

# AXIS P1387 Box Camera

## Reliable 5 MP indoor surveillance

AXIS P1387 delivers excellent image quality in 5 MP. Lightfinder 2.0 and Forensic WDR offer true colors and great detail in challenging light or near darkness. Electronic image stabilization ensures stable images despite vibration. And scene profiles can be automatically optimized to suit specific scenarios. PoE and redundant DC power safeguard data in the event of a power outage. With a DLPU, you can run advanced features and powerful analytics on the edge. Axis Edge Vault safeguards your device and protects sensitive information from unauthorized access. Furthermore, it offers an exchangeable lens and is also designed for use outdoors in a housing.

- > **Excellent image quality in 5 MP**
- > **Lightfinder 2.0 and Forensic WDR**
- > **Exchangeable lens**
- > **Analytics with deep learning**
- > **Built-in cybersecurity with Axis Edge Vault**



# AXIS P1387 Box Camera

## Camera

### Image sensor

1/2.7" progressive scan RGB CMOS  
Pixel size 2.0 µm

### Lens

Varifocal, 2.8–13 mm, F1.4  
Horizontal field of view: 112°–24°  
Vertical field of view: 80°–18°  
IR corrected, CS-mount lens, P-Iris control

### Day and night

Automatically removable infrared-cut filter

### Minimum illumination

5 MP 25/30 fps with Forensic WDR and Lightfinder 2.0:

Color: 0.1 lux at 50 IRE, F1.4

B/W: 0.02 lux at 50 IRE, F1.4

5 MP 50/60 fps with Lightfinder 2.0 :

Color: 0.2 lux at 50 IRE, F1.4

B/W: 0.04 lux at 50 IRE, F1.4

5 MP 25/30 fps with Forensic WDR and Lightfinder 2.0:

With optional F0.9 lens

Color: 0.04 lux at 50 IRE, F0.9

B/W: 0.008 lux at 50 IRE, F0.9

### Shutter speed

1/66500 s to 2 s with 50 Hz

1/66500 s to 2 s with 60 Hz

## System on chip (SoC)

### Model

ARTPEC-8

### Memory

2048 MB RAM, 8192 MB Flash

### Compute capabilities

Deep learning processing unit (DLPU)

## Video

### Video compression

H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles

H.265 (MPEG-H Part 2/HEVC) Main Profile  
Motion JPEG

### Resolution

16:9: 2592x1458 to 160x90

4:3: 2592x1944 to 160x120

### Frame rate

With forensic WDR: Up to 25/30 fps (50/60 Hz) in all resolutions

No WDR: Up to 50/60 fps (50/60 Hz) in all resolutions

### Video streaming

Up to 20 unique and configurable video streams<sup>1</sup>

Axis Zipstream technology in H.264 and H.265

Controllable frame rate and bandwidth

VBR/ABR/MBR H.264/H.265

Low latency mode

Video streaming indicator

### Signal-to-noise ratio

>55 dB

### WDR

Forensic WDR: Up to 120 dB depending on scene

### Multi-view streaming

Up to 8 individually cropped out view areas

### Noise reduction

Spatial filter (2D noise reduction)

Temporal filter (3D noise reduction)

### Image settings

Contrast, brightness, sharpness, white balance, day/night threshold, tone mapping, exposure mode, exposure zones, defogging, barrel distortion correction, compression, rotation: 0°, 90°, 180°, 270° including corridor format, mirroring, text and image overlay, dynamic text and image overlay, privacy masks, polygon privacy mask, target aperture  
Scene profiles: forensic, vivid, traffic overview

1. We recommend a maximum of 3 unique video streams per camera or channel, for optimized user experience, network bandwidth, and storage utilization. A unique video stream can be served to many video clients in the network using multicast or unicast transport method via built-in stream reuse functionality.

