

Connected Detectify User Manual

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Connected Detectify is a motion detector for indoor purposes, based on a passive infrared technology sensor with a detection area of up to 5 meters.

Detectify
R3.2

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Using this manual

Thank you for choosing this Connected Inventions device. This device will provide you high-quality IoT with Connected Inventions' exceptional technology and high standards. This manual has been specially designed to guide you through the functions and features of your device.

Read me first

- Before using your device, read the entire manual and all safety instructions to ensure safe and proper use.
- The descriptions in this manual are based on the default settings of your device.
- The images used in this manual may differ from the actual product.
- The contents of this manual may differ from software provided by service providers or carriers, and are subject to change without prior notice.
- Access the Connected Inventions website (www.connectedinventions.com) for the latest version of the manual.
- Available features and additional services may vary by service provider.

- Applications on this device may perform differently from comparable applications and may not include all functions available (by ie. downlink messaging features)
- Connected Inventions is not liable for performance issues caused by third-party applications or improper installation.
- Please keep this manual for future reference.

Malfunction

- In case of malfunction, deliver the device to the supplier. Do not open the cover.

Transportation

- Do not remove packing material and do not repack the device unless necessary. Contact the shipping agent before transportation. Inside the device there is a battery which contains approximately 1.4 g of lithium.

Disposal

- Return the device to a disposal station which collects electronics waste and batteries.

Operation

- Protect the device from moisture, water, and dirt.

About

Connected Inventions Detectify is an industry grade passive infrared (PIR) sensor for movement detection indoors. The device utilises ultra low power two way radio communications with Sigfox network technology. The device is battery powered and with normal usage running default settings, the batteries will last up to five years. There are two different versions of the device: 90 degree wide detection angle version (see picture below) for sensing motion in rooms and 30 degree narrow detection angle version (see picture below) for more restricted areas like work desks. The device can be used for alerting immediately about movement in space as well as counting movements periodically and cumulatively.



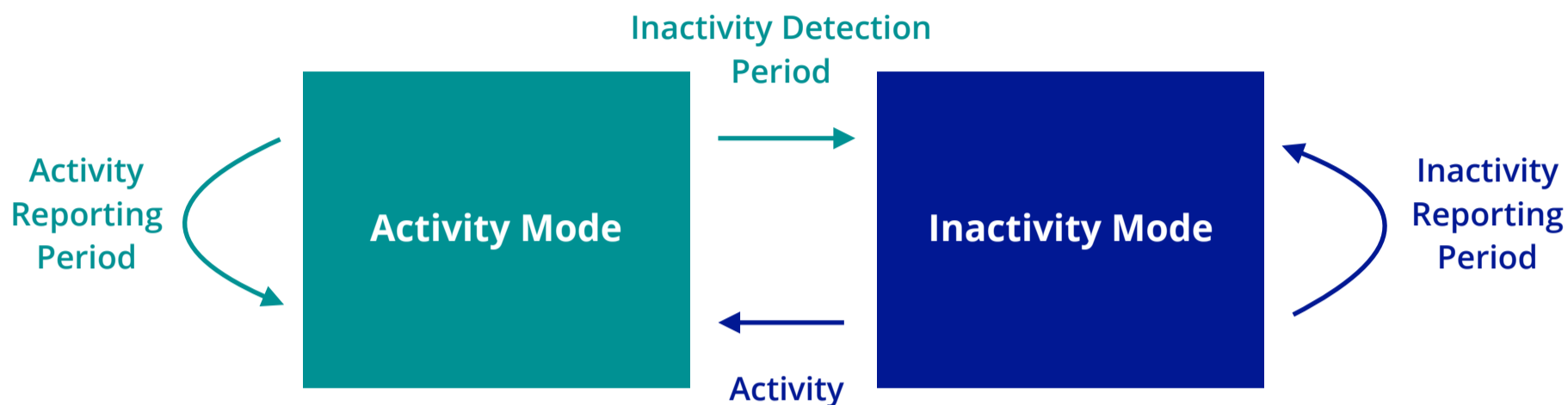


90 degree wide detection angle for sensing motion in rooms.

