

THE ORGANIC RESPONSE USER GUIDE LITE

Part 1

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DOCUMENT CONTROL

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Disclaimer

This document is meant for offline sharing and can result in outdated information once shared. Always refer to the online user guide and user guide light to get the most upto-date information.



Contents

1.0.	Product Introduction	5
1.1.	Introduction	5
1.2.	Response SN3	5
2.0.	How Organic Response Works	6
3.0.	Operational Terminology (Plug'n'play)	7
3.1.	Zone (Default ID 1)	7
3.2.	Personality (Default Open Floor)	7
3.3.	Operations	7
4.0.	OR Smart Phone Application	10
4.1.	Response App	10
4.2.	Node Selection Response App	10
4.	.2.1. How to select a ResponseSN3 and What to Expect	11
4.	.2.2. How to select a Response Radio and what to expect	12
4.3.	Organic Response IR App	12
4.	.3.1. IR Dongle	12
5.0.	Features & Configuration	13
5.1.	Light Output	13
5.	.1.1. Introduction	13
5.	.1.2. Simple Steps to Configure (Response App)	13
5.2.	Zones	15
5.	.2.1. Introduction	15
5.	.2.2. How to Zone	15
5.	.2.3. Zone Stitching	16
5.3.	Personality	17
5.	.3.1. Introduction	17
5.	.3.2. Choose Personality	17
5.4.	Dwell Time	18
5.	.4.1. Introduction	18
5.	.4.2. How to Configure Dwell/Lowlight Time	18
5.5.	Daylight Dimming	19
5.	.5.1. Introduction	19

Q



5.5.	2. (Configuration	
5.6.	Scen	ne	20
5.6.	.1. I	ntroduction	20
5.6.	.2. 5	Scene Configuration	20
5.7.	EnOc	cean Node Interface	21
5.7.2	1.	ntroduction	21
5.7.2	2. 5	Switch ID pairing	21
5.7.3	3. (Query / Edit Switch ID Pairing	23
5.7.4	4. Z	Zone pairing	23
5.8.	Chan	nnel Link	24
5.8.	.1.	ntroduction	24
5.8.	.2. ŀ	How to Create or Join a Channel Link	25
5.8.	.3. F	How to Edit/Remove Channel Link2	
5.9.	Resp	oonse Radio	26
5.9.1	.1.	ntroduction	26
5.9.	.2. (Configuration	26
5.10.	Addit	tional Features	29
5.10).1. A	Absence Detection	29
			29
5.10).2. F	Response Sensor Node Settings	
5.10).3. I	nfrared Transmission	31

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1.0. Product Introduction

1.1. Introduction

Organic Response (OR) offers an intelligent wireless lighting control solution. A solution that allows lighting to respond to the collection of information directly coming from its environment and its neighboring light fittings. As a result, an Occupancy Information Cloud is formed that always delivers an optimal amount of light when and where needed.

1.2. Response SN3

We have sensor nodes at the core of this intelligent lighting control system. These are fitted during luminaire manufacturing and are primarily integrated into each luminaire. OR also offers detached nodes to allow customization while delivering the same operational intelligence as an integrated



version of the sensor node. Each Sensor Node has a motion sensor, ambient light sensor, infrared transmitter, and infrared receiver.

- 1) Light and motion sensors collect direct information from their environment while
- 2) IR transmitter & receiver allows each Sensor Node to communicate wirelessly with neighbors.



2.0. How Organic Response Works

In an OR installation, SN3 nodes implement wise lighting control decisions from 2 key factors,

- 1. Information directly in its environment (presence & light level)
- 2. Proximity-based presence information shared with neighboring nodes

These factors allow the nodes to make informed decisions on how much light is required and where it is required. Some examples (illustration only) of how information propagates between neighbors or how the system behaves seamlessly to motion,



Figure 1 Proximity information shared with neighbours



Figure 2 Proximity information shared with neighbours (Top View)

As the occupants continue moving under different luminaires, the light levels will adapt accordingly.

3.0. Operational Terminology (Plug'n'play)

Organic Response is a "plug & play" system requiring no configuration and operates out of the box with default factory settings. These factory default settings and how they contribute to the operations are detailed below.

