

## AXIS Q6020-E Panoramic Camera

AI-based, 360° overview, easy installation

This camera offers 4x5 MP with four 1/2" sensors. Designed for operation with AXIS Q60 PTZ Series, you can move from overview to zoomed-in details in one click. A deep learning processing unit lets you run advanced features and powerful analytics at the edge. Autofocus and auto-alignment functionality can automatically adjust the camera sensors and PTZ camera, eliminating the need for hands-on fine-tuning. Furthermore, Axis Edge Vault, our hardware-based cybersecurity platform, safeguards the device and protects sensitive information from unauthorized access. And a USB port allows installers to insert a Wi-Fi dongle and quickly see the camera view as they adjust it.

- > 360° camera with 4 x 5 MP sensors
- > Current AXIS Q60 PTZ Camera recommended
- > Easy installation with support for Wi-Fi dongle
- > Autofocus and auto-alignment functionality
- > Built-in cybersecurity with Axis Edge Vault



# AXIS Q6020-E Panoramic Camera

## Camera

### Image sensor

4x 1/2" progressive scan RGB CMOS  
Pixel size 2.9 µm

### Lens

3.7 mm, F2.0  
Horizontal field of view: 360°, 108.4° for each sensor  
Vertical field of view: 84°  
Minimum focus distance: 1.0 m (3.3 ft)  
Autofocus, M14 mount, fixed iris

### Day and night

Automatic IR-cut filter

### Minimum illumination

Color: 0.06 lux at 50 IRE, F2.0  
B/W: 0.03 lux at 50 IRE, F2.0

### Shutter speed

1/66500 s to 2 s

### Camera adjustment

Pan ±180°, tilt -40 to +75°, rotation ±95°

## System on chip (SoC)

### Model

ARTPEC-8 (x2)

### Memory

8 GB RAM, 8 GB 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

4 x 2592x1944 to 320x240  
Default: 2592x1944

### Frame rate

Up to 30 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

### Noise reduction

Spatial filter (2D noise reduction)  
Temporal filter (3D noise reduction)

### Image settings

Saturation, contrast, brightness, sharpness, white balance, day/night threshold, local contrast, tone mapping, exposure mode, exposure zones, defog, compression, rotation: 0°, 90°, 180°, 270° including corridor format, text and image overlay, dynamic text and image overlay, overlay widget, 32 individual polygon privacy masks including mosaic privacy masks  
Scene profiles: outdoor, indoor, forensic

### Image processing

Axis Zipstream, Forensic WDR, Lightfinder 2.0

## Audio

### Audio features

Speaker pairing

### Audio output

Output through speaker pairing or portcast technology

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.

## 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, PTP, 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)

## System integration

### Application Programming Interface

Open API for software integration, including VAPIX® 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, and video management software from Axis' partners available at [axis.com/vms](https://axis.com/vms).

### Onscreen controls

Privacy masks  
Autopilot  
Media clip  
Heater

### Edge-to-edge

Speaker pairing

### Event conditions

Application: autopilot tracking  
Device status: above/below operating temperature, fan failure, IP address blocked, IP address removed, live stream active, network lost, new IP address, PTZ power failure, system ready, within operating temperature  
Edge storage: recording ongoing, storage disruption, storage health issues detected  
I/O: manual trigger, virtual input  
MQTT: MQTT client connected, stateless  
PTZ: PTZ malfunctioning, PTZ movement on camera, PTZ ready  
Scheduled and recurring: schedule  
Video: average bitrate degradation, day-night-mode, tampering

### Event actions

Autopilot: turn on autopilot  
Day-night-mode: use mode  
Defog: set mode  
Images: send through FTP, SFTP, HTTP, HTTPS, network share and email  
LEDs: flash status LED  
MQTT: send publish message  
Notification: send through HTTP, HTTPS, TCP and email  
Overlay text: use overlay text  
Recordings: record video  
Security: erase configuration  
SNMP trap messages: send message  
Video clips: FTP, SFTP, HTTP, HTTPS, network share and email

### Built-in installation aids

Pixel counter, remote focus, level grid

## Analytics

### Applications

#### Included

AXIS Object Analytics, AXIS Scene Metadata, AXIS Video Motion Detection, active tampering alarm

#### Supported

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

### Multisensor analytics

4 channels analytics support

### AXIS Object Analytics

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

**Scenarios:** line crossing, object in area, object in area - Autopilot, time in area, crossline counting, occupancy in area, tailgating detection, PPE monitoring<sup>BETA</sup>, motion in area, motion in area - Autopilot, motion line crossing  
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 Scene Metadata

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

**Object attributes:** vehicle color, upper/lower clothing color, confidence, position

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 ([eay@cryptsoft.com](mailto:eay@cryptsoft.com)).

