



Enable the **exceptional** in your **essentials**

Analytics for school campuses



Get more out of your must-have systems

Higher expectations

Campuses are more connected – and more complex – than ever. At the same time, expectations for safety, accountability, and responsiveness are rising faster than most schools can add staff or systems. Analytics help you meet those expectations by turning some of the tools you already rely on into sources of real-time insight and support.

Your tools – smarter

Every school depends on systems that keep people safe, informed, and the campus running smoothly. They're what allow teachers to focus on teaching and students on learning. Near the top of that list of systems are cameras to see what's happening and public address (PA) systems to make sure messages reach the right people.

When those systems are part of a connected network with integrated audio and video analytics, they can do a whole lot more – and so can you.

Solutions for every campus

Whether you're responsible for an elementary school with a single point of entry or a sprawling residential university in a city center, analytics can boost your awareness and efficiency – without adding complexity. You can:

- Take a more layered, proactive approach to safety and security
- Improve your total situational awareness, so you can focus on what matters most
- Explore trends and patterns
- Tackle a wide and ever-evolving range of challenges

In the coming pages, find out how analytics help you stay in the loop and respond instantly, get more out of your available resources, and find what you're looking for in real-time and post-incident investigations.



What are analytics?

Analytics applications use artificial intelligence to analyze video and audio data and turn it into actionable insights. Audio and video analytics for network cameras and PA systems fall into three main groups.

Analytics for awareness and first-line response

These analytics act as an extra set of eyes and ears for your campus, but always on and available everywhere you need them. They can trigger alerts to the right people, who then verify what's happening and take action. They can also trigger an automatic response from a connected device – for example, to broadcast a prerecorded safety or security message in response to an event.

Analytics for efficient search

Analytics generate metadata – scene descriptions – that makes it possible to find what you're looking for in minutes or even seconds, even if you only have basic information to go on. Instead of manually scanning hours of content, you set search filters in your video management software (VMS) that can immediately narrow down your search to what's most relevant – for example, if you need to find all footage that includes a person with a green coat in a parking lot between seven and eight that morning.

Aggregated analysis

You can also use Axis metadata streams in Axis or third-party dashboards, as well as third-party applications and reports. Dashboards visually present data collected over time, revealing trends and patterns you can use for longer-term decision-making. For example, patterns in the timing or location of security incidents can help you optimize staffing or deterrents. And in some dashboards and applications, you can combine multiple types of data and explore connections to understand more complex challenges.

Axis and analytics: a match made in heaven R&D

Axis devices are the ideal platform for advanced AI-based scene analysis. Why?

Exceptional image usability and metadata

Axis leads the industry when it comes to image usability, thanks to a group of advanced technologies known collectively as [Axis Scene Intelligence](#) – and we bring the same high standards to audio. That means that AXIS Scene Metadata has the crucial details that enable you to get the best results from analytics and dashboards.

Faster, more accurate results that are easy on bandwidth and storage requirements

Our powerful processors support advanced analytics on the edge, on uncompressed data, for optimal results. When you use edge-based analysis, you get real-time information you can trust – with minimal data sent off the device.

