

# AUTODOME 7000 IP

[www.boschsecurity.com](http://www.boschsecurity.com)**BOSCH**

Invented for life

**ONVIF**

- ▶ Day/night IP camera with 28x or 36x optical zoom (12x digital zoom), Wide Dynamic Range (WDR), and Sodium Vapor White Balance mode that restores objects to their original color
- ▶ New Intelligent Tracking and alarm rules engine with on-board Intelligent Video Analytics (IVA)
- ▶ Enhanced system flexibility with dual recording options (iSCSI, SD card)
- ▶ Fully configurable quad streaming with individually configurable SD streams, based on Bosch's new Common Product Platform (CPP4)
- ▶ Easy and intuitive installation with multiple pre-configured user modes that allow users to select the camera configuration that is ideal for their applications

The AUTODOME 7000 IP is an easy to install, high-speed PTZ dome camera, in a field-proven housing suitable for indoor or outdoor installation, that delivers unmatched picture quality and network performance day and night.

The camera provides complete network-based control of all dome functionality including pan/tilt/zoom operation, presets, tours and alarms as well as web-based configuration of all dome settings. It also provides direct network video streaming using H.264 compression / bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.

## Functions

### High-performance PTZ day/night camera

The camera has a 1/4-in. CCD sensor, with 4CIF/D1 resolution and sensitivity to below 1.0 lux, and is available with a choice of 28x and the industry-leading 36x optical zoom lens. Both camera options have a full 12x digital zoom and provide D1 horizontal resolution

for outstanding clarity and image detail. The camera also incorporates Wide Dynamic Range (WDR) technology that allows for the capture of clear images from both bright and dark areas in the same frame. WDR ensures that bright areas are not saturated and that dark areas are not too dark.

Day/night capabilities and outstanding sensitivity make the camera an exceptional performer in all lighting conditions. In low light, the camera switches automatically from color to monochrome by removing the IR filter to boost the infrared illumination sensitivity, while maintaining superior image quality. For operation in the darkest conditions, the SensUp control feature automatically reduces the shutter speed to as little as one second. This increases sensitivity by more than 50 times.

### Progressive scan

The camera is ideally suited for IP imaging applications. The progressive scan technology in the camera provides smooth and clear images when viewing images from the camera.

### **Sodium vapor lamp white balance**

The camera is an exceptional performer when capturing video under a sodium vapor lamp (a street lamp or tunnel lamp, for example). Images under these conditions may have a yellowish tint, which may make identification difficult. In the Sodium Vapor White Balance mode, the camera automatically compensates for the light from a sodium vapor lamp to restore objects to their original color.

### **Virtual masking**

The camera offers Virtual Masking, which gives users flexibility to mask parts of the scene which should not be considered for flow analysis to trigger Intelligent Tracking. This allows users to mask background motion in the scene such as moving trees, pulsating lights, busy roads, etc.

### **Intelligent Tracking**

The camera utilizes the built-in Intelligent Video Analytics (IVA) to follow an individual or an object continuously. Objects detected by IVA when the camera is in a stationary position activate the Intelligent Tracking feature, which controls the pan/tilt/zoom actions of the camera to keep the tracked object in the scene.

The new Intelligent Tracking is based on robust flow detection algorithms which can reliably track moving objects even under challenging scenes.

The tracking and detection reliability can be enhanced further with virtual masking for scenes with a lot of background motion such as trees or other objects creating constant motion in the scene.

The camera supports three modes for Intelligent Tracking:

**Auto mode:** When configured in this mode, the camera actively analyzes the video to detect any moving object. If it detects movement, it begins to track the object. This mode is most useful for scenarios where normally no motion is expected.

**One Click mode:** In this mode, users can click an object moving in the live video image to enable the camera to track the movement of the selected object. This mode is most useful for scenarios where normal scene activity is expected.

**IVA-triggered mode:** In this mode, the camera continuously analyzes the scene for IVA alarms or IVA rule violations. If an IVA rule is violated, it triggers the advanced tracking feature of the camera to start following the object / person that triggered the alarm. This unique combination of robust IVA and Intelligent Tracking allows the camera to track moving objects of interest without getting distracted by other moving objects in the scene.

### **Intelligence**

With built-in video content analysis, the AUTODOME reinforces the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent.

The AUTODOME comes with Bosch's Intelligent Video Analysis (IVA) built-in. IVA is state-of-the-art intelligent video analysis that reliably detects, and analyzes moving objects while suppressing unwanted alarms from spurious sources in the image.

The IVA functionality built into the AUTODOME is able to detect idle and removed objects as well as loitering, multiple line crossing, and trajectories. IVA also supports BEV (Bird's Eye View) People counting. Assisted Self Calibration and configurable detection filters improve reliability and reduce operator work load.

### **AUTODOME 7000 PTZ drive and mechanism**

The AUTODOME 7000 supports 256 pre-positions and two styles of Guard Tours: Preset and Record/Playback. Users can configure the preset standard tour with as many as 256 sequential pre-positions, with a configurable dwell time between pre-positions. The AUTODOME Series also provides support for two recorded tours, which are recorded macros of an operator's movements, including pan, tilt, and zoom activities, and can be played back with the click of a button.

Pan and tilt preset repeatability are accurate to within  $\pm 0.1$  degrees to ensure that the correct scene is captured every time. The camera delivers variable pan/tilt speeds from a crawl speed of only 0.1 degrees per second to a full 400 degrees per second. The camera is capable of pan speeds of 400 degrees per second and tilt speeds of 300 degrees per second between prepositions. The camera provides a tilt angle 18 degrees above the horizon, and a pan range of up to 360 degrees continuous rotation.

The AutoScaling (proportional zoom) and AutoPivot (automatically rotates and flips the camera) features ensure optimal control.

### **Five (5) pre-programmed user modes**

Five pre-programmed but configurable user modes, optimized with the best settings for a variety of typical applications, make camera programming on-site easy and user-friendly. Users select from the menu the mode that best defines the environment in which the camera is installed:

- Outdoor – general day-to-night changes with sun highlights and street lighting
- Indoor – general day-to-night changes without sun highlights and street lighting
- Low light – optimized for sufficient details at low light
- Motion – monitoring traffic or fast moving objects; motion artifacts are minimized
- Vibrant – enhanced contrast color reproduction and sharpness

Users have the ability to customize these modes, if necessary, for the specific requirements of the site.

