

Multifunction Sensor SC-LT-01

User Manual





C2 - restricted access

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1. Presentation

The multifunction sensor by Smart & Connective is a revolutionary sensor that uses a groundbreaking technology able to count precisely and in real-time how many people are in a room, thanks to powerful algorithms.

Thanks to its 4 different modes of functioning, it can also serve as:



Desk occupancy

- 9 Hit counter (Frequency of use of various equipment/consumables)
 - Soap
 - Hydro-alcoholic gel
- 9 Level sensor (useful to know the filling level of consumables)
 - Trash can
 - Towel dispenser

It is a sensor without any camera, developed by Smart & Connective for a better global efficiency. Indeed, 99% of the energy savings scenarios are based on room occupancy.

Several multifunction sensors can work simultaneously in the same room and aggregate their data to monitor multiple access.





2. Specifications



• Proximity and Motion / