SAFETY AND SECURITY SOLUTIONS IN PUBLIC TRANSPORT
ENSURING CONTINUITY AND PASSENGER WELLBEING

www.hikvision.com

HIKVISION®

Solution strengths - Infrastructure Security

Public transportation is a key element of modern society. As an industry that is both constantly 'on the move' and also has large amounts of physical infrastructure, it deals with different threats and security challenges. Luckily, Hikvision can offer solutions for both of these areas.

Public transport sites such as depots nowadays need attention for both their safety and security. Adequate security is required where any vandals or graffiti artists must be detected quickly before they cause damage. Over long distances they can be detected using thermal technology, as thermal vision offers accurate detection of humans in absolute darkness. Reports can be forwarded to a control room completely automatically. A controllable camera can automatically make a close-up in color of the perpetrators in question. Automatically playing a sound clip through a paired speaker can have a deterrent effect. Of course, an operator can address from a control room, based on an incoming alarm.

Registering in and outgoing traffic based on ANPR gives a good insight of traffic flows. It can be used to automate gates or to register vehicles who are not supposed to enter the depots or station area. At stations, people counting solutions can contribute in managing flow of people. Solutions can also be used for protecting the gates at station entrance, detect trespassing at gates, detecting left objects etc.

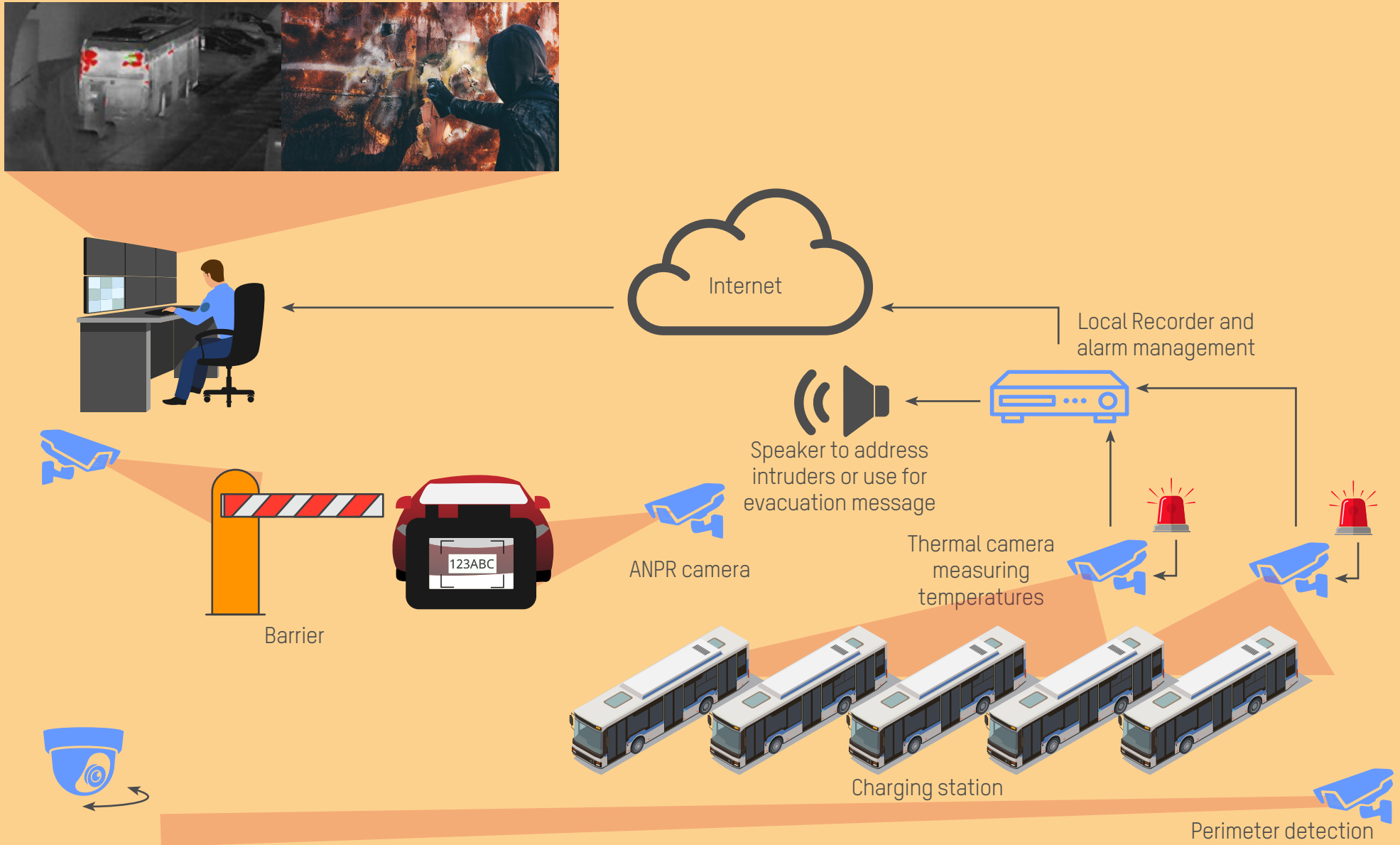# Solution strengths – Infrastructure Safety

