

Qeedji

User manual

SBL10e occupancy_sensor_ble_enocean

1.12.10 001A



Legal notice

SBL10e occupancy_sensor_ble_enocean 1.12.10 (001A_en)

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Product information

Product design and specifications are subject to change at any time and `Qeedji` reserves the right to modify them without notice. This includes the hardware, the embedded software and this manual, which should be considered as a general guide to the product. The accessories supplied with the product may differ slightly from those described in this manual, depending on the developments of the various suppliers.

Precautions for use

Please read and heed the following warnings before turning on the power: - installation and maintenance must be carried out by professionals. - do not use the device near water. - do not place anything on top of the device, including liquids (beverages) or flammable materials (fabrics, paper). - do not expose the device to direct sunlight, near a heat source, or in a place susceptible to dust, vibration or shock.

Warranty clauses

The `Qeedji` device is guaranteed against material and manufacturing defects for a certain duration. Check the device warranty duration value at the end of the document. These warranty conditions do not apply if the failure is the result of improper use of the device, inappropriate maintenance, unauthorized modification, operation in an unspecified environment (see operating precautions at the beginning of the manual) or if the device has been damaged by shock or fall, incorrect operation, improper connection, lightning, insufficient protection against heat, humidity or frost.

WEEE Directive



This symbol means that your appliance at the end of its service life must not be disposed of with household waste, but must be taken to a collection point for waste electrical and electronic equipment or returned to your dealer. Your action will protect the environment. In this context, a collection and recycling system has been set up by the European Union.

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Part I | Description and installation

1.1 Introduction

This manual explains how to install and configure your device SBL10e.

Recommendations and warnings

This device is designed for indoor use only.

To ensure better rendering of the SBL10e, the device should not be installed under direct sunlight.

The SBL10e device is designed to be illuminated 12 hours a day, 7 days a week.

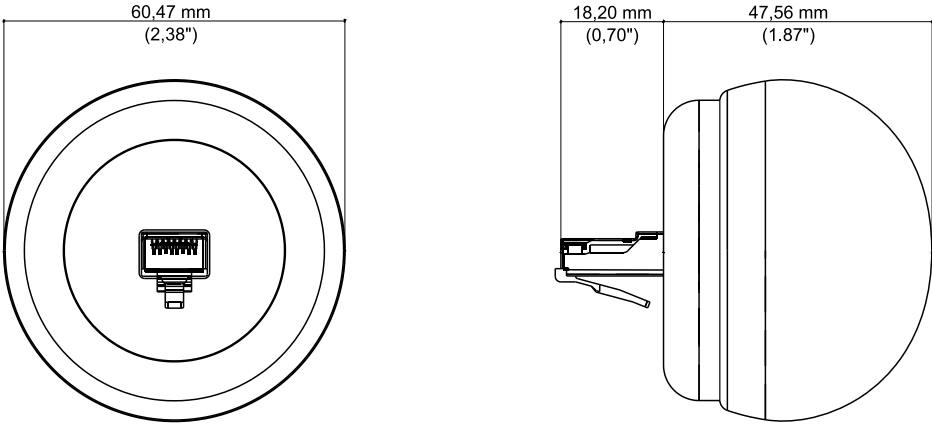
Package Contents

Articles	Description
Device	SBL10e device with the default <code>regular</code> ¹ application embedded.

¹ It is possible to easily update the device with the `occupancy_sensor_ble_enocean` application afterwards.

■ In this documentation, the unit of measurement for dimensions is done in millimeters followed by its equivalent value in inches.

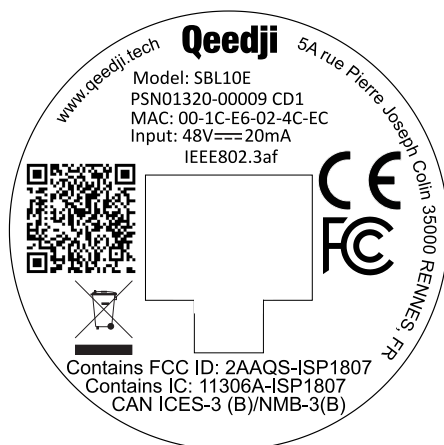
1.1.1 Device dimensions



1.1.2 Labelling

Product label

The model of the device, the power supply characteristics, the serial number (PSN) and the MAC address are written on a label stuck on the case.

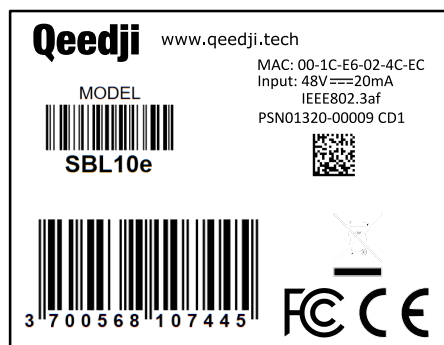


▮ The QR code on the product label is corresponding to the product identification URL, for example:
`i.qeedji.tech?model=SBL10e&sn=01320-00009&mac.Lan1=00-1C-E6-02-4C-EC&mac.wpan1=DF-27-83-3C-8A-90.`

Packingbox label

This is the label stuck also on the packingbox. It is showing:

- the device model,
- the product serial number (PSN) (embedded also in the QR code),
- the manufacturer Website.



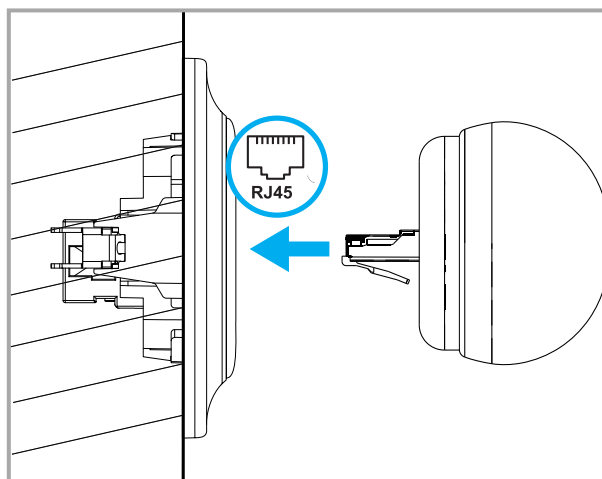
▮ The QR code on the packingbox label is corresponding to the product PSN, for example:
`PSN01320-00009 CD1.`

▮ The serial number of the device could be requested in case of technical support.

1.1.3 Installation

■ Install the SBL10e device on the Ethernet wall plugs of the buildings following the installation map given by your IT department.

The SBL10e device has to be plugged to an Ethernet wall plug supporting PoE IEEE802.3af.



Given the device footprint, it is preconised to use Ethernet wall plug plastron with a right insertion.



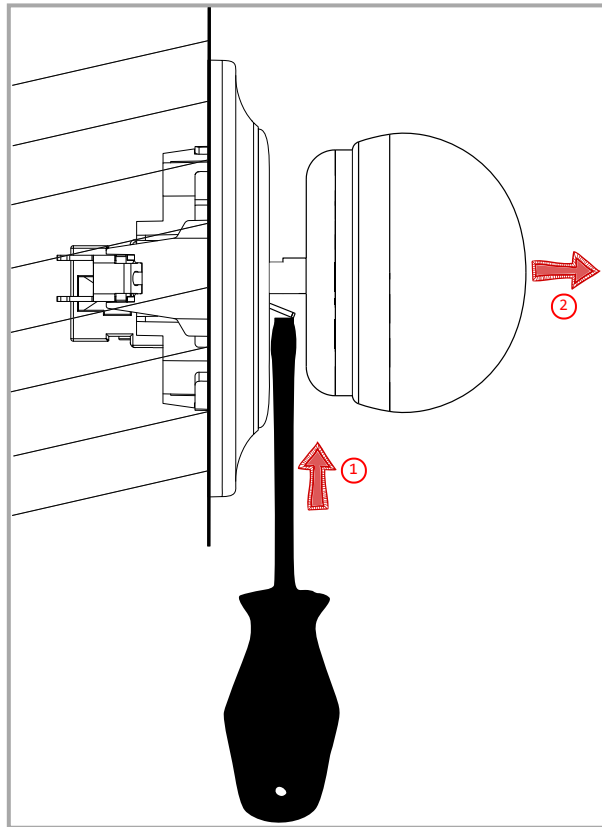
Consequently, the Ethernet wall plug whose plastron is angled is not supported.



■ Thanks to the lock pin of its Ethernet connector, the SBL10e device can be installed on vertical surfaces, like walls as well as horizontal surfaces, like ceilings.

1.1.4 Uninstallation

With a screw driver, hold down the pin of the Ethernet connector ① of the SBL10e device at the same time you are releasing with the hand ② the SBL10e device from the Ethernet wall plug.



1.2 Smart Busy Light applications

To display the appropriate light state and color, the `occupancy_sensor_ble_enocean` application periodically connects to the Easyfit (by *EnOcean*) sensor paired to the SBL10e device, to get its presence detection status.

Light states and colors

The device can support the states and colors values showed below.

Color	State
	OFF
Red	ON steady OR ON flashing
Green	ON steady OR ON flashing
Blue	ON steady OR ON flashing
Orange	ON steady OR ON flashing
Yellow	ON steady OR ON flashing

- ▮ The `ON flashing` state is flashing with this sequence: `ON` for 0,5 seconds then `OFF` for 0,5 seconds every one second.
- ▮ Depending on the application running on it, some color/state may be never used.
- ▮ The light color and state values are stored in the volatile memory (RAM). That means that in case the SBL10e device is unplugged from the Ethernet wall plug then plugged back again, the light comes back to its default state: `OFF` until its state is then modified by the App or by the user.

Configuration

The `Smart Busy Light` application supports the configuration update:

- by connecting to the device configuration Web user interface `http://<device-ip-addr>/` and changing parameters,
- by pushing, from a WebDAV client or with the device Web user interface, a `prefs.json` configuration file on the device WebDAV directory `http://<device-ip-addr>/conf/`,
- by pushing, from a WebDAV client or with the device Web user interface, a `.js` configuration script on the device WebDAV directory `http://<device-ip-addr>/conf/`,
- by receiving a `configure` command with an appropriate `.js` configuration script from the `Qether` tool (Qether V1.12.10 or above).

Firmware upgrade

The `Smart Busy Light` application supports the firmware upgrade:

- by connecting to the device configuration Web user interface `http://<device-ip-addr>/` and loading an appropriate firmware file `bm0032_occupancy_sensor_ble_enocean-sbl10e-xx.yy.zz.bin`¹ firmware file,
- by pushing a new `bm0032_occupancy_sensor_ble_enocean-sbl10e-xx.yy.zz.bin`¹ firmware file at the root of the device WebDAV directory `http://<device-ip-addr>/` with a WebDAV client,
- by receiving an `install` command with an appropriate `bm0032_occupancy_sensor_ble_enocean-sbl10e-xx.yy.zz.bin`¹ firmware file from the `Qether` tool.

