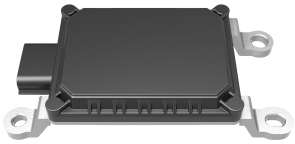
MR76 77GHz Forward Anti-collision Radar



MR76

MR76 is a compact 77GHz front anti-collision radar developed by Hunan Nanoradar Science and Technology Co., Ltd. It can accurately remind drivers of obstacles in front of commercial vehicles by transmitting two-beam fan-shaped microwaves to the front, detecting the reflection of microwaves, judging whether there are obstacles in front, and feedback the relative distance between obstacles and radar.This product adopts double beam design, 0.2~170m measurement distance, small size, high sensitivity, stable performance, light weight, easy to integrate, product performance has been recognized by many partners.

The products are applied to the low-speed special vehicles such as unmanned sweeper, unmanned logistics vehicle, engineering vehicle, mining vehicle and so on..

Product Features

Accurate, Effective, Safe

- **Middle range and short range modes detection: middle range beam for long distance object detection to realize early warning; close range beam detection covers a wide range to reduce collision risk in close range.**
- **Safe: Max detect range 170m, assist drivers to make judgments in advance to ensure the safety of vehicles and personnel.**
- **Muti-target Detection: Support detecting and tracking of 100 and targets at the same time and ≤64 target data synchronization outputs, give the most accurate detection result in the shortest time.**

All Day & All Weather Protection

- **All weather: 7 × 24h real-time protection in all weather, adaptable to bad weather such as rain, snow, fog, haze, sand and dust, which minimize false and eliminate false alarms at most.**
- **High Protection Class: Radar IP67, high waterproof, dust proof, shock resistance performance. Able to work under various extreme environmental conditions.**
- **High Accuracy: Use FFT, target cluster, tracking filter and other advanced digital signal processing technology, double beam coverage.**

High Efficiency,Reliability,Good compatibility

- **High Efficiency: Working in 77GHz frequency band for target detection, featured with lower-power consumption FMCW modulation technology, the radar performs well even in harsh environments such as rain and snow etc.**
- **Reliability: The radar receive and transmit antenna is of wide beam in azimuth angle design, the azimuth beam width is about 90° (- 16 db), which can increase the radar detection range; the elevation beam is designed narrow as 14° (- 6 db) to avoid ground clutter during driving.**
- **Simple: Support CAN interface, rate up to 500kbit/s, stable and reliable, help users to achieve muti-target tracking.**
- **Highly Integrated : The radar adopts advanced signal processing strategy and simultaneously completes multiple tasks such as target detection, trajectory tracking, target data output on single chip.**
- **Anti-interface: The transceiver antenna adopts Taylor algorithm to synthesize the antenna pattern with low lobe synthesis.The antenna low lobe synthesis design makes the radar not easy to be interfered by ground clutter and the target outside the main beam, and can significantly improve the SNR when radar detect target.**

Small, Light Weight, Low Power

- **Small size：100×57×16.5mm size, adopts the international newest integrated single chip FMCW radar sensor, the devices with low power consumption RFCMOS process for construction, and at the same time in minimal package integrated RF transceiver channel, base-band signal sampling, radar digital signal processing platform, etc., greatly reduce the volume of radar system.**
- **Light Weight：Light weight, easy to be integrated.**
- **Low Power： 2.5W, +6V～32V wide voltage， adapt to different environment.**

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Specification

Measuring performance		**to natural targets (non-reflector targets)**
Modulation		FMCW
Distance Range		0.20-170m (short、middle mode，±45°)
Distance Resolution	spot target, none tracking	0.68m，ability to separate targets and objects 1.5…2 x resolution
Distance Accuracy	spot target, none tracking	±0.10m
FOV		±45°@-16dB
Angle Resolution	spot target, none tracking	±0.1°(middle mode), ±0.3°@0°、 ±1°@±45°(short mode)
Velocity Range		-200km/h...+200km/h (-leaving object，+approximation)
Velocity Resolution	spot target, none tracking	±1.23km/h
Velocity Accuracy	spot target, none tracking	±0.1km/h
Antenna Channels		2TX/4RX=8 channels=2TX/4RX(middle)、2TX/4RX(short)
Cycle Time		60 ms
Elevation beam	-6dB	14°
Azimuth beam	-6dB	18°
MR76 Dual beams (mid-range and short-range) work simultaneously and can not be switched. The detected targets are output in order of distance or RCS. By default, they are output by distance from near to far.		
Operation Condition		
Transmit frequency	ETSI&FCC	76…77GHz
Transmit capacity	average/peak EIRP	29.8dBm
Power		+6.0V~32VDC
Consumption		2.5W
Working Temp		-40℃…+85℃
Storage Temp		-40℃…+90℃
Protection class		IP67
Interface		
Interface		1xCAN- High speed 500kbit/s
Cover		
Dimension	W*L*H	140*70*35mm
Weight		200g
Material	front/back	PBT+GF30 for front shell，Dia casting aluminum for back shell.