

September 2020



Best practices for efficient setup

Application note

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Technology Partner SILVAIR

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McWong International Inc.

1921 Arena Blvd.

Sacramento, CA 95834

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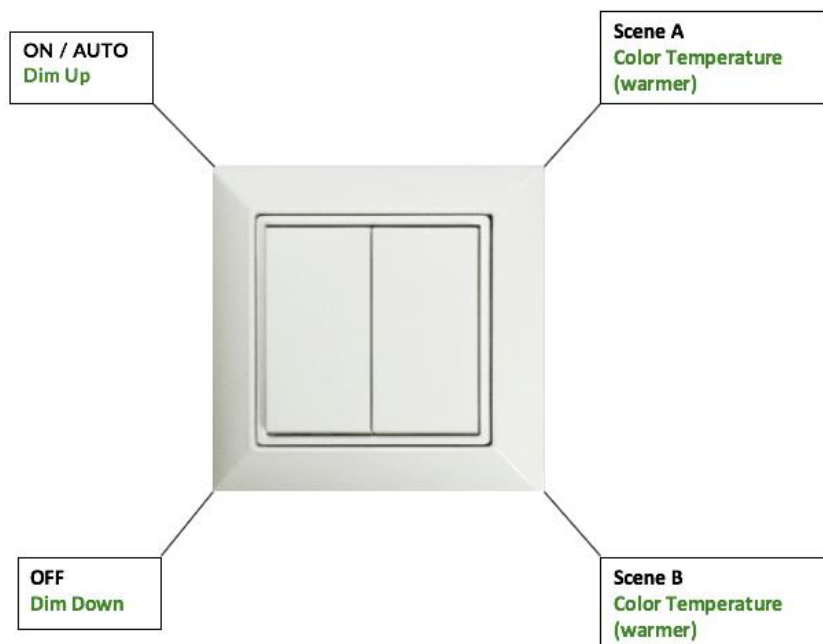
Overview

TruBlu supports manual control using EnOcean switches in Bluetooth mesh lighting systems. This is accomplished by providing an "EnOcean for Bluetooth" to "Bluetooth mesh" gateway feature in each device with TruBlu firmware. This feature can be enabled using the TruBlu mobile app.

Some definitions used in this document are listed below:

EnOcean switch	<p>A self-powered switch for Bluetooth lighting systems.</p> <p>Below there are predefined configuration types for switch behaviour:</p> <p>Left rocker is used for manual control and dimming:</p> <ul style="list-style-type: none">• Short press down - OFF• Short press up - AUTO/ON• Long press down - Dim Down• Long press up - Dim Up <p>Right rocker is used to trigger scenes and control color temperature (if available), scenes must be configured:</p> <ul style="list-style-type: none">• Short press down - SCENE B IN MOBILE APP• Short press up - SCENE A IN MOBILE APP• Long press down - Warmer¹• Long press up - Colder¹ <p>User can use two types of EnOcean presses (long & short presses) interchangeably. It means that the left rocker can be e.g. pressed first with a long press to turn the light ON and then with a long press to dim up the light.</p>
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¹ Color Temperature applies only to zones where compatible tunable white fixtures & appropriate version of the TruBlu firmware have been added. Without these components, the right rocker color temperature adjustment (colder / warmer temperature buttons) will not work.



* Short press actions - indicated in black.

* Long press actions - indicated in green.

NOTE:

The behavior of buttons of the EnOcean switch in one of supported scenarios - **Multiple Scenes** is different than the predefined configuration types mentioned above. Please read on the document.

EnOcean switch sample models:



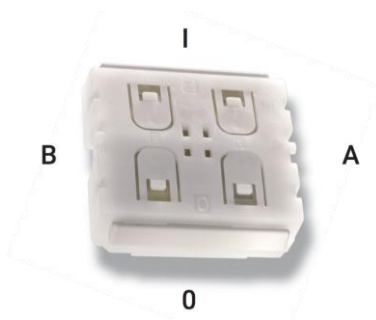
Easyfit Single (EWSSB)



Double Rocker (EWSDB)




Easyfit Double Rocker BLE Switch (EDRPB)



EnOcean BLE Switch Module (PTM 215B)

The supported switches for our lighting system must be based on the EnOcean BLE Switch Module.

