

November 2023

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Product Guide Specification

SECTION 28 23 29
VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS
BOSCH FLEXIDOME indoor 5100i

PART 1 – GENERAL

1.1 SUMMARY

1.A. Related Sections

- 1.A.1. Section [28 23 13 – Video Surveillance Control and Management Systems].
- 1.A.2. Section [28 23 16 – Video Surveillance Monitoring and Supervisory Interfaces].
- 1.A.3. Section [28 23 19 – Digital Video Recorders and Analog Recording Devices].
- 1.A.4. Section [28 23 23 – Video Surveillance Systems Infrastructure].

*****Specifier's note: Include those standards referenced elsewhere in this SECTION.

1.2 REFERENCES

2.A. EMC – Emissions

- 2.A.1. EN 55032 (Class B) - Electromagnetic compatibility of multimedia equipment - Emission requirements
- 2.A.2. CFR FCC part15, class B (STP) Code of Federal Title 47 – Telecommunication Chapter I - FEDERAL COMMUNICATIONS COMMISSION, Subchapter A – GENERAL, Part 15 - RADIO FREQUENCY DEVICES
- 2.A.3. ICES-003 Class B Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard
- 2.A.4. AS/NZS CISPR 32 Electromagnetic compatibility of multimedia equipment - Emission requirements
- 2.A.5. VCCI – CISPER 32.

2.B. EMC – Immunity

- 2.B.1. EN 50121-4 Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signaling and telecommunications apparatus
- 2.B.2. EN 50130-4 Alarm systems - Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder, hold up, CCTV, access control and social alarm systems

2.C. Environmental

- 2.C.1. EN 50130-5, Class II Alarm systems - Part 5: Environmental test methods
- 2.C.2. EN IEC 63000 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
- 2.C.3. RoHS EU, 2011/65/EU and 2015/863/EU Directive of the European Parliament and of the Council as regards the list of restricted substances
- 2.C.4. WEEE EU, 2012/19/EU Directive of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE)

2.D. Safety

- 2.D.1. EN 62368-1 Audio/video, information and communication technology equipment - Part 1: Safety requirements
- 2.D.2. IEC 62368-1 Audio/video, information and communication technology equipment - Part 1: Safety requirements
- 2.D.3. UL 62368-1 Audio/video, information and communication technology equipment - Part 1: Safety requirements

2.E. Image performance

- 2.E.1. IEC 62676-5 Video surveillance systems for use in security applications - Part 5: Data specifications and image quality performance for camera devices

2.F. Impact protection

- 2.F.1. EN 62262 (IK10): 2002 Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)

2.G. Water/Dust protection

- 2.G.1. EN 60529 (IP54) Degrees of protection provided by enclosures (IP Code)

2.H. ONVIF conformance

- 2.H.1. EN 50132-5-2 Alarm systems - CCTV surveillance systems for use in security applications - Part 5-2: IP Video Transmission Protocols
- 2.H.2. EN 62676-2 Video surveillance systems for use in security applications

2.I. Marks

- 2.I.1. CE, FCC, UL, WEEE, RCM, VCCI, UKCA, China RoHS, BIS, KCC

1.3 SYSTEM DESCRIPTION

3.A. Section Includes

- 3.A.1. Video Surveillance Remote Devices

3.B. Performance Requirements

- 3.B.1. The fixed network camera shall be a full-featured fixed dome designed for discrete video surveillance applications in indoor environments.
- 3.B.2. The fixed network camera shall be a high performance CMOS sensor type with up to 4K ultra HD resolution:
 - 3.B.2.a. NDV-5702-A, NDV-5702-A-GOV: 1/2.8-inch CMOS, 2 MP
 - 3.B.2.b. NDV-5703-A, NDV-5703-A-GOV: 1/2.7-inch CMOS, 5 MP
 - 3.B.2.c. NDV-5704-A, NDV-5704-A-GOV: 1/2.8-inch CMOS, 4K ultra HD
- 3.B.3. The fixed network camera shall offer enhanced system flexibility with dual recording (iSCSI and SD card) options.
- 3.B.4. The fixed network camera shall support input voltage of PoE IEEE 802.3af Type 1, Class 3, PoE IEEE 802.3at Type 1, Class 3.
- 3.B.5. The fixed network camera shall support power consumption of PoE:
 - 3.B.5.a. NDV-5702-A, NDV-5702-A-GOV power consumption typical / maximum:
 - 1. PoE: 4.8 W / 6 W
 - 3.B.5.b. NDV-5703-A, NDV-5703-A-GOV power consumption typical / maximum:
 - 1. PoE: 5.2 W / 5.6 W
 - 3.B.5.c. NDV-5704-A, NDV-5704-A-GOV power consumption typical / maximum:
 - 1. PoE: 6.4 W / 7.7 W
- 3.B.6. The fixed network camera shall offer High Dynamic Range for clear images in extreme high-contrast environments:

