**Video Security Solution
for Buses**

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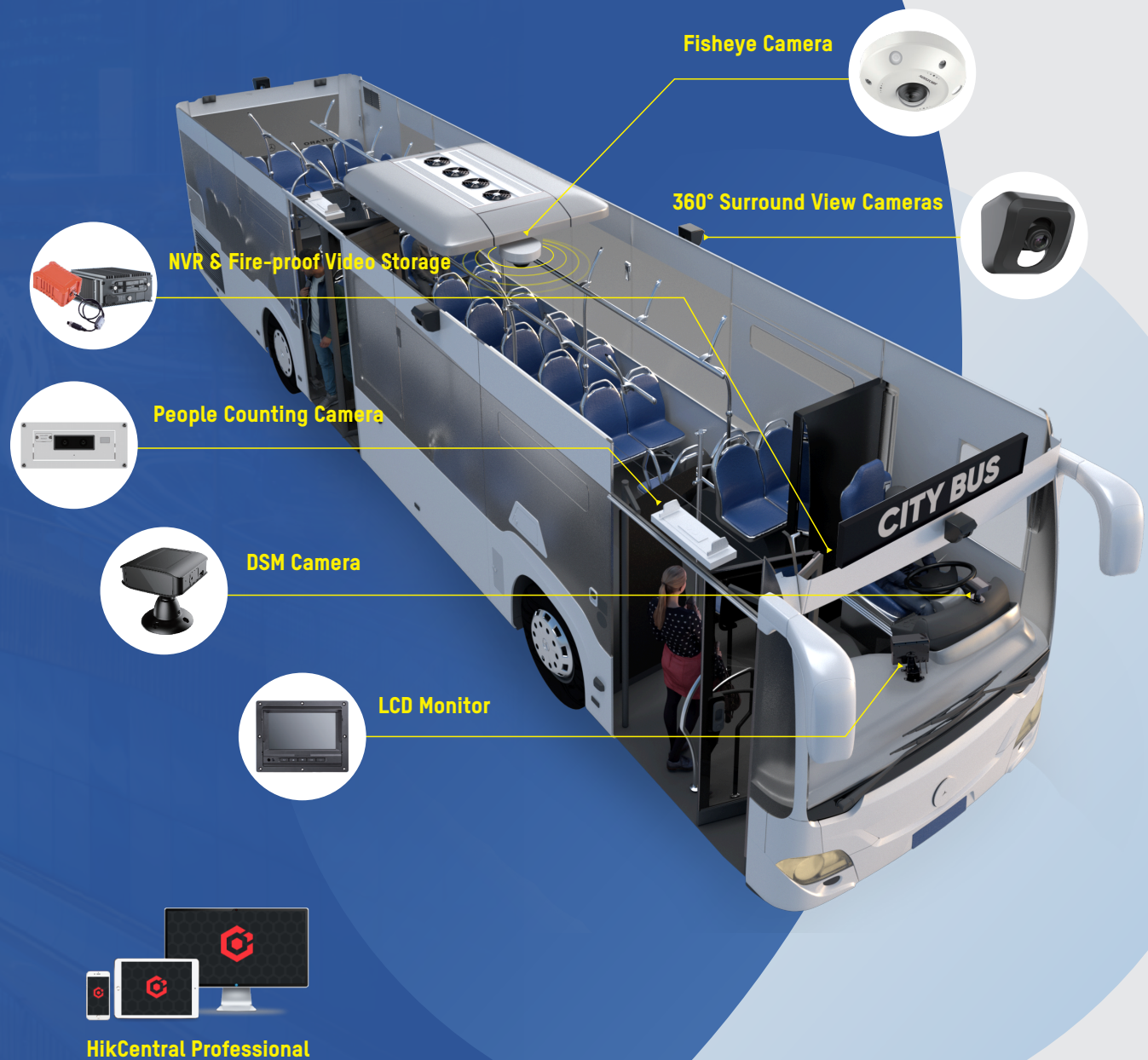# for Buses

Onboard Security

HIKVISION®

HIKVISION®

Video Security Solutions
for Buses

Public buses are key elements in city life around the world. They reduce the number of private automobiles on the road and thereby improve transportation environments and reduce traffic pressures – not to mention providing essential transportation for millions of people every day, on every continent.

