

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⁽¹⁾
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

Features

Speaker pairing

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⁽²⁾, HTTP/2, TLS⁽²⁾, 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.

One-click cloud connection

ONVIF® Profile G, ONVIF® Profile M, ONVIF® Profile S, and ONVIF® Profile T, specifications at 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.

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 Image Health Analytics, AXIS Scene Metadata, AXIS Video Motion Detection, active tampering alarm, sound pressure level (SPL), adaptive audio detection

Supported

Support for AXIS Camera Application Platform enabling installation of third-party applications, see 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^{BETA}, 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 Image Health Analytics

Detection settings:

Tampering: blocked image, redirected image
Image degradation: blurred image, underexposed image
Other features: sensitivity, validation period

2. 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).

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

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)⁽³⁾, IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS, ⁽³⁾, TLS v1.2/v1.3⁽³⁾, 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

To read more about Axis cybersecurity support, go to 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.

Power

AXIS Q6020-E with Solo Kit (without a PTZ)

PoE, IEEE 802.3bt Dual signature Class 4 (60 W)

Power consumption: typical (heater off) 14.3 W, max 51 W

Features: power profiles, power meter

Connectors

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

USB: Support for AXIS TU9005 Wireless Dongle

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 (ey@cryptsoft.com).

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

Operating conditions

AXIS Q6020-E with Solo Kit (without a PTZ)
PoE, IEEE 802.3bt Dual signature Class 4 (60 W)
-50 °C to 55 °C (-58 °F to 131 °F)
Maximum temperature according to NEMA TS 2 (2.2.7):
74 °C (165 °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 m² (0.62 ft²)

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

System tools

AXIS Site Designer, AXIS Device Manager, product selector, accessory selector, lens calculator
Available at 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

Part numbers

Available at 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

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

Environmental responsibility

axis.com/environmental-responsibility
Axis Communications is a signatory of the UN Global Compact, read more at unglobalcompact.org

Power-optimized performance

Power

AXIS Q6020-E with Solo Kit (without a PTZ)
PoE, IEEE 802.3bt Dual signature Class 4 (60 W), Low power profile
PoE, IEEE 802.3bt Single Signature Class 4 (30 W), Full/Low power profile
Power consumption: typical (heater off) 14.3 W, max 25.5 W

Operating conditions

AXIS Q6020-E with Solo Kit (without a PTZ)
PoE, IEEE 802.3bt Dual signature Class 4 (60 W), Low power profile
PoE, IEEE 802.3bt Single signature Class 4 (30 W), Full/Low power profile
-40 °C to 55 °C (-40 °F to 131 °F)
Start-up temperature: -30 °C (-22 °F)

Power when combined with other products

Combined with AXIS Q6086-E PTZ Network Camera

Power	PoE, IEEE 802.3bt Dual signature Class 5 (90 W)
Power consumption	Typical (heater off) 24.3 W, max 80 W
Operating conditions	-45 °C to 50 °C (-49 °F to 122 °F)
Start-up temperature (with Arctic Temperature Control)	-40 °C (-40 °F)

POWER-OPTIMIZED PERFORMANCE

Power	PoE, IEEE 802.3bt Dual signature Class 5 (90 W), Low power profile on both cameras or PoE, IEEE 802.3bt Dual signature Class 4 (60 W), Full/Low power profile
Power consumption	Typical (heater off) 24.3 W, max 51 W
Operating conditions	-30 °C to 50 °C (-22 °F to 122 °F)
Start-up temperature (with Arctic Temperature Control)	-30 °C (-22 °F)

Combined with AXIS Q6088-E PTZ Network Camera

Power	PoE, IEEE 802.3bt Dual signature Class 5 (90 W)
Power consumption	Typical (heater off) 26.0 W, max 80 W
Operating conditions	-45 °C to 50 °C (-49 °F to 122 °F)
Start-up temperature (with Arctic Temperature Control)	-40 °C (-40 °F)

POWER-OPTIMIZED PERFORMANCE

Power	PoE, IEEE 802.3bt Dual signature Class 5 (90 W), Low power profile on both cameras or PoE, IEEE 802.3bt Dual signature Class 4 (60 W), Full/Low power profile
Power consumption	Typical (heater off) 26.0 W, max 51 W
Operating conditions	-30 °C to 50 °C (-22 °F to 122 °F)
Start-up temperature (with Arctic Temperature Control)	-30 °C (-22 °F)

Combined with AXIS Q6074/75/78-E PTZ Network Camera

Power	PoE, IEEE 802.3bt Dual signature Class 5 (90 W)
Power consumption	Typical (heater off) 28.3 W, max 80 W
Operating conditions	-45 °C to 50 °C (-49 °F to 122 °F)
Start-up temperature (with Arctic Temperature Control)	-40 °C (-40 °F)

POWER-OPTIMIZED PERFORMANCE

Power	PoE, IEEE 802.3bt Dual signature Class 4 (60 W)
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Power consumption	Typical (heater off) 28.3 W, max 51 W
Operating conditions	-30 °C to 50 °C (-22 °F to 122 °F)
Start-up temperature (with Arctic Temperature Control)	-30 °C (-22 °F)

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)

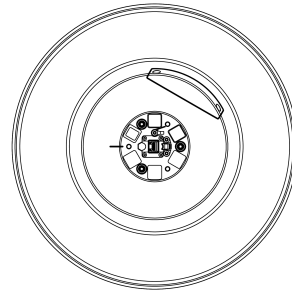
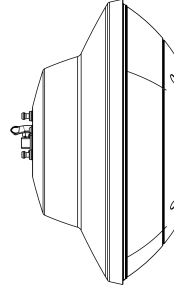
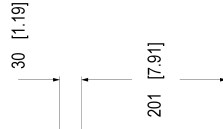
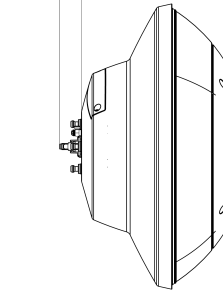
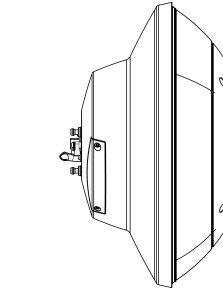
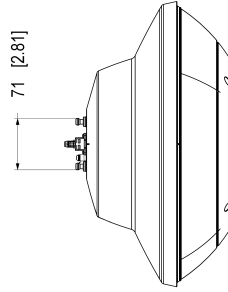
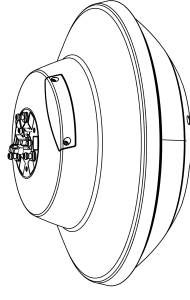
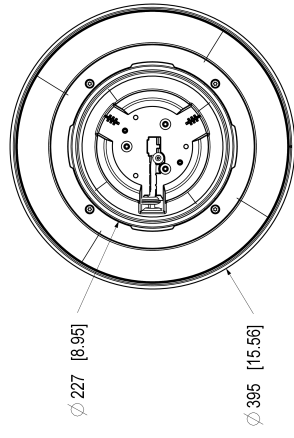
21 mm lens

	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.



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.

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.

Autopilot

Autopilot is an application that monitors an area of interest. Events on the device can be set to trigger an alarm or to start recording a video if a person, vehicle or other objects are moving in the area.

To use the application on multichannel devices, configure and run the application on at least one device.