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## Table of Content

TABLE OF CONTENT .....	2
DOCUMENT MANAGEMENT .....	2
<i>Version control</i> .....	2
<i>File location control</i> .....	2
BEFORE YOU START .....	3
<i>Copyright © 2020 iotspot B.V.</i> .....	3
<i>After sales service</i> .....	3
<i>Signaling symbols</i> .....	3
PACKAGE CONTENT .....	3
THE IOTSPOT LTE-M .....	3
<i>Intended and foreseeable use</i> .....	3
<i>Product functioning</i> .....	4
<i>Band and mode of communication protocols</i> .....	4
<i>Accessories</i> .....	5
<i>Ancillary products</i> .....	5
ACTIVATING/COMMISSIONING THE PRODUCT .....	6
<i>Installing the product</i> .....	6
<i>Configuring and commissioning the product</i> .....	8
<i>Corrective action in case of malfunctioning</i> .....	9
<i>Correct disposal of the product</i> .....	9
EU DECLARATION OF CONFORMITY .....	9
US DECLARATION OF CONFORMITY .....	9
SAFETY INFORMATION.....	10
<i>Warning – Safe conditions</i> .....	10
<i>Warning – Safe installation conditions</i> .....	11
WARRANTY.....	11
ACCESSING MORE INFORMATION .....	11

## Document management

This iotspot LTE-M device guide is only applicable to revision 3.0 with software version v1.x.x

### Version control

Version	Date	Author(s)	Description	Amendments	Distribution
Final 1.0	2020.07.01	Marnix Lankhorst	Final version	Received RED certificate	Customers
Final 1.1	2021.04.14	Marnix Lankhorst	Final version	Included FCC reference	Customers
Final 1.2	2021.05.16	Marnix Lankhorst	Final version	Adjusted FCC reference	Customers
Final 1.3	2021.06.04	Marnix Lankhorst	Final version	Adjusted product markings	Customers

### File location control

Version	Date	Owner	File location
Final 1.0	2020.07.01	iotspot B.V.	iotspot file server:\Management\Documentation-iotspot\Product manuals\Final product guides\iotspot LTE-M product guide final 1.0 01jul2020.docx
Final 1.1	2021.04.14	iotspot B.V.	iotspot file server:\Management\Documentation-iotspot\Product manuals\Final product guides\iotspot LTE-M product guide final 1.1 14apr2021.docx
Final 1.2	2021.05.16	iotspot B.V.	iotspot file server:\Management\Documentation-iotspot\Product manuals\Final product guides\iotspot LTE-M product guide final 1.2 04may2021.docx
Final 1.3	2021.06.04	iotspot B.V.	iotspot file server:\Management\Documentation-iotspot\Product manuals\Final product guides\iotspot LTE-M product guide final 1.2 04may2021.docx

## Before you start

Before using the iotspot LTE-M (hereafter 'product'), please read the safety installation, and operation instructions to ensure proper use.

The information in this document has been compiled to the best of our knowledge. Although regular revision and updates are carried out to ensure that the content is correct, complete and up to date, no guarantee can be given that it is absolutely error-free or complete.

If you have any challenges, questions or suggestions regarding the operating instructions, please contact our customer service.

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All rights reserved. The content of this guide is protected by copyright. Its use is permitted within the scope of the Single Display Bundle. Any other use or reproduction is not permitted without the prior written permission of iotspot B.V.. iotspot B.V. reserves the right to changes this Product guide without prior communication.

### After sales service

Please contact us at [support@iotspot.co](mailto:support@iotspot.co) for any after sales inquiries about the iotspot LTE-M.

### Signaling symbols

The signaling symbols in this document have the following meaning.



Safety instructions. The safety instructions are introduced by signal words which express the extent of the hazard.



Special instructions. Complying with the special instructions prevents damage to or malfunctioning of the product.



Extra information. View extra information in designated documents and/or web addresses.

