Dodatek č. 1 smlouvy o dílo
uzavřené dle zákona č. 89/2012 Sb., občanského zákoníku, ve znění pozdějších předpisů (dále jen „OZ“)

Evidenční číslo smlouvy Odběratele: MJ-SML/0837/2025

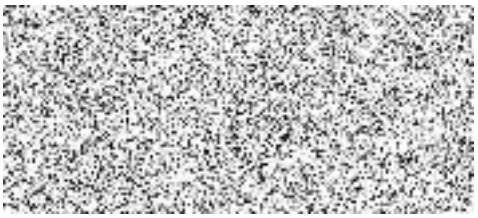
Evidenční číslo smlouvy: 25-024/25-0072

Město Jeseník

Sídlo:	Masarykovo náměstí 167/1, 790 01 Jeseník
IČO / DIČ:	00302724 / CZ00302724
Zastoupený:	Mgr. Bc. Zdeňkou Blišťanovou, starostkou
Bankovní spojení:	Komerční banka Šumperk a.s., exp. Jeseník
Číslo účtu:	86-7692800237/0100
Kontaktní osoba:	
Tel. kontaktní osoby:	
E-mail:	

na straně jedné také jako „**Odběratel**“

STEGG s.r.o.

Sídlo:	Počernická 272/96, 108 00 Praha 10
IČO / DIČ:	19718144 / CZ19718144
Zapsaný v obchodním rejstříku:	Spisová značka C 390581 vedená u Městského soudu v Praze
Zastoupený:	Mgr. Lukášem Krumlem, jednatelem Mgr. Maratem Saberem, jednatel
Bankovní spojení:	
Číslo účtu:	
Kontaktní osoba:	
Tel. kontaktní osoby:	
E-mail:	

na straně druhé také jako „**Dodavatel**“

společně také jako „**Smluvní strany**“
Odběratel a Dodavatel jsou dále souhrnně označeni jako „**Smluvní strany**“ nebo jednotlivě „**Smluvní strana**“

I. Úvodní ustanovení

1. Dne 10.09.2025 byla mezi účastníky tohoto dodatku č. 1 uzavřena smlouva o dílo č. MJ-SML/0837/2025 (dále jen „smlouva“), jejímž předmětem je provedení dodávky a implementace uceleného technologického ekosystému zahrnující zajištění potřebného hardwarového (dále také jen „HW“) i softwarového (dále také jen „SW“) vybavení a technologické a kompetenční posílení dohledového centra městské policie Jeseník (dále také jen „MěP“) s podporou konektivity 5G dle specifikací 3GPP na území města Jeseník (dále také jen

„Řešení“) dle zadávací dokumentace Veřejné zakázky ***Modernizace bezpečnostního systému města Jeseník pomocí aplikačních řešení ekosystému sítí 5G*** (dále také jen „Zadávací dokumentace“), která je přílohou Smlouvy, jejíž součástí je mimo jiné technická specifikace Řešení, která tvoří rovněž přílohu Smlouvy (dále také jen „Technická specifikace“).

2. Plnění Smlouvy je spolufinancováno prostřednictvím 2. výzvy s názvem „Demonstrativní aplikace ekosystému sítí 5G pro chytrá města, obce a regiony“ (dostupné z „https://mmr.gov.cz/cs/evropska-unie/narodni-plan-obnovy/vyzvy-archiv/demonstrativni-aplikace-ekosystemu-siti-5g-pro-chy“), vyhlášené v komponentě č. 1.4 (Digitální ekonomika a společnost, inovativní start-upy a nové technologie, subkomponentě 1.4.1.6 (Demonstrativní projekty rozvoje aplikací pro města a průmyslové oblasti (např. 5G) Národního plánu obnovy (dále jen „**Výzva**“) a schváleného projektu „Modernizace bezpečnostního systému města Jeseník pomocí aplikačních řešení ekosystému sítí 5G (CZ.31.6.0/0.0/0.0/23_087/0008853)“ (dále jen „**Projekt**“).

3. Uzavření smlouvy bylo schváleno radou města Jeseník usnesením č. UR-593-17/25, na schůzi Rady města č. 17/2025, konané dne 7. 8. 2025 a zveřejněna v registru smluv dne 16.09.2025. Nedílnou součástí smlouvy a jejích příloh (smluvní dokumentace) je mj. zadávací dokumentací požadovaný návrh přístupu k plnění předmětu veřejné zakázky a prokázání naplnění minimálních technických požadavků formou technické dokumentace, produktových listů apod. Předložený návrh a technická dokumentace STEGG s.r.o. zahrnuje mj. komponenty výrobce Hikvision (např. statické a PTZ kamery, dopravní kamery, tělové kamery, kamery do vozidel, dockovací stanice ad.).

4. V intencích čl. XIII. Závěrečná ustanovení, odst. 7 smlouvy je uzavírán tento dodatek č. 1, kterým smluvní strany upravují, případně mění některá dále uvedená smluvní ujednání.

II. Předmět dodatku

1. Předmětem dodatku je formální přijetí navrhovaných změn a provedení aktualizace následujících částí smluvní dokumentace: *Příloha_1_SoD_Technická specifikace_OCR_ANONYMIZ.pdf,* tedy změnu vybraných komponent tvořící návrh technického řešení, které byly předloženy jako součást vítězné nabídky STEGG s.r.o.

1. **Jedná se o změnu části nabízeného plnění za rovnocenné řešení plnění veřejné zakázky na základě oficiálního varování před hrozbou v oblasti kybernetické bezpečnosti Národního úřadu pro kybernetickou a informační bezpečnost („NÚKIB“) ze dne 03.09.2025.**

2. Město Jeseník ve spolupráci s externí projektovou podporou společnosti Gatum Group s.r.o. na základě poskytnuté dokumentace provedlo ověření souladu navrhovaného řešení s technickými podmínkami veřejné zakázky a ověření zachování souladu se zákonem o zadávání veřejných zakázek. Vymezení navrhovaných úprav je přílohou č. 1 tohoto dodatku.

3. Na základě zjištění provedeného ověření lze konstatovat následující:
   a. ***Nově navrhované řešení je rovnocenným řešením ve vztahu k zadávacím podmínkám***
   b. ***Navrhované řešení naplňuje minimální technické podmínky stanovené zadavatelem***
   c. ***Navrhované úpravy nenaplňují znaky podstatné změny dle § 222 odst. 3 ZZVZ***
   d. ***Navrhované úpravy řešení nepředstavují a nevedou k rozšíření rozsahu plnění veřejné zakázky***
   e. ***Navrhované úpravy nemají vliv na schválený rozpočet, resp. nabídkovou cenu / cenu díla dodavatele***
   f. ***Navrhované úpravy nemění předmět plnění, projektový záměr či funkční parametry řešení***

g. Navrhované úpravy nemají předpokládaný dopad na termín plnění

Nejedná se o podstatnou změnu, která by umožnila účast jiných dodavatelů nebo by mohla ovlivnit výběr dodavatele v původním zadávacím řízení, pokud by zadávací podmínky původního zadávacího řízení odpovídaly této změně, a dále, která by měnila ekonomickou rovnováhu závazku ze smlouvy ve prospěch vybraného dodavatele a vedla k významnému rozšíření rozsahu plnění veřejné zakázky. Rozsah díla se upravuje o změny, které nemění celkovou povahu veřejné zakázky, a nemají dopad na původní hodnotu závazku.

III. Varování NÚKIB

1. Národní úřad pro kybernetickou a informační bezpečnost (dále také jen „NÚKIB“) 03.09.2025 na svém webu publikoval oficiální Varování před hrozbou v oblasti kybernetické bezpečnosti a strategickou Analýzu týkající se vysokého bezpečnostního rizika u technologií čínských výrobců vč. kamerových systémů. Hrozba je hodnocena na úrovni „Vysoká“ a spočívá:
   - *v předávání systémových a uživatelských dat do Čínské lidové republiky, na území zvláštních administrativních oblastí či subjektům usídleným na území Čínské lidové republiky nebo zvláštních administrativních oblastí, a*
   - *ve vzdálené správě technických aktiv vykonávané z území Čínské lidové republiky, zvláštních administrativních oblastí či ze strany subjektů usídlených na území Čínské lidové republiky nebo zvláštních administrativních oblastí.*

2. Hlavní hrozba tedy spočívá v možném zneužití dat a vzdáleném přístupu ze strany čínských státních orgánů. Veřejně publikovaná analýza mj. výslovně zmiňuje **společnost Hikvision**, jejíž kamerové technologie jsou součástí návrhu dodávaného řešení společnosti STEGG.

3. Samotné varování, neznamená okamžitý automatický a plošný zákaz čínských technologií, v návaznosti na přímá doporučení NÚKIB je nicméně doporučeno hrozbu důkladně zvážit a posoudit míru rizika, která z daných aktivit pro město Jeseník a projektů mohou plynout.

4. Město Jeseník na základě publikovaného varování a analýzy dne 15.09.2025 písemně požádalo dodavatele STEGG s.r.o. o vyjádření a organizaci koordinačního jednání za účelem prodiskutování rizik využití předložených technologií Hikvision a možností dalšího postupu tak, aby byla garantována bezpečnost celého řešení včetně odpovídající úrovně ochrany dat i osobních údajů, i s ohledem na dlouhodobý, udržitelný a zabezpečený rozvoj MKDS Jeseník.

5. Na technickém jednání dne 19.09.2025 STEGG s.r.o. navrhl možnost kompletní výměny zařízení a technických komponent čínského výrobce Hikvision za alternativní technologické řešení splňující technické specifikace stanovené zadávací dokumentací, které není v rozporu s doporučeními NÚKIB a nevykazuje obdobná bezpečnostní rizika.

6. Specifikace alternativních komponent technických prvků vč. jejich technických listů byla doručena dne 26.09.2025. Parametry změny byly dále konzultovány na projektovém jednání konaném dne 01.10.2025. Převažujícím výrobcem nových komponent nahrazující technologie čínského výrobce Hikvision, je společnost Axis, která dle analýz a publikovaných varování NÚKIB není rizikovým výrobcem.

IV. Závěrečná ustanovení

1. V ostatních částech zůstává smlouva o dílo beze změn.

2. Tento dodatek č. 1 nabývá platnosti dnem jeho podpisu oběma smluvními stranami.

3. Tento dodatek č. 1 je vyhotoven v elektronickém originále a jeho uzavření bylo schválena radou města Jeseník usnesením č. UR-780-24/25, na schůzi Rady města č. 24/2025, konané dne 20.10. 2025.

4. Smluvní strany prohlašují, že tento dodatek č. 1 je projevem jejich pravé a svobodné vůle a na důkaz toho připojují své podpisy.

5. Dodatek nabývá účinnosti **nejdříve dnem jejího uveřejnění prostřednictvím registru smluv**. Objednatel se zavazuje bez zbytečného odkladu, nejpozději však do 30 dnů ode dne podpisu tohoto dodatku, zajistit její uveřejnění v registru smluv.

6. Nedílnou součástí tohoto dodatku jsou tyto přílohy:

   - Úpravy návrhu technického řešení
   - Technická dokumentace nového řešení

Jeseníku dne dle elektronického podpisu	V Praze dne dle elektronického podpisu
_____	_____
Město Jeseník	**STEGG s.r.o.**
Mgr. Bc. Zdeňka Blišťanová	Mgr. Marat Saber
starostka	jednatel