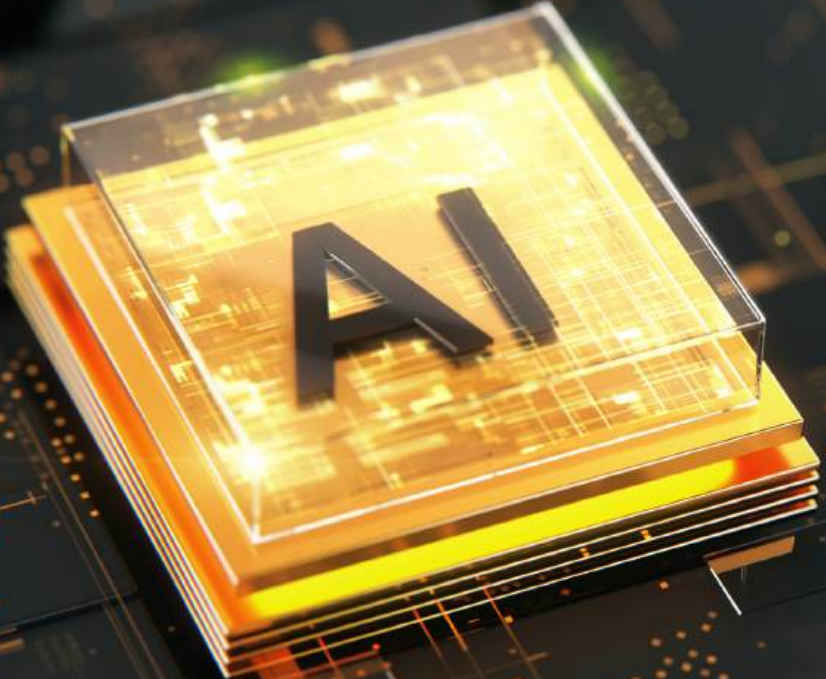
Confidence that your system is working

Remote system health monitoring lets you know right away if a camera, speaker, or other component in your system isn't working. And with [AXIS Image Health Analytics](#), you'll also get a real-time alert if the image quality from a camera degrades for any reason – for example, if the camera is blocked or redirected.

The freedom to build exactly the solution you need

With our broad solution portfolio and extensive partner ecosystem, it's easy to build a solution that meets a wide range of needs. But you always have the freedom and flexibility to integrate third-party analytics and devices, thanks to our open platform.





Get ahead of your **BIGGEST** challenges

Safety and security are always at the top of everyone's priorities. Analytics can help. But you can also use analytics to take a more proactive approach to all kinds of challenges.

Built for every kind of campus

Every school community faces its own mix of pressures. Analytics-equipped cameras and speakers help you cut through the noise to surface what matters most to you, so you can act with confidence. In primary and secondary (K-12) schools, support the staff who feel like they need to be everywhere at once, helping them respond quickly when something's wrong and allocate time intelligently when everything's right. And in higher education, enable better oversight and coordination to complex, open campuses where thousands of people cross paths every day.

Stay ahead as your needs change

The possibilities for getting actionable insights from analytics are endless and always expanding. Beginning on the next page, you can explore some key ways to put them to work right now.

Whether you're starting small or implementing it district-wide, an Axis solution is made to grow with the people who use it. It's multipurpose, scalable, and built on an open platform, so you're never locked in or limited to just one kind of use case. Add new analytics, set new triggers, or integrate new systems, whenever you choose. Just as importantly: our analytics foundation improves with each AXIS OS update. That means all your Axis analytics, as well as the Axis metadata stream you may be using for third-party analytics, are constantly getting better as well.

Needs change and evolve. Technology should too.

What's possible?

K-12 sample use cases

The following K-12 use case solutions are just a sample of what's possible. Axis solutions can be customized based on your needs, goals, and applicable privacy legislation.



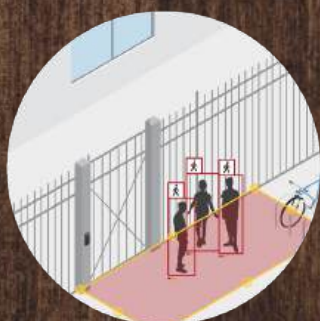
"What impresses me most is that I can program each device to do very specific things."

Bill Silver, Director of Information Communication and Technology Services, Chelmsford Public Schools, Chelmsford, Massachusetts, USA



Intrusion protection

Get the situational awareness you need to protect your campus, during school hours and after. Analytics-equipped cameras detect and classify potential intruders near the fence line, while analytics on complementary PTZ cameras track them inside the perimeter. In parking areas and elsewhere, audio analytics can detect the sound of breaking glass. Integrate with speakers or strobe sirens for real-time deterrence.



Loitering and after-hours presence

Stay alert to truancy, vandalism, and other suspicious or unwanted activity using cameras with loitering analytics – for example, on sports fields and playgrounds, in parking areas, and outside buildings. Integrate with speakers or strobe sirens for real-time deterrence.



