

NEI-30 Dinion IP Infrared Imager

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BOSCH
Invented for life



- ▶ Certified all-weather active IR surveillance camera specifically designed for perimeter surveillance and other outdoor low-light applications
- ▶ Dinion 2X imaging with wide dynamic capability to handle the most demanding lighting situations
- ▶ Variable Field Illumination technology provides unmatched low-light and no-light performance
- ▶ Integrated junction box, remote control, and complete external adjustments minimize installation time and cost
- ▶ Tri-streaming: Dual H.264 and M-JPEG simultaneously

The Dinion IP Infrared Imager is a rugged, active infrared surveillance camera designed to master perimeter surveillance and other outdoor low-light applications. The IR Imager provides best-in-class images day and night covering up to 160 meters (525 feet) with unrivaled illumination quality throughout the field of view.

The Dinion IP Infrared Imager can tri-stream video simultaneously – on two H.264 streams and one M-JPEG stream. Features such as multicasting, internet streaming, and iSCSI recording are fully supported. The Dinion IP Infrared Imagers have built-in video motion detection and video content analysis systems as standard features.

From the most challenging daylight conditions to zero lux night environments, the NEI-30 gives you the details you need. Our Dinion 2X technology provides optimal 20-bit imaging in natural and artificial light, giving you a powerful wide dynamic range camera solution capable of handling the most demanding lighting situations, 24 hours a day.

Variable Field Illumination allows IR beam pattern adjustments in the field, allowing for wide area coverage and greatly reducing maintenance and setup

time and effort. Variable Field Illumination also provides even illumination not only across the field of view but also from foreground to background. To ensure this performance never fades over time, the IR Imager features Constant Light technology, using closed loop feedback to control infrared performance throughout the life of the unit.

The IP67-rated junction box and the camera can be hung and connected in seconds, reducing time and energy on the ladder. The IP-based control further reduces time needed for adjustments during and after installation by allowing for adjustments to be made remotely on the ground.

System overview

Efficient bandwidth and storage management

The Dinion IP Infrared Imager uses H.264 compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently, while delivering high-quality images and resolution. The bandwidth of an H.264 stream using Main profile at 4CIF resolution is about the same as one MPEG-4 stream at 2CIF resolution. Bosch's innovative tri-streaming feature enables the

imager to generate two independent H.264 streams and one M-JPEG stream simultaneously. This allows streaming of high-quality H.264 images for live viewing and recording while streaming M-JPEG images to another device at the same time. The M-JPEG video stream also provides easy integration with third-party JPEG or M-JPEG-compatible video management systems.

The Dinion IP Infrared Imagers offer unparalleled recording options. Attached to the network, they can use iSCSI targets directly, as well as Network Video Recorders (NVRs). The iSCSI storage target support enables the cameras to function as a conventional DVR, while streaming high-performance live video across the network.

Standard intelligence

With built-in video content analysis, the imager 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 basic video content analysis features are required. This motion analysis algorithm is based on pixel change and includes object size filtering capabilities and sophisticated tamper-detection capabilities.

The NEI-30 also features the more advanced Intelligent Video Analysis (IVA) standard on all models. The pre-installed IVA digital imaging technology algorithm uses multi-level image analysis of pixels, texture, and object direction.

ONVIF conformance

The Dinion IP Infrared Imager 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.

Power over Ethernet

Power may be supplied via a Power over Ethernet Plus (PoE+, IEEE 802.3at, class 4) compliant network cable connection. With this configuration, only a single cable connection is required to power and to control the camera while also viewing images from the camera. (Note: PoE+ power limitations reduce the IR range and low temperature range.)

Unsurpassed flexibility

There are many ways to access the imager's video: on a PC using a web browser, with the Bosch Video Management System, or with VIDOS. The camera is also ideal for use with a DHR/DNR 700 Series digital video recorder. By routing a video stream to a Bosch video decoder, you can also present the video with ultimate clarity on an analog monitor.

