



Lyra Care User Guide

2020.08.11

A quick look at you Lyra Care

Hardware Specification

- Product segment: Wi-Fi Sensor
- Dimensions: $\Phi O=10\text{cm}$, $H=3.5\text{cm}$
- Transmit/ Receive: 802.11ac WAVE2 , 2x2, 2.4/5GHz (20/40/80MHz)
- Power Supply: 12V DC power supply 12V / 1A
- IP Level: IP54

Software Key Features

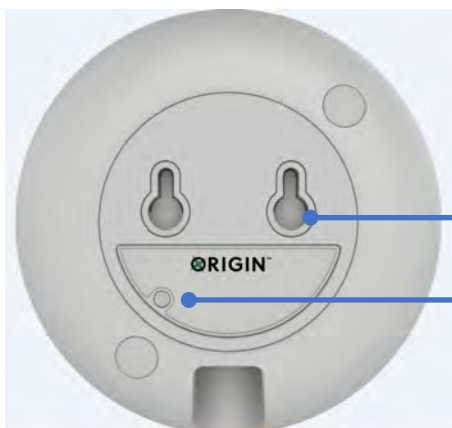
- Wi-Fi CSI-based Motion and Breathing signal sensing
- Auto pairing between Origin(Rx) and Bot(Tx)
- Supports cloud and mobile APP for monitoring and alert



Status LED indicator



Power (DC-IN) port



Mounting holes

Reset button

Preparation and Requirements

In order to have the best performance, there are a few things that need to be prepared and a few requirements to be met. These items are:

An Indoor Environment

Lyra Care is designed to monitor indoor environments of various sizes. To get the most out of the system, the indoor environment should have at least two separate rooms. One of these rooms should be the bedroom, to monitor sleep. The other room is arbitrary — popular locations are the bathroom or kitchen. Having two separate rooms enables a software configuration of one master node and two child nodes. This is the baseline configuration to provide meaningful well-being data. Sleep and daily activity *per room* can be monitored.

A Person Living Alone

Lyra Care is designed to monitor a single older adult living alone.* Currently, the system allows for single person breathing and sleep monitoring.

Smart Phone

The smart phone which will host the Lyra Care Installer App must be a smartphone with iOS.12 or later, or Android

Available indoor WiFi or an LTE MiFi:

The master node must communicate with the cloud. It uses the 2.4 GHz WiFi interface as the communication link. This requires the master to connect to an indoor WiFi with a 2.4GHz band, or an LTE MiFi with a 2.4GHz band.

