

# ACTILITY - ELSYS GREENHOUSE MONITORING EVALUATION KIT



Maximize your yields by preventing unnecessary losses!

Monitor and protect your greenhouse 24/7 from any location. Keeping plants in your greenhouse alive and healthy requires an optimal growing environment. Whether you are on-site or off-site, a greenhouse monitoring system ensures you are always aware of the critical conditions that threaten your property and plant inventory.

This **Elsys Green House Solution**, powered by Elsys & WMW, is an ideal to monitor the humidity and temperature of your green house remotely.

This tutorial provides you with the key steps to complete to get started with this solution.

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## Before you start...

In order to complete this tutorial, you will need at least :

- The “Green House Kit” available on [ThingPark Market](#). This kit contains the required HW and SW parts to implement the solution:
  - 1 x Elsys ELT-Lite and its accessories
  - 1x three-month access to the light version of WMW-HUB application.
- A [ThingPark Community](#) account with an active LoRaWAN™ gateway. If you don't have a gateway, you can purchase one on [ThingPark Market](#), ready to be activated on ThingPark Community.

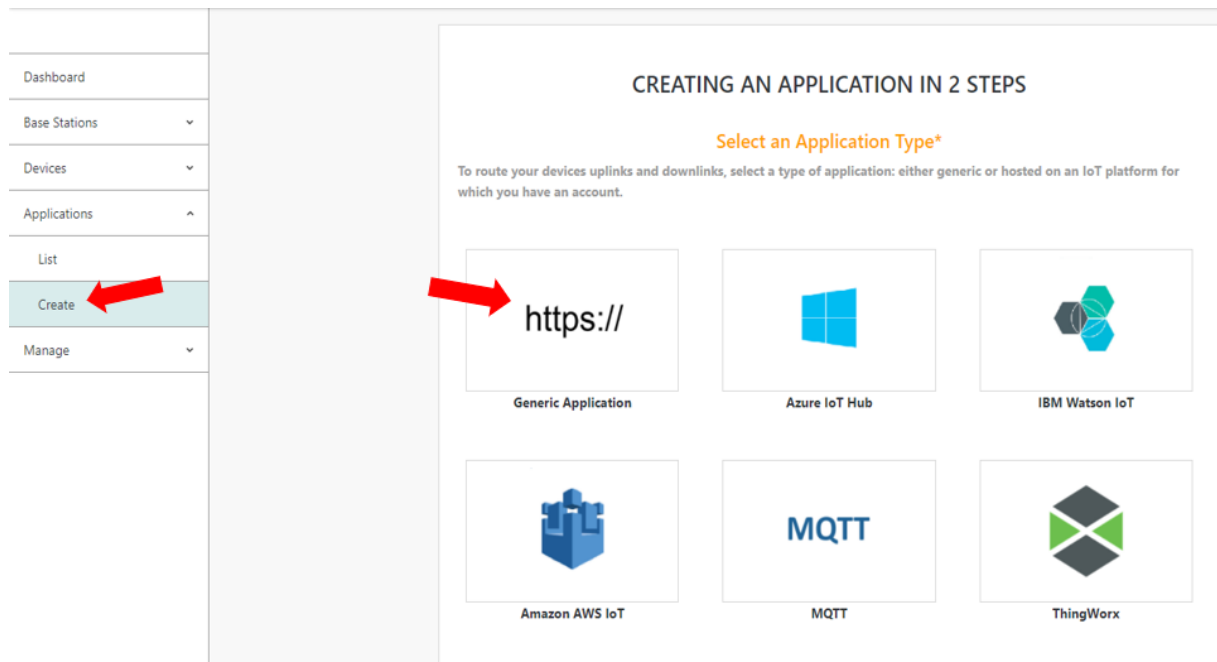
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## Step 1: Connect ThingPark Community to WMW application

Your ThingPark Community application are accessible through [the following URL](#).

