS Network Attached Storage
26. NTP Network Time Protocol over Ethernet
27. PoE Power over Ethernet
28. PPPoE Point-to-Point Protocol over Ethernet
29. QoS Quality of Service
30. ROI Region of Interest
31. RTP Real-Time Transport Protocol
32. RTSP Real-Time Streaming Protocol
33. SD Card Secure Digital flash memory card
34. SMTP Simple Mail Transfer Protocol
35. SVC Scalable Video Coding
36. TCP Transmission Control Protocol
37. UDP User Datagram Protocol
38. UPnP Universal Plug and Play
39. VMS Video Management System
40. WB White Balance
41. WDR Wide Dynamic Range

1.3 Certifications, Standards and Ratings

A. Reference Standards

1. EMC
   - a. CE-EMC
     - i. EN 55032:2015+A1:2020
     - ii. EN 50130-4:2011+A1:2014
     - iii. EN IEC 61000-3-2:2019+A1:2021
     - iv. EN 61000-3-3:2013+A1:2019+A2:2021
   - b. RCM
     - i. AS/NZS CISPR 32:2015
   - c. IC
     - i. ICES-003: Issue 7
   - d. KC
     - i. KN 32: 2015
     - ii. KN 35: 2015
2. Safety
   - a. CB
     - i. IEC 62368-1:2014+A11
   - b. CE-LVD
     - i. EN 62368-1:2014/A11:2017

c. LOA
    i. IEC/EN 60950-1
d. BIS
    i. IS 13252 (Part 1): 2010/IEC 60950-1: 2005

3. Sustainability
    a. RoHS: 2011/65/EU
    b. WEEE: 2012/19/EU
    c. Reach: Regulation (EC) No 1907/2006
4. Mechanical Standards
    a. IK10: IEC 62262:2002
    b. IP67: IEC 60529-2013
    c. –Y model: NEMA 4X: NEMA 250-2018
5. Automotive and Railway
    a. EN50121-4: 2016+A1:2019
6. Network Security
    a. TPM 2.0 (FIPS 140-2 level 2)
        i. The product uses an embedded FIPS 140-2 lever 2 validated cryptographic module.

1.4 Submittals

A. Product Data

1. Manufacturer's hard (physical) or soft (electronic) datasheets
2. Installation and operating manuals for any and all equipment required for a VMS (Video Management System)
3. Manufacturer's warranty documentation

1.5 Qualifications

A. Requirements

1. This product shall be manufactured by an enterprise whose quality systems are in direct compliance with ISO-9001 protocols.
2. All system components shall be carefully tested and proven in actual use. Comprehensive repair and spare parts shall be given, for which the manufacturer shall provide warranty.
3. All systems and components used must be in compliance with requirements listed in Section 1.3.A.
4. All installations, integration, testing, programming, system commission, and related work shall be done by installers who are trained, authorized, and certified by the manufacturer.

1.6 Delivery, Storage and Handling

A. Delivery

1. The camera shall be delivered in the Manufacturer's unique, sealed, undamaged package.
2. Any and all identification labels shall remain intact.

B. Storage and Handling

1. The camera shall be protected from mechanical and environmental conditions as designated by the manufacturer.

1.7 Warranty and Support

A. Warranty Agreement

1. The manufacturer provides a limited five-year warranty which guarantees the product to be free of any defects in workmanship or material.
2. The manufacturer, either by dealer incentives or additional cost, shall have partner programs in place which can extend the warranty period.

B. Spares and Repairs

1. Spare parts, as well as comprehensive repair parts shall be included for all systems and components.
2. The spare and repair parts, both of warranty and non-warranty items, shall be guaranteed by the manufacturer.

END OF SECTION

Part 2 Product:

2.1 Manufacturer

A. Manufacturer:

Hangzhou Hikvision Digital Technology Co. Ltd.
No. 555 Qianmo Road, Binjiang District, Hangzhou
310052, China
Phone: +86-571-8807-5998 | Fax: +86-571-8993-5635
Web: www.hikvision.com