Označení prvku/skupiny dle technické specifikace	Hikvision		Axis			Doplňující komentář , datasheet
	Product Name	Description	Product Name	Description	Description 2	
Kamerové komponenty - tělové kamery pro strážníky	DS-MCW407/32G/GPS/ WIFI(D)(O-STD)	Linux Operating System H.264 and H.265 encoding, 1/3" CMOS, 2.0 inch screen, 320 × 240 resolution Product Dimension: 82.6 × 58 × 29 mm (3.3 × 2.3 × 1.1 inch) Product Weight: 159.5 g (0.4 lb.) Charging Interface: Type-C External Interface: USB 2.0	Axis W120 + AXIS W800 System Controller	Camera Image sensor 1/2.9" progressive scan RGB CMOS Sensitivity: 0.1 lux Lens Focal length, 2.3 mm Horizontal field of view: 137° Vertical field of view: 76° Fixed iris, F2.1 Shutter speed 1/20000 s to 1/25 s with 50 Hz 1/20000 s to 1/30 s with 60 Hz Video Video compression H.264 (MPEG-4 Part 10/AVC) High Profile Resolution 1920x1080, 1280x720 Frame rate 25 fps at 50 Hz 30 fps at 60 Hz WDR WDR Image settings Electronic image stabilization (720p), barrel distortion correction Video streaming Axis Zipstream for body worn Audio Audio encoding AAC-LC One channel: 48 kHz, 128 kbps Two channels (optimized for post-processing mode): 48 kHz, 2x128 kbps Audio input/output Built-in dual microphones Functionality Voice enhancement Approvals Supply chain TAA compliant	AXIS W800 System Controller Network Security HTTPS1 encryption, IEEE 802.1x (EAP-TLS)1 network access control Network protocols IPv4, IPv6 USGv6, HTTPS1, TLS1, Bonjour, DNS, NTP, NTS, SRTP/RTSPS, TCP, UDP, ICMP, DHCP, ARP Throughput Camera to system controller: 100 Mbit/s (per camera) System controller to content destination: 1 Gbit/s System integration Application Programming Interface Body Worn Integration API Content destinations Evidence management systems Third party evidence management software from Axis Application Development Partners Video management systems AXIS Camera Station, and other third party video management software from Axis Application Development Partners available at axis.com/vms Approvals EMC EN 55032 Class A, EN 61000-3-2, EN 61000-3-3, EN 55024, EN 61000-6-1, EN 61000-6-2 Australia/New Zealand: RCM AS/NZS CISPR 32 Class A Canada: ICES-3(A)/NMB-3(A) Japan: VCCI Class A Korea: KC KN32 Class A, KC KN35 USA: FCC Part 15 Subpart B Class A Safety	Dokument Microsoft Wordu Dokument Microsoft Wordu
	DS-MDS001/2T/8(B)(O-STD)(MCW407)	Linux Operation system 8 dock slots, support up to 8 body cameras pre-installed HDD 2T, 4T/8T/16T optional, 250W power supply,1 x Speaker, 1 x HDMI port, 1 x USB 3.0, Audio out, 2x RJ45. Dimension: 400mm x 300mm x 110mm	AXIS W700 + AXIS W701	Network Network protocols IPv4, IPv6 USGv6, HTTPS, mDNS (Bonjour), DNS/DNSv6, NTP, TCP, UDP, ICMP, DHCPv4/v6, ARP Throughput 100 Mbit/s (per camera) General Capacity 8 bays Casing Plastic casing Color: black NCS S 9000-N Power 12 V DC, max 120 W Connectors Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T Power: DC input Pogo pin pads Operating conditions Temperature: 0 °C to 40 °C (32 °F to 104 °F) Humidity: 10–85% RH (non-condensing) Storage conditions Temperature: -40 °C to 65 °C (-40 °F to 149 °F) Humidity: 10-85% RH (non-condensing) Dimensions For the overall product dimensions, see the dimension drawing in this datasheet. Weight 860 g (1.90 lb) Box content Docking station, power supply, screws, installation guide Warranty 3-year warranty, see axis.com/warranty Part numbers Available at https://www.axis.com/products/axis-w701-mk-iidocking-station-8-bay#part-numbers Approvals Product markings UL/cUL, CE, KC, VCCI, RCM, NOM, WEEE, ICES, FCC Supply chain TAA compliant EMC CISPR 35, CISPR 32 Class A,EN 55032 Class A, EN 55035, EN 61000-6-1, EN 61000-6-2 Australia/New Zealand: RCM AS/NZS CISPR 32 Class A Canada: ICES-3(A)/NMB-3(A) Japan: VCCI Class A USA: FCC Part 15 Subpart B Class A Safety CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN/UL 62368-1,		Dokument Microsoft Wordu Dokument Microsoft Wordu

Kamerové komponenty - statické kamery	DS-2DF8425IXG1-ELW Y(O-STD)	· 1/1.8" Progressive Scan CMOS · High quality imaging with 4 MP resolution · Excellent low-light performance via DarkFighter 2.0 technology · Clear imaging against strong back light due to 150 dB AWDR technology · 25 × optical zoom and 16 × digital zoom provide close up views over expansive areas · Expansive night view with up to 400 m IR distance · Water and dust resistant (IP67) and vandal proof (IK10) excluding glass window · Supports face capture to detect, capture, grade, and select faces in motion · Supports road traffic to detect vehicles	AXIS Q6355-LE	Camera Variants AXIS Q6355-LE (disponuje slotem 1TB a nahrazuje 2xslot 512 GB) AXIS Q6355-LE (napájení přes stabilní technologickým konektorem PoE, v případě požadavku na nápájení přes 12V bude dodán switch) Image sensor 1/2” progressive scan CMOS Lens Optical zoom: 31x Zoom speed: <1 sec between any zoom value Focal length: 6.91 – 214.64 mm Horizontal field of view: 60.6°– 2.0° Vertical field of view: 36.5°– 1.1° Laser focus, autofocus, P-iris Day and night Automatically removable infrared-cut filter Minimum illumination Color: 0.06 lux at 30 IRE, F1.36 B/W: 0.001 lux at 30 IRE, F1.36, 0 lux with IR illumination on Color: 0.09 lux at 50 IRE, F1.36 B/W: 0.008 lux at 50 IRE, F1.36, 0 lux with IR illumination on Shutter speed 1/111000 s to 1/2 s Pan/Tilt/Zoom Pan: 360° endless, 0.05°– 550°/s Tilt: +20 to -90°, 0.05°– 500°/s Zoom: 31x optical, 12x digital, Total 372x zoom Quick-zoom, nadir flip, 300 preset positions, tour recording (max 10, max duration 16 minutes each), guard tour (max 100), control queue, on-screen directional indicator, set new pan 0°, adjustable zoom speed, speed dry System on chip (SoC) Model ARTPEC-9 Memory 4096 MB RAM, 8192 MB Flash Compute capabilities		Dokument Microsoft Wordu
	DS-2CD2623G2-IZS(2.8-12mm)(D)(O-STD)	1/2.8" Progressive Scan CMOS; H.265+/H.265/H.264+/H.264/MJP EG; Color: 0.005 Lux @ (F1.6, AGC ON), 0 lux with IR; 25fps/30fps(1920×1080); VCA functions; 3 streams; 3D DNR;	AXIS P1465-LE 29 mm	AXIS P1465-LE 29 mm (varianta 29mm obsahuje elektronickou stabilizaci obrazu) Image sensor 1/2.8” progressive scan RGB CMOS Pixel size 2.9 µm Lens Varifocal, remote focus and zoom, P-Iris control, IR corrected 9 mm: Varifocal, 3-9 mm, F1.6-3.3 Horizontal field of view 117˚-37˚ Vertical field of view 59˚-20˚ Minimum focus distance: 0.5 m (1.6 ft) 29 mm: Varifocal, 10.9-29 mm, F1.7-1.7 Horizontal field of view 29˚-11˚ Vertical field of view 16˚-6˚ Minimum focus distance: 2.5 m (8.2 ft) Day and night Automatic IR-cut filter Hybrid IR filter Minimum illumination 0 lux with IR illumination on 9 mm: Color: 0.06 lux, at 50 IRE F1.6 B/W: 0.01 lux, at 50 IRE F1.6 29 mm: Color: 0.06 lux, at 50 IRE F1.7 B/W: 0.01 lux, at 50 IRE F1.7 Shutter speed With Forensic WDR: 1/37000 s to 2 s No WDR: 1/71500 s to 2 s System on chip (SoC) Model ARTPEC-8 Memory 1024 MB RAM, 8192 MB Flash Compute capabilities Deep learning processing unit (DLPU)		Dokument Microsoft Wordu

Kamerové komponentz - Detektory rychlosti	iDS-TCM403-GIR/POE/0832(O-STD)	Darkfighter Ultra-low light technology, 1/1.8" Progressive Scan CMOS, Color: 0.001 Lux @ (F1.2,AGC ON), 2688*1520,25fps/30fps,H.265/H.264/MJPEG,140dB, Motorized zoom lens,built-in white light or IR 850mmLED, Alarm 1in,RS485,IP67,-Y:Anti-corrosion License plate recognition,Vehicle type classification, color identification, no-plate vehicle capture, vehicle driving direction detection,speed measurement	Radar kamera AXIS Q1656-DLE – IP box	Camera Q 1656 - (housing IP 67) 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 Profiles Area monitoring Road monitoring Sensor FMCW (Frequency Modulated Continuous Wave) Object data Object type (classes: humans, vehicles, unknown), range, direction, velocity Frequency Area monitoring profile Channel 1: 61.25-61.48 GHz Area monitoring profile Channel 2: 61.02-61.25 GHz Road monitoring profile Channel 1: 61.25-61.43 GHz Road monitoring profile Channel 2: 61.05-61.23 GHz RF transmit power <100 mW (EIRP) License-free. Unharmful radio-waves.		Dokument Microsoft Wordu Dokument Microsoft Wordu
Kamerové vybavení pro vozidla MP	DS-2CD6425G1-30(2.8mm)8m(O-STD)	1/2.8" Progressive Scan CMOS; 1920 × 1080 @ 30fps; H.265/H.264/MJPEG; Three streams;120dB WDR;3D DNR;4 behavior analyses ;Audio and alarm I/O;Smart encoding: low bit rate, low latency;ROI ; DC12V & PoE, Support on-board storage up to 256GB, Bracket included, Audio/Alarm IO 2m: 2m lens cable. 8m: 8m lens cable. Main body: 77.5 mm × 69 mm × 26 mm (3.1" × 2.7" × 1.0") L10: Ø26 mm × 40 mm (Ø1.0" × 1.6") L20: 37 mm × 26 mm × 25 mm (1.5" × 1.0" × 1.0") L30: Ø26 mm × 50 mm (Ø1.0" × 2.0")	Kamera do vozidel AXIS F2105-RE	Camera Image sensor 1/2.8" progressive scan RGB CMOS Lens 3.1 mm, F2.0 For 1080p: Horizontal field of view: 108° Vertical field of view: 58° For 720p: Horizontal field of view: 70° Vertical field of view: 39° For 1080p: Horizontal field of view: 185° Vertical field of view: 97° For 720p: Horizontal field of view: 120° Vertical field of view: 62° M12 mount, fixed iris Minimum illumination Color: 0.1 lux Day and night Fixed IR-cut filter Frame rate Up to 60/50 fps (60/50 Hz) in 1080p and up to180/175 fps (60/50 Hz) in 720p1 General Casing IP66-, IP67-, IP6K9K-2, NEMA 4X-rated Aluminum Color: black NCS S 9000-N Sustainability PVC free Power Typical 1 W, max 1.7 W Connectors SMA connector Operating conditions -40°C to 60 °C (-40°F to 140 °F) Maximum temperature according to NEMA TS 2 (2.2.7): 74 °C (165 °F)		Dokument Microsoft Wordu

Kamerové vybavení pro vozidla MP	AE-MN5043(RJ45)	4-ch IP cameras connectable via PoE interfaces, and 4-ch IP cameras extendable via PoE switch. □ Up to 5MP resolution of H.264/H.265 compression for each IP camera.(*Support this function since V5.6.4) □ Pluggable 2 × 2.5 inch HDD/SSD, SSD up to 4 TB,HDD up to 2TB □ User-friendly GUI providing easy and flexible operations. □ Pluggable 4G module and Wi-Fi module providing flexible data transmission solutions. □ Built-in GPS module precisely positioning the vehicle via the satellite and recording the location information in the video stream. □ Information collection interfaces collecting driving information such as left/right turn, braking, reversing, etc. □ Specialized aviation connectors ensuring signal stability. □ Shutdown delay (0 h to 6 h) and 24-hour scheduled startup/shutdown. □ Build-in super-capacitor prevents the mobile NVR from damage caused by sudden power outage. □ Wide-range power input (+9 VDC to +36 VDC). □ Power-off protection prevents key data loss. □ Aluminum die-cast chassis with no fan design well adaptable to working environment. □ Software-based firewall supported. □ Support accessing via WEB browser. □ Support recording backup on redundant HDD/SSDs.	AXIS F9114 Mk II	System on chip (SoC) , 3 audio budou řešeny splitterem) Model F9114 (Powermanagement obsažen již v řídící jednotce nicméně bude k dané jednotce připojen BMS programovatelný modul se spotřebou 0,02W) ARTPEC-8 Memory 4096 MB RAM, 8192 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 Up to 3840x2160 8Mp1 Up to 2592x1944 5Mp1 Up to 1920x1080 HDTV 2Mp1 Frame rate Up to 60/50 fps (60/50 Hz) in all resolutions2 Video streaming Multiple, individually configurable streams in H.264, H.265 and Motion JPG 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 Image settings Contrast, brightness, sharpness, white balance, tone mapping, exposure mode, exposure zones, compression, rotation: 0°, 90°, 180°, 270° including corridor format, mirroring, dynamic text and image overlay, privacy masks, polygon privacy mask Audio Audio streaming One-way (simplex) Audio input		Dokument Microsoft Wordu

AXIS W120 Body Worn Camera

For live streaming, and tracking – your way

AXIS W120 Body Worn Camera is a fully connected wearable camera featuring built-in LTE/4G, Wi-Fi® and Bluetooth®, which enables direct streaming with AXIS Body Worn Live. It delivers clear audio with noise suppression and exceptional image quality. Electronic image stabilization guarantees the highest possible forensic value. The camera also delivers detailed status information via its LCD screen. AXIS W120 is robust, easy-to-use and features the KlickFast mounting system. It offers up to 15 hours of battery time and can be charged on-the-go with any USB-C® charger. Recording can be activated automatically, and the location of the camera is continuously recorded thanks to the built-in GNSS receiver.

