DRIVING THE FUTURE

KUS

DRIVING THE FUTURE

ADAS Products & New Energy Vehicle Products Catalog

KUS Group

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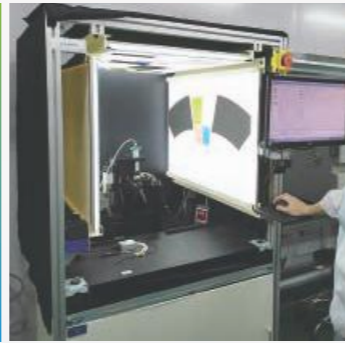Tel: +91-98419 60646
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www.kusauto.com/en

ADVANCED EQUIPMENT

Advanced equipment and technology ensure that the product meets customers expectations both in quality and performance.
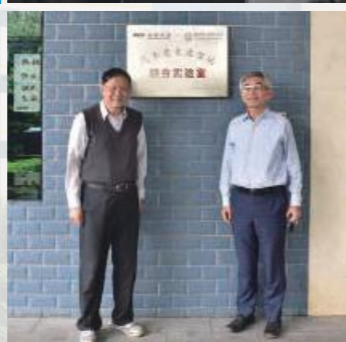
R&D ABILITY

KUS R&D group includes more than 600 individuals including more than 100 specializing in intelligent driving. KUS introduces the concept of international cooperation and R&D testing with well-known manufacturers to provide optimized solutions.
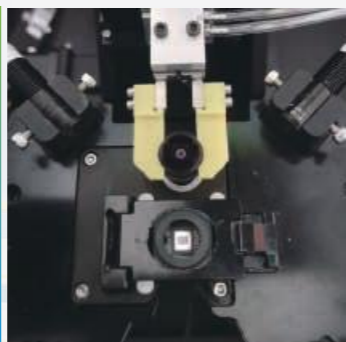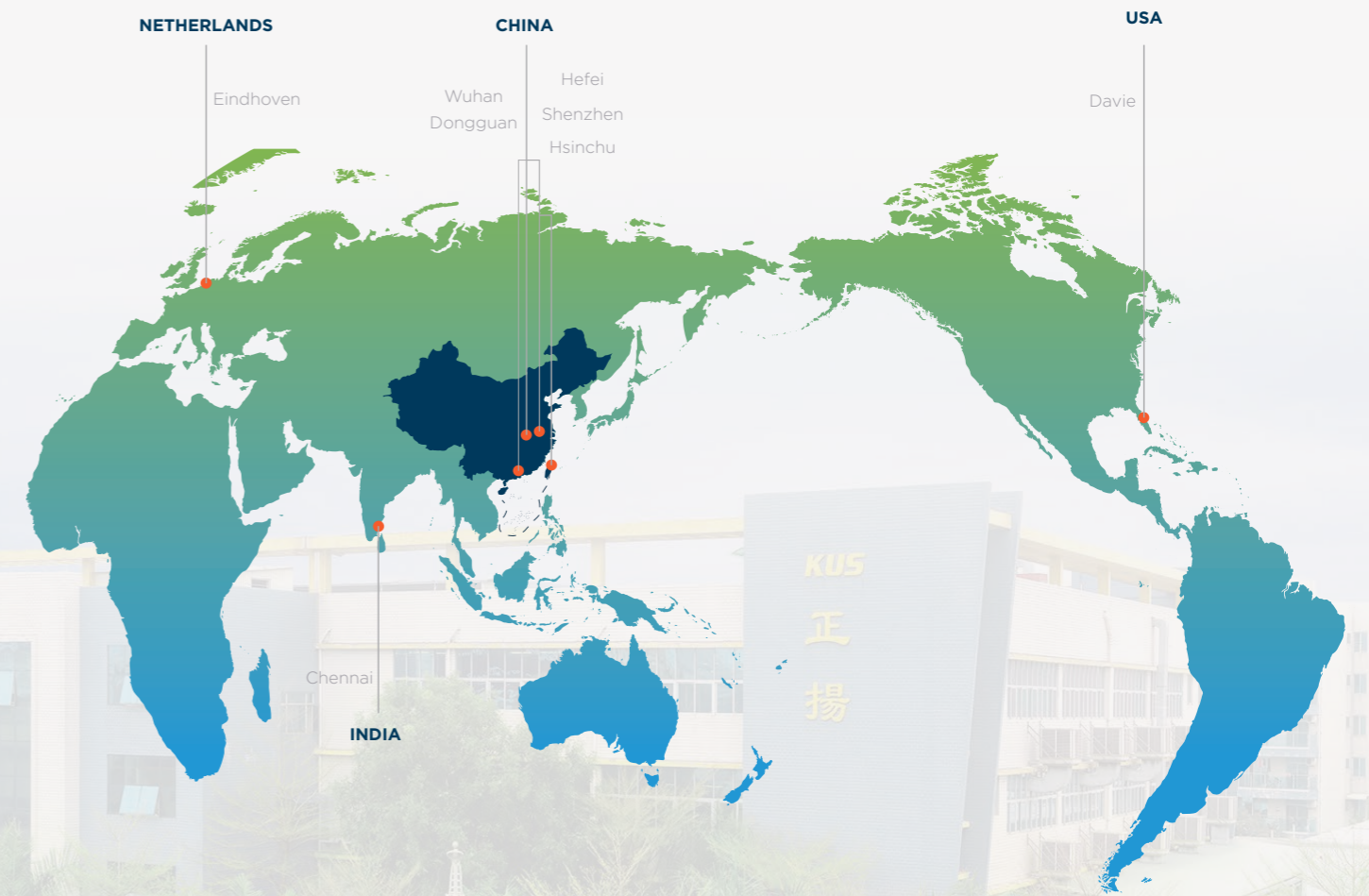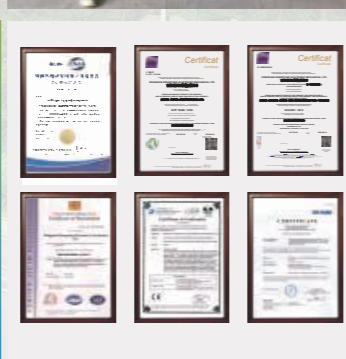
AWARDS

KUS has won hundreds of awards from manufacturers in provincial famous trademarks and multiplication enterprises.

CERTIFICATIONS

CNAS
IATF16949
ISO26262
ISO14001
CE
PED+AD2000

NETHERLANDS
Eindhoven

CHINA
Hefei
Wuhan
Shenzhen
Dongguan
Hsinchu

USA
Davie

INDIA
Chennai

KUS Group, founded in 1984, is a well-known supplier of automotive after-treatment parts with more than 30 years of experience concentrated in level sensing technology. We are a high-tech enterprise integrating R&D, production, and sales. As a global operating company, with nearly 5,000 employees, KUS Group has nine branches spreading across the world in the United States, Europe, India, and China.
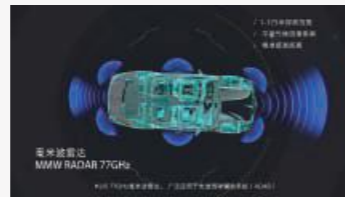
77GHz FCW Millimeter Wave Radar

KMR-G1/KLR-G1

FCW

AEB

ACC

ACCURATE
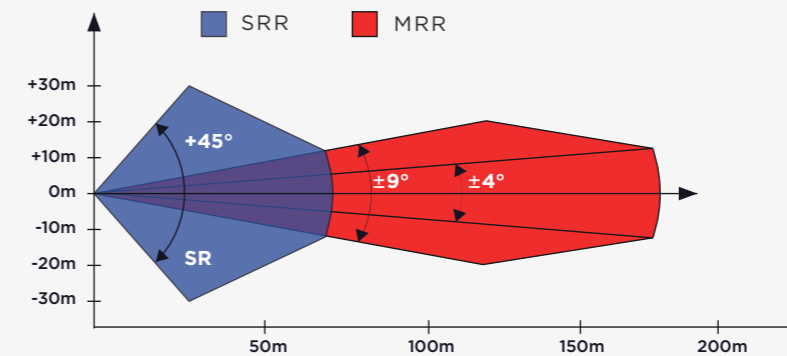Small and compact, high recognition accuracy