**Superior privacy masking**

The camera provides 24 individual, easy to configure privacy masks, with up to 8 displayed in the same scene. As the camera is zoomed, each mask changes size smoothly and quickly, ensuring that the covered object cannot be seen in most cases.

**Comprehensive streaming capabilities on Bosch's Common Product Platform (CPP4)**

The camera has an advanced, efficient H.264 encoder (CPP4) embedded for DVD-quality streaming video and very efficient streaming and network capabilities. The new platform supports simultaneous streaming of individually configurable SD streams (H.264 and M-JPEG), and allows a choice of SD resolution.

**Recording and storage management**

A memory card (SD (Secure Digital), SDHC (Secure Digital High Capacity), or SDXC (Secure Digital eXtended Capacity)) can be used for local alarm recording or for scheduled local recording to improve the overall recording reliability. Recording management can be controlled by the Bosch Video Recording Manager (VRM), or the camera can use iSCSI targets directly without any recording software.

**Advanced networking capabilities**

The AUTODOME offers advanced capabilities so you can configure the camera to take advantage of the latest networking technology. The AUTODOME offers Quality of Service (QoS) configuration options to ensure fast network response to PTZ data and images. Quality of Service (QoS) is the set of techniques to manage network resources. QoS manages the delay, delay variation (jitter), bandwidth, and packet loss parameters to guarantee the ability of a network to deliver predictable results. QoS identifies the type of data in a data packet and divides the packets into traffic classes that can be prioritized for forwarding. The AUTODOME also supports the IPv6 internet-layer protocol for packet-switched internetworking across multiple IP networks. IPv6 uses 128-bit addresses (IPv4 uses 32-bit addressing), which allows for many more devices and users on the internet as well as extra flexibility in allocating addresses and efficiency for routing traffic.

**Ease of installation and servicing**

The camera has been designed for quick and easy installation; a key feature from Bosch CCTV products. All housings feature recessed screws and latches for increased tamper resistance. AUTODOME in-ceiling housings provide IP54 protection. With an optional, impact-resistant, rugged polycarbonate bubble (sold separately), they are rated IK 8 (IEC 62262) to protect the camera from vandalism. The rugged bubble can withstand impacts equivalent to a 4.5 kg (10 lb) weight dropped from a height of 3 m (10 ft).

Indoor/outdoor pendant housings are rated to provide IP66 protection and offer an operating temperature range down to -40 °C (-40 °F). The indoor/outdoor pendant comes fully assembled with a sunshield and ready for wall or pipe applications with the proper mounting hardware (sold separately). In addition, the camera models with pendant housing come equipped with a low-impact, high-resolution acrylic bubble for enhanced image clarity. You can easily convert the outdoor pendant for indoor applications by removing the sunshield.

Bosch offers a full complement of hardware and accessories (sold separately) for wall, corner, mast, roof, pipe mount, and in-ceiling applications, which allow the camera to be adapted easily to individual site requirements.

**Video management system support**

The camera ships with Bosch Video Client (BVC), an easy-to-use software from Bosch that is suitable for midsize installations. For large enterprise systems, AUTODOME cameras can be used with Bosch Video Management System (BVMS), which allows enhanced video management and viewing capabilities. In addition, the camera is supported/integrated into all of the leading third party video management systems.

**ONVIF conformant**

The AUTODOME Series conforms to the ONVIF Profile S specification allowing easy integration with the conformant devices and VMS.

For more information about ONVIF, visit [www.onvif.org](http://www.onvif.org).

The camera conforms to the ONVIF (Open Network Video Interface Forum) specification which guarantees interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information. They are automatically discovered and connected to network applications such as video management systems.

**Fiber Optic Kit**

Bosch offers the optional VG4-SFPCKT, a unique media converter module for use with AUTODOME cameras. This media converter module is designed to accept a wide-range of 10/100 Mbps SFP modules for use with Multimode or Singlemode optical fiber with LC or SC connectors.

The media converter module along with the SFP module is user-installed directly into the camera's power supply box to provide an integrated fiber optic solution.

**Unsurpassed reliability**

As with all Bosch products, the AUTODOME Series has been subjected to the industry's most comprehensive and demanding battery of endurance tests such as HALT (highly accelerated life testing) to make sure it will hold up through years of use. And of course, it comes with Bosch's industry-leading 3-year warranty.

## Access security

### Access security

Various security levels are available for accessing the network, the camera, and the data channels. As well as password protection with three levels, 802.1x authentication using a RADIUS (Remote Authentication Dial In User Service) server is supported. To secure Web browser access, use HTTPS with a SSL certificate stored in the camera. For total data protection, the video and audio communication channels can be independently AES encrypted with 128-bit keys by installing the optional encryption site license.

### Easy upgrade

Remotely upgrade the camera whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

## Certifications and approvals

|                                     |                                                                                                                                                                                  |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electromagnetic Compatibility (EMC) | Complies with FCC Part 15, ICES-003, and CE regulations, including EN 50130-4, EN 55022 Class A, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, and EN 50121-4 (Railway applications) |
| Product Safety                      | Complies with CE regulations, UL, CSA, EN, and IEC Standards EN60950-1                                                                                                           |
| Environmental                       | In-ceiling: IP54, Plenum rated (with acrylic bubble)<br>Also: IK8 rating when using optional Polycarbonate bubble, sold separately<br>Indoor/Outdoor Pendant: IP66, NEMA 4X      |
| ONVIF conformance                   | EN 50132-5-2                                                                                                                                                                     |



### Notice

Conformity to EN 50130-4  
One of the following power supply units is required to conform to the EN 50130-4 standard: VG4-A-PSU0, VG4-A-PSU1, VG4-A-PSU2, VG4-A-PA0, VG4-A-PA1, or VG4-A-PA2.