- 3.B.6.a. NDV-5702-A, NDV-5702-A-GOV: 144 dB
- 3.B.6.b. NDV-5703-A, NDV-5703-A-GOV: 120 dB
- 3.B.6.c. NDV-5704-A, NDV-5704-A-GOV: 120 dB
- 3.B.7. The fixed network camera shall provide direct network connection using H.265, H.264, and M-JPEG compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
- 3.B.8. The fixed network camera shall offer embedded deep learning-based detection and video analytics (IVA Pro) that eliminate dedicated PCs and associated software maintenance.
- 3.B.9. The fixed network camera shall conform to the ONVIF standard S, G, T, and M to provide interoperability with other conformant systems.
 - 3.B.10. The fixed network camera shall offer four streams with individually configurable frame rate and bandwidth and up to 8 profiles.
- 3.B.11. The fixed network camera shall have support for both 4:3 - wide screen and 3:4 - upright aspect ratios, or, 16:9 - wide screen and 9:16 - upright aspect ratios.
- 3.B.12. The fixed network camera shall:
 - 3.B.12.a. Offer IP54 environmental protection.
 - 3.B.12.b. Offer IK10 impact resistance housing and bubble.
 - 3.B.12.c. Support a temperature range of -20 °C to 50 °C (-4 °F to 122 °F) for continuous operation.

1.4 SUBMITTALS

4.A. Submit under provisions of Section [01 33 00.]

4.B. Product Data:

4.B.1. Manufacturer's data, user and installation manuals for all equipment and software programs including computer equipment and other equipment required for complete video management system.

4.C. Shop Drawings; include

4.C.1. System device locations on architectural floor plans.

4.C.2. Full Schematic of system, including wiring information for all devices.

4.D. Closeout Submittals

4.D.1. User manual.

4.D.2. Parts list.

4.D.3. System device locations on architectural floor plans.

4.D.4. Wiring and connection diagram.

4.D.5. Maintenance requirements.

1.5 QUALITY ASSURANCE

5.A. Manufacturer:

5.A.1. Minimum of [20] years experience in manufacture and design Video Surveillance Devices.

5.B. Video Surveillance System:

5.B.1. Listed by cULus.

5.B.2. Complies to FCC, CE and UL product specific requirements. Test methods are in accordance to international standards. Provide evidence of compliance upon request.

5.C. Installer:

5.C.1. Minimum of [5] years experience installing Video Surveillance System.

1.6 DELIVERY, STORAGE AND HANDLING

- 6.A. Comply with requirements of Section 01 60 00.
- 6.B. Deliver materials in manufacturer's original, unopened, undamaged containers; and unharmed original identification labels.
- 6.C. Protect store materials from environmental and temperature conditions following manufacturer's instructions.
- 6.D. Handle and operate products and systems according to manufacturer's instructions.
- 6.E. Bosch provides off-the-shelf availability for our top selling products and same-day or 24-hour shipping.

1.7 WARRANTY

- 7.A. Provide manufacturer's warranty covering 5 years for replacement and repair of defective equipment.