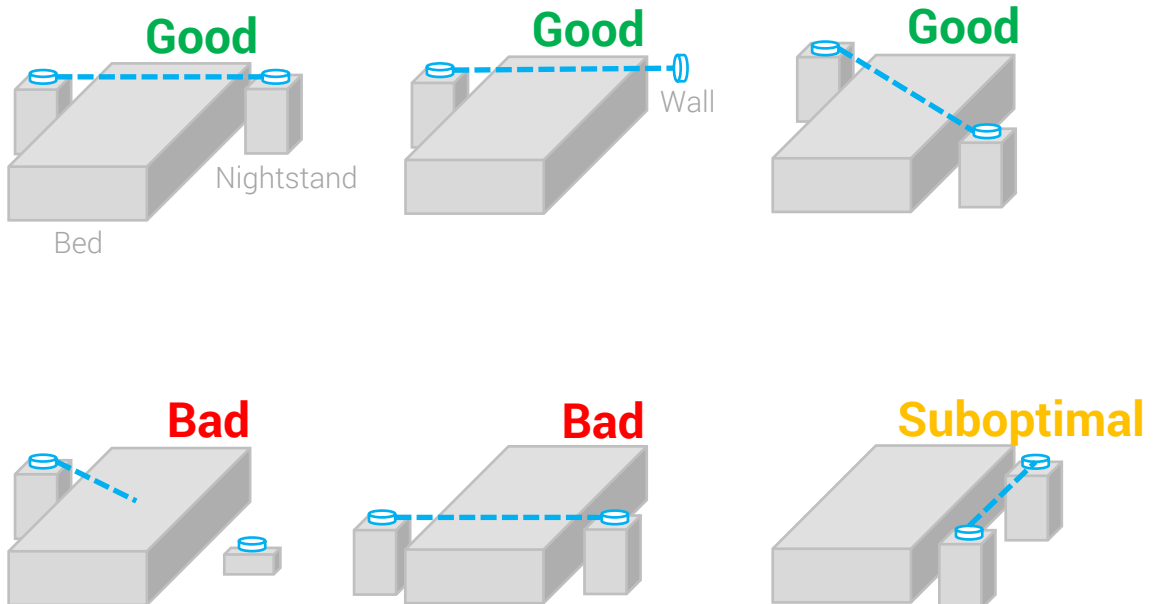
Device Installation-1

The next steps involve installing the Lyra Cares. In this kit, we've provided you with four labeled Bots: (1) Origin, (1) Sleep Bot, and (2) Motion Bots.

To get the best well-being results of sleep and daily activity, there are a few guidelines to follow.

Sleep Bot + Origin Placement

In this pre-beta FTK, the sleep Bot and Origin are used for sleep monitoring. These devices monitor the rise and fall of a human chest to detect breathing. To get the best results, they should be placed so that they intersect the human body, either perpendicular or diagonal. They should be placed above the height of the mattress. The **Origin** and the **sleep Bot** *need* to be used for this setup.



! Moving devices too close or too far away can have limitations. If the devices are too close, they may not adequately cross the body. If the devices are too far, they may not create a dense enough WiFi sensing area to pick up the periodic chest movement of breathing.

