

# 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

<b>Camera</b>		<b>Resolution</b>	16:9 2688x1512 Quad HD to 160x90 4:3 2016x1512 to 160x120
<b>Image sensor</b>	1/1.8" progressive scan RGB CMOS	<b>Frame rate</b>	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
<b>Lens</b>	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)	<b>Video streaming</b>	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
<b>Day and night</b>	Automatically removable infrared-cut filter	<b>Image settings</b>	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 Scene profiles: forensic, vivid, traffic overview
<b>Minimum illumination</b>	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	<b>Audio</b>	
<b>Shutter speed</b>	1/47500 s to 1 s	<b>Audio streaming</b>	Two-way, full duplex Noise reduction
<b>Radar</b>		<b>Audio encoding</b>	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
<b>Profiles</b>	Area monitoring Road monitoring	<b>Audio input/output</b>	External microphone input or line input, line output, ring power, digital audio input, automatic gain control
<b>Sensor</b>	FMCW (Frequency Modulated Continuous Wave)	<b>Network</b>	
<b>Object data</b>	Object type (classes: humans, vehicles, unknown), range, direction, velocity	<b>Network protocols</b>	IPv4, IPv6 USGv6, HTTP, HTTPS, HTTP/2, TLS, 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)
<b>Frequency</b>	Channel 1: 61.00–61.25 GHz Channel 2: 61.25–61.50 GHz	<b>System integration</b>	
<b>RF transmit power</b>	<100 mW (EIRP) License free. Unharmful radio-waves.	<b>Application Programming Interface</b>	Open API for software integration, including VAPIX® and AXIS Camera Application Platform; specifications at <a href="#">axis.com</a> One-click cloud connection ONVIF® Profile G, ONVIF® Profile M, ONVIF® Profile S, and ONVIF® Profile T, specification at <a href="#">onvif.org</a>
<b>Recommended mounting height</b>	3.5–12 m (11–39 ft) <sup>a</sup>	<b>Onscreen controls</b>	Electronic image stabilization Day/night shift Defogging Wide dynamic range Video streaming indicator IR illumination Heater
<b>Recommended mounting tilt</b>	15–45° <sup>a</sup>	<b>Edge-to-edge</b>	Speaker pairing PTZ camera pairing
<b>Detection range</b>	Area monitoring profile: 5–60 m (16–200 ft) when detecting a person <sup>b</sup> 5–90 m (16–300 ft) when detecting a vehicle <sup>b</sup> Road monitoring profile: Up to 150 m when detecting a vehicle <sup>c</sup>	<b>Event conditions</b>	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
<b>Radial speed</b>	Area monitoring profile: Up to 55 km/h (34 mph) Road monitoring profile: up to 200 km/h (125 mph)	<b>Event actions</b>	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 Radar: radar autotracking, radar detection 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
<b>Field of detection</b>	Horizontal: 95°		
<b>Speed accuracy</b>	+/- 2 km/h (1.25 mph)		
<b>Distance accuracy</b>	Area monitoring profile: 0.5 m (1.6 ft) Road monitoring profile: 0.8 m (2.6 ft)		
<b>Angle accuracy</b>	1°		
<b>Spatial differentiation</b>	3 m <sup>d</sup>		
<b>Data refresh rate</b>	10 Hz		
<b>Coverage</b>	Area monitoring profile: 2700 m <sup>2</sup> (29000 sq ft) for persons 6100 m <sup>2</sup> (65600 sq ft) for vehicles		
<b>Coexistence zone</b>	Frequency band: 61 GHz Radius: 350 m (1148 ft) Recommend number of radars: up to 8		
<b>Radar controls</b>	Multiple detection zones, line crossing detection with one or two lines, exclude zones with filters for short-lived objects, object speed, and object type, configurable trigger duration Radar transmission on/off, reference map, grid opacity, zone opacity, color scheme, trail lifetime, detection sensitivity, swaying object filter, small object filter, frequency channel		
<b>System on chip (SoC)</b>			
<b>Model</b>	ARTPEC-8		
<b>Memory</b>	2048 MB RAM, 8194 MB Flash		
<b>Compute capabilities</b>	Deep learning processing unit (DLPU)		
<b>Video</b>			
<b>Video compression</b>	H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles H.265 (MPEG-H Part 2/HEVC) Main Profile Motion JPEG		