B. iDS-2CD7126G2-IZ(H)S(Y)
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2.2 Product Description

A. DeepinView Moto Varifocal Dome Camera with the following significant characteristics:

1. The 2 MP camera shall provide up to 2 MP high resolution (1920 × 1080) in 1/1.8" progressive scan CMOS format with a frame rate of up to 120 fps.
2. The 4 MP camera shall provide up to 4 MP high resolution (2688 × 1520) in 1/1.8" progressive scan CMOS format with a frame rate of up to 60 fps.
3. The 8 MP camera shall provide up to 8 MP high resolution (3840 × 2160) in 1/1.8" progressive scan CMOS format with a frame rate of up to 60 fps.
4. The camera shall have an angle adjustment of pan: 0° to 355°, tilt: 0° to 75°, rotate: 0° to 355°.
5. The camera shall have a lens focal length of 2.8 to 12 mm (motorized lens) with an aperture of F1.38 to F2.53. Will also have a focal length of 8 to 32 mm (motorized lens) with an aperture of F1.7 to F1.73.
6. The camera shall have a focus that is auto, semi-auto, and manual.
7. The camera shall have an IR range of up to 40 m (131 ft.) for 2.8 to 12 mm lens. IR range of up to 60 m (196 ft.) for 8 to 32 mm lens.
8. The camera shall capture vehicles and humans of different speed clearly via ShotN technology.
9. The camera shall support built-in G-sensor for vibration detection.
10. The camera shall support built-in power meter for voltage exception alarm and historical power statistics.
11. The camera (-1T model) shall support 1 TB SSD for edge storage. (optional)

B. Imaging

1. Minimum illumination
   a. Color: 0.0005 Lux at F1.2, Black and White: 0.0001 Lux at F1.2, 0 Lux with IR
2. Illuminator
   a. IR
   b. 2.8 to 12 mm camera: Effective distance up to 40 meters
   c. 8 to 32 mm camera: Effective distance up to 60 meters
   d. 850 nm IR LED illuminator

e. The IR LEDs on the camera should support Smart IR function to automatically adjust power to avoid image overexposure.

3. Lens and sensor
   a. 1/1.8" Progressive Scan CMOS sensor and 2.8 to 12 mm motorized lens or 8 to 32 mm motorized lens.
   b. For the 2 MP and 4 MP camera with 2.8 to 12 mm lens, the field of view shall be horizontal FOV 114.6° to 41.8°, vertical FOV 59.3° to 23.6°, diagonal FOV 141.3° to 48.1°.
      For the 2 MP and 4 MP camera with 8 to 32 mm lens, the field of view shall be horizontal FOV 42.5° to 15.2°, vertical FOV 23.4° to 8.7°, diagonal FOV 49.7° to 17.3°.
   c. For the 8 MP camera with 2.8 to 12 mm lens, the field of view shall be horizontal FOV 112.3° to 41.2°, vertical FOV 58.1° to 23.1°, diagonal FOV 137.4° to 47.3°
      For the 8 MP camera with 8 to 32 mm lens, the field of view shall be horizontal FOV 41.8° to 15°, vertical FOV 22.9° to 8.5°, diagonal FOV 48.7° to 17.1°.
   d. For the 2.8 to 12 mm model, the aperture should be F1.38 to F2.53. For the 8 to 32 mm model, the aperture should be F1.7 to F1.73.
   e. The camera shall support iris type: p-iris.
   f. The camera shall support 3 focus control modes, auto, semi-auto, and manual.
4. Image processing
   a. The Shutter Speed of the camera shall be 1 s to 1/100,000 s.
   b. The 2 MP and 4 MP camera shall support wide dynamic range up to 150 dB. The 8 MP camera shall support wide dynamic range up to 140 dB.
   c. When true WDR is on, the 2 MP camera shall have the ability to provide maximum resolution of 1920 × 1080 @ 120 fps.
   d. When true WDR is on, the 4 MP camera shall have the ability to provide maximum resolution of 2688 × 1520 @ 60 fps.
   e. When true WDR is on, the 8 MP camera shall have the ability to provide maximum resolution of 3840 × 2160 @ 60 fps.
   f. The camera shall have an image day/night switch via ICR. Five switch modes are available, staying at night, staying at day, auto switch, scheduled switch, and triggering by alarm input. For auto switch, sensitivity level is selectable from 0 to 7.
   g. Image parameters shall be adjustable by client software or web browser on saturation, brightness, contrast, sharpness, AGC and white balance.
   h. The camera shall support the rotation function when you use the camera in a narrow view scene. If the aspect ratio is 16:9, the camera can rotate 90° to get a 9:16 image.
   i. The camera shall have Backlight Compensation (BLC) with the configurable BLC area.
   j. The camera shall have Highlight Compensation (HLC).
   k. The camera shall provide digital noise reduction with selectable noise reduction level from 0 to 100 in normal mode and configurable spatial and temporal DNR level in expert mode.
   l. The camera shall provide defog function to enhance the image in foggy weather.
   m. The camera shall support Electronic Image Stabilization (EIS).
   n. The camera shall provide selectable white balance modes, including MWB, AWB, Locked WB, Incandescent Lamp, Warm Light Lamp, Natural Light, and Fluorescent Lamp.
   o. Image mirror shall be supported.
   p. The camera shall feature selectable 50/60 Hz banding control/reduction.
   q. The camera shall have the ability to overlay a picture (128 × 128, 24 bit, bmp format) on the image.
   r. The camera shall provide lens distortion correction for image distortion.