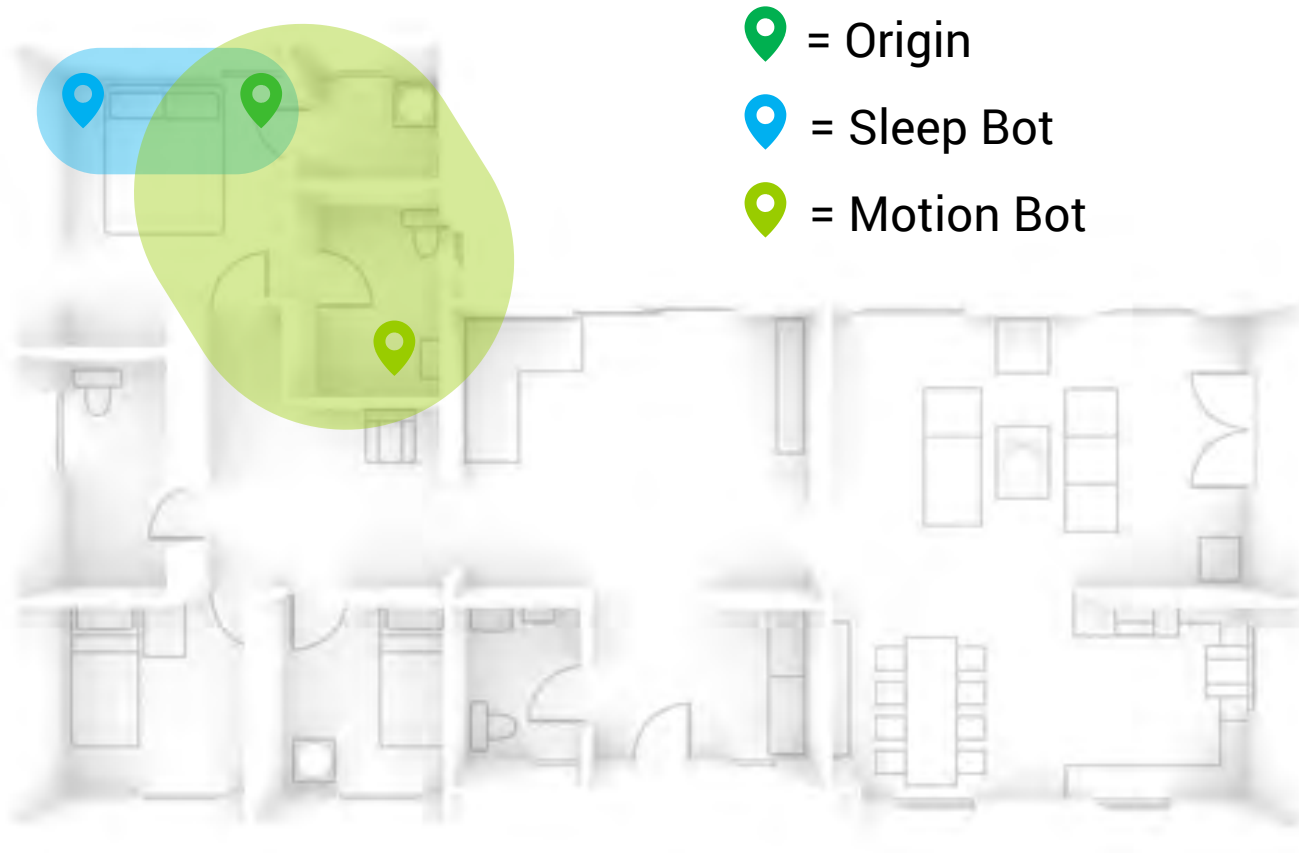
Device Installation-2

Motion Bot Placement

Motion Bots are used to track the daily activity of the care recipient. Their placement is more flexible – they can be placed in any room that you want to monitor. Usually rooms of interest include the bathroom, kitchen, and living room.

The **rooms that you place the devices in will be displayed in the app**. You can change these rooms at any time and simply rename the devices in the app.

The **Origin should best be placed so that it sits between the sleep Bot and the motion Bots**. Some overlap is okay, but this yields better separation of room coverage and better daily activity results. The motion Bots should be placed around waist height. Make sure they are not placed too close to each other, again to provide better separation of rooms.