<b>Data streaming</b>	Video, radar, and fusion metadata with relative position, GPS position <sup>e</sup> , velocity, direction, and object type
<b>Built-in installation aids</b>	Remote zoom and focus, remote back focus, leveling assistant, pixel counter
<b>Analytics</b>	
<b>Applications</b>	<p><b>Included</b></p> <p>AXIS Object Analytics, Scene metadata, AXIS Live Privacy Shield<sup>f</sup>          AXIS Video Motion Detection          AXIS Speed Monitor<sup>g</sup></p> <p><b>Supported</b></p> <p>AXIS License Plate Verifier          Support for AXIS Camera Application Platform enabling installation of third-party applications, see <a href="https://axis.com/acap">axis.com/acap</a></p>
<b>AXIS Object Analytics</b>	<p><b>Object classes (radar-video fusion):</b> humans, vehicles</p> <p><b>Object classes (video only):</b> humans, vehicles (types: cars, buses, trucks, bikes, other)</p> <p><b>Scenarios (radar-video fusion):</b> line crossing, object in area</p> <p><b>Scenarios (video only):</b> crossline counting, occupancy in area, time in area</p> <p>Up to 10 scenarios</p> <p><b>Key features:</b> detection sensitivity, object speed</p> <p><b>Other features:</b> triggered objects visualized with color-coded bounding boxes</p> <p>Polygon include/exclude areas</p> <p>Perspective configuration</p> <p>ONVIF Motion Alarm event</p>
<b>Scene metadata</b>	<p><b>Object classes:</b> humans, faces, vehicles (types: cars, buses, trucks, bikes), license plates</p> <p><b>Object attributes:</b> vehicle color, upper/lower clothing color, confidence, position</p>
<b>Approvals</b>	
<b>EMC</b>	<p>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</p> <p>Australia/New Zealand: CISPR 24, CISPR 35, RCM AS/NZS CISPR 32 Class A</p> <p>Canada: ICES-3(B)/NMB-3(B)</p> <p>Japan: VCCI Class A</p> <p>Korea: KS C 9832 Class A, KS C 9815, KS C 9835, KS C 9547</p> <p>USA: FCC Part 15 Subpart B Class B</p> <p>Railway: IEC 62236-4</p>
<b>Safety</b>	IEC/EN/UL 62368-1, IEC/EN/UL 60950-22, IEC 62471, IS 13252
<b>Environment</b>	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)
<b>Wireless</b>	EN 305550, EN 301489-1, EN 301489-3, EN 62311, FCC Part 15 Subpart C
<b>Network</b>	NIST SP500-267
<b>Cybersecurity</b>	ETSI EN 303 645, FIPS 140
<b>Cybersecurity</b>	
<b>Edge security</b>	<p><b>Software:</b> Signed firmware, brute force delay protection, digest authentication and OAuth 2.0 RFC6749 OpenID Authorization Code Flow for centralized ADFS account management, password protection, AES-XTS-Plain64 256bit SD card encryption</p> <p><b>Hardware:</b> Axis Edge Vault cybersecurity platform</p> <p>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)</p>
<b>Network security</b>	IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2), IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS, TLS v1.2/v1.3, Network Time Security (NTS), X.509 Certificate PKI, host-based firewall
<b>Documentation</b>	<p>AXIS OS Hardening Guide</p> <p>Axis Vulnerability Management Policy</p> <p>Axis Security Development Model</p> <p>AXIS OS Software Bill of Material (SBOM)</p> <p>To download documents, go to <a href="https://axis.com/support/cybersecurity/resources">axis.com/support/cybersecurity/resources</a></p>

