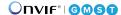# AXIS Q1656-LE Box Camera
Outstanding performance in 4 MP

With 4 MP resolution at up to 60 fps, a 1/1.8" sensor, and Lightfinder 2.0, AXIS Q1656-LE delivers exceptional video quality even in poor light conditions. Plus, a built-in wiper ensures great images in all weather conditions. Based on the latest Axis system-on-chip (SoC), it offers support for advanced features and powerful applications based on deep learning on the edge. And, AXIS Object Analytics offers highly nuanced object classification. This outdoor-ready camera includes premium Q-line functionality and support for PoE and redundant DC power. Furthermore, enhanced security functionality prevents unauthorized access and safeguards your system.

> **Exceptional images with 1/1.8" sensor**
> **Support for analytics with deep learning**
> **Enhanced security features**
> **Premium Axis Q-line camera functionality**
> **Built-in wiper for snow and rain**

AXIS Q1656-LE Box Camera

Camera

Image sensor
1/1.8" progressive scan RGB CMOS

Lens
Varifocal, 3.9–10 mm, F1.5
Horizontal field of view: 113°–47°
Vertical field of view: 60°–27°
Autofocus, i-CS lens, IR corrected, remote zoom and focus, P-Iris control
Minimum focus distance: 0.5 m (1.6 ft)

Day and night
Automatically removable infrared-cut filter

Minimum illumination
4 MP 25/30 fps with Forensic WDR and Lightfinder 2.0
Color: 0.05 lux at 50 IRE, F1.5
B/W: 0.01 lux at 50 IRE, F1.5
4 MP 50/60 fps with Lightfinder 2.0
Color: 0.1 lux at 50 IRE, F1.5
B/W: 0.02 lux at 50 IRE, F1.5
4 MP 25/30 fps with Forensic WDR and Lightfinder 2.0
With optional F0.9 lens
Color: 0.02 lux at 50 IRE, F0.9
B/W: 0.004 lux at 50 IRE, F0.9
0 lux with IR illumination on

Shutter speed
1/47500 s to 1 s

System on chip (SoC)

Model
ARTPEC-8

Memory
2048 MB RAM, 8194 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 2688x1512 Quad HD to 160x90
4:3 2016x1512 to 160x120

Frame rate
No WDR: Up to 60/50 fps (60/50 Hz) in all resolutions
WDR: Up to 30/25 fps (60/50 Hz) in all resolutions

Video streaming
Multiple, individually configurable streams in H.264, H.265 and Motion JPEG
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

Multi-view streaming
Up to 8 individually cropped out view areas

Image settings
Saturation, contrast, brightness, Forensic WDR: Up to 120 dB depending on scene, white balance, day/night threshold, tone mapping, exposure mode, exposure zones, defogging, barrel distortion correction, electronic image stabilization, compression, rotation: 0°, 90°, 180°, 270° including Corridor Format, mirroring, dynamic text and image overlay, polygon privacy mask
Scene profiles: forensic, vivid, traffic overview

Pan/Tilt/Zoom
Digital PTZ, preset positions
Uploadable PTZ driver (Pelco D pre-installed)

Audio

Audio streaming
Two-way, full duplex
Noise reduction

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
Configurable bit rate

Audio input/output
External microphone input or line input, line output,
ring power, digital audio input, automatic gain control

Network

Network protocols
IPv4, IPv6 USGv6, HTTP, HTTPS[1], HTTP/2, TLS[1], QoS Layer
3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, Bonjour, UPnP®,
SNMP v1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, NTS,
RTSP, RTP, SRTP/RTSPS, TCP, UDP, IGMPv1/v2/v3, RTCP,
ICMP, DHCPv4/v6, ARP, SSH, LLDP, MQTT v3.1.1, Secure
syslog (RFC 3164/5424, UDP/TCP/TLS)

System integration

Application Programming Interface
Open API for software integration, including VAPIX®
and AXIS Camera Application Platform; specifications at
axis.com/developer-community.
One-click cloud connection
ONVIF® Profile G, ONVIF® Profile M, ONVIF® Profile S,
and ONVIF® Profile T, specification at *onvif.org*

Onscreen controls
Electronic image stabilization
Day/night shift
Defogging
Wide dynamic range
Video streaming indicator
IR illumination
Timed wiper
Wiper
Heater

Event conditions
Application
Audio: audio detection, audio clip playing
Device status: above/below/within operating
temperature, casing open, IP address blocked, IP address
removed, live stream active, network lost, new IP
address, ring power overcurrent protection, system
ready
Digital audio: digital signal contains Axis metadata,
digital signal has invalid sample rate, digital signal
missing, digital signal okay
Edge storage: recording ongoing, storage disruption,
storage health issues detected
I/O: digital input, manual trigger, virtual input
MQTT: stateless
PTZ: PTZ malfunctioning, PTZ movement, PTZ preset
position reached, PTZ ready
Scheduled and recurring: schedule
Video: average bitrate degradation, day-night mode,
tampering

