SRR 208 Short Range Radar Sensor

Safe - reliable - good performance - small design
Continental offers a new type of radar sensor, the **SRR 208-21**, as a possible adaption in different application.

Measuring procedure

The rugged **SRR 208-21** sensor from Continental measures independent the distance and velocity (Doppler's principle) to objects without reflector in one measuring cycle due basis of PCM (Pulse Compression Modulation) with very fast ramps, with a real time scanning of app. 33/sec.. A special feature of the device is the simultaneously measurement of distances up to 50m, relative velocity and the angle relation between two or several objects.

Typical areas of application

- Simple anti-collision protection for vehicles of every description (particul. autonomous)
- Headway control for mid distance field (vehicles of every description, particularly autonomous)
- Area monitoring system for mid field, e.g. of hazardous or non-accessible areas
- All around recognition for vehicles and different other objects
- Object detection, e.g. in confusing or unclear areas
- Unremarkable object detection by affix a protection cover before it

Advantages

- **Fast and safe:** The **SRR 208-21** dispels with the apparent contradiction between excellent great measuring performance and a high degree of operational safety. The rugged **SRR 208-21** radar sensor is capable of determining the distance to an object in real time scanning and dependent on the driving speed a possible risk of collision.
- **Reliable:** The **SRR 208-21** radar sensor is fail-safe and able to recognize troubles of the Sensor and sensor environment and display it automatically.
- **Small design and good performance:** By using a radar technology with less complex measuring principle and the development and mass production in automotive supply industry, the design is kept small in spite of a good performance of the **SRR 208**.

SRR 208-21 Short Range Radar 24 GHz - Data Sheet

Measuring performance	Comment	to natural targets (non-reflector targets)
Distance range		1 ...50 m (<1 m no accurate distance measuring)
Resolution distance measuring		1.0 m for point targets; target discrimination = 2 x resolution
Accuracy distance measuring		0.20 m for point targets
Azimuth angle augmentation	(field of view FoV)	-20°...+20° up to -75°...+75° (see accuracy angle)
Elevation angle augmentation	(field of view FoV)	-6°...+6° for -6 dB points
Resolution angle measuring	selectivity / separation effect	14°...18° (14° at 0° azimuth) - targets only with different angle - amplitude difference max 6 dB, otherwise smaller targets will be suppressed
Accuracy angle measuring		-2°...+2° at ±20°(FoV), -4°...+4° at ±60°, -5°...+5° at ±75°
Speed measurement range		-146 km/h...+146 km/h (- leaving objects.+ approximation)
Speed measurement resolution		1.1 km/h for point targets; target discrimination = 2 x resol.
Speed measurement accuracy		0.2 km/h for point targets
Cycle time / transmission cycle		>= 33 ms (typ. 38 ms) / Cluster every 66 ms, Tracks 33 ms
Planar antenna beams - process	receiver / transmitter	4 / 2 - digital beam forming with 16 beams

Operating conditions	Comment	to natural targets (non-reflector targets)
Radar operating frequency band		24.05..24.25 GHz (ISM band)
Transmission capacity	output power	app. 18 mW = <12.7 dBm at 200 MHz
Mains power supply	typ. 12 V DC	+9.0 V...16 V DC full operation, >+16 V DC function-permitting (Power Save Mode) >+27 V DC automatic sensor deactivation
Power consumption	at 12 V DC	app. 4.5 W
High system voltage	at 12 V DC	up to +27 V DC without time limit
Operating-/ storage temperature		-40°C...+85°C / -40°C...+105°C
Shock	mechanical	50 g – no mechanical driven components inside
Vibration	mechanical	9,8 m/s^2 10 – 200Hz
Protection rating		IP X9k (high-pressure cleaning), dust, ice-water shock test, salt fog resistant, mixed gas EN 60068-2-60

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Displays and connections	Comment	to natural targets (non-reflector targets)
Monitoring function		self monitoring (fail-safe designed)
Displays		none
Interface		1 x CAN high-speed 500 kbit/s

Housing	Comment	to natural targets (non-reflector targets)
Dimensions / weight	W * H * D (mm) / mass (g)	155 * 131.5 * 26 (115 * 86 * 26 without fixing clamp)/ 295g
Material	housing / cover	PBT-GF30 black colored (Ultradur) / aluminium pressure diecasting (AlMg)

Miscellaneous

Measuring principle (Doppler's principle) in one measuring cycle due basis of FMCW with very fast ramps independent measurement of distance and velocity

Version **SRR 208-2** / sensor for the industry / open protocol for parameterization and communication
Version **SRR 209-2** / sensor high sensitivity / as SRR 208-2, but with app. 20 dB higher sensitivity
Version **SRR 208-2C** / sensor anti-collision / as SRR 208-2, but with anti-collision parameter
Version **SRR 208-21** / sensor combined functions / as SRR 208-2, but with combined functionality

Interfaces: The device is fitted with two CAN bus interfaces as standard. Further interfaces as converter, software adaption, housing and / or hardware adaption are possible on demand and in case of assumption of costs. **The SRR 208** also could be used for complex measuring tasks.

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