From a safety perspective the new clean energy solutions also bring complex installations to the operators depot. Talking about huge infrastructure for charging the electric buses or the hydrogen bus filling stations.

In addition to all existing security systems at a hydrogen filling station, a thermal camera can provide more security. The thermal technology can give an alarm in case of excessive temperature differences in relation to the environment that can indicate an (in) visible hydrogen fire.

If something goes wrong with an electric vehicle, it usually happens while its charging. In addition to an electrical fault signal from the charging device, it is useful to have a direct thermal view of the charging location. A thermal camera on-site provides more insight into the conditions at the charging location to verify a temperature alarm from the camera or alarm from a charging system. An increased temperature can be observed, or in the worst case, even a fire.

Supplemented with a controllable optical PTZ camera, a control room can immediately view, verify it and take appropriate action on all these events.

Solution Architecture – Charging Station Security

Internet

Local Recorder and alarm management

Speaker to address intruders or use for evacuation message

ANPR camera

Thermal camera measuring temperatures

123ABC

Barrier

Charging station

Perimeter detection

Features - Physical Infrastructure

Perimeter Protection

Detect intruders over long distances using thermal technology, as thermal vision offers accurate detection of humans in absolute darkness.

Fire Prevention

Thermal cameras will sound alarms when certain temperatures have been crossed, allowing you to take action before a potential fire has broken out. Thermal images can visualize heat in color so fire hazards can be located quickly and easily.