1.8 MAINTENANCE

- 8.A. Make ordering of new equipment for expansions, replacements, and spare parts available to dealers and end users.
- 8.B. Provide factory direct technical support from 8:00 a.m. to 8:00 p.m. via phone and e-mail.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

1.A. Acceptable Manufacturer:

[Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, New York, 14450, USA
Phone: + 1 800 289 0096
Fax: + 1 585 223 9180
security.sales@us.bosch.com
www.boschsecurity.us]

[Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: + 31 40 2577 284
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Robert Bosch (SEA) Pte Ltd, Security Systems
11 Bishan Street 21
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Phone: +65 6571 2600
Fax: +65 6571 2698
apr.securitysystems@bosch.com
www.boschsecurity.com]

1.B. Substitutions: [Not permitted.] [Under provisions of Division 1.]

- 1.B.1. [All proposed substitutions must be approved by the Architect or Engineer professional.]
- 1.B.2. [Proposed substitutions must provide a line-by-line compliance documentation.]

2.2 BOSCH FLEXIDOME indoor 5100i camera or comparable

2.A. General Characteristics:

- 2.A.1. The fixed network camera shall provide high performance CMOS sensor with the following minimum capabilities:
 - 2.A.1.a. NDV-5702-A, NDV-5702-A-GOV: 1/2.8 inch CMOS image sensor with the minimum capabilities of 2 MP (1920 x 1080) effective picture elements, sensitivity down to 0.021 lx, and High Dynamic Range (HDR) multi-exposure at HD 1080p resolution
 - 2.A.1.b. NDV-5703-A, NDV-5703-A-GOV: 1/2.7-inch CMOS image sensor with the minimum capabilities of 5.3 MP (2688 x 1944) effective picture elements, sensitivity down to 0.044 lx, and High Dynamic Range (HDR) multi-exposure at 5 MP resolution
 - 2.A.1.c. NDV-5704-A, NDV-5704-A-GOV: 1/2.8 inch CMOS image sensor with the minimum capabilities of 8.3 MP (3864 x 2192) effective picture elements, sensitivity down to 0.046 lx, and High Dynamic Range (HDR) multi-exposure at 8 MP resolution
- 2.A.2. The fixed network camera shall offer an Automatic Varifocal (AVF) lens with P-iris control and a focal length of 3.2 to 10.5 mm.
- 2.A.3. The fixed network camera shall provide direct network connection using H.265, H.264 and M-JPEG compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
- 2.A.4. The fixed network camera shall offer High Dynamic Range for clear images in extreme high-contrast environments:
 - 2.A.4.a. NDV-5702-A, NDV-5702-A-GOV: 144 dB
 - 2.A.4.b. NDV-5703-A, NDV-5703-A-GOV: 120 dB
 - 2.A.4.c. NDV-5704-A, NDV-5704-A-GOV: 120 dB
- 2.A.5. The fixed network camera shall have support for both 4:3 - wide screen and 3:4 - upright aspect ratios, or, 16:9 - wide screen and 9:16 - upright aspect ratios.
- 2.A.6. The fixed network camera shall offer embedded IVA Pro Buildings for reliable deep learning-based detection and support IVA Pro Perimeter and IVA Pro Traffic with license option.
- 2.A.7. The fixed network camera shall offer bi-directional audio input/output.
- 2.A.8. The fixed network camera shall offer the ability to define 8 irregular polygon masks that will automatically recolor to match the scene color and prohibit areas of the field of view from being seen.
- 2.A.9. The fixed network camera shall directly integrate into mounting accessories.