Security for system operators, passengers and drivers, however, must overcome a number of challenges to be effective, such as lack of evidence for traffic accidents, theft and other crimes on the bus, fatigued driving, fare dodging, and more. Nevertheless most of buses cannot provide high definition video monitoring and limited field of view to maintain a safe and effective operation. Lack of intelligent management, bus scheduling and congestion cannot be arranged properly.

But today, Hikvision offers the optimal video security solution for all kinds of bus systems and the people involved. Read on to find out more.
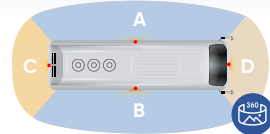
Fisheye Camera

360° Surround View Cameras

NVR & Fire-proof Video Storage

People Counting Camera

DSM Camera

LCD Monitor

HikCentral Professional

Solution **Structure**

01 Video Security

The Video Security System provides **high-definition** indoor and outdoor monitoring for driving support and keeps records to provide evidence of incidents. **360° panoramic** camera with all round view offers a fundamental basis for safer driving. Moreover, **outdoor cameras** offer practical drive assistance to reinforce the driving safety.
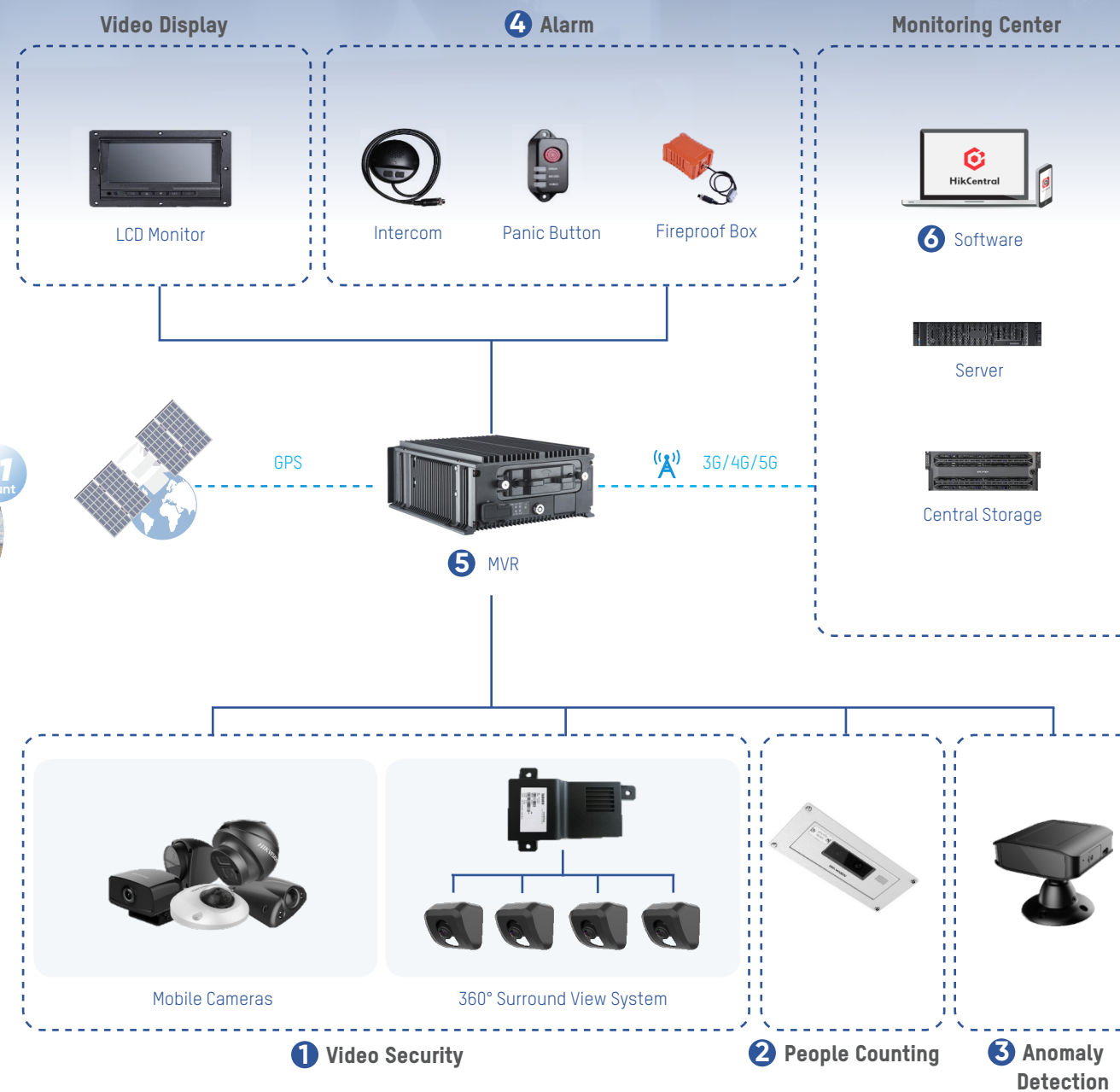
A
C   D
B