3.1. Zone (Default ID 1)

Zones act as logical separations between how information is shared between nodes in an area. All nodes come with a default zone 1. This allows them to communicate with one another to share all occupancy & control information with their neighboring nodes without any need to configure them.

3.2. Personality (Default Open Floor)

Personality is a setting of the Response SN3 that determines the dimming level for various distances from the closest occupant in a zone. The dim levels for open floor personality, which is the default mode for all Response SN3 are shown as below;



Figure 3 Open Floor Personality Light Output Profile

LIGHT LEVELS (%)							
MOTION	LEVEL	LEVEL	LEVEL	LEVEL	0%	LOW	STANDBY
MaxLight	1	2	3	4+	FROM	LIGHT	
_					LEVEL		
100%	100%	70%	40%	10%	16	10%	0%

3.3. Operations

Some of the core default operations can be understood easily from the figure showing the transition of,

- 1. Light output (along y-axis) against
- 2. Time (along x-axis) with
- 3. Occupancy events shown at the top indicate the state of occupancy





Figure 4 Operational Depiction

In an out-of-box installation following the picture above, an occupancy detection will trigger the below actions,

- 1. **MAXLIGHT LEVEL** Upon sensing occupancy from its own PIR, a ResponseSN3 would turn the light on at 100%, known as the default maxlight level. This node will then trigger the open floor personality to come into effect for neighboring nodes in zone 1 (as explained above).
- 2. **DWELL TIME** Luminaire would wait for 10 mins (called dwell time) at its MaxLight level (100%) before dropping to a low light level after a space becomes vacant.
- 3. LOWLIGHT LEVEL This low light level achieved after dwell time is a lower safety level for occupancy and is 10% by default.
- 4. LOWLIGHT TIME Luminaire would wait for a further 10 mins (low light time) at its LowLight level (10%) before going to the next level while the space remains vacant.
- 5. **MIN LIGHT** Upon passage of 10 mins of no occupancy (lowlight time) lights would turn off (0% light output) where default min light levels at 0%

In addition, some other default parameters which are shared above and contribute to operations include,

- 1. **DEFAULT COLOR TEMPERATURE** The default colour temperature is 4500K which is maintained as long as luminaire outputs non-zero light level.
- 2. **RESPONSE RADIO LIGHT OUTPUT** Upon powering up a Response Radio it will cause the connected luminaire to exhibit 100% light output and will continue to



stay at 100% light output at all times unless further configured.

3. **RESPONSE RADIO COLOR TEMPERATURE** – A Response Radio that will have the tunable white luminaires will preset to 4000K colour temperature in addition to 100% light output unless configured further.





4.0. OR Smart Phone Application

4.1. Response App

The *Response App* is free to download from the Apple App Store (<u>click here</u>) and Google Play Store (<u>click here</u>) and includes contextual help and FAQ's. This app uses your smartphone's Bluetooth device to communicate with a nearby sensor node.

Please skip the below step if you are already a configurator and head over to <u>node selection</u> If you are using the application for the first time, please navigate as shown below to upgrade your access to a configurator,

- Login using one of the available options and follow the on-screen prompts
- 2. Click on "Upgrade to Configurator "highlighted (greed) & contact your luminaire manufacturer to approve your access.



Figure 5 Upgrade to Configurator

4.2. Node Selection Response App

Since the *Response App* uses Bluetooth on your device, there can be several nodes in your vicinity from which to select. A nearby node with the highest signal strength (RSSI) is automatically selected as soon as you click on configure SN3 or Passive Node.







