DINION IP dynamic 7000 HD

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Invented for life

- High Dynamic Range to see details in bright and dark areas simultaneously (106 dB with IAE)
- Built-in Intelligent Video Analytics to trigger relevant alerts and quickly retrieve data
- Intelligent Dynamic Noise Reduction reduces bandwidth and storage requirements by up to 50%
- Auto back focus for fast installation
- Content-based scene analysis optimizes the image processing

The DINION IP dynamic 7000 HD camera is a 1080p30 progressive scan CMOS camera that uses Bosch-designed digital imaging technology to achieve a very high dynamic range.
The camera uses an internal feedback system based on the intelligent analysis of the scene, to re-tune the video processing. This provides better detail in the areas that matter and better all-round performance, day or night. Features such as multicasting, internet streaming and iSCSI recording are fully supported.

System overview

High Dynamic Range
The High Dynamic Range (HDR) of the camera means that you can view details in the bright and the dark areas of a scene at the same time. HDR is based on a dual exposure process that captures more details in highlights and shadows even under challenging lighting conditions. The result is that you can distinguish objects and features easily.

Hybrid operation
A surge-protected analog video output allows full hybrid operation. This means that high resolution IP video streaming and an analog video output are available simultaneously. The hybrid functionality offers an easy migration path from legacy CCTV to a modern IP-based system.

Functions

Content Based Imaging Technology
Content Based Imaging Technology (CBIT) is used to radically improve image quality in all lighting conditions and to identify areas for enhanced processing. The camera examines the scene using Intelligent Video Analytics and provides feedback to re-tune the image processing. This provides better detail in the areas that matter and better all-round performance. With IVA, the Intelligent Auto Exposure technology, for example, allows you to view moving objects in bright and dark areas of a scene.

Intelligent Dynamic Noise Reduction reduces bandwidth and storage requirements
The camera uses Intelligent Dynamic Noise Reduction which actively analyzes the contents of a scene and reduces noise artifacts accordingly.
The low-noise image and the efficient H.264 compression technology provide clear images while reducing bandwidth and storage by up to 50% compared to other H.264 cameras. This results in reduced-bandwidth streams that still retain a high

image quality and smooth motion. The camera provides the most usable image possible by cleverly optimizing the detail-to-bandwidth ratio.

Area-based encoding
Area-based encoding is another feature which reduces bandwidth. Compression parameters for up to eight user-definable regions can be set. This allows uninteresting regions to be highly compressed, leaving more bandwidth for important parts of the scene.
The average typical optimized bandwidth in kbits/s for various image rates is shown in the table:

IPS	1080p	720p	480p
30	1600	1200	600
15	1274	955	478
12	1169	877	438
5	757	568	284
2	326	245	122

Multiple streams
The innovative multi-streaming feature delivers various H.264 streams together with an M-JPEG stream. These streams facilitate bandwidth-efficient viewing and recording as well as integration with third-party video management systems.
An upright mode can be selected for the second stream. In this mode an image of 400 x 720 (9:16 aspect ratio) is cropped from the full sensor image. When the scene to be monitored is suitable to this mode, the bandwidth and storage requirements are reduced.

Regions of interest and E-PTZ
Regions of Interest (ROI) can be user defined. The remote E-PTZ (Electronic Pan, Tilt and Zoom) controls allow you to select specific areas of the parent image. These regions produce separate streams for remote viewing and recording. These streams, together with the main stream, allow the operator to separately monitor the most interesting part of a scene while still retaining situational awareness.
Intelligent Tracking can follow objects within the defined regions of interest. Intelligent Tracking can autonomously detect and track moving objects or the user can click on an object which the tracker will then follow.

Scene modes
The camera has a very intuitive user interface that allows fast and easy configuration. Nine configurable modes are provided with the best settings for a variety of applications. Different scene modes can be selected for day or night situations.