Fights and bullying

Get early alerts to potential fights or bullying incidents, so you can respond quickly. Detect shouts, screams, and noise levels over your threshold using speakers or audio-equipped cameras with sound detection analytics. And in remote areas of campus, analytics-equipped cameras can alert you to rapidly forming groups.



Smoking and vaping

Know right away when students may be smoking or vaping, so you can take action. Metadata from an Axis air quality sensor can be viewed in your VMS – and you can also set up an automatic deterrent message when it's detected.



Lockdown events

Get immediate notifications when a lockdown may be needed. Audio analytics from Axis can detect and send an alert in the event of shouting, and third-party analytics can detect and alert you to visible firearms and the sound of gunfire.

EXPLORE MORE K-12 USE CASES >

What else is possible?

K-12 sample use cases



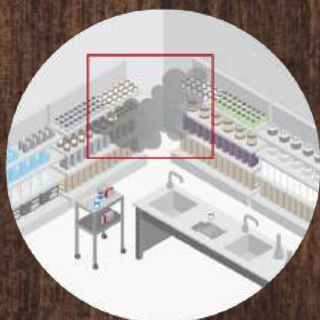
"The radar alerts us to any humans or vehicles approaching [the football field] and how fast they're traveling. Then we can use the cameras to visually verify what's happening and take steps to mitigate the situation if needed."

Bill Silver, Director of Information Communication and Technology Services, Chelmsford Public Schools, Chelmsford, Massachusetts, USA



Vehicle access control

Manage and automate vehicle access. Cameras equipped with license plate recognition analytics support seamless access for approved vehicles. Tailgating detection analytics can trigger alerts and alarms if more than one vehicle attempts to enter on a single credential.



Early fire prevention

Support fire prevention with early recognition of smoke and fire. In boiler rooms, a camera equipped with third-party smoke recognition analytics can complement your certified fire detection system.



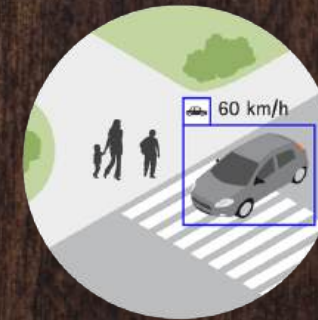
Search and investigation

Rapidly find the people, vehicles, objects, or incidents you need to. Edge-based video analytics let you efficiently search through multiple live video streams to find a person or object of interest. And, in post-incident investigations, analytics support search techniques from basic location and time scenarios to more detailed ones – for example, to narrow down when a left object first appeared, or when property disappeared.



Crowd management

Know when unplanned protests or other groups are forming, and monitor planned and unplanned gatherings to ensure they stay safe. Cameras with people-counting analytics keep you aware of how many people are gathered, while intelligent audio analytics alert you when noise levels exceed your threshold.



Speed monitoring

Ensure safer pick-up and drop-off experiences using radar equipped with analytics that detect speeding vehicles. Automatically trigger a warning using a network strobe speaker, strobe siren, or horn speaker.

EXPLORE MORE K-12 USE CASES >

Even more possibilities

K-12 sample use cases



"I feel like our security system is always evolving. There are always new ideas and new technologies to explore to better protect our schools and make them safer."

Bill Silver, Director of Information Communication and Technology Services, Chelmsford Public Schools, Chelmsford, Massachusetts, USA



Fall detection

Mitigate risks to custodians or other lone workers. Respond swiftly to falls or collapses using cameras with third-party fall detection analytics to help monitor the environment.



Queue management

Monitor queues in event locations, concession counters, cafeterias, and more, using a camera with analytics. In the event of long queues, the system can alert staff to open an additional check-out or trigger a speaker announcement redirecting people to another location.



Parking occupancy

Reduce pollution and improve visitor experiences by making it easier to find available parking spots. Use real-time parking occupancy data from analytics-equipped cameras to know when to send staff to direct traffic during events, or integrate it with network speakers or third-party digital signage software to guide drivers to available spots. In a third-party dashboard, you can also aggregate parking occupancy data over time for long-term planning and space utilization.