## Image processing

Axis Zipstream, Forensic WDR, Lightfinder 2.0

### Pan/Tilt/Zoom

Digital PTZ, preset positions  
Preset position tour, control queue, on-screen directional indicator  
Guard tour (max 100)

## Audio

### Audio features

Automatic gain control  
Speaker pairing

### Audio streaming

Configurable duplex:  
One-way (simplex)  
Two-way (half duplex, full duplex)

### Audio input

Input for external unbalanced microphone, optional 5 V microphone power  
Digital input, optional 12 V ring power  
Unbalanced line input  
Built-in microphone (can be disabled)

### Audio output

Output through speaker pairing

### Audio encoding

24bit LPCM, AAC-LC 8/16/32/48 kHz, G.711 PCM 8 kHz, G.726 ADPCM 8 kHz, Opus 8/16/48 kHz

## Network

### Network protocols

IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS<sup>2</sup>, HTTP/2, TLS<sup>2</sup>, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, NTS, RTSP, RTP, SRTP/RTSPS, TCP, UDP, IGMPv1/v2/v3, RTCP, ICMP, DHCPv4/v6, ARP, SSH, LLDP, CDP, MQTT v3.1.1, Secure syslog (RFC 3164/5424, UDP/TCP/TLS), Link-Local address (ZeroConf), IEEE 802.1X (EAP-TLS), IEEE 802.1AR  
IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS<sup>2</sup>, HTTP/2, TLS<sup>2</sup>, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, NTS, RTSP, RTP, SRTP/RTSPS, TCP, UDP, IGMPv1/v2/v3, RTCP, ICMP, DHCPv4/v6, ARP, SSH, LLDP, CDP, MQTT v3.1.1, Secure syslog (RFC 3164/5424, UDP/TCP/TLS), Link-Local address (ZeroConf), IEEE 802.1X (EAP-TLS), IEEE 802.1AR

## System integration

### Application Programming Interface

Open API for software integration, including VAPIX®, metadata and AXIS Camera Application Platform (ACAP); specifications at [axis.com/developer-community](https://axis.com/developer-community).  
One-click cloud connection  
ONVIF® Profile G, ONVIF® Profile M, ONVIF® Profile S, and ONVIF® Profile T, specifications at [onvif.org](https://onvif.org)

### Video management systems

Compatible with AXIS Camera Station Edge, AXIS Camera Station Pro, AXIS Camera Station 5, and video management software from Axis' partners available at [axis.com/vms](https://axis.com/vms).

### Onscreen controls

Electronic image stabilization  
Day/night shift  
Defogging  
Wide dynamic range  
Video streaming indicator  
Autofocus  
Privacy masks  
Media clip

### Edge-to-edge

Microphone pairing  
Speaker pairing

### Event conditions

Audio: audio detection, audio clip playing  
Device status: above/below/within operating temperature, IP address removed/blocked, new IP address, network lost, system ready, ring power overcurrent protection, live stream active  
Digital audio input status  
Edge storage: recording ongoing, storage disruption, storage health issues detected  
I/O: digital input, digital output, manual trigger, virtual input  
MQTT: stateless  
Scheduled and recurring: schedule  
Video: average bitrate degradation, day-night mode, tampering

2. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. ([openssl.org](https://openssl.org)), and cryptographic software written by Eric Young ([ey@cryptsoft.com](mailto:ey@cryptsoft.com)).

## Event actions

Audio clips: play, stop

Day-night mode

I/O: toggle I/O once, toggle I/O while the rule is active

MQTT: publish

Notification: HTTP, HTTPS, TCP and email

Overlay text

Recordings: record, record while the rule is active

SNMP traps: send, send while the rule is active

Status LED: flash, flash while the rule is active

Upload of images or video clips: FTP, SFTP, HTTP, HTTPS, network share and email

WDR mode

## Built-in installation aids

Leveling assistant, remote back focus

## Analytics

### Applications

Included:

AXIS Object Analytics, AXIS Scene Metadata, AXIS Image Health Analytics, AXIS Live Privacy Shield<sup>3</sup>, AXIS Video Motion Detection

Supported:

Support for AXIS Camera Application Platform enabling installation of third-party applications, see [axis.com/acap](https://axis.com/acap)

### AXIS Object Analytics

**Object classes:** humans, vehicles (types: cars, buses, trucks, bikes, other)

**Scenarios:** line crossing, object in area, time in area, crossline counting, occupancy in area  
Up to 10 scenarios

**Other features:** triggered objects visualized with trajectories, color-coded bounding boxes and tables  
Polygon include/exclude areas  
Perspective configuration  
ONVIF Motion Alarm event

