Our focus is innovating security where you need it most

Smoother traffic flow · Safer tunnels · Higher efficiency

BOSCH
Invented for life

Efficient use of your tunnel network
through intelligent camera-based systems

When it's your responsibility to make sure traffic flows smoothly through tunnels, there are a number of options available. From the most basic - e.g. changing or adding signage – to introducing dynamic speed restrictions or even physically upgrading the road.

What's always of vital importance is that your tunnel infrastructure is used as efficiently as possible. Our intelligent cameras allow you to adequately respond to disruptions, under all lighting and environmental conditions, for a relatively modest investment.

High-quality images in all conditions
You get relevant information under an exceptionally wide range of conditions, for example:
▸ When it's raining or snowing at the tunnel entrance or exit
▸ At the transition points between daylight (outside) and artificial lighting inside
▸ As the sun is setting or shining directly into the tunnel
▸ When the oncoming traffic seems to be one huge, moving blur of dazzling headlights
▸ When the tunnel lighting distorts the colors of vehicles.

In these and other challenging situations, you still need to be able to generate high-quality images that give you the information you need to take any necessary corrective action in situations like:
▸ Rush-hour
▸ Accidents
▸ Objects on the road (vehicle parts like bumpers or burst tires)
▸ Cars driving the wrong way
▸ People inside the tunnel
▸ Broken-down vehicles

Video surveillance that's always relevant
At Bosch Security Systems, we believe that everyone deserves to live in a safe and secure environment. Through our dedication to superior quality and technical innovation we push ourselves to develop new products and solutions that put us at the forefront of our industry.

Always giving you the image quality
and information you require

Intelligent cameras from Bosch distinguish themselves through their ability to produce the information you need, regardless of the conditions. They do this by combining a number of smart technologies together in a single unit, giving you the reassurance of always having the image quality and information you require to effectively manage the traffic flow in tunnels.

"We make even the darkest tunnels totally visible"

Effective monitoring at the entrance and exit
Generating usable images inside traffic tunnels brings its own challenges, especially when there are significant differences in contrast at the tunnel entrance or exit. By applying Intelligent Auto Exposure (IAE) to capture the high dynamic range, the cameras adapt their settings so you can clearly see the things that matter to you.

Clear images even with very little light
The starlight technology offers best in class light sensitivity, excellent wide dynamic range and front and backlight compensation. The result; you get black-and-white images where previously none were possible, or color images in situations where other cameras would only produce black-and-white. With the selectable 'motion mode' you are also able to pick out important details like number plates or lettering on trucks even when traffic is moving at high speed through the tunnel.
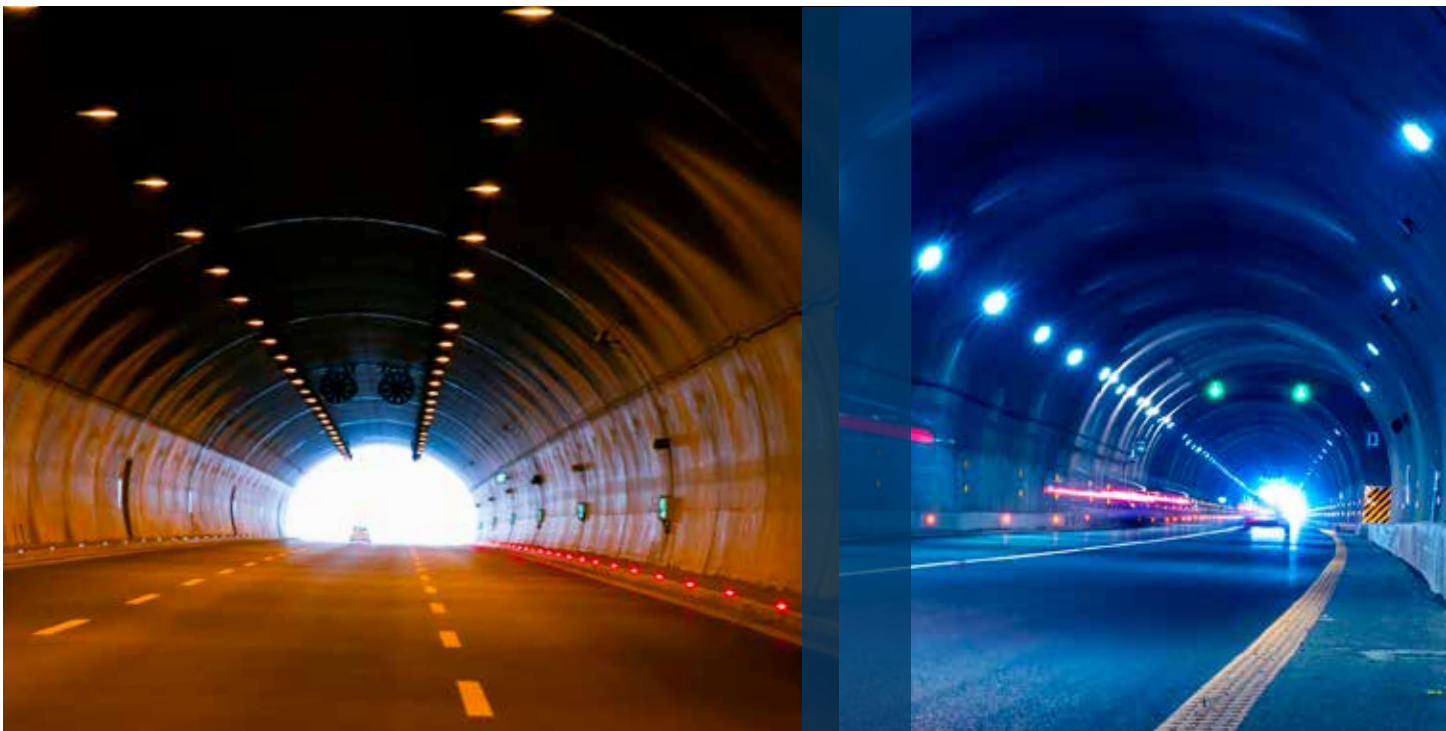
Reducing the impact of sun glare
It can be quite a challenge to deal with the sun blazing directly into the lens at the tunnel entrance or exit. Bosch cameras have a Wide Dynamic Range (WDR), which preserves details in very bright and very dark parts of the scene. This is done by capturing multiple images at different exposures and combining the clearly visible parts of each image into a composite picture. In this way, you can still retrieve he information you require.