- **Live streaming via LTE/4G**
- **Location tracking**
- **Always sharp images**
- **Excellent sound quality**
- **Multiple layers of encryption**

AXIS W120 Body Worn Camera

Camera

Image sensor
1/2.9" progressive scan RGB CMOS
Sensitivity: 0.1 lux

Lens
Focal length, 2.3 mm
Horizontal field of view: 137°
Vertical field of view: 76°
Fixed iris, F2.1

Shutter speed
1/20000 s to 1/25 s with 50 Hz
1/20000 s to 1/30 s with 60 Hz

Video

Video compression
H.264 (MPEG-4 Part 10/AVC) High Profile

Resolution
1920x1080, 1280x720

Frame rate
25 fps at 50 Hz
30 fps at 60 Hz

WDR
WDR

Image settings
Electronic image stabilization (720p), barrel distortion correction

Video streaming
Axis Zipstream for body worn

Audio

Audio encoding
AAC-LC
One channel: 48 kHz, 128 kbps
Two channels (optimized for post-processing mode): 48 kHz, 2x128 kbps

Audio input/output
Built-in dual microphones

Functionality
Voice enhancement

Approvals

Supply chain
TAA compliant

EMC
EN 55032 Class B, EN 55035, EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4,
Canada: ICES-3(B)/NMB-3(B)
USA: FCC Part 15 Subpart B Class B

Safety
CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN/UL 62368-1 ed. 3, RCM AS/NZS 62368.1:2018, IS 13252

Environment
IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14, IEC 60068-2-78, IEC/EN 60529 IP67
MIL-STD-810H (Method 501.7, 503.7, 505.7, 509.7, 512.6, 516.8)

Wireless
AS/CA S042.1, AS/CA S042.4, AS/NZS 4268, EN 50566, EN 300328, EN 300440, EN 301893, EN 303413, EN 301489-1, EN 301908-1, EN 301489-17, EN 301489-19, EN 301489-52, EN 301908-13, EN 62209-2, FCC Part 2 Subpart J, FCC Part 15 Subpart C, FCC Part 15 Subpart E, FCC Part 22 Subpart H, FCC Part 24 Subpart E, FCC Part 27, FCC Part 90, IFT, RSS-102, RSS-130, RSS-132, RSS-133, RSS-139, RSS-140, RSS-247, RSS-Gen, WPC

Cybersecurity
ETSI EN 303 645, BSI IT Security Label, EN 18031-1, EN 18031-2

Cybersecurity

Edge security
Software: Signed OS, AES-XTS-Plain64 256bit encryption
Hardware: Secure boot, Axis Edge Vault with Axis device ID, signed video, secure keystore (CC EAL6+ certified hardware protection of cryptographic operations and keys). CJIS compliant encrypted internal storage (AES256)

Network security
IEEE 802.1AR, HTTPS/HSTS[1], TLS v1.2/v1.3[1]
WPA/WPA2-PSK

Documentation
Axis body worn cameras – system security white paper, available at *axis.com/learning/white-papers*
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

Battery
Li-ion, 3600 mAh
Up to 15 hours operating time in 720p[2]
Up to 13.5 hours operating time in 1080p[2]
Up to 29 hours in standby mode[3]

Storage
64 GB non-volatile memory, up to 30 hours of recorded video
AES256 encryption standard

Throughput
Camera to system controller: 100 Mbit/s

Recording
Configurable audio and video prebuffer 0, 15, 30, 60, 90, and 120 seconds
Configurable audio and video postbuffer 0, 10, 30, and 60 seconds

Positioning system
GPS, GLONASS, Galileo, BeiDou

Location
Track, start and end

Sensor
3-axis gyroscope and accelerometer, compass

User interface
Color IPS TFT display, 0.96 inch, 160x80 pixels
Status indicators
Audio and vibration feedback

Wireless interface
Bluetooth® 5.1 Low Energy and Classic
Bluetooth profile: None
Wi-Fi® 5 a/b/g/n/ac @ 2.4 GHz, 5 GHz
LTE (US): Bands B2, B4, B5, B12, B13, B14, B25, B26, B66, B71 CAT4
LTE (EU): Bands B1, B3, B7, B8, B20, B28 CAT4

Casing
IP67-rated
Plastic casing
Drop tested up to 2 m

Color
Black NCS S 9000-N
White NCS S 1002-B

Mounting
Klick Fast™ System

Connectors
Pogo pin pads
USB (for Axis accessories and charging using a cable with a USB Type-C® connector), supported USB class: Vendor specific

SIM card
Nano-SIM (4FF)

Operating conditions
Temperature: -20 °C to 50 °C (-4 °F to 122 °F)
Maximum temperature (intermittent, <1 hour): 55 °C (131 °F)
Humidity: 10–100% RH (condensing)

Charging conditions
Temperature: 0 °C to 40 °C (32 °F to 104 °F)
Charging time:
<6.5 hours in 0–15 °C (32–59 °F)
<4 hours in 15–30 °C (59–86 °F)
<5.5 hours in 30–40 °C (86–104 °F)
Humidity: 5–95% RH (non-condensing)

Storage conditions
Temperature (< 3 months): -20 °C to 45 °C (-4 °F to 113 °F)
Temperature (> 3 months): 23 °C to 27 °C (73 °F to 81 °F)
Optimal temperature: 25 °C (77 °F)
Humidity: 5–95% RH (non-condensing)

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. *With pre-buffer, and fewer than 500 charge cycles.*
3. *Without pre-buffer, and including 1 hour of recording per charge in 720p, and fewer than 500 charge cycles.*

Dimensions
For the overall product dimensions, see the dimension drawing in this datasheet.

Weight
200 g (0.44 lb)

Optional accessories
Klick Fast™ System for Body worn camera mounts
AXIS TW1200 Body Worn Mini Bullet Sensor
AXIS TW1201 Body Worn Mini Cube Sensor
AXIS TW1906 Battery Replacement
AXIS Body Worn Assistant app for Android, iOS
For more accessories, see *axis.com/bodyworn*

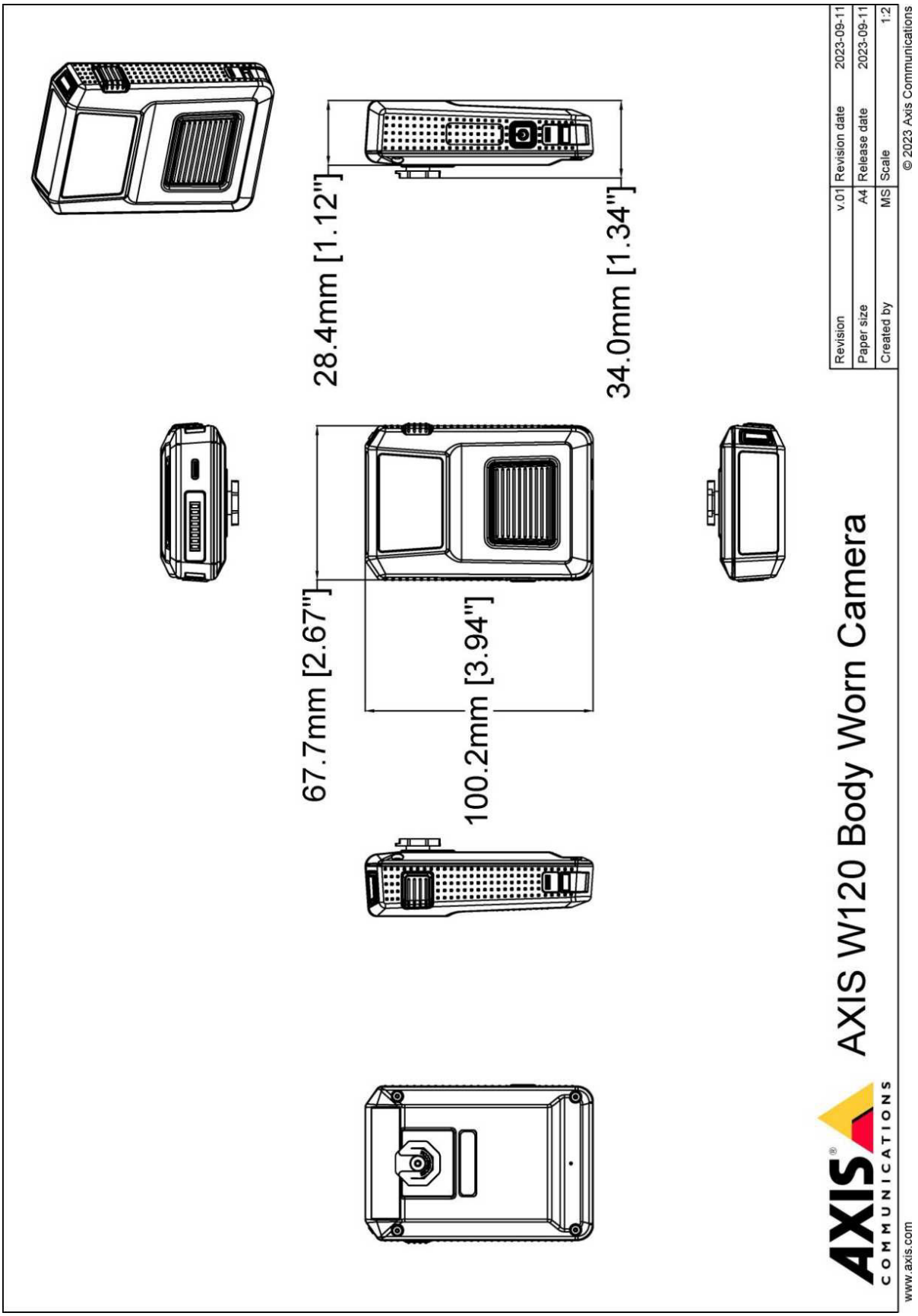
Warranty
The product, including the battery, is subject to a 3-year warranty period, in accordance with the terms and conditions stated in Axis 5 Year Limited Hardware Warranty available on *axis.com/warranty* ("3-year Warranty Period").
In addition to the terms and conditions in the Axis 5 Year Limited Hardware Warranty, the warranty doesn't cover battery degradation if the battery has undergone more than 500 charge cycles, if the camera has been used or stored in temperatures outside the specifications in the datasheet, or if the instructions in the product's user manual haven't been followed. Replacement of the battery during the 3-year Warranty Period carried out by any other party than Axis (or an RMA partner on behalf of Axis) will void the main item's warranty. Contact Axis Support or your reseller for battery- or service-related matters.

Sustainability

Substance control
RoHS in accordance with EU RoHS Directive 2011/65/EU/ and EN 63000:2018
REACH in accordance with (EC) No 1907/2006. For SCIP UUID, see *echa.europa.eu*

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

Dimension drawing



AXIS W800 System Controller

For flexible, scalable solutions

AXIS W800 System Controller is the central integration and management point of the body worn solution. The modular design of the system controller ensures a flexible and highly scalable system. A single AXIS W800 supports up to five docking stations and 40 cameras but can easily be extended with additional system controllers for larger body worn systems.

- > **High speed supervised offloading**
- > **Flexible and scalable**
- > **Single system integration point**
- > **Centralized system management**

AXIS W800 System Controller

Network

Security
HTTPS[1] encryption, IEEE 802.1x (EAP-TLS)[1] network access control

Network protocols
IPv4, IPv6 USGv6, HTTPS[1], TLS[1], Bonjour, DNS, NTP, NTS, SRTP/RTSPS, TCP, UDP, ICMP, DHCP, ARP

Throughput
Camera to system controller: 100 Mbit/s (per camera)
System controller to content destination: 1 Gbit/s

System integration

Application Programming Interface
Body Worn Integration API

Content destinations
Evidence management systems
Third party evidence management software from Axis Application Development Partners
Video management systems
AXIS Camera Station, and other third party video management software from Axis Application Development Partners available at *axis.com/vms*

Approvals

EMC
EN 55032 Class A, EN 61000-3-2, EN 61000-3-3, EN 55024, EN 61000-6-1, EN 61000-6-2
Australia/New Zealand: RCM AS/NZS CISPR 32 Class A
Canada: ICES-3(A)/NMB-3(A)
Japan: VCCI Class A
Korea: KC KN32 Class A, KC KN35
USA: FCC Part 15 Subpart B Class A

Safety
IEC/EN/UL 62368-1, IS 13252

Environment
IEC 60068-2-1, IEC 60068-2-14, IEC 60068-2-2, IEC 60068-2-27, IEC 60068-2-6, IEC 60068-2-78, IEC/EN 60529 IP3X

Network
NIST SP500-267

Cybersecurity
ETSI EN 303 645, BSI IT Security Label, FIPS 140

Cybersecurity

Edge security
Software: Signed OS, basic authentication, digest authentication, password protection, AES-XTS-Plain64 256bit HDD encryption
Hardware: Axis Edge Vault cybersecurity platform TPM 2.0 (CC EAL4+, FIPS 140-2 Level 2), system-on-chip security (TEE), secure keystore, secure boot, encrypted filesystem (AES-XTS-Plain 256bit)

Network security
IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2)[1], IEEE 802.1AR, HTTPS[1], TLS v1.2/v1.3[1], X.509 Certificate PKI

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*

System

System size
Up to 40 cameras per system controller.
Up to 1000 cameras per system.
Manage multiple systems through AXIS Body Worn Manager Pro.

General

Casing
IP3X-rated
Aluminum and plastic casing
Color: black NCS S 9000-N

Mounting
Mounting bracket

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).*

Sustainability
PVC free

Power
12 V DC, Typical 12.25 W, max 16 W

Connectors
1 x (uplink) Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T
5 x (device network) Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T
Data transfer: 1x USB 2.0 Type A, max load 500 mA, supported USB class: HID, Mass Storage
DC connector for 12 V DC input

Storage
480 GB SSD

Operating conditions
0 °C to 40 °C (32 °F to 104 °F)
Humidity 10–85% RH (non-condensing)

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

Dimensions
AXIS W800 System Controller
Height: 53 mm (2.1 in)
Width: 180 mm (7.1 in)
Length: 180 mm (7.1 in)
Mounting bracket
Height: 57 mm (2.2 in)
Width: 185 mm (7.3 in)
Length: 198 mm (7.8 in)

Weight
AXIS W800 System Controller
765 g (1.7 lb)
Mounting bracket
408 g (0.90 lb)

Included accessories
Mounting bracket

Optional accessories
AXIS TW8100 Rack Mount
External Secured RFID Card Reader 125kHz + 13.56MHz with NFC (USB)

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 W701 Mk II Docking Station 8-bay

AXIS W701 Mk II Docking Station 8-bay enables easy handling of the body worn cameras with fast charging, quick, secure and easy data offloading.