Functions

DCRI Zero Lux Performance

| | 850 nm | | 940 nm | |
|-----------------------|-------------------|----------------------------------|------------------|----------------------------------|
| | Range | Horizontal Field of Illumination | Range | Horizontal Field of Illumination |
| Detection | 160 m (525 ft) | 28 m (90 ft) | 80 m (260 ft) | 14 m (45 ft) |
| Classification | 120 m (390 ft) | 21 m (70 ft) | 60 m (195 ft) | 10 m (35 ft) |
| Recognition | 90 m (295 ft) | 16 m (50 ft) | 45 m (150 ft) | 8 m (25 ft) |
| Identification | 50 m (165 ft) | 9 m (30 ft) | 25 m (80 ft) | 4 m (15 ft) |

Note: DCRI values given are with narrow IR beam configuration and with a dedicated power input. Units powered via PoE+ have reduced range at maximum focal length.

Dinion Integrated Imaging – reveal every detail

- More detail in difficult lighting featuring superior 120dB (20-bit image processing) wide dynamic range
- 24/7 performance around the clock with 2X image processing that dynamically adapts to scene changes in addition to infrared illumination compensation

High Performance Illumination

- Variable Field Illumination allows user-selectable coverage for even illumination across the field of view and from foreground to background
- Constant Light technology ensures consistent imaging throughout the life of the product
- 850 nm and 940 nm infrared wavelength options

Installer-Friendly Features

- Junction box can be preinstalled to minimize time “on the ladder”
- Integrated on-screen display (OSD), complete external adjustments, and IP-based control reduces service and installation time

Ready for All Environments¹

- IP67 – dust proof and protection against temporary submersion
- NEMA4X – all weather rated and corrosion resistant
- EN60068-2-6 – shock and vibration tested
- IK10 – impact resistant (except for window)
- MIL-STD-810F² – tested to operate in conditions exceeding A1 environments (harsh desert classification) for exposure to solar radiation

1. The camera is designed to be installed on static structures using the specified mounting adapters. It should not be installed in dynamic environments or on moving objects such as vehicles, ships or elevators.

2. Long term continuous exposure in worst case conditions can impact component life.

Certifications and approvals

| Region | Classification |
|-----------|--------------------------------|
| Europe | CE (Declaration of Conformity) |
| USA | UL, FCC |
| Canada | CSA |
| Australia | C-Tick |

Electromagnetic Compatibility

| | |
|----------|--|
| Emission | EN55022 class B, FCC part 15 class B, EN6100-3, IC ICES-03 |
| Immunity | EN50130-4 (CE), EN6100-6-3 (CE) |

Safety

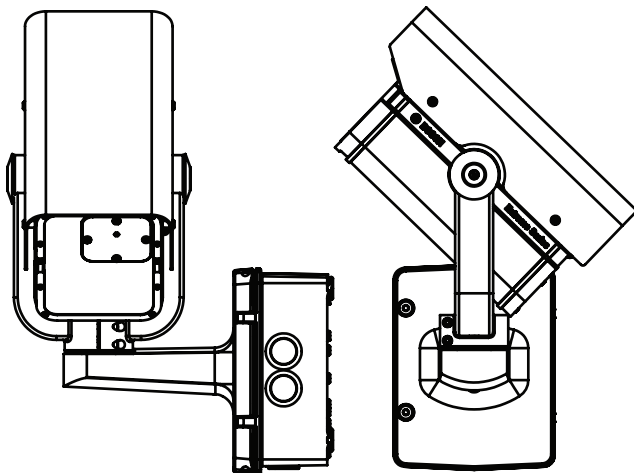
UL60065-07, CAN/CSA 60065-03, EN60065 (CE)

Environmental

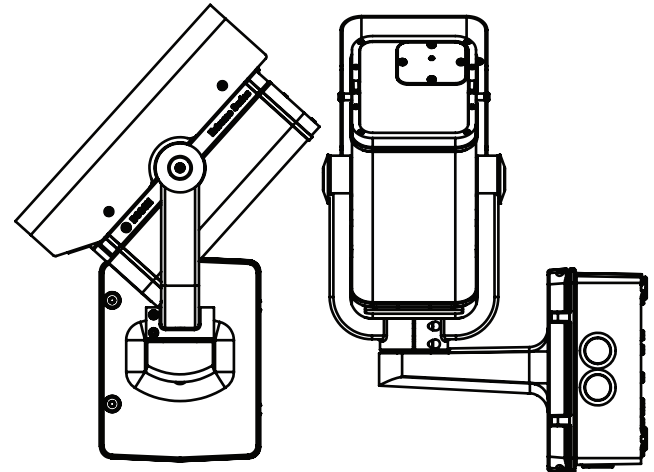
| | |
|-------------------|---|
| Weatherproofing | IP67, Type 4X (NEMA 4X), CSA 22.2 No. 94-M91, UL 50 |
| Impact Resistance | IK10 (except window) |
| Solar Radiation | Tested for MIL-STD-810F (for A1 environments) |