## Parts included

### In-ceiling

| Quantity | Item                                                                    |
|----------|-------------------------------------------------------------------------|
| 1        | AUTODOME 7000 In-Ceiling camera with acrylic bubble and white trim ring |
| 1        | Interface box                                                           |
| 1        | Optional black trim ring                                                |
| 1        | Ceiling gasket (for IP54 conformance)                                   |
|          | Product DVD (which includes complete Operation Manual)                  |
|          | Packet of printed Safety literature                                     |

## Outdoor Pendant

| Quantity | Item                                                                 |
|----------|----------------------------------------------------------------------|
| 1        | AUTODOME 7000 Pendant camera with clear acrylic bubble and sunshield |
| 1        | Product DVD (which includes complete Operation Manual)               |
| 1        | Packet of printed Safety literature                                  |

### Notes:

- The pendant can be converted to an indoor pendant by removing the sunshield.
- Mounting hardware and accessories are available separately.

## Technical specifications

### Camera 36x Day/Night

|                                                    |                                                                                   |                                                                     |                        |
|----------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------|
| Imager                                             | 1/4 in.-type Exview HAD CCD (progressive scan)                                    |                                                                     |                        |
| Effective Picture Elements                         | PAL: Approx. 440,000; 752(H) x 582(V)<br>NTSC: Approx. 380,000; 768 (H) x 494 (V) |                                                                     |                        |
| Lens                                               | 36x Zoom (3.4–122.4 mm) F1.6 to F4.5                                              |                                                                     |                        |
| Focus                                              | Automatic with manual override                                                    |                                                                     |                        |
| Iris                                               | Automatic with manual override                                                    |                                                                     |                        |
| Zoom Movement Speed                                |                                                                                   | NTSC                                                                | PAL                    |
| • Optical WIDE / Optical TELE – Focus Tracking ON  |                                                                                   | 4.0 sec.                                                            | 4.0 sec.               |
| • Optical WIDE / Optical TELE – Focus Tracking OFF |                                                                                   | 2.7 sec.                                                            | 2.7 sec.               |
| • Optical WIDE / Digital TELE                      |                                                                                   | 6.0 sec.                                                            | 6.2 sec.               |
| • Digital WIDE / Digital TELE                      |                                                                                   | 2.1 sec.                                                            | 2.3 sec.               |
| Optical Zoom Field of View (FOV)                   |                                                                                   | 1.7° to 57.8°                                                       |                        |
| Minimum Working Distance                           |                                                                                   | 320 mm (wide) to 1500 mm (tele)                                     |                        |
| Gain Control                                       |                                                                                   | Auto/Manual/Max.<br>(–3 dB to 28 dB, 2 dB steps)                    |                        |
| Synchronization                                    |                                                                                   | Line-Lock (–120° to 120° vertical phase adjust) or internal crystal |                        |
| Aperture Correction                                |                                                                                   | Horizontal and vertical                                             |                        |
| Digital Zoom                                       |                                                                                   | 12x                                                                 |                        |
| Sensitivity (typical) <sup>1</sup>                 |                                                                                   | 30 IRE                                                              | 50 IRE                 |
| Day Mode                                           |                                                                                   |                                                                     |                        |
| SensUp Off<br>(NTSC: 1/60s<br>PAL: 1/50s)          |                                                                                   | 0.66 lux<br>(0.061 fc)                                              | 1.4 lux<br>(0.13 fc)   |
| SensUp On<br>(NTSC: 1/4s, 15X;<br>PAL 1/3s, 16.7X) |                                                                                   | 0.04 lux<br>(0.0037 fc)                                             | 0.1 lux<br>(0.0092 fc) |
| Night Mode                                         |                                                                                   |                                                                     |                        |

|                                                    |                                                                                                   |                          |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------|
| SensUp Off                                         | 0.104 lux<br>(0.0097 fc)                                                                          | 0.209 lux<br>(0.0194 fc) |
| SensUp On<br>(NTSC: 1/4s, 15X;<br>PAL 1/3s, 16.7X) | 0.0052 lux<br>(0.0005 fc)                                                                         | 0.0103 lux<br>(0.001 fc) |
| Electronic Shutter Speed                           | NTSC: 1/4 to 1/10,000 sec., 20 steps<br>PAL: 1/3 to 1/10,000 sec., 20 steps                       |                          |
| Wide Dynamic Range (WDR)                           | 92 dB (50 dB with WDR Off)                                                                        |                          |
| Signal-to-Noise Ratio (SNR)                        | >50 dB (Weighting ON)                                                                             |                          |
| Backlight Compensation                             | On/Off                                                                                            |                          |
| White Balance                                      | ATW, Indoor, Outdoor, AWB Hold, Extended ATW, Manual, Outdoor Auto, Sodium Lamp Auto, Sodium Lamp |                          |
| Day/Night                                          | Monochrome, Color, Auto                                                                           |                          |
| Stabilization                                      | On/Off                                                                                            |                          |

1. Unless otherwise stated, test conditions are: F1.6; shutter = NTSC 1/60s, PAL 1/50s; max AGC; no bubble. Clear bubble adds 0.09 f-stop loss (90% light transmission). Tinted bubble adds 0.47 f-stop loss (60% light transmission).

### Camera 28x Day/Night

|                            |                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------|
| Imager                     | 1/4 in.-type Exview HAD CCD (progressive scan)                                    |
| Effective Picture Elements | PAL: Approx. 440,000; 752(H) x 582(V)<br>NTSC: Approx. 380,000; 768 (H) x 494 (V) |
| Lens                       | 28x Zoom (3.5–98.0 mm) F1.35 to F3.7                                              |
| Focus                      | Automatic with manual override                                                    |
| Iris                       | Automatic with manual override                                                    |

| Zoom Movement Speed                                | NTSC                                                                 | PAL      |
|----------------------------------------------------|----------------------------------------------------------------------|----------|
| • Optical WIDE / Optical TELE – Focus Tracking ON  | 2.5 sec.                                                             | 2.5 sec  |
| • Optical WIDE / Optical TELE – Focus Tracking OFF | 1.7 sec.                                                             | 1.7 sec. |
| • Optical WIDE / Digital TELE – Focus Tracking ON  | 4.5 sec.                                                             | 4.9 sec. |
| • Optical WIDE / Digital TELE – Focus Tracking OFF | 1.7 sec.                                                             | 1.7 sec. |
| • Digital WIDE / Digital TELE                      | 2.0 sec.                                                             | 2.5 sec. |
| Optical Zoom Field of View (FOV)                   | 2.1° to 55.8°                                                        |          |
| Minimum Working Distance                           | 300 mm (wide) to 1500 mm (tele)                                      |          |
| Gain Control                                       | Auto/Manual/Max.<br>(–3 dB to 28 dB, 2 dB steps)                     |          |
| Synchronization                                    | Line-Lock (–120° to +120° vertical phase adjust) or internal crystal |          |
| Aperture Correction                                | Horizontal and vertical                                              |          |