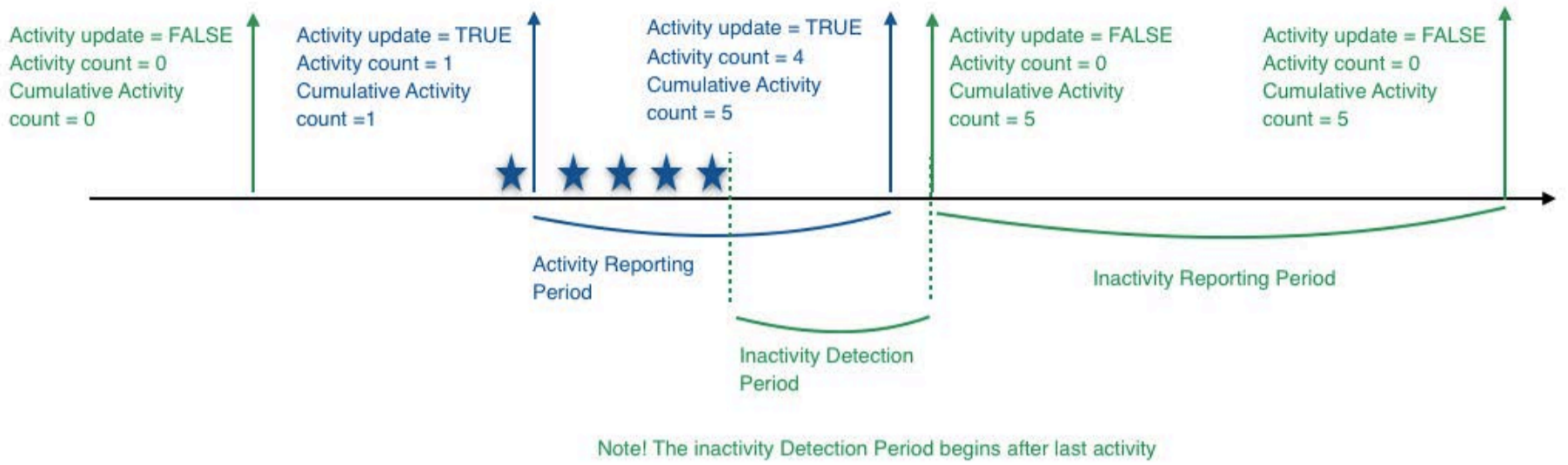
30 degree narrow detection angle for more restricted areas.



