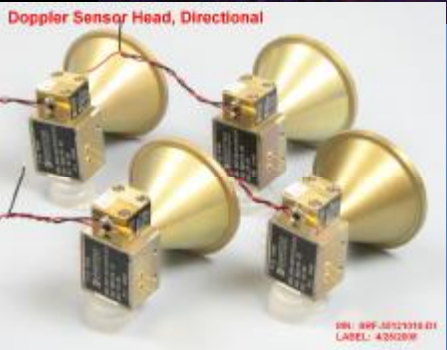
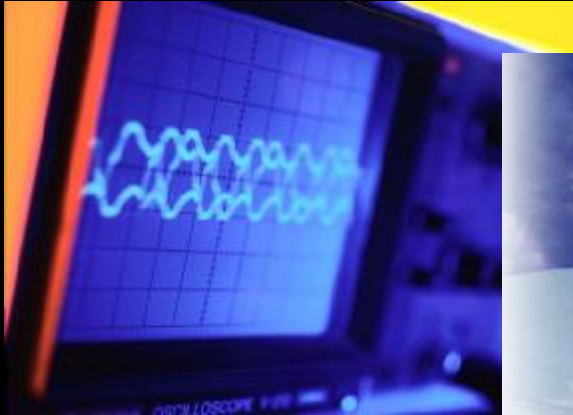


RF/MILLIMETER WAVE

# Sensor Heads

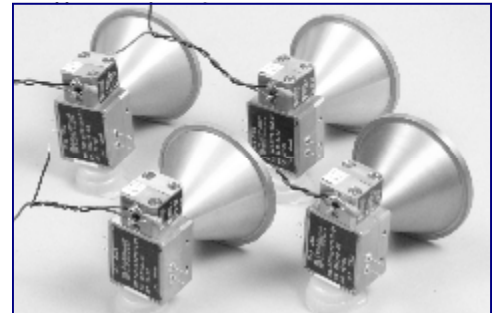


## Doppler Sensor Heads

## SRF Series

SRF series Single and Dual Channel Doppler Sensor Heads are designed for long range motion/speed/directional detection where the sensitivity is essential. The sensors are constructed with a high performance horn antenna or horn-lens antenna, a linear to circular polarizer and T/R diplexer, a balanced mixer (I/Q mixer for dual channel version) and a high performance Gunn diode oscillator or dielectric resonator oscillator/multiplier chain. The low 1/f noise mixer diodes and high performance oscillator enhance Doppler detection at low IF frequency and circular polarized waveform improves reception ability for various Radar targets. The sensors are offered with single or dual channel version. The dual channel version provides target moving direction (approaching and receding) information of the target while detecting speed.

Standard products are offered at 24.15 GHz and 35 GHz, while other frequency bands are available upon request.



### Features:

- High Sensitivity
- Low 1/f Noise
- Circular Polarized Waveform
- Low Harmonic and Spurious Emission
- Temperature and Vibration Qualified
- Compact Size
- Low Cost and Volume Production

### Applications:

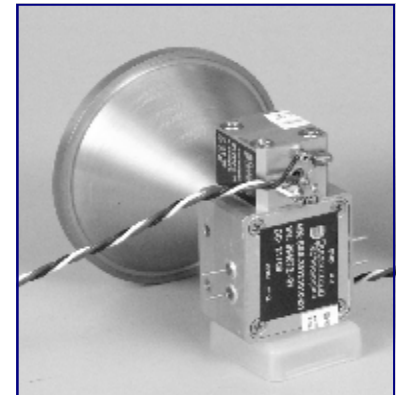
- Automotive Radar
- Doppler Radar

## Ranging Sensor Heads

## SRR Series

SRR Series ranging sensor heads are designed for long range distance detection where the sensitivity is essential. The sensors are constructed with a high performance horn antenna or horn-lens antenna, a linear to circular polarizer and T/R diplexer, a balanced mixer and a high performance varactor tuned Gunn oscillator or dielectric resonator VCO/multiplier chain. The low 1/F noise mixer diodes and high performance oscillator enhance the detection sensitivity at low IF frequency and circular polarized waveform improves reception ability for various radar targets. The sensors are offered with single or dual channel versions.

Standard products are offered at 24.15 GHz and 35 GHz, while other frequency bands are available upon request.

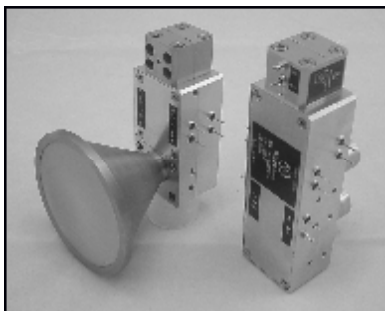


### Features:

- High Sensitivity
- Low 1/f Noise
- Circular Polarized Waveform
- Low Harmonic and Spurious Emission
- Temperature and Vibration Qualified
- Compact Size
- Low Cost and Volume Production