|                                                    |                                                                                                   |                           |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------|
| Digital Zoom                                       | 12x                                                                                               |                           |
| Sensitivity (typical) <sup>2</sup>                 | 30 IRE                                                                                            | 50 IRE                    |
| Day Mode                                           |                                                                                                   |                           |
| SensUp Off                                         | 0.33 lux<br>(0.031 fc)                                                                            | 0.66 lux<br>(0.061 fc)    |
| SensUp On<br>(NTSC: 1/4s, 15X;<br>PAL 1/3s, 16.7X) | 0.02 lux<br>(0.002 fc)                                                                            | 0.04 lux<br>(0.004 fc)    |
| Night Mode                                         |                                                                                                   |                           |
| SensUp Off                                         | 0.066 lux<br>(0.006 fc)                                                                           | 0.166 lux<br>(0.015 fc)   |
| SensUp On<br>(NTSC: 1/4s, 15X;<br>PAL 1/3s, 16.7X) | 0.0026 lux<br>(0.0002 fc)                                                                         | 0.0082 lux<br>(0.0008 fc) |
| Electronic Shutter Speed                           | NTSC: 1/4 to 1/10,000 sec., 20 steps<br>PAL: 1/3 to 1/10,000 sec., 20 steps                       |                           |
| Wide Dynamic Range (WDR)                           | 92 dB (50 dB with WDR Off)                                                                        |                           |
| Signal-to-Noise Ratio (SNR)                        | >50 dB (Weighting ON)                                                                             |                           |
| Backlight Compensation                             | On/Off                                                                                            |                           |
| White Balance                                      | ATW, Indoor, Outdoor, AWB Hold, Extended ATW, Manual, Outdoor Auto, Sodium Lamp Auto, Sodium Lamp |                           |
| Day/Night                                          | Monochrome, Color, Auto                                                                           |                           |
| Stabilization                                      | On/Off                                                                                            |                           |

2. Unless otherwise stated, test conditions are: F1.6; shutter = NTSC 1/60s, PAL 1/50s; max AGC; no bubble. Clear bubble adds 0.09 f-stop loss (90% light transmission). Tinted bubble adds 0.47 f-stop loss (60% light transmission).

### Mechanical

|                                  | In-Ceiling                                    | Pendant                     |
|----------------------------------|-----------------------------------------------|-----------------------------|
| Pan Range                        | 360° cont.                                    | 360° cont.                  |
| Tilt Angle                       | 1° above horizon                              | 18° above horizon           |
| Pre-position Speed               | Pan: 400°/s<br>Tilt: 300°/s                   | Pan: 400°/s<br>Tilt: 300°/s |
| Pan/Tilt Modes                   |                                               |                             |
| • Turbo Mode<br>(Manual Control) | Pan: 0.1°/s – 400°/s<br>Tilt: 0.1°/s – 300°/s |                             |
| • Normal Mode                    | 0.1°/s-120°/s                                 | 0.1°/s-120°/s               |
| Preset Accuracy                  | ± 0.1° typ.                                   | ± 0.1° typ.                 |

## Electrical

|                               | In-Ceiling                                                                            | Pendant                                                                          |
|-------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Input Voltage                 | 21-30 VAC ,<br>50/60 Hz<br>High PoE<br>or PoE+ (IEEE<br>802.3at, class 4<br>standard) | 21-30 VAC, 50/60 Hz<br>or High PoE                                               |
| Power Consumption,<br>typical | 24 W / 44 VA                                                                          | 60 W / 69 VA (heaters<br>on)<br>or<br>24 W / 44 VA <sup>3</sup><br>(heaters off) |

3. Without heater connected in power supply box for indoor applications.

## Surge Suppression

|                                                     |                                                        |
|-----------------------------------------------------|--------------------------------------------------------|
| Protection on<br>Alarm Inputs                       | Peak current 17 A, peak power 300 W<br>(8/20 µs)       |
| Protection on<br>Alarm Outputs                      | Peak current 2 A, peak power 300 W<br>(8/20 µs)        |
| Protection on<br>Relay Output                       | Peak current 7.3 A, peak power 600 W<br>(10/1000 µs)   |
| Protection on Power<br>Input (Dome)                 | Peak current 7.3 A, peak power 600 W<br>(10/1000 µs)   |
| Protection on Power<br>Output (Arm Power<br>Supply) | Peak current 21.4 A, peak power 1500 W<br>(10/1000 µs) |
| 10/100 Ethernet<br>Data Lines                       | Peak current 14 A, peak power 200 W<br>(8/20 µs)       |

## Software Control

|                          |                                                                                                                                                                           |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Camera Setup/<br>Control | Via web browser (such as Internet Explorer<br>version 7.0 or later), Bosch Configuration<br>Manager, Bosch Video Management System<br>(BVMs), or Bosch Video Client (BVC) |
| Software Update          | Network firmware upload                                                                                                                                                   |

## Network

|                      |                                  |
|----------------------|----------------------------------|
| Video<br>compression | H.264 (ISO/IEC 14496-10), M-JPEG |
|----------------------|----------------------------------|

### Encoding / Streaming

|          | H.264      | MJPEG            |                            |            |
|----------|------------|------------------|----------------------------|------------|
| Scenario |            |                  |                            |            |
|          | Stream 1   | Stream 2         | Stream 3                   | Stream 4   |
| 1        | 4CIF@30ips | 4CIF@30ips       | I-frame only from Stream 1 | 4CIF@30ips |
| 2        | 4CIF@30ips | Copy of Stream 1 | I-frame only from Stream 1 | 4CIF@30ips |

|                  |                      |                                  |                                  |                                       |
|------------------|----------------------|----------------------------------|----------------------------------|---------------------------------------|
| 3                | Downscaled<br>stream | Downscaled<br>stream             | I-frame<br>only from<br>Stream 1 | Downscaled<br>stream from<br>Stream 1 |
| GOP Structure    |                      | IP, IBP, IBBP                    |                                  |                                       |
| Data Rate        |                      | 9.6 kbps to 10 Mbps (per stream) |                                  |                                       |
| Overall IP Delay |                      | 240 ms                           |                                  |                                       |

