

# AXIS F9111 Main Unit

## Single-channel modular unit with audio and I/O

AXIS F9111 is designed for use with a single sensor unit in discreet video surveillance applications. And it requires just one video management software (VMS) license. Ideal for emergency vehicles and buses, it features ignition control with controlled shutdown. AXIS Sensor Metrics Dashboard ACAP comes pre-installed in this main unit. The ACAP gathers information from the connected sensor devices and stores the data directly on the main unit SD-card. The built-in accelerometer alerts you if the vehicle deviates from normal movement. Furthermore, Axis Edge Vault protects your Axis device ID and simplifies authorization of Axis devices on your network.

- > **1080p at 60 fps or 720p at 180 fps**
- > **Rugged design and connectors**
- > **Multiple sensor and cable options**
- > **Accelerometer, GPS, modbus support**
- > **Built-in cybersecurity with Axis Edge Vault**



## AXIS F9111 Main Unit

### System on chip (SoC)

**Model**  
ARTPEC-7

**Memory**  
1024 MB RAM, 512 MB Flash

**Compute capabilities**  
Machine learning processing unit (MLPU)

### 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<sup>1</sup>  
Up to 2592x1944 5Mp<sup>1</sup>  
Up to 1920x1080 HDTV 2Mp<sup>1</sup>

**Frame rate**  
Up to 60/50 fps (60/50 Hz) in 1080p and up to 180/175 fps (60/50 Hz) fps in 720p<sup>2</sup>

**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**  
Contrast, brightness, sharpness, Forensic WDR, fixed orientation aid, white balance, tone mapping, exposure control, exposure zones, compression, rotation: 0°, 90°, 180°, 270°, mirroring, polygon privacy mask, control queue

### Audio

**Streaming**  
Two-way, full duplex

**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

**Input/output**  
2x external microphone input or line input, 1x line output, ring power, digital audio input

### Network

**Network protocols**  
IPv4, IPv6 USGv6, ICMPv4/ICMPv6, HTTP, HTTPS<sup>3</sup>, HTTP/2, TLS<sup>3</sup>, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, PTP, NTS, RTSP, RTP, SRTP/RTSPS, TCP, RTCP, DHCP, SSH, SIP, 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](http://axis.com)  
One-click cloud connection  
ONVIF® Profile G and ONVIF® Profile S, specification at [onvif.org](http://onvif.org)

### Event conditions

Device status, digital audio, edge storage, I/O, PTZ, scheduled event, video

### Event actions

Play audio clip, toggle I/O, send images, MQTT publish, send notifications, overlay text, recordings, SNMP trap messages, status LED, video clips

### Data streaming

Event data

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](http://openssl.org)), and cryptographic software written by Eric Young ([eay@cryptsoft.com](mailto:eay@cryptsoft.com)).

## Analytics

### Applications

#### Included

AXIS Object Analytics, AXIS Scene Metadata  
AXIS Video Motion Detection, audio detection  
AXIS Sensor Metrics Dashboard:  
GPS over serial: Protocol: NMEA 0183, Port mode:  
RS232  
Modbus over serial: Protocol: Modbus RTU, Port mode:  
RS485 2-wire  
Modbus over IP: Protocol: Modbus TCP, Port mode:  
Ethernet on switch  
**Supported**  
Tampering alarm  
Support for AXIS Camera Application Platform enabling  
installation of third-party applications, see [axis.com/acap](http://axis.com/acap)

### AXIS Object Analytics

**Object classes:** humans, vehicles  
**Scenarios:** line crossing, object 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 Scene Metadata

**Object classes:** humans, faces, vehicles (types: cars, buses, trucks, bikes), license plates  
**Object attributes:** confidence, position

## Approvals

### EMC

CISPR 24, EN 55032 Class A, EN 55035, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, EAC, ECE R10 rev.05 (E-mark)  
**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

CAN/CSA C22.2 No. 62368-1, IEC/EN/UL 62368-1, UN ECE R118, IS 13252

## Environment

IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-64, IEC TR 60721-4-5 Class 5M3, IEC/EN 60529 IP3X, IEC/EN 61373 Category 1 Class B, NEMA TS 2 (2.2.7-2.2.9)

## 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 Secure element (CC EAL 6+), Axis device ID, secure keystore, signed video, secure boot

### Network security

IEEE 802.1X (EAP-TLS, PEAP-MSCHAPv2)<sup>4</sup>, IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS<sup>4</sup>, TLS v1.2/v1.3<sup>4</sup>, 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](http://axis.com/support/cybersecurity/resources)

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

## General

### Casing

IP3X-rated

Aluminum casing

Color: black NCS S 9000-N

### Sustainability

PVC free

4. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. ([openssl.org](http://openssl.org)), and cryptographic software written by Eric Young ([eay@cryptsoft.com](mailto:eay@cryptsoft.com)).

## Power

Power over Ethernet (PoE) IEEE 802.3at Type 2 Class 4  
10–48 V DC, typical 11 W, max 25.5 W

## Connectors

RJ45 for 10BASE-T/100BASE-TX/1000BASE-T PoE  
FAKRA for sensor units  
6-pin terminal block for 4x configurable I/Os (12 V DC output), max load 50 mA  
3.5 mm mic/line in, 3.5 mm line out  
5-pin terminal block RS232/RS485  
3-pin terminal block for 10–48 V DC input

## Storage

Support for microSD/microSDHC/microSDXC card and encryption  
Recording to network-attached storage (NAS)  
For SD card and NAS recommendations see [axis.com](http://axis.com)

## 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)  
Humidity 10–95% RH (non-condensing)

## Storage conditions

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

## Dimensions

51 x 120 x 120 mm (2 x 4.7 x 4.7 in)

## Weight

650 g (1.4 lb)

## Required hardware

AXIS TU6004-E Cable, AXIS TU6005 Plenum Cable,  
AXIS F21 Sensor Unit, AXIS F4105-LRE Dome Sensor,  
AXIS F7225-RE Pinhole Sensor

## Included accessories

Installation guide, Windows® decoder 1-user license

## Optional accessories

AXIS Surveillance Cards  
TU6001 Connector 3-pin, TU6008 Connector 5-pin,  
TU6009 Connector 6-pin  
For more accessories, see [axis.com](http://axis.com)

## 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](http://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](http://axis.com/warranty)

## 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	60/50	1/27000 to 1 s
		WDR	30/25	1/20000 to 1.5 s
	720p: 1280x720 <sup>5</sup>	Without WDR	180/175	1/32500 to 1/2 s
5 MP sensor units	5 MP: 2592x1944	Without WDR	30/25	1/16000 s to 1 s
		WDR	20/20	1/18000 s to 1 s
	Quad HD: 2560x1440	Without WDR	60/50	1/27000 s to 1/2 s
		WDR	30/25	1/18000 s to 1 s
8 MP sensor units	8 MP: 3840x2160 <sup>6</sup>	Without WDR	30/25	

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