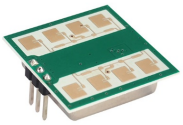
pdlux PD-165 High Frequency Microwave Sensor



pdlux PD-165 High Frequency Microwave Sensor Instructions

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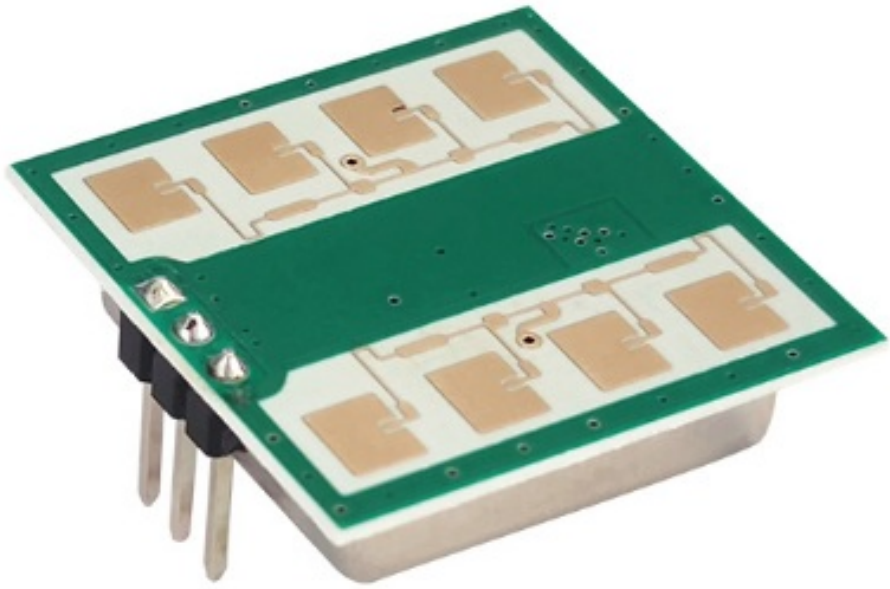


Specifications

- **Product Name:** PD-165 Microwave Motion Sensor
- **Application**: Intelligent switch, Wall-hung switch, Intruder detect
- **Antenna Beam Pattern:** -10°, -20°, -30°, -40°, -50°, -60°, -70°
- **Compliance:** EN 300440a, EN 62479 RED directive – 2014/53/EU, FCC Part 15.249, EN 62321 ROHS directive – 2011/65/EU, REACH directive – 1907/2006/EC
- **Product Size**: 20mm x 25mm
- Parameter:

Parameter	Min	Typ	Max	Units
Supply Voltage (Vcc)	4.75V	5.0V	5.25V	V
Current Consumption (Icc)	20mA	30mA	35mA	mA
Operation Mode Pulse Width (Tpulse)	-10°C	-30~+85°C	+100°C Max.	

Product Usage Instructions

Installation

1. Mount the sensor in a suitable location with a clear view of the area to be monitored.
2. Ensure the antenna beam pattern aligns correctly for optimal performance.
3. Connect the sensor to the power supply following the specified voltage range.

Configuration

1. Adjust the settings for sensitivity and detection range as per your requirements.
2. Customize the operation mode pulse width within the specified temperature range.
3. Set the stable time and noise frequency according to your application needs.

FAQ

- **Q**: Can the PD-165 Microwave Motion Sensor be used outdoors?
- **A**: This sensor is designed for indoor use. Outdoor conditions may affect its performance.
- **Q**: What is the power supply requirement for the sensor?
- **A:** The sensor operates within a voltage range of 4.75V to 5.25V.
- **Q:** How can I adjust the sensitivity of the sensor?
- **A**: You can adjust the sensitivity through the configuration settings provided in the user manual

Application

- Intelligent switch
- Wall-hung switch
- Intruder detect

PD-165 24034MHz~24216MHz 180°Microwave Motion Sensor is a K-Band Bi-Static Doppler transceiver model. It's a built-in Resonator Oscillator (CRO). This module, PD-165 adopts a flat Plane Antenna, suitable for wall mounting. It can improve its front signal-receiving ability and reduce its flank blind area. It's performance is better than the sensors in the market. This module is ideally suitable for occupancy sensors in automatic lighting switches. It can also be used for ceiling mount intruder detectors.