### Resolution (Horizontal x Vertical, PAL/NTSC)

|                             |                                                                                                                                                                                                                                                                                                           |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| • 4CIF/D1                   | 704 x 576/480 (25/30 ips, or 50/60 fields/s<br>for interlaced fields)                                                                                                                                                                                                                                     |
| • CIF                       | 352 x 288/240 (25/30 ips, or 50/60 fields/s<br>for interlaced fields)                                                                                                                                                                                                                                     |
| Ethernet                    | 10-Base T/100 Base-TX, auto-sensing, half/full<br>duplex, RJ45                                                                                                                                                                                                                                            |
| Protocols                   | IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/RTCP,<br>IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, Telnet,<br>ARP, DHCP, SNTP, SNMP (V1, MIB II), 802.1x,<br>DNS, DNSv6, DDNS (DynDNS.org, selfHOST.de,<br>no-ip.com), SMTP, iSCSI, UPnP (SSDP),<br>DiffServ (QoS), LLDP, SOAP, Dropbox, CHAP,<br>digest authentication |
| Advanced<br>Networking      | IPv6, QoS                                                                                                                                                                                                                                                                                                 |
| Audio                       |                                                                                                                                                                                                                                                                                                           |
| • Standard                  | G.711, 8 kHz sampling rate<br>L16, 16 kHz sampling rate<br>AAC, 16 kHz sampling rate                                                                                                                                                                                                                      |
| • Signal-to-<br>Noise Ratio | >50 dB                                                                                                                                                                                                                                                                                                    |
| • Audio<br>Streaming        | Bidirectional (full duplex)                                                                                                                                                                                                                                                                               |

## Local Storage

|                  |                                                                |
|------------------|----------------------------------------------------------------|
| Memory Card Slot | User-supplied SD/SDHC/SDXC memory card<br>(maximum 2TB – SDXC) |
| Recording        | Continuous recording of video and audio                        |

## Fiber Optic Kit

### VG4-SFPSCKT

|                     |                                                                                                                                      |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Description         | Fiber Optic Ethernet Media Converter kit <sup>5</sup> .<br>Requires a small form-factor pluggable (SFP)<br>module (sold separately). |
| Data Interface      | Ethernet                                                                                                                             |
| Data Rate           | 10/100 Mbps<br>IEEE 802.3 Compliant<br>Full Duplex or Half Duplex Electrical Port<br>Full Duplex Optical Port                        |
| Compatible Receiver | CNFE2MC                                                                                                                              |

|              |                                                                                                                                  |
|--------------|----------------------------------------------------------------------------------------------------------------------------------|
| Installation | Installed inside a VG4-A-PA0, VG4-A-PA1, VG4-A-PA2, VG4-A-PSU1, or a VG4-A-PSU2 power supply box with supplied mounting hardware |
|--------------|----------------------------------------------------------------------------------------------------------------------------------|

5. Kit available separately and must be installed inside the AUTODOME power supply box.

### SFP Modules

|                |                                                                          |
|----------------|--------------------------------------------------------------------------|
| Description    | Interchangeable modules available for use with MMF or SMF optical fiber. |
| Data Interface | Ethernet                                                                 |
| Data Rate      | 10/100 Mbps<br>IEEE 802.3 Compliant                                      |

### Mechanical

|                          |                                            |
|--------------------------|--------------------------------------------|
| Dimensions (LxWxH)       |                                            |
| • SFP-2 and SFP-3        | 55.5 x 13.5 x 8.5 mm (2.2 x 0.5 x 0.3 in.) |
| • SFP-25, SFP-26         | 63.8 x 13.5 x 8.5 mm (2.5 x 0.5 x 0.3 in.) |
| Weight (all SFP modules) | 0.23 kg (.05 lb)                           |

|        | Type | Connector | Wavelength (transmit / receive) | Max. Distance      |
|--------|------|-----------|---------------------------------|--------------------|
| SFP-2  | MMF  | Duplex LC | 1310 nm / 1310 nm               | 2 km (1.2 miles)   |
| SFP-3  | SMF  | Duplex LC | 1310 nm / 1310 nm               | 20 km (12.4 miles) |
| SFP-25 | MMF  | Single SC | 1310 nm / 1550 nm               | 2 km (1.2 miles)   |
| SFP-26 | MMF  | Single SC | 1550 nm / 1310 nm               | 2 km (1.2 miles)   |

### Fiber Compatibility

|                                  |                                                                                                                                                                                                                                                                                                      |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Optical Fiber Compatibility, MMF | 50/125 µm MMF. For 50/125 µm fiber, subtract 4 dB from the specified optical budget value. Must meet or exceed fiber standard ITU-T G.651.                                                                                                                                                           |
| Optical Fiber Compatibility, SMF | 8–10/125 µm SMF. Must meet or exceed fiber standard ITU-T G.652.                                                                                                                                                                                                                                     |
| Optical Distance Specifications  | Specified transmission distances are limited to the optical loss of the fiber and any additional loss introduced by connectors, splices, and patch panels. The modules are designed to operate over the entire optical loss budget range, so they do not require a minimum loss in order to operate. |

### Miscellaneous

|                 |                                                         |
|-----------------|---------------------------------------------------------|
| Sectors/Titling | 16 independent sectors with a 20-character title/sector |
| Masking         | 24 individually configurable privacy masks              |
| Pre-positions   | 256, each with a 20-character title                     |
| Guard Tours     | Two (2) types of tours:                                 |

- Recorded tours – two (2)
- Preset tour – one (1), consisting of up to 256 scenes, consecutively

|                     |                                                                                             |
|---------------------|---------------------------------------------------------------------------------------------|
| Supported Languages | English, Chinese, Dutch, French, German, Italian, Japanese, Polish, Portuguese, and Spanish |
|---------------------|---------------------------------------------------------------------------------------------|