NOTE: In order for switches to operate as described above, the EnOcean BLE Switch Module (PTM 215B) should be mounted so that the “I” label is placed above the “O” label.

	<p>More information on EnOcean products available at https://www.enocean.com/en/enocean-modules-24ghz-ble/</p>
<p>EnOcean switch: QR code</p>	<p>The switch must have the appropriate QR code sticker at the back of a switch to allow for the QR code commissioning pairing option. An example of a QR code on the EnOcean switch that enables pairing with the TruBlu mobile app:</p>  <p>An example of non-working Datamatrix code (please contact EnOcean support for workarounds https://www.enocean.com/en/enocean-contact/)</p>



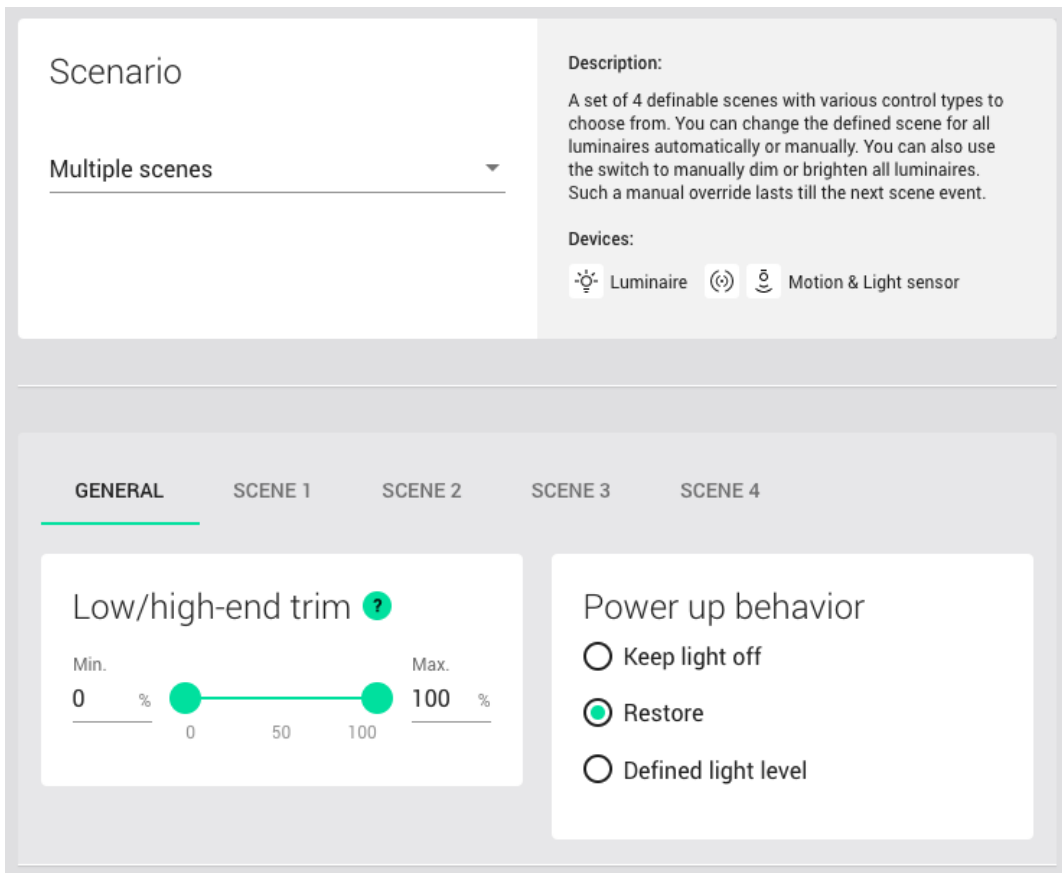
NOTE: Please **always** consult your supplier before purchasing the switch to ensure that the particular model has the appropriate QR code pairing option.