Event actions
Overlay text, external output activation, play audio clip,
zoom preset
I/O: toggle I/O once, toggle I/O while the rule is active
Illumination: use lights, use lights while the rule is
active
MQTT: publish
Notification: HTTP, HTTPS, TCP, and email
Pre- and post-alarm video or image buffering for
recording or upload
PTZ: PTZ preset, start/stop guard tour
Record video: SD card and network share
SNMP traps: send, send while the rule is active
Upload of images or video clips: FTP, SFTP, HTTP, HTTPS,
network share, and email

Built-in installation aids
Remote zoom and focus, remote back focus, leveling
assistant, pixel counter

Analytics

Applications
Included
AXIS Object Analytics, AXIS Scene Metadata,
AXIS Image Health Analytics, AXIS Live Privacy Shield [2]
AXIS Video Motion Detection
Supported
AXIS Perimeter Defender, AXIS License Plate Verifier
Support for AXIS Camera Application Platform enabling
installation of third-party applications, see *axis.com/
acap*

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1. *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).*
2. *Available for download*

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: vehicle color, upper/lower clothing color, confidence, position

Approvals

EMC
EN 55032 Class A, EN 55035, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, EN 50121-4
Australia/New Zealand: CISPR 24, CISPR 35, RCM AS/NZS CISPR 32 Class A
Canada: ICES-3(A)/NMB-3(A)
Japan: VCCI Class A
Korea: KS C 9832 Class A, KS C 9815, KS C 9835, KS C 9547
USA: FCC Part 15 Subpart B Class A
Railway: IEC 62236-4

Safety
IEC/EN/UL 62368-1, IEC/EN/UL 60950-22, IEC 62471, 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, IEC/EN 60529 IP66/IP67, IEC/EN 62262 IK10, NEMA 250 Type 4X, NEMA TS 2 (2.2.7-2.2.9), 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 OpenID Authorization Code Flow for centralized ADFS account management, password protection, Axis Cryptographic Module (FIPS 140-2 level 1), AES-XTS-Plain64 256bit SD card encryption
Hardware: Axis Edge Vault cybersecurity platform TPM 2.0 (CC EAL4+, FIPS 140-2 Level 2), secure element (CC EAL 6+), system-on-chip security (TEE), Axis device ID, secure keystore, 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-, IP67-, and NEMA 4X-rated, IK10 impact-resistant aluminum enclosure with integrated dehumidifying membrane
IK08 impact-resistant glass front window with wiper weathershield with black anti-glare coating
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.*

Sustainability
PVC free, BFR/CFR free, 2% recycled plastics, 7% bio-based plastics

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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).*

Power

Power over Ethernet (PoE) IEEE 802.3at Type 2 Class 4
Typical 11.8 W, max 25.5 W
10–28 VDC, typical 11.2 W, max 25.5 W
Power redundancy

Connectors

RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE
Terminal block for two supervised and two unsupervised
configurable inputs / digital outputs (12 VDC output,
max load 50 mA)
RS485/RS422, 2 pcs, 2 pos, full duplex, terminal block
DC input, terminal block, 3.5 mm mic/line in, 3.5 mm
line out
i-CS connector (compatible with P-Iris and DC-iris)

IR illumination

OptimizedIR with power-efficient, long-life 850 nm IR
LEDs
Range of reach 50 m (164 ft) or more depending on the
scene

Illumination LED

Power-efficient, long-life white LED
Range of reach 25 m (82 ft) or more depending on the
scene

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

-40 °C to 60 °C (-40 °F to 140 °F)
Arctic Temperature Control: Start-up at -40 °C (
-40 °F)
Maximum temperature according to NEMA TS 2 (2.2.7):
74 °C (165 °F)
Humidity 10–100% RH (condensing)
Wind load (sustained): 60 m/s (134 mph)

Storage conditions

-40 °C to 65 °C (-40 °F to 149 °F)
Humidity 5–95% RH (non-condensing)

Dimensions

404 x 159 x 182 mm (16 x 6.3 x 7.2 in)
Effective Projected Area (EPA): 0.06 m^2 (0.20 ft^2)

Weight

4.4 kg (9.7 lb)

Included accessories

AXIS T94Q01A Wall Mount, sunshield, connector kit,
resistorx® T20 tool, installation guide, Windows®
decoder 1-user license

Optional accessories

AXIS T8415 Wireless Installation Tool
AXIS Surveillance Cards
For more accessories, see *axis.com*

Optional lenses

Lens CS 4-10 mm F0.9 P-Iris
Lens i-CS 9-50 mm F1.5 8 MP
Lens CS 12-50 mm F1.4 P-Iris 8 MP

Video management software

AXIS Camera Station and video management software
from Axis Application Development Partners available
at *axis.com/vms*

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*

AXIS®
COMMUNICATIONS