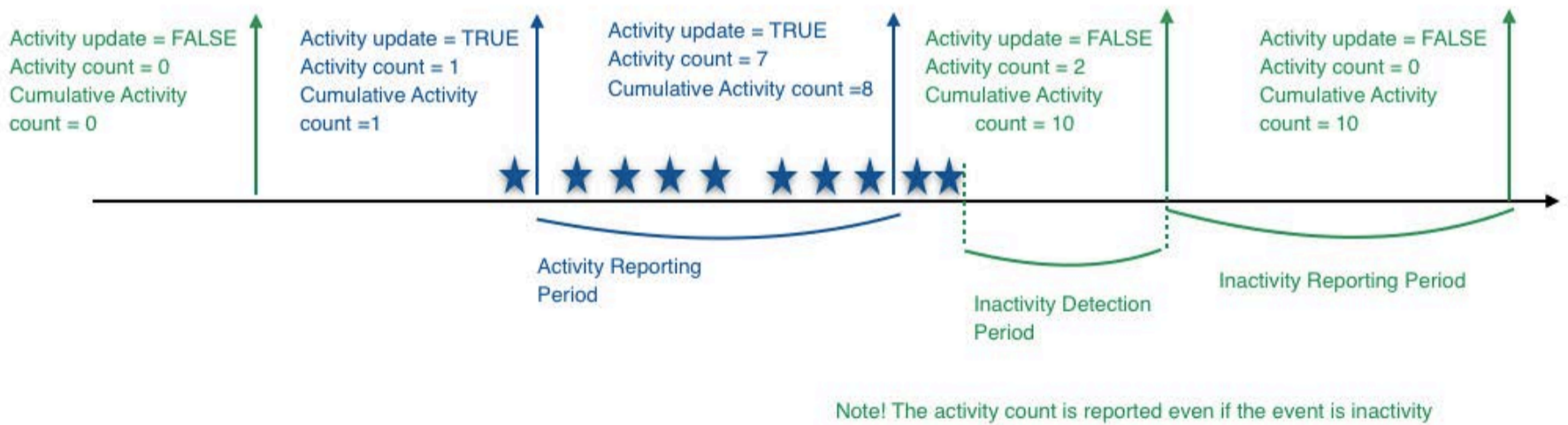
Function



Detectify R3.2 has two modes: Activity mode (AM) and Inactivity mode (IM). In Inactivity mode, the device waits to detect movement. Once movement is detected, the mode is changed to Activity Mode, Activity Counter and Cumulative Activity Counter are incremented and message is sent immediately. While in Activity mode, the device counts 3 second time slots where movement is happening and increments counters accordingly. After Activity Reporting Period (ARP) has been reached, the device will send a message with incremented counters and starts a new Activity Reporting Period. Still in Activity Mode, in case no movement was detected until Inactivity Detection period (IDP) was reached, the last movement counters are sent and the device goes to Inactivity mode. Once Inactivity Reporting Period (IRP) has passed without any movement, the device sends periodical inactivity message.



State transition example where inactivity report has activity count = 0.



State transition example where inactivity report has activity count > 0.

Assembly & Installation



- 1 Save the identifier and the key of the device.

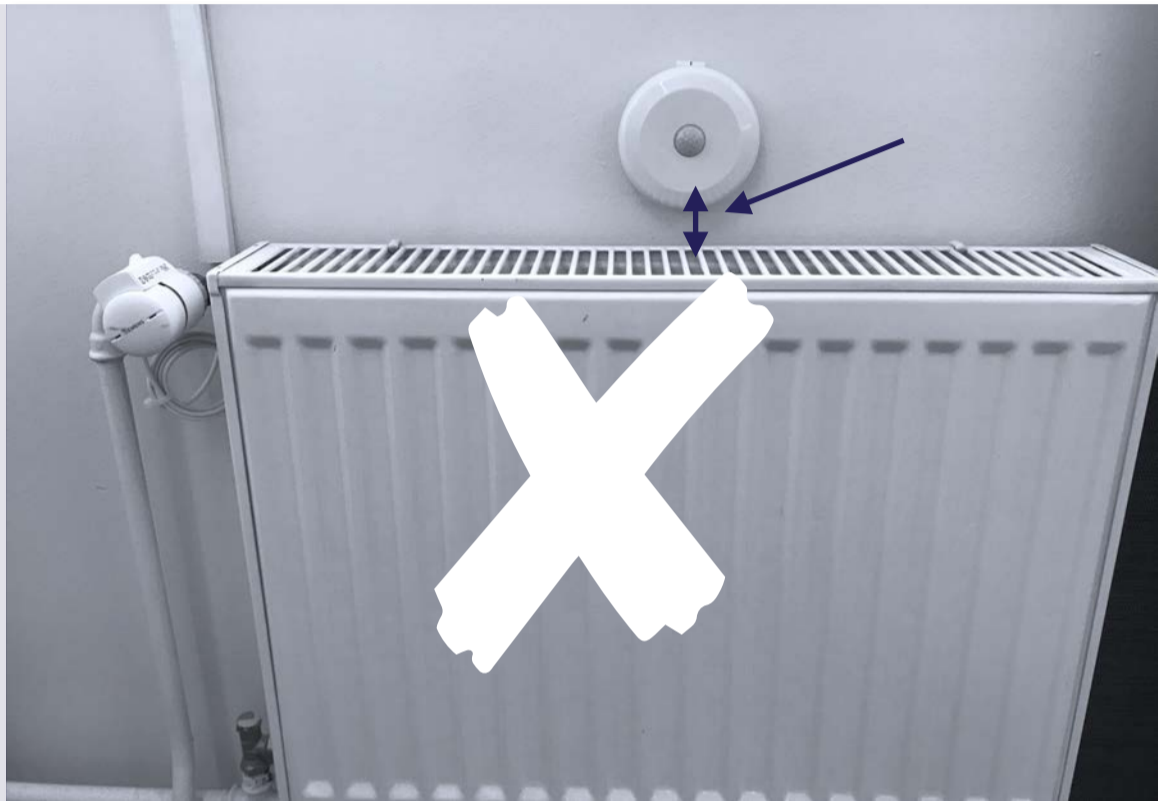
The identifier and the PAC key are on the label on the bottom of the device. You can also read the identifier and the PAC key using the QR code. The picture below is an example of a label.

- 2 Use a small screwdriver to slide the power switch to "I" position. Please note that the switch should slide relatively effortlessly.