s. The camera shall offer programmable polygon privacy mask to block privacy areas on live image, 8 masks available.

C. Events and Smart Features

1. Camera shall support events such as:
   a. Line Crossing Detection – detects action of crossing a straight line of any length with detection of crossing from A to B, B to A, or A to/from B. Up to four lines supported.
   b. Intrusion Detection – detects action of intruding a ten-sided polygon region of irregular shape, size, and placement. Up to four regions are supported.
   c. Region Entrance Detection – detects actions of entering a ten-sided polygon region of irregular shape, size, and placement. Up to four regions are supported.
   d. Region Exiting Detections – – detects actions of leaving a ten-sided polygon region of irregular shape, size, and placement. Up to four regions are supported.
   e. Audio Exception – monitors sudden audio increase/decrease and audio loss. This requires the connection and configuration of the optional external microphone.
   f. Motion Detection – user-defined areas and configurable sensitivity levels in normal mode and additional image settings switch in expert mode.
   g. Vibration Detection – detects whether the camera is vibrating.
   h. Video Tampering – detects video changed in the configured area in image.
   i. Scene Change Detection – detects camera scene change
   j. Defocus Detection – detects defocus of the camera
   k. Video Quality Diagnosis – supports 13 types of video quality diagnosis, including brightness abnormal detection sharpness abnormal detection, snowflake detection, stripe detection, color abnormal detection, image frozen detection, abnormal blocking detection, indistinct screen detection, noise detection, abnormal light spot detection, ICR abnormal detection.
   l. Exception – HDD full, HDD error, network disconnected, IP address conflicted, illegal login, and abnormal restart.
   m. The camera should support all the events at the same time, including line crossing detection, intrusion detection, region entrance detection, region exiting detection, scene change detection, defocus detection, vibration detection and motion detection.
   n. The camera shall support alarm triggered by specified target types (human and vehicle) for certain events, including motion detection, line crossing detection, intrusion detection, region entrance detection, and region exiting detection.
   o. The camera shall support combined event alarm triggering, line crossing detection, intrusion detection, region entrance detection, and region exiting detection.
2. The camera shall have the ability to detect up to 120 faces simultaneously, capture up to 40 face pictures per frame simultaneously, upload up to 10 face pictures per second, and swing left and right from -60° to 60°, tilt up and down from -30° to 30°, and upload face images with background and close-up face images.
3. The camera shall have the ability to recognize face identity via face modeling, grading and comparing in face library. Up to 10 face libraries, up to 150,000 faces, and each face library is configurable. The face library can be encrypted via AES128.
4. The camera shall support simultaneous detection and capture of human body, face and vehicle. It can gets 7 face features, 13 human body features and 2 vehicle features.
5. The camera shall support counting the number of line crossing targets by type, including human body, non-motor vehicle and motor vehicle.

6. The camera shall support dynamic mosaic mask under the functions including face capture and multi-target-type detection.
7. The camera shall support EPTZ function that has patrol and auto-tracking mode.
8. The camera shall provide arming schedule settings for events and linkage actions settings as response to detected actions.
9. The camera shall provide linkage actions such as sending email, notifying surveillance center, uploading to FTP/memory card/NAS, triggering recording, triggering alarm output, triggering capture, audible warning, etc. Some of which may not be supported by certain events.
    a. Send Email – Alarm information is sent to a configured email recipient.
    b. Upload to FTP/Memory Card/NAS – Captured picture is sent to a configured FTP server, mounted local memory card, or configured NAS.
    c. Notify Surveillance Center – Alarm information is sent to the surveillance center (PC or mobile client software)
    d. Alarm Output – Send alarm signal to external devices.
    e. Trigger Recording – Trigger camera to record a video.
10. The camera shall have Dual-VCA function. VCA information can be written in streams, and back-end devices can search for video clips containing specified types of events.
11. The camera shall support AIOP functions and allow uploading algorithms for gun detection.