LONG
Long range sensing and detection

STRONG
Strong penetration, weather proof

Product Specifications

Model	KMR-G1		KLR-G1	
Appearance				
Type	MRR	SRR	MRR	SRR
Operating Frequency Range	76GHz-77Ghz		76GHz-77Ghz	
Chip Platform	TI AWR 1843		NXP Dolphin S32R274	
Operating Mode	FMCW		FMCW	
EIRP	＜37dBm		＜35dBm	
Operating Voltage	8V-36V		8V-32V	
Power Consumption	4W		4W	
Operation Temp.	-40°C-+85°C -40°F-+185°F		-40°C~+85°C -40°F~+185°F	
Storage Temp.	-40°C-+95°C -40°F-+203°F		-40°C~+125°C -40°F~+257°F	
Protection Rating	IP6K9K/IP6K7		IP6K9K	
Detection Distance Range	0.5m- 175m	0.5 m-60m	0.8m-175m	0.35m-70m
Relative Velocity Range	- 400km/h - +200km/h		-200km/h-+100km/h	
Distance Accuracy	±0.6m	±0.4m	±0.2m	±0.1m
Range Resolution	<0.78m	< 0.5m	0.8m	0.35m
Speed Accuracy	±0.5 m/s		±0.2m/s	±0.1m/s
Speed Resolution	0.97m/s	0.47m/s	0.14m/s	
Angle Accuracy	±1°		±0.3°@±9°	±0.6°@0°-±2.0°@±45°
FOV(H)	±4° (175 m)	±45° (60 m)	±9°	±45°
Update Rate	50ms		＜50ms	
Tracking Object	64		64,32,16	

Quality Certification

ISO-26262

ISO-16750

ISO-7637

CISPR 25

VSCC

SRR   MRR

+30m
+20m
+10m
0m
-10m
-20m
-30m

+45°

SR

±9°   ±4°

50m   100m   150m   200m

77GHz BSD Millimeter Wave Radar

KSR-G2/KSR-G1

BSD

LCA

RCTA

ACCURATE
Small and compact, high recognition accuracy

STABLE
Stable measurement of distance, speed and angle

STRONG
Strong penetration, weather proof
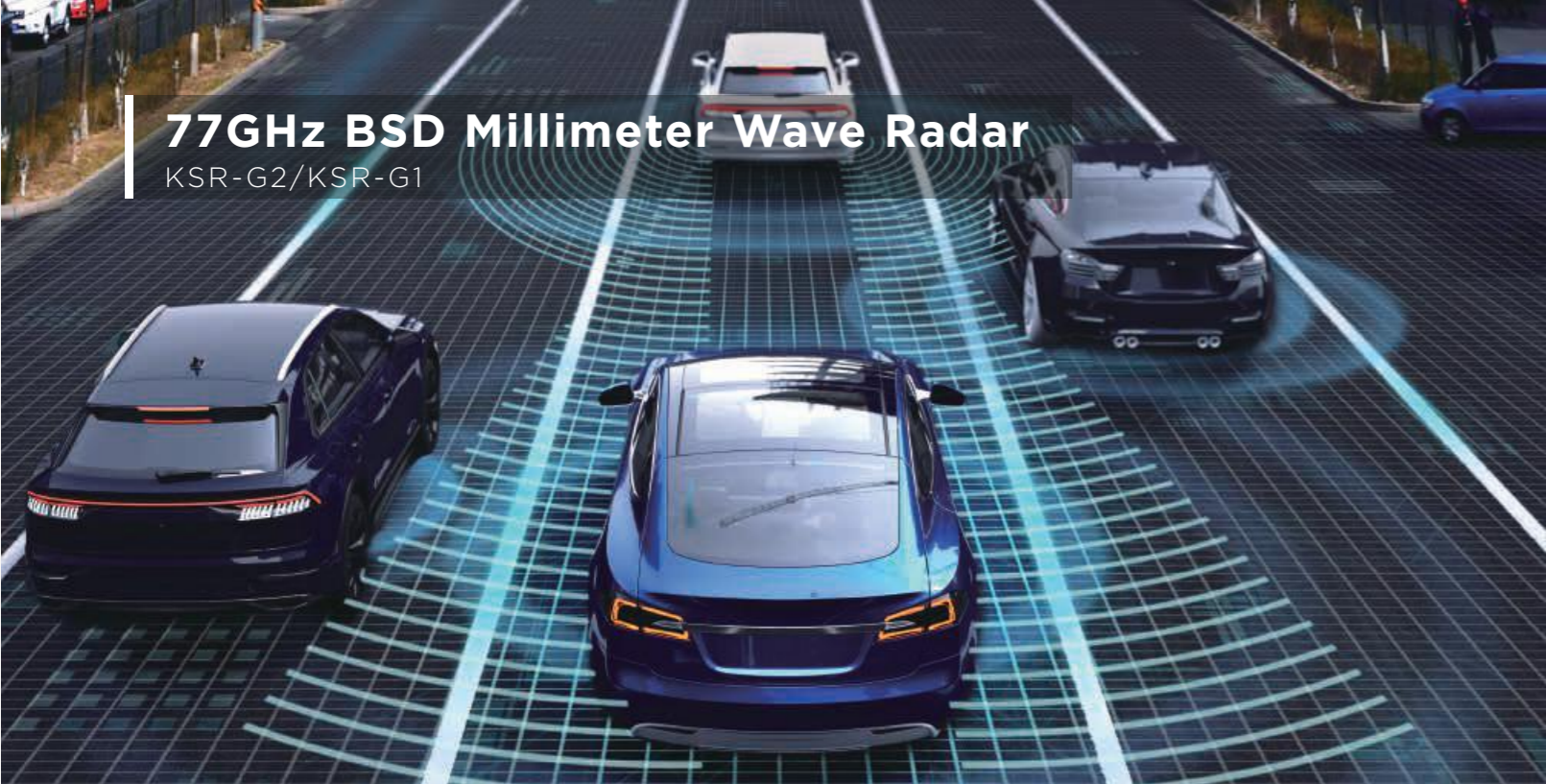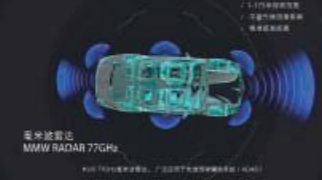
Product Specifications

Model	KSR-G2	KSR-G1
Appearance		
Chip Platform	TI AWR1642	TI IWR1642
Operating Voltage	12V/24V	12V/24V
Power Consumption	2.4W	1.92W
Operation Temp.	-40°C-+85°C -40°F-+185°F	-40°C-+85°C - 40°F-+185°F
Storage Temp.	-40°C-+95°C -40°F-+203°F	-40°C-+90°C - 40°F-+194°F
Protection Rating	IP67	IP67
Operating Frequency Range	76GHz-77GHz	76GHz-77GHz
Operating Mode	FMCW	FMCW
EIRP	24dBm	12dBm
Detection Distance Range-BSD	3m	5m
Detection Distance Range-LCA	75m	25m
Detection Distance Range-RCTA	20m	15m
Relative Velocity Range	-90km/h-+90km/h	-5km/h-+70km/h
Distance Accuracy	±0.5m	±1m
Distance Accuracy	0.5m	0.37m
Range Resolution	±0.5m/s	±0.28m/s
Speed Accuracy	0.5m/s	0.28m/s
Angle Accuracy	±1.5°	±1.5°
FOV(H)	110°	100°
Update Rate	50ms	100ms
Tracking Object	32	32

±55°

+30m
+20m
+10m
0m
-10m
-20m
-30m

20m 40m 60m 80m

Blind Spot Detection

Rear Collision Warning

Lane Change Assist

Monocular Camera (Original Equipment)