### AXIS Image Health Analytics

**Detection settings:**

Tampering: blocked image, redirected image

Image degradation: blurred image, underexposed image

**Other features:** sensitivity, validation period

### AXIS Scene Metadata

**Object classes:** humans, faces, vehicles (types: cars, buses, trucks, bikes), license plates

**Object attributes:** confidence, position

## Approvals

### Product markings

UL/cUL, UKCA, CE, KC, EAC, VCCI, RCM

### EMC

CISPR 35, CISPR 32 Class A, EN 55035, EN 55032 Class A, EN 50121-4, EN 61000-6-1, EN 61000-6-2

**Japan:** VCCI Class A

**Korea:** KS C 9835, KS C 9832 Class A

**USA:** FCC Part 15 Subpart B Class A

### Safety

CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN/UL 62368-1 ed. 3, IS 13252

### Environment

IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-78

### Network

NIST SP500-267, IPv6 USGv6

### Cybersecurity

ETSI EN 303 645, BSI IT Security Label, FIPS 140

## Cybersecurity

### Edge security

**Software:** Signed OS, brute force delay protection, digest authentication and OAuth 2.0 RFC6749 OpenID Authorization Code Flow for centralized ADFS account management, password protection, Axis Cryptographic Module (FIPS 140-2 level 1)

**Hardware:** Axis Edge Vault cybersecurity platform  
Secure element (CC EAL 6+), Axis device ID, secure keystore, signed video, secure boot

### Network security

IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2)<sup>4</sup>, IEEE 802.1AR, HTTPS/HSTS<sup>4</sup>, TLS v1.2/v1.3<sup>4</sup>, Network Time Security (NTS), X.509 Certificate PKI, IP address filtering  
IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2)<sup>4</sup>, IEEE 802.1AR, HTTPS/HSTS<sup>4</sup>, TLS v1.2/v1.3<sup>4</sup>, Network Time Security (NTS), X.509 Certificate PKI, IP address filtering

3. Available for download

4. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. ([openssl.org](https://openssl.org)), and cryptographic software written by Eric Young ([ey@cryptsoft.com](mailto:ey@cryptsoft.com)).

## Documentation

*AXIS OS Hardening Guide*

*Axis Vulnerability Management Policy*

*Axis Security Development Model*

AXIS OS Software Bill of Material (SBOM)

To download documents, go to [axis.com/support/cybersecurity/resources](https://axis.com/support/cybersecurity/resources)

To read more about Axis cybersecurity support, go to [axis.com/cybersecurity](https://axis.com/cybersecurity)

## General

### Casing

Aluminum casing

Weathershield with black anti-glare coating

Color: white NCS S 1002-B, black NCS S 9000-N

### Mounting

1/4"-20 UNC tripod screw thread

Camera stand included

### Power

Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3

Typical 4.24 W, max 11.73 W

10-28 V DC, typical 4.26 W, max 10.57 W

### Connectors

Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE

I/O: 6-pin 2.5 mm terminal block for 2 supervised alarm inputs and 2 outputs (12 V DC output, max load 50 mA)

Audio: 3.5 mm mic/line in

Serial communication: RS485/RS422, 2 pcs, 2 pos, full duplex, terminal block

Power: DC input, terminal block

Lens: i-CS connector (compatible with P-Iris and DC-iris)

AXIS T92G20 connector

### Storage

Support for microSD/microSDHC/microSDXC card

Support for SD card encryption (AES-XTS-Plain64 256bit)

Recording to network-attached storage (NAS)

For SD card and NAS recommendations see [axis.com](https://axis.com)

### Operating conditions

-10 °C to 55 °C (14 °F to 131 °F)

Humidity 10-85% RH (non-condensing)

### Storage conditions

-40 °C to 65 °C (-40 °F to 149 °F)

Humidity 5-95% RH (non-condensing)

## Dimensions

For the overall product dimensions, see the dimension drawing in this datasheet.

## Weight

775 g (1.7 lb) including stand

480 g (1.1 lb) for camera only

## Box content

Camera, installation guide, terminal block connectors, owner authentication key, AXIS T91B21 Stand Black

## Optional accessories

AXIS Microphones, AXIS Midspans

AXIS T8415 Wireless Installation Tool

AXIS Surveillance Cards

For more accessories, go to [axis.com/products/axis-p1387#accessories](https://axis.com/products/axis-p1387#accessories)

## System tools

AXIS Site Designer, AXIS Device Manager, AXIS Device Manager Extend, product selector, accessory selector, lens calculator

Available at [axis.com](https://axis.com)