- **Indoor** – general day-to-night changes in an indoor environment without sun highlights or street lighting effects.
- **Outdoor** – general day-to-night changes in an outdoor environment with sun highlights and street lighting effects.
- **Traffic** – for monitoring traffic movement on roads or parking lots. It can also be used in industrial applications where fast moving objects are to be monitored. Motion artifacts are minimized.
- **Night-optimized** – optimized for details in low light environments.
- **Intelligent AE** – optimized for scenes with fluctuating front and back light caused by sunlight or other illuminated objects in the scene.
- **Vibrant** – enhanced contrast, sharpness and saturation.
- **Low bit rate** – reduces bandwidth requirements.
- **Sports and gaming** – high-speed capture, and improved color rendition and sharpness.
- **Retail** – improved color rendition and sharpness with reduced bandwidth requirements.

Storage management
Recording management can be controlled by the Bosch Video Recording Manager (VRM) or the camera can use iSCSI targets directly without any recording software.

Edge recording
The MicroSD card slot supports up to 2 TB of storage capacity. A microSD card can be used for local alarm recording. Pre-alarm recording in RAM reduces recording bandwidth on the network, or — if microSD card recording is used — extends the effective life of the storage medium.

Video analytics
With built-in video content analysis, the camera reinforces the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. The MOTION+ video motion analysis system that is built into all camera versions is the perfect solution for applications where standard video content analysis features are required.
The IVA version of the camera uses the latest generation of the Bosch Intelligent Video Analysis (IVA) software. This IVA system is the guard-assistant system of choice when reliable indoor or outdoor video analytics is needed. The state-of-the-art system reliably detects, tracks, and analyzes moving objects while suppressing unwanted alarms from spurious sources in the image.
The face detection feature detects faces in the scene and forwards a high quality JPEG image of the best shot of each face when the face disappears from the scene.
Retrospective forensic search capabilities are available remotely from the web browser or the Bosch Video Client.

Cloud-based services
The camera supports time-based or alarm-based JPEG posting to four different accounts. These accounts can address FTP servers or cloud-based storage facilities (for example, Dropbox). Video clips or JPEG images can also be exported to these accounts.
Alarms can be set up to trigger an e-mail or SMS notification so you are always aware of abnormal events.

Access security
Password protection with three levels and 802.1x authentication is supported. To secure Web browser access, use HTTPS with a SSL certificate stored in the camera.

Complete viewing software
There are many ways to access the camera's features: using a web browser, with the Bosch Video Management System, with the free-of-charge Bosch Video Client, with the video security mobile app, or via third-party software.

Video security app
The Bosch video security mobile app has been developed to enable Anywhere access to HD surveillance images allowing you to view live images from any location. The app is designed to give you complete control of all your cameras, from panning and tilting to zoom and focus functions. It's like taking your control room with you.
This app, together with the separately available Bosch transcoder, will allow you to fully utilize our dynamic transcoding features so you can play back images even over low-bandwidth connections.

System integration
The camera conforms to the ONVIF Profile S, ONVIF Profile Q and ONVIF Profile G specifications. Compliance with these standards guarantees interoperability between network video products regardless of manufacturer.
Third-party integrators can easily access the internal feature set of the camera for integration into large projects. Visit the Bosch Integration Partner Program (IPP) website (ipp.boschsecurity.com) for more information.

True day/night switching
The camera incorporates mechanical filter technology for vivid daytime color and exceptional night-time imaging while maintaining sharp focus under all lighting conditions.

Easy installation
Power for the camera can be supplied via a Power-over-Ethernet compliant network cable connection. With this configuration, only a single cable connection is required to view, power, and control the camera. Using PoE makes installation easier and more cost-effective, as cameras do not require a local power source.