### User Connections

|                   |                                                                                                                                     |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Power, Camera     | RJ-45 10/100 Base-TX Ethernet (High Power-over-Ethernet (High PoE)) or PoE+ (IEEE 802.3at, class 4 standard)<br>21-30 VAC, 50/60 Hz |
| Power, Heater     | RJ-45 10/100 Base-TX Ethernet (High Power-over-Ethernet (High PoE))<br>21-30 VAC, 50/60 Hz                                          |
| Video and Control | RJ-45 10/100 Base-TX Ethernet                                                                                                       |
| Alarm Inputs (7)  | 2 supervised; 5 non-supervised<br>Programmable for "normally open" or "normally closed"                                             |
| Alarm Outputs (4) | 1 dry contact relay; 3 open collector/transistor outputs<br>32 VDC @ 150 ma max.                                                    |
| Audio             | 1 x mono line in, 1 x mono line out                                                                                                 |
| • Signal line in  | 12 kOhm typical, 1 Vrms max                                                                                                         |
| • Signal line out | 1 Vrms at 1.5 kOhm, typical                                                                                                         |

### Environmental

|                                    | In-Ceiling                                                                                                                                                                                                                                                                                                                      | Pendant                                                                                  |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Ingress Protection Rating/Standard | IP54, Plenum rated<br><br>NEMA 4X for: <ul style="list-style-type: none"> <li>• Access to Hazardous parts</li> <li>• Ingress of solid foreign objects (falling dirt, circulating dust, settling dust)</li> <li>• Ingress of water (dripping and light splashing, hosedown and splashing)</li> <li>• Corrosive agents</li> </ul> | IP66 <sup>7</sup>                                                                        |
| Operating Temp.                    | -10°C to 40°C<br>(14°F to 104°F)                                                                                                                                                                                                                                                                                                | -40°C to 55°C<br>(-40°F to 131°F)<br>or<br>-10°C to 55°C<br>(14°F to 131°F) <sup>6</sup> |
| Storage Temp.                      | -40°C to 60°C<br>(-40°F to 140°F)                                                                                                                                                                                                                                                                                               | -40°C to 60°C<br>(-40°F to 140°F)                                                        |
| Humidity                           | 0% to 90% relative, non-condensing                                                                                                                                                                                                                                                                                              | 0% to 100% relative, condensing                                                          |

6. Without heater connected in power supply box for indoor applications.

7. Meets requirements for NEMA 4X certification with use of a polycarbonate bubble.

Meets requirements for NEMA 4X, except impact test, with use of an acrylic bubble.

### Construction

|              |                          |
|--------------|--------------------------|
| Dimensions   | See dimensional drawings |
| Weight       |                          |
| • In-ceiling | 2.58 kg (5.69 lb)        |

|                          |                                                                                                                                                      |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| • Indoor/Outdoor Pendant | 3.06 kg (6.75 lb)                                                                                                                                    |
| Bubble Size              | 153.1 mm diameter (6.03 in.)                                                                                                                         |
| Construction Material    |                                                                                                                                                      |
| • Housing                | In-ceiling: Magnesium<br>Pendant: Cast aluminum                                                                                                      |
| • Bubble                 | In-ceiling: High-resolution acrylic, rugged polycarbonate, or HD high-resolution acrylic<br>Pendant: High-resolution acrylic or rugged polycarbonate |
| Standard Color           | White (RAL 9003)                                                                                                                                     |
| Standard Finish          | Powder coated, sand finish                                                                                                                           |

### Mounts/Accessories

#### Bubbles

##### In-ceiling

|                                                                                  |                 |
|----------------------------------------------------------------------------------|-----------------|
| Clear high-resolution acrylic<br>(Included with in-ceiling PAL camera models.)   | VGA-BUBBLE-CCLA |
| Tinted high-resolution acrylic<br>(Included with in-ceiling NTSC camera models.) | VGA-BUBBLE-CTIA |
| Clear rugged polycarbonate                                                       | VGA-BUBBLE-CCLR |
| Tinted rugged polycarbonate                                                      | VGA-BUBBLE-CTIR |
| Clear HD high-resolution acrylic                                                 | VGA-BUBHD-CCLA  |
| Tinted HD high-resolution acrylic                                                | VGA-BUBHD-CTIA  |

##### Pendant

|                                                                         |                 |
|-------------------------------------------------------------------------|-----------------|
| Clear high-resolution acrylic<br>(Included with pendant camera models.) | VGA-BUBBLE-PCLA |
| Tinted high-resolution acrylic                                          | VGA-BUBBLE-PTIA |
| Clear rugged polycarbonate                                              | VGA-BUBBLE-PCLR |
| Tinted rugged polycarbonate                                             | VGA-BUBBLE-PTIR |

#### Pendant Arm Mounts

|                                          |                          |
|------------------------------------------|--------------------------|
| Wall Arm (No Transformer)                | VG4-A-PA0                |
| Wall Arm (120/230 VAC Transformer)       | VG4-A-PA1 /<br>VG4-A-PA2 |
| Pendant Arm with Wiring                  | VGA-PEND-ARM             |
| Mounting plate for VGA-PEND-ARM          | VGA-PEND-WPLATE          |
| Trim skirt for VG4 Series Power Supplies | VG4-A-TSKIRT             |

#### Optional Mounting Plates for Arm Mounts

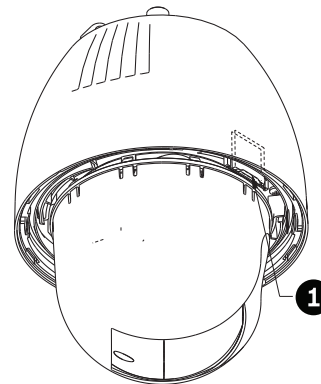
|                            |            |
|----------------------------|------------|
| Corner Mounting Plate      | VG4-A-9542 |
| Mast (Pole) Mounting Plate | VG4-A-9541 |

#### Pendant Pipe Mounts

|                |            |
|----------------|------------|
| Pipe Mount Cap | VG4-A-9543 |
|----------------|------------|