Once you log in, you should see a screen displaying the number of base stations and devices you've connected on this account as well as their status. No device or base station should be connected for now.

Select “Application > Create” on the list on the left to create your WMW application, it is mandatory in order to send the device's messages to WMW; select the “https://” option.



A few fields are to be filled in order to complete this operation:

- **Name:** Name of your application displayed in ThingPark Community
- **URL:** you **MUST** enter the following URL: <https://eu1.api.wmw-hub.com/lora/store>
- **Content Type:** JSON
- **Additional information:** can be filled with useful information such as the device location.

## Your Connection Type

https://


### Basic HTTPS

Supports HTTPS-based connections, also known as NS-AS Tunnel Interface. **Device payloads are exchanged in encoded format without the support of payload drivers.** This connection type does not support message queuing services.


[Change connection type?](#)

## Set Your Connection\*

Name\* 

WMW connector 

URL\* 

https://eu1.api.wmw-hub.com/lora/store 

Content Type\* 

JSON

Tunnel Interface Authentication Key\* 

90-b9-18-a2-a7-ff-43-d2-bb-d8-74-22-d8-5f-91-f8






































Custom HTTP Headers 

No custom header configured



Now that you have set up the connection on the ThingPark side, we need to do the same on WMW side. Copy on a note the Tunnel Interface Authentication Key that you find above when you are creating the WMW application. Click on "Create" to finish the creation of this side of the connection and go in your list of application. There, you will have to also copy the ID of your connector on your side note.

	 Activity	Connections 	Search 	 Marketplace	 Notifications	 Help	 Contact Us	 My Account
Dashboard	Base Stations 	CONNECTIONS 						
Devices 		 	TpxDev connector	TWA_100002164.1105.AS	26			
Connections 		 	Vertical M2M	TWA_100002164.1120.AS	5			
List		 	Mydevices	TWA_100002164.1132.AS	3			
Create		 	ADA IoT platform	TWA_100002164.1228.AS	6			
Manage 		 	WMW	TWA_100002164.1267.AS	6			
		 	Opium Datahub	TWA_100002164.1462.AS	3			
		 	Favendo Commander	TWA_100002164.2089.AS	1			

Let's input those information in WMW : log in your account and on the top right, select the "Details" tab, if you scroll down a bit, you will find the "Connection" section.

A few fields are to be filled in this section in order to complete this operation:

- **Network:** You **MUST** choose "Thingpark dx-api with extra authentication + uplink security"
- **AS ID:** Paste the ID you copied earlier (it begins with TWA).
- **AS key:** Paste the key you copied when you where creating the connection of ThingPark side.
- **Tunnel interface domain:** Paste the domain your connector is on without the https:// part.

Don't forget to turn on the "use uplink security" option.

The screenshot shows the 'Connectivity' section of a web interface. It has a blue header with a gear icon and the text 'Connectivity Input the Info required for WMW to send downlink messages to your devices'. Below this, there are four input fields: 'Network' (a dropdown menu showing 'Thingpark tunnel interface + uplink security'), 'AS ID \*' (a text box with 'TWA\_100002164.1267.AS'), 'AS key' (a text box with masked characters), and 'Tunnel interface domain (ex. iot.thingpark.com) \*' (a text box with 'community.thingpark.io'). To the right of the domain field is a checkbox labeled 'Use uplink security' which is checked and labeled 'yes'.

## Step 2: Activate your Elsys ELT-Lite sensor on ThingPark Community

Now that you have your application, you can add your device on ThingPark too.

Go to "Device > Create" on the list on the left, if Elsys is in the list of the device manufacturers, select it, if it's not, select "View more manufacturers".