## Package content

The iotspot LTE-M consist of:

- The device. Electronics covered by an ABS-casing and Polycarbonate transparent cover with as main components; a GSM communication modem, a Bluetooth beacon, a Near Field Communication (NFC) tag, a Microcontroller, a RGB LED-ring and a 1,0 meter USB power cable;
- A USB power adapter with 5V – 2Amp capacity; and
- A product guide.

## The iotspot LTE-M

The iotspot LTE-M is designed and developed by iottum B.V. and sold and distributed by iotspot B.V.. It is a low voltage powered GSM/BLE/NFC device that is part of iotspot B.V.'s smart workspace platform.

### Intended and foreseeable use

The product is intended to be mounted on desks and meeting rooms to indicate the availability status of these resources in an office environment. The availability status, as indicated by a RGB-LED coloring scheme, is 'communicated' to the product by means of a GSM connection with our cloud computing infrastructure or a Bluetooth connection with our presence sensor(s).

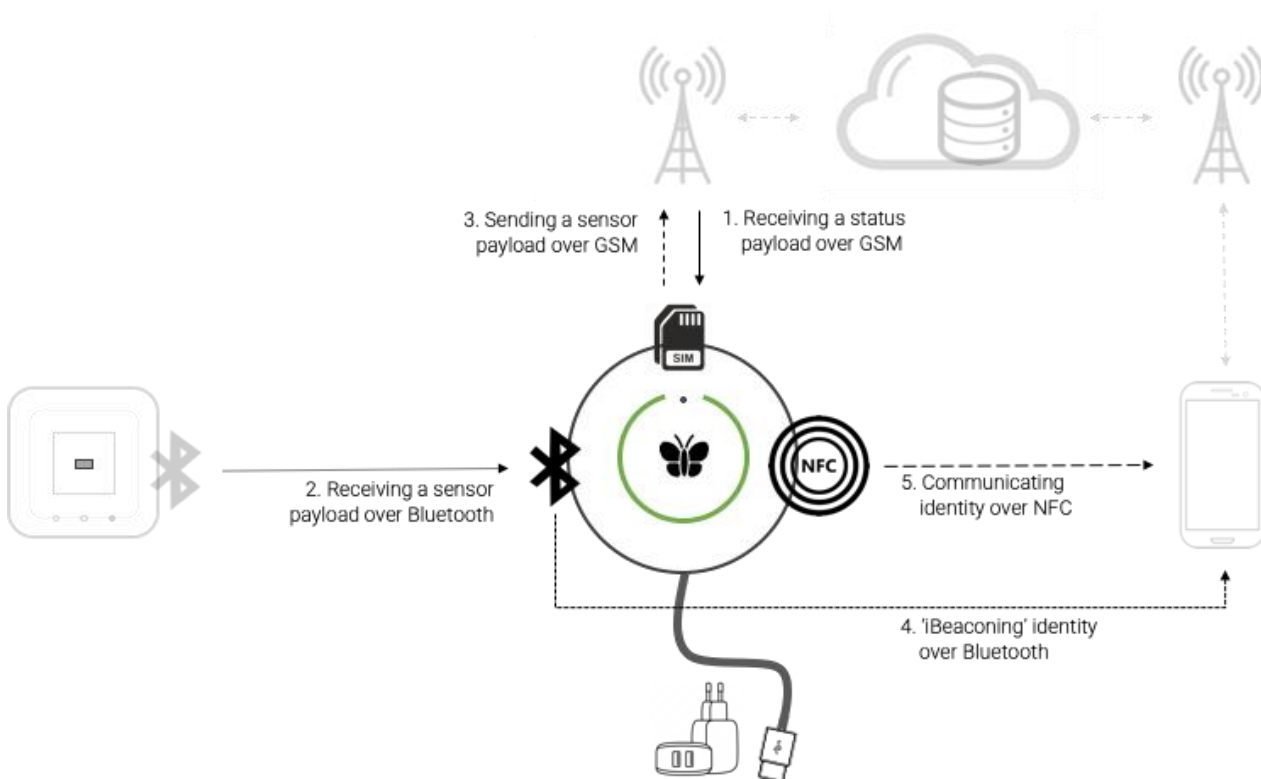
The foreseeable use of the product is that of an internet access hub for Bluetooth monitoring devices, i.e. sensors of third-party manufacturers in and outside of an office environment.