02 People Counting

The People Counting Camera can intelligently count the number of passengers getting on and off, and distinguish children from adults by achieving accurate height measurements and head-to-shoulder ratios. After collecting passenger flow information, the data will be analyzed for better bus scheduling, fare checking, and further operational analysis.
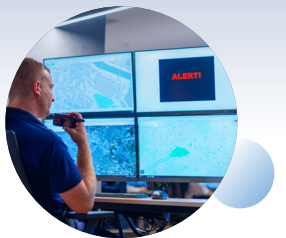
03 Anomaly Detection

The DSM Camera can intelligently detect potential risks. By doing so, drivers can navigate prudently with prudent awareness.

Unsafe Driving

Video Display

LCD Monitor

④ Alarm

Intercom   Panic Button   Fireproof Box

Monitoring Center

⑥ Software

HikCentral

Server

Central Storage

GPS   **⑤** MVR   3G/4G/5G

① Video Security

Mobile Cameras   360° Surround View System

② People Counting   **③ Anomaly Detection**

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04 Alarm Management

The Alarm System includes emergency, fence-crossing, safe driving, and deviation alarms. For emergencies, the driver can notify the platform through the alarm button or speak through a two-way intercom. For driving alarms, like deviation and fence-crossing, the platform can receive the real-time video and bus location to maintain the safe operation. Besides, anomaly detection will also provide prompt alarms for safe driving.

05 Transmission Network

The MVR communicates with the platform using a 3G/4G communication module. Also, the communication module now supports 5G connectivity, which ensures a faster and more stable connection. Along with that, the build-in GPS module is mounted on the vehicle for real-time positioning and video display.

* Supports: 2.4G & 5GWi-Fi
FDD LTE: B1/B2/B3/B4/B5/B7/B8/B20/B28, **TDD LTE:** B40
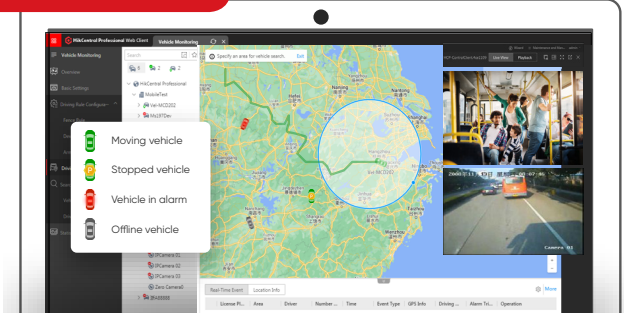
06 Management Platform