Installation/configuration notes

Canting Directions

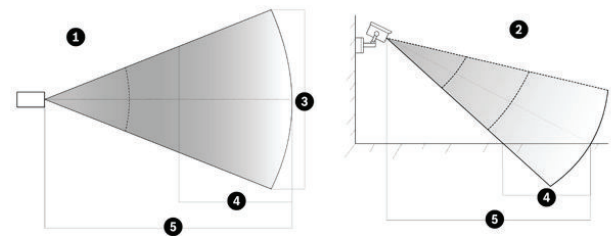


Camera Rotated 90° Left, Tilted 44° Up



Camera Rotated 90° Right, Tilted 48° Down

Use Cases



| | |
|---|---|
| 1 | Horizontal Angle (H) |
| 2 | Vertical Angle (V) |
| 3 | Horizontal Field of Illumination (HFOI) / Horizontal Field of View (HFOV) |
| 4 | Depth of Field (DoF) Range |
| 5 | Distance |

General Area Surveillance: RECOGNITION

| | |
|--|------------------------------|
| IR Beam Pattern (Full Width Half Maximum) ² | 43° x 20° |
| Camera Focal Length; FOV ² | 6 mm focal length; 44° x 33° |
| DoF Range | 5–23 m (16–75 ft) |
| HFOI ³ | 17 m (56 ft) |
| HFOV ³ | 17 m (56 ft) |

Critical Asset and Entry/Exit Monitoring: RECOGNITION

| | |
|--|------------------------------|
| IR Beam Pattern (Full Width Half Maximum) ² | 10° x 10° |
| Camera Focal Length; FOV ² | 24 mm focal length; 11° x 9° |
| DoF Range | 23–90 m (75–300 ft) |
| HFOI ³ | 16 m (53 ft) |
| HFOV ³ | 17 m (56 ft) |

**Perimeter Monitoring (100 m/330 ft zone spacing):
RECOGNITION/CLASSIFICATION**

| | |
|--|-------------------------------|
| IR Beam Pattern (Full Width Half Maximum) ² | 10° x 10° |
| Camera Focal Length; FOV ² | 20 mm focal length; 14° x 10° |
| DoF Range | 20–120 m (65–400 ft) |
| HFOI ³ | 21 m (69 ft) |
| HFOV ³ | 29 m (95 ft) |

2. Measurements are H x V.

3. At maximum range.

Parts included

| Quant. | Component |
|--------|----------------------------------|
| 1 | NEI-30 Dinion IP Infrared Imager |
| 1 | Cable-managed pan/tilt bracket |
| 1 | Junction box |
| 1 | Sunshield |
| 1 | Installation kit |

Technical specifications**Electrical**

| | |
|-------------------|---|
| Rated Voltage | 12 VDC (± 10%), 24 VAC (± 10%), 50/60 Hz, Power over Ethernet + |
| Power Consumption | |
| • at 12 VDC | 35 W (2.9 A) |
| • at 24 VAC | 35 W (1.5 A) |

Sensor

| | |
|----------------|-------------------------------------|
| CCD Type | 1/3-in. interline, WDR dual shutter |
| Active Pixels: | PAL: 752 x 582 NTSC: 768 x 494 |

Video

| | |
|-------------------|---|
| Video compression | H.264 (ISO/IEC 14496-10); M-JPEG, JPEG |
| Data rate | 9.6 Kbps to 6 Mbps |
| Resolution | Horizontal x vertical (PAL/NTSC ips) |
| 4CIF | 704 x 576/480 (25/30 ips) |
| CIF | 352 x 288/240 (25/30 ips) |
| Overall IP Delay | Min. 120 ms, Max. 240 ms |
| GOP structure | I, IP |
| Frame rate | 1 to 50/60 (PAL/NTSC) H.264 |

1 to 25/30 (PAL/NTSC) M-JPEG

Video Out

| | |
|-----------------------|--|
| Signal | Analog composite (NTSC or PAL), for use with OSD menus only ⁴ |
| Connector | BNC, 75 Ohm |
| Horizontal resolution | 540 TVL |
| Video S/N | 50 dB |

4. The analog video output is active only when interacting with the imager's OSD menus. Note that when analog video output is active, the IP video output is interrupted.