### Applications:

- Automotive Radar
- Ranging Radar



**Features:**

- High Sensitivity
- Low 1/f Noise
- Circular Polarized Waveform
- Low Harmonic and Spurious Emission
- Temperature and Vibration Qualified
- Compact Size
- Low Cost and Volume Production

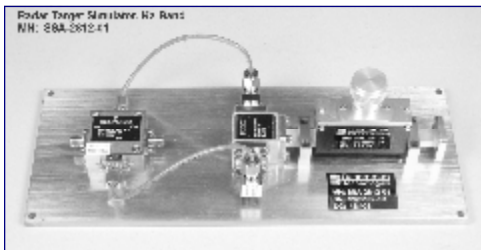
**Applications:**

- Automotive Radar
- Doppler Ranging Radar

SRU Series ranging sensors are used for moving target (where Doppler shift is presented) distance detection. The technology key is to utilize a single side band up-converter (modulator) to generate a second frequency in addition to (distance) information of the target can be extracted.

Four configurations are offered for special applications. The single channel versions are used for speed and distance sensing only while dual channel versions are offered for speed, distance and direction sensing. In addition, dual antenna versions are offered for high power versions to eliminate the limited TX/RX isolation problems due to the diplexer. The single antenna versions are constructed with a high performance horn antenna or lens corrected antenna, a linear to circular polarizer and T/R diplexer, a single side band up-converter or modulator, a balanced mixer or an I-Q mixer, an amplifier and a high performance Gunn oscillator. The deviation of the dual antenna versions is that an additional antenna is used and no diplexer is implemented. The low 1/f noise mixer diodes and high performance oscillator enhance the detection sensitivity at low IF frequency and circular polarization waveform improves reception ability for various radar targets.

Standard products are offered at 35 GHz, while other frequency bands are available upon request.



**Features:**

- Low Routing Loss
- High Image Rejection
- Separate I/Q Input Ports
- Low Harmonic and Spurious Emission
- Circular or Rectangular Waveguide Interface

**Applications:**

- Radar Target Simulator
- Single Side Band Modulation
- Forward and Backward Moving Object Simulator

SSA Series Radar target simulators is a single side band (SSB) modulators, which can simulate the moving Radar target for Doppler Radar system testing. The simulator can eliminate expensive and time consuming field test for most Doppler/speed Radar manufacturers. The modulators are available in major Doppler Radar frequency bands, such as K band (24.15 GHz), Ka band (35 GHz), V band (60 GHz), and W band (77 GHz and 94 GHz).

The simulators are capable of simulating the approaching and receding moving target by varying the relative phase of I and Q channel audio input signals, the speed of the target by adjusting the audio frequency and the size and/or distance of the target by adjusting the attenuator value.

Standard products are offered at 24, 35, 60, 77 and 94 GHz, while other frequency bands are available upon request.

## About Us

Founded in 1849, Ducommun Incorporated provides engineering and manufacturing services for the aerospace and defense industry. Ducommun is a leading technology company with design, development, manufacturing, integration and test capabilities in the areas of sensor, complex electronic/mechanical assemblies, illuminated cockpit displays, RF systems and space-qualified motion control devices.

In 2006 Ducommun acquired Torrance, California-based WiseWave Technologies, Inc. WiseWave is a manufacturer of custom microwave and millimeterwave products for both aerospace and non-aerospace applications

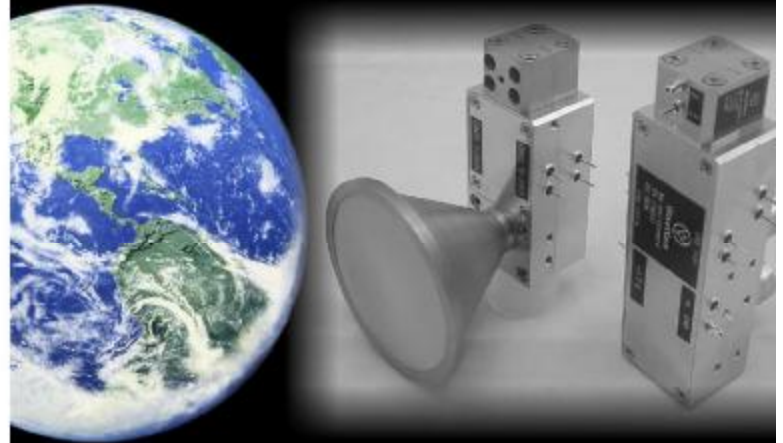
The integration of WiseWave into Ducommun broadens Ducommun's existing microwave product line, adds millimeterwave products and continues WiseWave's commitment to provide customers with well engineered, high-quality and cost-effective microwave and millimeterwave components and subassemblies up to 140 GHz.

The Ducommun range of products is divided into eight categories to offer total microwave and millimeterwave solutions:

- Amplifiers
- Antennas
- Control Devices
- Ferrite Devices
- Frequency Converters
- Oscillators
- Passive Components
- Sub-Assemblies

Ducommun also designs to customer's specifications or assists customers in developing their own products for their unique applications.

Ducommun maintains a strong commitment to quality and has established processes that ensure customer requirements and specifications are met and exceeded.



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