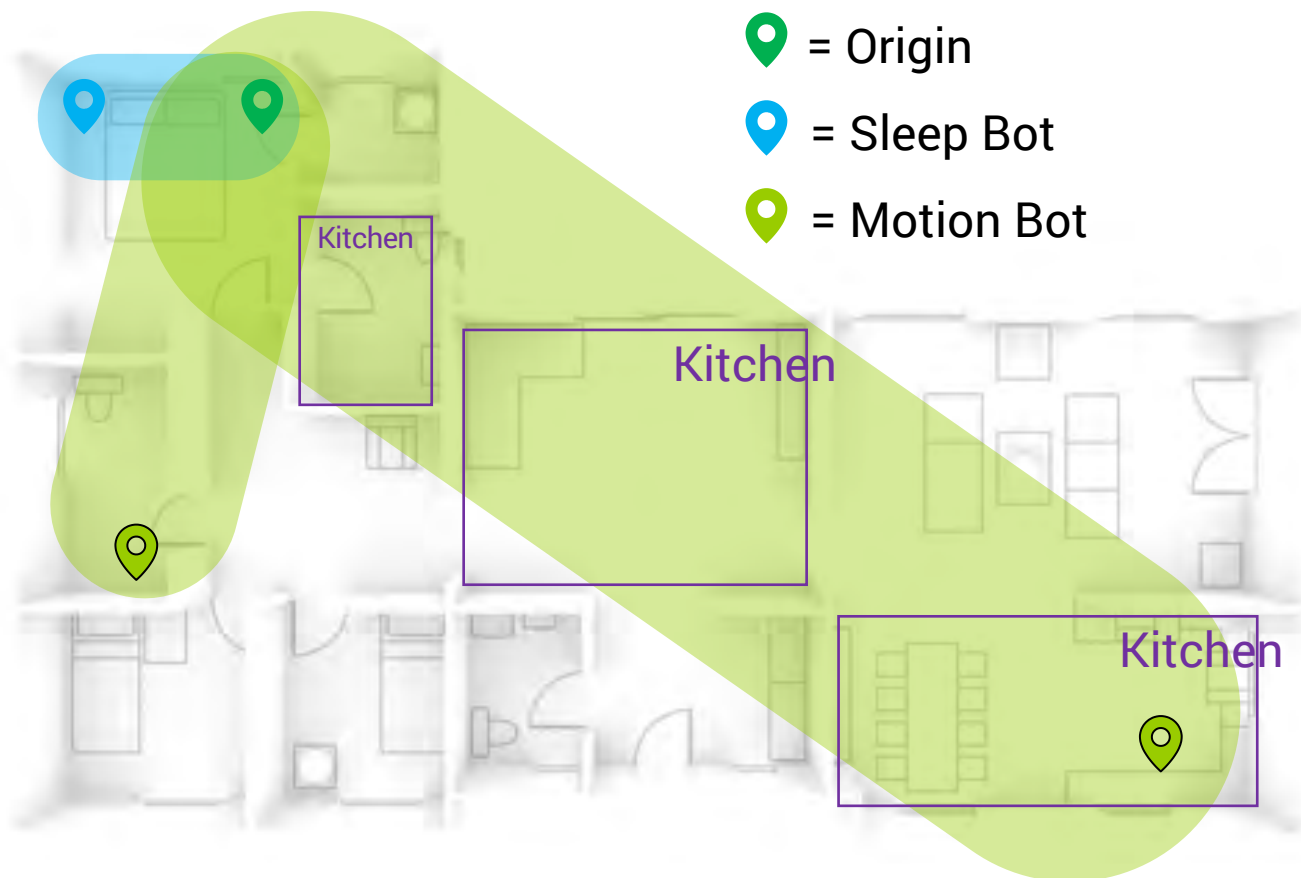


Device Installation-3

Motion Bot Placement – Important Tips

When a Motion Bot is placed far away from the Origin, it creates a large sensing area. This can be seen in the figure below, where the kitchen motion Bot is far away from the master. In this case, all rooms that are in-between the kitchen Bot and the Origin will fall under the kitchen Bot’s sensing area.

 Motion in these rooms will be recorded as “kitchen motion” because they are in the kitchen Bot’s sensing area.