Sensitivity (3200 K, scene reflectivity 89%, F1.2)

| | Full video (100 IRE) | Usable picture (50 IRE) | Usable picture (30 IRE) |
|------------------------------|----------------------|-------------------------|-------------------------|
| Color | 2.4 lx (0.223 fc) | 0.47 lx (0.044 fc) | 0.15 lx (0.0139 fc) |
| Color + SensUp 10x | 0.24 lx (0.0223 fc) | 0.047 lx (0.0044 fc) | 0.015 lx (0.0014 fc) |
| Monochrome | 0.98 lx (0.091 fc) | 0.188 lx (0.0174 fc) | 0.06 lx (0.0056 fc) |
| Monochrome + SensUp 10x | 0.098 lx (0.0091 fc) | 0.019 lx (0.0017 fc) | 0.006 lx (0.0006 fc) |
| Monochrome + IR Illumination | 0 lx (0 fc) | 0 lx (0 fc) | 0 lx (0 fc) |

Interfaces

| | |
|--------------------|---|
| Power | |
| • PoE+ | RJ-45 100 Base-TX Ethernet PoE+ IEEE 802.3at, class 4 |
| • Imager | 12 VDC/24 VAC (± 10%), 50/60 Hz |
| Analog (video) | PAL or NTSC BNC, for use with OSD menus only ⁵ |
| Video and Control | STP, 10/100 Base-T, auto-sensing, half/full duplex, RJ45 |
| On-screen Display | OSD with soft-key operation (multilingual) |
| Alarm Output Relay | 30 VAC or +40 VDC, max. 0.5 A continuous, 10 VA Tamper: Open/close, normally closed voltage free relay |

5. The analog video output is active only when interacting with the imager's OSD menus. Note that when analog video output is active, the IP video output is interrupted.

Video

| | |
|-----------------------|---------|
| Horizontal Resolution | 540 TVL |
| Signal-to-Noise Ratio | >50 dB |

| | |
|-------------------------------|--|
| Shutter | Auto (1/50 [1/60] to 1/10000) selectable Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable |
| Sensitivity up | Adjustable from Off up to 10x |
| Day/Night | Color, Mono, Auto Video, Auto Photocell |
| Day/Night Photocell Control | Day/Night switch adjustable: 25 lux to 64 lux (default at 48 lux) Night/Day switch adjustable: 43 lux to 82 lux (default at 63 lux) |
| Auto Black | Automatic continuous, Off |
| Dynamic engine | XF-Dynamic, 2X-Dynamic, SmartBLC |
| Dynamic range | 120 dB (20-bit image processing) |
| Dynamic Noise Reduction | Auto, On/off selectable |
| Sharpness | Sharpness enhancement level selectable |
| SmartBLC | On (includes 2X-Dynamic) / Off |
| AGC | AGC On or Off (0–30 dB) selectable |
| Peak White Invert | On/Off |
| White Balance | ATW, ATWhold and manual (2500 to 10000K) |
| Alarm Output | VMD or D/N and dedicated Tamper (for junction box) |
| Cable Compensation | Up to 1000 m (3000 ft) coax without external amplifiers (automatic set-up in combination with Bilinx coaxial communication) |
| Camera ID | 17 character editable string, position selectable |
| Test Pattern Generator | Color bars 100%, Grayscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane |
| Lens | 5–50 mm IR-corrected Varifocal auto-iris |
| Angular Field of View (H x V) | 5 mm FOV: 51° x 40° 50 mm FOV: 6° x 4° |
| Modes | 6 preset programmable modes |
| Video Motion Detection | One area, fully programmable |
| Privacy Masking | Four independent areas, fully programmable |
| Network | |
| Protocols | RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNMP, 802.1x, UPnP |
| Encryption | TLS 1.0, SSL, AES (optional) |
| Ethernet | STP, 10/100 Base-T, auto-sensing, half/full duplex, RJ45 |
| PoE+ supply | IEEE 802.3at, class 4 |