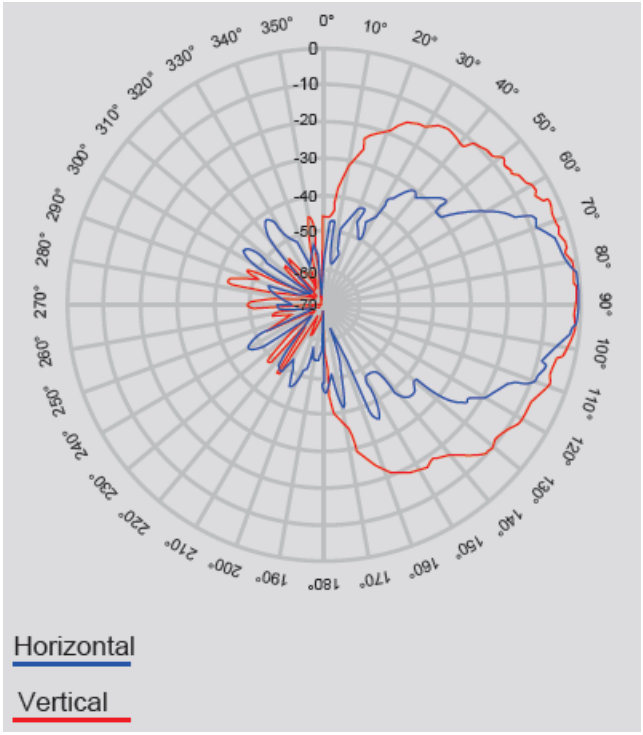
According to EN 300440 EN 62479 RED directive – 2014/53/EU

- RED directive – 2014/53/EU
- According to FCC Part 15.249

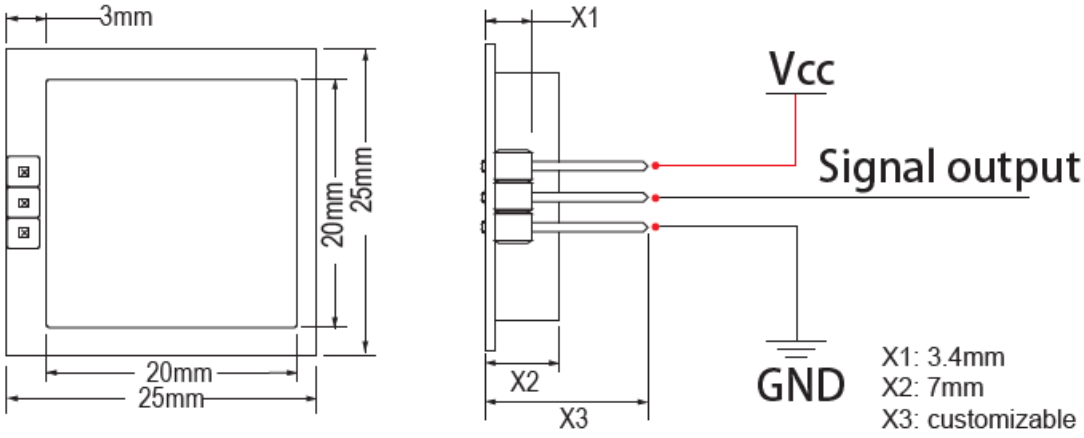
  According to EN 62321, ROHS directive – 2011/65/EU

  According to REACH directive – 1907/2006/EC

Antenna Beam Pattern



Products Size



Parameter	**Notes**	**Min**	**Typ**	Max	**Units**
Supply Voltage	Vcc	4.75	5.0	5.25	V
Current Consumption	Icc	20	30	35	mA
Operation Mode	Powered by PWM, it can control the working current at 3-15mA				
Pulse Width	Pulse	10			μs
Operating Temperature	Top	-30~+85	+100 Max.		℃
Storage Temperature	Tstg	-10		+60	℃
Stable Time		<5			μSec
Noise		3.5	4.0	4.5	mVrms
Frequency Setting	f	24034	24130	24216	MHz
Radiated Power (EIRP)	Pout		100.61		dBμV/m @3m
Storage Ambient Humidity	45%~65%				RH

WARNING: The actual detection range is related to the signal amplification gain of the circuit, the overall layout of the PCBA and the threshold of the MCU

- Note1: The radiated emissions is designed to meet FCC and CE rules.
- Note 2: The Received Signal Strength(RSS) is measured at the total 1 Ways path loss of 70dB.
- Note 3: The noise voltages are measured from 10Hz to 100Hz at the Output port, inside an Anechoic chamber.
- Note4: Pulse operation

Instructions

Regulatory Module Integration Instructions

List of applicable FCC rules This device complies with part 15.249 of the FCC Rules.
Summarize the specific operational use conditions
This module can be used in household electrical appliances as well as Intelligent switch and wall-hung switch types of equipment. The input voltage to the module should be nominally 4.75 to 5.25 VDC , a typical value of 5VDC and the ambient temperature of the module should not exceed 100 C. This module uses only one kind of antenna with a maximum gain is 6.33dBi.Other antenna arrangements is are not covered by this certification. should be re-applied.