¹ Can work also with any other `bm0032_<custom>-sbl10e-xx.yy.zz` compatible firmware.

■ After a firmware upgrade, the device is rebooting once.

■ When the `configuration` command or the `install` command has been processed, the last `Smart Busy Light` state and color are restored.

Preprogrammed flashing sequence

The SBL10e device has two modes:

- **Nominal mode**: the `Smart Busy Light` application runs properly and sets the light state and color as expected. When a configuration or a firmware upgrade is in progress, the light illumination can be temporarily inconsistent and follows the light flashing sequence shown in the table hereafter.
- **Recovery mode**: the `Smart Busy Light` application can not be executed. The light state or color can not be modified anymore. It is required to update the firmware to return to the `nominal mode`.

Depending on these modes, the Smart Busy Light applications can fall into one of these preprogrammed flashing sequences:

Mode	Smart Busy light behaviour	Information
Recovery	2 very short and consecutive blue flashes (250 ms) with a 4,5 seconds periodicity	The Smart Busy Light application can not be executed. It should never happen. The device Web user interface is so not available. This sequence is displayed until a new firmware update is done with <code>qether</code> tool. For further information, contact support@qeedji.tech .
Recovery	3 very short and consecutive blue flashes (250 ms) with a 5 seconds periodicity	The software resource of the SBL10e device set at factory are not valid. It should never happen. For further information, contact support@qeedji.tech .
Nominal or recovery	4 very short and consecutive blue flashes (250 ms) with a 5,5 seconds periodicity	A SBL10e device <code>Firmware update</code> is in progress. Please wait a couple of seconds.
Nominal	5 very short and consecutive blue flashes (150 ms)	A SBL10e device <code>configuration</code> is in progress. Please wait a couple of seconds.
Nominal	6 very short and consecutive blue flashes (150 ms)	The sensor that has just been paired does not responding ¹ or the paired sensor has not responded for more than eight minutes or the paired sensor has not responded for more than four minutes since the last SBL10e device reboot. For further information about the sensor pairing, refer to the chapter § Configuration > Sensors Pairing . For further information about the reporting of the problems, refer to the chapter § Maintenance > Logs .

¹ Either the value or the syntax of the MAC address of the paired sensor is not correct, or the paired sensor does not work properly due to its weak battery level, or the sensor is installed too far from the SBL10e device.

Part II | **Applicative user interface**

2.1 Applicative user interface

The SBL10e device supports a Web user interface that can be accessed with a Web browser. The supported Web browsers are: Google Chrome , Mozilla Firefox , MS-Edge (Chromium) .

It is available from the URL: http://<device_IP_addr>/ .

The URL falls into the occupancy_sensor_ble_enocean applicative user interface: http://<device_IP_addr>/webui/ . This pane allows to:

- watch the current LED light color ,
- watch the current LED light state .

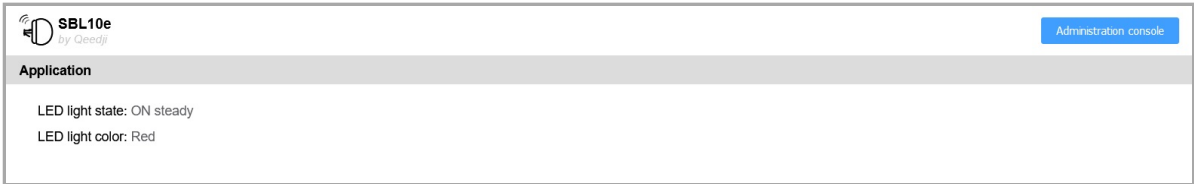
These are the expected LED light color / LED light state values for the occupancy_sensor_ble_enocean application:

People detection status	LED light color	LED light state
The SBL10e device has no sensor paired ¹ .	-	OFF
A presence is detected by the sensor.	Red	ON steady
No presence is detected by the sensor.	Green	ON steady

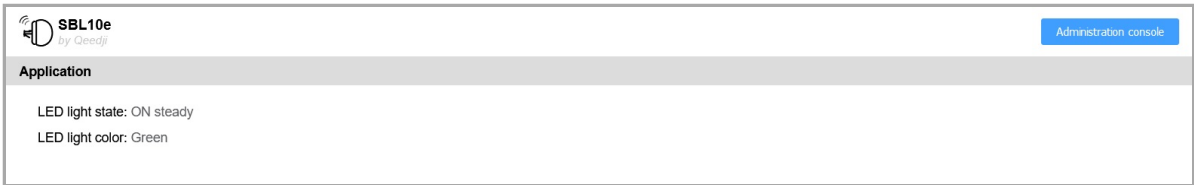
For any other LED behaviour, refer to the chapter § Preprogrammed flashing sequence.

¹ For further information, refer to the chapter § Configuration > Sensors pairing.

The LED light color becomes Red immediately after a presence is detected by the sensor.



The LED light color becomes Green maximum two minutes after no presence is detected by the sensor.



⚠ During a SBL10e device reboot, the LED Light state is OFF for three seconds. Then the previous LED Light color and LED Light state are restored.

Part III | Administration console user interface

3.1 device configuration Web user interface

The SBL10e device supports a device configuration Web user interface that can be accessed with a Web browser. The supported Web browsers are: Google Chrome , Mozilla Firefox and MS-Edge (Chromium) .

It is available from the URL: http://<device_IP_addr>/ .

The default credentials values, put at factory, to access to the device Web user interface are:

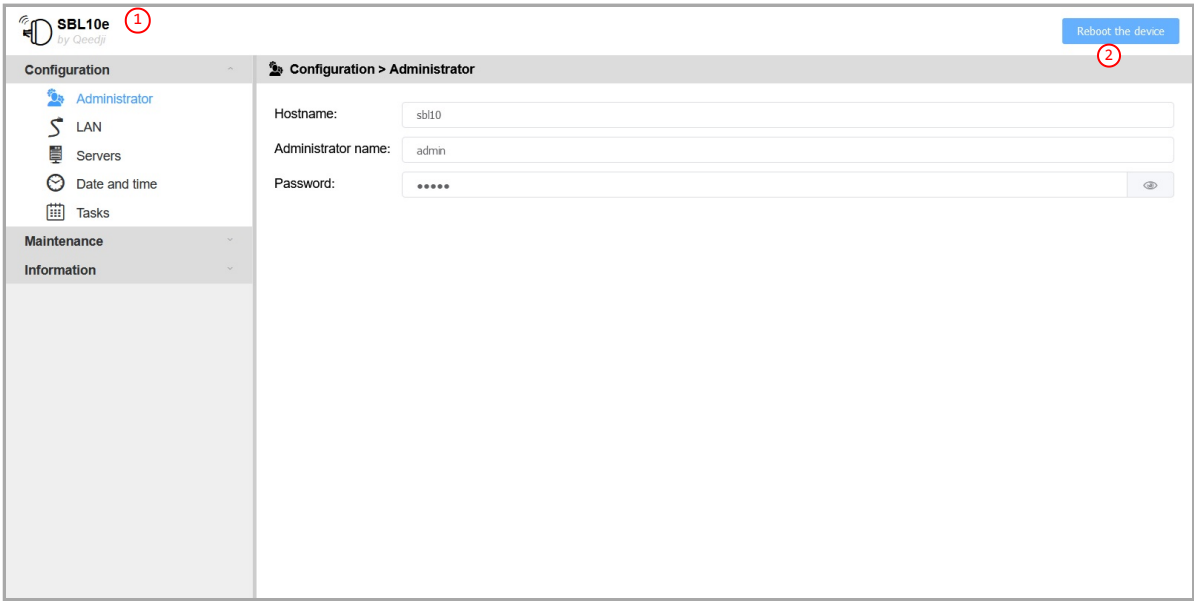
- login: admin ,
- password: admin .

The URL falls automatically into the applicative user interface¹. At the top right corner, click on the Administration Console button.

Administration console

¹ For further information, refer to the chapter § Applicative user interface.

This is the device configuration Web user interface.



⚠ After you have changed and saved all your settings in the different panes, be sure to perform a device restart by clicking on the Reboot the device button so that your changes are fully reflected.

Click on the device logo at the left top corner to return to the applicative user interface.

3.1.1 Configuration > Administrator

In the **Configuration** tab, select the **Administrator** menu to change:

- the **Hostname** ,
- the login credentials:
 - **Administrator name** ,
 - **Password** .

The screenshot shows the SBL10e web interface. The top left corner displays the SBL10e logo and the text "by Ubedij". The top right corner has a "Reboot the device" button. The left sidebar contains a "Configuration" section with a dropdown arrow, and below it, a list of menu items: "Administrator" (highlighted in blue), "LAN", "Servers", "Sensors Pairing", "Date and time", and "Tasks". Below these are "Maintenance" and "Information" sections, each with a dropdown arrow. The main content area is titled "Configuration > Administrator" and contains three input fields: "Hostname:" with the value "sbl10", "Administrator name:" with the value "admin", and "Password:" with masked characters "*****" and a toggle icon to show/hide the password.

It is recommended that you enter one unique **Hostname** value for each device. In case several SBL10e devices are located in different buildings or geographical locations, we recommend that you enter hostname values with information about the building and the location (e.g. *Hall-RD-Paris-1*).

For security reasons, it may be useful to change the login credentials values. Please keep them in a safe place afterwards.

The same login credentials are used to access to the WebDAV server and to use Web services.

3.1.2 Configuration > LAN

In the **Configuration** tab, select the **LAN** menu to set up the network configuration of the **LAN** interface of your device.

The screenshot displays the SBL10e web interface. The left sidebar shows the 'Configuration' menu with 'LAN' selected. The main panel, titled 'Configuration > LAN', shows the DHCP configuration options. The 'Obtain IP address automatically by DHCP' option is selected. Below it, the 'Time for attempts' is set to 600 seconds. The 'Use the following IP address' option is unselected, and its fields (IP address: 192.168.0.2, Subnet mask: 255.255.255.0, Default gateway: 192.168.0.6) are visible. A 'Reboot the device' button is located in the top right corner.

- The device supports the UPnP and can be for example detected automatically in the local network environment of your computer.

Enter a suitable LAN network configuration so that the device can access to the Web to get the local time with a NTP server.