The screenshot shows the 'Device > Create' page. On the left is a sidebar with a 'Devices' menu. Under 'Devices', there are options: 'List', 'Create' (highlighted with a red arrow), 'Import', 'Applications', and 'Manage'. The main content area has a heading 'Provide information about your device to create and register it in your IoT network.' and a sub-heading 'Select Your Device Manufacturer\*'. Below this are six boxes representing different manufacturers: 'LoRaWAN' (Generic), 'Abeeway' (Abeeway), 'ELSYS.se' (Elsys), 'adeunis' (Adeunis), 'SENSING LABS' (Sensing Labs), and 'View More Manufacturers' (View More Manufacturers). A red arrow points to the 'ELSYS.se' box.

Once again, you will have to fill field to create your device:

- **Model:** Choose the class Acorresponding to your region (AS923 correspond to Asia, AU is for Australia, ETSI is for Europe and FCC is for the United-States).
- **Name:** The name your device will have in ThingPark Community.
- **DevEUI, AppEUI and AppKey:** Codes you should have received with your device.

Select the application you created for WMW; it should have a green dot showing that it's working well.

Leave the mode to "No location" and click on "Save" finalize the operation.



### Elsys

IoT provider of sensors, connected devices, and network solutions using LoRaWAN technology.

[Change manufacturer?](#)

## Enter Your Device Information\*

Model\*

class A

ERS/ELT/EMS sensors - 1.0.3 revA - **class A**  
(ELSYS/GenericA.1.0.3a\_AS923)

ERS/ELT/EMS sensors - 1.0.3 revA - **class A**  
(ELSYS/GenericA.1.0.3a\_ETSI)

ERS/ELT/EMS sensors - 1.0.3 revA - **class A**  
(ELSYS/GenericA.1.0.3a\_AU)

ERS/ELT/EMS sensors - 1.0.3 revA - **class A**  
(ELSYS/GenericA.1.0.3a\_FCC)

Activation mode\*

Over-the-Air Activation (OTAA) with local Join Server

JoinEUI (AppEUI)\*

00-00-00-00-00-00-00

## Associate Your Device With Your Application\*

Select the application you want to associate with your device in order to use its data.

Application\*

Select your application

Tpx-IoT-Flow Community

Vertical M2M

Mydevices

ADA

WMW

Opinum Datahub

MOTT

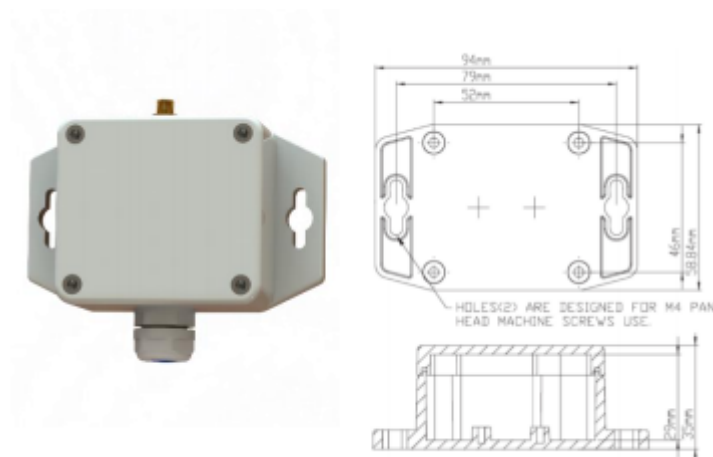
CANCEL

SAVE

# Step 3: Deploy your Elsys ELT-Lite sensor in the field

## Elsys ELT-Lite Sensor Overview

ELT-Lite is the ideal sensor for measuring in advanced places or in extreme weather conditions. It is easy to install and configure to form your solution. ELT-Lite has two generic inputs. You can configure ELT-Lite for external temperature probe, pulse counting, analog-input 0-10V, digital-input, water leak, switch, distance sensor, soil moisture sensor, and many more options. ELT-Lite can be equipped with add on modules to get extra features like external PT1000 sensors, load cell input, or output control.




*Elsys ELT-Lite Dimensions*

## Switch-on your device

To switch on your Elsys ERS sensor, you need to install the batteries, removing the 4 screws at the back. Once the batteries are plugged, the device will automatically start a Join Request to the network.

