

## MILLIMETER BAND SURVEILLANCE SELF MIXING FMCW RADAR

### Technical information:

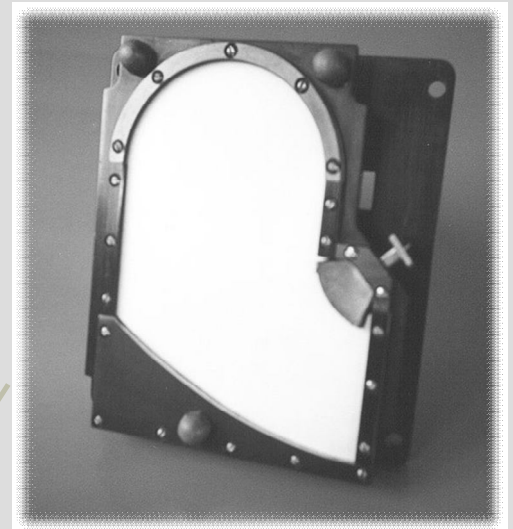
The radar consists of:

- Antenna system;
- Self-Mixing Oscillator with varactor frequency tuning;
- Digital Signal processing unit;
- Display console.

Dimensions 500x500x200 mm;  
Weight no more than 2 kg.

Technical characteristics:

- Frequency range 8 mm;
- Output power no more than 15 mW;
- Potential 82 dB;
- Tuning range no less than 500 MHz;
- Range resolution 0,6 m;
- Accuracy 0,3 m;
- Power consumption no more than 15 W.



### Device description:

Millimeter band **surveillance self mixing FMCW radar** is a microwave measurement system, which allows determining the presence of relatively small reflecting objects in the 200 meter controlled area of space and determining the distance to them.

It can be used, for example, as industrial sensors or as a part of safety systems.

The **Radar** works in 8-millimeter range using digital signal processing based on digital signal processor. The device implements the principles of synchronous reception, spectral processing and digital signal filtering.

In the Radar are implemented digital methods of forming the emitted signal, spectral processing and digital filtering of the signal at the difference frequency. The use of linear frequency modulation with 500 MHz tuning range allowed conducting the measurement range with a resolution of up to 0.3 m.

**The antenna** provides a scanning beam in the range up to 1200 by rotating the diffraction grating in the field of a planar dielectric irradiator with a stepper motor. The advantage of this antenna in the survey locator is the absence of a turning device and small size along the axis of the emission. Another advantage of this type of antenna is the absence of external moving parts. This eliminates the problems of wind load on the radar system, which increases the reliability, life cycle and reduces maintenance costs.

This **radar system compares** favorably to analogues by small dimensions, low power consumption and the use of scanning antenna system.