- By default, the device is configured with *Obtain an IP address automatically by DHCP* activated and *Time for attempts* deactivated. As soon as the DHCP server becomes available, the device ends by getting back a valid IP address given by the DHCP server within less than one minute.
- After a device reboot, when the device is configured with *Obtain an IP address automatically by DHCP* activated and *Time for attempts* is activated, in case the DHCP server is unavailable after the *Time for attempts* duration (ten minutes for the maximum and default value) has expired, the device ends up using the static IP address entered in the LAN configuration. The default static IP address is 192.168.0.2 when it has never been changed yet by the user. It is recommended to set an appropriate IP address, netmask and gateway if this case would happen. In case a daily reboot task is programmed, the device will restart this operation every days.
- When only the *Time for attempts* value is modified, press on TAB key of your keyboard to make appear the *Validate* button.

3.1.3 Configuration > Servers

In the **Configuration** tab, select the **Servers** menu to define the configuration of the servers peripheral to your device.

You can define:

- **NTP time server** : enter the IPV4 address or the domain of your NTP server,
- **DNS servers** : enter the IPV4 address of your favorite DNS.

The NTP time server is the only way for the SBL10e device to be on time and control the time of the reboot task. When the NTP time server is configured, ensure to have a valid gateway and to have a valid DNS server.

The screenshot shows the SBL10e web interface. The top bar includes the SBL10e logo and a 'Reboot the device' button. The left sidebar contains a 'Configuration' menu with options: Administrator, LAN, Servers (selected), Sensors Pairing, Date and time, and Tasks. Below this is a 'Maintenance' section and an 'Information' section. The main content area is titled 'Configuration > Servers'. It features a 'DNS servers' section with two radio buttons: 'Obtain DNS server address automatically' (selected) and 'Use the following DNS server address:'. Below the radio buttons are input fields for 'Preferred DNS server' (192.168.0.1) and 'Alternate DNS server' (192.168.0.4). At the bottom, there is a checkbox for 'NTP time server' and an input field for its address (129.6.15.29).

3.1.4 Configuration > Sensors pairing

The SBL10e device is designed to be able to work on the WPAN network with one EasyFit (by *EnOcean*) motion sensor.

The *Easyfit* (by *EnOcean*) with *EMDCB/E6221-K515* model is a motion sensor sending periodically its status information:

- Battery ¹: 1 .. 100 %,
- Solar cell illumination ¹: value in lx unit,
- Sensor illumination ¹: value in lx unit,
- RSSI : WPAN sensibility level,
- Magnet contact ²:
 - occupied: presence detected,
 - Not occupied: no presence detected.

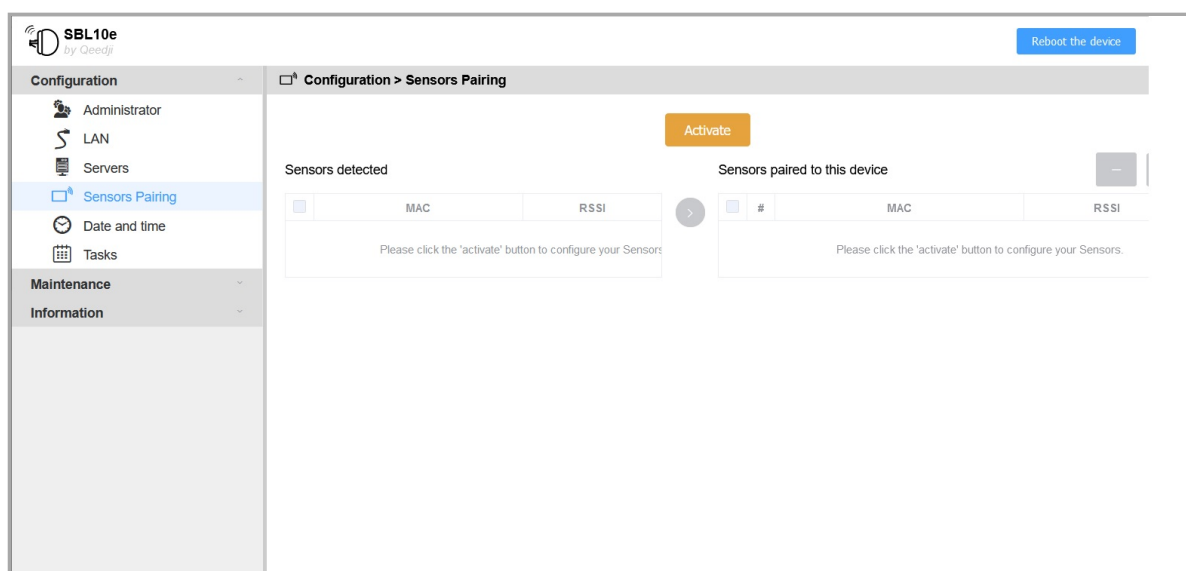
■ A minimum built-in battery level is required for the solar energy sensor to work properly. An additional removal battery is also required to work without exposure to light. For further information, refer to the sensor user manual.

■ The sensor can communicate through the WPAN network if it is not too far from SBL10e device. Some shielded wall may cause WPAN interferences and reduce the signal sensitivity. A distance of around ten meters indoor line of sight is a good maximum to consider, but it is recommended to test the sensor pairing with the SBL10e device before installing the both devices definitively. When the installation place of the sensor has changed after the pairing is completed, it is advised to unpair then pair back the sensor to check again the sensor pairing capability with the SBL10e device.

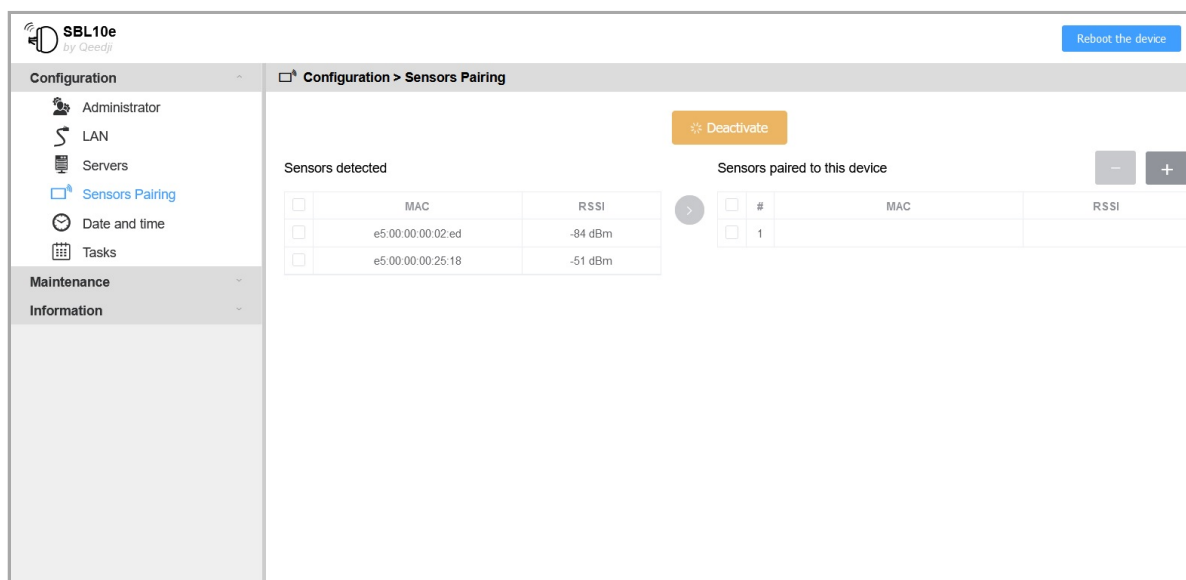
¹ These status are displayed in the *WPAN Peripherals* pane of the *Information* tab once the sensor is paired. For further information, refer to the chapter § [Information > WPAN peripherals](#)

² The *Magnet contact* status is not displayed in the *WPAN Peripherals* pane of the *Information* tab.

In the *Configuration* tab, select the **Sensors pairing** menu to pair the Easyfit (by *EnOcean*) motion sensor device to your SBL10e device.

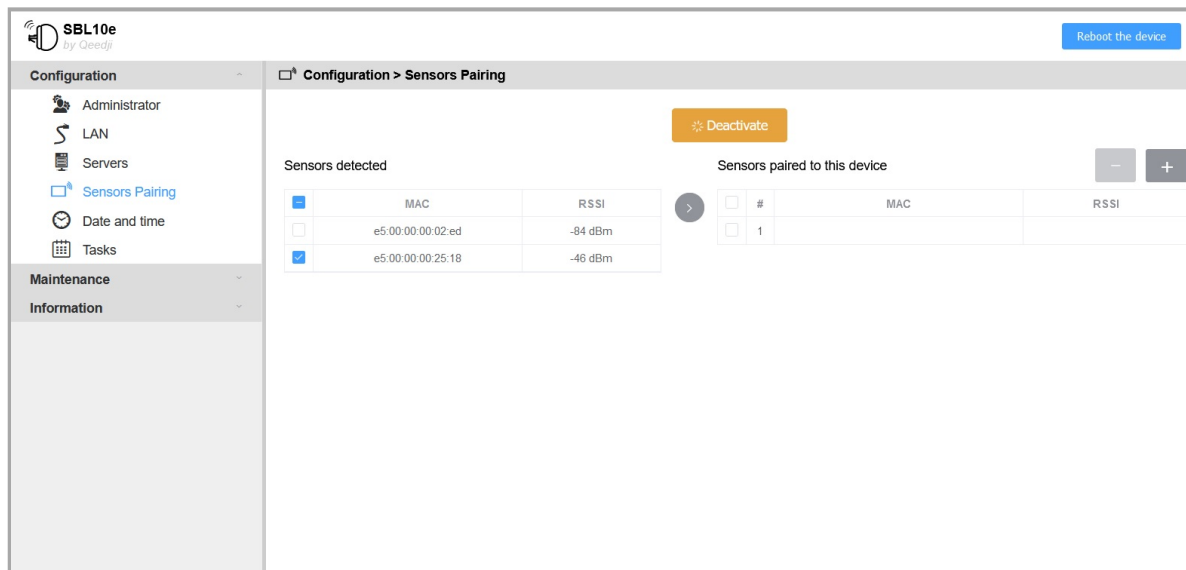


Click on the *Activate* button to start the motion sensor device pairing process.