> Grab and go, ready when you are

> Dock and go, for automatic reliable offloading and fast charging

> Reliable docking connectors

> Splash proof

AXIS W701 Mk II Docking Station 8-bay

Network

Network protocols	IPv4, IPv6 USGv6, HTTPS, mDNS (Bonjour), DNS/DNSv6, NTP, TCP, UDP, ICMP, DHCPv4/v6, ARP
Throughput	100 Mbit/s (per camera)

General

Capacity	8 bays
Casing	Plastic casing Color: black NCS S 9000-N
Power	12 V DC, max 120 W
Connectors	Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T Power: DC input Pogo pin pads
Operating conditions	Temperature: 0 °C to 40 °C (32 °F to 104 °F) Humidity: 10–85% RH (non-condensing)
Storage conditions	Temperature: -40 °C to 65 °C (-40 °F to 149 °F) Humidity: 10-85% RH (non-condensing)
Dimensions	For the overall product dimensions, see the dimension drawing in this datasheet.
Weight	860 g (1.90 lb)
Box content	Docking station, power supply, screws, installation guide
Warranty	3-year warranty, see *axis.com/warranty*
Part numbers	Available at *https://www.axis.com/products/axis-w701-mk-ii-docking-station-8-bay#part-numbers*

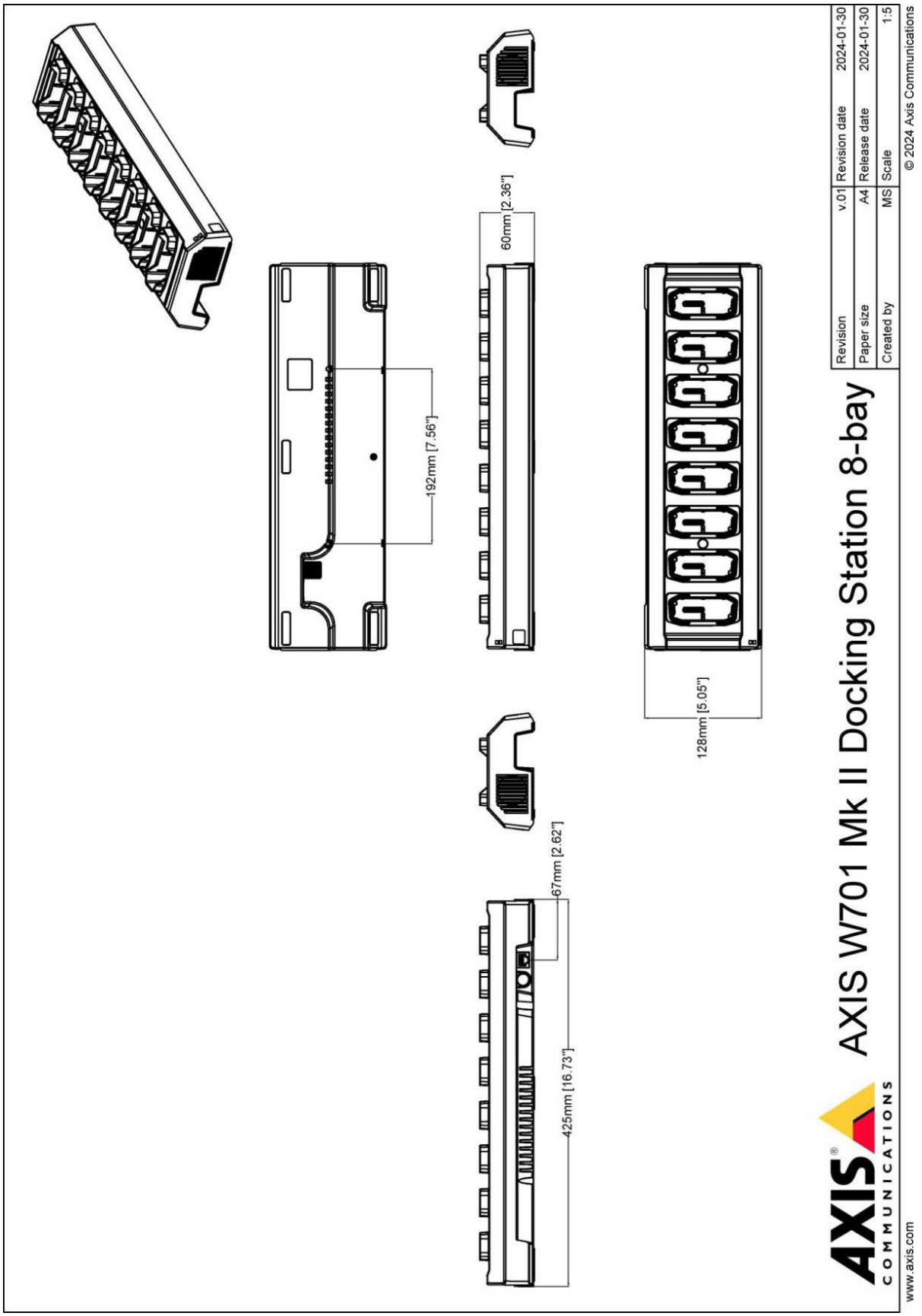
Approvals

Product markings	UL/cUL, CE, KC, VCCI, RCM, NOM, WEEE, ICES, FCC
Supply chain	TAA compliant
EMC	CISPR 35, CISPR 32 Class A,EN 55032 Class A, EN 55035, EN 61000-6-1, EN 61000-6-2 **Australia/New Zealand:** RCM AS/NZS CISPR 32 Class A **Canada:** ICES-3(A)/NMB-3(A) **Japan:** VCCI Class A **USA:** FCC Part 15 Subpart B Class A
Safety	CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN/UL 62368-1, RCM AS/NZS 62368.1:2022
Environment	IEC 60068-2-1, IEC 60068-2-14, IEC 60068-2-2, IEC 60068-2-78
Network	Compatible with NIST SP500-267 throughput

Sustainability

Substance control	PVC free RoHS in accordance with EU RoHS Directive 2011/65/EU/ and EN 63000:2018 REACH in accordance with (EC) No 1907/2006. For SCIP UUID, see *echa.europa.eu*
Materials	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*

Dimension drawing



AXIS W700 Mk II Docking Station 1-bay

AXIS W700 Mk II Docking Station 1-bay enables easy handling of the body worn camera with fast charging, quick, secure and easy data offloading.

> Grab and go, ready when you are

> Dock and go, for automatic reliable offloading and fast charging

> Reliable docking connectors

> Splash proof

AXIS W700 Mk II Docking Station 1-bay

Network

Network protocols	IPv4, IPv6 USGv6, HTTPS, mDNS (Bonjour), DNS/DNSv6, NTP, TCP, UDP, ICMP, DHCPv4/v6, ARP
Throughput	100 Mbit/s

General

Capacity	1 bay
Casing	Plastic casing Color: black NCS S 9000-N
Power	5 V DC, max 15 W
Connectors	Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T Power: DC input Pogo pin pads
Operating conditions	Temperature: 0 °C to 40 °C (32 °F to 104 °F) Humidity: 10–85% RH (non-condensing)
Storage conditions	Temperature: -40 °C to 65 °C (-40 °F to 149 °F) Humidity: 10-85% RH (non-condensing)
Dimensions	For the overall product dimensions, see the dimension drawing in this datasheet.
Weight	133 g (0.29 lb)
Box content	Docking station, power supply, installation guide
Warranty	3-year warranty, see *axis.com/warranty*
Part numbers	Available at *https://www.axis.com/products/axis-w700-mk-ii-docking-station-1-bay#part-numbers*

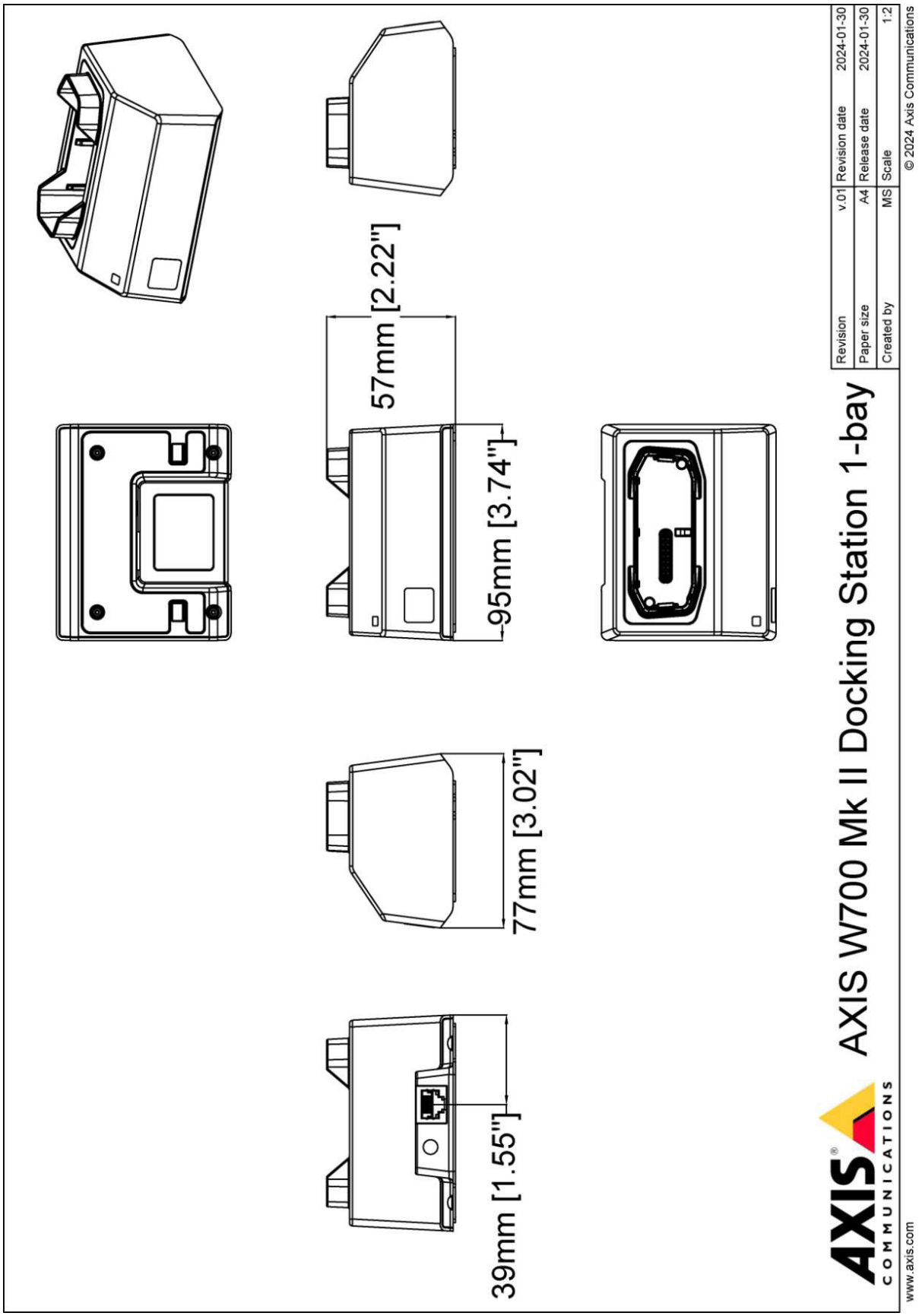
Approvals

Product markings	UL/cUL, CE, KC, VCCI, RCM, NOM, WEEE, ICES, FCC
Supply chain	TAA compliant
EMC	CISPR 35, CISPR 32 Class B,EN 55032 Class B, EN 55035, EN 61000-6-1, EN 61000-6-2 **Australia/New Zealand:** RCM AS/NZS CISPR 32 Class B **Canada:** ICES-3(B)/NMB-3(B) **Japan:** VCCI Class B **USA:** FCC Part 15 Subpart B Class B
Safety	CAN/CSA C22.2 No. 62368-1 ed. 3, IEC/EN/UL 62368-1, RCM AS/NZS 62368.1:2022
Environment	IEC 60068-2-1, IEC 60068-2-14, IEC 60068-2-2, IEC 60068-2-78
Network	Compatible with NIST SP500-267 throughput

Sustainability

Substance control	PVC free RoHS in accordance with EU RoHS Directive 2011/65/EU/ and EN 63000:2018 REACH in accordance with (EC) No 1907/2006. For SCIP UUID, see *echa.europa.eu*
Materials	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*

Dimension drawing



AXIS Q6355-LE PTZ Camera

2 MP, AI-powered PTZ for extreme low light

AXIS Q6355-LE features an outstanding light-sensitive ½" inch sensor, 31x optical zoom, laser focus and quick zoom. Built on ARTPEC-9, it offers accelerated performance to run impressive analytics applications on the edge. For instance, *AXIS Object Analytics* can detect and classify humans, vehicles, and types of vehicles. This IP66-, IK10-, and NEMA 4x- rated device is impact- and weather-resistant. Plus, it's NEMA TS2 rated so it can be used in temperatures up to 74°C. Axis Zipstream with support for AV1, H.264, and H.265 significantly lowers bandwidth and storage requirements. Furthermore, Axis Edge Vault safeguards your device and protects sensitive information from unauthorized access.