The camera can also be supplied with power from +12 VDC/24 VAC power supplies. To increase system reliability, the camera can be simultaneously connected to both PoE and +12 VDC/24 VAC supplies. Additionally, uninterruptible power supplies (UPS) can be used, which will allow continuous operation, even during a power failure.
The auto-focus lens wizard makes it easy for an installer to accurately focus the camera for both day and night operation. The wizard is activated from the web browser or from the on-board camera push button making it easy to choose the workflow that suits best. The automatic motorized back focus adjustment with 1:1 pixel mapping ensures the camera is always focused accurately.

Typical applications
- Tunnels – viewing details in bright and dark areas
- Entrances and exits – identification with strong backlight
- Traffic – capturing moving vehicles at night

Certifications and approvals

HD standards
Complies with the SMPTE 274M-2008 Standard in:
- Resolution: 1920x1080
- Scan: Progressive
- Color representation: complies with ITU-R BT.709
- Aspect ratio: 16:9
- Frame rate: 25 and 30 frames/s

Complies with the SMPTE 296M-2001 Standard in:
- Resolution: 1280x720
- Scan: Progressive
- Color representation: complies with ITU-R BT.709
- Aspect ratio: 16:9
- Frame rate: 25 and 30 frames/s

Standards	
Emission	EN55022 Class B FCC Part 15, class B
Immunity	EN50130-4 (PoE, +12 VDC, 24 VAC)* EN50121-4
Safety	EN60950-1 UL60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	Camera with lens as per IEC60068-2-6 (5 m/s^2, operational)
ONVIF conformance	EN 50132-5-2; IEC 62676-2-3

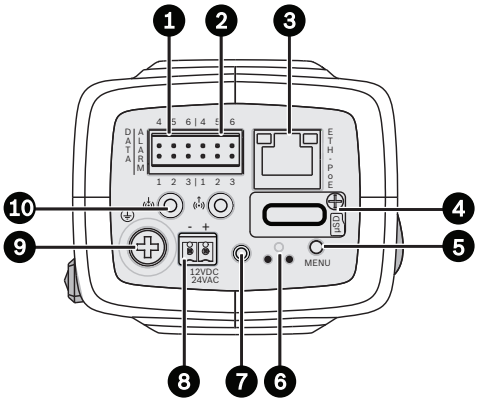
* Chapters 7 and 8 (mains voltage supply requirement) are not applicable to the camera. However, if the system in which this camera is used needs to comply with this standard, then any power supplies used must comply with this standard.

Marks	CE, cULus, WEEE, PADS, RCM, EAC and China RoHS

Region	Certification
Europe	CE
USA	UL
Canada	ULC

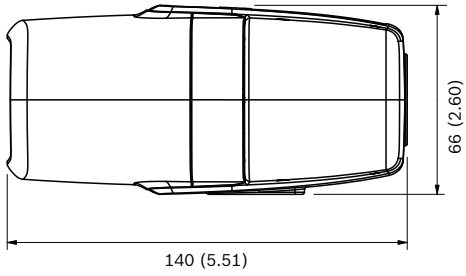
Installation/configuration notes

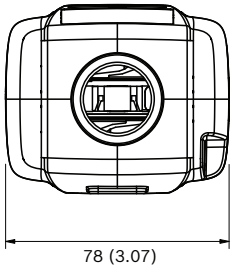
Controls



1	Data (RS485/422/232)	6	Reset button
2	Alarm in, relay out	7	Video out
3	10/100 Base-T Fast Ethernet	8	Power supply input
4	MicroSD card slot	9	Earth
5	Menu button	10	Audio in / Audio out

Dimensions





mm (in)

