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**Product Guide Specification**

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, based on *MasterFormat 2004* and *The Project Resource Manual—CSI Manual of Practice. The Manufacturer is responsible for technical accuracy.*

The section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the project and local building code. Words and sentences within brackets [ ] are choices to include or exclude a particular item or statement. Coordinate this section with other specification sections and the Drawings. Delete all “Specifier Notes” after editing this section.

**SECTION 28 23 29**

**VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS**

**Bosch DINION IP thermal 8000**

1. **– GENERAL**
	1. SUMMARY
		1. Section Includes
			1. Video Surveillance Remote Devices.
		2. Related Sections
			1. Section [28 23 13 – Video Surveillance Control and Management Systems].
			2. Section [28 23 16 – Video Surveillance Monitoring and Supervisory Interfaces].
			3. Section [28 23 19 – Digital Video Recorders and Analog Recording Devices].
			4. Section [28 23 23 – Video Surveillance Systems Infrastructure].

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

* 1. REFERENCES

| **Standards** | **Type** |
| --- | --- |
| Emission  | EN 55032: 2012 /AC: 2013 class BEN 55022: 2010 /AC: 2011FCC: 47 CFR Part 15 B, class BRCM: AS/NZS CISPR 22: 2009 /A1: 2010VCCI: V2 & V3 /2015.04 |
| Immunity  | EN 50130-4: 2011 /A1: 2014EN 50121-4: 2006 /AC: 2008EN 55024: 2010 /A1: 2015 |
| Environmental  | EN 50130-5:2011 Class IV |
| Safety | EN 60950-1: 2006 /A11: 2009 /A1: 2010 / A12: 2011 /A2: 2013EN 60950-22: 2006 /A11: 2008UL 60950-1, Ed. 2, October 14, 2014CAN/CSA C22.2 No. 60950-1-07, Ed. 2, October 2014 |
| Marks | cUL, CE, WEEE, RCM, EAC, VCCI, FCC, RoHS |
| Interoperability | ONVIF Profile S;GB/T 28181 |
| Ingress protection | IP66, NEMA-4X |
| Enclosure protection | Wind load 150 mphNEMA TS2 vibration, shakeIK10 except window |

\* Chapters 7 and 8 (mains voltage supply requirement) are not applicable to the camera. However, if the system in which this camera is used needs to comply with this standard, then any power supplies used must comply with this standard.

* 1. SYSTEM DESCRIPTION
		1. Video Surveillance Remote Devices
			1. DINION IP thermal 8000
		2. Performance Requirements
			1. Image sensor: Un-cooled vanadium oxide microbolometer
			2. Picture elements: 320(H) x 240(V) or 640(H) x 480(V)
			3. Pixel pitch: 17 μm
			4. Thermal sensitivity: < 50 mK
			5. Intelligent video analytics algorithm that is optimized for thermal imaging
			6. Detection range is up to 5850 m (19193 ft.)
			7. Local storage with SD card
			8. ONVIF conformant
	2. SUBMITTALS
		1. Submit under provisions of Section [01 33 00].
		2. Product Data:
			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.
		3. Shop Drawings; include
			1. System device locations on architectural floor plans.
			2. Full Schematic of system, including wiring information for all devices.
		4. Closeout Submittals
			1. User manual.
			2. Parts list.
			3. System device locations on architectural floor plans.
			4. Wiring and connection diagram.
			5. Maintenance requirements.
	3. QUALITY ASSURANCE
		1. Manufacturer:
			1. Minimum of [10] years experience in manufacture and design Video Surveillance Devices.
			2. Manufacturer’s quality system: Registered to ISO 9001 Quality Standard.
		2. Video Surveillance System
			1. Listed by [UL] [EN] [FCC] specifically for the required loads. Provide evidence of compliance upon request.
		3. Installer:
			1. Minimum of [5] years experience installing Video Surveillance Systems.
	4. DELIVERY, STORAGE AND HANDLING
		1. Comply with requirements of Section [01 60 00].
		2. Deliver materials in manufacture’s original, unopened, undamaged containers; and unharmed original identification labels.
		3. Protect store materials from environmental and temperature conditions following manufacturer’s instructions.
		4. Handle and operate products and systems according to manufacturer’s instructions.
		5. Bosch provides off-the-shelf availability for our top selling products and same-day or 24-hour shipping.
	5. WARRANTY
		1. Provide manufacturer’s warranty covering [3] years for replacement and repair of defective equipment.
	6. MAINTENANCE
		1. Make ordering of new equipment for expansions, replacements, and spare parts available to dealers and end users.
		2. Provide factory direct technical support from 8:00 a.m. to 8:00 p.m. via phone and e-mail.
1. **– PRODUCTS**
	1. MANUFACTURERS
		1. Acceptable Manufacturer:

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* + 1. Substitutions: [Not permitted.] [Under provisions of Division 1.]
			1. [All proposed substitutions must be approved by the Architect or Engineer professional.]
			2. [Proposed substitutions must provide a line-by-line compliance documentation.]

\*\*\*\*\*\*\*\*\*\*Specifier’s note: Select Camera System Series based on project requirement.

* 1. DINION IP thermal 8000

|  |  |
| --- | --- |
| NHT-8000-F07QS | DINION THERMAL , <9Hz, QVGA, 7.5mm |
| NHT-8000-F07QF | DINION THERMAL , 60Hz, QVGA, 7.5mm |
| NHT-8000-F19QS | DINION THERMAL, <9Hz, QVGA,19mm |
| NHT-8000-F19QF | DINION THERMAL, 60Hz, QVGA,19mm |
| NHT-8001-F09VS | DINION THERMAL, <9Hz, VGA,9mm |
| NHT-8001-F09VF | DINION THERMAL, 30Hz, VGA, 9mm |
| NHT-8001-F17VS | DINION THERMAL, <9Hz, VGA, 16.7mm |
| NHT-8001-F17VF | DINION THERMAL, 30Hz, VGA, 16.7mm |
| NHT-8001-F35VS | DINION THERMAL , <9Hz, VGA, 35mm |
| NHT-8001-F35VF | DINION THERMAL , 30Hz, VGA, 35mm |
| NHT-8001-F65VS | DINION THERMAL, <9Hz, VGA, 65mm |
| NHT-8001-F65VF | DINION THERMAL, 30Hz, VGA, 65mm |

* + 1. General Characteristics:
			1. The camera shall provide an un-cooled vanadium oxide microbolometer thermal sensor
			2. The camera shall provide the resolution of 320(H) x 240(V) or 640(H) x 480(V)
			3. The camera shall provide direct network connection using H.264 and JPEG compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.
			4. The camera shall provide a CVBS (PAL/NTSC), 1 Vpp, SMB, 75 Ohm analog output that allows hybrid video output.
			5. The camera shall support AutoMDIX.
			6. The camera shall conform to the ONVIF Profile S specification.
			7. The camera shall provide an intelligent video analytics algorithm that is optimized for thermal imaging.
			8. The camera shall offer MOTION+ video motion detection analysis system.
			9. The camera shall provide protection against water and dust up to IP 66 (NEMA 4X Type 4) standards.
		2. Image processing and compression
			1. The camera shall provide an un-cooled vanadium oxide microbolometer thermal sensor
			2. The camera shall have a spectral response of 8 to 14 μm.
			3. The camera shall detect temperature differences of 50 mK or less.
			4. The camera shall offer ICE mode to enhance the contract under variant environment conditions
			5. The camera shall produce a resolution of 640 x 480 pixels (VGA) at 30 fps with a 4:3 aspect ratio. Or The camera shall produce a resolution of 320x 240 pixels (QVGA) at 60 fps with a 4:3 aspect ratio.
		3. Range Performance