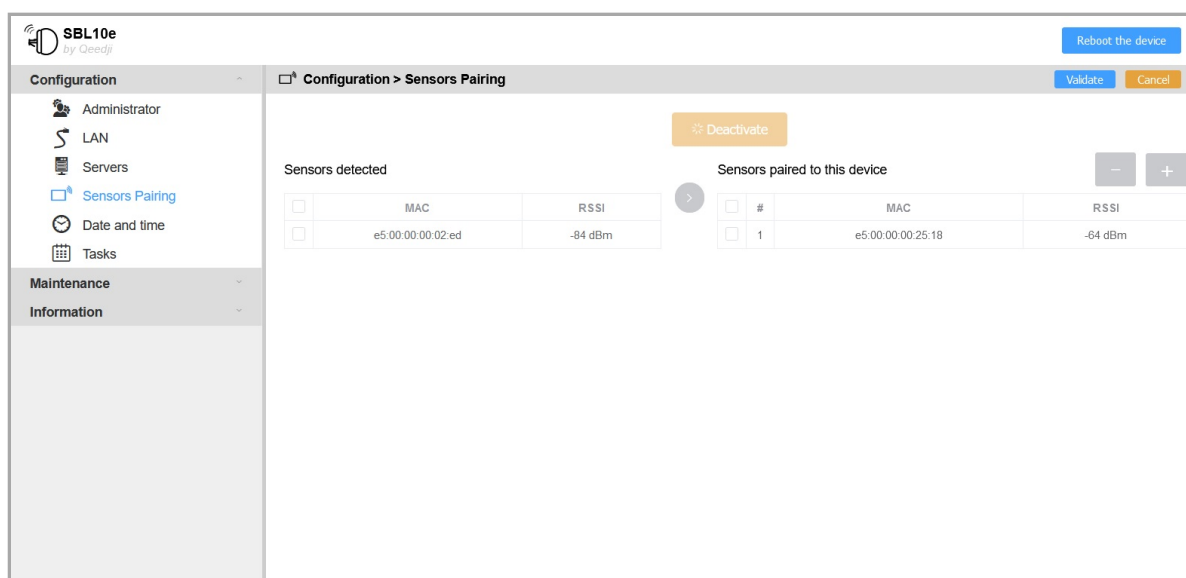


■ If properly installed, the sensor should appear in the *Sensors not paired to this device* list in less than two minutes.

Select the appropriate sensor in the `Sensors detected` list.



Click on the arrow button to move the sensors devices from the `Sensors detected` list to the `Sensor paired to this device` list.



Click on the `Validate` button to save your modifications.

- ▮ To unpair a sensor from the `Sensor paired to this device` list, select it then click on the `-` button.
- ▮ even though not advised to do it like that, instead of pairing the sensor by dropping a sensor from the `Sensors detected` list to the `Sensor paired to this device` list, you can also pair it by clicking on the `+` button then entering directly the MAC address of the sensor with the format `aa:bb:cc:dd:ee:ff`.

If the sensor is properly paired and alive, the `LED light color` should be `Red` or `Green` with `LED light state` `ON` steady in less than two minutes. For any other LED behaviour, refer to the chapter § [Preprogrammed flashing sequence](#).

Then check the dynamic values returned by the sensor in the `WPAN Peripherals` pane of the `Information` tab. For further information, refer to the chapter § [Information > WPAN peripherals](#).

Configuration

Maintenance

Information

Device

Network

WPAN Peripherals

Reboot the device

Information > WPAN Peripherals

	Manufacturer	Model	Mac	Info
1	EnOcean	EMDCB	e5:00:00:00:25:18	<div> <div>Battery: 96%, RSSI: -44 dBm, Solar cell illumination: 194 lx, Sensor illumin...</div> <div>Battery: 96%, RSSI: -44 dBm, Solar cell illumination: 194 lx, Sensor illumination: 8 lx</div> </div>

Wait for a couple of minutes and click on the refresh button to refresh the sensor status.

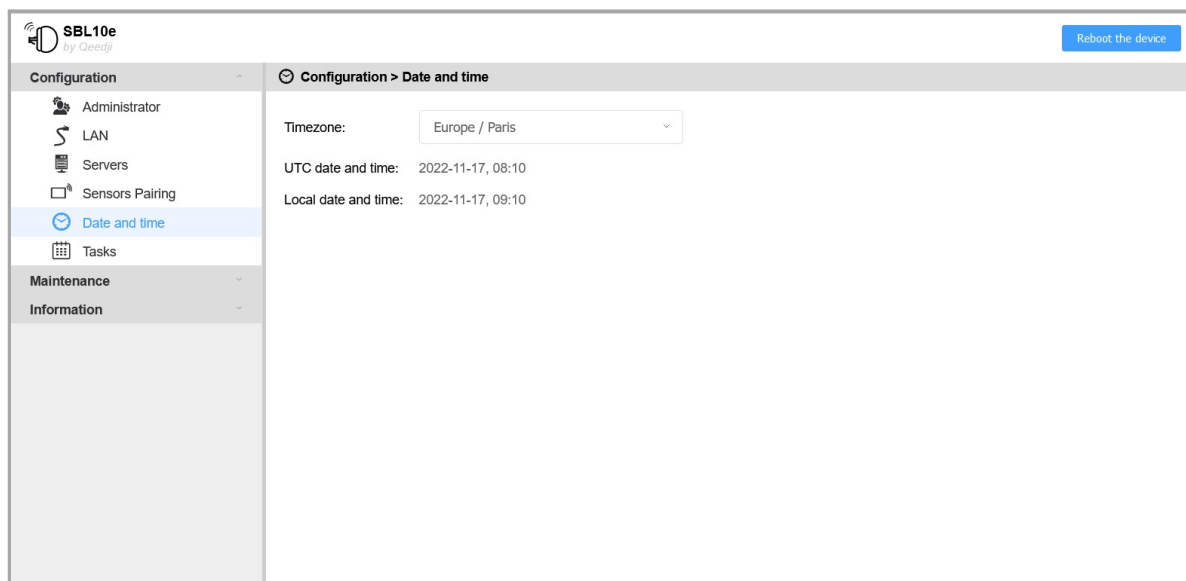
If you've entered the right MAC address for your motion sensor, do consider here that your motion sensor is properly paired.

You cannot pair or use an Easyfit (by EnOcean) motion sensor beyond a maximum distance from the SBL10e device specified by the manufacturer.

3.1.5 Configuration > Date and time

In the **Configuration** tab, select the **Date and Time** menu to check the time configuration:

- timezone,
- system date of your device (day and time).

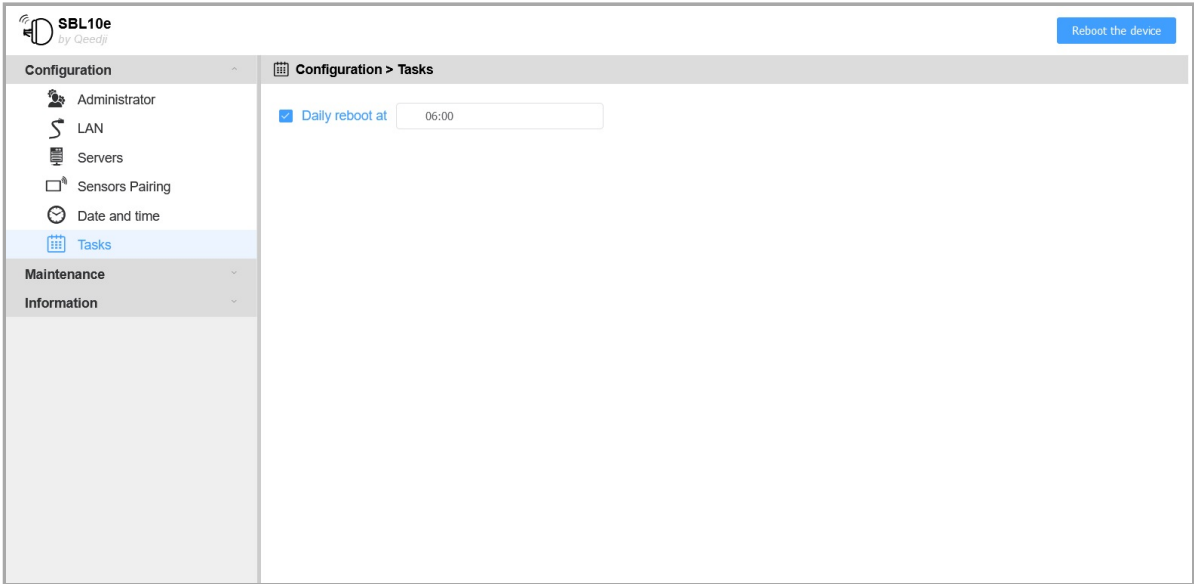


❗ The application can work even though the device is not on time. Anyway, in case the **Reboot** task is activated, it is advised to set an appropriate date and time, synchronized with a NTP server, to control exactly when the SBL10e must reboot. For further information, refer to the chapter § [Configuration > Servers](#).

❗ A sensor must be paired before the date and time can be synchronized properly with a NTP server.

3.1.6 Configuration > Tasks

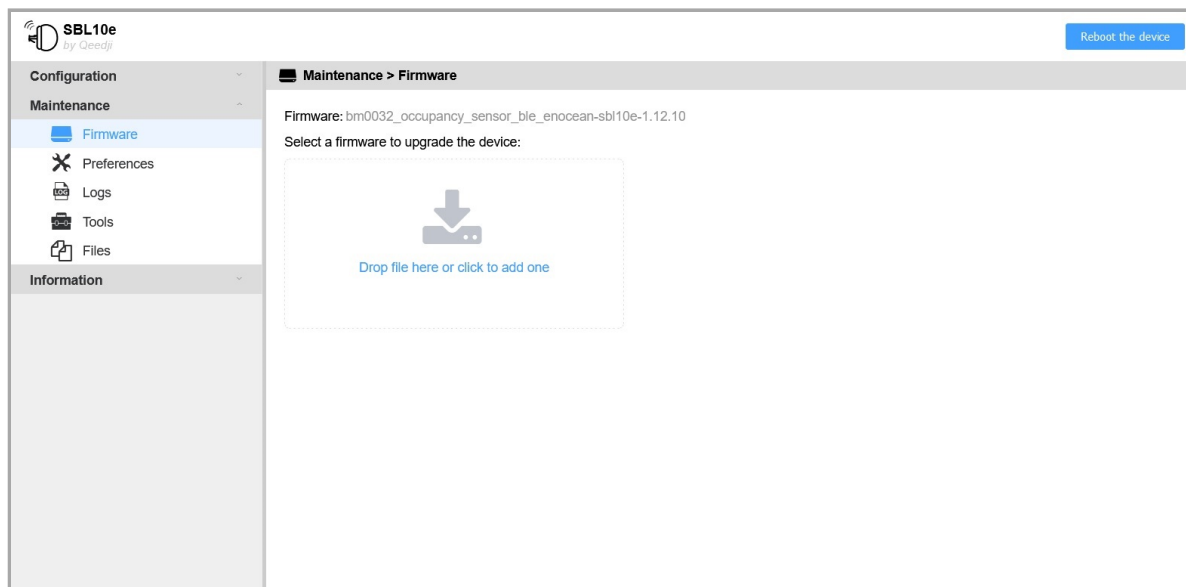
In the Configuration tab, select the **Tasks** menu to activate a device reboot manager task and adjust the reboot manager task time.




