

OEM PSR RADAR - Magal

Operating frequency	Ka Band
System architecture	Pulse compression, pulse-doppler
Detection Range ^{(1) (2)}	Fast scan Slow scan
Walking human (RCS 1 m ²)	3 km 6 km
Small vehicle (RCS 15 m ²)	6 km 12 km
Large vehicle (RCS 50 m ²)	8 km 16 km
Instrumental range	12 km 24 km
Range accuracy	3 m
Range resolution ⁽³⁾	3 m (instrumental), 10 m (operational)
Doppler resolution	0,25 m/s
Beamwidth	Az: 2°, Elev: 10°
Azimuth scan rates	1 – 16 rpm selectable
Min radial velocity	0,2 m/s
Output power	1 Watt (avg)
Azimuth coverage	360° continuous, 1-16 rpm (6°/s – 96°/s) 0-360° adjustable sectoral scan
Elevation coverage	±25° automatic
Operating temperature	-30°C / +55°C
Storage temperature	-40°C / +65°C
Environmental compatibility	MIL-STD-810G
Electromagnetic compatibility	MIL-STD-461E (radar unit)
Connection	10/100 Ethernet. Optional WiFi.

(1) Range detection performance figures are theoretical values given in clear weather conditions, for $P_d=90\%$, $P_{fa}=10^{-6}$ and Swerling=0 statistics. Real life operational tests validates these calculations, even sometimes better for some of the scenarios.

(2) “Fast scan” designates 16 rpm (96 degree/s), “Slow scan” designates 1 rpm (6 degree/s) azimuth rotation speed. For long range surveillance, since the angular speed of the targets would be low according to the radar, targets can be detected in slow scan mode. For short ranges, selecting higher scan rates improves tracking performance since revisit times get shorter. In any scan speed, radar detection occurs continuously upto the instrumental range limit.

(3) Instrumental range resolution is given as the performance of pulse compression algorithms. Operational range resolution is characterized at 2 km range when the targets move radially to the radar. It is highly dependent on test scenario conditions and can be better for most of the cases.