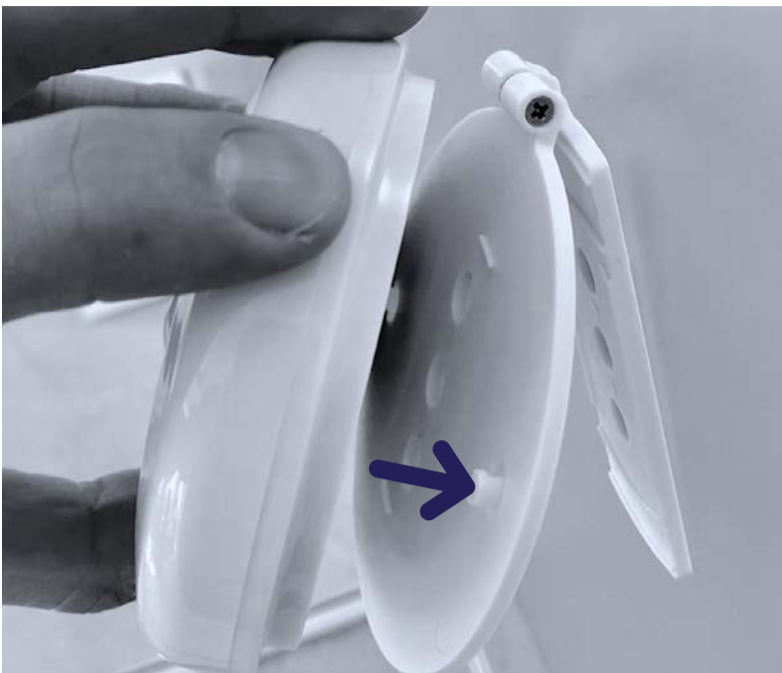


! Do not use excess force to slide the switch!

- Install the device to a suitable position to detect movement. Maximum detection distance is approximately five meters.
- The detection angle of the device is about 30 or 90 degrees depending on the version.
- You can use direct screw plate (included) or angle joint support (included) for attaching the device to surface.



! Please note! Avoid placing device closer than 15cm from any metal or magnetic object, electric cables, electric devices or selective glass as this will dramatically reduce radio performance as well as battery life of the device.



After attaching the screw plate, place the device to screw plate so that the pins fall through twist-holes on the bottom of the device and twist clockwise until the device locks into place.

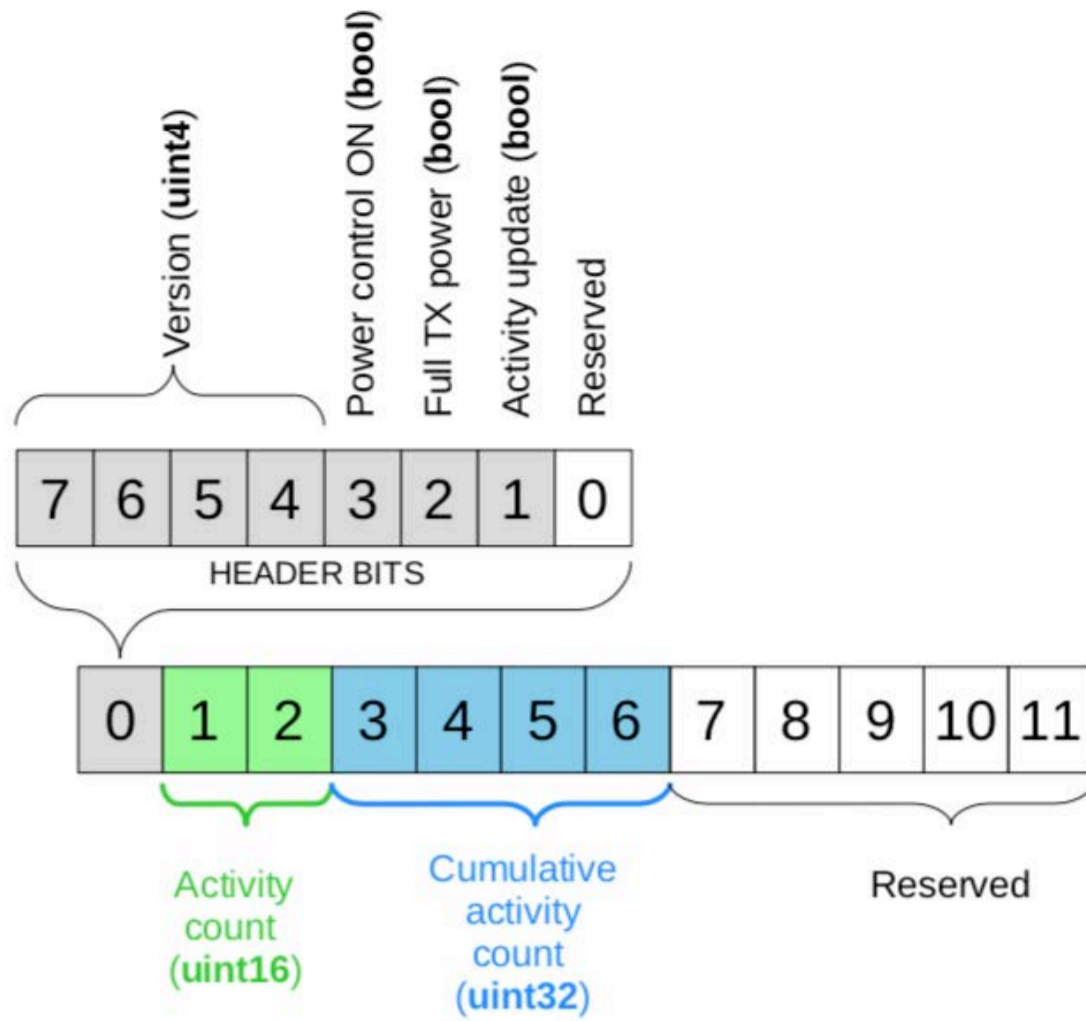
For work desk installation, make sure the hinge of the screw plate is pointing to metal support structure (if any).