The whole system is managed by Hikcentral Professional, which conveniently provides functions like video monitoring, recording, playing back footage, real-time positioning, tracked playback, data statistics, and more. The operator can set up automatic video backup according to time and bus number.
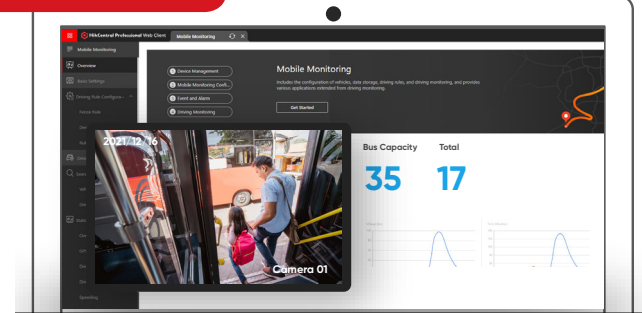
System **Function**

HikCentral Professional
Versatile Security in One Platform

This Bus Security Solution provides effective video monitoring and vehicle control. Video and audio data are collected by on-board cameras and audio perception. Audio and video data can be stored, backed up, and uploaded to the platform for viewing and playback. The operator can browse real-time video with the user-friendly mobile phone app. The GPS function pops up with real-time positioning, and route and fence-crossing detections, while facilitating vehicle control.
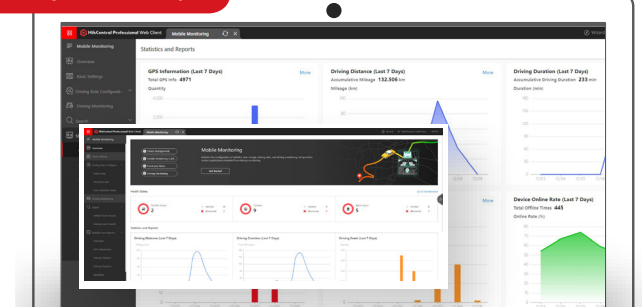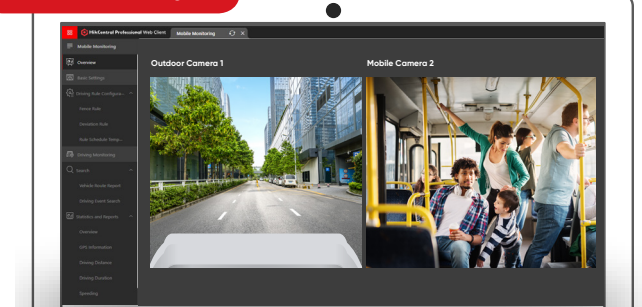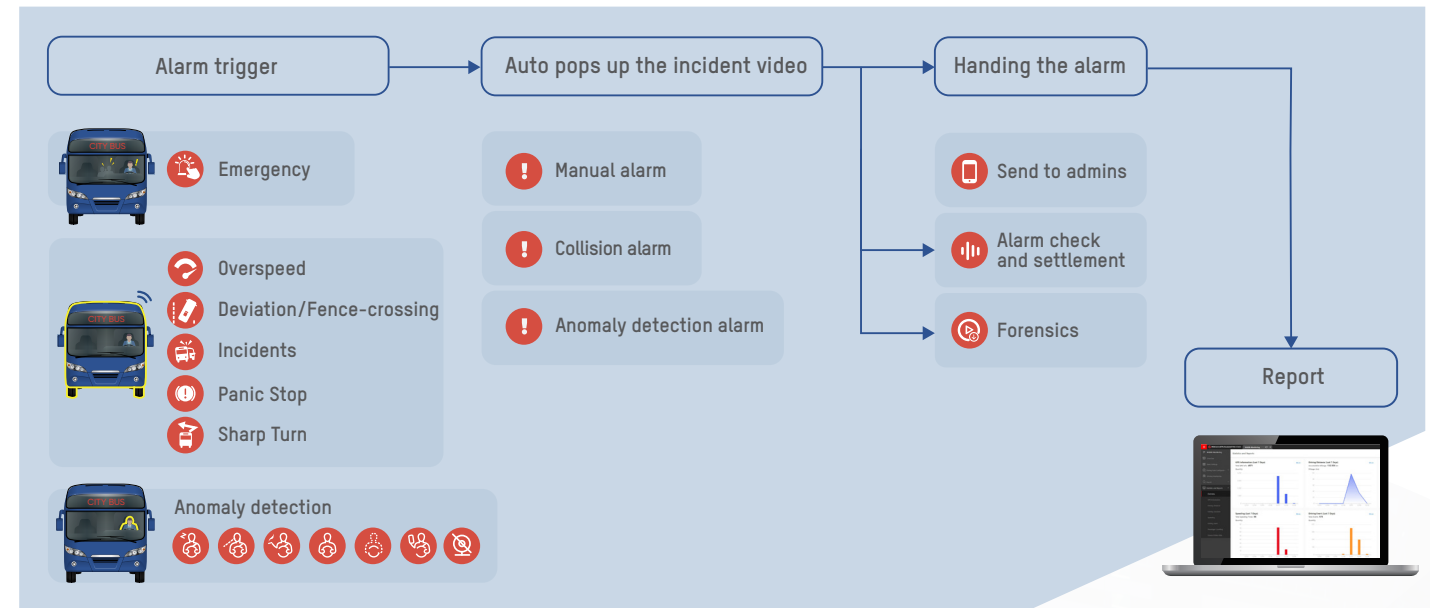
Real-time Tracking

