



PR-15 BATTLEFIELD SURVEILLANCE RADAR

Radars



PR-15 is radar surveillance system that can be exposed to hard field environment conditions, working to an intensified mission profile either day or night in any adverse weather conditions. The radar can be rapidly deployed and can be operated as a portable unit, as a stationary fixed based operation or mounted on a vehicle of choice.

The Radar Control Display Unit (RCDU) of the PR-15 system contains the systems control panel and radar display, in a combination that provides the operator a convenient means for operation of the system in different work conditions (sitting at a stationary post, laying or kneeling in the field).

The radar operates with high reliability, exposed to harsh field environment conditions, working according to an intensified profile of mission, day and night.

The system is comprised of three main units, and some accessories.

The radar is equipped with opto-electronic device for target identification and verification in day and night conditions.

The main units are:

- Transceiver & Antenna (TRAN)- including
- Radar remote Control Display Unit (RCDU)
- Tripod and Pedestal to support the TR and drive the Antenna, while scanning.

The Transceiver (Transmitter - Receiver) utilizes special pulse compression technique which allows transmitting of a very low peak power, still providing long detection ranges. Thus, the radar is considered as a Low Probability of Intercept (LPI) radar.

The radar detection range is 100 meters to 30 km.

The detection and identification ranges, when there is a line of sight between the radar and target (detection probability $P_d=0.9$ for a single radar scan, false alarm rate better than 10^{-6} , clear weather, standard land clutter, no jammer presence) are presented in the table below.

Target	Typical Detection Range (km)
Detection and identification of walking soldier	6
Detection and identification crawling soldier,	2-3
Detection and identification of moving light vehicle	15
Detection and identification of moving heavy vehicle (tank)	20
Detection and identification of helicopter	10-13

OPERATIONAL CHARACTERISTICS:

The radar operates in the following major modes:

- Standby Mode
- Surveillance Mode (including Track While Scan)
- Single Target Track (STT) Mode.

PR-15 SYSTEM PERFORMANCE AND TECHNICAL DATA:

Detection ranges in bad weather conditions (10 mm/hr rain) is:

- Walking soldier 3 km
- Crawling soldier 1 km
- Light vehicle 7 km

The overall radar measurement accuracy, for all the above mentioned targets and ranges, in all operational modes is:

- Range accuracy (1 sigma): 10 meters
- Azimuth accuracy (1 sigma): 1 deg (9 mils)

The resolution between two close targets of similar type for all ranges and operational modes is:

- Range resolution: 45 meters for two targets at the same azimuth and velocity
- Azimuth resolution: 4 deg. for two targets at the same range and velocity.
- Doppler resolution: 15 km/h for two targets at same range and azimuth.

The radar will detect and display moving targets on the monitor. Minimal radial detected velocity in moving-targets mode can be selected by the operator to be between less than 2 and up to 50 km/h. The maximal radial detected velocity is approximately 100 km/h.

Antenna parameters:

- Horizontal beam width (3 dB): 3.8-deg +/- 0.25 deg.
- Vertical beam width (3 dB): 5.35 deg +/- 0.25 deg.
- Gain: 31 dB
- Horizontal far sidelobe: -32 dB
- Vertical far sidelobe: -30 dB
- Polarization: Vertical