D. Video & Audio

1. The camera shall offer 5 defined video streams.
2. Compression
    a. Main stream: H.265, H.265+, H.264, H.264+
    b. Sub-stream: H.265, H.264, MJPEG
    c. Third stream: H.265, H.264
    d. Fourth stream: H.265, H.264, MJPEG
    e. Fifth stream: H.265, H.264, MJPEG
3. Streams
    a. Main stream:
    2 MP camera:
    50 Hz:
    100 fps (1920 × 1080)
    50 fps (1280 × 960, 1280 × 720)
    60 Hz:
    120 fps (1920 × 1080)
    60 fps (1280 × 960, 1280 × 720)

    4 MP camera:
    50 Hz:
    100 fps (1920 × 1080)
    50 fps (2688 × 1520, 2560 × 1440, 1280 × 720)
    60 Hz:
    120 fps (1920 × 1080)
    60 fps (2688 × 1520, 2560 × 1440, 1280 × 720)

    8 MP camera:
    50 Hz:

100 fps (1920 × 1080)
50 fps (3840 × 2160, 3072 × 1728, 2560 × 1440, 1280 × 720)
60 Hz:
120 fps (1920 × 1080)
60 fps (3840 × 2160, 3072 × 1728, 2560 × 1440, 1280 × 720)

b. Sub-stream:
50 Hz: 25 fps (704 × 576, 640 × 480)
60 Hz: 30 fps (704 × 480, 640 × 480)

c. Third stream:
50 Hz: 25 fps (1920 × 1080, 1280 × 720, 704 × 576, 640 × 480)
60 Hz: 30 fps (1920 × 1080, 1280 × 720, 704 × 480, 640 × 480)

d. Fourth stream:
50 Hz: 25 fps (704 × 576, 640 × 480)
60 Hz: 30 fps (704 × 480, 640 × 480)

e. Fifth stream:
50 Hz: 25 fps (704 × 576, 640 × 480)
60 Hz: 30 fps (704 × 480, 640 × 480)

4. H.264 and H.264+
   a. Baseline profile, main profile and high profile (H.264)
   b. H.264+ is available for main stream
5. H.265 and H.265+
   a. Main profile (H.265)
   b. H.265+ is available for main stream
6. The video stream bit range shall be in the range of 32 Kbps to 16 Mbps for 8 MP camera, 32 Kbps to 8 Mbps for 2 MP and 4 MP camera.
7. The camera shall provide constant and variable bit rate control.
8. Scalable Video Coding (SVC) shall be supported when H.264 or H.265 is used. With SVC on, the camera should be able to extract frames from the original video when the network bandwidth is insufficient.
9. The camera shall support audio in/out, mono sound track.
10. The camera shall provide audio function with compression standards of G.711 (64 Kbps), G.722.1 (16 Kbps), G.726 (16 Kbps), MP2L2 (32 to 192 Kbps), PCM, MP3 (8 to 320 Kbps) and AAC-LC (16 to 64 Kbps).
11. The sampling rate of the camera shall be 8 kHz/16 kHz/32 kHz/48 kHz.
12. The camera shall have environment noise filter to improve audio quality.
13. ROI
    a. The camera shall provide Region of Interest (ROI) encoding with 4 configurable fixed areas for each stream.
    b. The ROI areas are encoded with better image quality than the background.
14. The camera shall support target cropping to cut and stream selected part of the full size image.
15. The camera shall have the ability to support 20 simultaneous live views.