Attach the device to screw plate pins so that the antenna is pointing away from metal structure and twist gently clockwise until device locks in place. Avoid placing the antenna closer than 15cm from any metal objects.

Uplink: Payload description

BYTE	BIT	TYPE	DESCRIPTION
0	0		Reserved
0	1	boolean	Activity update
0	2	boolean	Full TX power mode 0=off,1=on
0	3	boolean	Power control 0=off, 1=on
0	4-7	UINT4	Version
1-2	0-15	UINT16	Activity count
3-6	0-32	UINT32	Cumulative activity count
7-11			Reserved



Uplink message example: **0x2d00010000257**

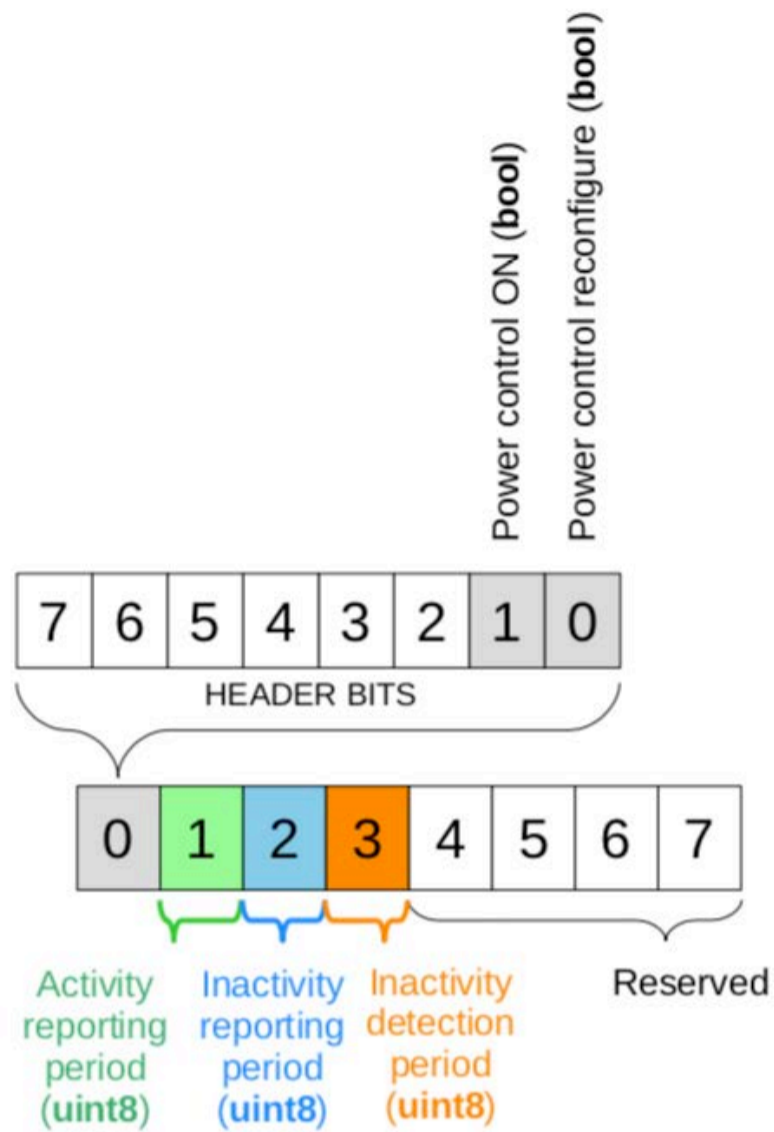
Version	2
Power control	On
Full TX power mode	On
Activity update	false
Activity count	1
Cumulative activity count	599