### Product functioning

The product's function is sixfold:

1. Receiving a 'status' payload over LTE-M or 2G connectivity, as generated in the iotspot back-end software;
2. Receiving a 'sensor' payload over Bluetooth connectivity as generated by the Bluetooth connected sensors;
3. Sending the 'sensor' payload over LTE-M or 2G connectivity to the iotspot back-end software;
4. 'iBeaconing' its 'identity' to smartphones that have the iOS or Android app of iotspot active;
5. Communicating its 'identity' using the passive NFC chip to smartphones that have the iOS or Android app of iotspot active;
6. Displaying the 'status' through a color indication as emitted by eight RGB-LEDs in a semi-circle;

Figure 1 below visualizes the product and its six functions for a better understanding.



**Figure 1. The product and its six functions explained.** The iotspot device and USB adapter, and the three communication components; GSM, Bluetooth and NFC, are depicted in black, while the ancillary devices and infrastructure are shown in light grey. The five communication functions are indicated and defined through the 1-5 text markers and the status indication function is indicated by the green semi-circle.

### Band and mode of communication protocols

Aforementioned communication protocols operate according to the mode and band with associated output power of the table below.

Band and mode	Output power
LTE-M (Cat M1) 1.4 MHz	23 dBm
EGSM 900 MHz	33 dBm

EGSM 1.800 MHz	30 dBm
Bluetooth 2.4 GHz	-4 dBm
NFC 13.56 MHz	Passive

### Accessories

Accessories to the product are for better mounting it to a desk.

#### Desk mounting device



**Figure 2a.** The desk mounting standard guides the USB cable from the product over the top and side of the desk to a position under the desk where you can plug-in the USB adapter.

#### Desk 'built-in' mounting device



**Figure 2b.** The desk built-in standard allows for the product to be built-in into the desk surface and guides the USB cable into the direction of the nearest power plug.

### Ancillary products

As explained, the iotspot product is part of a smart workspace platform. Within this platform the product is the 'center piece', possibly communicating with smartphone application and/or sensors. To provide you with this context we shortly introduce these two components as background information:

1. *The smartphone App.* Is a native Android/iOS application where users are authenticated and authorized to find and book an iotspot (representing a desk, room or parking lot of a customer's office). Furthermore, a user is presented with sensor generated information, can search for colleagues and use co-working features. An impression of the App is provided in Figure 3.a;
2. *The sensors.* Currently the range of sensors exist of three types that are communication over Bluetooth with an iotspot:
  - a. A PIR-based movement sensor configured for desk or room availability monitoring;
  - b. A camera-based sensor that 'computes' the number of person silhouettes in a room or area; and
  - c. A climate sensor (Temperature, Humidity and VOC) for interior climate monitoring.

The sensors are shown in Figure 3.b-d respectively.



**Figure 3. Ancillary products.** **3.a** An impression of smartphone app (iOS version) where you see the 1:1 relationship between the icon of the iotspot and its representation in the App by the same icon. **3.b** The PIR-based desk and room (in the back) sensor that assess availability/occupancy based on motion detection. **3.c** The camera-based sensor to assess the actual count of people in an area/room. **3.d** The climate sensor that monitors the interior climate.

## Activating/commissioning the product

To properly operate the product, please read the following instructions carefully.

### Installing the product

Position the product at the desk or in a room (or at a room entrance) so that a user can easily view (the LED status indication of) it and reach out for it to be able to 'NFC-tap' the product with a smartphone (Figure 4).



**Figure 4.** Position the iotspot at a top end corner of desk (left) or at eye level at the entrance of a meeting room (right).