KC-G1/KC-G2
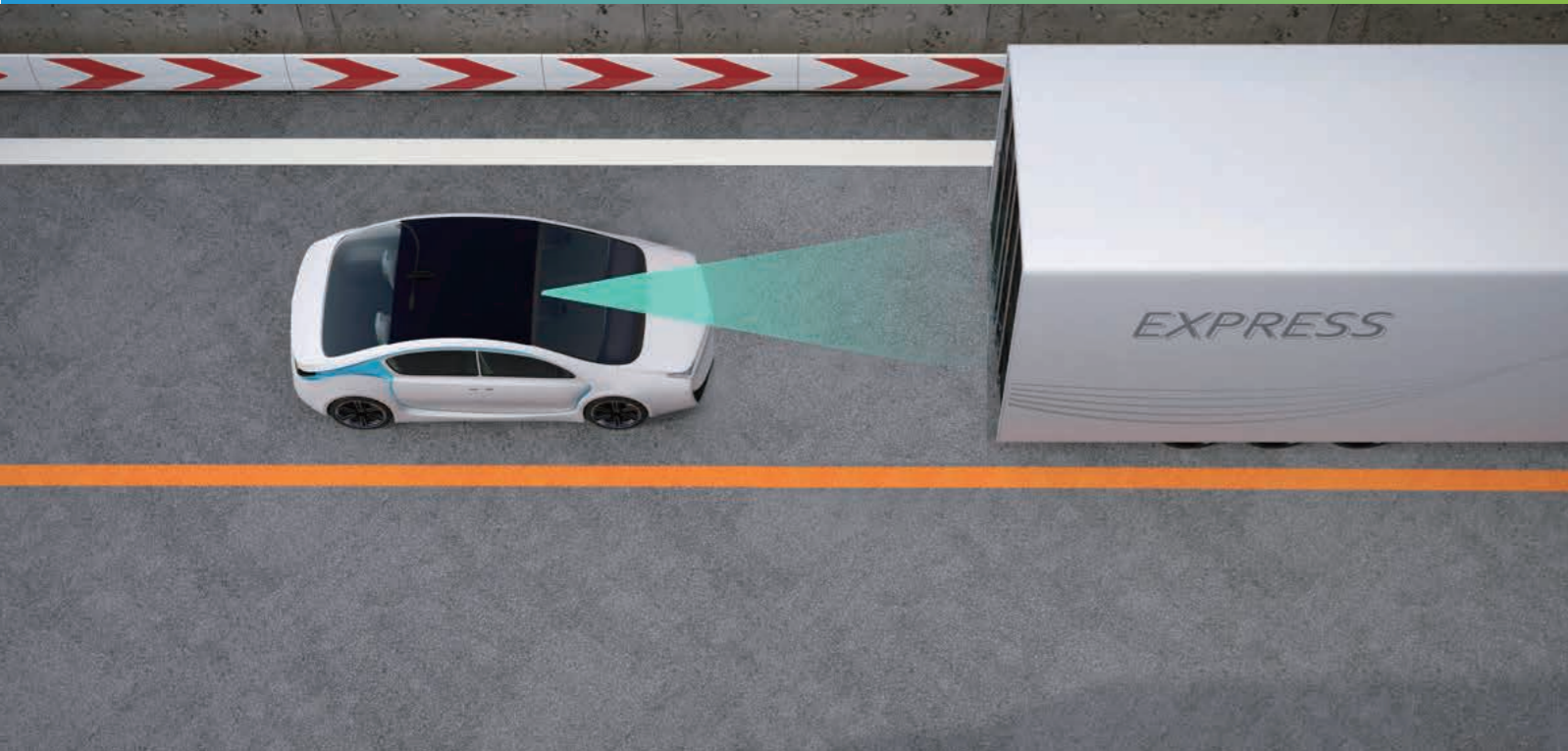
- **FCW**
- **HMW**
- **UFCW**
- **LDW**

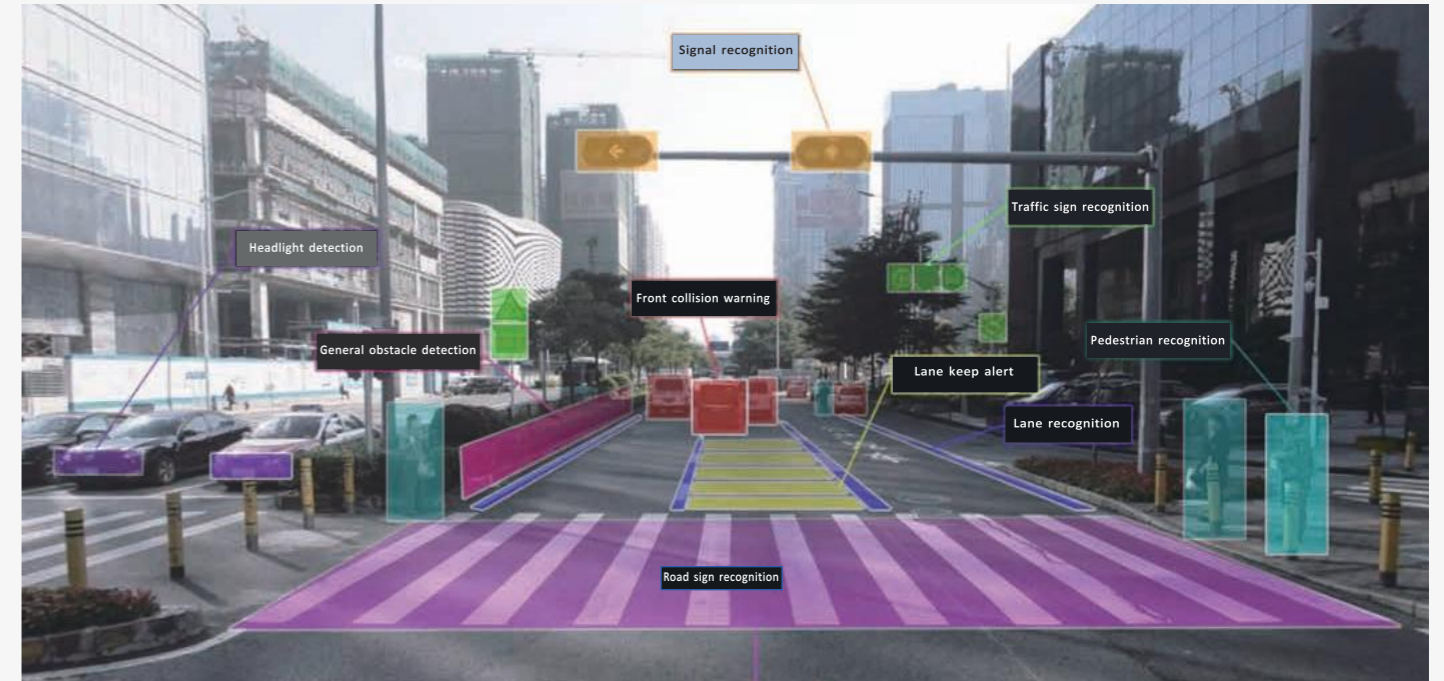- **High-precision perceptual algorithm**
- **Working ability under various lighting, road, and weather conditions**
- **Information interconnection**
- **Professional car image sensor compliance with vehicle AEC-Q100**

Specifications

Model	KC-G1	KC-G2
Appearance		
Hardware Platform	FPGA	CV25
Vision Sensor	AR0132T	OV10640
Dynamic Range	>115dB	>115dB
Resolution	1280×960	1280×720
Shutter Type	Rolling shutter	Rolling shutter
FOV	52°	52°
Operation Temp.	-40°C-+85°C -40°F-+185°F	-40°C-+85°C -40°F-+185°F
Protection Rating	IP54	IP54
Detection Range	Front car 1m-110m/Pedestrian1m-60m	Front car 1m-100m/Pedestrian1m-60m

Mobileye Inside

KC-G3A

DRIVING THE FUTURE

FCW

TSR

PCW

HVW

LDW

IHBC

Mounted on the bottom corner of the windshield, EyeWatch display is used for visual alarms.

Mounted on the inside of the windshield, the product includes a camera, speaker, and EyeQRchip.

Reliable Technology, Trust Worthy

More than 20,000,000 vehicles around the world are equipped with Mobileye technology, including more than 300 new models from leading global manufacturers. Our rear-mounted warning system can be installed on any model, which means you can enjoy the safety benefits of Mobileye technology without having to compromise.

Improve Driving Skill

The Mobileye system integrates fleet management from multiple suppliers allowing you to receive data on the driver's behavior thus improving the driving behavior of the driver.