- **1/2" sensor with 31x optical zoom**
- **Forensic WDR, Lightfinder, and OptimizedIR**
- **Next-generation AI-powered analytics**
- **Axis Zipstream with AV1, H.264, H.265**
- **Built-in cybersecurity with Axis Edge Vault**

AXIS Q6355-LE PTZ Camera

Camera

Variants
AXIS Q6355-LE
AXIS Q6355-LE NM (midspan not included)

Image sensor
1/2" progressive scan CMOS

Lens
Optical zoom: 31x
Zoom speed: <1 sec between any zoom value
Focal length: 6.91 – 214.64 mm
Horizontal field of view: 60.6°– 2.0°
Vertical field of view: 36.5°– 1.1°
Laser focus, autofocus, P-iris

Day and night
Automatically removable infrared-cut filter

Minimum illumination
Color: 0.06 lux at 30 IRE, F1.36
B/W: 0.001 lux at 30 IRE, F1.36, 0 lux with IR illumination on
Color: 0.09 lux at 50 IRE, F1.36
B/W: 0.008 lux at 50 IRE, F1.36, 0 lux with IR illumination on

Shutter speed
1/111000 s to 1/2 s

Pan/Tilt/Zoom
Pan: 360° endless, 0.05°– 550°/s
Tilt: +20 to -90°, 0.05°– 500°/s
Zoom: 31x optical, 12x digital, Total 372x zoom
Quick-zoom, nadir flip, 300 preset positions, tour recording (max 10, max duration 16 minutes each), guard tour (max 100), control queue, on-screen directional indicator, set new pan 0°, adjustable zoom speed, speed dry

System on chip (SoC)

Model
ARTPEC-9

Memory
4096 MB RAM, 8192 MB Flash

Compute capabilities
Deep learning processing unit (DLPU)

Video

Video compression
AV1
H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles
H.265 (MPEG-H Part 2/HEVC) Main Profile
Motion JPEG

Resolution
1920x1080 (HDTV 1080p) to 320x180

Frame rate
Up to 50/60 fps (50/60 Hz) in all resolutions

Video streaming
Multiple, individually configurable streams in AV1, H.264, H.265 and Motion JPEG
Axis Zipstream technology in AV1, H.264 and H.265
Controllable frame rate and bandwidth
VBR/ABR/MBR AV1/H.264/H.265
Low latency mode
Video streaming indicator

Signal-to-noise ratio
>55 dB

Image settings
Compression, color, brightness, sharpness, white balance, exposure control, exposure zones, image freeze on PTZ, scene profiles, rotation, electronic image stabilization (EIS), defogging
Contrast, local contrast, autofocus, Forensic WDR: Up to 120 dB depending on scene, 100 individual polygon privacy masks including mosaic and chameleon privacy masks

Audio

Audio input
Input through portcast technology

Audio output
Output through portcast technology

Network

Network protocols
IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS[1], HTTP/2, TLS[1], QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, NTS, RTSP, RTCP, RTP, SRTP/RTSPS, TCP, UDP, IGMPv1/v2/v3, DHCPv4/v6, ARP, SSH, NTCIP, 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; 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
IR illumination
Quick-zoom
Speed dry

Event conditions
Device status: above operating temperature, above or below operating temperature, below operating temperature, fan failure, IP address removed, IP address blocked, 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[2]
MQTT: MQTT client connected
PTZ: PTZ malfunctioning, PTZ movement, PTZ preset position reached, PTZ ready
Scheduled and recurring: schedule
Video: average bitrate degradation, day-night mode

Event actions
Day-night mode: Use day-night mode while the rule is active
Defog: set defog mode, set defog mode while the rule is active
Illumination: use lights, use lights while the rule is active
Images: FTP, SFTP, HTTP, HTTPS, network share and email
MQTT: MQTT publish
Notification: email, HTTP, HTTPS, TCP
Overlay text: use overlay text, use overlay text while the rule is active
Recordings: record video, record video while the rule is active
Security: erase configuration
SNMP: trap messages, trap messages while the rule is active
Video clips: FTP, HTTP, HTTPS, SFTP, email, network share

Analytics

Applications
Included
AXIS Object Analytics, AXIS Scene Metadata, AXIS Video Motion Detection, AXIS OSDI Zone, Orientation Aid PTZ, advanced gatekeeper, autotracking 2
Supported
Support for AXIS Camera Application Platform enabling installation of third-party applications, see *axis.com/acap*

AXIS Object Analytics
Object classes: humans, vehicles (types: cars, buses, trucks, bikes, other)
Scenarios: line crossing, object in area, time in area, crossline counting, tailgating detection, PPE monitoring[BETA], motion in area, 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

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. *Only available with midspan.*

Approvals

EMC
EN 55032 Class A, EN 55035, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, CISPR 35, EAC, EN 50121-4
Australia/New Zealand: RCM AS/NZS CISPR 32 Class A
Canada: ICES-3(A)/NMB-3(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
IEC/EN/UL 62368-1, CAN/CSA C22.2 No. 62368-1, IEC/EN 62471 risk group 2, IEC 60825-1 Class 1

Environment
IEC/EN 62262 IK10, IEC/EN 60529 IP66, IEC/EN 60529 IP67, NEMA 250, Type 4X, NEMA TS 2 (2.2.7–2.2.9), IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-78, ISO 21207 (Method B), ISO 12944-6 C5

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, AES-XTS-Plain64 256bit SD card encryption
Hardware: Axis Edge Vault cybersecurity platform
Secure keystore: secure element (CC EAL6+, FIPS 140-3 Level 3), system-on-chip security (TEE)
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), 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-, NEMA 4X- and IK10-rated
Color: white NCS S 1002-B
Repaintable metal casing (aluminum), hard coated Polycarbonate (PC) clear dome with Sharpdome technology

Power
IEEE802.3bt Type 3 Class 6
Possibility to optimize power consumption of camera:
Full power: typical 13.7 W (no IR), max 51 W
Low power: typical 13.7 W (no IR), max 30 W. With IR: 40 W
Features: power profiles, power meter

Connectors
RJ45 10BASE-T/100BASE-TX/1000BASE-T
RJ45 Push-pull Connector (IP66)

IR illumination
OptimizedIR with power-efficient, long-life 850 nm IR LEDs
Range of reach 300 m (984 ft) or more depending on the scene

Storage
Support for SD/SDHC/SDXC card
Support for SD card encryption (AES-XTS-Plain64 256bit)
Support for recording to network-attached storage (NAS)
For SD card and NAS recommendations see *axis.com*

Operating conditions
Full power: -50 °C to 55 °C (-58 °F to 131 °F)
Low power: -10 °C to 55 °C (14 °F to 131 °F)
Maximum temperature according to NEMA TS 2 (2.2.7): 74 °C (165 °F)
Arctic Temperature Control: Start-up as low as -40 °C (-40 °F)
Humidity 10–100% RH (condensing)
Wind load (sustained): 60 m/s (135 mph)[4]

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).*
4. *The values shown are based on results from actual wind tunnel testing. For drag force calculations, use Effective Projected Area (EPA).*

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

Dimensions
Height: 261 mm (10.3 in)
With weather shield: ø 239 mm (9.4 in)
Without weather shield: ø 192 mm (7.6 in)
Effective Projected Area (EPA): 0.045 m^2

Weight
4 400 g (9.7 lb)

Included accessories
Installation guide, Windows® decoder 1-user license, 90 W Midspan (including power cable)[5], IP66-rated network connector, repaint template, paint paper

Optional accessories
AXIS TQ6808-E Hard-Coated Clear Dome
AXIS TQ6815-E Dome Hard-Coated Smoked
AXIS TU8003 90 W Connectivity Midspan
AXIS T91/T94 Mounting Accessories
AXIS Surveillance Cards
For more accessories, see *axis.com*

Video management software
AXIS Companion, AXIS Camera Station, 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*

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: 23% (recycled: 18%, bio-based: 5%, carbon capture based: 0%)
Screened for conflict minerals in accordance with OECD guidelines
To read more about sustainability at Axis, go to *axis.com/about-axis/sustainability*

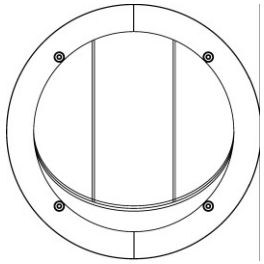
Environmental responsibility
axis.com/environmental-responsibility
Axis Communications is a signatory of the UN Global Compact, read more at *unglobalcompact.org*

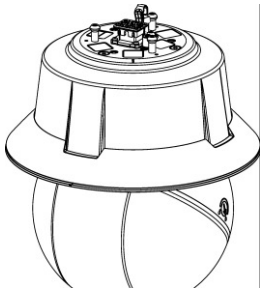
5. *Not included for AXIS Q6355-E NM.*

Detect, Observe, Recognize, Identify (DORI)

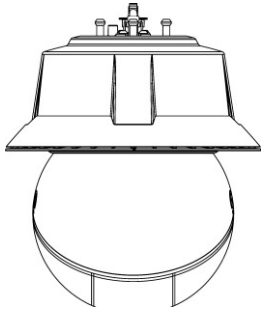
	DORI definition	Distance (wide)	Distance (tele)
Detect	25 px/m (8 px/ft)	65.8 m (216 ft)	1749.3 m (5737.7 ft)
Observe	63 px/m (19 px/ft)	26.1 m (85.6 ft)	693.7 m (2275 ft)
Recognize	125 px/m (38 px/ft)	13.2 m (43.3 ft)	349.2 m (1145 ft)
Identify	250 px/m (76 px/ft)	6.6 m (21.6 ft)	174.2 m (571.4 ft)

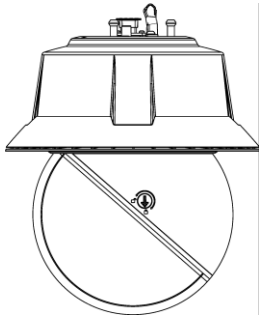
The DORI values are calculated using pixel densities for different use cases as recommended by the EN-62676-4 standard. The calculations use the center of the image as the reference point and consider lens distortion. The possibility to recognize or identify a person or object depends on factors such 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.

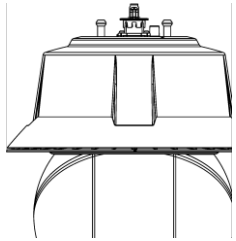


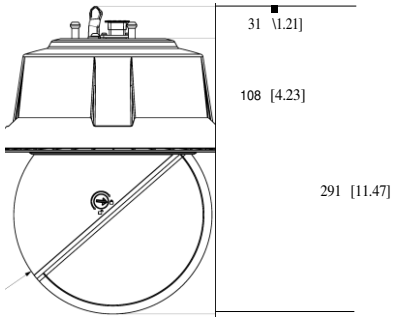


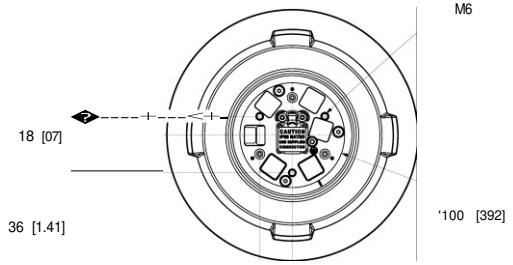
[941]







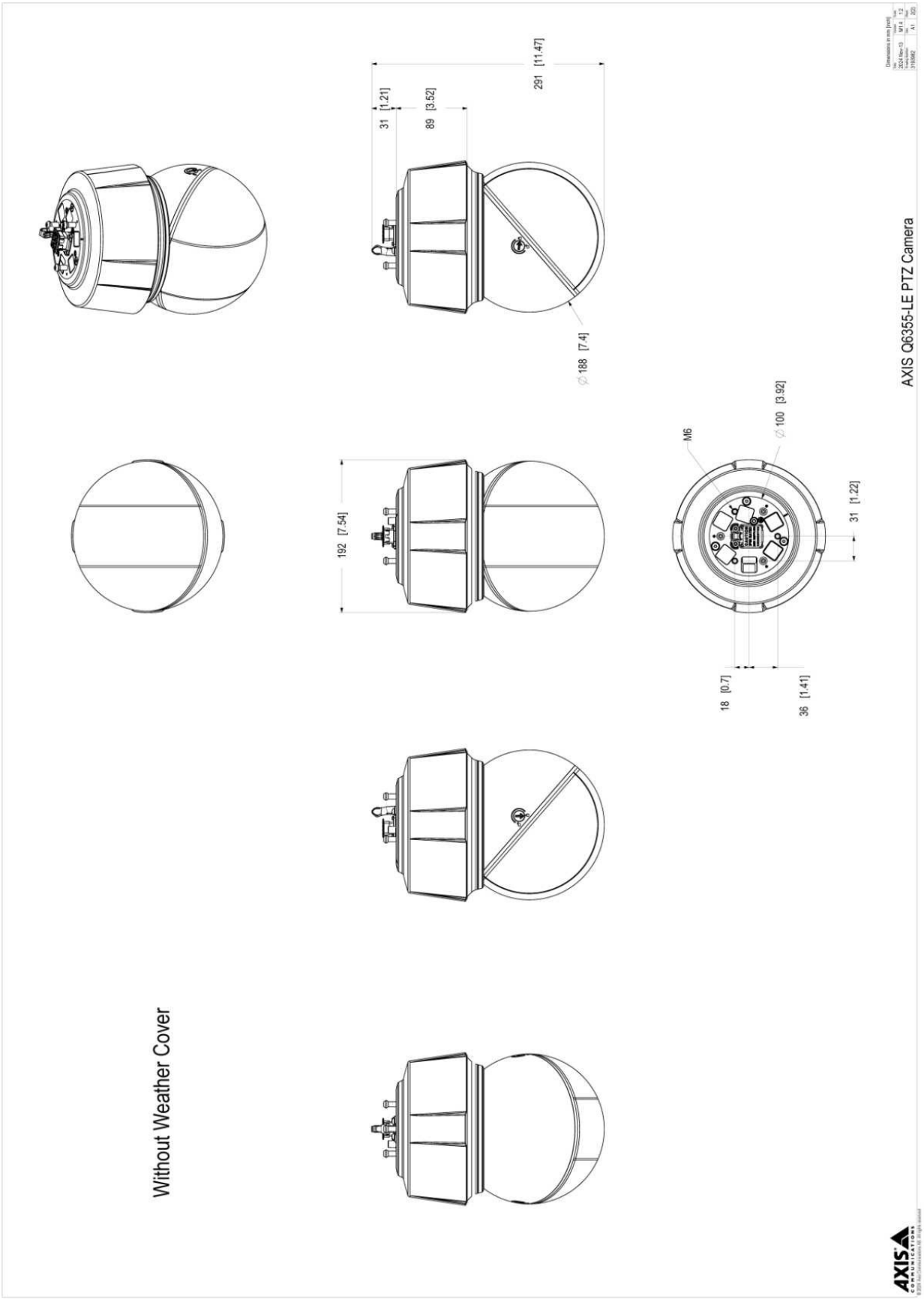




31 [1.22]

Dimensions in mm [inch]

Date	Created	Scale
2024-Nov-13	M1.4	1:2
Drawing Number	Title	Sheet
3162682	A1	1(2)



AXIS P1465-LE Bullet Camera

Fully featured, all-around 2 MP surveillance

Based on ARTPEC-8, AXIS P1465-LE delivers excellent image quality in 2 MP. It includes a deep learning processing unit enabling advanced features and powerful analytics based on deep learning on the edge. With AXIS Object Analytics, it can detect and classify humans, vehicles, and types of vehicles. Available with a wide or tele lens, this IP66/IP67, NEMA 4X, and IK10-rated camera can withstand winds up to 50 m/s. Lightfinder 2.0, Forensic WDR, and OptimizedIR ensure sharp, detailed images under any light conditions. Furthermore, Axis Edge Vault protects your Axis device ID and simplifies authorization of Axis products on your network.