Superior color reproduction
Artificial lighting often distorts the way colors are perceived. Bosch cameras incorporate an Automatic White Balance (AWB) feature, which compensates for the effects of street lighting when activated using the 'outdoor mode'. What you see in the generated images is therefore a much more accurate representation of reality. This helps you, for example, determine vehicle color.

Dealing with headlight dazzle
By using saturation control techniques that take peak illumination levels into consideration, headlight dazzle is greatly reduced. This, again, means you can pick out detail more easily.

Automatic detection of potentially dangerous situations
We fully appreciate how difficult it can be to constantly keep an eye on multiple traffic scenes shown on displays in control rooms. The cameras therefore make use of Intelligent Video Analysis (IVA) to automatically detect potentially dangerous developments, such as vehicles in emergency shelters/safety recesses or people walking in the tunnel. They can then generate an alert to catch the attention of the operator.

"Intelligent video analysis alerts you 24/7"

Products

The following cameras are ideal for traffic monitoring applications in tunnels:
- MIC IP starlight 7000 HD
- MIC IP dynamic 7000 HD
- DINION IP starlight 7000 HD
- DINION IP dynamic 7000 HD
- FLEXIDOME IP starlight 7000 RD
- FLEXIDOME IP dynamic 7000 RD
- FLEXIDOME IP starlight 7000 VR
- FLEXIDOME IP dynamic 7000 VR
- AUTODOME IP starlight 7000 HD
- AUTODOME IP dynamic 7000 HD
- DINION IP 5000 HD/MP

License plate recognition cameras:
- DINION IP capture 5000
- DINION capture 5000
- DINION AN traffic 4000 IR

Yet we offer much more. In fact our solutions help you capture, record, retrieve and view the images you need. And conform to all the relevant industry standards.

Through a feature known as Intelligent Dynamic Noise Reduction (IDNR) they also make smart use of the available bandwidth and reduces bitrate by up to 50%.

Integration

Naturally all Bosch systems are designed to interface with your existing information infrastructure. What's more, our Integration Partner Program together with our ONVIF conformance guarantee that our products integrate seamlessly with third party software and recording solutions to meet the needs of distributed intelligence in an increasingly connected world. Our cameras support transportation management standards like NTCIP and NEMA TS2-2003.

In addition the MIC cameras have been certified for use with the FLIR-Traficon Automatic Incident Detection system.

For additional information please refer to our website or contact one of our sales representatives.

To find out how our intelligent camera-based systems can have a significant impact on other parts of the road network, please see our application note for Highways and other roads.

MIC IP starlight 7000 HD
MIC IP dynamic 7T000 HD

DINION IP starlight 7000 HD
DINION IP dynamic 7000 HD

FLEXIDOME IP starlight 7000 RD
FLEXIDOME IP dynamic 7000 RD

DINION IP capture 5000
DINION capture 5000

FLEXIDOME IP starlight 7000 VR
FLEXIDOME IP dynamic 7000 VR

AUTODOME IP starlight 7000 HD
AUTODOME IP dynamic 7000 HD

DINION IP 5000 HD/MP

DINION AN traffic 4000 IR

A tradition of quality and innovation
For over 125 years, the Bosch name
has stood for quality and reliability.
Bosch is the global supplier of choice
for innovative technology, backed by
the highest standards for service and
support.

Bosch Security Systems proudly
offers a wide range of security,
safety, communications and sound
solutions that are relied upon every
day in applications around the world,
from government facilities and public
venues to businesses, schools and
homes.

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