Short/Medium
Range Radar Sensor

Reversing Detection System

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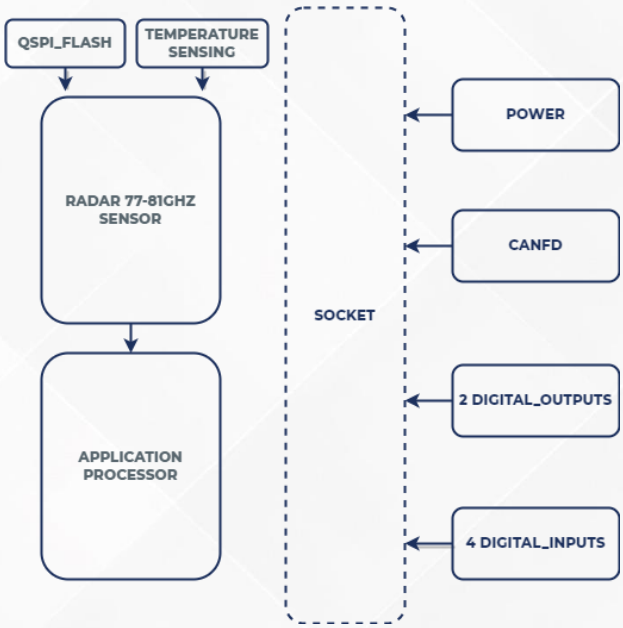
Product Overview

SAYKAL Radar Sensor; It is an innovative, robust, and reliable electronic sensing unit developed for the automotive industry and containing new-generation technologies. It is customized for out-of-cabin applications. AP003 is a high-performance short-range radar sensor operating in the 76-81 GHz band for various premium backward & forward-looking applications. When the reversing maneuver poses a danger, the Reversing Detection System comes to the aid of the driver. While reversing, it creates a warning according to the distance for pedestrians or obstacles in the area where there is a risk of collision. It allows you to manage risk and even create braking aids by variable warnings with adjustable distances.

Functional Block Diagram



Applications

- Blind Spot Detection – BSD
- Reversing Detection System – RDS
- Moving Off Information System – MOIS
- Rear Pre-Crash – RPC
- Frontal Collision Warning System – FCWS
- Automated Parking Assist – ADA
- Rear – Auto Emergency Braking Sensors
- Rear Cross Traffic Alert – RCTA
- Pedestrian Bike Detection
- Safe Exit Assistant – SEA

Hardware Features

- 7V – 40V DC / 4.5A
- Reverse Connection Protection AUTOMOTIVE
- 16 Megabit extended storage / 64k FRAM Optimal Reliability
- RS485
- CAN / FDCAN
- Temperature Sensing
- 2 x Output & 4 x Input

Software Features

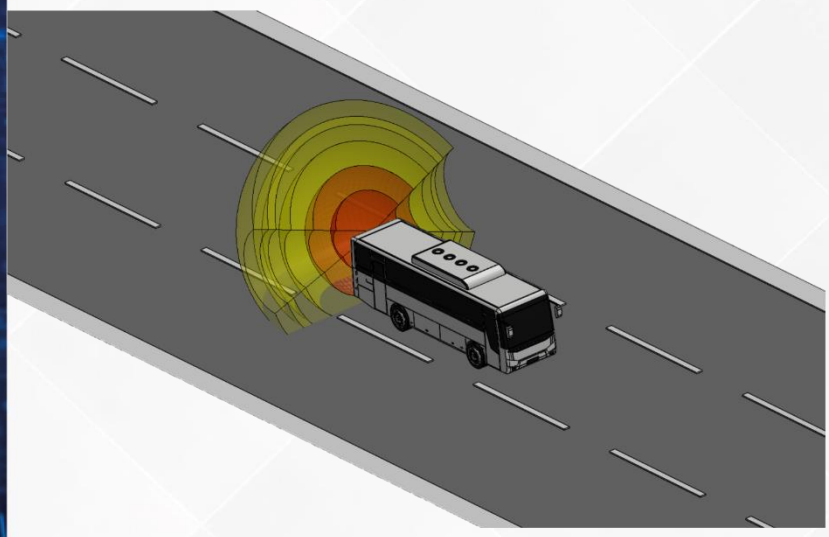
- Firmware Update with CAN Bus
- High Precision
- Object Detection and Tracking
- Configurable Azimuth FOV up to 140°
- Configurable radar scanning zone up to 30m
- Configurable Sensor position and tilt
- Detection of Position,
  Relative Speed,
  Direction of Motion,
  Ground Speed