- **> Lightfinder 2.0, Forensic WDR, OptimizedIR**
- **> Analytics with deep learning**
- **> Audio and I/O connectivity**
- **> Built-in cybersecurity features**
- **> Two lens alternatives**

AXIS P1465-LE Bullet Camera

Camera

Models	AXIS P1465-LE 9 mm AXIS P1465-LE 29 mm
Image sensor	1/2.8" progressive scan RGB CMOS Pixel size 2.9 µm
Lens	Varifocal, remote focus and zoom, P-Iris control, IR corrected **AXIS P1465-LE 9 mm:** Varifocal, 3-9 mm, F1.6-3.3 Horizontal field of view 117°-37° Vertical field of view 59°-20° Minimum focus distance: 0.5 m (1.6 ft) **AXIS P1465-LE 29 mm:** Varifocal, 10.9-29 mm, F1.7-1.7 Horizontal field of view 29°-11° Vertical field of view 16°-6° Minimum focus distance: 2.5 m (8.2 ft)
Day and night	Automatic IR-cut filter Hybrid IR filter
Minimum illumination	0 lux with IR illumination on **AXIS P1465-LE 9 mm:** **Color:** 0.06 lux, at 50 IRE F1.6 **B/W:** 0.01 lux, at 50 IRE F1.6 **AXIS P1465-LE 29 mm:** **Color:** 0.06 lux, at 50 IRE F1.7 **B/W:** 0.01 lux, at 50 IRE F1.7
Shutter speed	**With Forensic WDR:** 1/37000 s to 2 s **No WDR:** 1/71500 s to 2 s

System on chip (SoC)

Model	ARTPEC-8
Memory	1024 MB RAM, 8192 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:** 1920x1080 to 160x90 **16:10:** 1280x800 to 160x100 **4:3:** 1280x960 to 160x120
Frame rate	**With Forensic WDR:** Up to 25/30 fps (50/60 Hz) in all resolutions **No WDR:** Up to 50/60 fps (50/60 Hz) in all resolutions
Video streaming	Up to 20 unique and configurable video streams[a] Axis Zipstream technology in H.264 and H.265 Controllable frame rate and bandwidth VBR/ABR/MBR H.264/H.265 Low latency mode Low latency mode Low latency mode Video streaming indicator
Signal-to-noise ratio	>55 dB
WDR	Forensic WDR: Up to 120 dB depending on scene
Multi-view streaming	Up to 8 individually cropped out view areas
Noise reduction	Spatial filter (2D noise reduction) Temporal filter (3D noise reduction)
Image settings	Saturation, contrast, brightness, sharpness, white balance, day/night threshold, exposure mode, exposure zones, defogging, compression, orientation: auto, 0°, 90°, 180°, 270° including corridor format, mirroring of images, dynamic text and image overlay, polygon privacy masks, barrel distortion correction Scene profiles: forensic, vivid, traffic overview **AXIS P1465-LE 29 mm:** Electronic image stabilization
Image processing	Axis Zipstream, Forensic WDR, Lightfinder 2.0, OptimizedIR
Pan/Tilt/Zoom	Digital PTZ, digital zoom

Audio

Audio features	AGC automatic gain control Network speaker pairing
Audio streaming	Configurable duplex: One-way (simplex, half duplex) Two-way (half duplex, full duplex)
Audio input	10-band graphic equalizer Input for external unbalanced microphone, optional 5 V microphone power Digital input, optional 12 V ring power Unbalanced line input
Audio output	Output via network speaker pairing
Audio encoding	24bit LPCM, AAC-LC 8/16/32/44.1/48 kHz, G.711 PCM 8 kHz, G.726 ADPCM 8 kHz, Opus 8/16/48 kHz Configurable bit rate

Network

Network protocols	IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS[b], HTTP/2, TLS[b], QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, NTS, RTSP, RTP, SRTP/RTSPS, TCP, UDP, IGMPv1/v2/v3, RTCP, ICMP, DHCPv4/v6, ARP, SSH, LLDP, CDP, MQTT v3.1.1, Syslog, Link-Local address (ZeroConf)

System integration

Application Programming Interface	Open API for software integration, including VAPIX®, metadata and AXIS Camera Application Platform (ACAP); specifications at *axis.com/developer-community*. ACAP includes Native SDK and Computer Vision SDK. One-click cloud connection ONVIF® Profile G, ONVIF® Profile M, ONVIF® Profile S and ONVIF® Profile T, specification at *onvif.org*
Video management systems	Compatible with AXIS Companion, AXIS Camera Station, video management software from Axis' Application Development Partners available at *axis.com/vms*
Onscreen controls	Autofocus Day/night shift Defogging Video streaming indicator Wide dynamic range IR illumination Privacy masks Media clip **AXIS P1465-LE 29 mm:** Electronic image stabilization
Event conditions	Application Device status: above operating temperature, above or below operating temperature, below operating temperature, within operating temperature, IP address removed, new IP address, network lost, system ready, ring power overcurrent protection, live stream active Digital audio input status Edge storage: recording ongoing, storage disruption, storage health issues detected I/O: digital input, manual trigger, virtual input MQTT: subscribe Scheduled and recurring: schedule Video: average bitrate degradation, day-night mode, tampering
Event actions	Audio clips: play, stop Day-night mode 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 Overlay text Recordings: 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 WDR mode
Built-in installation aids	Pixel counter, remote zoom (3x optical), remote focus, auto rotation

Analytics

AXIS Object Analytics	**Object classes**: humans, vehicles (types: cars, buses, trucks, bikes) **Trigger conditions**: line crossing, object in area, time in area[BETA] Up to 10 scenarios

	Metadata visualized with trajectories and color-coded bounding boxes Polygon include/exclude areas Perspective configuration ONVIF Motion Alarm event
Metadata	**Object data**: Classes: humans, faces, vehicles (types: cars, buses, trucks, bikes), license plates Confidence, position **Event data**: Producer reference, scenarios, trigger conditions
Applications	**Included** AXIS Object Analytics AXIS Live Privacy Shield, AXIS Video Motion Detection, active tampering, shock detection **Supported** AXIS Perimeter Defender, AXIS Speed Monitor[c] Support for AXIS Camera Application Platform enabling installation of third-party applications, see *axis.com/acap*

Approvals

Product markings	CSA, UL/cUL, BIS, UKCA, CE, KC, EAC
Supply chain	NDAA compliant, TAA compliant
EMC	CISPR 35, CISPR 32 Class A, EN 55035, EN 55032 Class A, EN 50121-4, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2 **Australia/New Zealand:** RCM AS/NZS CISPR 32 Class A **Canada:** ICES-3(A)/NMB-3(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, IEC/EN 62471 risk group exempt, 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)
Network	NIST SP500-267

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+ certified hardware protection of cryptographic operations and keys)
Network security	IEEE 802.1X (EAP-TLS)[b], IEEE 802.1AR, HTTPS/HSTS[b], TLS v1.2/v1.3[b], Network Time Security (NTS), X.509 Certificate PKI, IP address filtering
Documentation	*AXIS OS Hardening Guide* *Axis Vulnerability Management Policy* *Axis Security Development Model* 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-, NEMA 4X-, and IK10-rated casing Polycarbonate blend and aluminium Color: white NCS S 1002-B
Power	Power over Ethernet IEEE 802.3af/802.3at Type 1 Class 3 Typical: 7.9 W, max 12.95 W 10–28 V DC, typical 7.2 W, max 12.95 W Power: DC input
Connectors	Network: Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T Audio: 3.5 mm mic/line in I/O: Terminal block for 1 alarm input and 1 output (12 V DC output, max. load 25 mA)
IR illumination	OptimizedIR with power-efficient, long-life 850 nm IR LEDs **AXIS P1465-LE 9 mm:** Range of reach 40 m (131 ft) or more depending on the scene **AXIS P1465-LE 29 mm:** Range of reach 80 m (262 ft) or more depending on the scene
Storage	Support for microSD/microSDHC/microSDXC card 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) Maximum temperature according to NEMA TS2 (2.2.7): 74 °C (165 °F) Start-up temperature: -40 °C Humidity 10–100% RH (condensing)
Storage conditions	-40 °C to 65 °C (-40 °F to 149 °F) Humidity 5-95% RH (non-condensing)
Dimensions	Ø132 x 132 x 280 mm (Ø5.2 x 5.2 x 11.0 in) Effective Projected Area (EPA): 0.022 m^2 (0.24 ft^2)
Weight	With weather shield: 1.2 kg (2.65 lb)
Box content	Camera, installation guide, TORX® L-keys, terminal block connector, connector guard, cable gaskets, AXIS Weather Shield L, owner authentication key
Optional accessories	AXIS T94F01M J-Box/Gang Box Plate, AXIS T91A47 Pole Mount, AXIS T94P01B Corner Bracket, AXIS T94F01P Conduit Back Box, AXIS Weather Shield K, Axis PoE Midspans For more accessories, go to *axis.com/products/axis-p1465-le#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, Traditional Chinese
Warranty	5-year warranty, see *axis.com/warranty*
Part numbers	Available at *axis.com/products/axis-p1465-le#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 EN 63000:2018 REACH in accordance with (EC) No 1907/2006. For SCIP UUID, see *axis.com/partner.*
Materials	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*

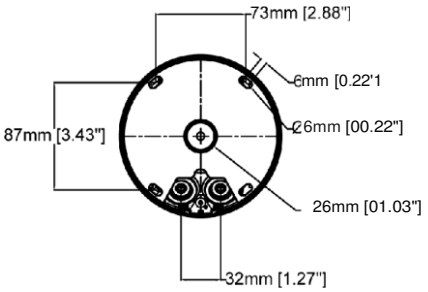
a. *We recommend a maximum of 3 unique video streams per camera or channel, for optimized user experience, network bandwidth, and storage utilization. A unique video stream can be served to many video clients in the network using multicast or unicast transport method via built-in stream reuse functionality.*

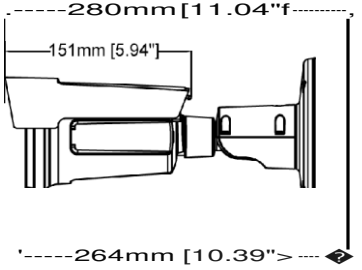
b. *This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (openssl.org), and cryptographic software written by Eric Young (eay@cryptsoft.com).*

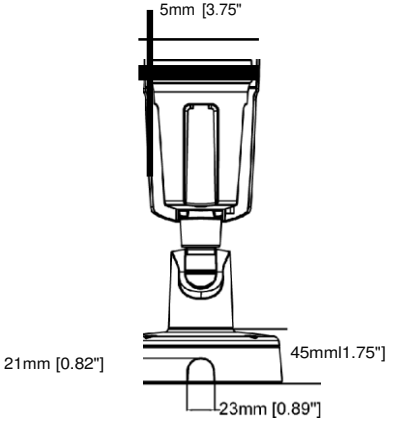
c. *It also requires AXIS D2110-VE Security Radar with firmware 10.12 or later.*

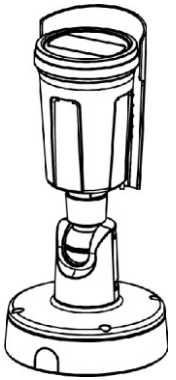
Environmental responsibility:

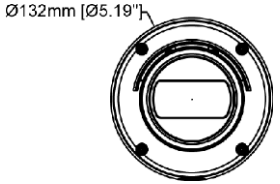
axis.com/environmental-responsibility

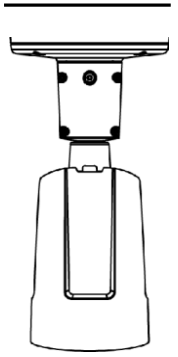












AXIS P1465-LE Bullet Camera

Revision	v.01	Revision date	2022-09-23
Paper size	A4	Release date	2022-09-23
Created by	MS	Scale	1:5

Key features and technologies

Built-in cybersecurity

Axis Edge Vault is a secure cryptographic compute module (secure module or secure element) in which the Axis device ID is securely and permanently installed and stored.