- 2.A.10. The fixed network camera shall support input voltage of PoE IEEE 802.3af Type 1, Class 3, PoE IEEE 802.3at Type 1, Class 3.
- 2.A.11. The fixed network camera shall support power consumption of PoE:
 - 2.A.11.a. NDV-5702-A, NDV-5702-A-GOV power consumption typical / maximum:
 - 1. PoE: 4.8 W / 6 W
 - 2.A.11.b. NDV-5703-A, NDV-5703-A-GOV power consumption typical / maximum:
 - 1. PoE: 5.2 W / 5.6 W
 - 2.A.11.c. NDV-5704-A, NDV-5704-A-GOV power consumption typical / maximum:
 - 2. PoE: 6.4 W / 7.7 W
- 2.A.12. The fixed network camera shall be able to be direct surface mounted to a wall or ceiling.
- 2.A.13. The fixed network camera shall be capable of operating in an indoor environment.
- 2.A.14. The fixed network camera shall:
 - 2.A.14.a. Offer IP54 environmental protection.
 - 2.A.14.b. Offer IK10 impact resistance housing and bubble.
 - 2.A.14.c. Support a temperature range of -20 °C to 50 °C (-4 °F to 122 °F) for continuous operation.
- 2.A.15. The fixed network camera shall provide a 3-axis adjustment (pan / tilt / rotation) of 355° / 85° / 350°.
- 2.A.16. The fixed network camera housing shall have an integrated paintable cover shell.
- 2.A.17. The fixed network camera shall support the following languages:
 - 2.A.17.a. English
 - 2.A.17.b. Czech
 - 2.A.17.c. Dutch
 - 2.A.17.d. French
 - 2.A.17.e. German
 - 2.A.17.f. Italian
 - 2.A.17.g. Polish
 - 2.A.17.h. Portuguese
 - 2.A.17.i. Russian
 - 2.A.17.j. Spanish
 - 2.A.17.k. Japanese
 - 2.A.17.l. Chinese

2.B. Imaging

- 2.B.1. The fixed network camera shall offer a CMOS image sensor:
 - 2.B.1.a. NDV-5702-A, NDV-5702-A-GOV: 1/2.8-inch CMOS
 - 2.B.1.b. NDV-5703-A, NDV-5703-A-GOV: 1/2.7-inch CMOS
 - 2.B.1.c. NDV-5704-A, NDV-5704-A-GOV: 1/2.8-inch CMOS
- 2.B.2. The fixed network camera shall offer a minimum effective number of pixels of:
 - 2.B.2.a. NDV-5702-A, NDV-5702-A-GOV: 1920 × 1080 (1080p HD)
 - 2.B.2.b. NDV-5703-A, NDV-5703-A-GOV: 2592 × 1944 (5 MP)
 - 2.B.2.c. NDV-5704-A, NDV-5704-A-GOV: 3840 × 2160 (8 MP)
- 2.B.3. The fixed network camera shall offer a 16:9 (2 MP), 4:3 (5 MP), or 16:9 (8 MP) aspect ratio.
- 2.B.4. The fixed network camera shall have a sensitivity measured according to IEC 62676 Part 5 (1/25, F1.6):
 - 2.B.4.a. NDV-5702-A, NDV-5702-A-GOV: 0.021 lx (color), 0.004 lx (mono)
 - 2.B.4.b. NDV-5703-A, NDV-5703-A-GOV: 0.044 lx (color), 0.010 lx (mono)
 - 2.B.4.c. NDV-5704-A, NDV-5704-A-GOV: 0.046 lx (color), 0.015 lx (mono)
- 2.B.5. The fixed network camera shall have a viewing angle of:
 - 2.B.5.a. NDV-5702-A, NDV-5702-A-GOV: Horizontal: 105° x 31° (H x V),
Vertical: 57° x 18° (H x V)
 - 2.B.5.b. NDV-5703-A, NDV-5703-A-GOV: Horizontal: 96° x 29° (H x V),
Vertical: 71° x 22° (H x V)
 - 2.B.5.c. NDV-5704-A, NDV-5704-A-GOV: Horizontal: 105° x 31° (H x V),
Vertical: 57° x 18° (H x V)
- 2.B.6. The fixed network camera shall offer automatic focus and P-iris control with manual override.
- 2.B.7. The fixed network camera shall offer High Dynamic Range for clear images in extreme high-contrast environments:

- 2.B.7.a. NDV-5702-A, NDV-5702-A-GOV: 144 dB
- 2.B.7.b. NDV-5703-A, NDV-5703-A-GOV: 120 dB
- 2.B.7.c. NDV-5704-A, NDV-5704-A-GOV: 120 dB
- 2.B.8. The fixed network camera shall offer an anti-fog image feature that assists the camera in registering a usable image through the heavy fog.