<p>EnOcean adapter</p>	<p>“EnOcean adapter” is a feature of Bluetooth mesh devices running on TruBlu firmware that provides a communication bridge between EnOcean switches and the mesh network.</p> <p>After configuring a device as an EnOcean adapter using the TruBlu mobile app, it becomes the first receiver and re-transmitter of data packages delivered by the registered EnOcean switch.</p> <p>The device functioning as the EnOcean adapter translates the data received from the EnOcean switch to the remaining mesh devices in the network.</p>
<p>Relay</p>	<p>A device defined as “Relay” via TruBlu mobile app. This device relays messages further into the mesh network. Please check “Application note: Network configuration” for best practices concerning efficient network configuration setup.</p>

<p>Mobile device proxy</p>	<p>A feature of qualified Bluetooth mesh devices added (provisioned) to a mesh network that allows to send and receive mesh messages over Bluetooth connection mostly used by mobile devices such as smartphones and tablets.</p>
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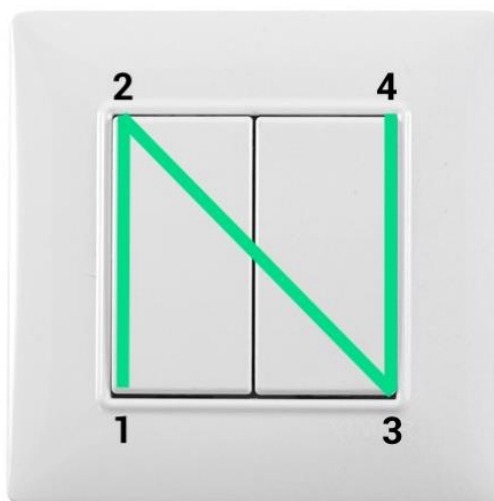
EnOcean switch support for *Multiple Scenes* scenario

Multiple Scenes scenario allows the user to define up to 4 scenes to recall. Users can change light control behavior from one automatic scenario to another e.g. with different levels to maintain. Scenes set in the Multiple Scenes scenario can be triggered by scheduling and by pressing the EnOcean wall switch. The below image shows an example setup for Multiple scenes scenario.



Short press:

The configured scenes (see the image above from the Commissioning app) are triggered by pressing the EnOcean switch buttons. It might be helpful to imagine the **N** letter shape on the surface of the switch, where each button is a place which should be pressed for the scene recall. Check the below image to see how the EnOcean switch operates, where 1 = scene 1 , 2 = scene 2, 3 = scene 3, 4 = scene 4.



“N” for EnOcean

In case of [long press](#), the switch behavior goes to: 1 = Dim Down, 2 = Dim Up, 3 = Color Temperature (Colder), 4 - Color temperature (Warmer).

Example behavior of EnOcean switch in various scenarios

In some scenario settings, there is an additional “**Manual override timeout**” parameter (defined in minutes) that is set via Commissioning Web app. When user turns on one of the preset scenes from the EnOcean switch, after (x) minutes of **detected vacancy in the space**, the light will be switched to its default settings. For more information on specific scenarios please check the Scenario parameters for customization chapter in the [Commissioning User Manual](#).

Scenario type	EnOcean switch behavior
<p>Manual Control</p> <p><i>All luminaires are switched on and off manually with a wall switch.</i></p>	<p>Characteristics:</p> <ul style="list-style-type: none"> • NO automatic control. User adjusts the lighting only by pressing the switch buttons. • Manual ON / AUTO button - sets the light to the “Default light level” set in the profile settings. • Manual OFF - sets the light to 0%. • After changing lighting behavior (e.g. switching off, dimming, changing scene), it must be manually restored as there is no automatic behavior defined. • “Manual override timeout” parameter - not available in this scenario.