Get Feasibility Data

On average, drivers get use to the equipped system alarm and learn to predict it after three or four weeks. Drivers will maintain a safe interval or brake in advance to avoid the alarm emitted by the system.
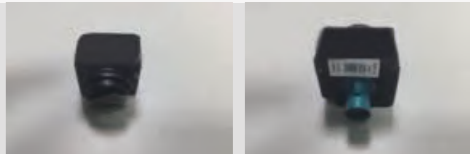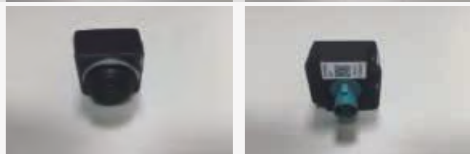
Reduce Implicit Cost in Operations

Car accidents can lead to a dramatic increase in implicit costs, including the cost of part replacement, vehicle failures, delayed delivery, and increased premiums. Mobileye alarm can help drivers avoid or reduce collisions, wear, and fuel consumption.

Vehicle Camera Products

Specifications

Item	Product Model	Product Description and Application	Image Resolution	Voltage	Horizontal View Angle	Srializer	Picture
1	kuscam300	Smart Camera (RV,LDWS,MOD)	640×480 (CVBS)	12V	180°	X	
2	kuscam152	Aerial-View Camera (AVM,RV)	640×480 (CVBS)	12V	189°	X	
3	kuscam121	Side-View Camera (BSD,ODA)	640×480 (CVBS)	12V	84.5°	X	

Specifications

Item	Product Model	Product Description and Application	Image Resolution	Voltage	Horizontal View Angle	Srializer	Picture
4	kuscam161	Aerial-View Camera (AVM,RV)	1280×960 (HD-TVI)	12V	189°	X	
5	kuscam201	Aerial-View Camera (AVM,RV)	1280×720 (LVDS)	6V	180°	TI913	
6	kuscam203	Aerial-View Camera (AVM,RV)	1280×960 (LVDS)	6V	180°	TI913	
7	kuscam204	Aerial-View Camera (AVM,RV)	1280×960 (LVDS)	6V	180°	TI913	
8	kuscam231	Forward-View Camera (ADAS,AD)	1280×720 (LVDS)	6V	53.4°	TI913	
9	kuscam234	Forward-View Camera (ADAS,AD)	1920×1080 (LVDS)	6V	62°	TI953	
10	kuscam236	Forward-View Camera (ADAS,AD)	1280×720 (LVDS)	6V	128°	Max96705	
11	kuscam250	Cockpit Camera (DMS,LED850nm)	1280×720 (LVDS)	6V	68°	TI913	

Driver Monitoring System
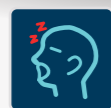
(Original Equipment) KDM-G1

Eye-closed Warning

Fatigue Warning

Distraction Warning

Smoking Warning

Make Call Warning

Filter Glasses

Night Environment

Face Identification

4G Data Management

Specifications

	Minimum Value	Typical Values	Maximum Value	Remarks
Effective Speed Range	0km/h		180km/h	
Warning Speed Range	10km/h		180km/h	Minimum warning speed can be adjusted within a certain range
Detectable Head Level Attitude Angle	-45°		45°	Zero when the head is vertically facing the camera
Detectable Head Vertical Attitude Angle	-25°		25°	Zero when the head is facing the camera horizontally
Typical Warning Specification	1. With 3s driver has eyes closed more than 40% 2. Yawning			
Maximum Duration of Warning		1s		
Alarm Blocking Time		3s		The minimum warning time interval between two adjacent warning
User Interaction	When the alarm is triggered, the system will sound a warning			
Make Call Warning	Call time is greater than 2s			
Smoking Warning	Detection of driver's cigarette triggers an alarm			
Distraction Warning	Within 4s driver has looked around more than 80% Within 4s driver has looked down more than 80%			

Driver Monitoring System

KDM-G3A

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DMS is manufactured for long-distance buses/trucks, carriers, taxis, and passenger cars. DMS works by utilizing built-in 4G to transfer data to a network or terminal that then remotely monitors the status of the driver. DMS is able to combine the output and analysis of alarm data to analyze driving habits and monitor drivers status to reduce the probability of an accident.

Support Data Storage and Analysis

Fleet Management

Advanced Identification Technology

Intelligently Avoiding Distractions

High Automotive Product Quality

Eye-closed Warning

Fatigue Warning

Distraction Warning

Smoking Warning

Make Call Warning

Filter Glasses

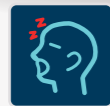**Night Environment**

Face Identification

Data Management

4G

Working Diagram

★ Monitor message stored in TF card

★ Monitoring information can be transmitted to the cloud through the 4G module to be viewed on mobile phone and computer

TF CARD

4G
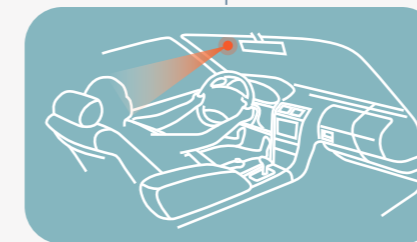
★ DMS should be installed in a place that doesn't distract the driver, such as the left or right side of the rearview mirror

★ Manufactured for use in passenger cars and commercial vehicles

Product Specifications

Appearance

Size	72(W)x24.5(H)x16(D)mm

Control Board Parameters

CPU	ARM, Cortex-A7
Connection	USB, UART, RS232
Working Temp.	-20°C-+70°C -4°F-+172.4°F

Camera Module Parameters

Resolution & Connection	1080P, VGA
Camera Structure	5P+IR
Focal Length	3.49mm
Aperture	F2.8
LENS	67°
Filming Range	0.2m-0.5m
Relative Illumination	70%
Signal Output	RAW bayer 10bit/8bit

Monocular Camera and DMS Fusion Scheme

KFD-G1

DRIVING THE FUTURE

LDW   **HMW**   **PSW**   **VW**

Distraction   **Fatigue**   **Night Vision**   **Glasses Filter**   **Identification**   **Eye Tracking**
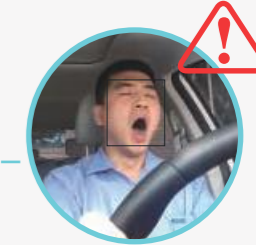
Specifications

Camera Parameters

	Minimum Value	Typical values	Maximum Value	Remarks
Effective Speed Range	20km/h		180km/h	
Warning Speed Range	60km/h		180km/h	Minimum warning speed can be adjusted
Lane Width Range	2.6m		4.0m	
Ability to Adapt to Corners	250m			Reference value is the radius of driveway curvature
Earliest Warning Line	Before front wheels cross lane line (0.1m)			Can be adjusted
Latest Warning Line	After front wheels cross lane line (0.3m)			
Lane Line Color Recognition	White and yellow			
Lane Line Type Identification	Solid line, double line, dashed line, and dotted line			
Applicable Roads	Highways, expressways, and urban roads (including tunnels)			
Applicable Weather	Day, night, dusk, dawn, fog, haze, rain, and snow			Rain, snow, and backlight can lead to performance degradation
Maximum Duration of Warning		1s		
Alarm Blocking Time		3s		Minimum alarm time interval between two adjacent alarms
Event Upload Interval		3min		Data card needs to be configured and uploaded over 4G network
User Interaction	When the alarm is triggered, the system will sound a warning			

DMS Parameters

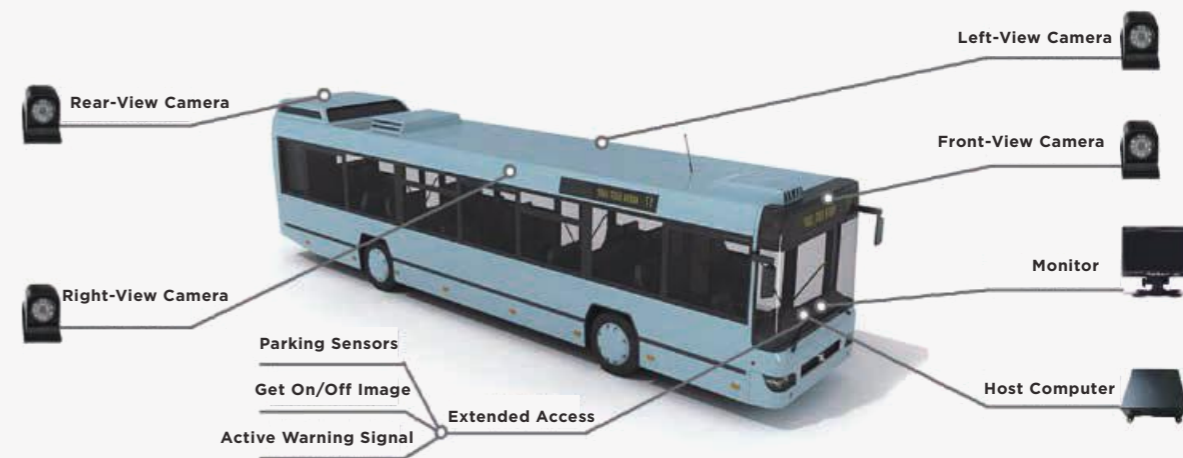|	Minimum Value	Typical values	Maximum Value	Remarks
Effective Speed Range	10km/h		180km/h	Minimum warning speed can be adjusted within a certain range
Detectable Horizontal Angle	-30°		30°	Zero when the head is vertically facing the camera
Detectable Vertical Angle	-20°		20°	Zero when the head is facing the camera horizontally
Identifiable State	Fatigue, abnormal posture, yawning, make a call, departure, and smoking			
Applicable Weather	Day, night, dusk, dawn, fog, haze, rain, and snow			
Maximum Duration of Warning		1S		
Alarm Blocking Time		3S		Minimum alarm time interval between two adjacent alarms
Event Upload Interval		3min		Data card needs to be configured and uploaded over 4G network
User Interaction	When the alarm is triggered, the system will sound a warning			Human voice or buzzer alarm can be adjusted