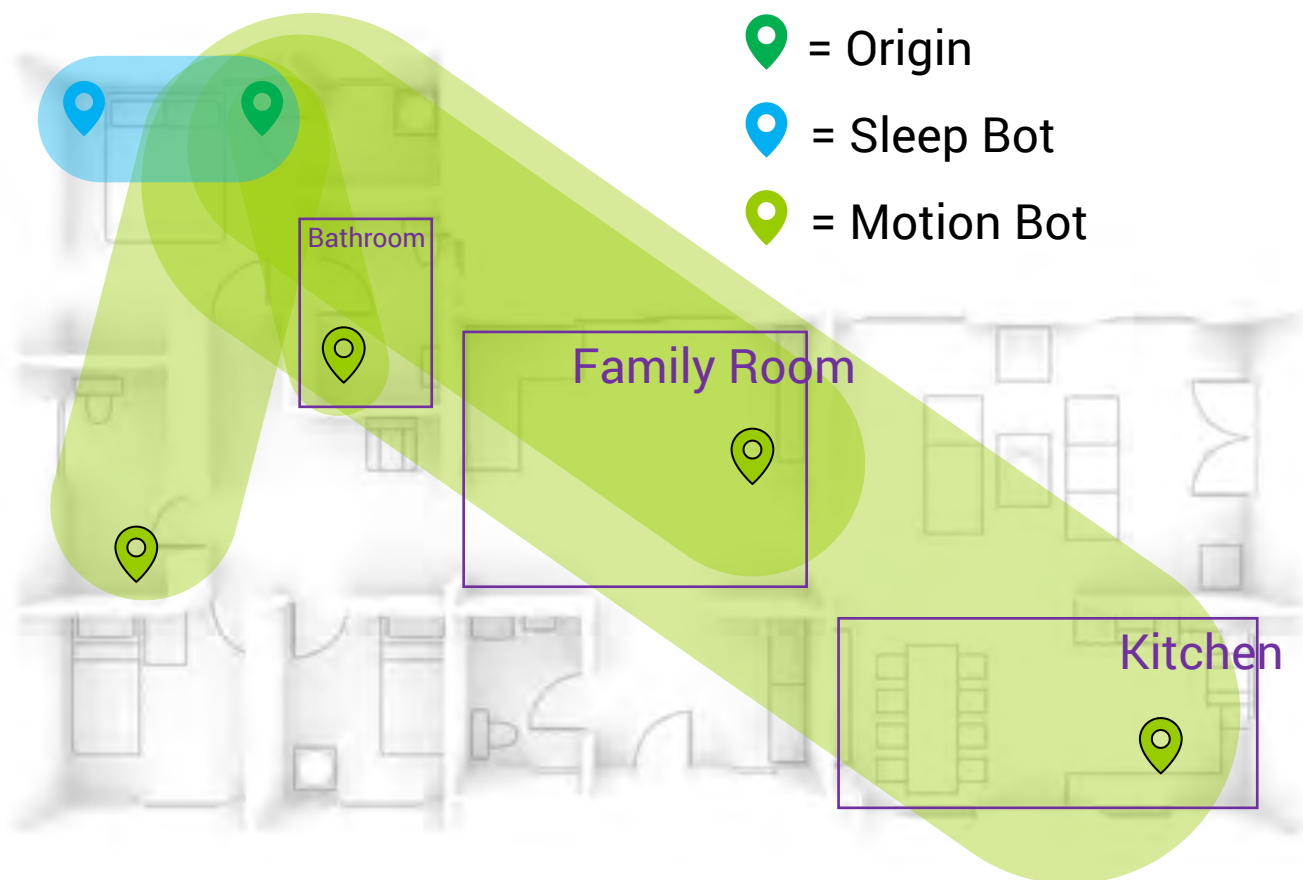


Device Installation-4

Motion Bot Placement – More Bots = Better Room Detection

Adding motion Bots to the system yields better motion detection per room, and less overlap.

 Motion in these rooms will be recorded as “kitchen motion”, “family room motion”, and “bathroom motion” because each room now has its own motion Bot.