<p>All types of Occupancy and Vacancy scenarios</p> <p><i>Occupancy: All luminaires are switched on when motion is detected and switched off when no motion is detected for a given time.</i></p> <p><i>Vacancy: All luminaires are switched on manually with a wall switch and switched off automatically when no motion is detected for a given time.</i></p>	<p>Characteristics:</p> <ul style="list-style-type: none"> ● Pressing ON / AUTO button sets the light to the Occupancy mode level and it lasts for a defined timeout (available in profile edition). ● "Manual override timeout" parameter is available. <ul style="list-style-type: none"> ○ This parameter is triggered after pressing: OFF, Dimming Up/Down, Scene A, Scene B on the EnOcean switch. ○ The timer is resetted after detecting occupancy in the room. Example: Manual override timeout is set to 10 minutes. User presses OFF button on the EnOcean switch and leaves the room. <ul style="list-style-type: none"> ■ CASE A: Occupancy in the room is not detected for 10 minutes. The lights are switched back to the default settings. ■ CASE B: Occupancy in the room is detected after 3 minutes. The timer is reset and starts counting again from 10 minutes.
<p>Multiple Scenes</p> <p><i>A set of 4 definable scenes with various control types to choose from. You can change the defined scene for all luminaires automatically or manually. You can also use the switch to manually dim or brighten all luminaires. Such a manual override lasts till the next scene event.</i></p>	<p>Characteristics:</p> <ul style="list-style-type: none"> ● 4 scenes triggered by short pressing the EnOcean switch. ● Dimming available after long pressing the switch. ● "Manual override timeout" parameter is not available. ● More information about specific scenes recall available here.

Registering an EnOcean switch to a zone

Choosing a device for use as an EnOcean adapter:

To connect your EnOcean switch with your mesh network zone, you must configure one device as an EnOcean adapter device:

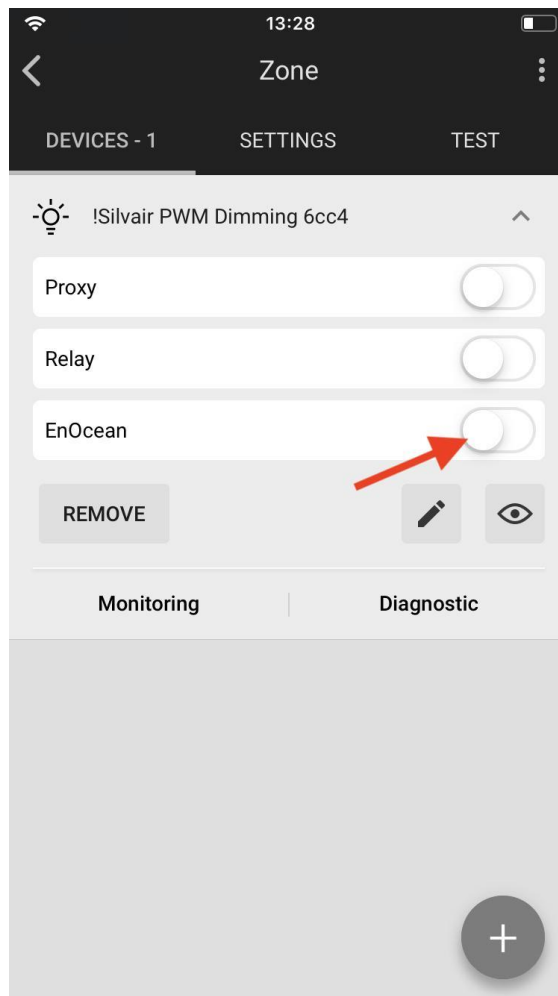
- Open TruBlu mobile app and select your project and desired zone.
- Choose the device that will be EnOcean adapter. A **small distance** between the EnOcean switch and the device configured as an EnOcean adapter will help guarantee better performance of the switch.

HINT: If you have troubles finding the location of particular devices, use the small light bulb icon placed on the devices list. Tap the light bulb and observe which luminaire is drawing attention by slowly blinking.