ANPR

Registering ingoing and outgoing traffic based on ANPR gives good insight into traffic flows. It can be used to automate gates or for registering vehicles that aren't supposed to enter the depots or stations, giving you optimal control and awareness of the traffic at your site.
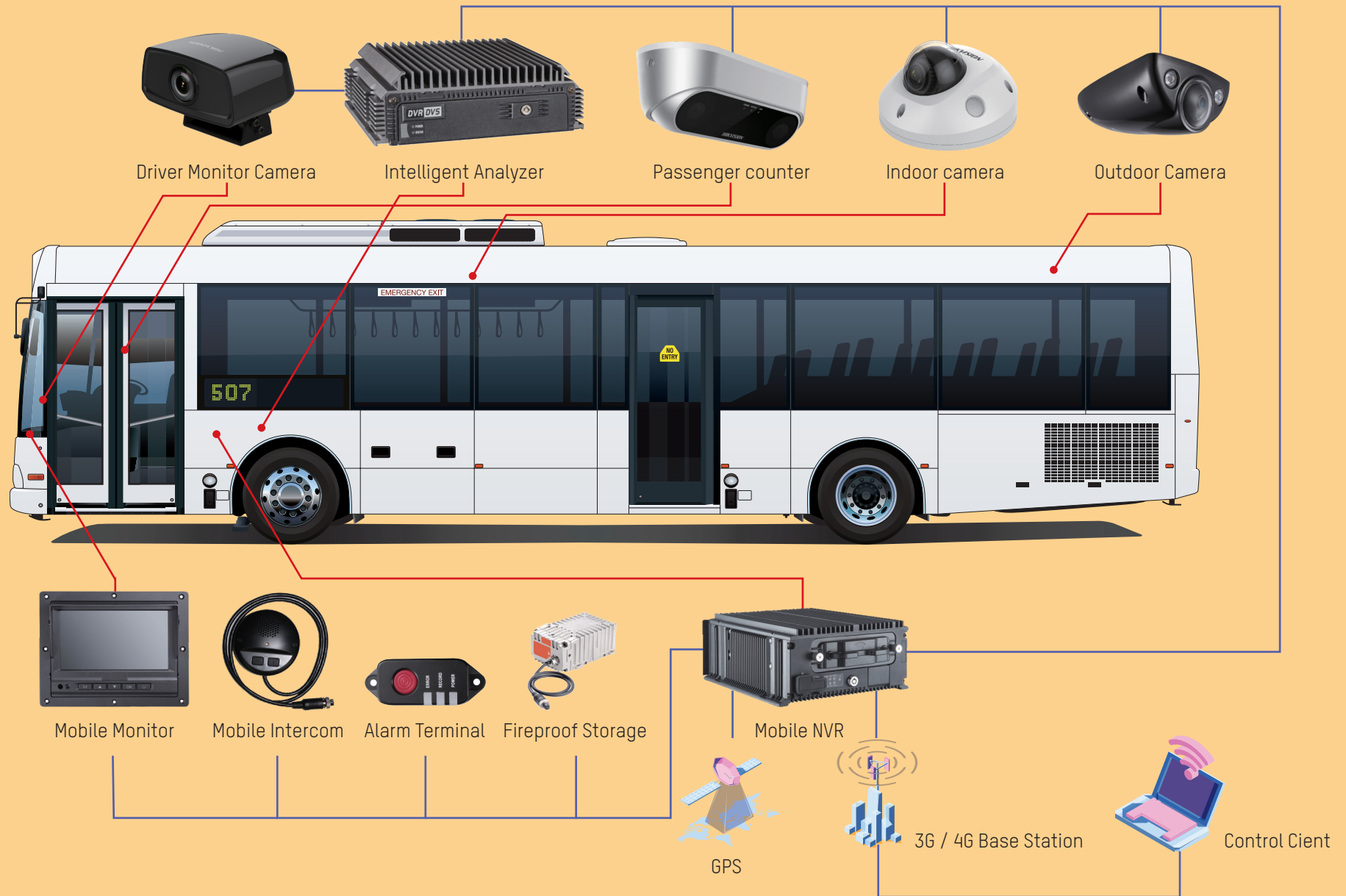
Solution strengths – On-Board CCTV

On-board CCTV serves various purposes. First of all it's a useful tool for the driver to monitor people entering and leaving the public transport. This is especially relevant with lightweight rail environments or extended buses, where the driver has a good sight of what happens by opening the doors. This contributes to the safety of passengers. Unfortunately we also see more violence to the drivers too, and preventive mounted cameras could help to prevent or at least register in case of the event. Overall monitoring with the ability to send a live audio and video stream to a monitoring center is crucial in case of major incidents or an terrorist attack.

Properly handling damage to vehicles inside and out discovered later requires a reliable high resolution storage of video footage of both the interior and exterior of the vehicle.

Our advanced people counting sensors are combine camera technology with Deep Learning algorithms to achieve reliable counting statistics. Based on their IP connection and available integration possibilities they can deliver the real-time statistics to 3rd party systems easily. Video footage can be recorded or blocked in case of privacy regulations.
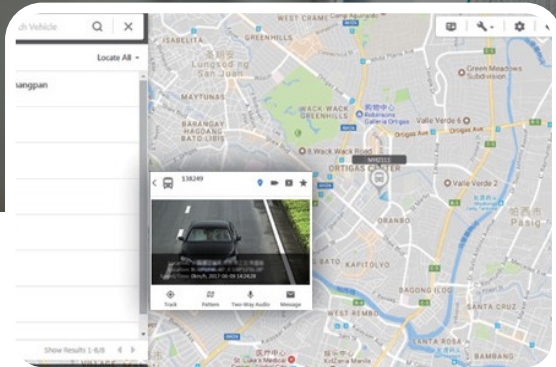
Hikvision offers this solution both in IP and in analog systems, all compliant to certification rules applied for automotive and rolling stock.