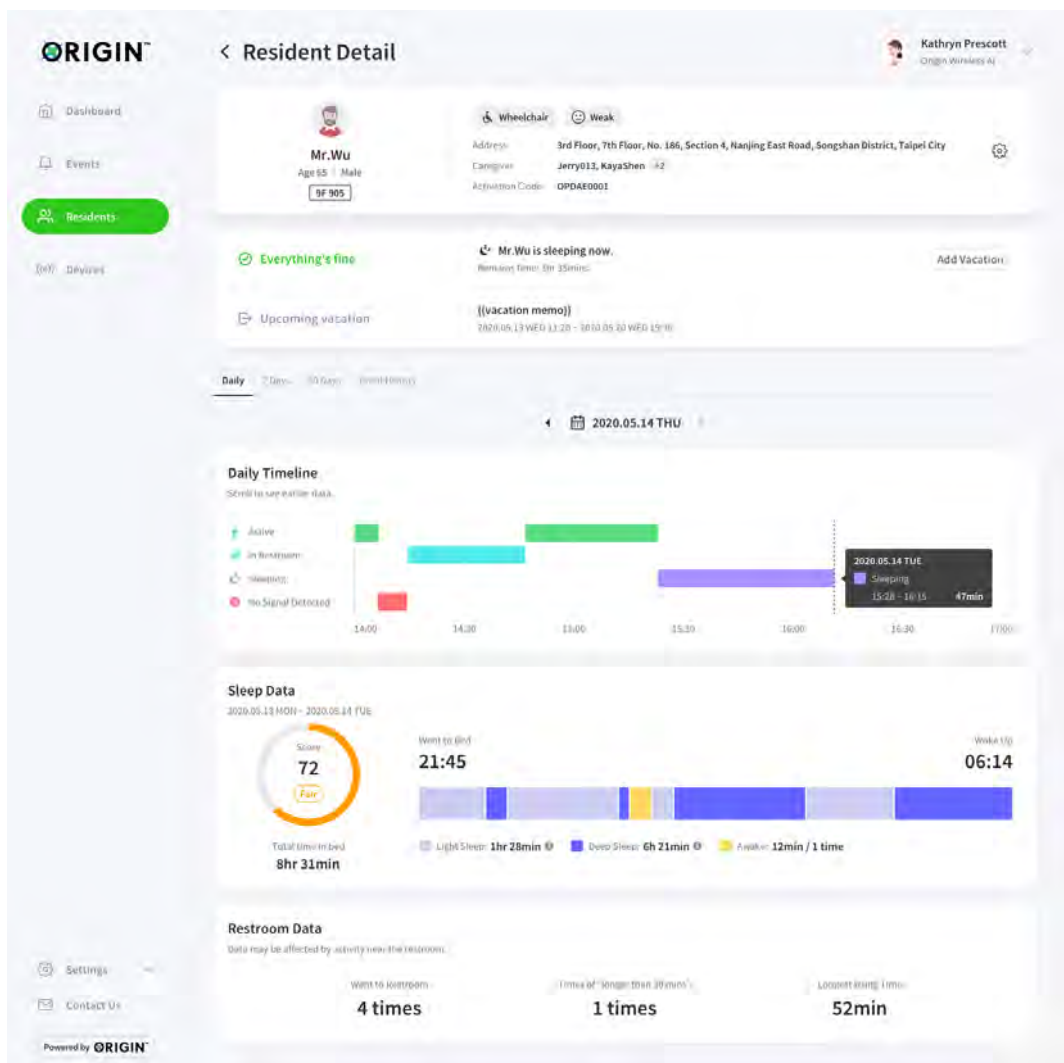


Setup your Lyra Care system

1. Download the free Lyra Care Installer App.



2. Launch the **Lyra Care Installer App** on your mobile device, and follow the instructions in just a few moment.
3. Register and log into **Lyra Care Web App**. <https://lyra-care.com>



Status of LED colors

Section	Character	Device Status	LED color	Behavior
During Pairing Process	Origin	Power on	white	Always on
		waiting for connection (not being connected to a Wi-Fi Ap nor origin)	Blue	Always on
		Trying connecting to phone, home WI-Fi or server	Blue	Blinking
		connected to WI-FI (can access internet) but has no Bot	Blue	Always on
		origin gets parigning command with a pairing list. Doing the pairing work.	Blue	Blinking
		connected to WI-FI and has one bot connected (= everthing is good)	White-> off	on 30 sec-> off
	Bot	Power on/	White	Always on
		waiting for connection (not being connected to a Wi-Fi Ap nor origin)	Blue	Always on
		connected to orgin	White-> off	on 30 sec-> off
After Pairing process	Both Origin & Bot	Everything is good!	off	off
		Loss connection to the internet/ to the origin.	red	Always on
		Updating	White	random breathing
		Factory reset	Green	Blinking
		Reboot	White	Blinking

Statement

Federal Communication Commission Interference Statement

This equipment 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.

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.→ **15.19 rule**

FCC SDoC:

Model name、brand name、15.19 statements and responsible party in USA's name, address and telephone number or Internet contact information、

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

This device is restricted for indoor use.

This device is going to be operated in 5.15~5.25GHz frequency range, it is restricted in indoor environment only.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

FCC Caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

NCC Statement

「經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能」。

「低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾」。

「減少電磁波影響，請妥適使用」。

Japan Statement

5GHz band (W52): indoor use only (except communicate to high power radio)

電波法により5GHZ帯は屋内使用に限ります（登録局との通信を除く）