



ARS 308 Long Range Radar Sensor

Safe - reliable - robust - very small design

Continental offers a new type of radar sensor, the **ARS 308-21**, as a possible adaptation in different application.

Measuring procedure

The rugged **ARS 308-21** sensor from Continental measures independent the distance and velocity (Doppler's principle) to objects without reflector in one measuring cycle due basis of FMCW (Frequency Modulated Continuous Wave) with very fast ramps, with a real time scanning of 15 / sec.. A special feature of the device is the simultaneously measurement of great distances up to 200m, relative velocity and the angle relation between 2 objects.

Typical areas of application

- › Anti-collision protection for vehicles of every description (particul. autonomous)
- › Headway control also for far range (vehicles of every description, particularly autonomous)
- › Area monitoring system for far range, e.g. of hazardous or non-accessible areas
- › Traffic light approximation recognition, classification of objects (app. 90 single targets)
- › Object detection, e.g. in confusing or unclear areas
- › Unremarkable object detection by affix a protection cover before it

Advantages

- › **Fast and safe:** The **ARS 308** dispels with the apparent contradiction between excellent great Measuring performance and a high degree of operational safety. The rugged **ARS 308** 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 **ARS 308** radar sensor is fail-safe and able to recognize troubles of the sensor and sensor environment and display it automatically.
- › **Robust and very small design:** By using a radar technology with less complex measuring principle and the development and mass production in automotive supply industry, the design is kept very robust and small.

ARS 308-21 Long Range Radar Sensor 77 GHz - Data Sheet

Measuring performance	Comment	to natural targets (non-reflector targets)
Distance range		0.25 ...200 m far field, 0,25... 60 m close-up range
Resolution distance measuring		2 m or > 5.5 km/h (ability to separate targets and objects)
Accuracy distance measuring		0.25 m or 1.5 % \geq 1 m
Azimuth angle augmentation	(field of view FoV)	-8.5°...+8.5° far field, -28°...+28° close-up range
Elevation angle augmentation	(field of view FoV)	4.3° at 6 dBm
Resolution angle measuring		1° far field, 4° close-up range
Accuracy angle measuring		0.1° far field, 1°...2° close-up range
Speed range		-88 km/h...+265 km/h (- leaving objects...+approximation)
Speed resolution		2.76 km/h far field, 5.52 km/h close-up range
Speed accuracy		0.5 km/h far field, 1.0 km/h close-up range
Cycle time		app. 66 ms close and far measurement
Blockage recognition time		\leq 60 s (electro mechanical functions)
Antenna quantity		17 far field, 15 close-up range
Operating conditions	Comment	to natural targets (non-reflector targets)
Radar operating frequency band		76...77 GHz (license industry expected app. 2011)
Transmission capacity	average	<10 mW
Mains power supply	at 12 V DC / 24 V DC	+8.0 V...27 V DC / +8,0 V...34 V DC
Power consumption	at 12 V DC / 24 V DC	7 W at 14 V DC / 7 W at 28 V DC
Power consumption	with heater	maximum 35 W at 14 V / maximum 63 W at 28 V
High system voltage	at 12 V DC	up to 27 V DC without time limit
High system voltage	at 24 V DC	up to 36 V DC 5 min., up to 50 V DC 2 min.
Operating-/ storage temperature		-40°C...+85°C / -50°C...+105°C
Shock	mechanical	50 g
Vibration	mechanical	20 m/s ² peak at 10 Hz / 0.14 m/s ² peak at 1000Hz
Protection rating		IP 6k 9k (dust, high-pressure cleaning) IP 6k7 (10 cm under water), 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	multiple party on 1 CAN bus possible	1 x CAN 1 - high-speed 500 kbit/s multiple party via CAN ID allocation
Housing	Comment	to natural targets (non-reflector targets)
Dimensions / weight	L * W * H (mm) / mass (g)	120 * 90 * 46 / < 500 g
Material	housing / cover	Epoxy resin glass blackcoloured / aluminium Miscellaneous
Miscellaneous		
<p>Measuring principle (Doppler's principle) in one measuring cycle due basis of FMCW with very fast ramps independent measurement of distance and velocity</p> <p>Version ARS 308-2 and -2T / sensor for the industry / open CAN protocol - type -2T with internal termination Version ARS 308-2 / sensor high sensitivity / as ARS 308-2, but with app. 20 dB higher sensitivity Version ARS 308-2C / sensor anti-collision / as ARS 308-2, but with anti-collision parameter Version ARS 308-21 / combined functions / as ARS 308-2, but with combined functionality</p> <p>Interfaces: The device is fitted with one CAN bus interface 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 ARS 308 also could be used for complex measuring tasks.</p>		