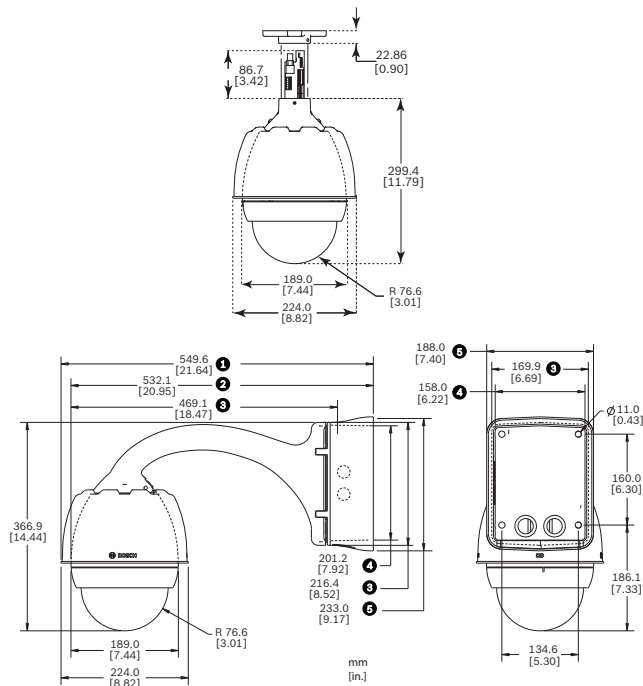
|                                                                                     |                            |
|-------------------------------------------------------------------------------------|----------------------------|
| <b>Pendant Roof Mounts</b>                                                          |                            |
| Roof (Parapet) Mount<br>(VG4-A-9543 Pipe Mount Cap required. Available separately.) | VGA-ROOF-MOUNT             |
| <b>Optional Mounting Plates for Roof Mounts</b>                                     |                            |
| Flat Roof Adapter for Parapet Mount                                                 | LTC 9230/01                |
| <b>In-ceiling Support Kits</b>                                                      |                            |
| Bracket for suspended or drop ceilings                                              | VGA-IC-SP                  |
| <b>Power Supplies</b>                                                               |                            |
| High PoE Midspan 60W, single port, AC in                                            | NPD-6001A                  |
| Outdoor Power Supply Box, no transformer                                            | VG4-A-PSU0                 |
| Outdoor Power Supply Box (120/230 VAC Transformer)                                  | VG4-A-PSU1 /<br>VG4-A-PSU2 |
| Fiber Optic Kit                                                                     | VG4-SFPCKT                 |

### Dimensional Drawings



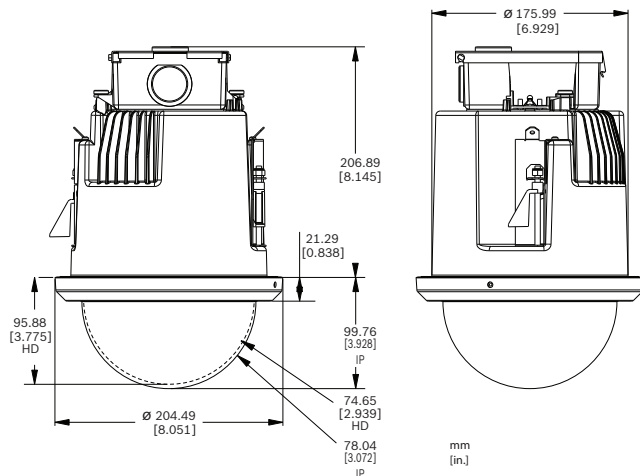
AUTODOME 7000 – Slot for SD card

1 Slot for SD card

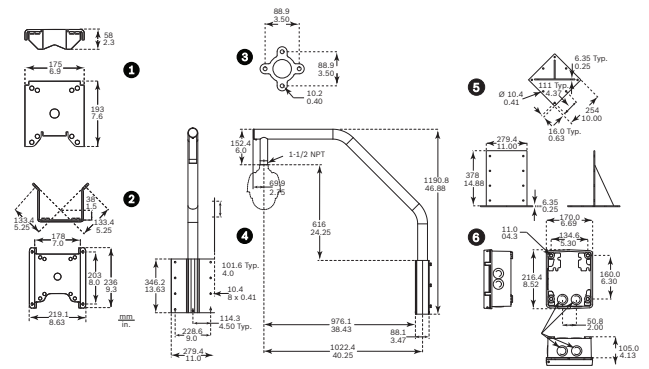


### AUTODOME 7000 Dimensions – Pendant, Pipe

- |                                  |                    |
|----------------------------------|--------------------|
| 1 Power supply box and sunshield | 4 Power supply box |
| 2 Sunshield removed              | 5 Trim skirt       |
| 3 Mounting plate                 |                    |



### AUTODOME 7000 Dimensions – In-ceiling



## AUTODOME Dimensions - Mounts

- |                |                                         |
|----------------|-----------------------------------------|
| 1 Mast Mount   | 4 Roof Mount                            |
| 2 Corner Mount | 5 Roof Mount Adapter                    |
| 3 Pipe Mount   | 6 Power Supply for Pipe and Roof Mounts |

## Ordering information

### AUTODOME 7000 IP 28x In-ceiling PAL with Clear Bubble

Order number **VG5-7028-C1PC4**

### AUTODOME 7000 IP 28x In-ceiling NTSC with Tinted Bubble

Order number **VG5-7028-C2PT4**

**AUTODOME 7000 IP 28x Indoor/Outdoor Pendant PAL  
with Clear Bubble**

Order number **VG5-7028-E1PC4**

**AUTODOME 7000 IP 28x Indoor/Outdoor Pendant NTSC  
with Clear Bubble**

Order number **VG5-7028-E2PC4**

**AUTODOME 7000 IP 36x Indoor/Outdoor Pendant PAL  
with Clear Bubble**

Order number **VG5-7036-E1PC4**

**AUTODOME 7000 IP 36x Indoor/Outdoor Pendant NTSC with Clear Bubble**

Order number **VG5-7036-E2PC4**

## Accessories

## VG4-A-PSU0 24 VAC Power Supply Unit

24 VAC, 100 W, white, for an AutoDome Series camera  
Order number **VG4-A-PSU0**

## VG4-A-PSU1 120 VAC Power Supply Unit

120 VAC, 100 W, white, for an AutoDome Series camera  
Order number **VG4-A-PSU1**

## VG4-A-PSU2 230 VAC Power Supply Unit

230 VAC, 100 W, white, for an AutoDome Series camera  
Order number **VG4-A-PSU2**

**NPD-6001A High PoE Midspan 60W, single port, AC in**  
High Power, 60 W Single Port PoE Midspan with AC in  
Order number **NPD-6001A**

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**VG4-A-PA0 Pendant Arm Mount**

Pendant arm mount with power supply box for a  
AutoDome Series cameras, no transformer, white  
Order number **VG4-A-PA0**