Limited module procedures

Not applicable

Trace antenna designs

Not applicable

RF exposure considerations

The modular transmitter is authorized to be used in a specific type of host platform and installed such that it can be operated at closer than 20 cm to users or nearby persons. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. If the equipment is built into a host as a portable usage, the additional RF exposure evaluation may be required as specified by 2.1093

Antennas
The certified antennas include a PCB pattern Antenna with a peak gain of 6.33 dBi.
Label and compliance information
The outside of final products that contain this module device must display a label referring to the enclosed module. This exterior label can use wording such as: “Contains Transmitter Module FCC ID: 2AIWW-PD-165”, , or “Contains
FCC ID: 2AIWW-PD-165″, Any similar wording that expresses the same meaning may be used.

Information on test modes and additional testing requirements

- The modular transmitter has been fully tested by the module grantee on the required frequency, it should not be necessary for the host installer to re-test. It is recommended that the host product manufacturer, installing the modular transmitter, perform some investigative measurements to confirm that the resulting composite system does not exceed the spurious emissions limits or band edge limits.
- The testing should check for emissions that may occur due to the intermixing of emissions with the other transmitters, digital circuitry, or due to the physical properties of the host product (enclosure). This investigation is especially important when integrating multiple modular transmitters where the certification is based on testing each of them in a stand-alone configuration. It is important to note that host product manufacturers should not assume that because the modular transmitter is certified they do not have any responsibility for final product compliance.
- If the investigation indicates a compliance concern the host product manufacturer is obligated to mitigate the issue. Host products using a modular transmitter are subject to all the applicable individual technical rules as well as to the general conditions of operation in Sections 15.5, 15.15, and 15.29 to not cause interference. The operator of the host product will be obligated to stop operating the device until the interference has been corrected Below are steps for on-test modes: Connect the module to DC 5V,it will transmit in sweeping mode.

Additional testing, Part 15 subpart B disclaimer
The final host/module combination needs to be evaluated against the FCC Part 15B criteria for unintentional radiators in order to be properly authorized for operation as a Part 15 digital device. The host integrator installing this module into their product must ensure that the final composite product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operation and should refer to guidance in KDB 996369.

Frequency spectrum to be investigated

For host products with certified modular transmitters, the frequency range of investigation of the composite system is specified by rule in Sections 15.33(a)(1) through (a)(3), or the range applicable to the digital device, as shown in Section 15.33(b)(1), whichever is the higher frequency range of investigation.

Operating the host product

When testing the host product, all the transmitters must be operating. The transmitters can be enabled by using publicly-available drivers and turned on, so the transmitters are active. In certain conditions, it might be appropriate to use a technology-specific call box (test set) where accessory devices or drivers are not available. When testing for emissions from the unintentional radiator, the transmitter shall be placed in the receive mode or idle mode, if possible. If receive mode only is not possible then, the radio shall be passive (preferred) and/or active scanning. In these cases, this would need to enable activity on the communication BUS (i.e., PCIe, SDIO, USB) to ensure the unintentional radiator circuitry is enabled. Testing laboratories may need to add attenuation or filters depending on the signal strength of any active beacons (if applicable) from the enabled radios). See ANSI C63.4, ANSI C63.10 and ANSI C63.26 for further general testing details.

FCC Statement

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This device complies
with part 15 of the FCC Rules. Operation is subject to the following two conditions :

1. his device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation

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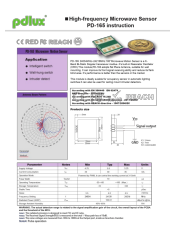
Documents / Resources

	pdlux PD-165 High Frequency Microwave Sensor [pdf] Instructions PD-165, PD-165 High Frequency Microwave Sensor, High Frequency Microwave Sensor, Micro wave Sensor, Sensor

References

- User Manual