



HB190, HB490,
HB590



HB192, HB592

Product Data Sheet

AGIL[®] Sense HB9 Series

X-band Microwave Sensor

Product Overview

The HB9 microwave sensor is an X-band bi-static Doppler transceiver. It consists of a dielectric resonator oscillator (DRO), a single balanced mixer and a pair of antenna arrays.

It is suitable for applications in automatic access, security, lighting control and speed measurement.

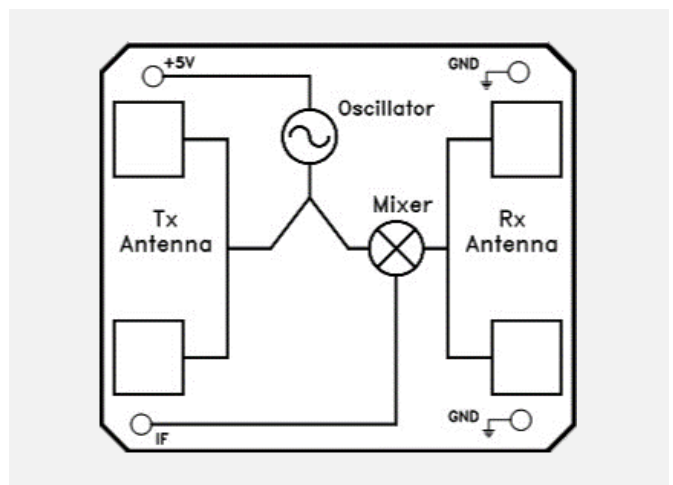
The HB9-series' compact footprint, low profile and light weight enables OEMs to create products where an optimum balance of space, range, power consumption and cost effectiveness is achieved.

Key Features

- Low current consumption
- Small and flat profile
- Lightweight
- CW or pulse mode
- Ceiling-mount option

Key Applications

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



Block Diagram

Technical Specifications

Parameter	Remarks	Min.	Typical	Max.	Unit
Operating Condition					
Supply Voltage, V_{IN}	HB190, HB192, HB490, HB590, HB592	4.75	5	5.25	V_{DC}
	HB190-3, HB590-3	2.85	3	3.15	V_{DC}
Current Consumption			30	40	mA
Operating Temperature		-15		55	°C
Recommended Pulse Scheme					
Pulse Frequency	Pulse mode		2		KHz
Duty Cycle	Pulse mode		2		%
Transmitter					
Operating Frequency	HB190, HB190-3, HB192	10.52	10.525	10.53	GHz
	HB490	9.345	9.35	9.355	GHz
	HB590, HB590-3, HB592	10.58	10.587	10.59	GHz
Radiated Power, EIRP	HB190, HB190-3, HB590, HB590-3		18		dBm
	HB192, HB592		15		dBm
	HB490		13		dBm
Spurious Emission				-30	dBm
Settling Time			3	6	μSec
Antenna					
3 dB Antenna Beam-width, – (X × Y)	HB190, HB490, HB590, HB190-3, HB590-3		80 × 40		°
	HB192, HB592		100 × 80		°
Sidelobe Rejection	HB190, HB490, HB590, HB190-3, HB590-3		15		dB
Physical Properties					
Dimensions			46.3 × 38.6 × 8.8		mm
Weight			10		g