---

**VG4-A-PA1 Pendant Arm Mount with 120 VAC Trans-  
former**

Pendant arm mount with power supply box for  
AutoDome Series cameras with a 120 VAC  
transformer, white  
Order number **VG4-A-PA1**

---

**VG4-A-PA2 Pendant Arm Mount with 230 VAC Trans-  
former**

Pendant arm mount with power supply box for  
AutoDome Series cameras with a 230 VAC  
transformer, white  
Order number **VG4-A-PA2**

---

**VGA-PEND-ARM Pendant Arm with Wiring**

Compatible with an AutoDome Series pendant housing  
Order number **VGA-PEND-ARM**

---

**VGA-PEND-WPLATE Mounting Plate**

Mounting plate for VGA-PEND-ARM, compatible with  
an AutoDome Series camera  
Order number **VGA-PEND-WPLATE**

---

**VGA-ROOF-MOUNT Roof Mount**

Roof parapet mount, white  
(VG4-A-9543 Pipe Mount Cap required. Available  
separately.)  
Order number **VGA-ROOF-MOUNT**

---

**LTC 9230/01 Flat Roof Mount Adapter**

For mounting a unit in an upright position on a flat  
surface for roof parapet mount VGA-ROOF-MOUNT  
Order number **LTC 9230/01**

---

**VG4-A-9541 Pole Mount Adapter**

Pole mount adapter for a for an AutoDome Series  
pendant arm or a VEI-30 or NEI-30 Dinion Infrared  
Imager, designed for poles with a diameter of  
100-380 mm (4-15 in.), white  
Order number **VG4-A-9541**

---

**VG4-A-9542 Corner Mount Adapter**

Corner mount adapter for an AutoDome Series  
pendant arm or a VEI-30 or NEI-30 Dinion Infrared  
Imager  
Order number **VG4-A-9542**

---

**VG4-A-9543 Pipe Mount**

Pipe mount, white, for an AutoDome Series pendant  
housing  
Order number **VG4-A-9543**

---

**VGA-IC-SP In-ceiling Support Kit for Various Bosch  
Dome Cameras**

Suspended ceiling support kit for various families of  
Bosch dome cameras  
Order number **VGA-IC-SP**

---

**VGA-SBOX-COVER Cover for AutoDome Power Supply  
Boxes**

Order number **VGA-SBOX-COVER**

---

**VG4-A-TSKIRT Trim Skirt for AutoDome Power Supply  
Boxes**

Trim skirt for the following AutoDome Series power  
supply boxes:  
VG4-A-PSU0, VG4-A-PSU1, and VG4-A-PSU2  
Order number **VG4-A-TSKIRT**

---

**VGA-BUBBLE-CCLR Clear Rugged Bubble for an In-ceil-  
ing Housing**

Impact resistant polycarbonate bubble  
Order number **VGA-BUBBLE-CCLR**

---

**VGA-BUBBLE-CTIR Tinted Rugged Bubble for an In-ceil-  
ing Housing**

Impact resistant polycarbonate bubble  
Order number **VGA-BUBBLE-CTIR**

---

**VGA-BUBBLE-CCLA Clear High-resolution Bubble for an  
In-ceiling Housing**

Low-impact acrylic bubble  
Order number **VGA-BUBBLE-CCLA**

---

**VGA-BUBBLE-CTIA Tinted High-resolution Bubble for an  
In-ceiling Housing**

Low-impact acrylic bubble  
Order number **VGA-BUBBLE-CTIA**

---

**VGA-BUBBLE-PCLR Clear Rugged Bubble for a Pendant  
Housing**

Impact resistant polycarbonate bubble  
Order number **VGA-BUBBLE-PCLR**

---

**VGA-BUBBLE-PTIR Tinted Rugged Bubble for a Pendant  
Housing**

Impact resistant polycarbonate bubble  
Order number **VGA-BUBBLE-PTIR**

---

**VGA-BUBBLE-PCLA Clear High-resolution Bubble for a  
Pendant Housing**

Low-impact acrylic bubble  
Order number **VGA-BUBBLE-PCLA**

---

**VGA-BUBBLE-PTIA Tinted High-resolution Bubble for a  
Pendant Housing**

Low-impact acrylic bubble  
Order number **VGA-BUBBLE-PTIA**

---

**VGA-BUBHD-CCLA Clear HD High-Resolution Acrylic  
Bubble for In-Ceiling AUTODOME cameras**

Order number **VGA-BUBHD-CCLA**

---

**VGA-BUBHD-CTIA Tinted HD High-Resolution Acrylic  
Bubble for In-Ceiling AUTODOME cameras**Order number **VGA-BUBHD-CTIA****VG4-SFPCKT Fiber Optic Ethernet Media Converter Kit**Ethernet media converter video transmitter/data  
receiver fiber optic kitOrder number **VG4-SFPCKT****SFP-2 Small Form-factor Pluggable Optical Interface**SFP Fiber Optic Module, Multi-mode, 1310 nm, 2 km  
(1.2 miles), 2 LC connectorsOrder number **SFP-2****SFP-3 Small Form-factor Pluggable Optical Interface**SFP Fiber Optic Module, Single-mode, 1310 nm, 20 km  
(12.4 miles), 2 LC connectorsOrder number **SFP-3****SFP-25 Small Form-factor Pluggable Optical Interface**SFP Fiber Optic Module, Multi-mode, 1310/1550 nm,  
2 km (1.2 miles), 1 SC connectorOrder number **SFP-25****SFP-26 Small Form-factor Pluggable Optical Interface**SFP Fiber Optic Module, Multi-mode, 1550/1310 nm,  
2 km (1.2 miles), 1 SC connectorOrder number **SFP-26****Represented by:****Americas:**

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

**Europe, Middle East, Africa:**

Bosch Security Systems B.V.  
P.O. Box 80002  
5617 BA Eindhoven, The Netherlands  
Phone: + 31 40 2577 284  
Fax: +31 40 2577 330  
emea.securitysystems@bosch.com  
www.boschsecurity.com

**Asia-Pacific:**

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Systems  
11 Bishan Street 21  
Singapore 573943  
Phone: +65 6571 2808  
Fax: +65 6571 2699  
apr.securitysystems@bosch.com  
www.boschsecurity.asia

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Changning District, Shanghai  
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Fax: +86 21 22182398  
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www.boschsecurity.com