Secure boot is a boot process that consists of an unbroken chain of cryptographically validated software, starting in immutable memory (boot ROM). Being based on signed firmware, secure boot ensures that a device can boot only with authorized firmware. Secure boot guarantees that the Axis device is completely clean from possible malware after resetting to factory default.

Signed firmware is implemented by the software vendor signing the firmware image with a private key, which is secret. When firmware has this signature attached to it, a device will validate the firmware before accepting and installing it. If the device detects that the firmware integrity is compromised, it will reject the firmware upgrade. Axis signed firmware is based on the industry-accepted RSA public-key encryption method.

Zipstream

The Axis Zipstream technology preserves all the important forensic in the video stream while lowering bandwidth and storage requirements by an average of 50%. Zipstream also includes three intelligent algorithms, which ensure that relevant forensic information is identified, recorded, and sent in full resolution and frame rate.

Forensic WDR

Axis cameras with wide dynamic range (WDR) technology make the difference between seeing important forensic details clearly and seeing nothing but a blur in challenging light conditions. The difference between the darkest and the brightest spots can spell trouble for image usability and clarity. Forensic WDR effectively reduces visible noise and artifacts to deliver video tuned for maximal forensic usability.

Lightfinder

The Axis Lightfinder technology delivers high-resolution, full-color video with a minimum of motion blur even in near darkness. Because it strips away noise, Lightfinder makes dark areas in a scene visible and captures details in very low light. Cameras with Lightfinder discern color in low light better than the human eye. In surveillance, color may be the critical factor to identify a person, an object, or a vehicle.

AXIS Object Analytics

AXIS Object Analytics adds value to your camera for free. It 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.

Two lens alternatives

The camera is available in two variants with a choice of lenses: a wide 3.9-9 mm lens for wide area surveillance and a tele 10-29 mm lens for surveillance from a distance.

OptimizedIR

Axis OptimizedIR provides a unique and powerful combination of camera intelligence and sophisticated LED technology, resulting in our most advanced camera-integrated IR solutions for complete darkness. In our pan-tilt-zoom (PTZ) cameras with OptimizedIR, the IR beam automatically adapts and becomes wider or narrower as the camera zooms in and out to make sure that the entire field of view is always evenly illuminated.

For more information, see *axis.com/glossary*

introduce modifications without notice.

AXIS Q1656-BE Box Camera

Outdoor barebone model in 4 MP

With 4 MP resolution at up to 60 fps, a 1/1.8” sensor, and Lightfinder 2.0, AXIS Q1656-BE delivers exceptional video quality even in poor light conditions. Based on the latest Axis system-on-chip (SoC), it offers support for advanced features and applications based on deep learning on the edge. And AXIS Object Analytics provides highly nuanced object classification. With built-in cybersecurity features, it prevents unauthorized access and safeguards your system. This outdoor-ready barebone unit comes without lens and mounting, but with a variety of lenses, mounting options, and IR illumination kits, you can create a unique camera to meet your needs.

- **Exceptional images with 1/1.8” sensor**
- **Support for analytics with deep learning**
- **Built-in cybersecurity features**
- **Support for i-CS lens**
- **Ready to customize for specific needs**

AXIS Q1656-BE Box Camera

Camera

Image sensor
1/1.8" progressive scan RGB CMOS

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
Lens not included

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, 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)

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).

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
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
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 back focus, leveling assistant, pixel counter
i-CS lens: Remote zoom and focus

Analytics

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

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 color-coded bounding boxes
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

2. *Available for download*

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 Client Credential Flow/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
IK10 impact-resistant plastic front window 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, 0% recycled plastics, 5% bio-based plastics

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 25.2 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)

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)

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

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).*

Dimensions
404 x 159 x 182 mm (16 x 6.3 x 7.2 in)

Weight
3.3 kg (7.3 lb)

Included accessories
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
Lens i-CS 1/1.8" 3.9-10 mm F1.5

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 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

Profiles
Area monitoring
Road monitoring

Sensor
FMCW (Frequency Modulated Continuous Wave)

Object data
Object type (classes: humans, vehicles, unknown), range, direction, velocity

Frequency
Area monitoring profile Channel 1: 61.25-61.48 GHz
Area monitoring profile Channel 2: 61.02-61.25 GHz
Road monitoring profile Channel 1: 61.25-61.43 GHz
Road monitoring profile Channel 2: 61.05-61.23 GHz

RF transmit power
<100 mW (EIRP)
License-free. Unharmful radio-waves.

Recommended mounting height
3.5–12 m (11–39 ft)[1]

Recommended mounting tilt
15–45°[1]

Detection range
Area monitoring profile: 5–60 m (16–200 ft) when detecting a person[2]
5–90 m (16–300 ft) when detecting a vehicle[2]
Road monitoring profile: Up to 150 m when detecting a vehicle[3]

Radial speed
Area monitoring profile: Up to 55 km/h (34 mph)
Road monitoring profile: up to 200 km/h (125 mph)

Field of detection
Horizontal: 95°

Speed accuracy
+/- 2 km/h (1.25 mph)

Distance accuracy
Area monitoring profile: 0.5 m (1.6 ft)
Road monitoring profile: 0.8 m (2.6 ft)

Angle accuracy
1°

Spatial differentiation
3 m[4]

Data refresh rate
10 Hz

1. *The mounting height and tilt affects the detection range. See user manual at axis.com for more information.*
2. *Measured at 5 m mounting height, with 25° tilt. See user manual at axis.com for more information.*
3. *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 for more information.*
4. *Minimum distance between moving objects.*

Coverage
Area monitoring profile: 2700 m^2 (29000 sq ft) for persons
6100 m^2 (65600 sq ft) for vehicles

Coexistence zone
Frequency band: 61 GHz
Radius: 350 m (1148 ft)
Recommend number of radars: up to 8

Radar controls
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, grid opacity, zone opacity, color scheme, trail lifetime, detection sensitivity, swaying object filter, small object filter, frequency channel, reference map calibration with options to scale, pan, and zoom map

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
Scene profiles: forensic, vivid, traffic overview

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[5], HTTP/2, TLS[5], 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/developer-community*.
One-click cloud connection
ONVIF® Profile G, ONVIF® Profile M, ONVIF® Profile S, and ONVIF® Profile T, specification at *onvif.org*

5. *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).*

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

Edge-to-edge
Speaker pairing
PTZ camera pairing

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, radar data failure; interference, no data, tampering
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
Radar motion detection
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
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

Data streaming
Video, radar, and fusion metadata with relative position, GPS position[6], velocity, direction, and object type

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 Video Motion Detection
AXIS Speed Monitor[7]
Supported
AXIS License Plate Verifier
Support for AXIS Camera Application Platform enabling installation of third-party applications, see *axis.com/acap*

AXIS Object Analytics
Object classes (radar-video fusion): humans, vehicles
Object classes (video only): humans, vehicles (types: cars, buses, trucks, bikes, other)
Scenarios (radar-video fusion): line crossing, object in area
Scenarios (video only): crossline counting, occupancy in area, time in area
Up to 10 scenarios
Key features: detection sensitivity, object speed
Other features: triggered objects visualized with color-coded bounding boxes
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

6. *Enter the camera's GPS position manually to get the objects' GPS position in the data stream.*
7. *Available for download*

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(B)/NMB-3(B)
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 B
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, IEC/EN 62262 IK10, NEMA 250 Type 4X, NEMA TS 2 (2.2.7-2.2.9), ISO 21207 (Method B)

Wireless
EN 305550, EN 301489-1, EN 301489-3, EN 62311, FCC Part 15 Subpart C

Network
NIST SP500-267

Cybersecurity
ETSI EN 303 645, BSI IT Security Label, FIPS 140, EN 18031-1

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), 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)[8], IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS[8], TLS v1.2/v1.3[8], 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-, and NEMA 4X-rated, IK10 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 VDC, 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 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

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

8. *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).*

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)

Dimensions
404 x 159 x 234 mm (16 x 6.3 x 9.2 in)

Weight
5 kg (11 lb)

Included accessories
AXIS TQ1003-E 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, Dutch, Czech, Swedish, Finnish, Turkish, Thai, Vietnamese

Warranty
5-year warranty, see *axis.com/warranty*

AXIS F2105-RE Standard Sensor

Discreet standard sensor with 1080p

AXIS F2105-RE offers 1080p at 60 fps or 720p at 180 fps with AXIS F9111 Mk II, an excellent 108° field of view, and good low-light performance in color. It uses cables (up to 30 m/ 98 ft) from Axis with SMA-FAKRA connectors to withstand vibrations and ensure a ruggedized installation. Based on a divided network camera concept, it offers discreet installation and only a small sensor visible externally. Reliable under rough conditions, this ruggedized sensor unit can withstand temperatures as low as -40 °C and as high as 70 °C intermittently (-40 °F to 158 °F).

- **Up to 60 fps at 1080p**
- **Up to 180 fps at 720p**
- **Excellent 108° field of view**
- **Rugged sensor unit**
- **IP66/IP67/IP6K9K-rated**

AXIS F2105-RE Standard Sensor

Camera

Image sensor
1/2.8" progressive scan RGB CMOS

Lens
3.1 mm, F2.0
For 1080p:
Horizontal field of view: 108°
Vertical field of view: 58°
For 720p:
Horizontal field of view: 70°
Vertical field of view: 39°
For 1080p:
Horizontal field of view: 185°
Vertical field of view: 97°
For 720p:
Horizontal field of view: 120°
Vertical field of view: 62°
M12 mount, fixed iris

Minimum illumination
Color: 0.1 lux

Day and night
Fixed IR-cut filter

Frame rate
Up to 60/50 fps (60/50 Hz) in 1080p and up to180/175 fps (60/50 Hz) in 720p[1]

General

Casing
IP66-, IP67-, IP6K9K-[2], NEMA 4X-rated
Aluminum
Color: black NCS S 9000-N

Sustainability
PVC free

Power
Typical 1 W, max 1.7 W

Connectors
SMA connector

Operating conditions
-40°C to 60 °C (-40°F to 140 °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
-40 °C to 65 °C (-40 °F to 149 °F)
Humidity 5–95% RH (non-condensing)

Approvals
EMC

EN 55032 Class A, EN 55035, EN 61000-6-1, EN 61000-6-2, FCC Part 15 Subpart B Class A, ICES-3(A)/NMB-3(A), VCCI Class A, RCM AS/NZS CISPR 32 Class A, KC KN32 Class A, KC KN35, EAC, ECE R10 rev.05 (E-mark)

Safety

IEC/EN/UL 62368-1, CAN/CSA C22.2 No. 62368-1, IEC/EN/UL 60950-22, CAN/CSA-C22.2 No. 60950-22, UN ECE R118

Environment

IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-64, IEC 60068-2-78, IEC TR 60721-4-5 Class 5M3 (vibration, shock), IEC/EN 60529 IP66/IP67, IEC/EN 61373 Category 1 Class B, NEMA 250 Type 4X, NEMA TS 2 (2.2.7-2.2.9), ISO 21207 (Method B), ISO 20653 IP6K9K

Dimensions
46 mm (1.8 in)
ø 29.8 mm (1.2 in)

Weight
50 g (0.1 lb)

Required hardware
AXIS TU6004-E Cable, AXIS TU6005 Plenum Cable, AXIS F91 Main Unit

Included accessories
Installation guide

1. *For sensor units and main units capture mode specifications, see capture mode table.*
2. *In combination with a cable that has the same IP-rating*