## Approvals

### Product markings

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

### Supply chain

TAA compliant

### EMC

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

**Australia/New Zealand:** RCM AS/NZS CISPR 32 Class A

**Canada:** ICES(A)/NMB(A)

**Japan:** VCCI Class A

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

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

**Railway:** IEC 62236-4

### Safety

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

### 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,  
IEC/EN 60529 IP66, IEC/EN 62262 IK10, NEMA 250  
Type 4X, NEMA TS 2 (2.2.7-2.2.9), ISO 12944-6 C5,  
ISO 21207 (Method B)

### Network

NIST SP500-267

### 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 Client Credential Flow/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 keystore: secure element (CC EAL 6+, FIPS 140-3 Level 3)

Axis device ID, signed video, secure boot, encrypted filesystem (AES-XTS-Plain64 256bit)

### Network security

IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2)<sup>3</sup>,  
IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR,  
HTTPS/HSTS,<sup>3</sup> TLS v1.2/v1.3<sup>3</sup>, Network Time Security (NTS), X.509 Certificate PKI, host-based firewall

### 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

IP66-, NEMA 4X- and IK10-rated

Polycarbonate dome

Aluminum and polymer casing

Color: white NCS S 1002-B

For repainting instructions, go to the product's support page. For information about the impact on warranty, go to [axis.com/warranty-implication-when-repainting](https://axis.com/warranty-implication-when-repainting).

### Power

**Panoramic camera with Solo kit:**

Power over Ethernet (PoE) IEEE 802.3bt 60 W

Power consumption: typical 14.3 W, max 51 W

**Panoramic camera with PTZ camera:**

Warmer than -30 °C (-22 °F): Power over Ethernet (PoE) IEEE 802.3bt 60 W

Power consumption: typical 30.3 W, max 80 W

Colder than -30 °C (-22 °F): AXIS High PoE 120 W

Power consumption: typical 30.3 W, max 103.4 W

Features: power profiles, power meter

### Connectors

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

USB: for Wi-Fi dongle compatible with Mediatek Inc MT7612U chip, supported USB class: Vendor specific

### 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)

3. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (openssl.org), and cryptographic software written by Eric Young (eay@cryptsoft.com).

## Operating conditions

Maximum temperature according to NEMA TS 2 (2.2.7): 74 °C (165 °F)

### Panoramic camera with Solo kit:

Temperature: -50 °C to 55 °C (-58 °F to 131 °F)

Start-up temperature: -40 °C (-40 °F)

### Panoramic camera with PTZ camera:

Temperature with Power over Ethernet (PoE)

IEEE 802.3bt 60 W: -30 °C to 55 °C (-22 °F to 131 °F)

Start-up temperature: -30 °C (-22 °F)

Temperature with Axis High PoE 120 W: -50 °C to 55 °C (-58 °F to 131 °F)

Start-up temperature: -40 °C (-40 °F)

Humidity: 10–100% RH (condensing)

## Storage conditions

Temperature: -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.

Effective Projected Area (EPA): 0.058 m<sup>2</sup> (0.62 ft<sup>2</sup>)

## Weight

4.7 kg (10.4 lb)

## Box content

Camera, adapter bracket, installation guide, owner authentication key

## Optional accessories

Lens M14 7.6 mm F2.0 IR, Horizontal field of view: 58.5°

Lens M14 14.1 mm F2.0 IR, Horizontal field of view: 31°

Lens M14 21.4 mm F2.0 IR, Horizontal field of view: 19.9°

Lens M14 30.8 mm F2.4 IR, Horizontal field of view: 13.8°

AXIS T8415 Wireless Installation Tool

AXIS Surveillance Cards

For more accessories, go to [axis.com/products/axis-q6020-e#accessories](https://axis.com/products/axis-q6020-e#accessories)

## System tools

AXIS Site Designer, AXIS Device Manager, 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-q6020-e#part-numbers](https://axis.com/products/axis-q6020-e#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 2015/863, and standard EN IEC 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: 35.4% (recycled: 31%, bio-based: 4.4%)

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)

### 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)

### 3.7 mm lens

	DORI definition	Distance
Detect	25 px/m (8 px/ft)	46.1 m (151.2 ft)
Observe	63 px/m (19 px/ft)	19.4 m (63.6 ft)
Recognize	125 px/m (38 px/ft)	10 m (32.8 ft)
Identify	250 px/m (76 px/ft)	5.1 m (16.7 ft)

### 8 mm lens

	DORI definition	Distance
Detect	25 px/m (8 px/ft)	99.0 m (324.8 ft)
Observe	63 px/m (19 px/ft)	40.8 m (133.9 ft)
Recognize	125 px/m (38 px/ft)	20.8 m (68.2 ft)
Identify	250 px/m (76 px/ft)	10.5 m (34.4 ft)