4.2.1. How to select a ResponseSN3 and What to Expect





	4:40 @	♥⊿ 🔒 72%	4:40 @	♥⊿ 🔒 72%	
1. Click Configure	Home	θ	← No	de Selection	
Passive Node.			CLC	SEST NODE ×	
2. The respective publisher SN3 luminaire will blink	Configure SN3 >			48F19C	
once, or you may click the Blink Luminaire button to		la	Not the right not clear a	de? Press the button below to and try find it again. Dismiss Node	
confirm if you are connected with the right response radio.	EnOcean Wall Switch >		Auto Blink	Blink Luminare 2	
3. Click dismiss node if it's not the intended node.					
4. Press the Configuration tab to					
connected Response Radio.	Configure Passive Node	·>			
	This	*		4 Configuration	
You can have the "Auto Rlink" selected for visual aid					

4.2.2. How to select a Response Radio and what to expect

4.3. Organic Response IR App

An older version of the application, also available in the Apple and Play Store, uses an additional component (IR Dongle) to communicate with the nodes. This version of the app is no longer under development, which means that some of the new features can only be found in the Express app.

If you are using this version of the app, please head over to the detailed version of the User Guide to see the navigation steps for the relevant feature configuration.

4.3.1. IR Dongle

The Infrared (IR) Dongle, when plugged into a compatible iOS or Android device, enables users to communicate with Organic Response-enabled light fittings by using the Organic Response IR App. The dongle uses a 3.5 mm audio jack to convert audio signals from the app to IR signals that sensor nodes recognize. The IR dongle is intentionally directional and must be aimed directly at the sensor node you wish to communicate with.



5.0. Features & Configuration

5.1. Light Output

5.1.1. Introduction

This feature enables you to,

- 1. Read and change the current light output level (Temporary dimming)
- 2. Change the default Max, Low, and Min light values for auto operation.
- 3. Set the desired color temperature (CT) temporarily or change it for default operations.

5.1.2. Simple Steps to Configure (Response App)



5.1.2.2.

Temporary Color Temperature: Upon node selection 1. Toggle the *relay* on for the whole zone or off for the selected node only. 2. Press a *Warmer* or *Cooler* button or use the *sliding bar* to set a desired color

- temperature (from warmer to cooler)
- 3. Press the Query button to read the current CT.

5.1.2.3. Auto Operation (Light/Colour Temp):

Setting default light output (max, min & low) or default color temperature has the same steps with very minor variation i.e. Upon node selection

- 1. Toggle the *relay* on for the whole zone or off for selected nodes only
- 2. Follow the Temporary Dimming steps above to choose a desired light output level (e.g., using a sliding bar) or the Temporary Color Temperature steps above to choose a colour temperature.
- 3. Now click on the relevant option ("Set Max"/"Set Default CT") to set it as the new default.

Step 3 of "set max" changes max light and, when replaced with "Set Low" or "Set Min, " configures Lowlight & Minlight.





5.2. Zones

5.2.1. Introduction

Zoning allows Response sensor nodes to decide if they need to act on the control & occupancy messages they receive over IR from their neighbors. If the neighbors (sender and receiver) have the same zone ID, they share the occupancy-level messages and act collectively.

The system allows configuring the Response Sensor Nodes to 12 unique zone IDs. Consider zoning each application area separately to enhance energy efficiency, e.g., a kitchen area next to the corridor can be zoned separately to allow lights to stay off in the kitchen while unoccupied.

By default, different zones don't share information. We can configure Response Sensor Nodes to share the following type of messages from/with other zones (collectively) called <u>zone stitching</u>,

- 1. Respond to occupancy from another zone and
- 2. Forward control/configuration messages for a different zone



Always remember to press the Save Settings button before you exit this page in case you want to store this setting.



5.2.3. Zone Stitching



The default for all Response Sensor Nodes is zone 1

3



5.3. Personality

5.3.1. Introduction

The personality determines how much light output a luminaire should exhibit based upon its distance from other luminaires in its zone that detected occupancy.

The distance from occupancy is measured in the number of luminaires, and the light output levels are predetermined relative to their maxlight light values.

There are a total of 13 personalities, each with their defined <u>output levels</u> and <u>profiles</u>.

5.3.2. Choose Personality

The default personality is "Open Floor."



- 1. Toggle the *relay* on for the whole zone or off for the selected node only.
- 2. Click on any *personality profile* you choose for a node or whole zone.





5.4. Dwell Time

5.4.1. Introduction

Dwell Time is the time it takes for a luminaire to dim from its MaxLight to its Lowlight state.

Lowlight time is the length of time a luminaire remains in its LowLight state before switching off (MinLight) completely.