Once your device is active, you should be able to see it on ThingPark. In “DEVICE STATUS” there should be a green “ACTIVE” written in the top right.



DEVICE INFORMATION		DEVICE STATUS	
	Name ⓘ ELSYS ERS	Connection: <span>ACTIVE</span> <span>CLASS A</span>	
Manufacturer ⓘ Elsys	Model ⓘ ERS/ELT/EMS sensors - 1.0.3 revA - class A	Power Source ⓘ Battery <span>100%</span>	
DevAddr ⓘ 05-12-83-38	DevEUI ⓘ A8-17-58-FF-FE-04-F2-7E	Last Uplink Today - 15:08:48	
		Last Downlink Today - 14:34:07	
		Average Packets 29.0 packet(s)/day	

## Device default configuration

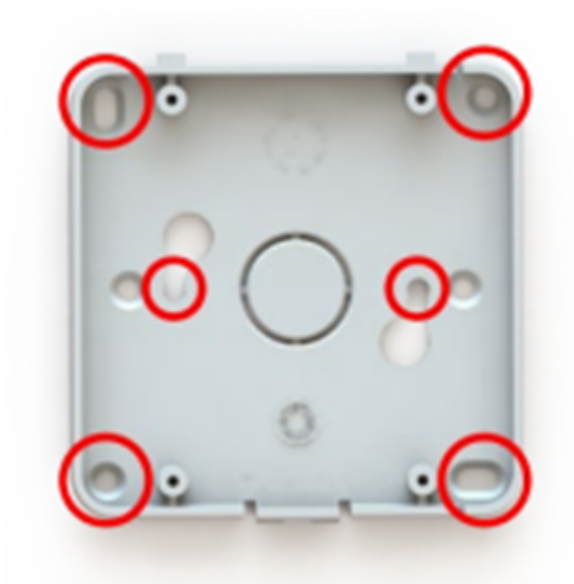
By default, the sensor will report all its properties every 5 minutes.

If you would like to change its default behavior, use the app “[Sensor Settings](#)” on an android phone to change the sensor configuration through NFC. Put your phone on the device, pick the parameters you want and click on write to confirm the new settings of your device.

More information can be found [here](#).

## Device physical installation

The Elsys ERS is equipped with 6 holes and can be mounted on any location ; more information can be found in the “Installation” section of the [operating manual](#).



## Additional resources

### Battery life calculator

Elsys is providing a very nice [calculator to estimate the battery lifetime](#) of the device.

Based on the default configuration the estimated battery life is expected for 16 years for a device working at SF7.

Sample time

300

Seconds

Sensor

ERS

Select Elsys sensor

Battery capacity

5400

Capacity(mAh)

Battery performance

80

Performance(%)

Spreading factor

☒ SF7
☐ SF8
☐ SF9
☐ SF10
☐ SF11
☐ SF12

Result:

The battery will last for **15.9** years\*. The sensor will draw **31uA** and **272mAh** in one year.

☐ Details

\*Battery life and estimated current are both theoretical values. Battery life is negatively affected by moisture, high temperature, dirt, vibration and more. Most battery manufacturers guarantees a maximum of 10 years battery life (storage and usage). Battery life may vary between different firmware versions, and we are always trying to increase battery life with every new version.

