AXIS Q1656-DLE Radar-Video Fusion Camera

Next-level detection and visualization

This unique device fuses two powerful technologies to deliver next-level detection and visualization for reliable wide-area intrusion protection 24/7. Video and radar analytics come together in AXIS Object Analytics to provide precise localization and object classification powered by deep learning and distance and speed measurements based on an object's radar signature and movement characteristics. By default, our intelligent fusion system handles notifications in the most advantageous way depending on what best suits the circumstances. Or, if you prefer, you can choose between minimizing false notifications or never missing a thing.

- > Two powerful technologies in one device
- > Increased scene intelligence
- > Accurate detection 24/7
- > Built-in cybersecurity features
- > Premium Axis Q-line camera functionality

AXIS Q1656-DLE Radar-Video Fusion Camera

Camera

Image sensor	1/1.8" progressive scan RGB CMOS
Lens	Varifocal, 3.9–10 mm, F1.5 Horizontal field of view: 96°–44° Vertical field of view: 63°–26° 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 0 lux with IR illumination on
Shutter speed	1/47500 s to 1 s

Radar

Sensor	FMCW (Frequency Modulated Continuous Wave)
Object data	Range, direction, velocity, object type
Frequency	**Channel 1:** 61.00–61.25 GHz **Channel 2:** 61.25–61.50 GHz
RF transmit power	<100 mW (EIRP) License free. Unharmful radio-waves.
Recommended mounting height	3.5–12 m (11–39 ft)[a]
Recommended mounting tilt	15–45°[a]
Detection range	5–60 m (16–200 ft) when detecting a person[b] 5–90 m (16–300 ft) when detecting a vehicle[b]
Radial speed	Up to 55 km/h (34 mph)
Field of detection	Horizontal: 95°
Speed accuracy	+/- 2 km/h (1.25 mph)
Distance accuracy	0.5 m (1.6 ft)
Angle accuracy	1°
Spatial differentiation	3 m[c]
Data refresh rate	10 Hz
Coverage	2700 m^2 (29000 sq ft)
Coexistence zone	Frequency band: 61 GHz Radius: 350 m (1148 ft) Recommend number of radars: up to 8
Object classification	Humans, vehicles
Radar controls	Multiple detection zones, crossline detections, and exclude zones with filters for short-lived objects, object speed, and object type. Radar transmission on/off, reference map with rotation and cropping, grid opacity, zone opacity, color scheme, trail lifetime, detection sensitivity, swaying object filter, frequency channel

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
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, electronic image stabilization, compression, dynamic text and image overlay, polygon privacy mask

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

Security	IP address filtering, HTTPS[d] encryption, IEEE 802.1x (EAP-TLS)[d] network access control, user access log, centralized certificate management
Network protocols	IPv4, IPv6 USGv6, HTTP, HTTPS[d], HTTP/2, TLS[d], QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, Bonjour, UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, SRTP/RTSPS, TCP, UDP, IGMPv1/v2/v3, RTCP, ICMP, DHCPv4/v6, ARP, SOCKS, 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* 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 Heater
Event conditions	Analytics, object data, external input, supervised external input, edge storage events, virtual inputs through API Radar motion detection Radar data failure Audio: audio detection Device status: above operating temperature, above or below operating temperature, below operating temperature, IP address removed, network lost, new IP address, shock detected, storage failure, system ready, within operating temperature, casing open Edge storage: recording ongoing, storage disruption I/O: digital input, manual trigger, virtual input Scheduled and recurring: scheduled event Video: live stream open
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 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
Data streaming	Video, radar, and fusion metadata with relative position, GPS position[e], velocity, direction, and object type

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

Analytics

AXIS Object Analytics	**Object classes** (radar-video fusion): humans, vehicles **Object classes** (video only): humans, vehicles (types: cars, buses, trucks, bikes) **Trigger conditions**: line crossing, object in area, object speed Detection sensitivity Up to 10 scenarios Metadata visualized with color-coded bounding boxes Polygon include/exclude areas Perspective configuration ONVIF Motion Alarm event
Applications	**Included** AXIS Object Analytics AXIS Video Motion Detection AXIS Speed Monitor **Supported** Support for AXIS Camera Application Platform enabling installation of third-party applications, see *axis.com/acap*

Cybersecurity

Edge security	**Software:** Signed firmware, brute force delay protection, digest authentication, password protection, AES-XTS-Plain64 256bit SD card encryption **Hardware:** Secure boot, Axis Edge Vault with Axis device ID, signed video, secure keystore (CC EAL4+, FIPS 140-2 level 2 certified hardware protection of cryptographic operations and keys)
Network security	IEEE 802.1X (EAP-TLS)[d], IEEE 802.1AR, HTTPS/HSTS[d], TLS v1.2/v1.3[d], Network Time Security (NTS), X.509 Certificate PKI, IP address filtering
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-, and NEMA 4X-rated, IK08 impact-resistant aluminum enclosure with integrated dehumidifying membrane 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, 6% bio-based plastics
Power	Power over Ethernet (PoE) IEEE 802.3at Type 2 Class 4 Typical 10 W, max 25.5 W 10–28 V DC, typical 9.5 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 V DC 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
IR illumination	OptimizedIR with power-efficient, long-life 850 nm IR LEDs Range of reach 38 m (125 ft) or more depending on the scene
Illumination LED	Power-efficient, long-life white LED Range of reach 18 m (60 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) Start-up at -30 °C (-22 °F) Maximum temperature according to NEMA TS 2 (2.2.7): 74 °C (165 °F) Humidity 10–100% RH (condensing)
Storage conditions	-40 °C to 65 °C (-40 °F to 149 °F) Humidity 5–95% RH (non-condensing)
Approvals	**Radio** EN 305550, EN 301489-1, EN 301489-3, EN 62311, FCC Part 15 Subpart C **EMC** CISPR 24, CISPR 35, EN 55032 Class A, EN 55035, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, FCC Part 15 Subpart B Class A, ICES-3(A)/NMB-3(A), EN 50121-4, IEC 62236-4, KS C 9832 Class A, KS C 9815, KS C 9835, KS C 9547, RCM AS/NZS CISPR 32 Class A, VCCI Class A **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, IEC/EN 62262 IK08, NEMA 250 Type 4X, NEMA TS 2 (2.2.7-2.2.9), ISO 21207 (Method B) **Network** NIST SP500-267
Dimensions	404 x 159 x 234 mm (16 x 6.3 x 9.2 in)
Weight	5 kg (11 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*
Supporting software	AXIS Radar Autotracking for PTZ (Slew to Cue) For supported cameras, see *axis.com/products/axis-radar-autotracking*
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
Warranty	5-year warranty, see *axis.com/warranty*

a. *The mounting height and tilt affects the detection range. See user manual at axis.com for more information.*
b. *Measured at 5 m mounting height, with 25° tilt. See user manual at axis.com for more information.*
c. *Minimum distance between moving objects.*
d. *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).*
e. *Enter the camera's GPS position manually to get the objects' GPS position in the data stream.*

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