E. Network

1. Following network protocol shall be supported:
   TCP/IP, ICMP, HTTP, HTTPS, FTP, SFTP, SRTP, DHCP, DNS, DDNS, RTP, RTSP, RTCP, PPPoE, NTP,UPnP, SMTP, SNMP, IGMP, 802.1X, QoS, IPv4, IPv6, UDP, Bonjour, SSL/TLS, WebSocket, WebSockets

2. Security
    a. User permission control to assign different permissions to different user levels. Three user levels are available: admin, operator and user.
    b. IP address filtering to block or allow certain IP addresses.
    c. Password protected access not dependent on a server.
    d. Secure activation for the first time access.
    e. Video stream watermark.
    f. RTSP and web authentication: digest and basic/digest
    g. Illegal login lock to limit failed login attempts.
    h. End-device access control via EAP-TLS1.3. Only permitted device can access to the video security network to avoid the risky access of unknown devices.
    i. The video streams can be encrypted via RTP/RTSP over HTTPS, AES128 and AES256 are supported.
    j. Signaling is encrypted via HTTP/HTTPS in transmission link, AES128 and AES256 are supported.
    k. Together with platform, up to 6-month camera log can be saved.
3. System compatibility
    a. ONVIF (Profile S, Profile G, Profile T, Profile M)
    b. ISAPI
    c. SDK
    d. ISUP
    e. OTAP
4. Network storage
    a. NAS (NFS, SMB/CIFS)
    b. Auto Network Replenishment (ANR) for recording

F. System

1. The camera support web browser and client software access:
    a. Plug-in required web browser: IE 10, IE 11
    b. Plug-in free web browser: Chrome 57.0+, Firefox 52.0+, Edge 89+, Safari 11+
    c. Local service: Chrome 57.0+, Firefox 52.0+, Edge 89+
    d. Client software: iVMS-4200, Hik-Connect, Hik-Central
2. The camera shall support up to 32 users with 3 user levels (admin, operator and user).
3. The camera shall provide 33 language options for web browser access:
   English, Russian, Estonian, Bulgarian, Hungarian, Greek, German, Italian, Czech, Slovak, French, Polish, Dutch, Portuguese, Spanish, Romanian, Danish, Swedish, Norwegian, Finnish, Croatian, Slovenian, Serbian, Turkish, Korean, Traditional Chinese, Thai, Vietnamese, Japanese, Latvian, Lithuanian, Portuguese (Brazil), Ukrainian
4. The camera should support new firmware notification via the client software and online upgrade.
5. The camera should support file system backup for the firmware to ensure the stable device running in case of the abrupt power shut down or network interruption during upgrading.
6. The camera shall support heartbeat function to allow the connected device or software to acquire camera status.
7. The camera shall provide reset button on camera body and in client software to restore device the parameters.

G. Physical

1. The camera shall support lens angle adjustment: pan: 0° to 355°, tilt: 0° to 75°, rotate: 0° to 355°.

2. The camera shall have a built-in memory card slot, available for microSD/SDHC/SDXC memory card, capacity up to 1 TB.
3. The camera (-1T model) shall support built-in 1 TB SSD storage.
4. The camera (-H model) shall support heater on.
5. 4 GB LPDDR4X RAM; 8 GB eMMC
6. Interfaces:
   a. 1 RJ45 10 M/100 M/1000 M self-adaptive Ethernet port
   b. 1 RS-485 (half duplex, HIKVISION, Pelco-P, Pelco-D, self- adaptive)
   c. 1 Vp-p Composite Output (75 Ω/CVBS) (Only for debugging)
   d. Audio:
      1 input (line in), 3.5 mm connector, three-contact, max. input amplitude: 3.3 Vpp, input impedance: 4.7 KΩ, interface type: non-equilibrium; 1 output (line out), 3.5 mm connector, three-contact, max. output amplitude: 3.3 Vpp, output impedance: 100 Ω, interface type: non-equilibrium, 2 built-in microphones, mono sound
   e. Alarm: 2-ch input, 2-ch input (max. 24 VDC/24 VAC, 1 A)
   f. Power output: 12 VDC, max. 100 mA
   g. Built-in speaker: Max. power consumption: 1.5 W, max. sound pressure level: 98 dB, speaker range: 10 m
7. Power supply, power consumption and current:
   2 MP camera:
   a. Power over Ethernet (PoE): IEEE 802.3at, Type 2, Class 4, 42.5 V to 57 V, 0.36 A to 0.27 A, max. 15.2 W
   b. DC input: 12 VDC ± 20%, 1.28 A, max. 15.3 W
   c. AC input: 24 VAC ± 20%, 0.91 A, max. 13.7 W
   d. Three-core terminal block
   4 MP camera (With -1T):
   a. Power over Ethernet (PoE): IEEE 802.3at, Type 2, Class 4, 42.5 V to 57 V, 0.37 A to 0.28 A, max. 16.8 W
   b. DC input: 12 VDC ± 20%, 1.22 A, max. 14.6 W
   c. AC input: 24 VAC ± 20%, 0.88 A, max. 13.7 W
   d. Three-core terminal block
   4 MP camera (With -1T):
   a. Power over Ethernet (PoE): IEEE 802.3at, Type 2, Class 4, 42.5 V to 57 V, 0.36 A to 0.27 A, max. 15.2 W
   b. DC input: 12 VDC ± 20%, 1.28 A, max. 15.3 W
   c. AC input: 24 VAC ± 20%, 0.91 A, max. 13.7 W,
   d. Three-core terminal block
   8 MP camera:
   a. Power over Ethernet (PoE): IEEE 802.3at, Type 2, Class 4, 42.5 V to 57 V, 0.37 A to 0.27 A, max. 15.7 W
   b. DC input: 12 VDC ± 20%, 1.25 A, max. 14.75 W
   c. AC input: 24 VAC ± 20%, 1.05 A, max. 14.1 W
   d. Three-core terminal block, reverse polarity protection
8. Dimension
   a. Camera: Ø144.3 mm × 114.1 mm (Ø5.7" × 4.5")
   b. Package: 244 mm × 174 mm × 173 mm (9.6" × 6.9" × 6.8")
9. Weight