Category	Percentage
Transmit	45%
Receive 1	2%
Receive 2	5%
Temperature	3%
Humidity	2%
Light	2%
Motion	2%
Sleep	15%
Battery	18%

[Old Battery life calculator](#)

*Battery Life Estimation using SF7*

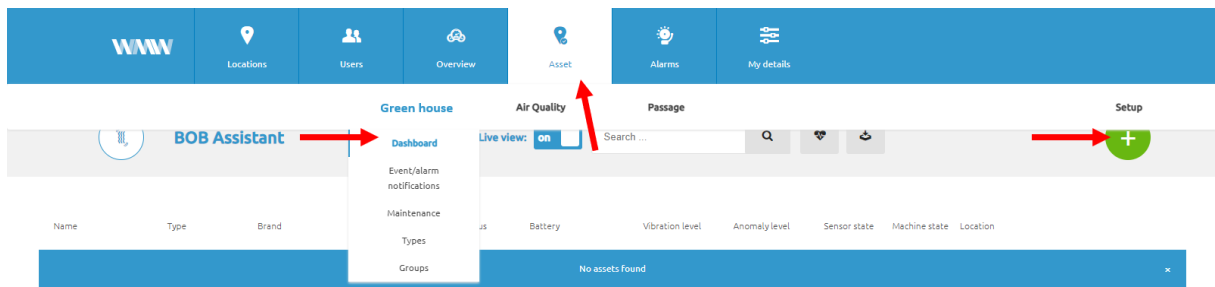
## Step 4: Monitor your green house with WMW application

Using the credentials you received through email, you can access to WMW-Light on the following URL:

<https://eu1.wmw-hub.com/en/login>

Since you already have provisioned your device on ThingPark Community, the main step that should be left will be to create the device on WMW. Click on "Asset" and then "Dashboard", an empty page should appear since you have no device added yet. Click on the big green +.

If you possess devices on multiple applications, you may have to click on "Green House" before "Dashboard".



In order to fill your device creation fields, you need:

- A name that corresponds to your device: Elsys ELT-Lite
- Its Unique device identifier also called DevEUI
- Device type:ELT-Lite

You must select or create an asset type in order to create your device:

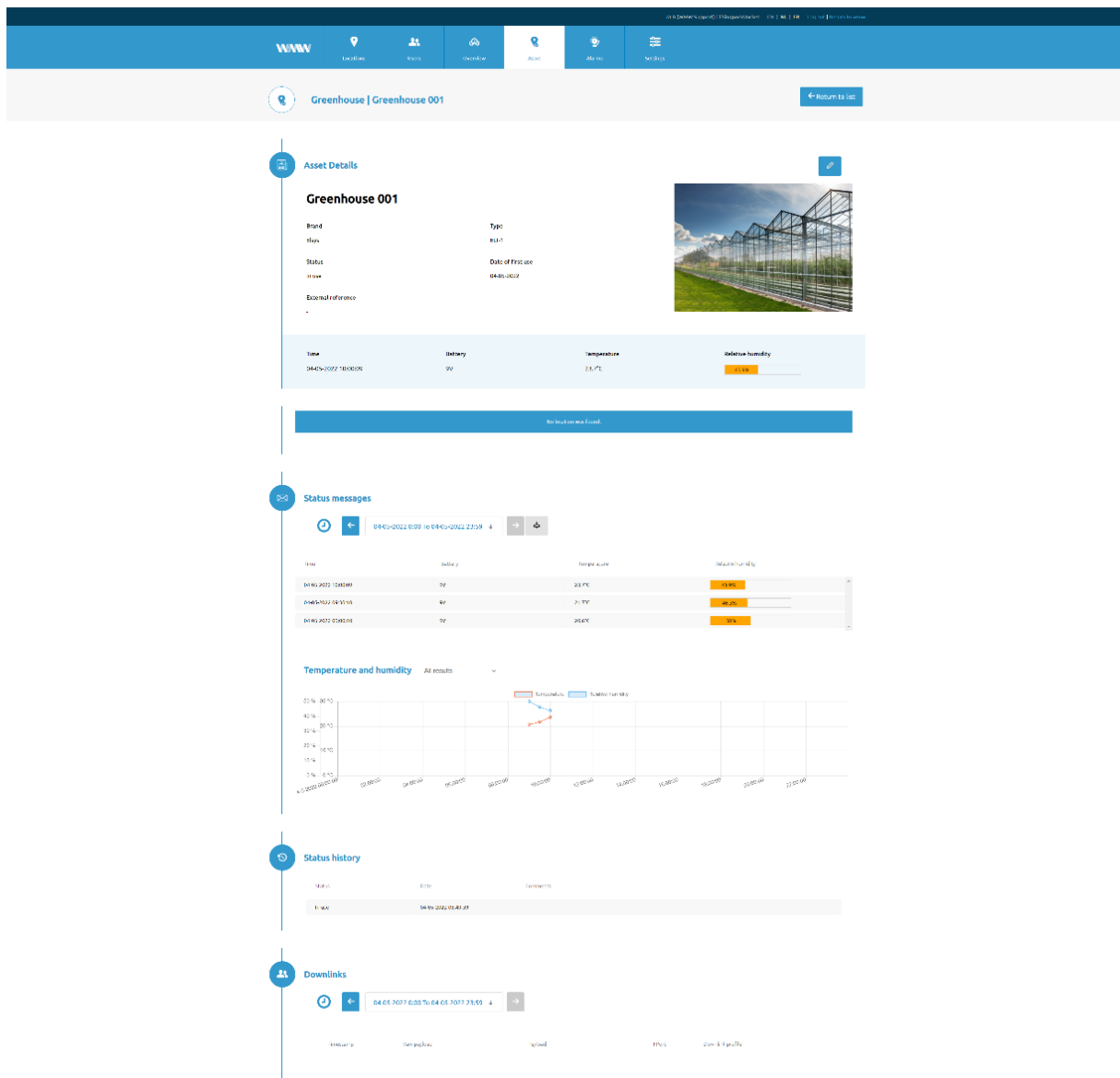
- For the brand, pick the brand of your device: Elsys
- For the type, enter "Green House" for example.
- You can add a picture or a description of this type of asset