Registering an EnOcean switch:

- Once you have selected the optimal device, tap the “EnOcean” toggle to enable the EnOcean adapter for that device.

NOTE: We recommend to have 2 EnOcean adapters enabled for each switch to mitigate the single point of failure (in case when the EnOcean adapter device fails). Please remember that increasing the number of EnOcean adapters increases the network traffic coming from the switch and may affect the quality of the mesh network.



- The app may ask for permission to access the camera. Select **OK**.
- Point the camera at the QR code on the back of the EnOcean switch or on its packaging.
- The app will read the QR code and configure the EnOcean switch.
- When the pairing succeeds, test the EnOcean adapter connection by pressing EnOcean switch and observing the behaviour of the light fixtures in the target zone.

NOTE: If the EnOcean switch is physically too far from the selected EnOcean adapter device, the devices within the zone will not respond.

NOTE: Do not add one EnOcean switch to multiple devices, even if they are in separate zones. This can result in the luminaires **not** turning on all at the same time.

Simultaneous EnOcean adapter and Mobile device proxy on a single device:

- Do not simultaneously turn on both the EnOcean adapter and Proxy modes on one device in a project with multiple luminaires. Doing so is known to cause issues with reception of the EnOcean packets from the switch. As a result, the lighting mesh network may fail to respond after pressing the EnOcean switch.

Installing EnOcean switch and enabling EnOcean adapter

Figure 1 shows correct EnOcean adapter device location. The adapter located right next to the EnOcean switch receives data packages from the switch and is able to deliver the packages to the devices located further in the zone.

