## ACTILITY - PRESENCE DETECTION AND ENVIRONMENTAL MONITORING EVALUATION KIT



Every business with a physical space should count people traffic in order to see the bigger picture of what is going on in their location. Whether you are a shopping center, retail chain, museum, library, bank, restaurant or otherwise, passage calculation data will help you make well-informed decisions about your business.

This **presence detection and environment monitoring solution**, powered by Elsys & WMW, is an ideal solution to measure people flow in your office or retail space and will greatly help your decision-making process.

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

## Before you start...

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

- The "presence detection and environment monitoring Evaluation Kit" available on <u>ThingPark Market</u>. This kit contains the required HW and SW parts to implement the solution:
  - 1 x Elsys ERS and its accessories
  - 1x three-month access to the light version of WMW-HUB application.
- A <u>ThingPark Community</u> account with an active LoRaWAN<sup>™</sup> gateway. If you don't have a gateway, you can purchase one on <u>ThingPark Market</u>, ready to be activated on ThingPark Community.

## **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: <u>https://eu1.api.wmw-hub.com/lora/store</u>
- Content Type: DON'T CHANGE IT
- Additional information: can be filled with useful information such as the device location.

#### Your Connection Type

#### Basic HTTPS

https://

Supports	HTTPS-bas	ed connection	ns, also kno	wn as NS-AS	Tunnel Interface.
Device pa	ayloads are	exchanged i	n encoded	format witho	ut the support of
payload	drivers. Th	s connection	type does	not support	message queuing
services.					

Change connection type?

#### Set Your Connection\*

Name <sup>*</sup> 🕕	
WMW connector	✓
JRL* 🕕	
https://eu1.api.wmw-hub.com/lora/store	<ul> <li>Image: A start of the start of</li></ul>
Content Type <sup>*</sup> 🕕	
JSON	•
unnel Interface Authentication Key 🕯 🚯	
90-b9-18-a2-a7-ff-43-d2-bb-d8-74-22-d8-5f-91-f8	0
Custom HTTP Headers 🚯	
No custom header configured	Ð

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.

E Actility			Connections Search O Marketplace	①         ○         ○         ✓         ▼           Notifications         Help         Contact Us         My Account
2.11.1	CONNECTIONS			+±=
Base Stations v	https://	TpxDev connector	TWA_100002164.1105.AS	26 1
Devices ~	https://	Vertical M2M	TWA_100002164.1120.AS	5
Connections ^	https://	Mydevices	TWA_100002164.1132.AS	3
Create	https://	ADA IoT platform	TWA_100002164.1228.AS	6
Manage ~	https://	WMW	TWA_100002164.1267.AS	6
	ТРХ	Opinum Datahub	TWA_100002164.1462.AS	3
	https://	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.
- **Tunnuel interface domain:** Paste the domain your connector is on without the https://part.

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

Network	
Thingpark tunnel interface + uplink security	~
AS ID *	AS key
TWA_100002164.1267.AS	
Tunnel interface domain (ex. iot.thingpark.com) *	Use uplink security
community.thingpark.io	yes 🔄

## **Step 2: Activate your Elsys ERS 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".

Devices ^	Provide information about your device to create and register it in your io I network. Select Your Device Manufacturer*							
Create Import		Abeeway	CELSYS.se					
Applications v	Generic	Abeeway	Elsvs					
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Once again, you will have to fill field to create your device:

- **Model**: Choose a Class A model that correspond 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.



#### Enter Your Device Information\*

ERS (ELS	/ELT/EMS sensors - 1.0.3 revA - <b>class A</b> YS/GenericA.1.0.3a_AS923)
ERS (ELS	/ELT/EMS sensors - 1.0.3 revA - <b>class A</b> YS/GenericA.1.0.3a_ETSI)
ERS (ELS	/ELT/EMS sensors - 1.0.3 revA - <b>class A</b> YS/GenericA.1.0.3a_AU)
ERS (ELS	/ELT/EMS sensors - 1.0.3 revA - <b>class A</b> YS/GenericA.1.0.3a_FCC)
ctivati	ion mode" 🚯
Over	-the-Air Activation (OTAA) with local Join Server
inEUI	(AppEUI)* (
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opKey	/ <b>0</b>

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



## **Step 3: Deploy your Elsys ERS sensor in the field**

### Elsys ERS Sensor Overview

ERS sensors are LoRaWAN<sup>™</sup> room sensors for measuring indoor environment. ERS is enclosed in a room sensor box and it is designed to be wall mounted. Inside the ERS you will find four internal sensors: temperature sensor, humidity sensor, light sensor, and a motion sensor (PIR). ERS is powered by two 3,6V AA lithium battery. The Battery life is estimated to be up to 10 years but depends on sample interval, transmit interval, data rate and environmental factors.



Elsys ERS 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 STAT	US
Name O ELSYS ERS		Connection: Power Source Battery	• ACTIVE (LASSA) • 100%
Manufacturer	Model <b>()</b>	Last Uplink Today - 15:08	48
Elsys	ERS/ELT/EMS sensors - 1.0.3 revA - class A 🔹	Last Downlink Today - 14:34	07
DevAddr 🕚	DevEUI	Average Pack 29.0 packet(s)	ets /day
05-12-83-38	A8-17-58-FF-FE-04-F2-7E		

## 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 "<u>Sensor Settings</u>" 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 <u>here</u>.

## Device physical installation

The Elsys ERS is equipped with 6 holes and can be mounter on any location ; more information can be found in the "Installation" section of the <u>operating manual</u>.



### Additional resources

#### **Battery life calculator**

Elsys is providing a very nice <u>calculator to estimate the battery lifetime</u> 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	Sensor	Battery capacity Transmit
300	ERS 👻	5400 Receive 1
Seconds	Select Elsys sensor	Capacity(mAh)
Battery performance		Humidity Light Motion
Performance(%)		Sleep
Spreading factor		Battery
SF7 O SF8 C	) SF9 () SF10 () SF11 (	D \$F12
Result:		
The battery v	will last for <b>15.9</b> y	ears*. The sensor will draw
31uA and 27 Details	2mAh in one yea	
'Battery life and dirt, vibration ar ife may vary be	l estimated current are nd more. Most battery tween different firmwa	both theoretical values. Battery life is negatively affected by moisture, high temperature, manufacturers guarantees a maximum of 10 years battery life (storage and usage). Batter re versions, and we are always trying to increase battery life with every new version.
Old Battery life	calculator	

Battery Life Estimation using SF7

# **Step 4: Monitor affluence 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 "Asset list", 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 "Passage" before "Asset list".



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

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

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 the type of space you will monitor passage in, such as meeting room, or open space
- 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 "Passage" dashboard.

You can pick its position if 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.



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#### Temperature and humidity $- \lambda was provide = - \epsilon$



#### Occupancy status





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N con	Checked States 1971, 19		



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

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And if you want more extensive information, click on the arrow at the end of the line of the device, you will find the time of occupancy of your rooms.