Software Control

| | |
|--------------------|--|
| Unit Configuration | Via web browser or Configuration Manager |
| Flicker Control | 50/60 Hz, selectable |
| Software update | Flash ROM, remote programmable |

Illuminator Specifications

| | |
|------------------------------|---|
| LEDs | 7 SMT type LED array with Variable Field Illumination |
| Beam Patterns (H x V) | Wide beam: 42° x 10° (with 3D diffuser) Narrow beam: 10° x 10° |
| Wavelength | 850 nm or 940 nm |
| Intensity Adjustment | 31 step adjustments from min. to max. |
| On/Off Control | Slave to camera mode Manual on/off control via OSD and IP Interface |
| Illumination Tilt Adjustment | Maximum: 13° tilt above camera axis Minimum: 3° tilt above camera axis |

IR Performance Ranges (0 Lux Environment)
(with dedicated power input)

| | 850 nm | | 940 nm | |
|-----------------------|-------------------|-----------------|------------------|-----------------|
| | Range | HFOI | Range | HFOI |
| Detection | 160 m (525 ft) | 28 m (90 ft) | 80 m (260 ft) | 14 m (45 ft) |
| Classification | 120 m (390 ft) | 21 m (70 ft) | 60 m (195 ft) | 10 m (35 ft) |
| Recognition | 90 m (295 ft) | 16 m (50 ft) | 45 m (150 ft) | 8 m (25 ft) |
| Identification | 50 m (165 ft) | 9 m (30 ft) | 25 m (80 ft) | 4 m (15 ft) |

DCRI values are narrow IR beam configuration at max. focal length.

IR Performance Ranges (0 Lux Environment)
(with PoE+ power input)

| | 850 nm | | 940 nm | |
|-----------------------|-------------------|-----------------|------------------|-----------------|
| | Range | HFOI | Range | HFOI |
| Detection | 140 m (455 ft) | 24 m (80 ft) | 70 m (230 ft) | 12 m (40 ft) |
| Classification | 105 m (340 ft) | 18 m (60 ft) | 52 m (170 ft) | 9 m (30 ft) |
| Recognition | 80 m (255 ft) | 14 m (45 ft) | 40 m (130 ft) | 7 m (20 ft) |
| Identification | 45 m (140 ft) | 8 m (25 ft) | 22 m (70 ft) | 4 m (10 ft) |

DCRI values are narrow IR beam configuration at max. focal length.