- During the reboot task, the light state is `off` for three seconds then the previous `LED Light state` and `LED Light color` are restored.
- If the NTP server set by the user is not available anymore and the `system.task.reboot.enable` user preference is true, the device is rebooting automatically every days, 24 hours after the last device reboot.

3.1.7 Maintenance > Firmware

In the **Maintenance** tab, select the **Firmware** menu to view the version of the application installed on your device.



Corrective and evolutive maintenance software versions are regularly made available in the support tab of the official *Qeedji* website http://www.qeedji.tech/en/support/index.php?SBL10e/Occupancy_sensor_ble_enocean. It is therefore advised to regularly update the device firmware. From this website, download the appropriate latest firmware version available for your device model (*.bin* file). For further information, contact support@qeedji.tech.

Drop your *.bin* file in the  Drop file here or click to add one location or click on it to add one, then click on the **Send** button to update the firmware version of your device. Wait a couple of seconds, the time to load and install the new firmware version. Connect again to the device configuration Web user interface and check the new firmware version.

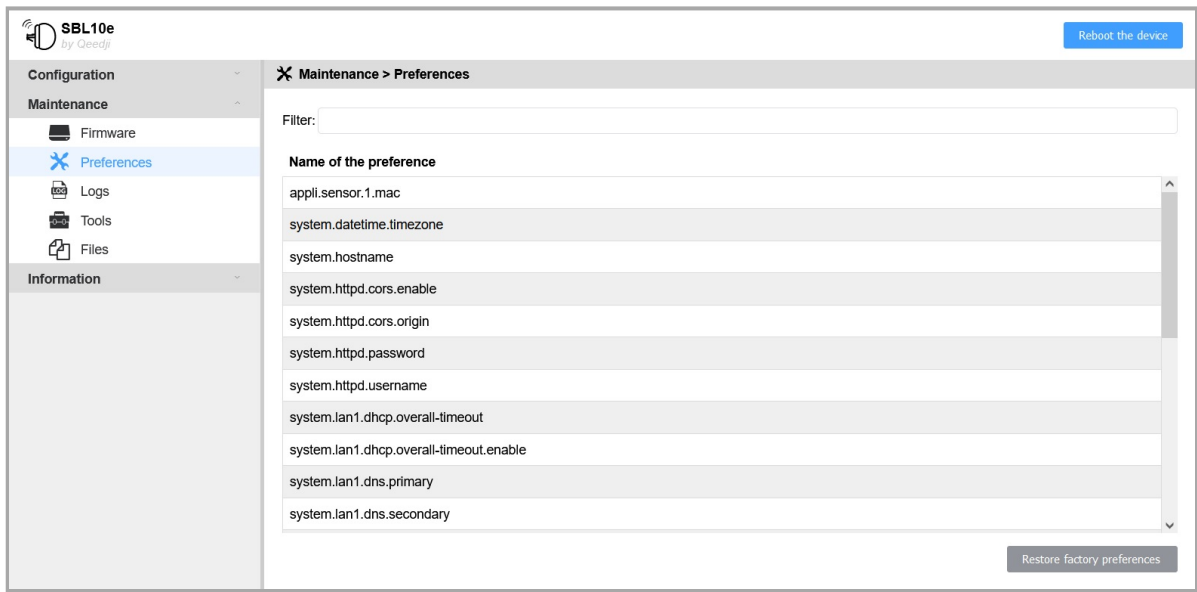
The user preferences common to the applications are kept when upgrading from **regular** application to another application (and reciprocally) meaning:

- network configuration,
- file system,
- hostname,
- web user interface credentials.

 Do not electrically disconnect the device during the firmware upgrade.

3.1.8 Maintenance > Preferences

In the `Maintenance` tab, select the **Preferences** menu to view all the preferences.



The filter allows to display only the preferences whose name contains the string entered in the filter. All the preferences have optimal default values. Double click on a preference to change its value.

At the bottom right of the page, the `Restore factory preferences` button allows to reset a subset of preferences allowing the device to reprogram its factory preferences. In this case, the LAN network configuration returns to DHCP.

Click on the `Reboot the device` button so that the modifications are taken into account.

⚠ After a user preference restoration, in case a `.js` configuration script, suitable for the application of this SBL10e device, is available on the `TFTP` server, the user preference `system.tftp.enable` is set to `true`. Consequently, the SBL10e device is rebooting once again to take into account the `.js` configuration script available on the `TFTP` server.

Here are some user preferences that may be useful.

user preference	value	description
<code>system.httpd.cors.enable</code>	false (default)	Allows to activate CORS (Cross-origin resource sharing) requests.
<code>system.httpd.cors.origin</code>	* (default)	Allows to set a the value for the <code>Access-Control-Allow-Origin</code> header.

CORS (Cross-origin resource sharing) request activation

For Web site having to use the `Web services` supported by the SBL10e device, the support for `CORS` (Cross-origin resource sharing) requests must be activated inside the SBL10e device by setting the `system.httpd.cors.enable` user preference to `true`.

When the `CORS` (Cross-origin resource sharing) request is activated, the `system.httpd.cors.origin` user preference allows to set a suitable value for the `Access-Control-Allow-Origin` header corresponding to the origin of the requesting Web site. For example: `https://myWebSite.contoso.com` .

⚠ In some specific conditions, the `null` and `*` values for the origin of the requesting Web site should allow the Web service to work properly. For further information, contact your IT department.

Timezone

Continent	Country/Town pair values supported for the <code>system.datetime.timezone</code> preference
Africa	Africa/Brazzaville, Africa/Cairo, Africa/Casablanca, Africa/Harare, Africa/Lagos, Africa/Nairobi, Africa/Onitsha, Africa/Windhoek
America	America/Anchorage, America/Argentina/Buenos_Aires, America/Barbados, America/Bogota, America/Boston, America/Caracas, America/Chicago, America/Chihuahua, America/Costa_Rica, America/Dallas, America/Denver, America/Godthab, America/Halifax, America/Houston, America/Los_Angeles, America/Manaus, America/Mexico_City, America/Montevideo, America/New_York, America/Phoenix, America/Recife, America/Regina, America/Rio_de_Janeiro, America/San_Francisco, America/Santiago, America/Sao_Paulo, America/St_Johns, America/Tijuana, America/Washington,_D.C.
Asia	Asia/Ahmedabad, Asia/Almaty, Asia/Amman, Asia/Baghdad, Asia/Baku, Asia/Bangalore, Asia/Bangkok, Asia/Beijing, Asia/Beirut, Asia/Chengdu, Asia/Chennai, Asia/Chongqing, Asia/Colombo, Asia/Delhi, Asia/Dongguan, Asia/Dubai, Asia/Guangzhou, Asia/Hangzhou, Asia/Hanoi, Asia/Ho_Chi_Minh, Asia/Hong_Kong, Asia/Hyderabad, Asia/Irkutsk, Asia/Jakarta, Asia/Jerusalem, Asia/Kabul, Asia/Karachi, Asia/Kathmandu, Asia/Kolkata, Asia/Krasnoyarsk, Asia/Kuala_Lumpur, Asia/Kuwait, Asia/Lahore, Asia/Magadan, Asia/Mumbai, Asia/Nagoya, Asia/Nanjing, Asia/Oral, Asia/Osaka, Asia/Pune, Asia/Quanzhou, Asia/Seoul, Asia/Shanghai, Asia/Shenyang, Asia/Shenzhen, Asia/Surat, Asia/Taipei, Asia/Tbilisi, Asia/Tehran, Asia/Tianjin, Asia/Tokyo, Asia/Vladivostok, Asia/Wuhan, Asia/Xi'an, Asia/Yakutsk, Asia/Yangon, Asia/Yekaterinburg, Asia/Yerevan, Asia/Zhengzhou
Atlantic	Atlantic/Azores, Atlantic/Cape_Verde, Atlantic/South_Georgia
Australia	Australia/Adelaide, Australia/Brisbane, Australia/Darwin, Australia/Hobart, Australia/Perth, Australia/Sydney
Europe	Europe/Amsterdam, Europe/Athens, Europe/Belgrade, Europe/Berlin, Europe/Brussels, Europe/Dusseldorf, Europe/Helsinki, Europe/Istanbul, Europe/London, Europe/Madrid, Europe/Minsk, Europe/Moscow, Europe/Paris, Europe/Sarajevo, Europe/Warsaw
Pacific	Pacific/Auckland, Pacific/Fiji, Pacific/Guam, Pacific/Honolulu, Pacific/Majuro, Pacific/Midway, Pacific/Noumea, Pacific/Tongatapu
UTC	Etc/UTC

3.1.9 Maintenance > Logs

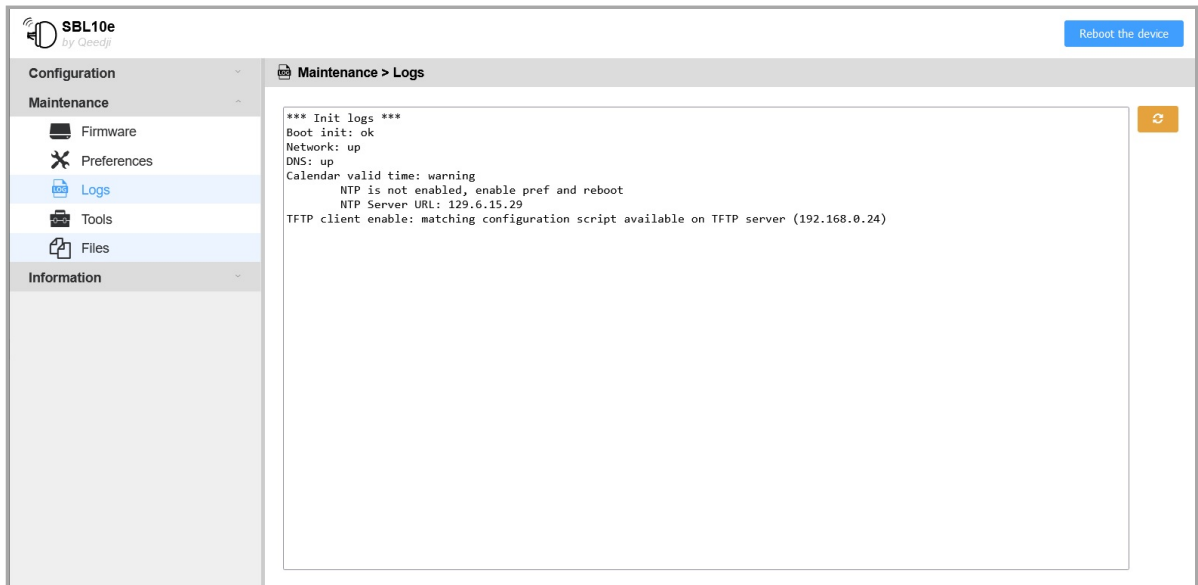
In the `Maintenance` tab, select the **Logs** menu to view the logs.

