



Ver.
2021

TOTAL SOLUTION PROVIDER
SMARTLINE Co., Ltd.

SWITCH SOLUTIONS

- Solid State Vehicle Control Unit

- Solid State VCU



VM - Series

Electronic Switching Product VM-Series

주요 사양

Voltage	12VDC / 24VDC
Function	Momentary, double push, long push
Unique Features	Bolt mounting Snap in mounting SAE J1939 CAN 2.0b IP69 UP to 3 LED / each
Actuator Type	Rockers – all Contura styles (No locking feature available)



SEALING PROTECTION
Fully sealed IP68 above-panel and below-panel (when connected)



CUSTOMIZABLE ICONS
Choose from our extensive library of legends, or customize your own.

ROCKERS
Variety of V-Series Contura® actuator styles



SNAP-IN MOUNTING
For fast, easy assembly.

6 PIN CONNECTOR
Mates to the Deutsch DT-Series Connector.

4 PIN CONNECTOR
Mates to the Deutsch DT-Series Connector. Can be used to Daisy-chain multiple VM-Series.

CKP - Series

Electronic Switching Product CKP-Series

주요 사양

Voltage	8 to 32V operating
Function	Momentary, double push, long push
Unique Features	Bolt mounting Snap in mounting SAE J1939 CAN 2.0b IP69 UP to 3 LED / each
Typical Applications	Truck & bus Construction Agriculture & others



LOW PROFILE DESIGN
0.57 inch [14.48 mm] thickness (see dimensional specifications for more detail)



SEALING PROTECTION
Fully sealed IP6k9k above-panel

LED FUNCTION LIGHTS
One, two, or three LED Function Lights per button. Colors include Amber, Green, Red or Blue.

CUSTOMIZABLE ICONS
Choose from our standard library of icons or use custom icons.



SEALING PROTECTION
Fully sealed IP6k8 below-panel when connected

CONNECTOR
Mates to the Deutsch DT-Series Connector

10-32 MOUNTING STUDS (2x)
Max tightening torque 30 inch lbs.

CKJ - Series

Jog Switch CKJ-Series (I-Drive)

주요 사양

Voltage	12/24VDC
Dimension	81 x 110mm
Function	Rotary, Push Button, Joystick
Unique Features	J1939 CAN 2.0b LED Indicator IP67



CLTM12-S - Series

Solid State Load Controller (I/O Module)

주요 사양

Voltage	8 to 32V operating
Dimension	104.57 x 114.98 x 33.81mm
Function	J1939 CAN 2.0b
Unique Features	IP69K 8-10Amps & 4-5Amps Reverse polarity protected Short circuit & over current protected



Customer Solutions

Carling Technologies



Turn Signal Lever



V-Charger



LW-Series
(Washer)



LD-Series
(Dimmer)



LMR-Series (Mirror)



Cruise Control



Horn Control



Light Control Module



HVAC Motor Controller



EPB (Electric Parking Brake)
Auto Hold Switch

ADAS SOLUTIONS

● AVM & RADAR

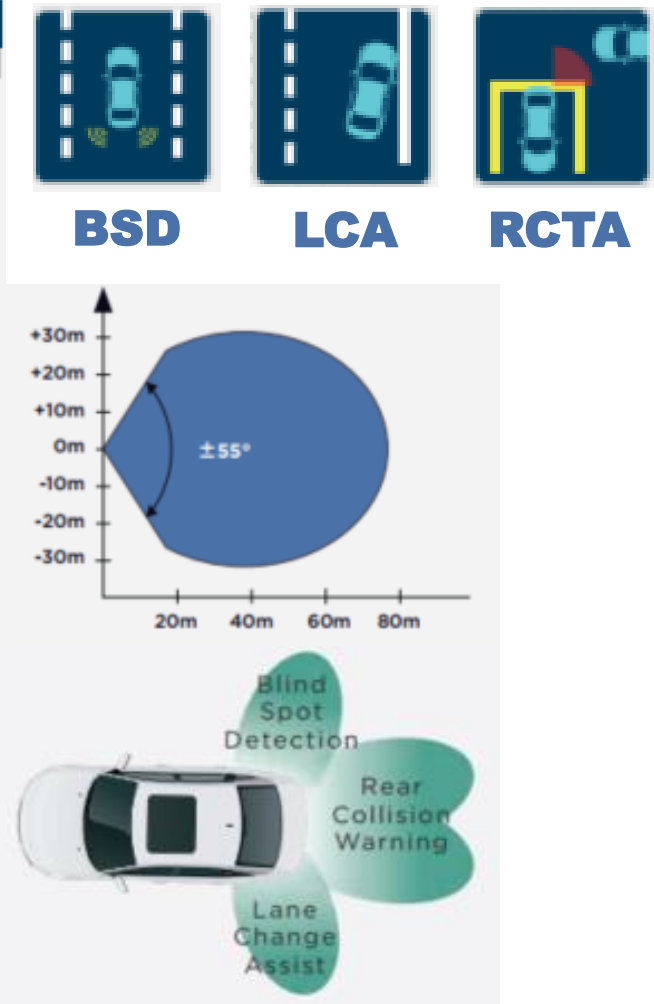


77GHz BSD Millimeter Wave Radar

KUS ADAS System, 77GHz BSD Millimeter Wave Radar

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°C~+85°C
Storage temp.	-40°C~+95°C	-40°C~+90°C
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



Monocular Camera and DMS Fusion Scheme

KUS ADAS System, Monocular Camera and DMS Fusion Scheme

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

KUS ADAS System, 3D AVM

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
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



PTC Heating Unit

KUS ADAS System, PTC Heating Unit

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




Product Features


	for Commercial Vehicle	for Passenger Vehicle
		
Maximum Power	7.5KW±10%	5KW±10%
Storage temp.	-40°C~+125°C	-40°C~+125°C
Operating temp.	-40°C~+120°C	-40°C~+120°C
Coolant temp.	-40°C~+90°C	-40°C~+90°C
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

For Commercial Vehicles





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



Provide air heating and heat source for air conditioning system