## Languages

English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Polish, Traditional Chinese, Dutch, Czech, Swedish, Finnish, Turkish, Thai, Vietnamese

## Warranty

5-year warranty, see [axis.com/warranty](https://axis.com/warranty)

## Part numbers

Available at [axis.com/products/axis-p1387#part-numbers](https://axis.com/products/axis-p1387#part-numbers)

## Sustainability

### Substance control

PVC free, BFR/CFR free in accordance with JEDEC/ECA Standard JS709

RoHS in accordance with EU RoHS Directive 2011/65/EU/ and EN 63000:2018

REACH in accordance with (EC) No 1907/2006. For SCIP UUID, see [echa.europa.eu](https://echa.europa.eu)

## **Materials**

Renewable carbon-based plastic content: 3% (bio-based)

Screened for conflict minerals in accordance with OECD guidelines

To read more about sustainability at Axis, go to [axis.com/about-axis/sustainability](https://axis.com/about-axis/sustainability)

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## **Environmental responsibility**

[axis.com/environmental-responsibility](https://axis.com/environmental-responsibility)

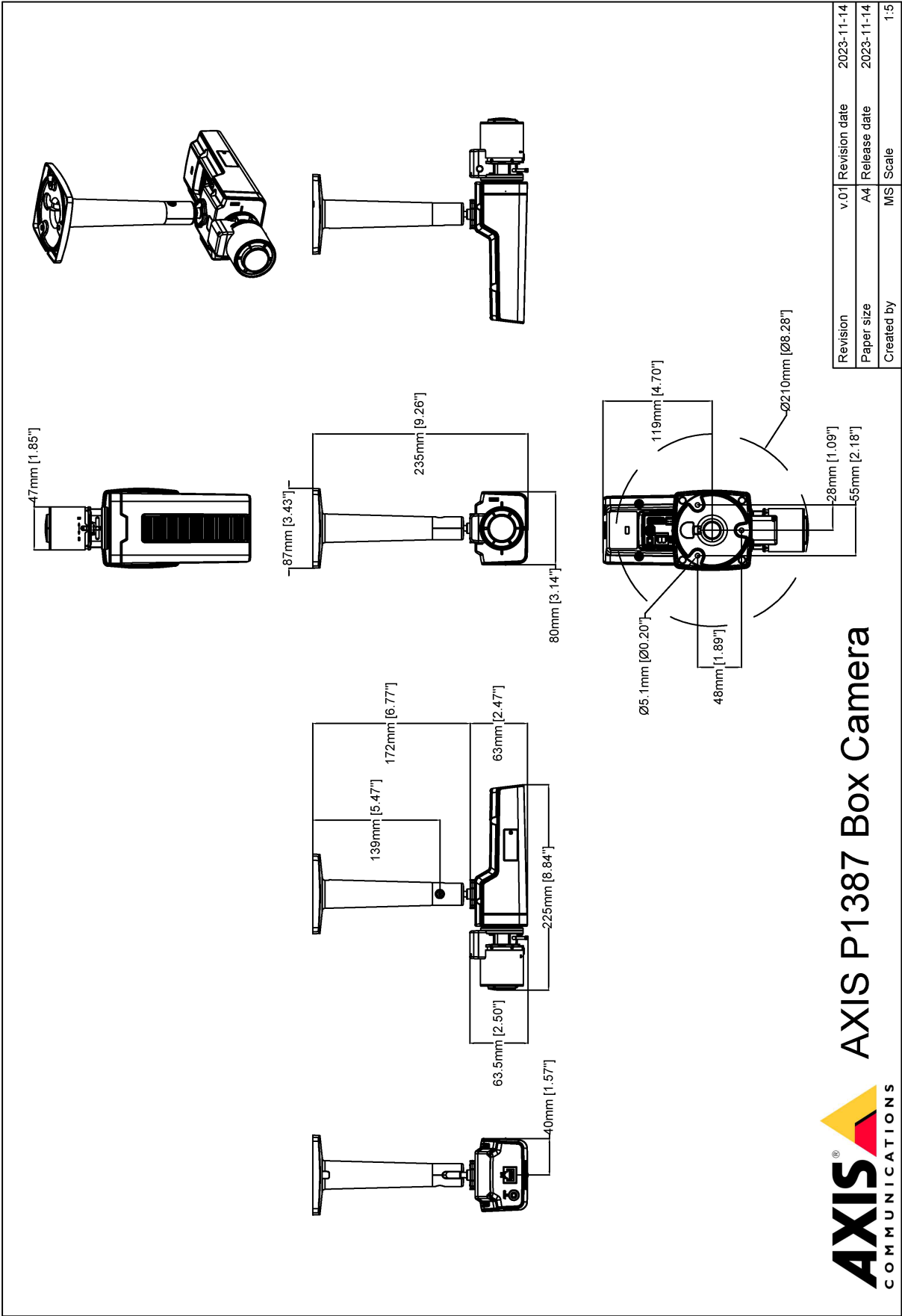
Axis Communications is a signatory of the UN Global Compact, read more at [unglobalcompact.org](https://unglobalcompact.org)