Please visit the on-line tool page for range calculation.

http://www.boschsecurity.com/LensCalculator/html/lens-calculator.html

* + 1. Network Video
			1. The camera shall provide direct network connection.
			2. The camera shall allow full camera control and configuration capabilities over the network.
			3. The camera shall be capable of capturing and storing images using the following compression standards:
				1. H.264 MP (Main Profile)
				2. M-JPEG
			4. The camera shall deliver video over a 10/100 Base-T, auto-sensing, half/full duplex, RJ45 Ethernet connection.
			5. The camera shall comply with the IEEE 802.3af Power over Ethernet standard.
			6. The camera shall conform to the ONVIF Profile S standard.
		2. Image Posting
1. The camera shall offer periodic JPEG image posting to an FTP server or a Dropbox account.
2. The camera shall offer best face detection and JPEG best face image posting to an FTP server or to a Dropbox account.
	* 1. Access Security
			1. The camera shall offer three levels of password protection.
			2. The camera shall support 802.1x authentication using a RADIUS (Remote Authentication Dial In User Service) server.
			3. The camera shall store an SSL certificate for use with HTTPS.
		2. Recording and Storage Management
			1. The camera shall support iSCSI devices to allow video stream to be recorded directly to an iSCSI RAID array.
			2. The camera shall support iSCSI storage targets to enable the camera to function as a conventional DVR.
			3. The camera shall have an SD card slot that uses standard, off-the-shelf SD cards for local storage (up to 2 TB).
			4. The local storage feature shall be capable of storage for Automatic Network Replenishment (ANR).
			5. Local Recording: Continuous recording, ring recording, alarm/events/schedule recording.
		3. Installation Requirements
			1. The thermal IP camera shall be housed in a robust outdoor housing.
			2. The thermal IP camera housing shall offer an integrated window heater.
			3. The thermal IP camera shall be remotely upgradable.
		4. Alarm Handling Features:
			1. The camera shall provide the capability on alarm to display up to a 31 character, programmable alarm message.
			2. The camera shall provide email alarm messaging with optional JPEG posting.
		5. Input / Output
			1. Video: CVBS (NTSC), 1 Vpp, SMB, 75 Ohm (surge protected)
			2. Audio: 3.5 mm stereo jack (x2)
				1. Line in: 12 kOhm typical, 1 Vrms max
				2. Line out: 1 Vrms at 1.5 kOhm typical
			3. Alarm input: Clamp

Input activation voltage: +5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)