- Moving vehicle
- Stopped vehicle
- Vehicle in alarm
- Offline vehicle

People Counting

Bus Capacity **35** Total **17**

Camera 01

Intelligent Data Report

HD Monitoring

Outdoor Camera 1   Mobile Camera 2

* GPS Information Report, Driving Distance Report, Driving Duration Report, Speeding Report, Driving Event Report (including DSM), Device Online Rate Report, etc.

Alarm Management

| Alarm trigger | → | Auto pops up the incident video | → | Handing the alarm |

Alarm trigger
- Emergency
- Overspeed
- Deviation/Fence-crossing
- Incidents
- Panic Stop
- Sharp Turn
- Anomaly detection

Auto pops up the incident video
- Manual alarm
- Collision alarm
- Anomaly detection alarm

Handing the alarm
- Send to admins
- Alarm check and settlement
- Forensics

Report

Intelligent Video Management

Upload A 00:00:25 60%
Upload B 00:00:20 80%
Upload C 00:00:15 40%
Upload D 00:00:08 20%

| Create upload task | → | Detect the Wi-Fi to upload | → | Complete evidence record |

100%

Video download ← **Video edit** ← **Video search** ← Task done & Power off

Supports evidence download, including video information, such as operator, time, etc.

Supports evidence editing, such as delete, tag, export, show or hide existing video.

Supports evidence search by name, tag, description, type, or time.

■ Video upload
■ Video process

Product Features

Mobile NVR/DVR

Reliable Power Supply Design
- Power supply supports 8-36 VDC
- Electromagnetic immunity design conforms to the automobile ISO-7637 electromagnetic standard
- Suitable for all types of vehicles

Anti-seismic Design
- Top-rated shockproof hard drives employed
- Patented metal air bag damping technology

No Break Power Design
- First to be utilized in the industry
- Ensures video is written to the hard drive at the moment of power failure

Perfect Video Recording
- Supports a variety of storage media
- Supports SD card redundancy recording when if hard drive is damaged
- Supports fire box storage / redundancy recording

GPS Filtering
- Equipped with high-sensitivity antenna and GPS filtering algorithms, GPS Filtering resolves problems with fixed-point drift, velocity drift, and other abnormal data. Moreover, supporting data retransmission, the challenge of information loss without internet will be fixed properly.