2.C. Image Processing

- 2.C.1. The fixed network camera shall support dynamic noise reduction to reduce bandwidth and storage requirements by optimizing the detail-to-bandwidth ratio via temporal and spatial noise filtering.
 - 2.C.2. The fixed network camera shall include intelligent streaming functionality to reduce bandwidth and storage requirements by optimizing the camera encoder on to camera noise level.
 - 2.C.3. The fixed network camera shall be capable of capturing and storing images using H.265 and H.264 compression at resolution:
 - 2.C.3.a. NDV-5702-A, NDV-5702-A-GOV: 1080p HD video at rates up to 60 images per second.
 - 2.C.3.b. NDV-5703-A, NDV-5703-A-GOV: 5 MP video at rates up to 30 images per second.
 - 2.C.3.c. NDV-5704-A, NDV-5704-A-GOV: 8 MP video at rates up to 30 images per second.
 - 2.C.4. The fixed network camera shall deliver:
 - 2.C.4.a. NDV-5702-A, NDV-5702-A-GOV: HD 1080p video with High Dynamic Range (HDR) multi-exposure enabled, at rates up to 30 images per second
 - 2.C.4.b. NDV-5703-A, NDV-5703-A-GOV: 5 MP video with High Dynamic Range (HDR) multi-exposure enabled, at rates up to 30 images per second
 - 2.C.4.c. NDV-5704-A, NDV-5704-A-GOV: 8 MP video with High Dynamic Range (HDR) multi-exposure enabled, at rates up to 30 images per second
 - 2.C.5. The camera shall allow regions of interest to be sent in separate streams, so it is possible to view both an overview and a detail at the same time.

2.D. System Features

- 2.D.1. The fixed network camera shall be compatible with the Bosch Video Client, Video Security Client, and the Bosch Video Management System.
- 2.D.2. Pre-programmed Modes.
- 2.D.3. The fixed network camera shall offer multiple pre-programmed configurable user modes for optimized settings for key applications.
- 2.D.4. The fixed network camera shall allow users to customize these modes for the specific requirements of the camera site.

2.E. Connectors

- 2.E.1. The fixed network camera shall have one 10/100 Base-T, auto-sensing, half/full duplex, and RJ45 Ethernet connection.
- 2.E.2. This fixed network camera shall provide switchable audio inputs. This is one (1) audio mono line in (0.6 Vrms at 10 kOhm typical) and one (1) audio mono line out (1.0 Vrms at 10 kOhm typical).

2.E.3. The fixed network camera shall have a USB-C port for local commissioning via wireless USB dongle.

2.F. Audio

2.F.1. The fixed network camera shall offer audio I/O, input switchable between line level and microphone level.

2.F.2. The fixed network camera shall have wires for two-way, full duplex audio communication with audio compression AAC, G.711, L16 (live and recording).

2.G. Recording and Storage Management

2.G.1. The fixed network camera shall have a microSD card slot that uses standard, off-the-shelf microSDHC (Standard Digital High Capacity), or microSDXC (Secure Digital eXtended Capacity) cards for local storage (up to 2 TB).

2.G.2. The fixed network camera shall support Western Digital Industrial microSD cards with integrated health monitor.

2.G.3. The local storage feature shall be capable of storage for Automatic Network Replenishment (ANR).

2.G.4. The fixed network camera shall offer enhanced system flexibility with dual recording (iSCSI and microSD card) options.

2.G.5. The fixed network camera shall support iSCSI devices to allow video stream to be recorded directly to an iSCSI RAID array.

2.G.6. The fixed network camera shall support iSCSI storage targets.

2.G.7. The fixed network camera shall be compatible with the Bosch Video Recording Manager (VRM) to control and manage video recording.

2.H. Resolution Characteristics

2.H.1. The fixed network camera shall generate:

2.H.1.a. NDV-5702-A, NDV-5702-A-GOV: HD 1080p50/60 resolution using H.265 compression (ISO/IEC 14496-10).

2.H.1.b. NDV-5703-A, NDV-5703-A-GOV: 5 MP 25/30 resolution using H.265 compression (ISO/IEC 14496-10).

2.H.1.c. NDV-5704-A, NDV-5704-A-GOV: 8 MP 25/30 resolution using H.265 compression (ISO/IEC 14496-10).