a. Camera: With -1T: approx. 990 g (2.18 lb.), without -1T: approx. 1100 g (2.43 lb.)
b. With Package: With -1T: approx. 1500 g (3.31 lb.), without -1T: approx. 1482 g (3.27 lb.)

10. Material
    a. Body: metal, cover: metal
    b. Screw: stainless steel
    c. PVC Free
11. Environment
    a. Starting and Operating Temperature:
       With -H model: -40 °C to 65 °C (-40 °F to 149 °F).
       Without -H model: -30 °C to 65 °C (-22 °F to 149 °F).
    b. Humidity: 95% or less (non-condensing)

2.3 PC Requirement

A. Minimum PC Intel® Core® 2 Duo Microprocessor, 2.6 GHz

B. Screen Resolution 1024 x 768 pixels or higher, 16-32-bit or 64-bit pixel color resolution

2.4 Compatible Accessory

A. Bracket

1.	Vertical Pole Mount	DS-1475ZJ-SUS, DS-1475ZJ-Y
2.	Corner Mount:	DS-1476ZJ-SUS, DS-1476ZJ-Y
3.	Wall Mount	DS-2200ZJ-WA-140, DS-2200ZJ-WAJ-140
4.	Pendant Mount	DS-2210ZJ-WA-140
5.	In-Ceiling Mount	DS-1227ZJ-DM32
6.	Junction Box	DS-2280ZJ-WA140

END OF SECTION

Part 3 Execution

3.1 Examination

- **A.** Inspect chosen area of installation prior to receiving devices and report any conditions that affect the installation process or any subsequent operation.
- **B.** Please do not begin installation until all unacceptable conditions are rectified.

3.2 Preparation

- **A.** Devices packaged in such way to help prevent any damage during construction.

3.3 Installation

- **A.** Devices must be installed in accordance with the manufacturers' instructions provided, as well as instructions based off any indicated floor design specifications.
- **B.** Location of installation must provide reasonable conditions for optimum device functionality. Temperature and humidity level conditions must be taken into consideration.
- **C.** All installations must be performed with qualified service professionals only.
- **D.** All devices must be installed in accordance with the National Electric Code or applicable local codes.
- **E.** Ensure location of installation provides a minimum possibility of accidental damage.

3.4 Field Quality Control

- **A.** Assess the compatibility of mounting screws for all equipment to be installed.
- **B.** Make sure all video systems are tested properly and meet standard operational requirements.
- **C.** Define, conclude, and report all issues with equipment to the manufacturers' customer service representatives.

3.5 Adjusting

- **A.** Execute the necessary modifications to the Video Management System for proper operation in accordance with the instructions provided by the manufacturer.
- **B.** Ensure the customers unique requirements are reflected in the camera settings.

3.6 Demonstration

- **A.** Upon final inspection, validate the video solutions system and its device functions correctly.

END OF SECTION