Parts included

Technical specifications

Power	
Power Supply	24 VAC 50/60 Hz 12 VDC Power-over-Ethernet 48 VDC nominal
Current Consumption	500 mA (12 VDC) 450 mA (24 VAC) 175 mA (PoE 48 VDC)
Power Consumption	6 W (12 VDC) 10.8 W (24 VAC) 8.4 W (PoE 48 VDC)
PoE	IEEE 802.3af (802.3at Type 1)
Sensor	
Type	1/3-inch CMOS
Pixels	2048 x 1536 (3MP)
Video performance	
Sensitivity – (3200K, reflectivity 89%, F1.2, 30IRE)	
• Color	0.25 lx (0.025 fc)
• Mono	0.08 lx (0.008 fc)
Dynamic range	90 dB High Dynamic Range (HDR) 106 dB HDR (with IAE)
Video streaming	
Video compression	H.264 (MP); M-JPEG
Streaming	Multiple configurable streams in H.264 and M-JPEG, configurable frame rate and bandwidth. Regions of Interest (ROI)
Overall IP Delay	Min. 120 ms, Max. 240 ms
GOP structure	IP, IBP, IBBP
Encoding interval	1 to 30 (25) ips
Resolutions (H x V)	
• 1080p HD	1920 x 1080
• 960p HD 4:3 (cropped)	1280 x 960
• 720p HD	1280 x 720
• Upright 9:16 (cropped)	400 x 720
• D1 4:3 (cropped)	704 x 480
• 480p SD	Encoding: 704 x 480; Displayed: 854 x 480

Video streaming	
• 432p SD	768 x 432
• 288p SD	512 x 288
• 240p SD	Encoding: 352 x 240; Displayed: 432 x 240
• 144p SD	256 x 144

Video functions	
Day/Night	Color, Mono, Auto
Adjustable picture settings	Contrast, Saturation, Brightness
White Balance	4 automatic modes, manual mode and measure
Shutter	Automatic Electronic Shutter (AES) Fixed (1/30 [1/25] to 1/15000) selectable Default shutter
High dynamic range	On/off
Backlight compensation	Off / On / Intelligent Auto Exposure
Contrast enhancement	On/off
Noise reduction	Intelligent Dynamic Noise Reduction with separate temporal and spatial adjustments
Sharpness	Sharpness enhancement level selectable
Intelligent defog	Intelligent Defog automatically adjusts parameters for best picture in foggy or misty scenes (switchable)
Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	Intelligent Video Analysis
Other functions	Image mirror, Image flip, Pixel counter, Video watermarking, Display stamping, Scene modes

Audio streaming	
Audio Streaming	Full duplex / half duplex
Signal-to-noise ratio	> 50 dB
Audio compression	AAC-LC, G.711, L16 (live and recording)

Input/output	
Analog video out	CVBS (PAL/NTSC), 1 Vpp, SMB, 75 Ohm (surge protected)
Analog video aspect ratio	4:3 letterbox, 4:3 cropped, or 16:9 mode
Audio	1 x mono line in, 1 x mono line out

Input/output	
• connector	3.5 mm stereo jack
• signal line in	12 kOhm typical, 1 Vrms max
• signal line out	1 Vrms at 1.5 kOhm typical,
Alarm	2 inputs
• connector	Clamp (non-isolated closing contact)
• activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)
Relay	1 output
• connector	Clamp
• voltage	30 VAC or +40 VDC Maximum 0.5 A continuous, 10VA
Data port	RS-232/422/485

Local storage	
Internal RAM	10 s pre-alarm recording
Memory card slot	Supports up to 32 GB SDHC / 2 TB SDXC card. (An SD card of Class 6 or higher is recommended for HD recording)
Recording	Continuous recording, ring recording. alarm/events/schedule recording

Network	
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, MIB-II), 802.1x, DNS, DNSv6, DDNS (DynDNS.org, selfHOST.de, no-ip.com), SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDP, SOAP, Dropbox, CHAP, digest authentication
Encryption	TLS 1.0, SSL, DES, 3DES
Ethernet	10/100 Base-T, auto-sensing, half/full duplex
Connectivity	ONVIF Profile S , Auto-MDIX

Software	
Unit Configuration	Via web browser or Configuration Manager
Firmware update	Remotely programmable
Software viewer	Web browser, Bosch Video Client, or third party software