Aviation Gyroscope
- Built-in G-sensor & gyroscope sensor provide emergency response to collision and rollover accidents to restrict or eliminate dangerous driving habits such as rapid acceleration, deceleration, or braking, and turning too sharply

Rich Interfaces
- Highly-functional hardware interfaces – such as Standard M12-D Code, RJ45, and other signals – meet a multitude of application requirements and scenarios

Dual System Backup
- Dual system firmware is built in the vehicle host to ensure normal operation of the device after restarting

Mobile Camera

HD Video Security
- All-round cameras with high definition, including 2MP, 5MP, 6MP, and 12MP, can provide better recording, tracking, and deterrence

IK10+ Impact Protection
- Protected against 20-joule impacts
- Equivalent to impact of a 5 kg mass
- Dropped from 400 mm above impacted surface

Intelligent Heating Control
- Outdoor Cameras, like XM65 series, come up with heating module, which operate based on outdoor temperatures, and best in ambient temperatures from -40° to 70°C

IP68 Waterproof Rating
- Water pressure: 400 KPa
- Water flow: 100L/min
- Depth: 2.5 – 4 m
- Test duration: >3 mins

Certifications
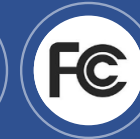
All devices of Hikvsion bus solution qualify for those certifications.

EMC/LVD/RED
CE

Safety
UL | FC | Bureau of Indian Standards

Environment
WEEE | REACH NPS | RoHS NPS

E-MARK
E 9

Flame retardant certification
E 32

EN45545

Railway
TEST REPORT
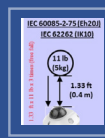
EN 50155-2017 and EN 50121-3-2

Degrees of Protections
IP66, IP67, IP68 | IK10
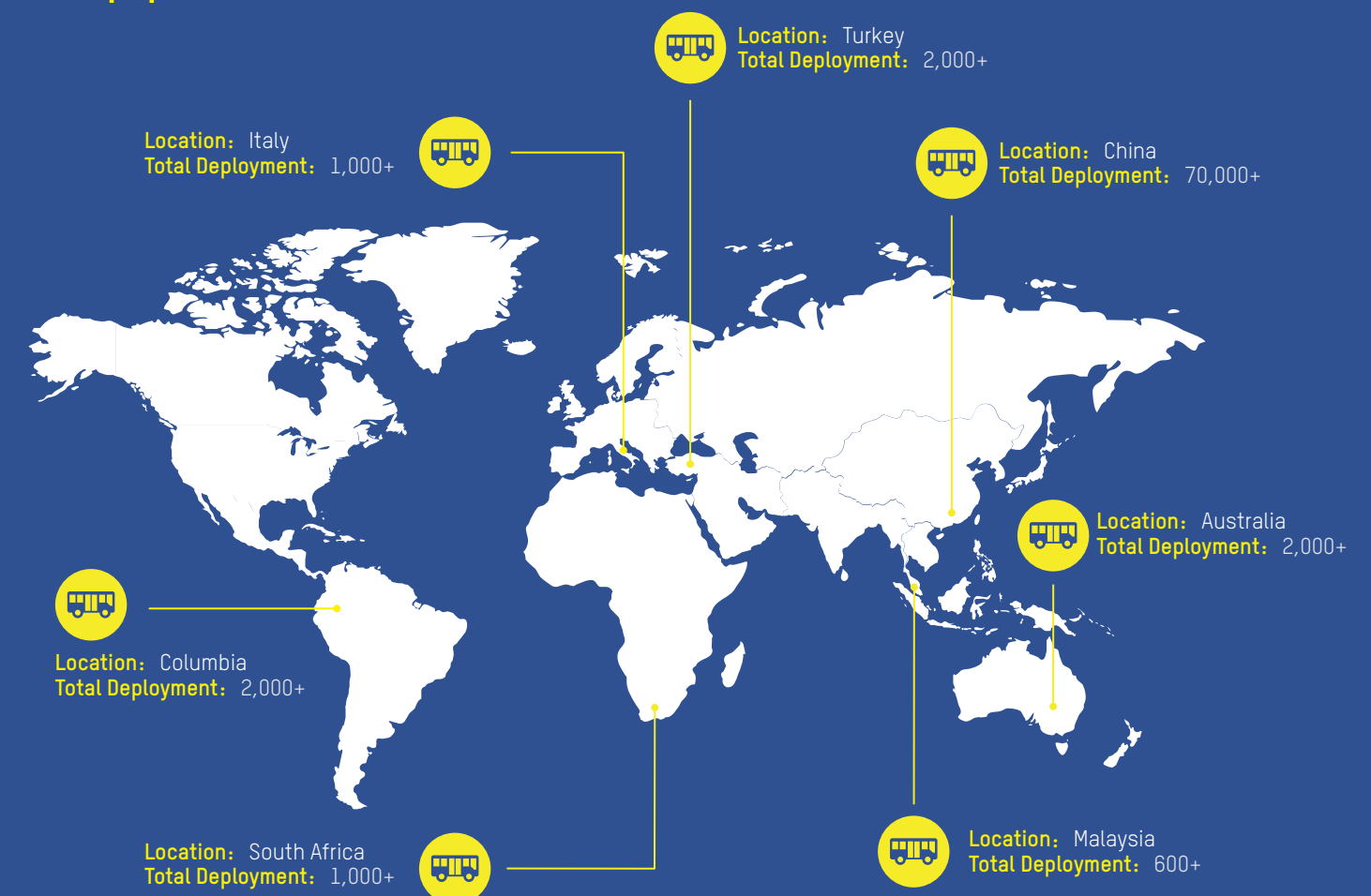
Application Scale