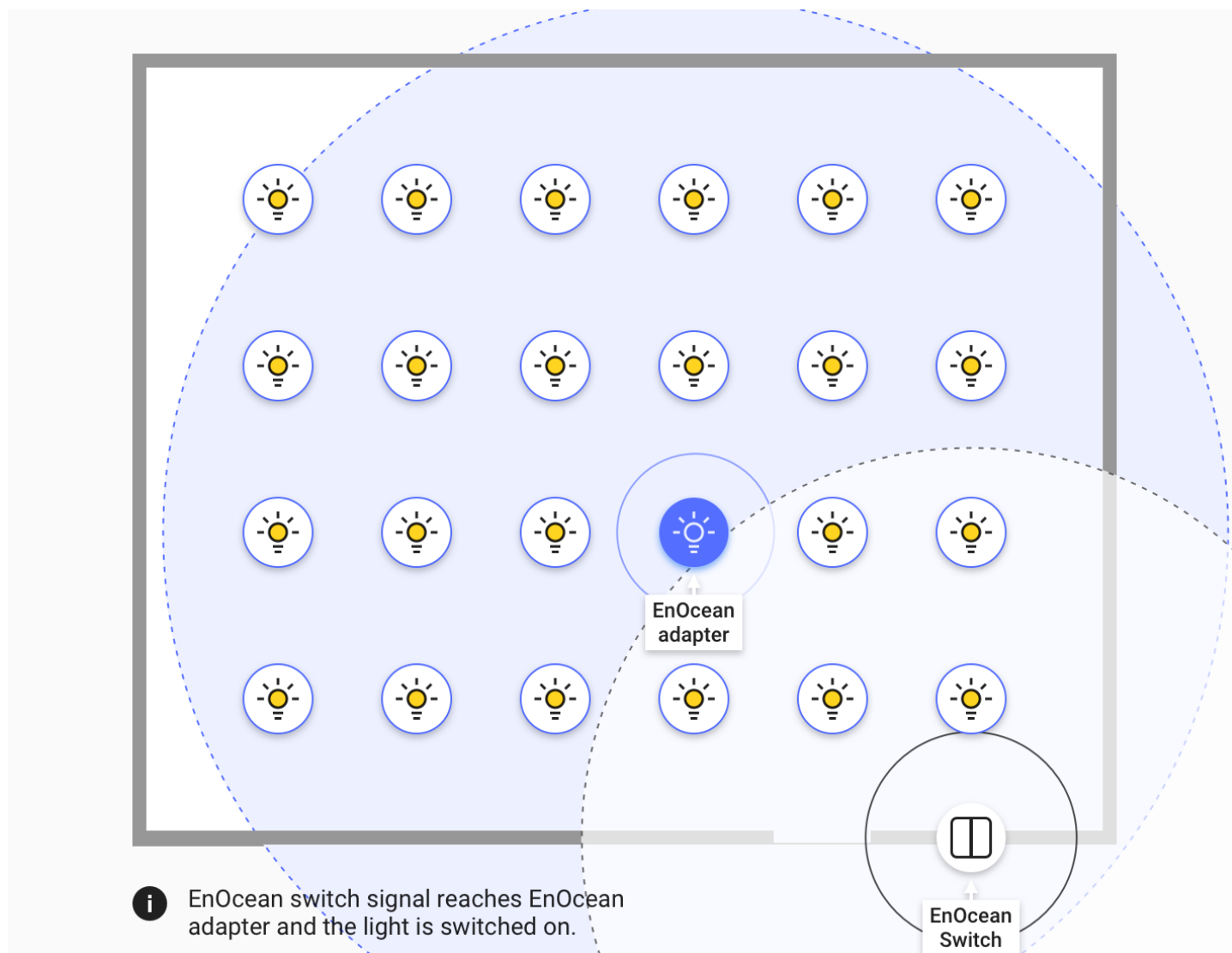


fig.1 EnOcean adapter device - correct location

Figure 2 shows incorrect EnOcean adapter device location. The adapter is **not** located right next to the EnOcean switch. EnOcean adapter device does not receive data packages from the switch and it fails to transmit data to the devices in the zone.