Mechanical

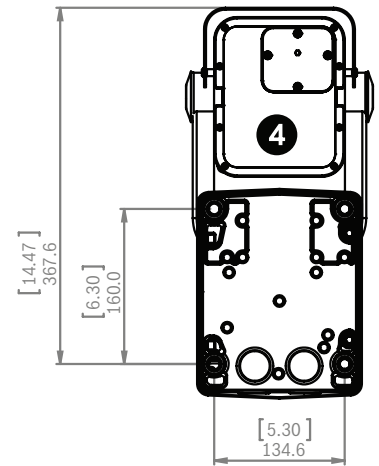
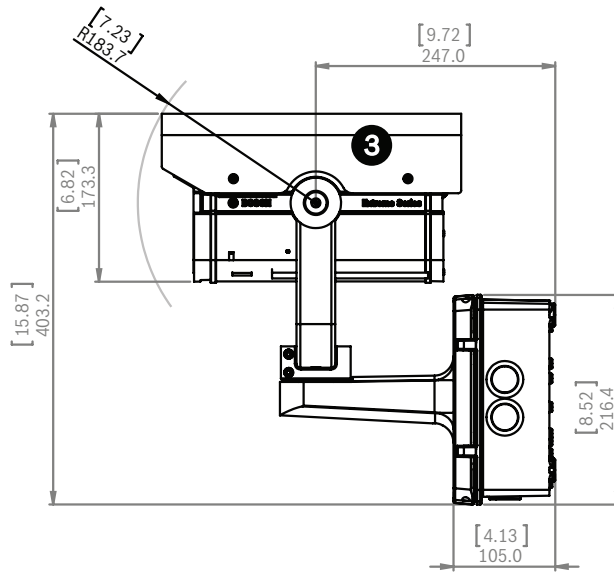
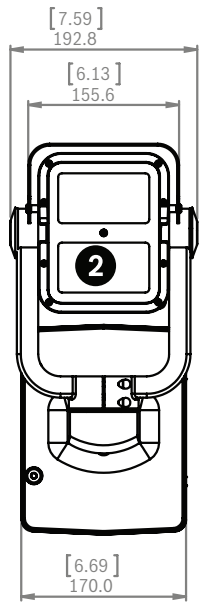
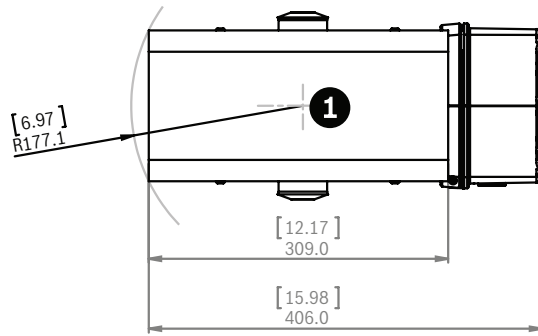
| Mechanical | |
|-------------------------------|--|
| Dimensions (H x W x L) | |
| • Camera and Bracket | 402 x 193 x 309 mm (15.8 x 7.6 x 12.2 in.) |
| • Total Assembly | 402 x 193 x 406 mm (15.8 x 7.6 x 16.0 in.) |
| Weight | |
| • Camera without Junction Box | 6.6 kg (14.5 lb) |
| • Junction Box | 1.4 kg (3.1 lb) |
| Construction | Corrosion-resistant aluminum |
| Color | RAL 9010 pure white with RAL 9005 jet black detail |
| Finish | Wet paint |
| Window | 3.3-mm (1/8-in.) thick glass |
| Bracket | Corrosion-resistant, cable-managed |
| Bracket Pan/Tilt Range | Pan: $\pm 90^\circ$ Tilt: $-48^\circ/+44^\circ$ |
| Junction Box | Separate from bracket allowing for wiring and cabling prior to camera installation |

Environmental

| Environmental | |
|--------------------------------|---|
| Operating Temperature | |
| • Standard ⁶ | -40°C to $+50^\circ\text{C}$ (-40°F to 122°F) |
| • With PoE+ Input ⁶ | -20°C to $+50^\circ\text{C}$ (-4°F to 122°F) |
| Storage Temperature | -40°C to $+70^\circ\text{C}$ (-40°F to 158°F) |
| Operating Humidity | 20% to 100% (condensing) |
| Storage Humidity | up to 100% |
| Weatherproofing | Type 4X (NEMA 4X) and IP67 |
| Solar Radiation | Tested to MIL-STD-810F test standard for solar radiation (for A1 rated environments) |

⁶ Warm-up period required for cold start at -40°C (-40°F).