In the example, there is no error raised in the logs.

When the `system.tftp.server` user preference is `true`:

- in case there is some available `.js` configuration script on the `TFTP` server with the appropriate file name pattern, this message is printed: `TFTP client enable: matching configuration script available on TFTP server (<IP address>)`.
- in case there is no `.js` configuration script on the `TFTP` server with the appropriate file name pattern, this message is printed: `TFTP client enable: no configuration script available on TFTP server for this device (<IP address>)`.
- in case the `TFTP` server is not available, this message is printed: `TFTP client enable: error server did not respond (<IP address>)`.

⚠ To be successfully taken into account, the content of the `.js` configuration script available on the `TFTP` server must also be suitable for the SBL10e application.



If no sensor is paired, this additional error is printed in the pane:

```
*** App logs ***
App init error: no sensor paired.
```

If the sensor does not respond, this additional error is printed in the pane:

```
*** App logs ***
App runtime error: paired sensor didn't advertise for too long
```

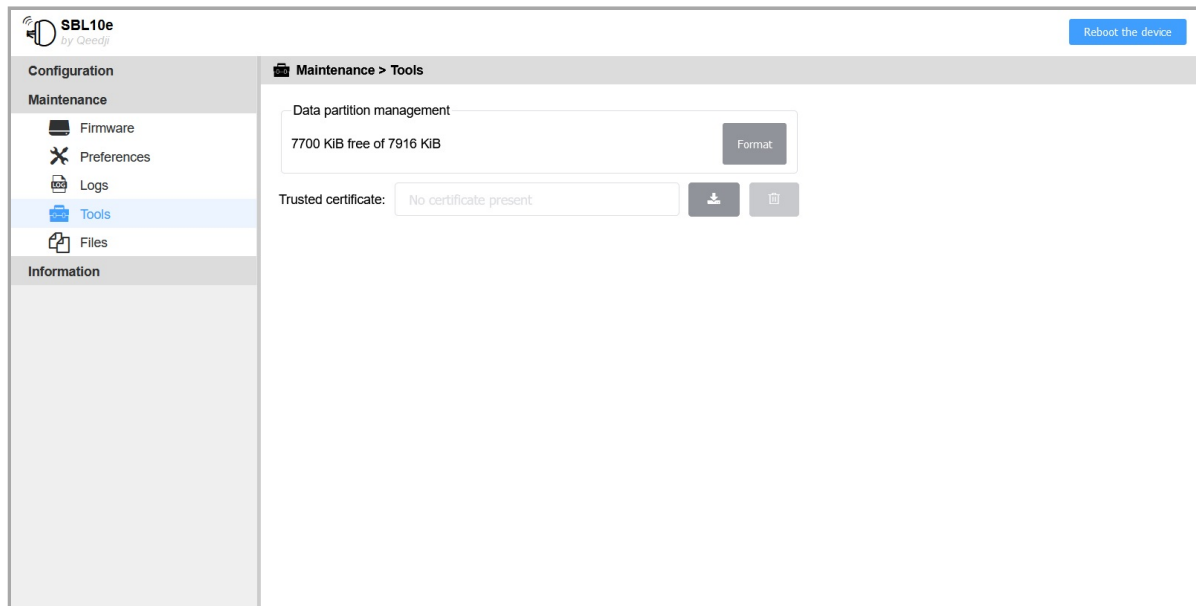
When the device has fallen into a static IP address because the `DHCP` server was not available, this message is printed:

```
Network: up but fell back to static after timeout
DNS: up but fell back to static after timeout
```

3.1.10 Maintenance > Tools

In the **Maintenance** tab, select the **Tools** menu to:

- view the available space on the flash memory storage¹ (max 7916 KiB),
- format the flash memory storage¹,
- add the Trusted certificate (.crt).



In this version, there is no use case where the trusted certificate is used.

¹ The flash memory storage is used to store all the directories and files hosted at the root of the WebDAV directory, and the user preferences as well. In case a flash formatting is done, the device returns to the default factory settings. In this case, the trusted certificate is erased and the sensor pairing configuration is cleared.

3.1.11 Maintenance > Files

In the `Maintenance` tab, select the **Files** menu to see the directories and files hosted at the root directory of the WebDAV server.

As soon as a modification is done through the device configuration Web user interface, a `prefs.json` file, corresponding to the new device configuration, is created in the `.conf` folder.

When the user preference `system.tftp.enable` is `true`, a `tftp_crc` file, containing the CRC of the `.js` configuration script downloaded from the `TFTP` server is written in the `.conf` folder. To be downloaded again from the `TFTP` server, either the suitable configuration script must be modified on the `TFTP` server, or the `tftp_crc` file must be removed.

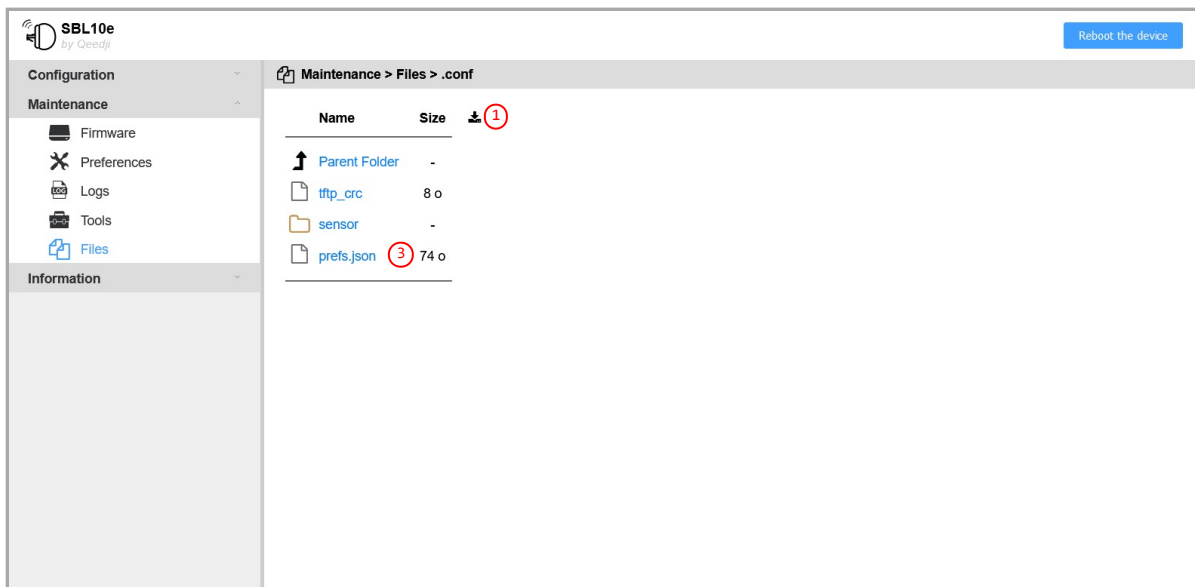
⚠ After having pressed on the `Restore factory preferences` button, the `prefs.json` file and the `tftp_crc` file are erased.

⚠ The content of the `prefs.json` ③ configuration file can be different for `occupancy_sensor_ble_enocean` application and other applications.

Save or restore the device configuration

⚠ It is recommended to save the `configuration.js` preciously to configure your SBL10e device in order to be able to restore its configuration afterwards.

⚠ The content of the `configuration.js` is depending on the used application. Do use the suitable `configuration.js` for the `occupancy-sensor-ble-enocean` application.



Date and time

The system date and time can only be set and updated thanks to a NTP server. In this case, you have to:

- First:
 - define the timezone value,
 - define the NTP server IP address,
 - check that the NTP time server is activated (activated by default).
- Secondly:
 - define the gateway URL to access to internet,
 - define valid primary and secondary DNS servers.

For further information, refer to the chapter:

- § [Configuration > Servers](#),
- § [Configuration > LAN](#),
- § [Configuration > Date and time](#),

⚠ In case the SBL10e device can not fetch a valid date and time through NTP at device boot-up, the clock does not progress and stays with the value `01/01/2020 00:00`. The date and time metadata of the files added after this date on the file system is also `01/01/2020 00:00`. The last modification date for a file can be only be seen with a WebDAV client.

⚠ When the server NTP is activated and the device is properly configured, the date and time for the SBL10e device is updated automatically by NTP at the device boot-up. Then it is progressing every seconds.

⚠ The support for date and time file metadata display in this pane will be available in a next version.

Application upgrade

The current application can be upgraded by pushing a new firmware file `bm0032_occupancy_sensor_ble_enocean-sbl10e-xx.yy.zz.bin` at the root of the device WebDAV directory `http://<device-ip-addr>/` with a WebDAV client.

After the firmware file pushing, a device reboot is required so that the new firmware file is taken into account.

Configuration update

The configuration of the application can be updated also by pushing an appropriate `.js` configuration script (or a suitable `prefs.json` file) suitable for your application in the `.conf` WebDAV directory (`http://<device-ip-addr>/<conf>`) with the Web user interface or with a WebDAV client.

⚠ Loading a wrong `prefs.json` would lead to some loss of data like the datasource server configuration. So check the consistency of the `prefs.json` file before uploading it in the device. To avoid any error on the configuration of the application and the configuration of the SBL10e device, it is advised to use a `.js` configuration script (and not with a `prefs.json` file) which is testing before executing anything that it is suitable for the SBL10e device and suitable for the application running on the device. Qeedji provides configuration script template. It is then highly recommended for the user to save an appropriate `.js` configuration script for each SBL10e device installed in his building.

In this case, the file pattern must be either:

- `configuration.js` : suitable for any device whatever its MAC address,
- `000000000000.js` : suitable for any device whatever its MAC address,
- `<device_LAN1_MAC_address>.js` (with the format `ABCDEFABCDEF.js`): suitable for device whose MAC address is matching.

After having downloaded the configuration script template:

- edit the `000000000000.js` configuration script and uncomment/modify the appropriate lines according to your needs,
- rename the configuration script if required,
- once saved, drop it in the `.conf` WebDAV directory like explained above,
- when the `.js` configuration script is satisfying, save it preciously to be able to restore its configuration after wards.