3D AVM (for Commercial Vehicle)

KAV-G1CV

3D AVM utilizes 4 to 8 wide-angled cameras mounted around the field of view to collect multi-channel video images that are then used to process a 360-degree aerial view around the vehicle. The central control display allows the driver to view information regarding road conditions thus allowing the driver to easily park the vehicle and reducing the probability of accidents.

Left-View Camera

Rear-View Camera

Front-View Camera

Monitor

Right-View Camera

Host Computer

Parking Sensors

Get On/Off Image

Extended Access

Active Warning Signal

3D Multi-Angle	Around View Recording	Low Speed Motion Detection	8-Channel Video Input
3D Multi-Angle imaging has a wide field of view, unlimited viewing angles, eliminates blind spots, and automatically switches the perspective through the body signal.	Around View Recording supports real-time recording of road conditions around the car for playback. It features support for a 256G memory card, automatic loop recording, and video playback.	Low Speed Motion Detection allows the vehicle, when parked or below 20KM/h, to automatically detect moving objects within range and issue an alarm to indicate to the driver to pay attention to the surrounding road conditions.	8-Channel Video Input supports 6-way picture panorama stitching up to 22 meters and access to the front/middle door image monitoring simultaneously.

Specifications

3D-360 Host Computer		Camera	
CPU	NXP I.MX6(ARM Cortex-A9) 1.0GHz	Sensor Dimension	1/3 inch
RAM	2×512MB DDR3	SNR	46.5 dB
Flash Memory	4GB eMMC	Illuminance	13.2 V/lux.sec
Operating Voltage	9-36V	Dynamic Range	60.7 dB
Operating Current	600mA以下(12V)	Image Format	PAL/NTSC
Operating Temp.	-30℃~+85℃ -22°F~+185°F	Resolution	720 × 576
Operating Power	7.2W	Video Output	CVBS/AHD
EMC	Meet with ISO 7637	Matching Impedance	75 Ω
EMI	Meet with CISPR25-2008 level 3	Protection Rating	IP67
EMS	Meet with GB/T 17626.3-2006 level 3	Viewing Angle	180°(Typical)
ESD	Meet with GB/T 19951-2005 level 3		

3D AVM (for Off-highway Vehicle)

KAV-G2CE

Specifications

AVM

360°Seamless Stitching	Seamless stitching of panoramic fusion map
Dual Image Display	Single view and panorama view can be displayed at the same time
2D/3D Switchable	Front view, rear view, and panorama support 2D/3D image switching
Driving Angle Switching	Automatically switches view angle according to driving direction
	Automatically displays the front view and the reverse view when moving forward or backward
	Automatically displays the left side view and the right view when moving left or right
Recording DVR	Support 4-way camera to record at the same time, support segment storage; video segment storage time can be set, cycle recording

Camera

Camera Sensor	ASX340CS
Sensor Dimension	1/3 inch
Illuminance	1 Lux@60IRE
Video Output	CVBS/AHD
Waterproofing Grade	IP67
Standard View	180°(Typical)

Host Computer

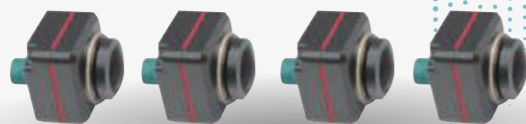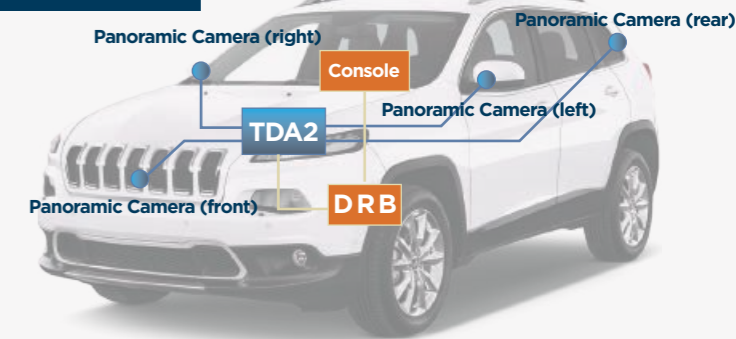|	
CPU	NXP I.MX6 ARM Cortex-A9
Flash Memory	2×512MB DDR3
Operating Voltage	9V-36V
Operating Current	Below 600mA（12V）
Operating Temp.	-30°C-+85°C -22°F-+185°F
Operating Power	7.2W
EMC	Meet with ISO 7637
EMI	Meet with CISPR25-2008 level3
EMS	Meet with GB/T 17626.3-2006 level3
ESD	Meet with GB/T 19951-2005 level3

3D AVM (for Passager Vehicle)

KAV-G3PV

"3D AVM is an image-based driving assistance system with more than 4 wide-angled cameras mounted around the surrounding body (front, back, left, and right) of the automobile. 3D AVM works by capturing an image within a few meters of the body and then displays that image from an aerial view to the driver on the interior display. It allows the driver to determine the relative position between itself and the surrounding area as well as obstacles when driving. In addition to the left and right camera, the front glass camera or the DMS camera can be amplified to achieve more functions of ADAS, such as LDW and BSD.
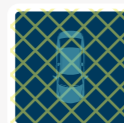
System Frame

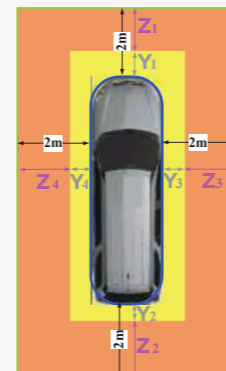Panoramic Camera (right)

Console

Panoramic Camera (rear)

Panoramic Camera (left)

TDA2

DRB

Panoramic Camera (front)

MOD   CTA   DOA   See-Through View   APA

Visual Range

360°AVM Specification

Front Side: Z1; Rear Side: Z2

Z1,Z2≧170cm (depending on models)

Left Side: Z3; Right Side: Z4

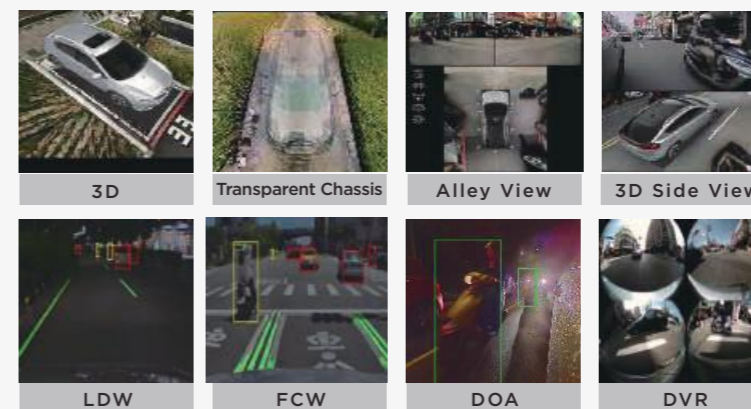Z3, Z4≧195cm(depending on models)

Blind Spot Specification

Front Side: +Y1; Rear Side: +Y2

Y1, Y2≤30cm(depending on models)

