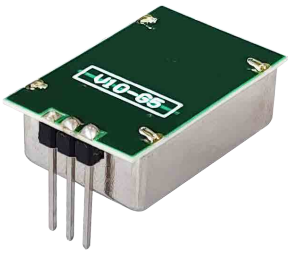
X-Band Doppler Motion Detector Unit

Model:PD-V10-G5



Key Features

- Low Cost
- High Sensitivity
- Patch Antenna
- Low Power consumption
- 3V and 5V versions available
- RoHS compliant

Applications

- Intrusion Alarms
- Automatic Door Openers
- Presence Sensing

The Microwave Solutions PD-V10-G5 Motion Detector Unit is a miniature X-Band microwave transceiver that utilises the Doppler shift phenomenon to "sense" motion.
The unit, housed in a metal can, features a dielectric resonator stabilised oscillator, which provides stable operation over a broad temperature range in either CW or low duty cycle pulse mode and an integrated homodyne receiver for enhanced sensitivity and reliability.
This module family is available with either a +5v or +3v supply voltage.

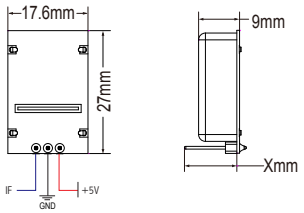
Operation

The basic principle of operation consists of detecting the frequency shift between a transmitted and a received signal reflected back from a moving object within the field of view of the unit.
The unit produces a low level output signal which can be amplified and processed to provide an audible or visual alarm signal and employs low cost surface mount manufacturing techniques which are field proven as being rugged and reliable.

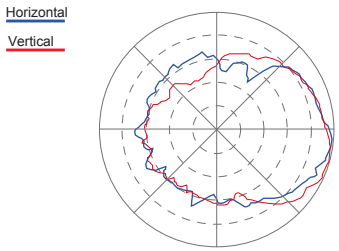
Available Modules

Part NO.	Country	Frequency	Comments
PD-V10-501	UK	10.587 GHz (5V)	
PD-V10-502	USA	10.525 GHz (5V)	FCC-ID
PD-V10-502	Belgium, Holland, Italy	10.525 GHz (5V)	Meets RED Directive
PD-V10-301	UK	10.587 GHz (3V)	
PD-V10-302	Belgium, Holland, Italy	10.525 GHz (3V)	Meets RED Directive

Electrical Characteristics



Coverage Pattern



Transmitter

Frequency	See table over
Power Output (Min.)	5 dBm EIRP
Operating Voltage	+5 V ± 0.25 V
	+3 V ± 0.15 V
Operating Current (CW)	25mA (max)
	20mA (typ)
Harmonic Emissions	<-30dBm

Antenna : standard

Gain	5 dBi
-3 dB Beamwidth	
E Plane	50°
H Plane	60°

Pulse Mode Operation

Average Current (5% DC)	1 mA typ.
Pulse Width (Min.)	5 µsecs
Duty Cycle (Min)	1%
Pulse Repetition Frequency	2-4 KHz

Receiver (Bandwidth 1Hz~3KHz)

Sensitivity (for a 10 dB S/N ratio)	-84 dBm
Noise (measured in a 3Hz to 80Hz bandwidth)	< 30 µV

Mechanical Characteristics

Weight	4 g
Pin header connectors	2.54mm spacing X3

Environmental Characteristics

RoHS Compliant	
Power/Temp. Coefficient (over operating temp. range)	3 dB
Frequency/Temp. Coefficient (over operating temp. range)	6.5 MHz
Operating Temperature	-20° C to +70° C

NOTES

The strength of the sensor's output （detection range）depends on the Signal to Noise Ratio.
Higher or lower than the nominal operating temperature, the sensor can also work, but the performance will be reduced.
To avoid damage to the devices, care should be exercised during handling. Proper Electrostatic Discharge (ESD) precautions should be observed at all stages of storage, handling, assembly, and testing.

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