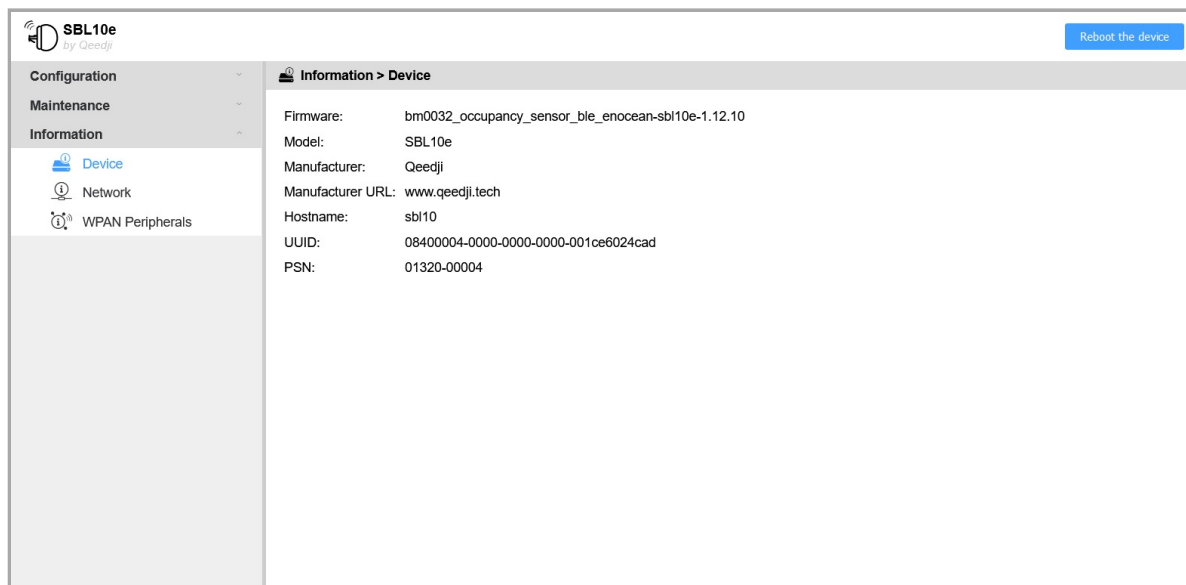
After a `.js` configuration script uploading in the device, the device is rebooting automatically once to take the new configuration into account.

▮ The `prefs.json` file is available in the `.conf` WebDAV directory of the device as soon as the SBL10e device configuration is modified at least once by the user. After a device configuration updating with a `prefs.json` file, a device reboot is required so that the new configuration is taken into account.

▮ Pushing a `.js` configuration script in the `.conf` WebDAV directory (`http://<device-ip-addr>/<conf>`) with a WebDAV client could raise a warning at the WebDAV client end, after the `.js` file transferring is completed because the device is automatically rebooting once when it is received. For example, after the `.js` file sending with BitKinex WebDAV is done, another network request is done by the WebDAV client while the device is currently rebooting. So a WebDAV error at the WebDAV client end leads to an automatic file resending which is causing another device reboot and so on, and this, until the WebDAV client application is closed. For example, after the `.js` file sending with CarotDAV WebDAV client, the error leads only to the displaying of a warning message. The user has just to ignore the error at the WebDAV client end.

3.1.12 Information > Device

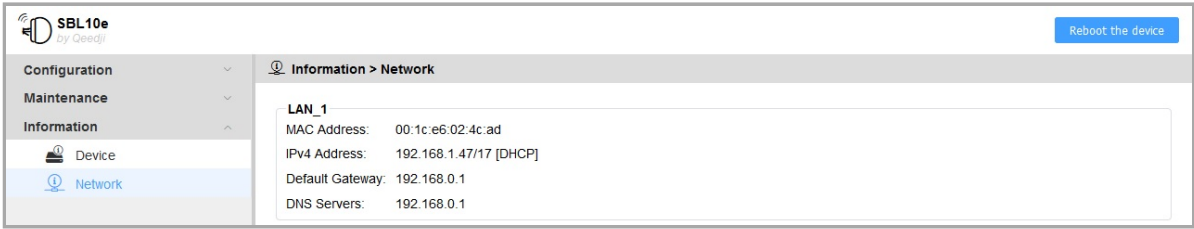
In the **Information** tab, select the **Device** menu to view system information about the device.



- **Firmware** : label and version of the firmware embedded in the device,
- **Model** : model of the **Qeedji** device,
- **Manufacturer** : product manufacturer name,
- **Manufacturer URL** : manufacturer Website,
- **Hostname** : name of the device on the network,
- **UUID** : Universal Unique Identifier,
- **PSN** : Product Serial Number.

3.1.13 Information > Network

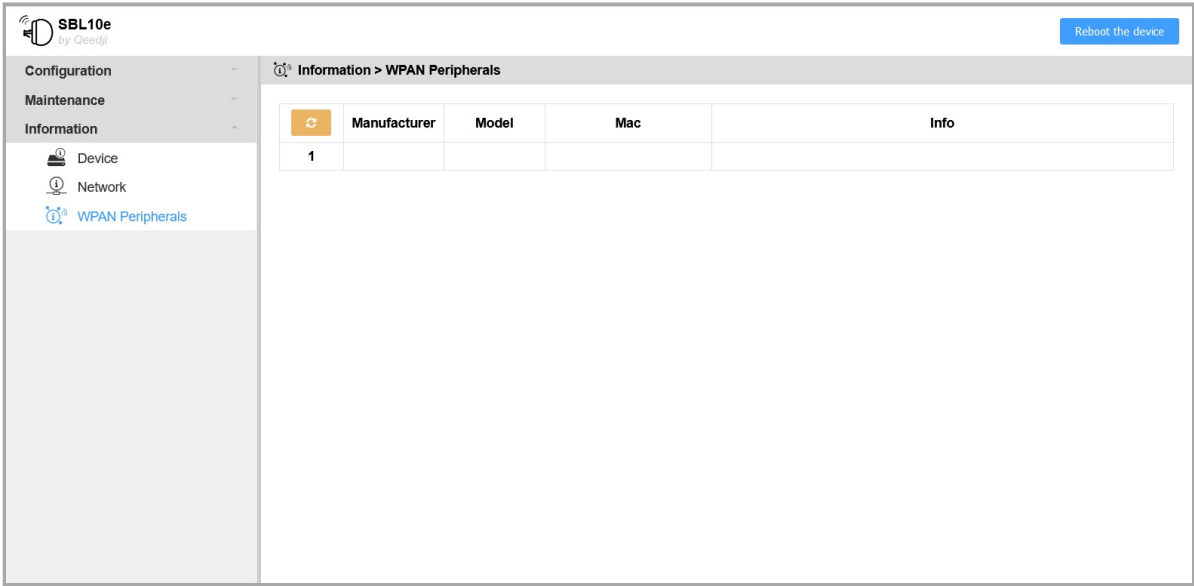
In the Information tab, select the **Network** menu to view a summary of the device's network configuration.



▮ The displaying of the IP V6 address value starting with the prefix `fe80::` is not supported in this pane. For further information, contact your IT department so that your network is advertising the IP V6 address with another prefix (ex: `fc00::`).

3.1.14 Information > WPAN peripherals

In the Information tab, select the WPAN Peripherals menu to see WPAN peripherals paired to your SBL10e device.



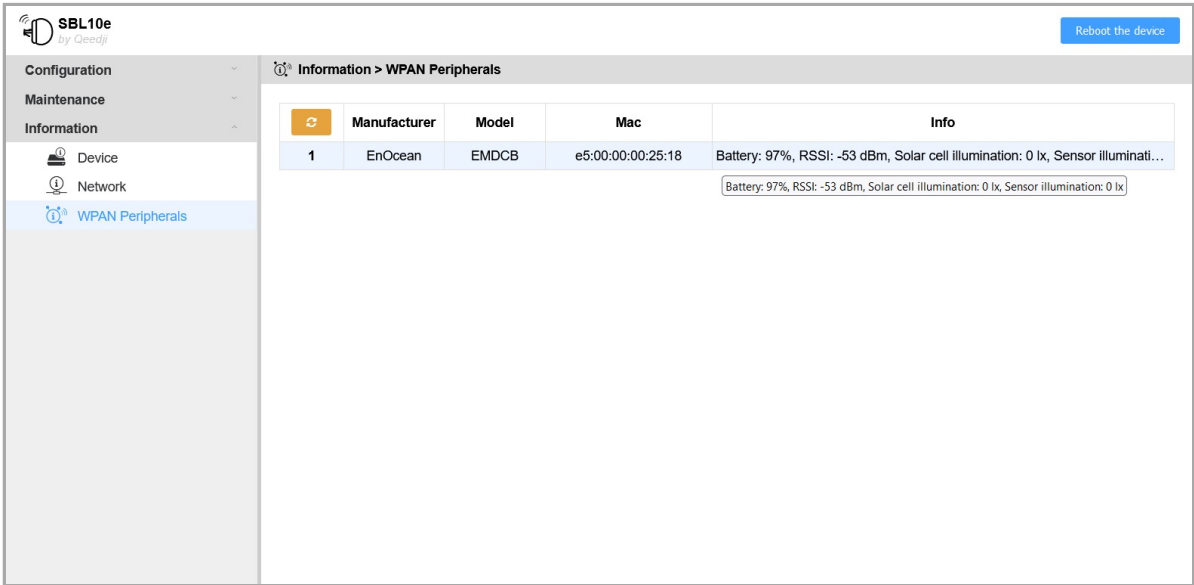
The pane allows to display sensor information like:

- sensor index column (only one sensor can be paired in this version),
- Manufacturer : manufacturer of the Easyfit (by EnOcean) sensor,
- Model : model of the Easyfit (by EnOcean) sensor,
- Mac : MAC address of the Easyfit (by EnOcean) sensor with the syntax aa:bb:cc:dd:ee:ff,
- Info :
 - Battery : 1..100%,
 - RSSI : sensibility in dBm,
 - Solar cell illumination : null or positive value in lx unit,
 - Sensor illumination : null or positive value in lx unit.

The button allows to refresh the information in the table.

It could be required to wait two minutes after a new sensor has been paired to watch consistent values in the Info column.

This is an example after having paired a sensor having the the MAC address e5:00:00:00:25:18 .



Part IV | Technical information

4.1 Technical specifications

Model		Manufacturer	
SBL10e		Qeedji	
Power supply		Information	
PoE IEEE802.3af		POE power supply input: ES1 / PS2 (48 V – 100 VA)	
Processors			
CPU		Nordic Semiconductor nRF52	
Security processor		ARM CryptoCell 310	
Storage			
Flash Memory for file system			8 MBytes
Network		Other information	
1x Ethernet		10/100 Base T, male connector	
WPAN			
Bluetooth Low Energy 5			
Frequency band: 2.402 to 2.480 GHz			
Tx Power: +8 dBm			
Operating temperature		Storage temperature	
+0 °C to +40 °C		-20 °C to +60 °C	
+32 °F to +104 °F		-4 °F to +140 °F	
Operating humidity		Storage humidity	
< 80 %		< 85 %	
Weight	Dimensions (W x H x D) (RJ45 male connector included)		
35 g	60,5 mm x 60,5 mm x 67 mm		
0,077 lb	2,36" x 2,36" x 2,63"		
Plastic enclosure flame rating			
Base: PVC UL 94-5VA, bulb: Polycarbonate UL 94 V-2			
Warranty			
1 year			

4.2 Conformities

EUROPE

In conformity with the following European directives:

- LVD 2014/35/EU ,
- EMC 2014/30/EU ,
- RED 2014/53/EU .