Location: Turkey
Total Deployment: 2,000+

Location: Italy
Total Deployment: 1,000+

Location: China
Total Deployment: 70,000+

Location: Australia
Total Deployment: 2,000+

Location: Columbia
Total Deployment: 2,000+

Location: South Africa
Total Deployment: 1,000+

Location: Malaysia
Total Deployment: 600+

4-Channel MVR

- 4-ch 4MP PoE IPC + 4-ch 6MP IPC via PoE switch
- Pluggable anti-vibration HDD box , 2*2.5 inch HDD/SSD (2TB for each) ,1 x SD card
- 3G/4G, 5.8G WiFi, GPS, H.265
- Full load consumption ≤ 45 W
- 206 × 219 × 60 mm (8.1 × 8.62 × 2.36 inch)
- 1.6 kg (3.5 lb)
- CE, FCC, EN50155, EN45545, EN50121, E-mark, CB, RoHS, WEEE

8-Channel MVR

- 8-ch 8MP PoE IPC+8-ch 6MP IPC via PoE switch
- Pluggable anti-vibration HDD box , 2*2.5 inch HDD/SSD(2TB for each) , 1 x SD card
- 3G/4G, 5.8G WIFI, GPS, H.265
- Full load consumption ≤ 99 W
- 202 × 267.6 × 93.9 mm (7.95 × 10.5 × 3.7 inch)
- 3.66 kg (8.07 lb)
- CE, FCC, EN50155, EN45545, EN50121, E-mark, CB, RoHS, WEEE,MIL-STD 810G

AE-VC1B1I-ISF

DSM Camera

- 720P@25fps
- 6 mm fixed lens
- 2 x 940nm LEDs
- Built in speaker
- 1 TF card, up to 256GB
- Consumption ≤ 7W
- Wide-range Input DC 9~ 36V
- 92 x 90 x 106 mm (37.8 x 35.5 x 41.8 inch)

DS-MP1431-64G

Fireproof Box

- Video mirror backup for data protection
- Fire resistance time:15 min@1100 ℃, 20 min@950 ℃, 120 min@260 ℃
- Waterproof: 24 hour@100 m (10 ATM)
- High Speed Impact:100 Gs@50 ms
- Static Squeeze:100 KN@5 min
- Consumption ≤ 0.5W
- 122 x 88 x 57 mm (4.8 x 3.5 x 2.2 inch)
- Approx.0.97 kg (2.1 lb)

