

| 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) |
| Camera processing latency | <55 ms (1080p60)  |
| GOP structure             | IP, IBP, IBBP   |
| Encoding interval         | 1 to 50 [60] ips  |

| Video resolution (H x V) |  |
|--------------------------|--|
| 1080p HD                 | 1920 x 1080 (1080p version only)             |
| Upright mode 1080p       | 1080 x 1920 (1080p version only)             |
| 1.3 MP (4:3)             | 1280 x 960 (1080p version only)              |
| 720p HD                  | 1280 x 720                                   |
| Upright mode 720p        | 720 x 1280                                   |
| D1 4:3 (cropped)         | 704 x 480                                    |
| 480p SD                  | Encoding: 704 x 480;<br>Displayed: 854 x 480 |
| 432p SD                  | 768 x 432                                    |
| 288p SD                  | 512 x 288                                    |
| 240p SD                  | Encoding: 352 x 240;<br>Displayed: 432 x 240 |
| 144p SD                  | 256 x 144                                    |

| Camera installation |  |
|---------------------|--|
| Application variant | Starlight mode (default) / HDR - extended dynamic mode |
| Base frame rate     | 25/30/50/60 fps (PAL/NTSC for analog output)           |
| Mirror image        | On / Off   |
| Flip image          | On / Off   |
| Rotate              | 0° / 90° / 180° / 270°                                 |
| Camera LED          | Enable/disable   |
| Analog output       | Off, 4:3 letterbox, 4:3 crop, 16:9                     |
| Positioning         | Coordinates / Mounting height                          |
| Lens wizard         | Autofocus, remote zoom                                 |

| Video functions - color     |  |
|-----------------------------|--|
| Adjustable picture settings | Contrast, Saturation, Brightness   |
| White Balance               | 2500 to 10000K, 4 automatic modes (Basic, Standard, Sodium vapor, Dominant color), Manual mode and Hold mode |

| Video functions - ALC |   |
|-----------------------|---|
| ALC level             | Adjustable  |
| Saturation            | Adjustable from peak to average   |
| Shutter               | Automatic Electronic Shutter (AES); Fixed shutter (1/25[30] to 1/15000) selectable; Default shutter |
| Day/Night             | Auto (adjustable switch points), Color, Monochrome  |

| Video functions - enhance |   |
|---------------------------|---|
| Sharpness                 | Sharpness enhancement level selectable  |
| Backlight compensation    | On/off  |
| Contrast enhancement      | On/off  |
| Noise reduction           | Intelligent Dynamic Noise Reduction with separate temporal and spatial adjustments                        |
| Intelligent defog         | Intelligent Defog automatically adjusts parameters for best picture in foggy or misty scenes (switchable) |

| Video content analysis   |   |
|--------------------------|---|
| Analysis type            | Essential Video Analytics   |
| Configurations           | Silent VCA / Profile1/2 / Scheduled / Event triggered   |
| Alarm rules (combinable) | Any object<br>Object in field<br>Line crossing<br>Enter / leave field<br>Loitering<br>Follow route<br>Idle / removed object<br>Counting<br>Occupancy<br>Crowd density estimation<br>Condition change<br>Similarity search |

## Video content analysis

|                           |   |
|---------------------------|---|
| Object filters            | Duration<br>Size<br>Aspect ratio<br>Speed<br>Direction<br>Color<br>Object classes (4) |
| Tracking modes            | Standard (2D) tracking<br>3D tracking<br>3D people tracking<br>Museum mode            |
| Calibration / Geolocation | Automatic based on gyro / accelerometer data and camera height                        |
| Tamper detection          | Maskable  |
| Detection                 | Audio   |

## Additional functions

|                      |  |
|----------------------|--|
| Scene modes          | Nine default modes, Scheduler                  |
| Privacy Masking      | Eight independent areas, fully programmable    |
| Video authentication | Off / Watermark / MD5 / SHA-1 / SHA-256        |
| Display stamping     | Name; Logo; Time; Alarm message                |
| Pixel counter        | Selectable area                                |
| Camera rotation      | Automatic detection with manual override (90°) |

## Local storage

|                  |  |
|------------------|--|
| Internal RAM     | 60 s pre-alarm recording   |
| Memory card slot | Supports up to 32 GB microSDHC / 2 TB microSDXC card. (A memory card of Class 6 or higher is recommended for HD recording) |
| Recording        | Continuous recording, ring recording, alarm/events/schedule recording  |

## Input/output

|                                |   |
|--------------------------------|---|
| Analog video out               | CVBS (PAL/NTSC), 1 Vpp, SMB, 75 Ohm (surge protected)                 |
| Audio connectors               | 3.5 mm stereo jack (x2)   |
| Audio line in                  | 12 kOhm typical, 1 Vrms max   |
| Audio line out                 | 1 Vrms at 1.5 kOhm typical,   |
| Alarm input connectors         | Clamp (x2 non-isolated closing contact)                               |
| Alarm input activation voltage | +5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor) |
| Alarm output connector         | Clamp   |

## Input/output

|                      |   |
|----------------------|---|
| Alarm output voltage | 30 VAC or +40 VDC<br>Maximum 0.5 A continuous, 10VA |
| Ethernet             | RJ45  |
| Data port            | RS-232/422/485                                      |

## Audio streaming

|                       |   |
|-----------------------|---|
| Standard              | G.711, 8 kHz sampling rate<br>L16, 16 kHz sampling rate<br>AAC-LC, 48 kbps at 16 kHz sampling rate<br>AAC-LC, 80 kbps at 16 kHz sampling rate |
| Signal-to-Noise Ratio | >50 dB  |
| Audio Streaming       | Full-duplex / half duplex   |

## Software

|                              |   |
|------------------------------|---|
| Unit discovery               | IP Helper   |
| Unit configuration           | Via web browser or Configuration Manager  |
| Firmware update              | Remotely programmable   |
| Software viewing             | Web browser;<br>Video Security Client;<br>Video Security App;<br>Bosch Video Management System;<br>Bosch Video Client;<br>or third party software |
| Latest firmware and software | <a href="http://downloadstore.boschsecurity.com/">http://downloadstore.boschsecurity.com/</a>   |

## 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 1.2, SSL, DES, 3DES  |
| Ethernet         | 10/100 Base-T, auto-sensing, half/full duplex  |
| Connectivity     | Auto-MDIX  |
| Interoperability | ONVIF Profile S;<br>GB/T 28181   |

## 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<br>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 x 140 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 +55°C (-4°F to 131°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   |

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