Optical	
Lens mount	CS mount (C-mount with adapter ring)
Lens connector	Standard 4-pin DC-iris connector

Optical	
Lens Types	Manual and DC-Iris auto-detect with override DC-iris drive: max. 50 mA continuous
Lens Controls	Wizard from web page or camera button

Mechanical	
Dimensions (W x H x L)	78 x 66 x140 mm (3.07 x 2.6 x 5.52 inch) without lens
Weight	690 g (1.52 lb) without lens
Color	RAL 9007 Metallic Titanium
Tripod Mount	Bottom (isolated) and top 1/4-inch 20 UNC

Environmental	
Operating Temperature	-20°C to +50°C (-4°F to 122°F)
Storage Temperature	-30°C to +70°C (-22°F to +158°F)
Operating Humidity	20% to 93% RH
Storage Humidity	up to 98% RH

Ordering information

DINION IP dynamic 7000 HD
High-performance IP box camera for intelligent HD surveillance. HDR; hybrid IP/Analog; 1080p30; PoE; IDNR; IAE; ROI; day/night; H.264 quad-streaming; free viewing Apps; cloud services; audio/motion detection; IVA
Order number **NBN-71027-BA**

Accessories

Varifocal SR Megapixel Lens
Varifocal SR megapixel IR corrected lens. 1/2.5" sensor; CS-mount; 4-pin SR-iris; 5 MP; 9 to 40 mm; F1.5 to F8
Order number **LVF-5005C-S0940**

Varifocal SR Megapixel Lens
Varifocal SR megapixel lens. 1/2" sensor; C-mount; 4-pin SR-iris; 3 MP; 3.8 to 13 mm; F1.4 to F8
Order number **LVF-5003N-S3813**

Varifocal SR Megapixel Lens
Varifocal SR megapixel IR corrected lens. 1/2.5" sensor; CS-mount; 4-pin SR-iris; 5 MP; 1.8 to 3 mm; F1.8 to F8
Order number **LVF-5005C-S1803**

Varifocal SR Megapixel Lens
Varifocal SR megapixel IR corrected lens. 1/1.8” sensor; CS-mount; 4-pin SR-iris; 5MP; 4.1 to 9 mm; F1.6 to F8
Order number **LVF-5005C-S4109**

Varifocal Megapixel Lens
Varifocal megapixel IR corrected lens. 1/1.8" sensor max; C-mount; 4-pin DC-iris; 5 MP; 12 to 50 mm; F1.6 to T360
Order number **LVF-5005N-S1250**

S1374 Adapter
Adapter to convert C mount lens to CS mount camera
Order number **S1374**

UPA-2410-60 Power Supply
Power supply. 120 VAC, 60 Hz; 24 VAC, 10 VA Out
Order number **UPA-2410-60**

UPA-2430-60 Power Supply
Power supply for camera. 120 VAC, 60 Hz; 24 VAC, 30 VA Out
Order number **UPA-2430-60**

Monitor/DVR Cable SMB 0.3M
0.3 m (1 ft) analog cable, SMB (female) to BNC (female) to connect camera to coaxial cable
Order number **NBN-MCSMB-03M**

Monitor/DVR Cable SMB 3.0M
3 m (9 ft) analog cable, SMB (female) to BNC (male) to connect camera to monitor or DVR
Order number **NBN-MCSMB-30M**

VIDEOJET XTC XF Video Transcoder
High-performance video transcoder. H.264; CF card slot; ROI; max resolution 1080p; 2 channels
Order number **VJT-XTCXF**

NPD-5001-POE Midspan PoE Injector
Power-over-Ethernet midspan injector for use with PoE enabled cameras; 15.4 W, 1-port
Order number **NPD-5001-POE**

NPD-5004-POE Midspan PoE Injector
Power-over-Ethernet midspan injectors for use with PoE enabled cameras; 15.4 W, 4-ports
Order number **NPD-5004-POE**

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