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

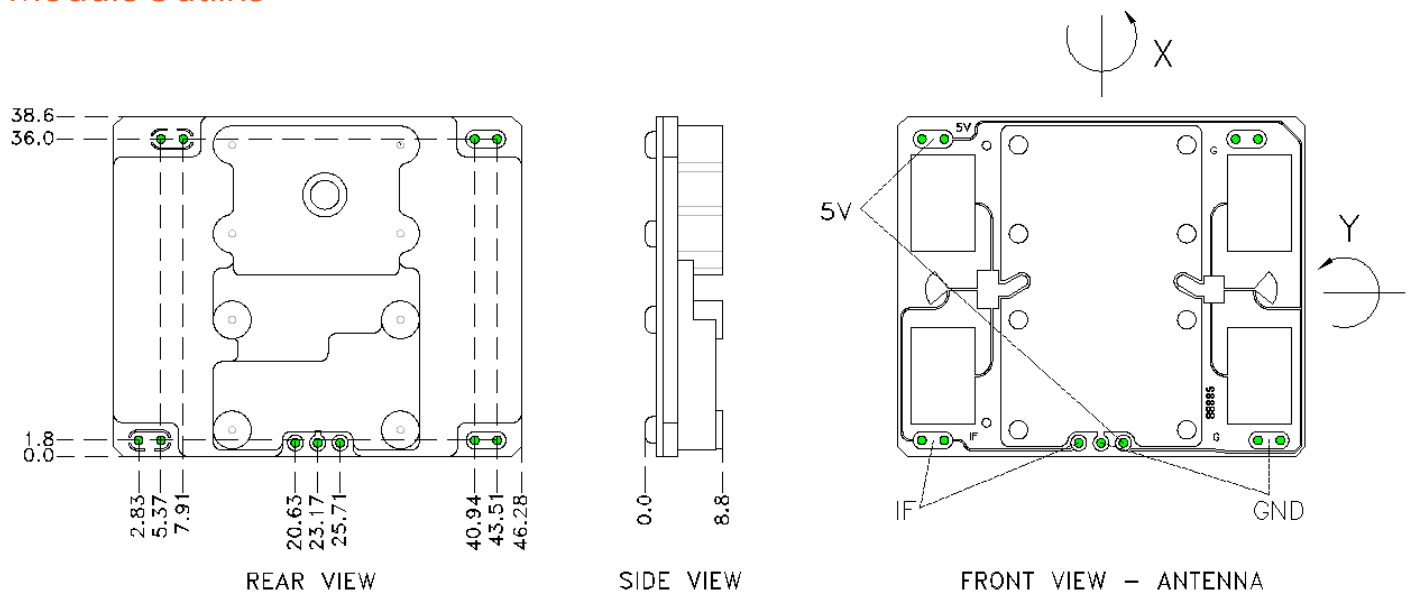
Note 1: HB190 and HB192 complies with FCC Part 15.245 and EN 300 440.

Note 2: HB590 and HB592 complies with EN 300 440.

Note 3: HB190-3, HB590-3 is designed to meet the requirements of EN 300 440 and FCC Part 15.245.

Note 4: **CAUTION: ELECTROSTATIC SENSITIVE DEVICE.** Observe precautions for handling and storage.

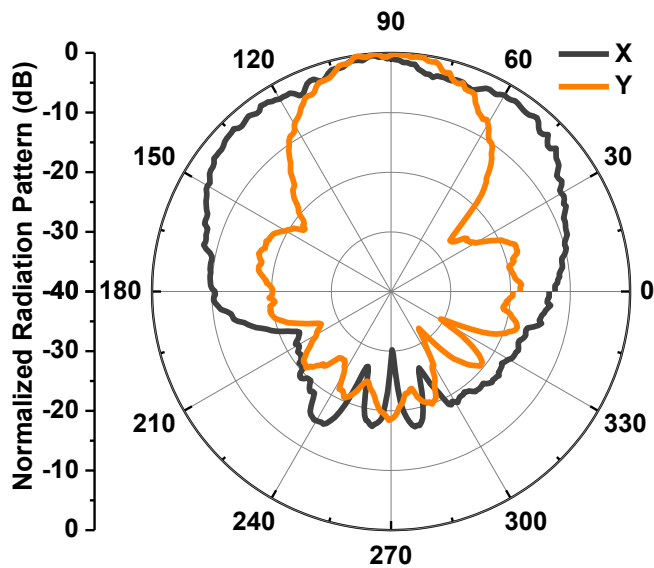
Module Outline



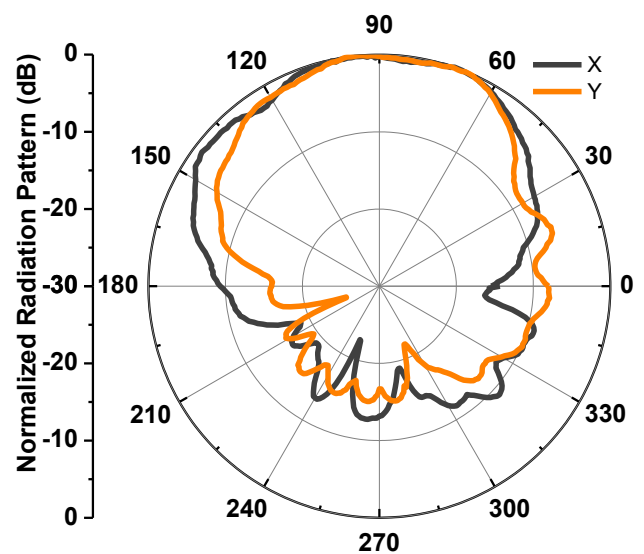
All dimensions are in mm.

Name	Description	Diameter	Plated Thru
5V	Supply voltage, V_{IN}	1 mm	Yes
IF	IF_{out}	1 mm	Yes
GND	Ground	1 mm	Yes

HBx90 Antenna Beam Pattern



HBx92 Antenna Beam Pattern



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