

PROMISTEL WIREPAS PIR MODULE

SCALABLE

SELF-CONFIGURING

CUSTOMIZABLE

ENERGY EFFICIENT

SMART

GENERAL INFORMATION

Promistel PIR motion sensor is an infrastructure free, self-configuring, energy efficient solution to track motion and occupancy in your premises. No infrastructure is required because the module itself is a network. The standard version includes Panasonic ultralow power motion sensor. Optionally available: all-in-one environment sensor (temperature, pressure, humidity, air quality), Grid-Eye 8x8 thermal camera, accelerometer. If your project requires a different sensor solution, Promistel is capable of providing fully customizable design.

SPECIFICATIONS

Dimensions (in case)	89.5mm x 83.5mm x 26mm
Available I/O	On board 10 pin extension connector
Interface	I2C
RF system-on-chip nRF52832	
Frequency band	2.4 GHz (2.36 – 2.48GHz)
On-air data rate	1 Mbps or 2 Mbps
Hardware security	128 bits AES ECB/CCM/AAR co-processor
Power supply	1.7 – 3.6 V
PIR motion sensor EKMB1201111 / EKMB1204111	
Power supply	2.3 – 4 V
Current consumption	2 μ A
Detection range	5 m / 10 m
Environmental sensor BME680 (Optional)	
Power supply	1.71 – 3.6 V
Max. supply current	12mA
Grid-Eye infrared array sensor AMG8833 (Optional)	
Power supply	3.3 V
Current consumption	4.5 mA
Detection range	7m
LSM303D – 3D accelerometer, 3D magnetometer (Optional)	
Power supply	2.16 – 3.6 V
Current consumption	300 μ A
Measurement range	+/- 2, +/-4, +/-6, +/-8, +/-16
Battery	
Battery type	1 or 2 CR17505 OR AA Lithium 3V or 3.6V
Battery life	Min. 2 years with one battery

Current consumption with Grid-Eye taking a picture every 90 seconds is around 100 μ A. The current consumption of the PIR sensor alone is 25 μ A, when no motion is detected, and 80 μ A, when active motion is detected in the visible area.

Powered by a lithium battery, the motion sensor runs over 2 years even in an active area. The casing has space for two batteries, but only one is required for sensor to work. Both batteries can be plugged at the same time to extend the operating life of the device. Promistel develops an alternative power solution upon request.

SOFTWARE

Promistel has developed a firmware running the latest version of Wirepas. Its extra features make it easy to connect additional switches to your module or control external devices with network messages.

Notifications come in one package when a motion is detected. One notification arrives when no motion has been detected within the time period you set.

Grid Eye images are sent in one message, each pixel represents the temperature with a 12-bit resolution. A Python demo application is provided.



CONTACT INFORMATION

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PWS DESCRIPTION AND INFORMATION

Application ID (For OTAP): 0x505207

Default Network: 0xCAFE

Default Channel: 1

SENSOR DATA FORMAT

When possible, the used format is an integer. To obtain the correct value, divide the integer by the used factor.

Motion detection Extended (EP 132)

Param 1 (unsigned byte): the state:

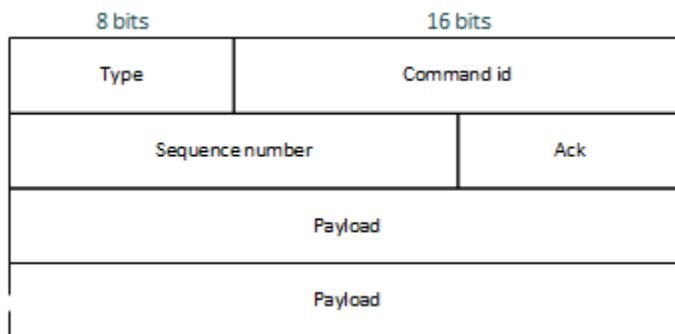
- * 0: no motion detected.
- * 1: start of a motion detection.
- * 2: end of a motion detection.
- * 3: motion detection on-going.

Param 2 (unsigned short): motion detection duration in seconds. (Meaningful for state 2 & 3)

Param 3 (unsigned byte): number of detection by the sensor (Meaningful for state 2 & 3)

PWS COMMAND FORMAT

A PWS command is a message with a source EP set to 10 (command message) and a destination EP NOT set to 10. The Wirepas packet payload must use the following format.



Type is the command type. It tells the payload format which can vary depending on the needs of the device. Command id is the identification between the command and possible acknowledgements and responses. Sequence number is used when command or response is separated to multiple radio packet. Ack field tells whether the command needs to be acknowledged and responded. Payload can be up to the 96 bytes.

First bit of sequence number tells whether the packet is the last packet of the command/response. If the bit is 1, then there are more packets coming for this command/response.

Ack field is using only two last bits. Last bit tells if the command requires acknowledgement, and node should then acknowledge the command with the same ack bit 1. Second bit is for requiring response, and similar way in the response packet the second bit of ack field should be 1.

COMMANDS LIST

Here are some basic commands you can use with your PIR module. You can find additional commands in PWS documentation, but they are not very useful with this device.

Reboot (Type 2)

Request a reset of the device

Param 1 (1 Byte): 0 (reboot of the device) or 1 (try first to reset sensors only, and reboot device if it fails)

Set Output pin state (Type 11)

Change the state of the selected pin (if not used by the application)

Param 1 (1 Byte): 0-31 -> Pin number

Param 2 (1 Byte): 1 or 0 or FF-> High or Low or Free the pin

Get Neighbor list (Type 16)

Returns the value in the specified register

Returns (n * 7 byte): Returns the list of neighbors