

Product Data Sheet

# AGIL Sense

## AP97

### Dual Channel Miniature K-band Microwave Sensor

#### Product Overview

The AP97 series K-band miniature sensor is a Doppler transceiver with a HEMT oscillator, two single-balanced mixers and bi-static microstrip patch antenna arrays. It is suitable for applications in automatic access control, intrusion detection, lighting control and speed measurement. It also has I-Q outputs to discriminate motion direction.

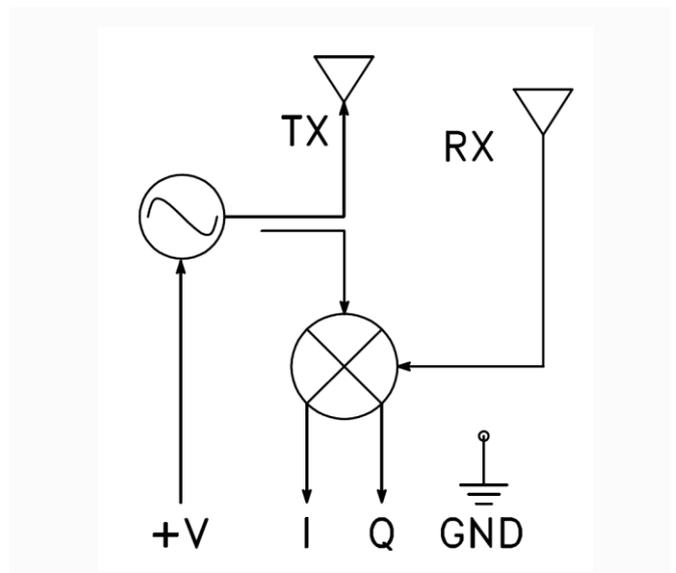
Its lightweight, miniature size and slim profile offer the flexibility to OEMs in making trendy and slim products.

#### Key Features

- Motion direction discrimination
- Low current consumption
- Small and flat profile
- Light weight
- CW and pulse mode operation capable

#### Key Applications

- Motion detection
- Lighting control
- Security alarm
- Automatic door control



Block Diagram

## Technical Specifications

Parameter	Remarks	Min.	Typical	Max.	Unit
<b>Operating Condition</b>					
Supply voltage, $V_{IN}$	AP97, AP97-1, AP97-2	4.75	5	5.25	$V_{DC}$
	AP97-3	2.85	3	3.15	$V_{DC}$
Current consumption			30	40	mA
Operating temperature		-20		60	°C
<b>Operating Condition</b>					
Pulse frequency	Pulse mode		2		KHz
Duty cycle	Pulse mode		2		%
<b>Transmitter</b>					
Operating frequency	AP97	24.000	24.125	24.250	GHz
	AP97-1	24.075	24.125	24.175	GHz
	AP97-2	24.150	24.200	24.250	GHz
	AP97-3	24.000	24.125	24.250	GHz
Radiated power, EIRP				13	dBm
Spurious emission				-30	dBm
Frequency drift VS temperature			-1		MHz/°C
<b>Antenna</b>					
Antenna Beam-width, 3 dB – X × Y			32 × 80		°
Antenna Sidelobe Rejection			15		dB
<b>Receiver</b>					
I&Q Amplitude Balance			0.5	3	dB
I&Q Phase Difference		70	90	110	°
<b>Physical Properties</b>					
Dimensions			25.4 × 25.4 × 11.7		mm
Weight			3		g

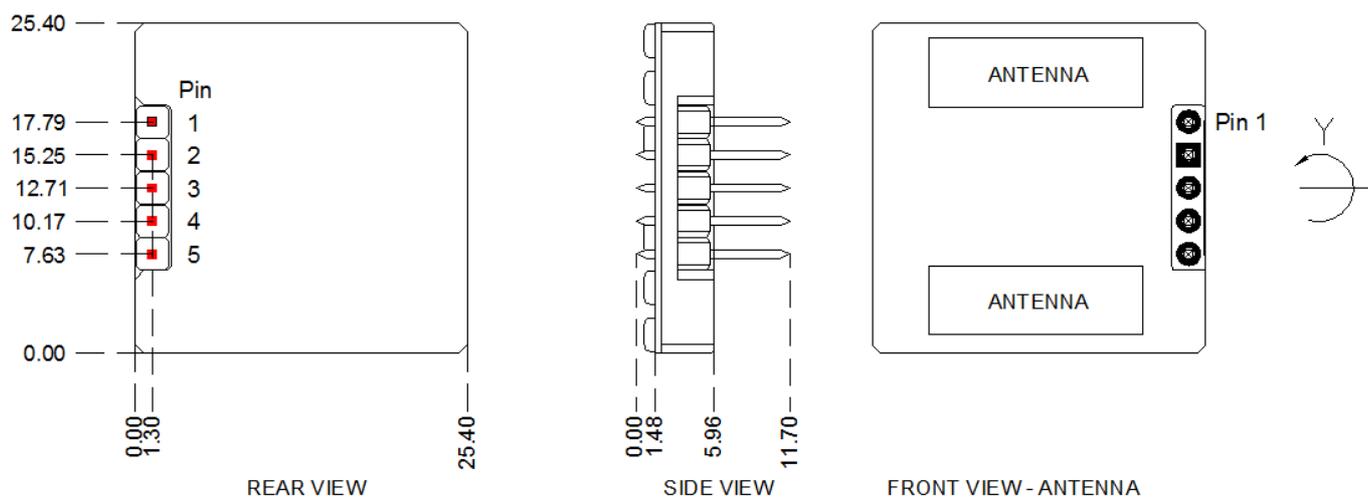
Unless noted otherwise, the specifications are measured in CW mode,  $V_{IN} = +5 V_{DC}$  and 12 k $\Omega$  load at +25 °C.

**Note 1:** AP97 complies with EN 300 440.

**Note 2:** AP97 complies with FCC part 15.245.

**Note 3:** **CAUTION: ELECTROSTATIC SENSITIVE DEVICE.** Observe precautions for handling and storage.

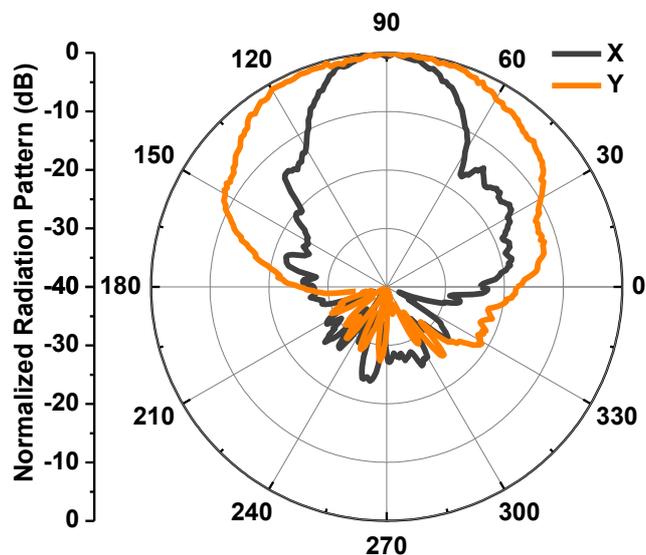
## Module Outline



All dimensions are in mm.

Pin	Name	Description
1	NC	Not connected
2	+V	Supply voltage, $V_{IN}$
3	I	Channel I
4	GND	Ground
5	Q	Channel Q

## Antenna Beam Pattern



ST Engineering Urban Solutions Ltd.

[www.stengg.com](http://www.stengg.com)

[info@AGILSense.com](mailto:info@AGILSense.com)

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