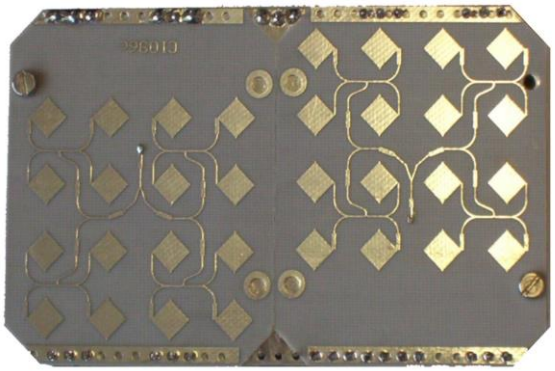
DOC134-002-V1



UWB Telemeter radar

- Distance measurement
- Object detection
- Obstacle avoidance
- Level detection

Cabling (wire output)			
Type	Colour	Designation	Characteristics
RS232	Brown	0V	
	White	+Vsupply	
	Blue	Rx on sensor	Negative logic
	Yellow	Tx on sensor	+12V / -12V

Specifications

RF specifications

Frequency	24.05 to 26.05 GHz
Output power	150mW
Antenna beamwidth	Horiz: 18° / Verti: 18°

Performance

Distance range	from 30cm to 80m
Reaction time	35ms
Measurement updating time	35ms
Precision	± 6cm
Sensitivity	Programmable gain

DC specifications

Supply voltage	from 10 to 14V
Supply current (typ.)	100 mA

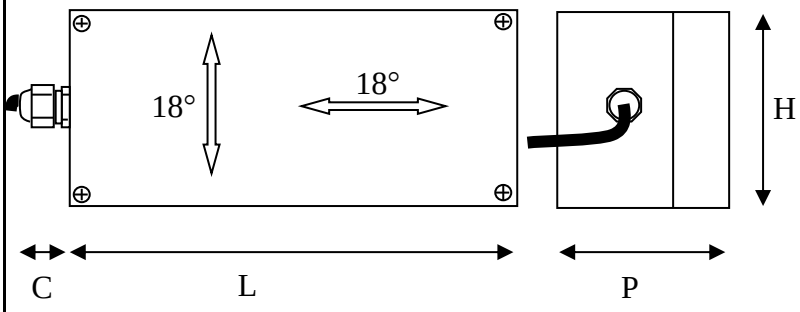
Mechanical specifications (for optional cover)

Enclosure material	Polycarbonate
Weight	300g
Electrical connection	wires

Environmental conditions

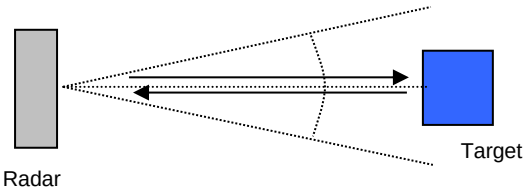
Operating temperature	from -20°C to +60°C
Storing temperature	from -40°C to +70°C
Protection classification	IP65

Mechanical drawing with cover (mm)



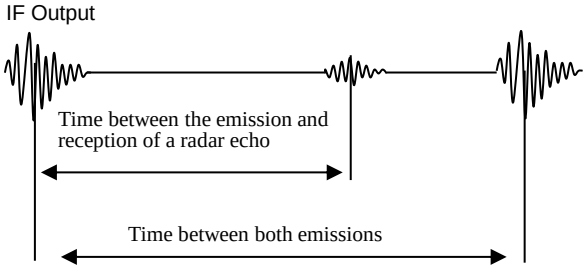
	L	P	H	C
Without enclosure	80	20	50	0
With enclosure	110	65	80	30

Distance measurement by pulse radar



A radar can measure the distance between itself and a target. The target can be a liquid or solid surface.
To do this measurement, the radar transmits through an antenna an electromagnetic wave that propagates at the speed of light (300 000 km/s). This wave is reflected by the target and returns to the receiving antenna. The radar measures the time between the transmitted wave emitted by the antenna, and the received wave reflected by the target.

The radar emits a very short pulse every 300ns, its receptor receives the reflected wave and, by strobing effect, expands the received signals. As such, the signal processing can measure the wave's time-of-flight.

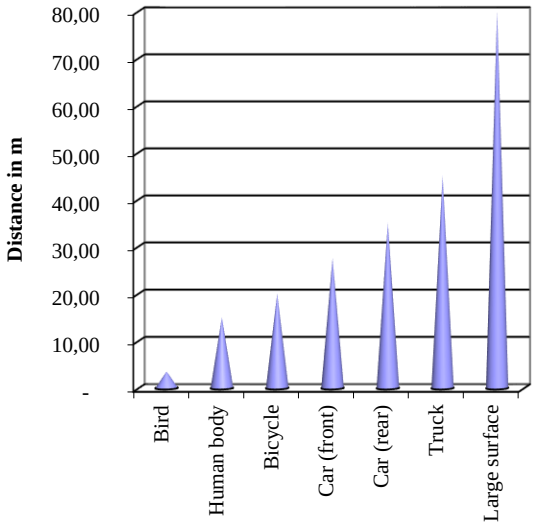


Communication bus: frame transmitted by the radar	
Byte 1	0xAA
Byte 2	0x55
Byte 3	MSB of the measured distance
Byte 4	LSB of the measured distance
Byte 5	MSB of the echo's level
Byte 6	LSB of the echo's level
Byte 7	MSB of the duration of measurement cycle
Byte 8	LSB of the duration of measurement cycle

MSB : Most Significant Byte / LSB : Least Significant Byte

Sensitivity

- The reflectivity of a target depends on its surface, size and composition.
- Metallic surfaces are highly reflective.
- The shape of the target can degrade its detection.
- Radar waves do not cross water films and metallic sheets, but can cross some walls or plastic sheets.
- Radar waves are slightly weakened by the rain and the dirt.
- The shape of the target can influence the distance measurement.
- The thinner the antenna beamwidth is, the more sensitivity it has.



DISCLAIMER :
Different technical specifications are possible upon request, AMG reserves the right to make modifications to the design and characteristic of the product at any times and without prior notice