Solution system Architecture - On-board CCTV

Driver Monitor Camera   Intelligent Analyzer   Passenger counter   Indoor camera   Outdoor Camera

Mobile Monitor   Mobile Intercom   Alarm Terminal   Fireproof Storage   Mobile NVR

GPS

3G / 4G Base Station   Control Cient
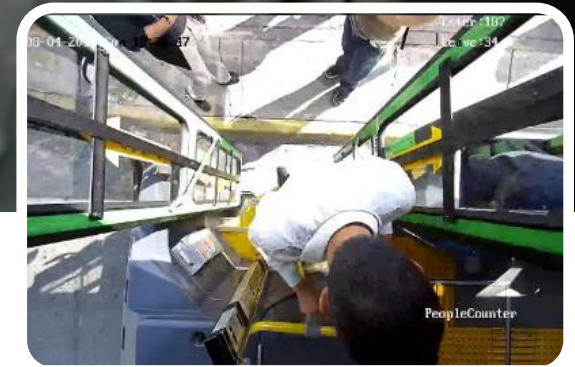
Features - On-board CCTV

Real-time tracking

Track the real-time location of the vehicle, as well as its route and direction, giving you a good overview of your public transportation fleet.

HD video monitoring

Monitor vehicles with crisp HD images that can be captured and stored, giving you HD recordings that can be used to identify details when in case of incidents.

Passenger counting

Our advanced people counting sensors are combining camera technology with Deep Learning algorithms to achieve reliable counting statistics. Based on their IP connection and available integration possibilities they can deliver the real-time statistics to 3rd party systems easily. Video footage can be recorded or blocked in case of privacy regulations.

Product overview – IP

4-ch Mobile NVR
- 4-ch video & 4-ch audio input (Aviation connector)
- 1080p Full HD resolution
- 2x 2.5-inch HDD/SSDC, 1x SD/SDHC card slot
- Pluggable disk box with vibration damping technology
- Pluggable 3G/4G/Wi-Fi module (optional)
- EMARK/EN 50155 certification

8-ch Mobile NVR
- 16 channels supported, 8 built-in PoE ports
- 1080p Full HD resolution
- 2x 2.5-inch HDD/SSD, 1x SD/SDHC card slot
- Pluggable disk box with vibration damping technology
- Pluggable 3G/4G/Wi-Fi module (optional)
- EMARK/EN 50155 certification

32-ch Mobile NVR
- Up to 32 channels via 8-pin M12 X- coding ethernet interface
- 1080 Full HD resolution
- 6x 2.5-inch HDDs/SSDs, up to 2 TB for each
- Supports GPS positioning

LCD Mobile Monitor
- 7-inch TFT LCD monitor, 800×480 RGB
- Real-time live view of the rear-view camera
- 3-ch video input & 2-ch alarm input.
- New GUI and supports the configuration of parameters
- Touch screen available
- Supports IR forwarding, RS-422 interface

Dual-lens Camera
- 1080p Full HD or up to 8 megapixel resolution
- 120dB Wide Dynamic Range/IR range up to 10m
- EMARK/EN50155/EN45545/IP67/IK10

Indoor Camera
- 1080p Full HD or 3 megapixel resolution
- 120dB Wide Dynamic Range/IR range up to 30m
- EMARK/EN50155/EN45545/IP67/IK10

Outdoor Camera
- Up to 1080p Full HD resolution
- 120dB Wide Dynamic Range/IR range up to 30m
- EMARK/EN50155/EN45545/IP68/IK10

Rear-View Camera
- Up to 1080p Full HD resolution
- 120dB Wide Dynamic Range/IR range up to 30m

Indoor Camera
- Up to 1080p Full HD resolution
- 120dB Wide Dynamic Range/IR range up to 10m
- EMARK/EN50155/EN45545/IP66/IK08