### 14 mm lens

	DORI definition	Distance
Detect	25 px/m (8 px/ft)	180.9 m (593.5 ft)
Observe	63 px/m (19 px/ft)	75.3 m (247.0 ft)
Recognize	125 px/m (38 px/ft)	38.5 m (126.3 ft)
Identify	250 px/m (76 px/ft)	19.4 m (63.6 ft)

### 21 mm lens

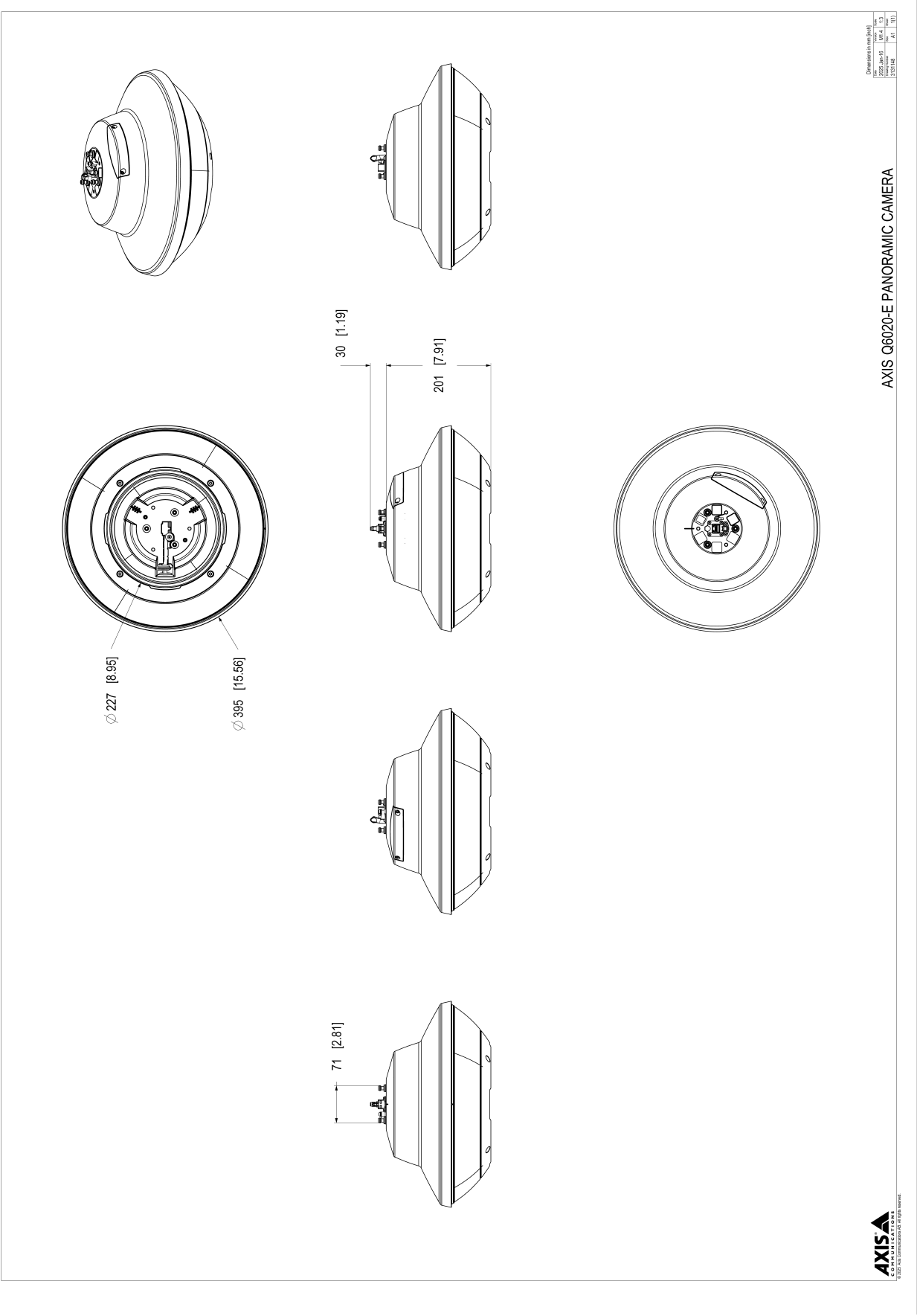
	DORI definition	Distance
Detect	25 px/m (8 px/ft)	317.5 m (1041.7 ft)
Observe	63 px/m (19 px/ft)	120.9 m (396.7 ft)
Recognize	125 px/m (38 px/ft)	60.1 m (197.2 ft)
Identify	250 px/m (76 px/ft)	29.9 m (98.1 ft)

### 31 mm lens

	DORI definition	Distance
Detect	25 px/m (8 px/ft)	428.7 m (1406.5 ft)
Observe	63 px/m (19 px/ft)	169.3 m (555.4 ft)
Recognize	125 px/m (38 px/ft)	85.2 m (279.5 ft)
Identify	250 px/m (76 px/ft)	42.6 m (139.8 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 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).

### 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.