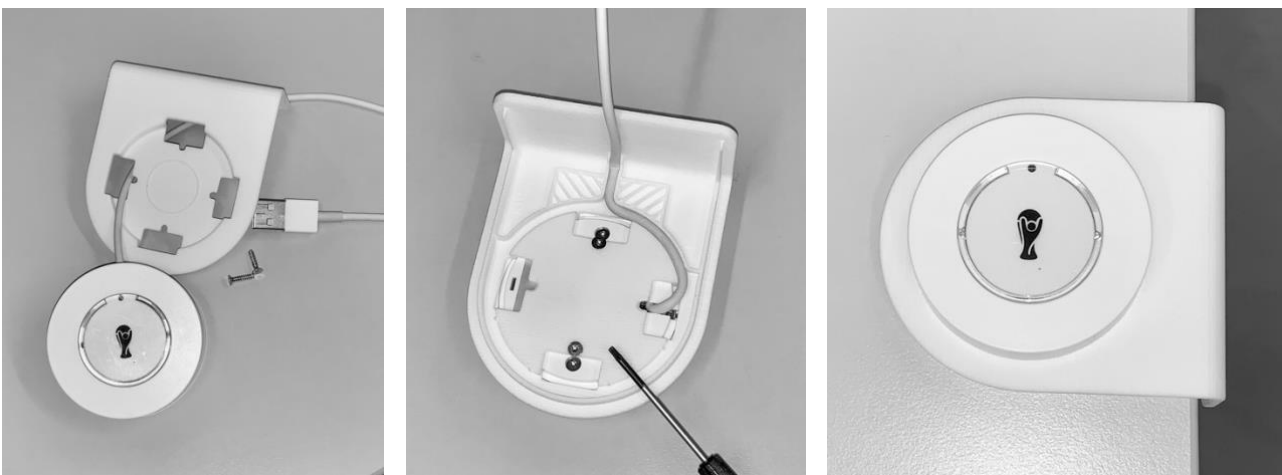
After determination of the product position either:

1. Fit double-sided tape at the bottom of the product, while not covering the product information sticker, OR uncover the cover of the double-side tape and stick the device at the designated position. The 'north-south' orientation of the product is determined by the position where the USB-cable leaves the casing, indicating 'north' (Figure 4); OR
2. Stick the USB-cable through the middle of the desk mounting device from the facing side. Position the mounting device and iotspot with proper orientation and use the double-sided tape to fit the product-mounting device combination (Figure 5); OR
3. Stick the USB-cable through the upper opening of the desk built-in device from the facing side. Position the 'build-in' device with proper orientation into its cutout and screw the iotspot in the position (Figure 6).



**Figure 5. Mounting an iotspot on a desk without applying any mounting device.** Fit and/or uncover the double-sided tape at the bottom side of the iotspot to stick the iotspot at its designated position.

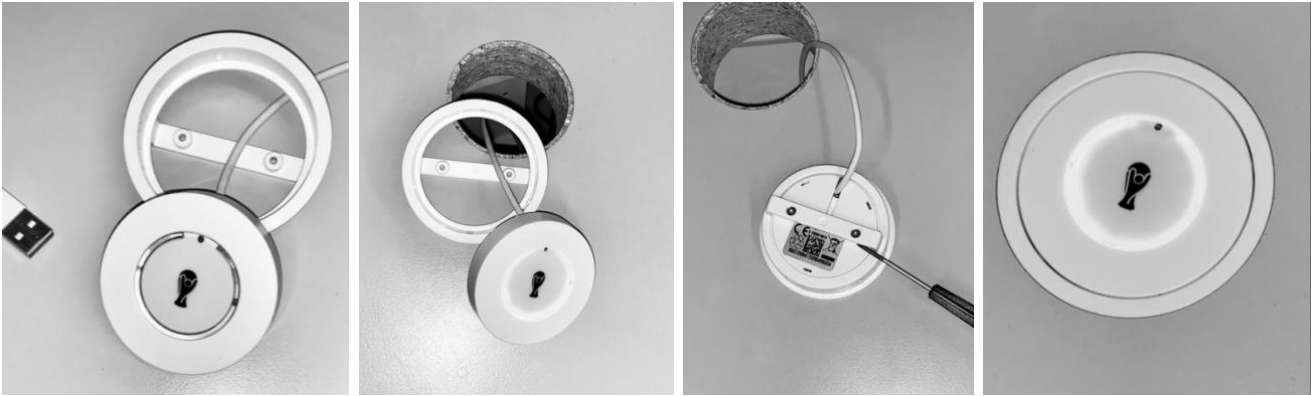
After fitting the iotspot and guiding the USB cable to the 220-230V power supply, connect the USB adapter to the USB cable before you plug it in. Upon power supply the iotspot will run a bootup (or startup) procedure of around 30-60 sec<sup>1</sup>, which will end in a fully active iotspot with green LED indication.