Space utilization

Using a third-party dashboard, aggregate and analyze data over time to understand how analytics-detected occupancy levels in different areas affect environmental factors like air quality, noise levels, temperature, and humidity. Using that information, make data-driven decisions – for example, adjust heating or cooling based on real-time occupancy, or prioritize future acoustic or ventilation improvements where they can make the most impact.

Explore how Chelmsford Public Schools used analytics as part of a more proactive solution that expanded coverage, upgraded their stadium security, and granted the police department access to real-time alerts.

Read the full customer story

What's possible?

Higher education sample use cases

The following higher education solutions are just a sample of what's possible. Axis solutions can be customized based on your needs, goals, and applicable privacy legislation.



Intrusion protection

Get the situational awareness you need to protect your campus everywhere you need to: at a fence line, outside sports arenas and event centers, in parking areas, and outside specific buildings, rooms, even server cabinets. Analytics-equipped cameras can detect and classify potential intruders 24/7, or only during specific hours, while analytics on complementary PTZ cameras track them. In parking areas and elsewhere, audio analytics can detect the sound of breaking glass. Integrate with speakers or strobe sirens for real-time deterrence.



Loitering and after-hours presence

Stay alert to suspicious or unwanted activity near sensitive or low-traffic areas, including parking areas, using cameras with loitering analytics. Integrate with speakers or strobe sirens for real-time deterrence.



Door access control

Strengthen your access control solution with tailgating analytics that can alert you when more than one person attempts to enter a restricted space on a single credential.



Vehicle access control

Manage and automate vehicle access. Cameras equipped with license plate recognition analytics support seamless access for approved vehicles. Tailgating detection analytics can trigger alerts and alarms if more than one vehicle attempts to enter on a single credential.



Lockdown events

Get immediate notifications when a lockdown may be needed. Audio analytics from Axis can detect and send an alert in the event of shouting, and third-party analytics can detect and alert you to visible firearms and the sound of gunfire.



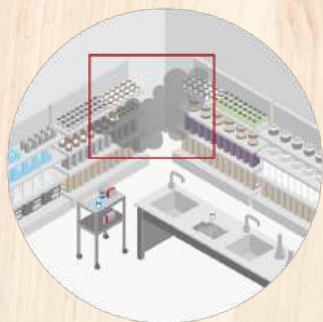
"Analytics have transformed how we use our security technology."

Robert Hisey, Assistant Director of Safety and Protection Technology
High Point University, High Point, North Carolina, USA

EXPLORE MORE HIGHER EDUCATION USE CASES >

What else is possible?

Higher education sample use cases



Early fire prevention

Support fire prevention with early recognition of smoke and fire. In campus boiler rooms and power plants, a camera equipped with third-party smoke recognition analytics can complement your certified fire detection system.



Crowd management

Know when unplanned protests or other groups are forming so that you can ensure they stay safe. Cameras with people-counting analytics help you monitor the size of gatherings, and intelligent audio analytics can alert you when noise levels exceed your threshold.



Fall detection

Mitigate risks to custodians or other lone workers, as well as authorized students or staff using facilities such as labs or fitness centers during unstaffed or low-traffic hours. Respond swiftly to falls or collapses using cameras with third-party fall detection analytics to help monitor the environment.



Parking occupancy

Reduce pollution and improve visitor experiences by making it easier to find available parking spots. Use real-time parking occupancy data from analytics-equipped cameras to know when to send staff to direct traffic during events, or integrate it with network speakers or third-party digital signage software to guide drivers to available spots. In a third-party dashboard, you can also aggregate parking occupancy data over time for long-term planning and space utilization.



"We're counting cars at our welcome centers to track peak traffic times when we might need more officers to get people through the gates quicker. This has been especially important whenever the university hosts a large event. We rely on the technology to help us better manage the increased traffic flow and greater demand for parking."

Robert Hisey, Assistant Director of Safety and Protection Technology
High Point University, High Point, North Carolina, USA

EXPLORE MORE HIGHER EDUCATION USE CASES >

Even more possibilities

Higher education sample use cases



"Today we have over 2,100 cameras actively recording on campus.... We've augmented our cameras with advanced analytics to give us timely alerts, as well as greater insight into general campus operations."