Passenger Counter
- 2 megapixel resolution
- 3m IR range
- Digital Wide Dynamic Range
- EMARK/EN50155/IP66/IK08
- M12 aviation plug optional for all IP cameras listed

Fisheye Camera
- 1080p Full HD or 6 megapixel resolution
- 105dB Wide Dynamic Range/IR range up to 15m
- EMARK/EN45545/EN50155/IP66/IK10

Product overview - Analog

4-ch Mobile NVR

- 4 TVI cameras, 4 IP cameras (extendable via PoE switch)
- 1080p Full HD resolution
- 2x 2.5-inch HDD/SSDC, 1x SD/SDHC card slot
- Pluggable 3G/4G/Wi-Fi module (optional)

8-ch Mobile NVR

- 8 TVI cameras, 8 IP cameras (extendable via PoE switch)
- 1080p Full HD resolution
- 2x 2.5-inch HDD/SSD, 1x SD/SDHC card slot
- Pluggable 3G/4G/Wi-Fi module (optional)

16-ch Mobile NVR

- 16 channel TVI cameras, 8 IP cameras (extendable via PoE switch)
- 1080p Full HD resolution
- 2x 2.5-inch HDD/SSDC, 1x SD/SDHC card slot
- Pluggable 3G/4G/Wi-Fi module (optional)

Alarm Terminal

- Quick alarm for emergencies.
- LEDs show the alarm terminal status.
- Built-in IR receiver for remote control.
- Built-in gyroscope for brake detection.
- Built-in sensor for capturing real-time acceleration.

Dual Lens Indoor Camera

- 720p at 25 frames per second
- IR range up to 5m
- Front camera & back camera
- Shock-proof design and aviation output plug

Indoor Camera

- Up to 1080p Full HD resolution
- 120dB Wide Dynamic Range
- IR range up to 20m
- IK07

Vehicle-Mounted Camera

- 720p at 30 frames per second
- IR range up to 20m
- IP68
- Shock-proof design with aviation ports

Rear-View Camera

- Up to 1080p Full HD resolution
- IR range up to 15m
- IP68

LCD Mobile Monitor

- 7-inch TFT LCD monitor, 800×480 RGB
- Real-time live view of the rear-view camera
- 3-ch video input & 2-ch alarm input.
- Touch screen available
- Supports IR forwarding, RS-422 interface

Outdoor Camera

- 720p at 25 frames per second
- IR range up to 20m
- IP68
- Anti-vibration design and aviation port for mobile environments

About Hikvision

Since 2001, Hikvision has grown from being a single-product supplier to the world's leading provider of security products and solutions. From the early digital age to today's intelligence era, we have seized every opportunity to advance the industry with our innovative technologies. And venturing into new areas of inspiring technology – such as Artificial Intelligence, cloud computing, and the fusion of deep learning and multi-dimensional perception technologies, to name a few – Hikvision leads the security industry as an IoT provider with video as the core competency. Now we have brought these innovations to the Public Transport market, combining them with partner technologies to provide state-of-the-art solutions.

Hikvision Partner Ecosystem

Hikvision believes that close collaboration with its ecosystem of partners can further accelerate innovation, while also securing maximum value creation for its customers and their communities. A cornerstone of the ecosystem is the Technology Partner Program (TPP). Together, Hikvision and its technology partners combine expertise, skills, technological understanding, and industry focus to deliver optimum solutions, expand business scope, and increase profitability. The integration of Hikvision's innovative video technology with the technologies born out of these programs offers end-user customers with secure, customized solutions.

Why Hikvision?

We aim to be experts in all industries we focus on, enabling us to design tailor-made **solution** that solve specific industry challenges

Our robust network of **eco-system partners** allows us to offer innovative and fully integrated solutions

We create **trust** in our solution by participating in industry organizations and providing extensive training programs for partners

5 year warranty, secure-by-design products and 3rd party **quality** certifications show our commitment to quality

We have an extensive **support** network, that ranges from a fully equipped local team to branch offices and R&D teams all over the world

Our broad multi-purpose product range provides **versatility** for tailor-made solutions

We aspire to use innovative technologies to contribute to the **sustainable** development of society and the environment. As a responsible corporate citizen we are dedicated to public welfare

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