**Figure 6. Fitting an iotspot to a desk using the desk mounting standard.** Stick the USB cable of the iotspot that is 'armed' with double-sided tape through the desk mounting standard. Thereafter mount the standard to the designated position, orient the iotspot properly and stick it onto the desk.

<sup>1</sup> Please be aware that this timeframe assumes that the location of iotspot deployment has a Vodafone related telecommunication service of the LTE-M bandwidth. If that is not the case, the iotspot will revert (after 3 tries) to a connection type using 2G (Vodafone related) bandwidth, which might result in a longer lasting bootup procedure (up to 4 min).





**Figure 7. Placing an iotspot into a desk using the desk 'build-in' standard.** In case the desk has a cutout for the iotspot, Stick the USB cable through the build-in standard. Press the standard into the cutout, while making sure the transverse is parallel to the east-west orientation of the desk. Then place the iotspot in such a way that the screw-holes fit onto the holes of the transverse of the standard. Screw the iotspot onto the standard from the bottom side of the desk surface.



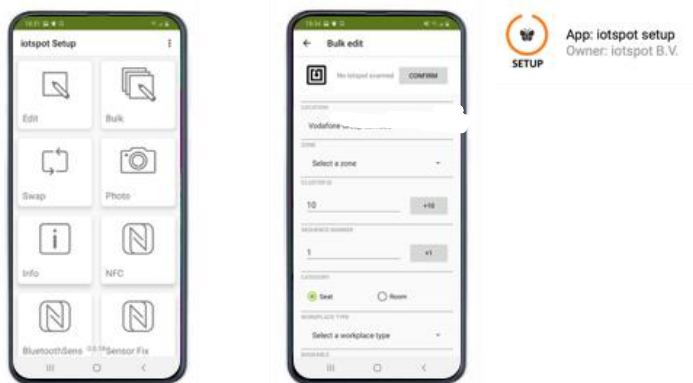
The USB adapter should always be plugged-in without straining the USB-cable of the product. Please consider adjustable (e.g. height) furniture and moveable accessories in this respect.



Visit <https://www.iotspot.co/> to watch a short installation movie.

### Configuring and commissioning the product

The product is configured, using an Android based smartphone app ('iotspot setup-app'). In essence this app allows you to specify and categorize the product to among others your 'logical' office layout, furniture types, desk or room identification. See figure 8 for an impression of the setup-app.



**Figure 8 iotspot Android setup app.** An impression of the smartphone setup app (Android only) where you see what functionality is offered (left side) and a detail screen with the configurable items of the product

Once the configuration of the product(s) is finalized, you commission the product(s) by turning it to active in the setup-app.





Authorization to the setup-app is granted to your organization upon procurement of the product. Please visit our customer portal (at <https://www.iotspot.co/>) to view more information about how to configure the product.

### Corrective action in case of malfunctioning

If the product is frozen and unresponsive, please unplug the USB-cable from the USB-adapter for 10 sec. and re-power the product to restart it.



Any updates on corrective action opportunities can be viewed at the website <https://www.iotspot.co/support>

### Correct disposal of the product

As the information sticker clearly marks, this product including the USB-adapter, its accessories or literature should not be disposed of with household waste. The product is RoHS compliant and damaged or disposed product must be delivered to appropriate collection centers. We are committed to an as sustainable as possible use and disposal of the product.