Left Side: +Y3; Right Side: +Y4

Y3, Y4≤5cm(depending on models)

Visual Function

3D	Transparent Chassis	Alley View	3D Side View
LDW	FCW	DOA	DVR

Product Specifications

Around View Implementation	Surround views: 3D and 2D
2D AVM Range	2-2.5m around the vehicle
Display Configuration	single view or dual view
Other Display Configuration	1. Front: Alley View/ Rear: Corner View
	2. Perimeter Scan
Transparent Chassis	Displays 2D view when car moves forward and backward
Optional	BSD, DMS, MOD

Panoramic Camera Specifications

Image Sensing Component	1/4" Color CMOS Sensor
Pixel	>1,000,000 pixels
SNR	≥40dB
Voltage	12V
Min. Illumination	0.5lux@50 IRE
Working Temp.	-40°C~85°C -40°F-+185°F
Resolution	≥600TV Line
Dimension	IP 69K
Size	24(W)×24(H)×24.85(D)mm
Aperture	F2.0
Horizontal View Angle	180°（Typical）
Vertical View Angle	124°（Typical）
Diagonal View Angle	>200°

Auto Parking Assist / Automated Valet Parking
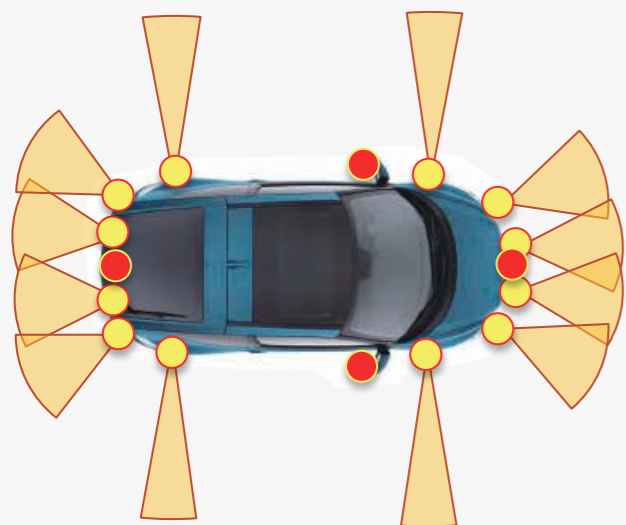
- 🔴 **HD Fisheye Camera ×4**
- 🟡 **Ultrasonic Radar ×12**

3D AVM + **Ultrasonic**

Parking Block Detection	Gridlines Detection	Oblique Space

Ground Lock Detection	Space Feature Detection	Space Number Detection

Specifications

Ambient Illumination	≥5 Lux	
Speed	Parking Space Searching Process≤20km/h	
	Parking Process≤5km/h	
Parking Space Searching Distance	0.3-4.0m	
Parking Space Searching Direction	Can be left and right at the same time (by utilizing the left and right camera)	
Axle and Parking Space Angle	≤±15°	

Searchable Parking Space Size (Parallelogram)		Width	Angle Between the Adjacent Sides
	Horizontal Space	4.7m-7.0m	90°
	Vertical Space	2.2m-3.6m	90°
	Oblique Space	2.2m-3.6m	≥45°

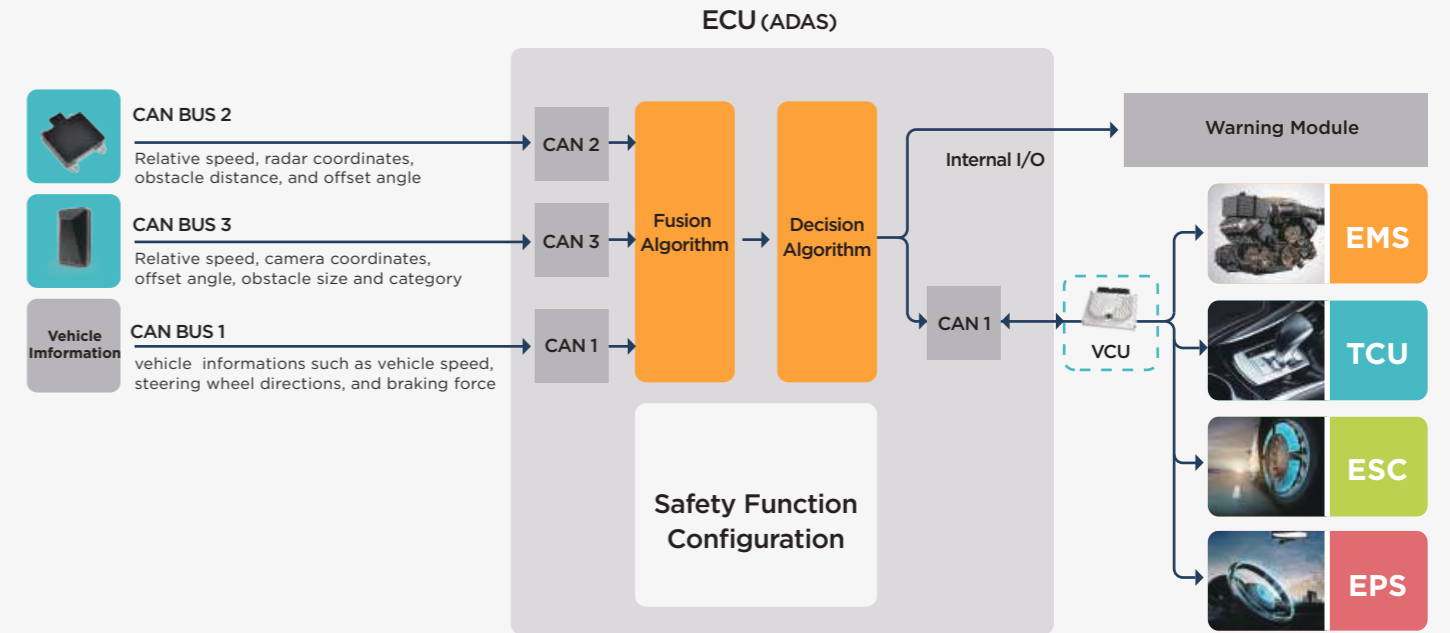|	
Support Detecting Parking Space Lines	Gridlines Color: White, Yellow, Red, and Blue
	Gridlines Width: 5cm-15cm
	Gridlines Length: ≥30cm
Vehicle Positioning Accuracy	≤15cm
Parking Space	Vertical/Oblique: Space Width ≥ Vehicle Width +0.6m
	Horizontal: Space Width ≥ Vehicle Width +max(0.7m,0.15*vehicle length)
Recognizable Obstacle Type	Vehicle, traffic cone, parking block, ground lock (stand up and down); other obstacles can be detected, not classified

Visual and Radar Fusion System

AEB / FCW / LDW

According to JT/T 1242-2019, Performance Requirements and Test Procedures for Automatic Emergency Braking System of Operating Vehicles, the maximum detection distance of the target vehicle shall be not less than 150m; the maximum detection distance of pedestrians shall be not less than 60m. At present, due to the limitations of its own design, a single sensor cannot meet the accurate detection and tracking of dynamic obstacles in complex environments. The fusion system complements the camera's close-range inspection target information and long-range radar detection distance by integrating the data of the two sensors to extract more accurate information such as obstacle position, speed, and size category to provide ideal data for decision algorithms.