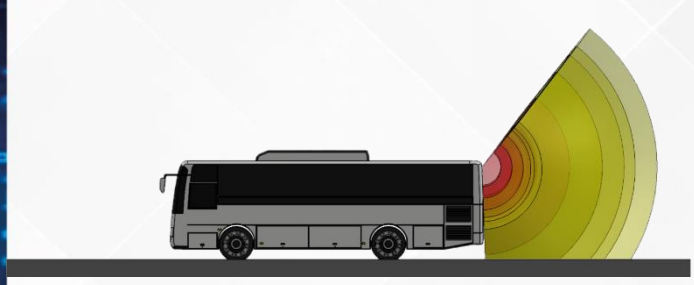
Typical Application Features – RDS

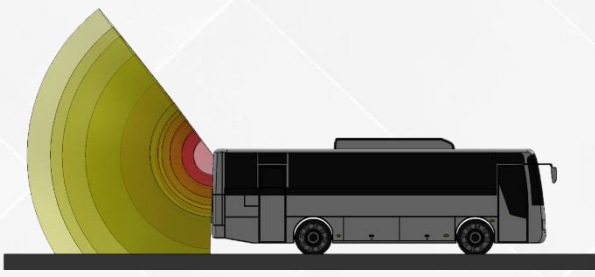
- RDS calibrates itself by identifying the surface on placed
- Detects dynamic and static objects
- Classifies, and tracks detected objects according to radar cross-sectional areas
- PC GUI connection
    - User configuration
    - Fault diagnostic
- The system powers up when the ignition is cycled on
- Optional Input-Output controller; blind spot detection alerts (visual and/or audible)
- Capability of CAN-Bus features

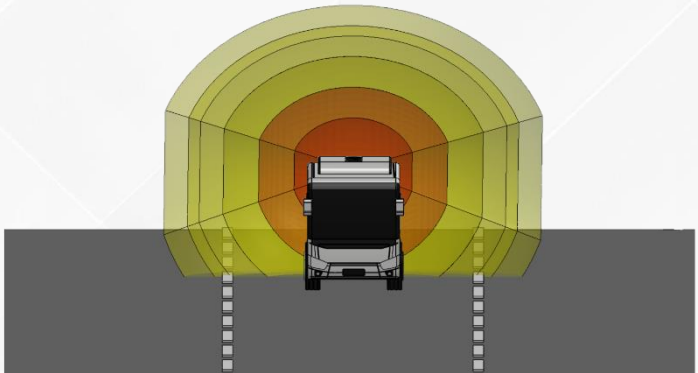
Application Example on Vehicle

- RDS, 140° field of view and reach of up to 30m adjustable detection zone.
- Moreover, Precautions can be taken against high obstacles by placing an RDS product on the bus



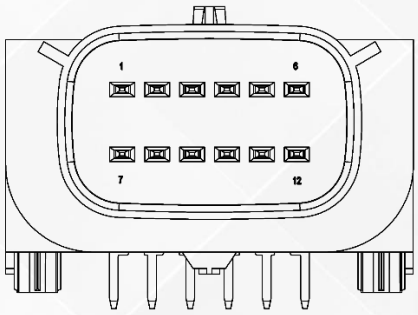






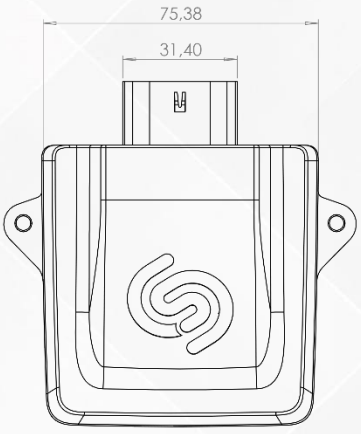
Pin Out / Pin Names and Descriptions

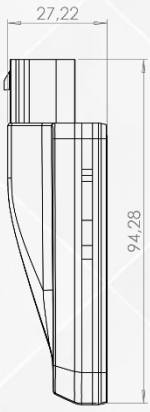
PIN	NAME	DESCRIPTION
1	DC_IN	Supply Voltage, 7V / 40V
2	IN1	9V / 36V DC Input
3	IN2	9V / 36V DC Input
4	IN3	9V / 36V DC Input
5	IN4	9V / 36V DC Input
6	CANFD High	Flexible Controller Area Network
7	CANFD Low	Flexible Controller Area Network
8	Reserved	Serial Communication
9	Reserved	Serial Communication
10	D_OUT2	Low Side Switch
11	D_OUT1	Low Side Switch
12	Chassis Ground	Chassis Ground

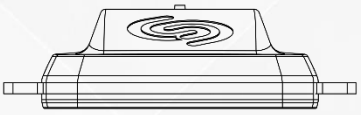


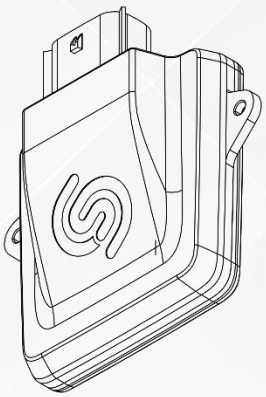
MX120G

Package Outline and Branding Drawing









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