

# RADAR SENSOR FOR REMOTE CONTROL OF TRACK OCCUPANCY AND RAILWAY CARS SPEED



## Areas of Application

Radar sensor for use in automatic shunting system which executes remote control of track occupancy on hump yards and railroad switches and cut speed control passing along retarder position is developed. These sensors can be used for protection of rail crossings to reduce the risk of accidents on the railways. The sensors are equipped by systems of remote control and internal parameters diagnostics transmitting the radar and service information to the control point. The sensors could be applicable for use in the data nets.

## Specification

|                                     |               |
|-------------------------------------|---------------|
| Operating frequency                 | 36.5 Ghz      |
| Max. range in distance control mode | 50 m          |
| Max. range in Doppler radar mode    | 50 m          |
| Distance resolution                 | 0.3 m         |
| Speed detection range               | 0.5 – 35 kmph |
| Output power                        | < 0.02 W      |
| Azimuth observation angle           | 15°           |
| Weight                              | 0.7 kg        |
| Dimensions (diameter/length)        | 92/170 mm     |
| Remote control range                | < 1200 M      |
| Power consumption                   | 6 W           |

## Stage of Development

IRL 6, TRL 4.  
Custom design and manufacture of device.

## IPR Protection

IPR2

## Advantages

Versatility is a big advantage of these radar sensors. The sensors of one and the same type can play a set of roles, which really simplifies the standardization and maintenance. The Sensors are able to operate in bad meteorological conditions (snow, rain, fog). Also, they are much smaller, lighter and cheaper than their closest analogs.

## Contacts

**Gennadiy P. Ermak**; O.Ya.Usikov Institute for Radiophysics and Electronics, National Academy of Sciences of Ukraine; [ermak@ire.kharkov.ua](mailto:ermak@ire.kharkov.ua)