Downlink

- Settings of the device can be updated with the downlink message
- Device requests new settings approximately every 24 hours
- You must be very careful when you update the settings
 - settings affect both the subscription and the battery life of the device!
- Downlink message is optional
 - If any downlink message is not received, device continues with the current settings
- Detection interval and how often messages are sent when the space is available or occupied can be adjusted with the settings
- Default settings when device has not been configured with downlink:
 - Default activity reporting period is 22minutes
 - When the space is occupied, a message is sent after every activity period with updated counter values
 - When the space becomes available the status will be sent after Inactivity Detection Period. The default value is 15minutes.
 - After inactivity message has been sent, the device goes to Inactivity mode: when activity is detected, status message will be sent immediately with counters increased and activity mode starts
 - Default inactivity reporting period is about eight hours
 - After inactivity period has expired without activity detected, the status message is sent without counters increased and new inactivity period starts
- If the power control feature is set on, the device will automatically adjust the transmit power to optimum level to save battery and create less unnecessary interference to radio network
 - By default power control is OFF

Downlink: Payload description

BYTE	BIT	TYPE	DESCRIPTION
0	0	boolean	Power control reconfigure
0	1	boolean	Power control on
0	2-7		Reserved
1	0-7	UINT8	Activity Reporting Period $(1+n)*(5\text{min}30\text{sec})$
2	0-7	UINT8	Inactivity Reporting Period $(1+n)*(5\text{min}30\text{sec})$
3	0-7	UINT8	Inactivity Detection Period $(1+n)*(5\text{min}30\text{sec})$
4-7			Reserved, set to 0



Downlink message example: **0x 0303530000000000**

Power control reconfig.	True
Power control on	True
Activity reporting period	3 -> [(1+3)*5min30sec = 22min]
Inactivity reporting period	53 -> [(1+53)*5min30sec = 5hours]
Inactivity detection period	0 -> [(1+0)*5min30sec = 5min30sec]

! Make sure the new settings are valid before applying them!


- In case the new settings are not valid or the DL message is not received, the device will continue working with the current settings

Troubleshooting

- Ensure the power is switched on
- Check there is Sigfox network coverage available
- Ensure the device is not installed near metallic objects, electric cables, electric devices or selective windows.
- Metallic roofs, steel reinforced concrete, underground location and other obstacles can dramatically reduce radio signal.
- Check the operation mode of the device.
- Incorrect downlink configuration will affect the behaviour of the product.
- Ensure the configuration is properly done.

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Technical Specification

Description	Detectify R3.2 is a movement detector based on a PIR sensor (passive infrared radiation).	
Size	98 x 30 mm including the wall mount	
Weight	110 g including batteries	
IP rating	IP20	
Batteries	2 x AA 3.6V	
Battery capacity	5,400 mAh	
Battery life	5 years when the device sends approximately 24 messages a day	
Sensors	Nysenba PIR Sensor HM312	
Environment	Temperature 0 ... 50 °C Humidity 0 ... 95 %	
Radio configurations	Sigfox 868 MHz (RCZ1), 902 MHz (RCZ2), 920 MHz (RCZ4)	
Antenna	Internal helical antenna	
Communication	Uplink & Downlink	
Certification	FCC, CE, Sigfox Class 0U P_010A_C70F_01 P_010A_3530_01 P_010A_1CC1_01	
Product Code	Narrow Beam	Wide Beam
	CIDTY-3009-R0302 (RCZ1)	CIDTY-3015-R0302 (RCZ1)
	CIDTY-3209-R0302 (RCZ2)	CIDTY-3215-R0302 (RCZ2)
	CIDTY-3409-R0302 (RCZ4)	CIDTY-3415-R0302 (RCZ4)