## EU declaration of conformity

iotspot B.V. declares that the iotspot LTE-M revision 3.0 complies with the essential requirements of the [Radio Equipment Directive \(RED\) - 2014/53/EU](#) and its [Official Journal \(OJ\)](#):

Essential requirement	Directive	Harmonized standards
Health and safety	RED 2014/53/EU article 3.1(a)	EN 62368-1:2014
Radio frequency safety	RED 2014/53/EU article 3.1(a)	EN 62311:2008
EMC	RED 2014/53/EU article 3.1(b)	EN 301 489-1 V2.2.3 // EN 301 489-17 V3.2.2 // EN 301 489-52 V1.1.1
Radio spectrum	RED 2014/53/EU article 3.2	EN 300 328 V2.2.2 // EN 301 511 V12.5.1 // EN 301 908-1 V11.1.1 // EN 301 908-13 V11.1.2



Visit [https://www.iotspot.co/DoC\\_iotspotLTEM](https://www.iotspot.co/DoC_iotspotLTEM) to view the EU Declaration of Conformity of this product.

## US declaration of conformity

iotspot B.V. declares that the iotspot LTE-M revision 3.0 has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

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



Visit [https://www.iotspot.co/DoC\\_iotspotLTEM](https://www.iotspot.co/DoC_iotspotLTEM) to view the FCC Declaration of Conformity of this product.

## Safety information

Follow the guidelines and warning information of this chapter to prevent incidents such as fire or explosion, injury to people or damage to the product.



### *Warning – Safe conditions*

Follow the warning information about safe conditions below to prevent incidents such as fire or explosion:

- Do not use and/or stop using the product immediately if any part of the product, such as the plastic body, LED's, the USB-cable or USB-adapter is broken, shows signs of corrosion, smokes or emits a burning odor.
- Only use manufacturer-approved accessories and supplies.
- Do not expose the product to physical impact or damage.
- Prevent the USB jack, USB cable USB adapter and the electronics in the plastic casing from contacting conductive elements, such as metal or liquids.
- Never use the product outside a building or leave it exposed to adverse weather conditions.
- Do not use the product outside of the environmental boundaries defined in the table below.

Environmental aspect	Lower boundary	Upper boundary
Height	0 meters	3.000 meters
Ambient temperature during installation and use	5° Celsius	35° Celsius
Ambient temperature during transport and storage	-10° Celsius	50° Celsius
Relative humidity	5%	95%
UV radiation	Protect from direct sunlight	



### *Warning – Safe installation conditions*

Follow the warning information and comply with the safe installation conditions below to prevent incidents, injury during installation or malfunctioning of the product during operation

- Only persons who can be expected to carry out installation, assembly or modification work reliably and faultlessly are permitted to carry out all work. Persons who are impaired, e.g. by drugs, alcohol or medication, are not permitted.
- This guide assumes the following qualifications of the persons that execute the various installation and assembly tasks:
  - Basic knowledge of electronics - imparted by technical training or relevant professional experience
  - Basic mechanical knowledge - imparted through technical training or relevant professional experience
  - Before first use, the user has been instructed by iotspot B.V. or a competent person. In case of doubt, the iotspot customer service ([support@iotspot.co](mailto:support@iotspot.co)) should be contacted.
- Ensure that all low-voltage USB cables of the product are routed in such a way that they do not present any danger to persons or can be damaged.

## Warranty

A warranty period of 12 months applies to the product, commencing on the day of purchase of the product.

The warranty solely covers inadequacies caused by material defect or manufacturing defect. The warranty does not cover any unauthorized use or tampering with the product, such as product overloading, use of violence or force, damage as a result of any unauthorized interference or caused by foreign items. Failing to follow the safe conditions or safe installation condition instructions and common wear are also not included in the guarantee.



Visit <https://www.iotspot.co/terms-and-conditions> to view more about the terms, conditions and guarantee of this product.

## Accessing more information

To view the full Product guide, the user guide of the associated smartphone app or more, visit <https://www.iotspot.co/>