Once you are done, click on “Save” and your device should appear on the corresponding dashboard.

## Add alarms to your device

You can pick its position manually since it does not return it by itself, and if everything goes well, the information of your device should appear as the payloads are transmitted.

If you want to add alarms to your device, return on the dashboard page and click on the arrow next to the device. Click on the small pen to edit your device, scroll down to find the “Rule” section, and click on the big green +. There you can add and edit your alarms to send emails or create webhooks depending on the measures your device transmits.



For example, if you want to configure alarms for temperature thresholds in your tank, select your Elsys ELT-Lite device and add a rule with mails to send the alert to, or phones or simply webhooks. The temperature and humidity thresholds are up to you to determine. You can also put alarms on the other properties of your device such as its battery.

## Create asset rule



Name \*

alarm-Green-House

Notification interval \*

One time

Email address(es) (separated by a comma)

GreenHouse@alarm.com

Mobile number

☐ Custom text

Webhook

Webhook fields

☐ Basic authentication

Rule type \*

Battery

Operator \*

is equal to

Value expected

Logic

+

Save

## Monitor your device's information

You will find the information displayed by the tracker on the tracker on the dashboard on the corresponding application.

Greenhouse									
Asset health									
IN ALARM MODE		NON-RESPONSIVE		LOG MESSAGES		REACTIVE		ONLINE	
0		0 / 4		0		0		4 / 4	
Name	Type	Status	Time	Rules	Battery	Temperature	Relative humidity	Location	
Greenhouse 001	FIT-1	High	04-05-2022 09:08:10	Alarm	100%	26.0°C	100%	-	→
Greenhouse 002	FIT-1	High	04-05-2022 09:08:10	Alarm	100%	22.8°C	100%	-	→
Greenhouse 003	FIT-1	High	04-05-2022 09:08:11	Alarm	100%	25.1°C	100%	-	→
Greenhouse 004	FIT-1	High	04-05-2022 09:08:11	Alarm	100%	22°C	100%	-	→

And if you want more extensive information, click on the arrow at the end of the line of the device, you will find the records of the temperature and humidity of the green house.