* + - 1. Alarm output: Clamp

Output voltage: 30 VAC or +40 VDC, maximum 0.5 A continuous, 10VA

* + - 1. Data port: Clamp, RS-232/422/485
		1. Embedded Video Content Analysis
			1. The camera shall be capable of processing and analyzing video within the camera itself, with no extra hardware required
			2. The camera shall be capable of detecting and tracking moving objects
			3. The camera shall be capable of separating moving people in scenes where no other moving objects occur
			4. The camera shall be able to detect the following object properties and states of tracked objects:
				1. Object class (upright person, bike, car, truck)
				2. Object size
				3. Object aspect ratio
				4. Object speed
				5. Object motion direction
			5. The camera shall be able to detect the following object events:
				1. Object entering a user defined field
				2. Object within a user defined field
				3. Object leaving a user defined field
				4. Object crossing a user defined line
				5. Object crossing up to tree user defined lines in order
				6. Object following a route
				7. Object loitering
				8. Object condition change based on size, speed, aspect ratio or direction of the object
				9. Number of moving objects in a user defined field above user defined threshold
			6. The camera shall be capable of counting moving objects that are currently within a user defined area
			7. The camera shall be capable of counting objects that are moving in a user defined direction
			8. The camera shall be able to combine object events and states for user defined events
			9. The camera shall be capable of detecting and sending alarms for user defined events
			10. The camera shall incorporate an Alarm Rule Engine, enabling video analytics events prompting the camera to take one or more actions such as:
				1. Trigger a relay connected to an alarm siren and/or strobe
				2. Send an e-mail with a snapshot of the video analytics event
				3. Trigger a visual alert to be displayed on the operator’s screen
		2. Electrical
			1. The camera shall accept 24VAC (SELV) ±10% 50/60 Hz.
			2. The camera shall consume maximum 34 watt.
		3. Surveillance Software
			1. The camera shall be accessible from a web browser, with the Bosch Video Management System, with the free-of-charge Bosch Video Client or Video Security Client, or via third-party software.
			2. The camera shall be accessible from the Bosch Security System mobile app.
		4. Mechanical:
			1. Weight: <3.5 kg (7.72 lb)
			2. Dimensions (H x W x L): 141 x 164 x 430 mm (5.6 x 6.5 x 16.9 in.) including sunshield
			3. Construction: Aluminum casing, silicone gaskets
			4. Color: RAL 9003 White
			5. Window: Germanium glass (Ø52 x 3 mm)
		5. Software Control
			1. Unit Configuration: Via Web browser or Bosch Video Client
			2. Software Update: Flash ROM, remote programmable
		6. Network
			1. Protocols: IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/ RTCP, IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, Telnet, ARP, DHCP, APIPA (Auto-IP, link local address), NTP (SNTP), SNMP (V1, MIBII), 802.1x, DNS, DNSv6, DDNS (DynDNS.org, selfHOST.de, no-ip.com), SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDP, SOAP, Dropbox, CHAP, digest authentication
			2. Encryption: TLS 1.2, SSL, DES, 3DES
			3. Ethernet: 10/100 Base-T, auto-sensing, half/full duplex, , Auto-MDIX, RJ45
			4. Interoperability: ONVIF Profile S; GB/T 28181
		7. Environmental
			1. The camera shall operate in -40°C to +55°C (-40°F to +131°F) temperature range; Cold start temperature: -35°C (-49°F)
			2. The camera shall be stored in -55°C to +70°C (-67°F to +158°F) temperature range
			3. The camera shall provide ingress protection based on IP66 and NEMA-4X standard
			4. The camera passed wind load testing at wind speed 150mph.
			5. The camera passed NEMA TS2 vibration and shake test.
			6. Enclosure protection: IK10 (Excluding window).
	1. ACCESSORIES
		1. Mounts
			1. NHA-U-WMT: Wall mount bracket, cable feed-through
			2. NDA-U-PMAL: Pole mount adaptor large
			3. NDA-U-PMAS: Pole mount adaptor small
			4. NDA-U-CMT: Corner mount Corner mount adapter
		2. Monitor cables
			1. NBN-MCSMB-03M Monitor/DVR Cable SMB 0.3M
			2. NBN-MCSMB-30M Monitor/DVR Cable SMB 3.0M
1. **– EXECUTION**
	1. EXAMINATION
		1. Examine areas to receive devices and notify adverse conditions affecting installation or subsequent operation.
		2. Do not begin installation until unacceptable conditions are corrected.
	2. PREPARATION
		1. Protect devices from damage during construction.
	3. INSTALLATION
		1. Install devices in accordance with manufacturer’s instruction at locations indicated on the floor drawings plans.
		2. Ensure selected location is secure and offers protection from accidental damage.
		3. Location must provide reasonable temperature and humidity conditions, free from sources of electrical and electromagnetic interference.
	4. FIELD QUALITY CONTROL
		1. Test snugness of mounting screws of all installed equipment.
		2. Test proper operation of all video system devices.
		3. Determine and report all problems to the manufacturer’s customer service department.
	5. ADJUSTING
		1. Make proper adjustment to video system devices for correct operation in accordance with manufacturer’s instructions.
		2. Make any adjustment of camera settings to comply with specific customer’s need.
	6. DEMONSTRATION
		1. Demonstrate at final inspection that video management system and devices function properly.

END OF SECTION