Robert Hisey, Assistant Director of Safety and Protection Technology
High Point University, High Point, North Carolina, USA



Queue management

Monitor queues in cafeterias, restaurants, bookstores, concession counters, event venues, and more, using a camera with analytics. In the event of long queues, the system can alert staff to open an additional check-out or trigger a speaker announcement redirecting people to another location.



Space utilization

In real time, using third-party applications, redirect students to available resources using analytics-detected occupancy levels in areas such as study rooms, meeting areas, and computer labs. Or use a third-party dashboard to aggregate and analyze data over time to understand how occupancy levels affect factors like air quality, noise levels, temperature, and humidity. Using that information, make data-driven decisions – for example, adjust heating or cooling based on real-time occupancy, or prioritize future acoustic or ventilation improvements where they can make the most impact.



Search and investigation

Rapidly find the people, vehicles, objects, or incidents you need to. In your VMS, metadata streams from your cameras let you efficiently search through multiple live video streams to find a person or object of interest. And, in post-incident investigations, analytics support search techniques from basic location and time scenarios to more detailed ones – for example, to narrow down when a left object first appeared, or when property disappeared.

Explore how High Point University in North Carolina is using analytics to maintain a safe environment, gather actionable insights for improving efficiency and the student experience, and reduce liability and risk.

Read the full customer story

Find what you're looking for – and see the whole picture

Investigate efficiently

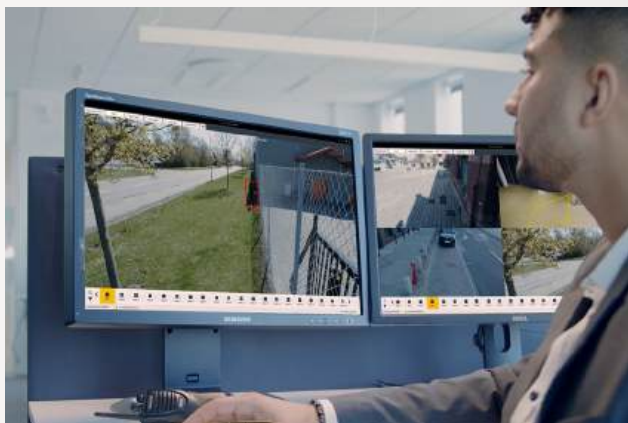
When an incident occurs, you need answers fast, not hours of footage to review. Powerful search analytics help you quickly find what you're looking for in live or recorded footage, so you get the information you need to act.

The power of AI

AI-based search analytics detect, classify, track, and count humans, vehicles, and predefined objects, as well as detect and recognize specific distinguishing details about them, such as the color of their clothing. As a result, you can narrow down your search to possible matches in minutes or even seconds. That makes it much easier to locate specific people or events, trace movements, and verify facts.

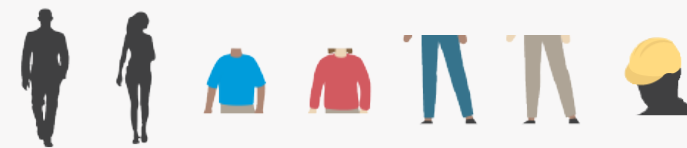
A smarter way to search and review

- > Filter by time, location, or object type to find relevant footage fast
- > Combine multiple criteria – for example, "person wearing red jacket and black pants" near a specific entrance in a set time range
- > Trace movements to understand where people or vehicles went earlier – or where they are in real time



PEOPLE

Quickly locate a person of interest based on clothing color, direction of travel, or activity – for example, track a person who left a blue bag by the fence.



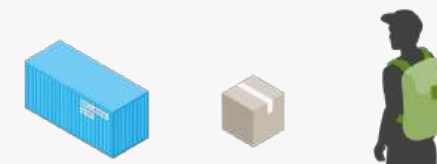
VEHICLES

Identify vehicles by color, type, license plate, and direction of travel, so you can track a suspicious vehicle, investigate a report of unsafe driving in a pickup zone, and more.