5.4.2. How to Configure Dwell/Lowlight Time



The default Dwell Time and LowLight time is 10 minutes each



5.5. Daylight Dimming

5.5.1. Introduction

This feature allows us to utilize external daylight coming into the space and reduce the light output of any luminaire to enhance energy efficiency.

- 5. You can either enable or disable daylight dimming with existing calibration or
- 6. Manually calibrate and enable daylight dimming by adjusting the light output of a luminaire.

5.5.2. Configuration





5.6. Scene

5.6.1. Introduction

This feature enables selected luminaires to ignore occupancy and auto operation parameters and adopt a *constant light output and color temperature* for a specific period or until scene exit conditions are met. Eight scenes can be configured and customized to different parameters.

How to identify: If a sensor node is in a scene its green LED will blink continuously as opposed to blinking in response to an occupancy.

5.6.2. Scene Configuration

Upon node selection

- 1. Toggle the *relay* on for the whole zone or off for selected nodes only
- 2. Select the desired *scene number* from the drop-down menu
- 3. Choose a desired scene dimming level (Dim +/- button or Slider)
- 4. Click save to scene under scene dimming
- 5. Choose the desired *Color Temperature* (using Warmer/Cooler, Slider, or level from the list)
- 6. Click save to scene under color temperature
- 7. Choose the desired Scene Exit condition
- 8. Save settings to store all configurations for this scene



Note that the nodes will only revert to responding to occupancy and ambient light once they exit the scene or when you select the "Revert to Auto Mode" button on the ResponseApp to exit the scene and return the lights to normal operation.

The detailed user guide contains each scene's default light levels and exit conditions.



5.7. EnOcean Node Interface

5.7.1. Introduction

EnOcean wall switches allow you to apply manual switch control in an area. Depending on the configuration, EnOcean switches can be configured to control either a single luminaire or a group of luminaires.

The wall switches can be configured through the app using your smart devices' NFC. See an illustration on the right,



5.7.2. Switch ID pairing

In firmware version 181 or higher, this feature allows you to pair nodes with a switch and control the paired nodes or the zone of paired nodes. The operation in this mode requires the configuration of both the switch (Step 1) and the node (Step 2) to be paired.



5.7.2.2. Step 2: ID Paired Response Sensor Node Configuration

To pair the Response sensor nodes with the switch configured in Step 1, you can use either of the two options below.



5.7.3. Query / Edit Switch ID Pairing



- Click "Query" to see paired EnOcean Switch IDs
- Click "Reset to Default" to remove all pairings
- 3. Click "*Configure switch*" to navigate to EnOcean Switch configuration without going to the main menu

(The ID shown can be found on the back of your switch or by reading a switch)

Please note this option is only available in Response App for Response sensor nodes with firmware versions 188 or higher.



5.7.4. Zone pairing





5.8. Channel Link

5.8.1. Introduction

This feature enables the possibility of sharing occupancy & control data between Response Sensor nodes outside the typical infrared communication distances using the *Wirepas RF Mesh*. All Response Sensor nodes, by default, automatically become part of this Mesh that can act as a highway to carry targeted messages from a transmitting Response Sensor node to the desired receiving Response Sensor Node(s). Without configuration, messages are not shared over Wirepas; however, when configured for the same channel link ID, the message can be shared in the entire building network.

Each node can be assigned to a maximum of 6 different channels simultaneously, and the system supports 65,000 available channel IDs.

Please note that this feature is only supported by Stack 5 Response Sensor nodes with firmware version 188 or above. Please do not use this feature to share messages across the whole network, and care must be taken when enabling channel links to only apply it where required.

Important Recommendation: You must plan for the groups you wish to use in the building. Even if the nodes exist several floors apart, they can still see messages from faraway floors when there are 20 floors in between them.

Therefore we recommend planning ahead and documenting the groups that you will be using in a single building/network. To avoid any unnecessary overreach or over-sharing.