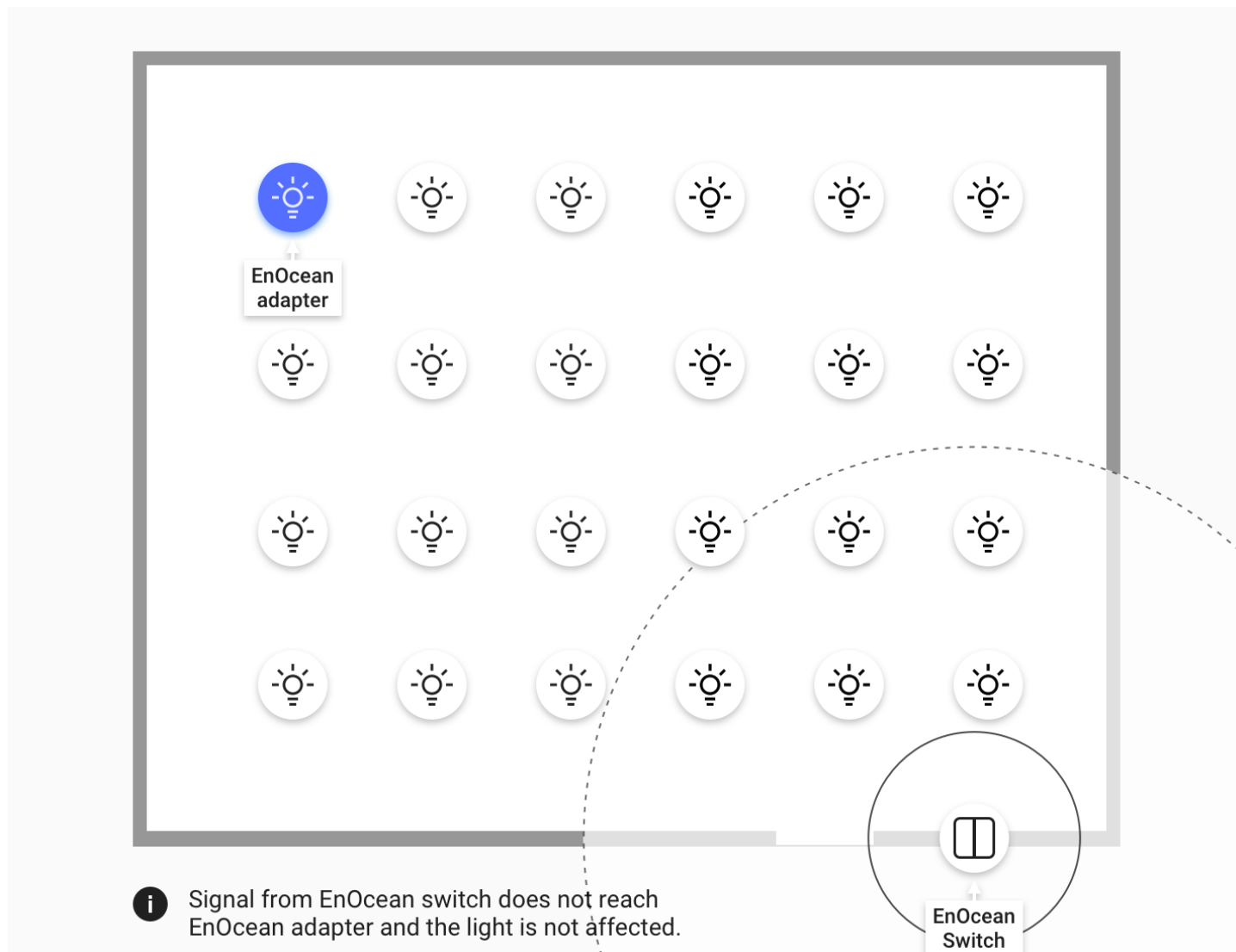


fig.2 EnOcean adapter device - incorrect location.

Controlling multiple zones with single EnOcean switch:

- When you want to control multiple zones with one switch, we highly recommend using our Zone linking feature available in our TruBlu web application.
- You can assign single EnOcean switch to control more than one zone. However, it makes sense **only** when zones are located close to each other.
- In case when zones are scattered away, or they are placed on different floors, transmitting data between EnOcean switch and EnOcean adapter device will fail due to too large distance between them.

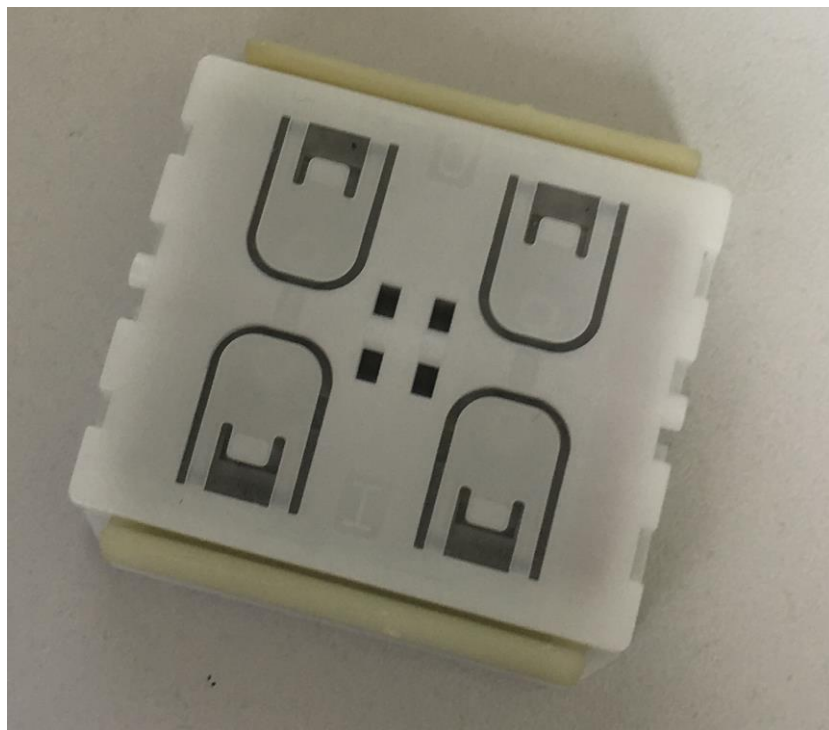
Resetting the switch

If the EnOcean switch has been reconfigured to use nonstandard channels, it might not work correctly with TruBlu firmware. In order to set the switches back to standard Bluetooth advertising channels, the switch needs to be reset to factory settings. The quick procedure is as follows **(Please try the following instructions on the 2.4GHz EnOcean switches):**

