

# Perimeter Surveillance Radar Sensors Low Power



## TECHNOLOGY CORE PLATFORM

The core platform consists of millimeterwave and baseband transmit / receive electronics, which generates a well-defined search beam and converts the captured radar reflections of real-world targets into electrical signal. The Spread-spectrum technology guarantees these advantages:

- Accurate and consistent determination of the range of detected targets within the search beam.
- Inherent immunity to interference, jamming, and emissions from other radar units.
- Low emission, designed for FCC license exempt compliance, virtually undetectable by conventional radar detectors or scanners.

## ANTENNA MODULE

The choice of antenna is generally dictated by beam geometry (elevation and azimuth beam angles and range). In addition to those defined in the standard configurations (SR-0303, SR-3030, SR-4505, SR-4503 & SR-2003), other beam geometries can be achieved using custom-designed antenna.

## SIGNAL PROCESSING MODULE

This software layer analyzes the return signal of each target according to application-specific alarm thresholds for target size, range, and speed. Only those targets that exceed the predefined thresholds in user-selected ranges would trigger an intrusion alarm. A programmable alarm-condition counter provides a simple but effective means of preventing false alarms.

## COMMUNICATIONS MODULE

Apart from the basic function of transmitting alarm signals, the bi-directional communication layer is also used for the direct control of internal operating parameters during installation and setup. In addition, the embedded micro-controller can be remotely reprogrammed after installation, to cope with any changes that may arise in the overall security scheme.

### ► Features

- Millimeter Wave
- Spread Spectrum Technology
- Doppler Radar
- New Antenna Design
- Low Power

### ► Benefits

- Small Size
- Immune to Environmental Changes
- Immune to Interference
- Multiple Sensors
- Location Capability
- Sub-Zoning
- Adjustable Range
- Tracking Capability
- Intrusion Audio Signature
- Low Cost
- Portable Application

## PRODUCT DESCRIPTION

The K&G Spectrum family of perimeter surveillance sensors are compact, high-reliability, doppler millimeterwave radars.

K&G Spectrum radars are based on a patented spread-spectrum technology core, with additional layers of modularized hardware/software functions to provide tailored support for a wide range of security systems.

## ENVIRONMENTAL LAYER

This module is designed for use in extreme applications, including the following features: extended high and low operating temperatures (from desert to pole applications), bullet proof (optional), spray proof (resistant to salt, sand and water) and tamper proof (generates an alarm if housing is opened or covered, cable is cut, aiming is displaced vertically and/or horizontally).

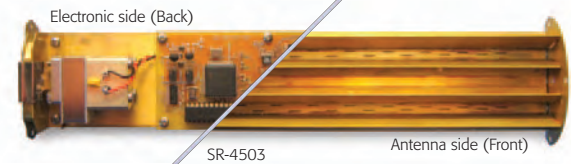
## RELIABILITY FEATURES

The radar sensors are weather sealed and have lightning protection on all input and output lines. Furthermore, integrated communication with the radars allow for a continuous "heart-beat" self-test monitoring.

## INSTALLATION AND ALIGNMENT

K&G Spectrum radar sensors are designed for easy installation with a supplied mounting kit. Beam alignment (aiming) to the intended area of coverage is initially set up using conventional video alignment equipment. Boundary and detection range are verified using wireless network and PALM PC type devices running on K&G Spectrum installation and diagnostic software. All field equipment needed to aim and test are based on commercially available devices.

## RADAR UNIT



## SPECIFICATIONS

### LOW POWER



K&G Spectrum Model	SR-3030	SR-0303	SR-4505	SR-4503	SR-2003
3dB Beamwidth	30 x 30 degrees	3 x 3 degrees	45 x 5 degrees	45 x 3 degrees	20 x 3 degrees
Width of Field at maximum range	15 meters	8 meters	2.5 meters	2.5 meters	5 meters
Range (human walking)*	30 meters (98 ft)	150 meters (492 ft)	30 meters (98 ft)	50 meters (164 ft)	100 meters (328 ft)
Range Resolution	3 meters (10 ft)				
Operating Frequency	24.125 GHz (K Band)				
Modulation	Direct Sequence Spread Spectrum (DSSS)				
ERP	< 250 mV/m at 3 meters (10 ft)				
MTBF	200,000 hrs				
Communications	RS-232 and/or Ethernet (TCP-IP)				
Alarm Output	4 Form-C Relay, serial port or GIS coordinates				
Power	12 to 24 Volts AC or DC, 5 Watts				
Operating Temperature	-40°C to 85°C (-40°F to 185°F)				
Radar Unit Dimensions (including bracket)	12.7 dia x 15.2 cm	33 dia x 25.4 cm	25.4 x 8.9 x 12.7 cm	34.3 x 8.9 x 12.7 cm	34.3 x 11.4 x 15.2 cm
Interface Unit Dimensions	30 x 25 x 13 cm	30 x 25 x 13 cm	30 x 25 x 13 cm	30 x 25 x 13 cm	30 x 25 x 13 cm

\* For vehicle: double the range  
For human crawling: half the range

# SPECTRUM

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