DS-2XM6122G0

- 2MP resolution,1920 × 1080 @25fps
- 2mm/2.8mm/4mm/6mm fixed lens
- 1 Built-in microphone
- H.265+, IP66, IK08
- 24 VDC, 0.2 A, 5 W or PoE (802.3af, 36 V to 57 V), 0.2 A to 0.1 A, class 3
- Approx. 430 g (0.9 lb.)
- CE, FCC, UL, E-Mark, EN50155, EN45545, EN50121, KC, REACH, RoHS,R118,WEEE,BIS,IK,IP

DS-2XM6222G0

- 2MP resolution, 1920 × 1080 @25fps
- 2.8mm/4mm/6mm fixed lens
- H.265+,IP67, IK10
- 24 VDC, 0.22 A, max. 5.2 W or PoE (802.3af, 36 V to 57 V), 0.14 A to 0.09 A, max. 5.2 W
- Approx. 330 g (0.7 lb.)
- CE, FCC, UL, E-Mark, EN50155, EN45545, EN50121, KC,RoHS,R118,WEEE,BIS,IK,IP

AE-VE242A-A

360° Surround View Monitor Host

- Support 4 channels of 720P TVI cameras
- 3D panoramic splice the front, rear, left and right images of the vehicle body
- 4-way HDTVI input, 1-way HDTVI output
- Can Bus interface
- TF card slot x1
- Mini USB interface x1

AE-VA133T-A

360° Surround View Camera

- Lens (metal shell): 0.9mm fisheye lens
- H (transverse): 190 ° / V (longitudinal): 116 °
- Sensor type: 1 / 4 "1.3 Mega CMOS
- Minimum illumination: 0.1 lux @ (f1.2, AGC on)
- Protection grade: IP68
- Interface: 4-core BMW head interface

DS-2XM67 Series

- 2MP resolution,1920 × 1080 @25fps
- 5MP resolution,3072 × 1728 @ 20fps
- 2mm/2.8mm/4mm/6mm/8mm fixed lens
- 1 Built-in microphone
- H.265+, IP67, IK10
- 24 VDC, 0.3 A, max. 7.5 W or PoE (802.3af, 36V to 57V), 0.30 A to 0.20 A, max: 7.5W
- Approx. 460 g (1 lb.)
- CE, FCC, UL, E-Mark, EN50155, EN45545, EN50121, KC, REACH, RoHS,R118,WEEE,BIS,IK,IP

DS-2XM6522G0

- 2MP resolution, 1920 × 1080 @25fps
- 2.8mm/4mm/6mm fixed lens
- 3-Axis adjustment
- H.265+, IP69K, IK10+
- 24 VDC, 0.36 A, max. 8.6 W or PoE (802.3af, 36 V to 57 V), 0.25 A to 0.15 A, max. 8.8 W
- Approx. 850 g (1.9 lb.)
- CE, FCC, UL, E-Mark, EN50155, EN45545, EN50121, KC,RoHS,R118,WEEE,BIS,IK,IP

DS-2XM6825G0/C

- Dual lens, 1920 × 1200 @ 25fps
- 2 mm fixed lens
- 1 Built-in microphone
- Flash memory storing people counting data
- H.265+, IP66, IK08
- 24 VDC, 0.31 A, max. 7.4 W or PoE (802.3 af, 36 to 57 VDC), 0.22 A to 0.13 A, max. 7.8 W
- Approx. 640 g (1.4 lb.)
- CE, FCC, UL, E-Mark, EN50155, EN45545, EN50121, KC,RoHS,R118,BIS,IK,IP

DS-2XM63 Series

- 6MP,3072 × 2048 @ 25fps,1.27 mm fixed lens
- 12MP, 4000 × 3000@20fps, 2 mm fixed lens
- 2 Built-in microphones
- H.265+, IP66, IK10
- 24 VDC, 0.40 A, max. 12 W or PoE(802.3af, 36 to 57 VDC), 0.34 A to 0.22 A, max. 12 W
- Approx. 600 g (1.32 lb.)
- CE, FCC, UL, E-Mark, EN50155, EN45545, EN50121, KC,RoHS,R118,BIS,IK,IP