Configuration ≡ ← Configuration 5.8.2. How to Create or Join a Channel CLOSEST NODE CLOSEST NODE Link 238094 238094 Upon node selection 1. Press Query Blink Luminare 2. Enter the Channel Link ID/number. CHANNEL LINK CHANNEL LINK 3. Toggle *Transmission* and *Reception* for 15 2 the node to transmit/receive or do both on this ID. 4. Press "Join" to allow this node to Transmission transmit or receive on this channel link. Reception 5. Press the *Query* button to verify the Clear Link IDs Channel Link IDs assigned to the selected node. Configuration 5.8.3. How to Edit/Remove Channel Link CLOSEST NODE 9A5861 9A5861 Upon node selection 1. Click on *Channel link IDs* to select it, e.g., click on 122. This will open a popup window with the current CHANNEL LINK 0 transmission and reception settings. 122 2. Toggle *Transmission/Reception or both* CHANNEL LINK ID to set nodes as transmitter/receptor or 122 both for the channel. 1-65000 3. Click "Apply" to apply the settings Transmission 4. Click on "Delete" to delete this Channel Link Transmission Relay Save Settings

Please note that the firmware version of the Response Radio must be 188 PIC and 23 Nordic or higher. The Response Radio can be configured through **RESPONSE APP ONLY**.

Please Plan Ahead for Success: You must plan ahead & prepare for the configuration of pub-sub groups. Document what you are going to use in the building. Use as-builts and mark pub-sub group IDs to be used on different floors since

1. Response Radios are usually installed hidden behind a ceiling &

2. The message of a publisher is shared throughout the network, i.e., with all the nodes in the building.



5.9. Response Radio

5.9.1. Introduction

A Response Radio doesn't carry any sensing capabilities of its own. It relies on a publishing Response sensor node to provide control commands for subscriber nodes. This generates a publisher-subscriber link between "a publishing Response sensor node" & "one or many subscribing nodes," a.k.a *pub-sub group*.

There are 32,000 available pub-sub group IDs/numbers supported by the system.

5.9.2. Configuration

Response Radio configuration is a 2-step process: step 1 Publisher & step 2 Subscriber





5.9.2.1. Step 1: Configure Publisher





5.9.2.2. Step 2: Configure Subscriber



A few key notes

1. If the Response Radio is already assigned to a group, it will indicate the existing group ID in Step 2.

- 2. To easily identify, use the blink luminaires feature (click here).
- 3. By default, a Response Radio will always keep connected luminaires at
- static 100% light output and 4000K color temperature (if tunable white).

Note!

The relay is not going to be usable as the configuration of Publisher and Subscriber both require RF communication. Therefore, as soon as you click on relay in either of these menus all the options will be automatically greyed out rendering all buttons unusable.



5.10. Additional Features

5.10.1. Absence Detection

This feature enables luminaires to turn off when unoccupied as they usually would but *does not automatically switch them on upon seeing occupancy*. Absence Detection should always be used where you can manually send an On/Auto command, such as from an EnOcean switch or through the app. The below image shows how to enable/disable absence detection using the Response App.

Absence Detection is disabled by default





5.10.2. Response Sensor Node Settings

Previously stored settings will always be overwritten when you press save settings if you are unhappy with the recent changes.

- 1. You can recall the previously saved Response sensor node setting without saving new changes.
- 2. If you have saved them and would like to start from scratch, you can perform a factory default reset.

To recall settings for a node,

<u>Upon</u>	node selection	SENSOR NODE SETTINGS
1.	Toggle " <i>Relay"</i> on for the whole zone or off for the selected node only	Recall 2 Recall Factory 3
2.	Use <i>Recall Settings</i> to revert to the last stored point.	Settings
3.	stored point. Press <i>Recall Factory Settings</i> to restore the configurations back to factory settings.	
		1 Relay Save Settings Done



5.10.3. Infrared Transmission

Sometimes, in an installation, the IR transmission is unable to reach long distances due to the environment or poor reflective surfaces. To compensate for such circumstances to some extent, we can increase Response Sensor Nodes' infrared transmission power %.

When there is poor communication between response sensor nodes, a transmission test can be carried out. A Transmission Test is done to test the quality of the communication from one Response Sensor Node to its neighbors (communication that is critically important for effective Organic Response lighting control).