OBJECTS

Find unattended or missing items, such as backpacks or valuable equipment. Confirm where and when the object first showed up or disappeared to establish a timeline and narrow down your investigation.



Together, these capabilities give you the ability to act quickly – and the evidence you need after the fact.

Protecting privacy

Balancing technology and trust

Schools and universities are built on trust – between students, staff, and the wider community. Protecting that trust means protecting privacy. Axis analytics and video management tools ensure you can safeguard identifying features and sensitive information while providing authorized individuals access to the information they need.

Complying with local requirements

Because privacy needs differ around the world, our solutions let you customize privacy settings. For example, you can turn off the microphone on a two-way speaker or audio-equipped camera, or use Axis or third-party masking and redaction tools to blur faces or entire bodies in both live and recorded video, so you can protect privacy and allow others to view them as needed. These capabilities are fast to apply, easy to adjust, and work directly within your existing system. And when you use AXIS Live Privacy Shield, you can also have the application simultaneously deliver a separate video stream with no masking, so authorized viewers and law enforcement can access details during investigations.

[Learn more here](#)

Meet AXIS Live Privacy Shield

AXIS Live Privacy Shield offers AI-based dynamic masking on the edge, allowing you to stay aware of what's happening while complying with privacy rules and regulations. It's preinstalled on Axis cameras and available at no extra cost.

With AXIS Live Privacy Shield, you can protect sensitive areas of a scene by blurring faces, entire people, license plates, backgrounds, or a combination of these. Use it:

- > Indoors or out
- > On live or recorded video

Tailor it to your needs

You choose what to mask, set any masking exclusion areas, and decide how much detail is visible through the masking. And, when you need to investigate an incident, you can view streams without masking.



Getting started with analytics

Start where you choose

Whether you need to detect unwanted activity, optimize efficiency, or rapidly locate key events, we and our partners offer a broad portfolio of analytics to help you do it.

We'll meet you where you are

Jump right in with the Axis analytics already on your camera, add third-party audio analytics to your Axis PA system, or develop custom analytics for a specialized use case – you can do it all. And we work hard to make it easy for you, with an experienced global partner network that's ready to get you off to a quick and cost-effective start, no matter where you are in the world.

READ MORE >

Built-in analytics – just press go

Analytics are very literally part of the deal with Axis – both **AXIS Object Analytics** and **AXIS Audio Analytics** are part of **AXIS OS** and available at no extra cost on compatible devices.

Meet **AXIS Object** Analytics

AXIS Object Analytics is a suite of broadly useful video analytics that can intelligently monitor a scene to determine if and when to trigger an event, such as an alert or automated announcement, based on the criteria you set.

What it does

With **AXIS Object Analytics**, you can automatically detect, classify, track, and count humans and vehicles. That means you'll know and can act, for example:

- > When people or vehicles are where they shouldn't be
- > When they cross a virtual tripwire
- > How many of them have crossed that tripwire
- > When they've been somewhere too long
- > How many of them are in a certain area at a time
- > If additional people or vehicles are entering on a single credential

Tailor it to your needs

Set up scenarios tailored to your specific monitoring needs with just a few clicks in the easy-to-use interface, then put them to work. For example, deter after-hours loitering in remote areas of campus, monitor occupancy in study rooms, stay alert to parking violations, and more.

Learn more



Meet **AXIS Audio** Analytics

AI-based and operating on the edge of compatible cameras, **AXIS Audio Analytics** detects critical sounds that can indicate a problem.