Optional accessories

For more accessories, see *axis.com*

Warranty

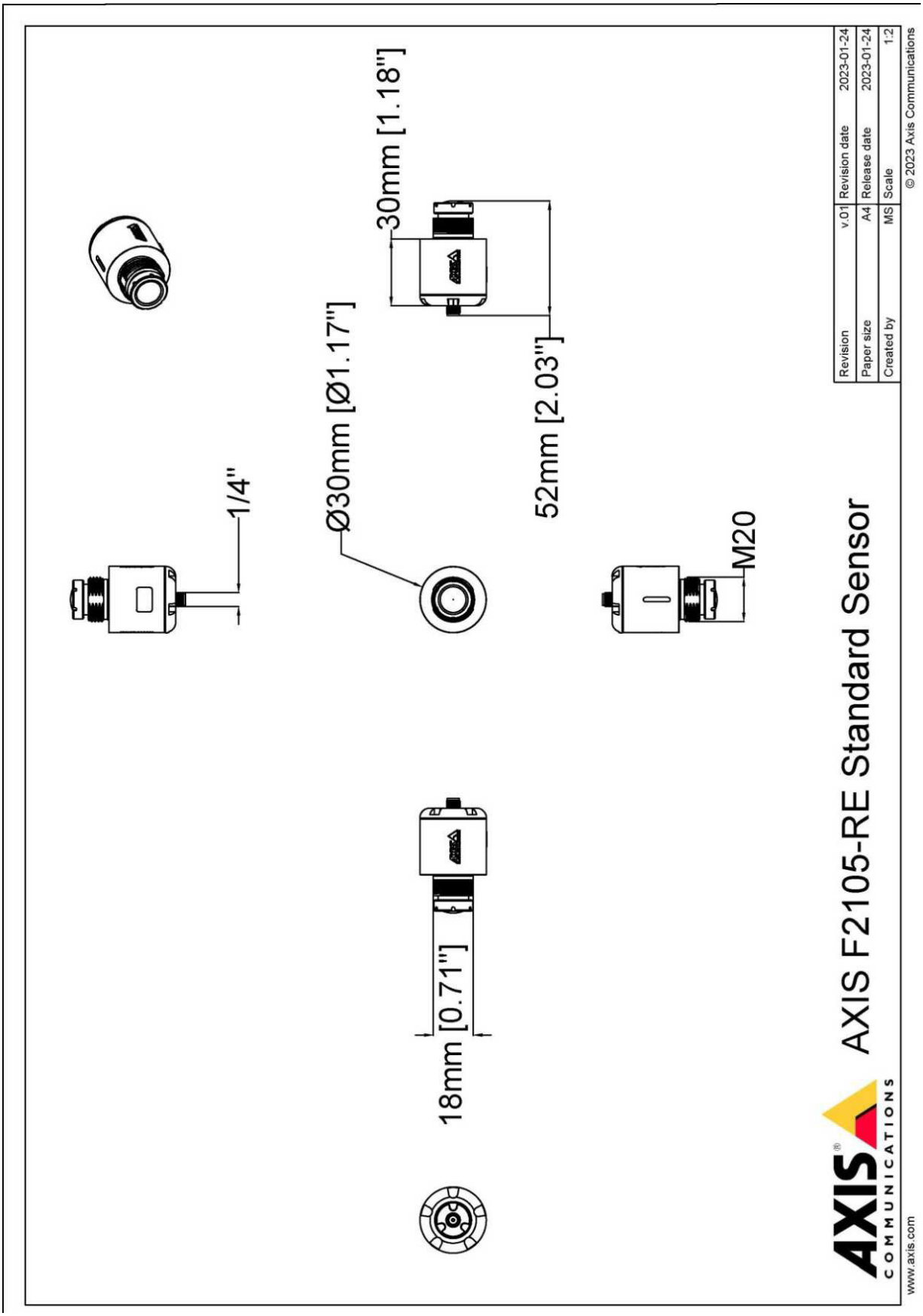
5-year warranty, see *axis.com/warranty*

Capture mode

Capture mode includes frame rate and shutter speed for the sensor unit in combination with different main units.

Main unit	Resolution	Exposure	Frame rate (fps) (60/50Hz)	Shutter speed (seconds)
AXIS F9111	1080p: 1920x1080	Without WDR	60/50	1/27000 to 1 s
		WDR	30/25	1/20000 to 1.5 s
	720p: 1280x720[3]	Without WDR	180/175	1/32500 to 1/2 s
AXIS F9111-R Mk II	1080p: 1920x1080	Without WDR	60/50	1/43500 s to 1 s
		WDR	30/25	1/20000 s to 1.5 s
	720p: 1280x720[3]	Without WDR	180/175	1/32500 s to 1/2 s
AXIS F9114, AXIS F9114-B, AXIS F9104-B, AXIS F9114-R Mk II, AXIS F9114-B Mk II, AXIS F9104-B Mk II	1080p: 1920x1080	Without WDR	30/25	1/20000 s to 1.5 s
		WDR	30/25	1/20000 s to 1.5 s
	720p: 1280x720[3]	Without WDR	60/50	1/32500 s to 1/2 s

3. No WDR support for 720p: 1280x720. To get WDR, use 1080p: 1920x1080 and scale down.



AXIS F9114-R Mk II Main Unit

AI-based, 4-channel unit for high-vibration environments

This 4-channel main unit offers up to 4K at 12/15 fps and you can use up to four different sensor units simultaneously. A deep learning processing unit lets you run advanced features and powerful analytics at the edge. For instance, AXIS Object Analytics can detect, classify, track, and count humans and types of vehicles. And AXIS Sensor Metrics Dashboard can gather information from connected sensors and devices. With a rugged design and FAKRA connectors, it can withstand shock and vibrations. Furthermore, Axis Edge Vault, a hardware-based cybersecurity platform, safeguards the device and offers FIPS 140-2 Level 2 certified key storage and operations.

- **4-channel main unit with up to 4K at 12/15 fps**
- **Flexible, rugged design and FAKRA connectors**
- **Support for powerful analytics**
- **Ignition control with controlled shutdown**
- **Built-in cybersecurity with Axis Edge Vault**

AXIS F9114-R Mk II Main Unit

System on chip (SoC)

Model
ARTPEC-8

Memory
4096 MB RAM, 8192 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
Up to 3840x2160 8Mp[1]
Up to 2592x1944 5Mp[1]
Up to 1920x1080 HDTV 2Mp[1]

Frame rate
Up to 60/50 fps (60/50 Hz) in all resolutions[2]

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

Image settings
Contrast, brightness, sharpness, white balance, tone mapping, exposure mode, exposure zones, compression, rotation: 0°, 90°, 180°, 270° including corridor format, mirroring, dynamic text and image overlay, privacy masks, polygon privacy mask

Audio

Audio streaming
One-way (simplex)

Audio input
2x Input for external unbalanced microphone
Digital input, optional 12 V ring power
Unbalanced line input

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 bitrate

Network

Network protocols
IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS[3], HTTP/2, TLS[3], QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, 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®, metadata 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, AXIS Camera Station 5, and video management software from Axis' partners available at *axis.com/vms*.

Onscreen controls
Privacy masks

1. *Resolution varies depending on the sensor unit used.*
2. *For main units and sensor units capture mode specifications, see capture mode table.*
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).*

Event conditions
Application
Audio: audio detection
Device status: above/below/within operating temperature, IP address blocked, IP address removed, live stream active, network lost, new IP address, system ready, ring power overcurrent protection, shock detected
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: MQTT Client connected, stateless
Scheduled and recurring: pulse, schedule
Video: average bitrate degradation, tampering, video source connected

Event actions
I/O: toggle I/O once, toggle I/O while the rule is active
LEDs: flash status LED, flash status LED while the rule is active
MQTT: publish
Notification: HTTP, HTTPS, TCP and email
Overlay text
Recordings: SD card and network share
Security: erase configuration
SNMP traps: send, send while the rule is active
Images or video clips: FTP, SFTP, HTTP, HTTPS, network share and email
WDR mode

Analytics

Applications
Included
AXIS Object Analytics, AXIS Scene Metadata, AXIS Audio Analytics, AXIS Video Motion Detection, AXIS Sensor Metrics Dashboard:
Modbus over serial: Protocol: Modbus RTU, Port mode: RS485 2-wire
Modbus over IP: Protocol: Modbus TCP, Port mode: Ethernet on switch
Supported
AXIS Perimeter Defender, AXIS People Counter
Applications supported on 4 channels: AXIS Object Analytics
Support for AXIS Camera Application Platform enabling installation of third-party applications, see *axis.com/acap*

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, tailgating detection, PPE monitoring[BETA], motion in area, motion line crossing
Single channel: up to 10 scenarios
Multi channel: up to 8 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 Audio Analytics
Features: adaptive audio detection, audio classification
Audio classes: scream, shout, glass break
Event metadata: audio detections, classifications

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
FCC, UL/cUL, CE, KC, VCCI

EMC
CISPR 32 Class A, CISPR 35, EN 55035,
EN 55032 Class A, EN 50130-4, 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, RCM AS/NZS 62368.1:2022,
UN ECE R118

Environment
IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14,
IEC 60068-2-27, IEC 60068-2-64, IEC/EN 60529 IP3X,
IEC 60721-3-5 Class 5M3, IEC/EN 61373 Category 1 Class B, NEMA TS 2 (2.2.7-2.2.9)

Network
IPv6 USGv6, 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: TPM 2.0 (CC EAL4+, FIPS 140-2 Level 2), secure element (CC EAL 6+), system-on-chip security (TEE)
Axis device ID, signed video, secure boot, encrypted filesystem (AES-XTS-Plain64 256bit)

Network security
IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2)[4], IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR,

HTTPS/HSTS[4], TLS v1.2/v1.3[4], 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
IP3X-rated
Aluminum casing
Color: black NCS S 9000-N

Power
Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 2 Class 4
10–48 VDC, typical 12.7 W, max 25.5 W

Connectors
Network: RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE
FAKRA: 4x for sensor units
I/O: 6-pin terminal block for 4x configurable I/Os (12 V DC output), max load 50 mA
Audio: 2x 3.5 mm mic/line in
Serial communication: 2-pin terminal block RS485
Power: 3-pin terminal block for 10-48 V DC input
Data transfer: 1x USB 2.0 Type A, max load 500 mA, 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*

Operating conditions
Temperature: -40° C to 60 °C (-40 °F to 140 °F)
Maximum temperature according to NEMA TS 2 (2.2.7): 74 °C (165 °F)
Humidity: 10–95% RH (non-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.

Weight
680 g (1.5 lb)

Required hardware
AXIS TU6007-E Cable, AXIS TU6004-E Cable, AXIS TU6005 Plenum Cable, AXIS F21 Sensor Unit, AXIS F41 Sensor Unit, AXIS F7225-RE Pinhole Sensor

Box content
Main unit, installation guide

Optional accessories
TU6001 Connector 3-pin, Connector A 2-pin, TU6009 Connector 6-PIN, TF9902 Surface Mount
AXIS Surveillance Cards
For more accessories, go to *axis.com/products/axis-f9114-r-mk-ii-main-unit#accessories*

4. *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).*

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-f9114-r-mk-ii-main-unit#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: 18% (recycled)
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*

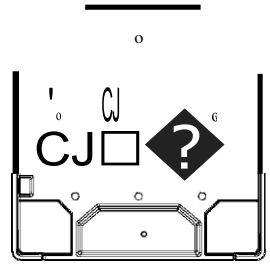
Capture mode

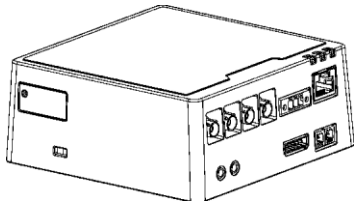
Capture mode includes resolution, frame rate, and shutter speed for the main unit in combination with different sensor units.

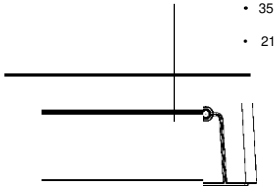
Sensor unit	Resolutions	Exposure	Frame rate (fps) (60/50Hz)	Shutter speed (seconds)
2 MP sensor units	1080p: 1920x1080	Without WDR	30/25	1/20000 to 1.5 s
		WDR	30/25	1/20000 to 1.5 s
	720p: 1280x720	Without WDR	60/50	1/32500 to 1/2 s
5 MP sensor units	5 MP: 2592x1944	Without WDR	20/20	1/18000 s to 1 s
		WDR	20/20	1/18000 s to 1 s
	Quad HD: 2560x1440	Without WDR	30/25	1/18000 s to 1 s
		WDR	30/25	1/18000 s to 1 s
8 MP sensor units (not yet released)	8 MP: 3840x2160	Without WDR	15/12.5	
		WDR	15/12.5	

No WDR support for 720p: 1280x720. To get WDR, use 1080p: 1920x1080 and scale down.

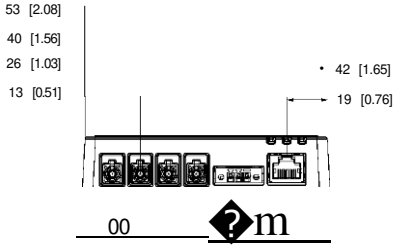
Dimension drawing





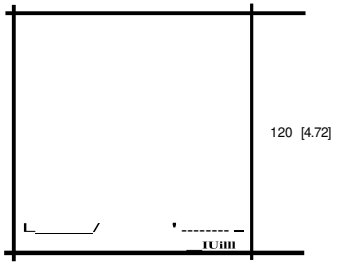


115 [4.52]



18 [0.7]
28 [1.11]

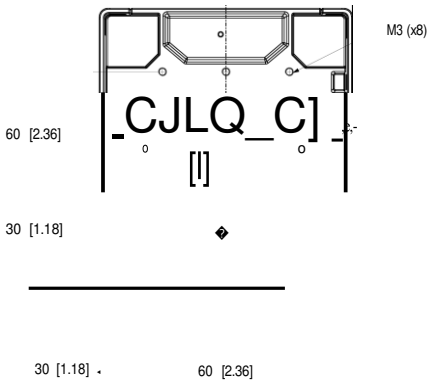
• 20 [0.78]
• 27 [1.07]
• 46 [1.79]

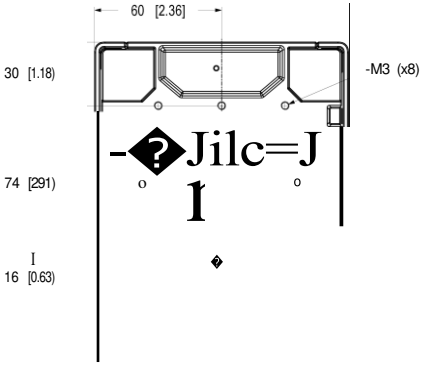


120 [4.72]

AXIS:A.

AXIS F9114-R Mk li Main Unit





Dimensions in mm [inch]

Date	Version	Scale
2024-Nov-26	M1.9	1:1
Drawing Number	Size	Sheet
3203169	A1	2(2)

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.

Rugged

Rugged is a term that for Axis modular and onboard products describes a device's endurance and stability in high vibration environments – over time. High vibration environments could be inside or close to machinery or inside vehicles. Rugged products from Axis are constructed to keep operating in these challenging conditions for the entire lifetime of the product.