USA

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's by one or more of the following measures:

- reorient or relocate the receiving antenna,
- increase the separation between the equipment and the 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 equipment complies with FCC's radiation exposure limits set forth for an uncontrolled environment under the following conditions:

- this equipment should be installed and operated such that a minimum separation distance of 20 cm is maintained between the radiator (antenna) and user's/nearby person's body at all times,
- this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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

- this device may not cause harmful interference,
- this device must accept any interference received, including interference that may cause undesired operation.

Qeedji is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. such modifications could void the user's authority to operate the equipment.

CANADA

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- this device may not cause interference,
- this device must accept any interference, including interference that may cause undesired operation of the device.

Part V | **Contacts**

5.1 Contacts

For further information, please contact us:

- **Technical support:** support@qeedji.tech,
- **Sales department:** sales@qeedji.tech.

Refer to the [Qeedji](#) Website for FAQ, application notes, and software downloads: <https://www.qeedji.tech/>

Qeedji FRANCE
INNES SA
5A rue Pierre Joseph Colin
35700 RENNES

Tel: +33 (0)2 23 20 01 62
Fax: +33 (0)2 23 20 22 59

Part VI | Appendix

6.1 Appendix: Web services

These are the supported Web services for the `occupancy_sensor_ble_enocean` application to command and control the SBL10e:

Web service path	HTTP method				Query string parameters	Body	Function	From the <code>occupancy_sensor_ble_enocean</code> application version
	GET	POST	PUT	DELETE				
<code>api/v1/sys/power</code>			yes		<code><state>=rebooting</code>	<code>""</code>	Reboot the device	1.12.10
<code>api/v1/software/version</code>	yes				None	i.e.: <code>{"value":"1.12.10"}</code>	Get the device delivery software version	1.12.10
<code>api/v1/software/label</code>	yes				None	<code>{"value":"bm0032_occupancy_sensor_ble_enocean"}</code>	Get the device delivery software label	1.12.10
<code>api/v1/sys/sn</code>	yes					PSN Short representation: i.e.: <code>{"value":"01320-00004"}</code>	Get the device SN	1.12.10
<code>api/v1/sys/model-name</code>	yes				None	<code>{"value":"SBL10e"}</code>	Get the device model name	1.12.10
<code>api/v1/sys/manufacturer</code>	yes				None	<code>{"value":"Qeedji"}</code>	Get the manufacturer	1.12.10
<code>api/v1/sys/manufacture-ur1</code>	yes				None	<code>{"value":"www.qeedji.tech"}</code>	Get Web Site of manufacturer	1.12.10
<code>api/v1/sys/uuid</code>	yes				None	Uuid string value: <code><uuid> = <psn>-<48x0mac-48></code> i.e.: <code>{"value":"08400004-0000-0000-0000-001ce6024cad"}</code>	Get the device UUID	1.12.10
<code>api/v1/wpan1/mac</code>	yes				None	Bluetooth MAC address value user formatted: i.e.: <code>{"value":"db:f0:8c:72:64:a3"}</code>	Get the device Bluetooth MAC address	1.12.10
<code>api/v1/leds/light</code>	yes				None	Get (plain text, separator CR): i.e.: <code>{"state":"steady","color":"red"}</code> T <code><state>= off steady flashing</code> <code><color>=red orange blue yellow green</code>	Get busylight led color and state	1.12.10
<code>api/v1/sys/datetime</code>	yes				None	<code>{"value":"2021-08-11T06:09:58-02:30"}</code>	Get busylight date and time	1.12.10

Examples syntax with CURL tool:

- reboot the device:

```
curl --user "<USERNAME>:<PASSWORD>" -i -X PUT "http://<DEVICE_IP_ADDR>/api/v1/sys/power?state=rebooting"
```

- get device state & color:

```
curl --user "<USERNAME>:<PASSWORD>" -X GET "http://<DEVICE_IP_ADDR>/api/v1/leds/light"
```

- get device firmware version:

```
curl --user "<USERNAME>:<PASSWORD>" -X GET "http://<DEVICE_IP_ADDR>/api/v1/software/version"
```

6.2 Appendix: Qether

In case an application can not be executed, the SBL10e returns to a **Recovery** mode, waiting for firmware update.

The provided `qether` tool allows to make some remote operations on the SBL10e, based on its device MAC address like:

- SBL10e device firmware upgrade,
- SBL10e device configuration update,
- SBL10e device reboot.

The `<product_type>` is an extract of the device PSN value. For example, the 0132x-xxxx PSN value leads to the 0132 `<product_type>`.

The `<SBL10e_device_MAC_address>` is the MAC address of the device with the format `00:1C:E6:AB:CD:EF`.

⚠ The MAC address of the device is written on the label stuck at the back of the SBL10e device with the format 00-1C-E6-AB-CD-EF .

Discover command example

This command allows to find out the SBL10e devices available on the local network:

```
qether.exe FF 0132 discover
```

Configuration command syntax

Send a `.js` configuration script and apply it (default parameters):

```
qether.exe <SBL10e_device_MAC_address> <product_type> configure -f configuration.js
```

- When using `qether`, no specific filename pattern is required for the `.js` configuration script, except the `.js` file extension.
- The `system.httpd.username` preference value is limited to 15 characters max. The `system.httpd.password` preference value is limited to 100 characters max. The alphanumeric characters and the following characters `{ } | ~ [] ! # _ $ & () / ; < = @ | ^ % ? + ~ (, ' .` are supported for the `system.httpd.username` and `system.httpd.password` preference values.
- The `system.hostname` preference value is limited to 15 characters max. The alphanumeric characters, the character `-` and the character `.` are supported for the `system.hostname` preference value.
- To get an IP address with the DHCP server, set `system.lan1.ipv4.static-addr` with the value `false`. Else to work with a static IP address, set `system.lan1.ipv4.static-addr` with the value `true`.

Reboot command syntax

Reboot the target device:

```
qether.exe <SBL10e_device_MAC_address> <product_type> reboot
```

Firmware upgrade command syntax

Send a firmware file, with default transfer parameters, and install it. For example:

```
qether.exe <SBL10e device_MAC_address> <product_type> install -f bm0032_occupancy_sensor_ble_enocean-sbl10e-setup-1.12.10.bin
```

- Qether needs first to be installed first on your MS-Windows computer. For further information, refer to the [Qether user manual](#).

6.3 Appendix: Device configuration with TFTP server (+ DHCP server code 66)

The SBL10e device can be configured thanks to a .js configuration script (Javascript) hosted on a TFTP ¹ server associated to a DHCP server (code 66 option) properly configured and available on the local network.

¹ Trivial File Transfer Protocol


The .js configuration script downloading can be done as soon as a DHCP server is available, even whether the device is configured with a static IP address. Once connected to the DHCP server, the device can get:


- the IP address value of its network interface, when the option Obtain IP address automatically by DHCP is activated then,
- the primary DNS value when the system.lan1.dns.static user preference is false then,
- the .js configuration script from the TFTP server when the system.tftp.enable user preference is true.

Prerequisites:

- the appropriate .js configuration script must be is available in the exported directory of the TFTP server . It must:
 - be suitable for the device, its firmware type and its firmware version,
 - match an appropriate filename pattern:
 - 000000000000.js OR,
 - <device_LAN1_MAC_address>.js (with the format ABCDEFABCDEF.js).

When a .js configuration script is modified on the TFTP server, the device must be restarted once so that the new configuration script is taken into account by the device.

 When using a TFTP server, the configuration.js filename pattern is not supported.

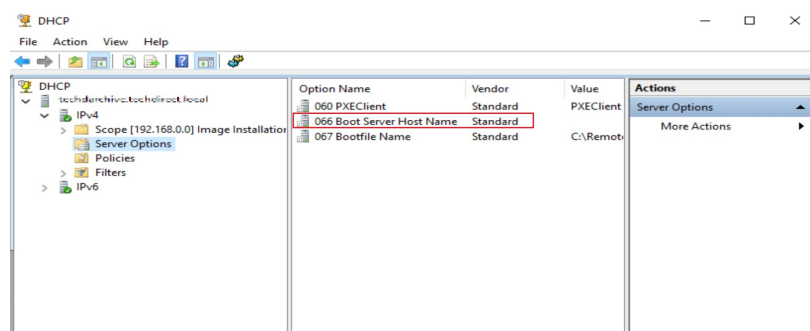
 The downloading of a .js configuration script from a TFTP server can be done only at the device booting-up and when the device has never downloaded it before or when the script content has been modified since the last download (CRC check).

DHCP server configuration

The DHCP server must be configured to be associated to a TFTP server. For that, you need to use code 66 option (TFTP Server), using the IPv4 address value of the TFTP server.

For example, for a Microsoft DHCP server , you need to define the option Boot Server Host Name and give the IPv4 address of the TFTP server. It can be in Extended option and/or Server Options.

The service must be restarted so that the modifications are fully reflected.

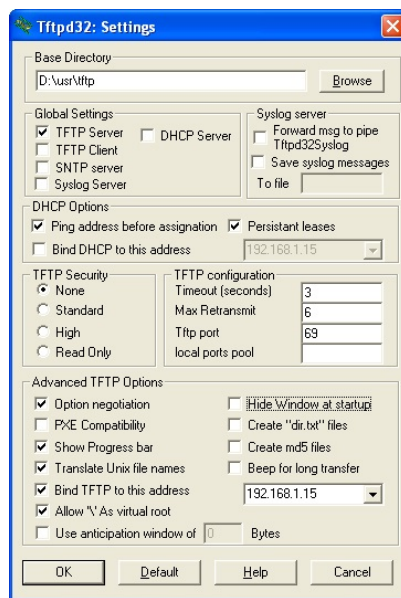


TFTP server configuration

The configuration is depending on the used software client. In all cases, you need to:

- get the directory URL that can be seen by TFTP clients,
- choose a TFTP security None,
- keep the default port (69).

Here is an example of the tftpd32 software with MS-Windows.



In this example, the TFTP server address is 192.168.1.15 and the exported directory is D:/usr/tftp.

☛ In this pane, enter the IP address of the TFTP server. Indeed entering the TFTP server domain name may prevent the feature to work properly.

Copy the .js configuration script in the exported directory of the TFTP server.

☛ It is recommended to have one .js configuration script per device by following the pattern <MAC>.js.