2.H.2. The fixed network camera shall generate multiple simultaneous configurable:

2.H.2.a. NDV-5702-A, NDV-5702-A-GOV: HD 1080p video streams.

2.H.2.b. NDV-5703-A, NDV-5703-A-GOV: 5 MP video streams.

2.H.2.c. NDV-5704-A, NDV-5704-A-GOV: 8 MP video streams.

2.H.3. The fixed network camera shall allow simultaneous streaming of individual configurable:

- 2.H.3.a. NDV-5702-A, NDV-5702-A-GOV: HD 1080p50/60 streams.
- 2.H.3.b. NDV-5703-A, NDV-5703-A-GOV: 5 MP 25/30 streams.
- 2.H.3.c. NDV-5704-A, NDV-5704-A-GOV: 8 MP 25/30 streams.

2.I. IP Connectivity

- 2.I.1. The fixed network camera shall support iSCSI devices to allow the network-enabled camera to stream video directly to an iSCSI RAID array.
- 2.I.2. The fixed network camera shall conform to the ONVIF Profile S, G, T, and M standard.
- 2.I.3. The fixed network camera shall offer Quality of Service (QoS) configuration options.
- 2.I.4. The fixed network camera shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.

2.J. Electric Image Stabilization

- 2.J.1. The camera shall be equipped with built-in Gyro sensor.
- 2.J.2. The camera shall base on the gyrosensor to stabilize the image.

2.K. Intelligent Video Analytics Pro (IVA Pro)

- 2.K.1. The fixed network camera shall offer embedded deep learning-based detection, and video analytics (IVA Pro: Buildings) that eliminate dedicated PCs and associated software maintenance.
- 2.K.2. The fixed network camera shall offer embedded IVA Pro Buildings for reliable deep learning-based detection and support IVA Pro Perimeter and IVA Pro Traffic with license option.
- 2.K.3. The fixed network camera shall offer IVA Pro Buildings with the following functionality:
 - 2.K.3.a. Triggers: any object, object in field, line crossing, enter field, leave field, loitering, follow route, objects stopping or starting to move, removed object, counting, occupancy, condition change, similarity search
 - 2.K.3.b. Filters: duration, size, aspect ratio, direction, color, object classes
 - 2.K.3.c. Object classes: Persons, Vehicles
 - 2.K.3.d. Tamper detection: Global change, Scene too bright, Scene too dark, Reference check
 - 2.K.3.e. Support other analytics (license option): IVA Perimeter, IVA Traffic
- 2.K.4. The fixed network camera shall support people counting.
- 2.K.5. The fixed network camera shall offer advanced Intelligent Video Analytics Pro (IVA Pro) with automated calibration by use of an integrated gyro-sensor so only camera height needs to be set for a full calibration.

2.L. Access Security

- 2.L.1. The fixed network camera shall offer three levels of password protection.
- 2.L.2. The fixed network camera shall support 802.1x authentication using a RADIUS (Remote Authentication Dial In User Service) server.
- 2.L.3. The fixed network camera shall store a SSL certificate for use with HTTPS.

- 2.L.4. The fixed network camera shall be capable of being independently AES encrypted with 256-bit keys.
- 2.L.5. The fixed network camera shall support RSA encryption key lengths of up to 4096 bits.

2.M. Installation Requirements

- 2.M.1. The fixed network camera shall provide motorized zoom / focus for local (re-)commissioning.
- 2.M.2. The fixed network camera shall support power input of PoE IEEE 802.3af Type 1, Class 3, PoE IEEE 802.3at Type 1, Class 3.
- 2.M.3. The fixed network camera shall be able to be direct surface mounted to a wall or ceiling.
- 2.M.4. The fixed network camera shall be capable of operating in an indoor environment.
- 2.M.5. The fixed network camera shall:
 - 2.M.5.a. Offer IP54 environmental protection.
 - 2.M.5.b. Offer IK10 impact resistance housing and bubble.
 - 2.M.5.c. Support a temperature range of -20 °C to +50 °C (-4 °F to +122 °F) for continuous operation.
- 2.M.6. The fixed network camera housing shall have an integrated paintable cover shell.
- 2.M.7. The fixed network camera shall directly integrate into mounting accessories.
- 2.M.8. The fixed network camera shall provide a multi-language on-screen display.

