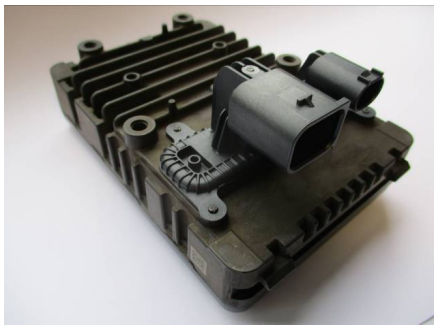
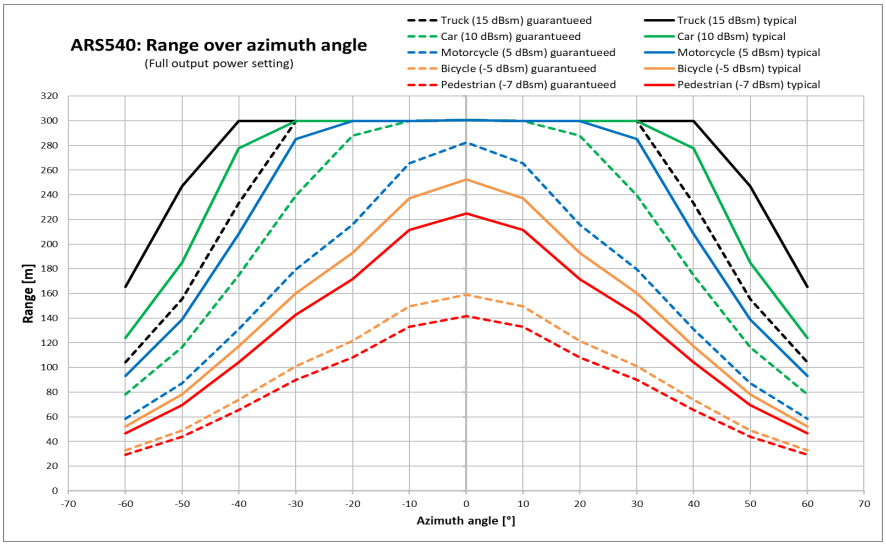
ARS 548 RDI Premium

Long Range Radar Sensor 77 GHz





Safe - reliable - robust - new design

The ADC GmbH offers a new type of radar sensor, the ARS 548 RDI, possible adaption include various industrial applications as well as premium upgrade version of the series 50X.

Typical areas of application:

- **Collision warning for vehicles of every type**
- Headway control for near and far range in vehicles etc.
- Area monitoring system for far range, e.g. of hazardous or restricted areas
- Classification of objects incl. height measuring
- Object detection, e.g. in crowded or unclear areas, also by using a radome as protection

Measuring procedure:

The rugged ARS 548 RDI sensor from Continental measures independently the distance, speed (Doppler's principle) and angle of objects without reflector in one measurement cycle based on Pulse Compression with New Frequency Modulation. The improved range resolution is available in the complete FoV with a real time scanning frequency of 20 times per second. Simultaneous detection output of target distances **up to 300 m,** relative speed and angle for each target in azimuth and elevation with a high resolution are possible - with RDI (Radar Detection Interface).

Advantages:

- **Fast and safe:** The ARS 548 RDI dispels with the apparent contradiction between excellent measuring performance and a high degree of operational safety. The rugged ARS 548 RDI 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 548 RDI radar sensor is fail-safe (not under all circumstances) and able to recognize troubles of the sensor and sensor environment and display it automatically.
- **Robust and new design:** By using the newest radar technology with a new design and a new measuring principle for mass production in automotive supply industry, the design is kept very robust with a high performance.

Benefit from the unique features of the latest Continental technology!

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Measuring performance		***to natural targets (non-reflector targets)***
Distance range		0.2 ... 300 m - extended range up to 1,500 m not specified
Resolution distance measuring		0.22 m
Accuracy distance measuring		±0.15 m depending on ego speed (thresholds at 115/110 kph)
Azimuth angle augmentation	(field of view FoV)	±60° internally processing, ±50° Output of OI/RDI ±70° keep out zone – for max. misalignment
Elevation angle augmentation	(field of view FoV)	±4°… ±14° - ±4°@300m - ±14°@<100m ±20° keep out zone
Azimuth beam width (3 dB)		1.2°… 1.68° - 1.2°@0…±15° - 1.68°@±45°
Elevation beam width (3 dB)		2.3°
Azimuth Auto Alignment	Only ARS540 automotive	±4.°
Elevation Auto Alignment	Only ARS540 automotive	±6.°
Accuracy azimuth angle		±0.1° … ±0.5° ±0.1°@±15°; ±0.2°@50° ; ±0.5°@60° linear interpolation
Accuracy elevation angle		±0.1°
Speed range		-400 km/h...+200 km/h (negative values: oncoming vehicles)
Speed resolution		0.35 kph
Speed accuracy		±0.1 kph
Cycle time	In standstill: 100 ms	app. 50 ms complete FoV is covered in single cycle time app. 70 ms rear
Antenna channels Antenna principle		increased number of 1.75xARS430 / 8x incl. virtual antenna, 16 x Rx and 12 x Tx = 192 virtual antennas Digital Beam Forming - new RF/Antenna interconnect
Operating conditions		
Radar operating frequency band	acc. ETSI & FCC	76...77 GHz
Output Power	RMS EIRP, average	<= 35 dBm – 3.16 W @ -40°C ambient temperature
Mains power supply	at 12 V DC	+8.5 V...17 V DC
Power consumption	at 12 V DC	~18 W / 1.5 A typ. - ~23 W maximum /~3.0 A peak current
Overvoltage		>18 V DC sensor functions deactivated
Operating-/ storage temperature		-40°C...+85°C / -40°C...+105°C
Life time	LV 124 Specification	8,000 h or 15 years or 300,000 km
Shock		Mechanical acc. LV 124
Vibration		Mechanical acc. LV 124
Protection rating	Ingress Protection	IPx6K/9K (water proof, high-pressure cleaning – ISO 16750+20653) IP6Kx (dust proof – ISO 20653)
Connections		
Monitoring function		self monitoring (fail-safe designed)
Interface		1 x BRR BroadR Reach Ethernet 100 Mbit/s
Housing		
Dimensions / weight radar Weight connector set	W * L * H (mm) / (mass) mass	137 * 90 * 39 (65.5 with connector) / 526 g 4 g 2-pin / 8 g 6-pin connector - without any cable
Material	housing radome / front bottom / plate	PBT GF 30 black (BASF-Ultradur B4300G6 LS sw 15073) / AC-47100 (AlSi12Cu1(FE)) die cast aluminum or EN AW 5754 (3.535) AlMg3 pressed-formed aluminum
Miscellaneous		
Measuring principle (Doppler's principle) in one measuring cycle due basis of pulse compression with stepped frequency modulation to improve range resolution. Independent measurement of distance, speed, azimuth and elevation angle.		
Version ARS 548 RDI	sensor with object output	BRR BroadR Reach Ethernet 100 Mbit/s
…… ……. Setting / Configuration possible by customer himself:	-Mounting possible with 3 en closed / equipped bolt screws -Mounting position / orientation -Extended range up to 1,500 m	-Connector type CT-A 6 pin Main connector, 2 pin Ethernet connector, Housing M-A -Special Case SC1 with 80 GHz frequency band for China infrastructure

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