1. Remove the EnOcean switch from the casing.



2. Remove the rockers from the EnOcean switch.



3. Simultaneously press and hold all 4 of the buttons on the EnOcean switch and push down the yellow tab on the side for 10 secs or more.



4. Release all of the buttons.
5. Try and add the EnOcean switch to the Zone in question and test functionality.

Troubleshooting

Issue: When pressing the EnOcean switch, devices in a single zone do not respond.

The EnOcean adapter option on the device is enabled and configured with the TruBlu mobile app. However, when pressing the EnOcean switch, one of e.g. 6 devices does not respond.

To troubleshoot this issue, follow the steps below:

1. Check if the devices are connected to a power supply and powered on.
 - Look for the activity LED on the device.
2. Verify that the devices are functioning correctly.
 - Open the "TEST" tab in the TruBlu mobile app.
 - Select the device that is not functioning properly.
 - Check if the device responds to:
 - pressing light bulb icon (the device should be drawing attention);
 - changing the light lightness using the lightness slider (the device lightness should adjust accordingly).
3. Check if there is a device in the TruBlu mobile application with "EnOcean adapter" enabled.

- Verify if the device with “EnOcean adapter” responds to pressing light bulb icon (the device should be drawing attention);
4. Check if the devices:
- Are active on the Devices list in the TruBlu mobile app for the selected zone.
 - Make sure that there are not any warnings on the Devices list.
 - Are properly configured and have appropriate firmware version installed.

If you have verified the device functionality with the above steps and are still experiencing issues with EnOcean switch performance, we recommend checking Mesh-related settings, e.g. enabling the Relay functionality on a device close to the faulty one. For more information on best practices regarding Relays, have a look at “*SN-202 Application note optimizing mesh network performance*” available in our [Website](#).

Issue: After pressing the EnOcean switch, only some of the devices respond (e.g. 4 out of 8).

Multiple Linked zones:

If this issue occurs in the case where two or more zones are linked and controlled by the same EnOcean switch, it may indicate a problem with Zone linking. Check Zone linking settings in the TruBlu web application.

Single zone:

In this situation, it is possible that there’s problem with your network settings. For more setup information on best practices regarding Relays, have a look at “TruBlu Application Note: Network Settings”.

Issue: Sometimes the whole zone doesn’t react to the EnOcean switch.

Once in a while data packages fail to reach the EnOcean adapter device and consequently all the luminaires fail to react when the EnOcean switch is pressed. . This may be caused by heavy congestion in the 2.4GHz wireless spectrum.

To solve the above problem, try to:

1. Select a different device that will act as EnOcean adapter. This can help to improve the transmission between switch and adapter. Remember, that the EnOcean adapter device needs to be placed close to the EnOcean switch.

2. Reduce the number of devices with Mobile device proxy enabled. For more information, have a look at "TruBlu Application Note: Network Settings".
3. If this malfunctioning repeats often and hampers everyday usage of the lighting system, it is possible to reprogram the switch using Near Field Communication (NFC). Reprogramming the switch increases the number of repetitions of data packages sent to the luminaries and thus minimizes the chances that all of transmitted packages will be lost. For details on the process of reprogramming EnOcean switches using NFC please contact TruBlu.Support@mcwonginc.com

NOTE: EnOcean switch reprogramming can be done only in cases of severe malfunctioning.

Contact Information

Support:

TruBlu.Support@mcwonginc.com

Business development:

support@McWongInc.com

For more information
please visit:

www.McWongInc.com

Our office:

McWong International Inc.
1921 Arena Blvd.
Sacramento, CA 95834