**Detect, Observe, Recognize, Identify (DORI)**

	DORI definition	Distance (wide)	Distance (tele)
Detect	25 px/m (8 px/ft)	56.2 m (184.3 ft)	244.2 m (801.3 ft)
Observe	63 px/m (19 px/ft)	22.3 m (73.2 ft)	96.9 m (318.0 ft)
Recognize	125 px/m (38 px/ft)	11.2 m (36.9 ft)	48.8 m (160.3 ft)
Identify	250 px/m (76 px/ft)	5.6 m (18.4 ft)	24.4 m (80.1 ft)

The DORI values are calculated using pixel densities for different use cases as recommended by the EN-62676-4 standard. The calculations use the center of the image as the reference point and consider lens distortion. The possibility to recognize or identify a person or object depends on factors such as object motion, video compression, lighting conditions, and camera focus. Use margins when planning. The pixel density varies across the image, and the calculated values can differ from the distances in the real world.

Dimension drawing





## Highlighted capabilities

### AXIS Object Analytics

AXIS Object Analytics is a preinstalled, multifeatured video analytics that detects and classifies humans, vehicles, and types of vehicles. Thanks to AI-based algorithms and behavioral conditions, it analyzes the scene and their spatial behavior within – all tailored to your specific needs. Scalable and edge-based, it requires minimum effort to set up and supports various scenarios running simultaneously.

### Axis Edge Vault

Axis Edge Vault is the hardware-based cybersecurity platform that safeguards the Axis device. It forms the foundation that all secure operations depend on and offer features to protect the device's identity, safeguard its integrity and protect sensitive information from unauthorized access. For instance, **secure boot** ensures that a device can boot only with **signed OS**, which prevents physical supply chain tampering. With signed OS, the device is also able to validate new device software before accepting to install it. And the **secure keystore** is the critical building-block for protecting cryptographic information used for secure communication (IEEE 802.1X, HTTPS, Axis device ID, access control keys etc.) against malicious extraction in the event of a security breach. The secure keystore and secure connections are provided through a Common Criteria or FIPS 140 certified hardware-based cryptographic computing module.

Furthermore, signed video ensures that video evidence can be verified as untampered. Each camera uses its unique video signing key, which is securely stored in the secure keystore, to add a signature into the video stream allowing video to be traced back to the Axis camera from where it originated.

To read more about Axis Edge Vault, go to [axis.com/solutions/edge-vault](https://axis.com/solutions/edge-vault).

### Electronic image stabilization

Electronic image stabilization (EIS) provides smooth video in situations where a camera is subject to vibrations. Built-in gyroscopic sensors continuously detect the camera's movements and vibrations, and they automatically adjust the frame to ensure you always capture the details you need. Electronic image stabilization relies on different algorithms for modeling camera motion, which are used to correct the images.

### Forensic WDR

Axis cameras with wide dynamic range (WDR) technology make the difference between seeing important forensic details clearly and seeing nothing but a blur in challenging light conditions. The difference between the darkest and the brightest spots can spell

trouble for image usability and clarity. Forensic WDR effectively reduces visible noise and artifacts to deliver video tuned for maximal forensic usability.

### Lightfinder

The Axis Lightfinder technology delivers high-resolution, full-color video with a minimum of motion blur even in near darkness. Because it strips away noise, Lightfinder makes dark areas in a scene visible and captures details in very low light. Cameras with Lightfinder discern color in low light better than the human eye. In surveillance, color may be the critical factor to identify a person, an object, or a vehicle.

For more information, see [axis.com/glossary](https://axis.com/glossary)