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

<b>General</b>	
<b>Casing</b>	<p>IP66-, and NEMA 4X-rated, IK08 impact-resistant aluminum enclosure with integrated dehumidifying membrane weathershield with black anti-glare coating</p> <p>Color: white NCS S 1002-B</p> <p>For repainting instructions, go to the product's support page. For information about the impact on warranty, go to <a href="https://axis.com/warranty-implication-when-repainting">axis.com/warranty-implication-when-repainting</a>.</p>
<b>Sustainability</b>	PVC free, BFR/CFR free, 2% recycled plastics, 6% bio-based plastics
<b>Power</b>	<p>Power over Ethernet (PoE) IEEE 802.3at Type 2 Class 4</p> <p>Typical 10 W, max 25.5 W</p> <p>10–28 V DC, typical 9.5 W, max 25.5 W</p> <p>Power redundancy</p>
<b>Connectors</b>	<p>RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE</p> <p>Terminal block for two supervised and two unsupervised configurable inputs / digital outputs (12 V DC output, max load 50 mA)</p> <p>RS485/RS422, 2 pcs, 2 pos, full duplex, terminal block</p> <p>DC input, terminal block, 3.5 mm mic/line in, 3.5 mm line out</p>
<b>IR illumination</b>	<p>Optimized IR with power-efficient, long-life 850 nm IR LEDs</p> <p>Range of reach 38 m (125 ft) or more depending on the scene</p>
<b>Illumination LED</b>	<p>Power-efficient, long-life white LED</p> <p>Range of reach 18 m (60 ft) or more depending on the scene</p>
<b>Storage</b>	<p>Support for microSD/microSDHC/microSDXC card</p> <p>Support for SD card encryption (AES-XTS-Plain64 256bit)</p> <p>Recording to network-attached storage (NAS)</p> <p>For SD card and NAS recommendations see <a href="https://axis.com">axis.com</a></p>
<b>Operating conditions</b>	<p>-40 °C to 60 °C (-40 °F to 140 °F)</p> <p>Start-up at -30 °C (-22 °F)</p> <p>Maximum temperature according to NEMA TS 2 (2.2.7): 74 °C (165 °F)</p> <p>Humidity 10–100% RH (condensing)</p>
<b>Storage conditions</b>	<p>-40 °C to 65 °C (-40 °F to 149 °F)</p> <p>Humidity 5–95% RH (non-condensing)</p>
<b>Dimensions</b>	404 x 159 x 234 mm (16 x 6.3 x 9.2 in)
<b>Weight</b>	5 kg (11 lb)
<b>Included accessories</b>	AXIS T94Q01A Wall Mount, sunshield, connector kit, resistorx <sup>®</sup> T20 tool, installation guide, Windows <sup>®</sup> decoder 1-user license
<b>Optional accessories</b>	<p>AXIS T8415 Wireless Installation Tool</p> <p>AXIS Surveillance Cards</p> <p>For more accessories, see <a href="https://axis.com">axis.com</a></p>
<b>Supporting software</b>	<p>AXIS Radar Autotracking for PTZ (Slew to Cue)</p> <p>For supported cameras, see <a href="https://axis.com/products/axis-radar-autotracking">axis.com/products/axis-radar-autotracking</a></p>
<b>Video management software</b>	AXIS Camera Station and video management software from Axis Application Development Partners available at <a href="https://axis.com/vms">axis.com/vms</a>
<b>Languages</b>	English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Polish, Traditional Chinese, Dutch, Czech, Swedish, Finnish, Turkish, Thai, Vietnamese
<b>Warranty</b>	5-year warranty, see <a href="https://axis.com/warranty">axis.com/warranty</a>

- The mounting height and tilt affects the detection range. See user manual at [axis.com](https://axis.com) for more information.
- Measured at 5 m mounting height, with 25° tilt. See user manual at [axis.com](https://axis.com) for more information.
- Measured at 7 m mounting height, with 15° tilt. The mounting height, tilt and placement of the radar-video fusion camera affects the detection range. See the user manual at [axis.com](https://axis.com) for more information.
- Minimum distance between moving objects.
- Enter the camera's GPS position manually to get the objects' GPS position in the data stream.
- Available for download
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