2.3 ACCESSORIES

3.A. Bubbles

3.A.1.	NDA-5070-CBL	Bubble, clear for FLEXIDOME 5100i
3.A.2.	NDA-5070-TBL	Bubble, tinted for FLEXIDOME 5100i

3.B. Mounts & accessories

3.B.1.	NDA-5070-IC	In-ceiling mount kit
3.B.2.	NDA-5070-PLEN	In-ceiling plenum kit, 148mm
3.B.3.	NDA-5070-LWMT	L shape wall mount for FLEXIDOME 5100i
3.B.4.	NDA-5080-PIP	Pendant interface plate, 148mm
3.B.5.	NDA-5070-PC	Paintable cover, FLEXIDOME 5100i, 4pcs
3.B.6.	NDA-U-CBB	Conduit back box, 148mm
3.B.7.	NDA-U-CMT	Corner mount adapter
3.B.8.	NDA-U-PMAS	Pole mount adapter small
3.B.9.	NDA-U-PMAL	Pole mount adapter large
3.B.10.	NDA-U-PSMB	Pendant wall/ceiling mount SMB
3.B.11.	NDA-U-WMT	Pendant wall mount
3.B.12.	NDA-U-WMTG	Pendant wall mount, gang box
3.B.13.	NDA-U-PMT	Pendant pipe mount, 12" (31cm)
3.B.14.	NDA-U-PMTE	Pendant pipe extension, 20" (50cm)
3.B.15.	NDA-U-PMTG	Pendant pipe mount, gang box
3.B.16.	NDA-U-PMTS	Pendant pipe mount, 4" (11 cm)
3.B.17.	NPD-3001-WAP	Portable installation tool
3.B.18.	NPD-5001-POE	Midspan, 15W, single port, AC in
3.B.19.	NPD-5004-POE	Midspan, 4 port x 15W, AC in
3.B.20.	MNT-ICP-FDC	Drop ceiling support kit for FLEXIDOME
3.B.21.	MSD-064G	IP SECURITY MICROSD CARD 64GB
3.B.22.	MSD-128G	IP SECURITY MICROSD CARD 128GB
3.B.23.	MSD-256G	IP SECURITY MICROSD CARD 256GB
3.B.24.	NCA-WLAN-EU	Wireless installation dongle EU
3.B.25.	NCA-WLAN-NA	Wireless installation dongle NA

3.C. Software options

3.C.1.	MVC-IVA-PER	IVA Pro Perimeter
3.C.2.	MVC-IVA-TRA	IVA Pro Traffic

PART 3 – EXECUTION

3.1 EXAMINATION

- 1.A. Examine areas to receive devices and notify adverse conditions affecting installation or subsequent operation.
- 1.B. Do not begin installation until unacceptable conditions are corrected.

3.2 PREPARATION

- 2.A. Protect devices from damage during construction.

3.3 INSTALLATION

- 3.A. Install devices in accordance with manufacturer's instruction at locations indicated on the floor drawings plans.
- 3.B. Perform installation with qualified service personnel.
- 3.C. Install devices in accordance with the National Electrical Code or applicable local codes.
- 3.D. Ensure selected location is secure and offers protection from accidental damage.
- 3.E. Location must provide reasonable temperature and humidity conditions, free from sources of electrical and electromagnetic interference.

3.4 FIELD QUALITY CONTROL

- 4.A. Test snugness of mounting screws of all installed equipment.
- 4.B. Test proper operation of all video system devices.
- 4.C. Determine and report all problems to the manufacturer's customer service department.

3.5 ADJUSTING

- 5.A. Make proper adjustment to video system devices for correct operation in accordance with manufacturer's instructions.
- 5.B. Make any adjustment of camera settings to comply with specific customer's need.

3.6 DEMONSTRATION

6.A. Demonstrate at final inspection that video management system and devices functions properly.

END OF SECTION

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