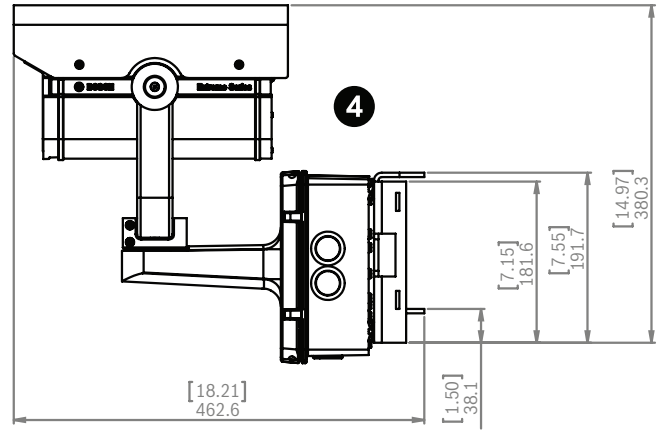
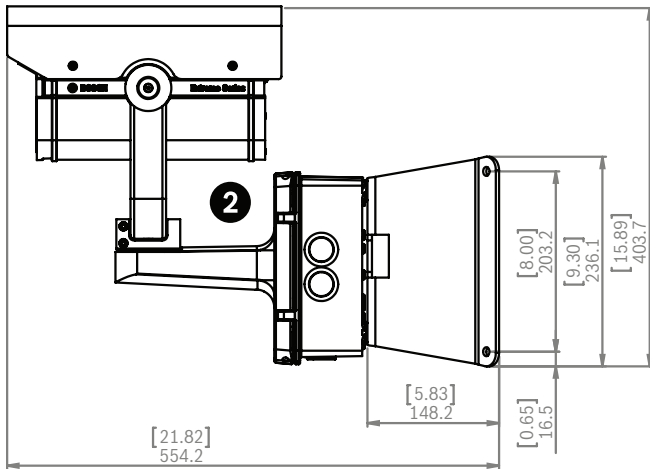
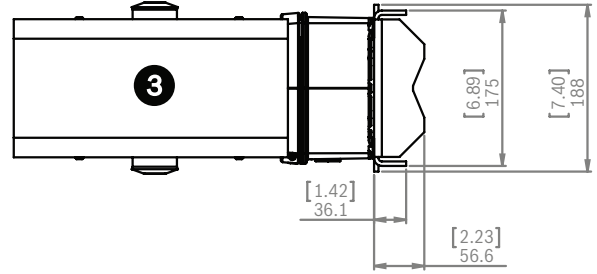
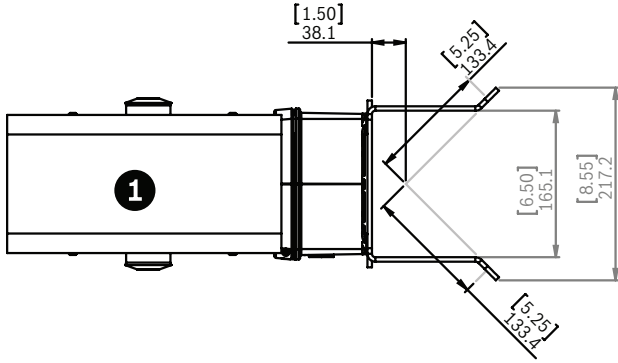
Dimensions



[in.]
mm

VEI-30 Dimensional Views

| | | | |
|---|-------|---|------|
| 1 | Top | 3 | Side |
| 2 | Front | 4 | Rear |



[in.]
mm

VEI-30 Dimensional Views – Mounts

| | | | |
|---|---------------------|---|-------------------|
| 1 | Corner Mount - Top | 3 | Pole Mount - Top |
| 2 | Corner Mount - Side | 4 | Pole Mount - Side |

Ordering information

NEI-308V05-13WE Dinion IP Infrared Imager with IVA, 850 nm, PAL

Dinion IP 2X imaging with IVA, 850 nm, 3D diffuser and Constant Light illumination, PAL, white
Order number **NEI-308V05-13WE**

NEI-308V05-23WE Dinion IP Infrared Imager with IVA, 850 nm, NTSC

Dinion IP 2X imaging with IVA, 850 nm, 3D diffuser and Constant Light illumination, NTSC, white
Order number **NEI-308V05-23WE**

NEI-309V05-13WE Dinion IP Infrared Imager with IVA, 940 nm, PAL

Dinion IP 2X imaging with IVA, 940 nm, 3D diffuser and Constant Light illumination, PAL, white
Order number **NEI-309V05-13WE**

NEI-309V05-23WE Dinion IP Infrared Imager with IVA, 940 nm, NTSC

Dinion IP 2X imaging with IVA, 940 nm, 3D diffuser and Constant Light illumination, NTSC, white
Order number **NEI-309V05-23WE**

Accessories

UPA-2450-60 Power Supply, 120 V, 60 Hz

Indoor, 120 VAC, 60 Hz In; 24 VAC, 50 VA Out
Order number **UPA-2450-60**

UPA-2450-50 Power Supply, 220 V, 50 Hz

Indoor, 220 VAC, 50 Hz In; 24 VAC, 50 VA Out
Order number **UPA-2450-50**

VG4-A-9541 Pole Mount Adapter

Pole mount adapter for an AUTODOME pendant arm or a DINION 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 pendant arm or a DINION imager
Order number **VG4-A-9542**

VG4-SBOX-COVER Cover for Power Supply Box

Spare cover for AutoDome power supply boxes and for the VEI-30 and NEI-30 junction boxes

Order number **VG4-SBOX-COVER**

Software Options

BVIP AES 128 Bit Encryption

One-time installation licence for BVIP AES 128-bit encryption site. Enables encrypted communication between BVIP devices and management stations.

Order number **MVS-FENC-AES**

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