	Visual System	Radar System	Fusion System
Ranging Accuracy	Depends on the distance	Depends on the distance	**High-performance positioning under conditions of large viewing angles with full distance**
Light and Weather	Outstanding	Little impact	**Classification and processing of complex objects**
Lane Lines and Road Signs	Applicable	N/A	
Accuracy of Pedestrian Identification	High	Low	**Complementary advantages(make up each other)**
Detection Accuracy of Relative Position and Distance of Obstacles	Low	High	
Obstacle Classification	Applicable	N/A	
Cost	Low	Average	**Cost-effective with flexible choice**

Fusion System Framework

Visual and Radar Fusion System Parameters

Obstacle Type	Motor vehicles, non-motor vehicles, and pedestrians
Weather and Roads Conditions	Applicable environment: atmospheric temperature -40 ° - 85 °, ambient wind speed should be less than 5m/s. Applicable road conditions: horizontal, dry, wet, and good adhesion properties of concrete or asphalt pavement.
Curve Adaptability	≤125m Radius of curvature ≤125m
Detection Range	0.5m-200m The minimum detection distance to the vehicle or pedestrian in front should be no more than 2m. The maximum detection distance for pedestrians should be no less than 60 m. The maximum detection distance for pedestrians should be no less than 60 m.
Detection Rate	≥96%
Accuracy Rate	≥96%
Lateral Detection Angles of Obstacles at Close Distance	≥52°
Accuracy of Obstacle Identification at Longitudinal Distance	±0.15m
Longitudinal Speed Accuracy of the Vehicle Relative to the Obstacle	±0.3m/s
The Horizontal Detection Distance of the Vehicle	≥3.75m
The Horizontal Detection Distance for Pedestrians	≥5m
Fusion Calculation Parameter Output Cycle	50ms
Functional Safety Level	ASIL B

Combination
3D AVM / DMS / FCW / LDW / BSD
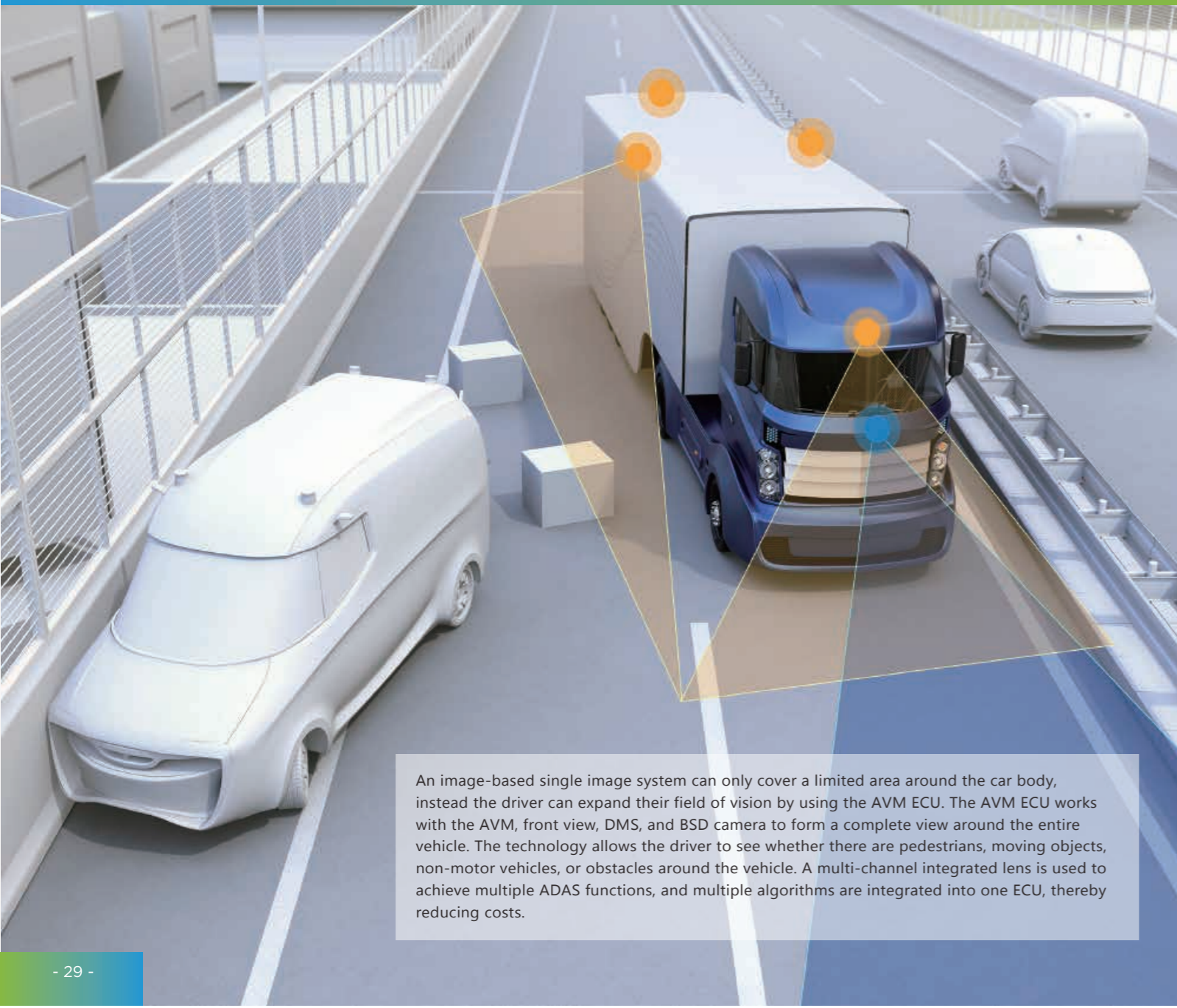
An image-based single image system can only cover a limited area around the car body, instead the driver can expand their field of vision by using the AVM ECU. The AVM ECU works with the AVM, front view, DMS, and BSD camera to form a complete view around the entire vehicle. The technology allows the driver to see whether there are pedestrians, moving objects, non-motor vehicles, or obstacles around the vehicle. A multi-channel integrated lens is used to achieve multiple ADAS functions, and multiple algorithms are integrated into one ECU, thereby reducing costs.

3D AVM (with host computer)

The multi-channel around view cameras show the surroundings of the vehicle on the display

BSD Camera

Under working conditions, the system automatically triggers an alert to the driver of possible collisions and reduces turning Impact on driving behavior in blind spots

Front View Camera

The forward-looking monocular camera detects and identifies roads ahead, vehicles, and issues a warning of possible collisions and lane departures with no driving awareness

DMS Camera

The facial recognition camera recognizes early warning signs of dangerous driving behaviors such as yawning and smoking

Combination of Function

3D AVM

Combination

FCW/LDW
DMS
BSD
FCW/LDW+ DMS
FCW/LDW+ BSD
DMS+BSD
FCW/LDW+ DMS+BSD

# Vehicle Control Unit

（VCU）

VCU is the assembly controller of the new energy vehicle power system which is responsible for coordinating the engine, gearbox, drive motor, power battery, accessories and other components to work together. VCU monitors the control functions of the vehicle, to meet the vehicle power, economy, driving requirements, and to ensure the safety of the vehicle.

EMS — VCU — BMS

TCU — VCU — MCU
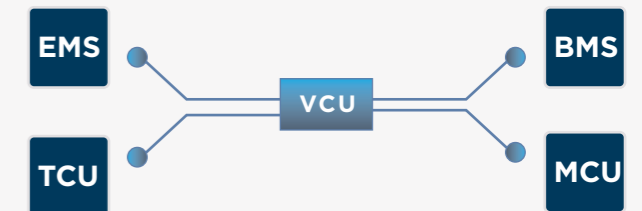
Product Specifications

Master Chip	133MHz infineon TriCore 32 bit
Storage	Flash:1.5MB, RAM: 120KB
Working Temp.	-40°C-105°C -40°F-221°F
Working Voltage	8V-32V
Dormancy	≤1mA
Wake Up	Key/Charge/CAN
Shell	Aluminum alloy box structure, IP67 protection class
Dimensions	192.4(W)x156.4(H)x42(D)mm
Installation Way	Bolted installation
Connector	AMP 121 Pin connector
Digital Input	20 input, Up-down hardware configurable
Frequency of the Input	5 input, 5Hz-1KHz
Analog Input	16 input, 0-5V
Bus Communication	3 high speed CAN, Support extended frames, 1 LIN
Adaptable Automobile Mode	EV, PHEV, HEV, REV, 48V

Hardware Features

- Meets the requirements of ISO16750/7637/11452/10605 automotive electronic environment, reliability, and EMC performance.
- Conforms to ISO26262 standard, functional safety ASIL B level, built-in watchdog, and external security monitoring chip, all output can be disabled.
- 12V and 24V versions support passenger and commercial vehicles.