What it does

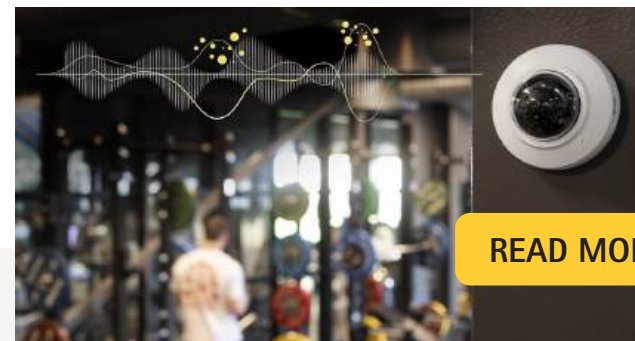
AXIS Audio Analytics can detect volume spikes, high sound pressure levels, glass breaking, screams, shouts, and the presence of speech. That means better awareness of noise-related incidents, including:

- > Vandalism and vehicle break-ins
- > Bullying, fights, and assault
- > After-hours presence

Tailor it to your needs

AXIS Audio Analytics prioritizes privacy by default. Because it processes sound locally, it doesn't require recording or transmitting audio streams – the metadata stream is all that needs to be sent off the device. However, authorized users with the proper access rights can toggle the audio stream on or off, giving them the flexibility to get additional context as needed.

Learn more



READ MORE >

Get the analytics you need

The right analytics can make all the difference, which is why we've made sure our solutions enable you to choose from a wide selection of analytics. Explore:

- > The full [Axis analytics portfolio](#)
- > Analytics from our [trusted partners](#)
- > The possibility to customize your solution with the help of Axis Professional Services

If you still aren't sure where to start, contact your local Axis office or partner to discuss the best fit for your campus.

Do you already have a large investment in an analog system?

For some schools, migrating to IP all at once is simply not in the budget. With Axis, you can transition to network cameras and speakers at the pace that works for you, and protect your legacy investment in the process.

You can start with a small number of analytics-equipped network cameras and speakers in your highest priority areas – the system is easy to scale whenever you're ready.

And to get some of the benefits of IP out of your analog systems, talk to us about how our network video encoders and audio bridges can help.

Read more about

[Network video encoders](#)

[Network audio bridges](#)



The Axis advantage

The difference is in the details.



At Axis, we don't just take pride in what we make. We take pride in how we do it. And that pays off for our customers. What can you expect when you choose Axis?

Quality and ease of use

- > True-to-life, detailed, usable images right out of the box – even in low light
- > Intuitive, easy-to-configure built-in analytics
- > Industry-leading analytics performance
- > Future-enabled with powerful processors, a deep-learning chipset, and a continuously updated operating system
- > Built for long life, backed by a 5-year product warranty

The ability to build the solution you need – on your timeframe

- > Perfectly matched end-to-end solutions, and a vast partner ecosystem
- > The freedom to integrate with third-party solutions
- > The possibility to add or change analytics as needed
- > Flexibility and scalability
- > Data storage where you choose: on the edge, on-prem, cloud, or hybrid
- > Vandal-resistant cameras and speakers

Student privacy and data protection

- > Easy masking and redaction options
- > Flexible tools and settings to help you comply with local legislation
- > A lifecycle approach to cybersecurity to help prevent unauthorized access
- > An operating system that adheres to secure-by-design principles
- > Software patches and updates directly from Axis
- > NDAA-compliant portfolio

Competitive lifecycle costs

- > Reduced bandwidth and storage with [Axis Zipstream technology](#) and [support for AV1™](#)
- > Remote system health monitoring, so you know right away if – and where – there's an issue
- > Products and technologies that reduce energy consumption
- > A PA system you or your integrator can configure, no audio specialist required
- > Industry-leading product durability and reliability

A supportive partner

- > Tools for every stage: product finders, site planners, system installation and management
- > World-class support, no matter where you are

Sustainability in mind

- > Committed to the UN Global Compact's Ten Principles
- > Working toward the UN's Sustainable Development Goals

Education is evolving.

Shape what happens next.

Give your staff the power to be proactive, accomplish more, and work towards a smarter, safer, more efficient campus.

[Contact us today.](#)

About Axis Communications

Axis enables a smarter and safer world by improving security, safety, operational efficiency, and business intelligence. As a network technology company and industry leader, Axis offers video surveillance, access control, intercoms, and audio solutions. These are enhanced by intelligent analytics applications and supported by high-quality training.

Axis has around 5,000 dedicated employees in over 50 countries and collaborates with technology and system integration partners worldwide to deliver customer solutions. Axis was founded in 1984, and the headquarters are in Lund, Sweden.

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