MR76S 77GHz Traffic Flow Statistics Radar

MR76S

MR76S is the latest one compact type 77GHz frequency channel millimeter wave radar which researched and developed by Nanoradar. MR76S detect the reflection situation of millimeter wave through forward launch millimeter wave, feedback the relative distance, speed and angle information between obstacles and radar, able to real time detect and trace the big, small vehicles, e-bike and other information on road.

This product adopt DBF digit wave beam combine, MIMO invented hold diameter, far and near wave beam-forming and other multiply items advanced technology, realize 1.2-300m measure distance, support to detect 128 pieces objects, small and exquisite body, high sensitivity, stable performance, light weight and easy to integrate.

This product able to be applied in the application scenes such as high speed flow monitor, crossing monitor, cross road income vehicle test, around boundary guard and others.

Product characteristics

Accurate, valid and safe

- **Far and near distance double mould detect:** middle distance wave beam detect distance at far, able to realize that far distance object discriminate; near wave beam detect range at wide, able to cover the objects on 4-8 lanes
- **Valid:** the farthest able to detect the vehicle object at 300m distance, realize that quickly discriminate vehicle model and quickly discriminate object vehicle lane
- **Multiply objects**: the capacity that support detect and trace max 256 pieces objects at the same time, the radar support that syn output ≤128 pieces objects at the same time, provide most accurate detect results in the shortest time

Whole weather and whole day working

- **Whole weather:** whole weather real time protection, suitable to various bad weather such as raining, snow, fog, haze, sand and others, max stop omit reporting and eliminate error report
- **High protection grade:** able to realize radar IP67 protection, higher water proof and dust proof grade, anti vibration and shake able to normally work under various extreme environment condition
- **High accuracy rate:** utilize multiply types advanced digit signal treatment technology such as FFT, object gather tracing, etc, double beams cover, middle distance wave beam detect distance at far, able to realize long distance detect; short distance wave beam detect range at wide, able to cover the objects on 4-8 lanes

High efficiency, reliable and high integration

- **High efficiency:** 77GHz frequency channel detect, low power consumption FMCW modulate technology, able to meet the operating requirements under the bad environment such as rain and snow

- **Reliable:** design radar retrieve and launch antenna as wide wave beam at azimuth, width of azimuth-6dB wave beam about 22°, width of azimuth-16dB wave beam about 90°, able to increase radar detect range; design pitch plane at narrow wave beam, width of pitch plane -6dB about 14°
- **Simple:** able to support TTL joggle according to customer requirements, among, TTL joggle Baud rate support 921600, stable and reliable, realize multiply objects tracing
- **High integrate grade:** this product adopt advanced signal treatment policies, finish multiply tasks such as object detect, locus tracing, object output at the same time in single chip.
- **Anti disturb:** retrieve and launch antenna adopt Taylor algorithm to process low pair petal synthesize at antenna direction diagram. Designed antenna low pair petal make radar not be disturbed by ground varied wave and objects out of main wave beam, able to notably improve signal-noise ratio of radar detected objects

Small volume, light weight and low power consumption

- **Small volume:** this product adopt the international most advanced integrate type single chip FMCW radar sensor, this apparatus adopt low power consumption RFCMOS technology to construct, and integrated the radio frequency retrieve and launch channel, base band signal sampling, radar digit signal treatment platform and others in super small seal, greatly reduced the radar system volume
- **Light weight:** portable weight, easy to integrate
- **Low power:** 2.5W power, +9V～16V wide voltage, adapt various environment

技术规格

Measure performance	Common target (non reflex object)	
Modulate method		FMCW
Distance measure range		1.2~300m@0° & 1.2-200m@±11° for LRR 1.2~50m@±45° for MRR
Distance measure resolution ratio	Point target, non tracing	1.2m (able to discriminate two objects under 1.5 to 2 times resolution condition)
Distance measure precision	Point target, non tracing	±0.6m
Position wave beam	-6dB(F.o.V)	90° for MRR 22° for LRR
Pitch wave beam	-6dB(F.o.V)	13°
Angle precision	Point target, non tracing	0.2°@±11° 1°@±45°
Speed range		-200km/h...+250km/h (+means far away target, - means close to target)
Speed resolution	Point target, non tracing	0.43km/h
Speed precision	Point target, non tracing	±0.36km/h
Circling period		About 80ms
Antenna passageway quantity		3TX/4RX=12 passageways
Operating conditions		
Radar launch frequency	Follow ETSI&FCC	76…77GHz
Transmit capacity	Average/peak value EIRP	29.8dBm
Power supply		12V DC
Power consumption	Under 12V/24V	2.5W
Operating temperature		-40℃…+70℃
Storage temperature		-40℃…+85℃
Protection grade		IP67
Joggle types		
Joggles	The max support 8 pieces ID	1xCAN- high speed 500kbit/s
Shell		
Size	Length*width*height (mm)	137*75*20
Weight	Without harness	124g
Materials	Shell front end/rear cover	PBT front shell+glass fiber, press casting aluminum bottom shell