Software Features

- Software conforms to the AUTOSAR 4.0 architecture and has the ECU and MCU hardware abstraction layer. Integrate CAN, UDS and CCP peer protocol stack, support UDS.
- Universal fault diagnosis, CCP online scrubbing, and calibration.
- Application software adopted in the model develops automatic production code and supported Simulink and Targetlink.
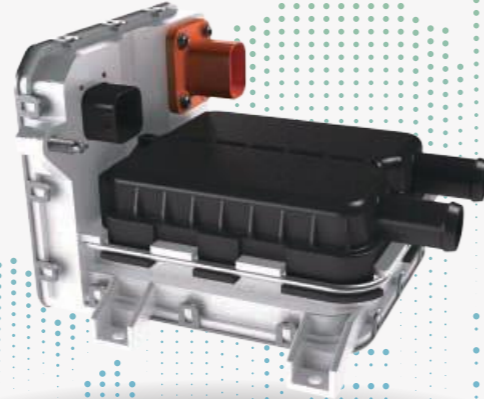
Control the Power System Components of the Vehicle

EMS
Engine Management System

TCU
Transmission Control Unit

BMS
Battery Management System

MCU
Motor Control Unit

PTC Heating Unit

（PHU）

DRIVING THE FUTURE

The PTC Coolant Water Heater is used in pure electric, hybrid, and fuel cell vehicles. It acts as a heat source for air conditioning systems. The overall structure of the product consists of an upper shell, radiator (including PTC heating package), main control board, high-pressure connector, low-pressure connector, and upper shell. We can ensure the safe and stable operation of PTC coolant water heater as the power change will not cause interference to the body system.

Product Specifications

1. More reliable installation：

  A. Use X - ring seal.

  B. The fastening method of cover plate is pin-type fixing, which makes the fixing more compact.

2. The flow channel is designed with wave shape, heating efficiency up to 85%.

3. Supports CAN/LIN communication.

4. Thermostatic control, multiple control modes: water temperature, wind speed, water quantity, water velocity, and power.

5. Update, remote start.

Available for FCEV、EV、PHEV

FCEV

EV

PHEV

For Commercial Vehicles

For Passager Vehicles

Improve performance by heating batteries, motors, and electronic controls.

Provide air heating and heat source for air conditioning system

Product Features

	Commercial Vehicle	Passager Vehicle
Maximum Power	7.5KW±10%	5KW±10%
Storage Temp.	-40°C-+125°C -40°C-+257°F	-40°C-+125°C -40°C-+257°F
Operating Temp.	-40°C-+120°C -40°C-+248°F	-40°C-+120°C -40°C-+248°F
Coolant Temp.	-40°C-+90°C -40°C-+194°F	-40°C-+90°C -40°C-+194°F
Protocol	CAN/LIN	CAN/LIN
Nominal Voltage	24V(low-voltage end), 600V(high-voltage end)	12V(low-voltage end), 350V(high-voltage end)
Working Voltage	16V-32V(low-voltage end), 500V-700V(high-voltage end)	9V-16V(low-voltage end), 250V-450V(high-voltage end)
Rated Current	50mA(low-voltage end), 15A(high-voltage end)	50mA(low-voltage end), 15A(high-voltage end)
Insulation Resistance	>50MΩ	>50MΩ
Level of Protection	IP67	IP67
Dimensions	202(W)x187(H)x68(D)mm	160(W)x141(H)x105(D)mm

T-Box
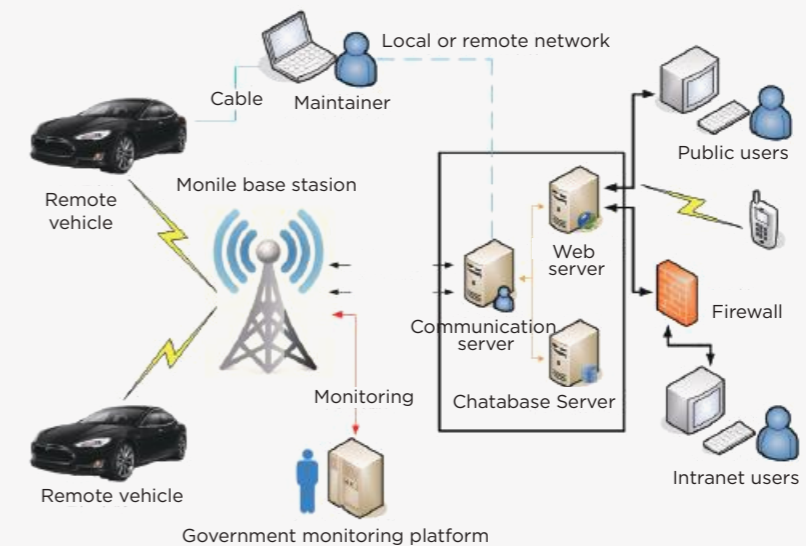
T-Box is an on-board terminal device for remote monitoring of new energy vehicles. T-Box collects bus data and uploads it to the server together with positioning, date, and time information. T-Box can carry out remote statistics, analysis of vehicle operation, and technical data. T-Box supports remote management and control of vehicles through the server.

Product Specifications

Master Chip	Freescale MPC series 32-bit
Working Temp.	-40℃~+85℃ -40°F~+185°F
Working Voltage	8V-32V
Bus Communication	3-way high speed CAN, support extended frames
Local Storage	>32GB,>7days
Long-distance Transportation	Up 5.76Mb/s, down 7.2Mb/s
Positional Accuracy	Precision 5m, cold start 120s, hot start 10s
Date and Time	Local within 24 hours (±5s), support server synchronization
Long-distance Transportation	Support for remote server registration, activation and administration
Long-range Control	Support remote program writing and vehicle control
Abnormal Work	Upload data > 10 minutes after main power cut off
Vehicle Support	New energy 12V passenger vehicles and 24V commercial vehicles

Automobile Information Collection   Remote Analysis   Remote Management Control

Local or remote network

Cable   Maintainer

Public users

Monile base stasion

Remote vehicle

Web server

Communication server

Firewall

Monitoring

Chatabase Server

Remote vehicle

Intranet users

Government monitoring platform

R&D Team

Dongguan(HQ)

Taiwan

Wuhan

R&D Team in HQ(Dongguan)

Up to 500 R&D personnel

Our headquarters has established a high performing R&D team with a professional background. The up to 20% of our team members have achieved a master's or doctoral degree. Having the leading innovation ability in software design and algorithm, KUS independently developed radar, monocular camera, 3D AVM, and other projects.

R&D Team in Taiwan

Up to 100 R&D personnel

Our Taiwan R&D team focuses on antenna design, radar signal processing, software system development, and hardware verification. Taiwan has built radar RF chambers and other testing sites to verify radar hardware performance.
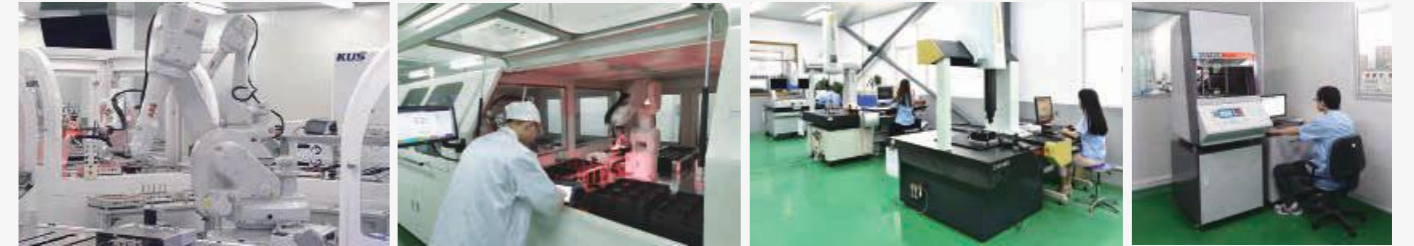

R&D Team in Wuhan

Up to 50 R&D personnel

Our Wuhan R&D team is responsible for the visual image collection, visual AI algorithms(LDW,DMS,3D AVM,FCW,BSD). and radar algorithms. Wuhan is committed to creating smarter and more accurate AI algorithms.

Ability/Certificate

Through decades of rapid development and continuous investment, KUS has fostered advanced production processes and equipment with more than 95% of the key auto parts having been self-made. In recent years, KUS has introduced intelligent production lines and built many high-quality electronic processing workshops which continued to maintain leading manufacturing levels. At present, KUS has achieved qualification certifications such as IATF16949, ISO26262, ISO14001, CE, and PED+AD2000.

KUS's laboratory is certified by ISO 17025, which is accredited by CNAS and CNCA and is recognized by OEM's. The process in receiving the accreditation consists of 19 elements and 104 points over a 6-month period. The accreditation allows KUS to be a qualified third party lab issuing independent test reports.

Our Users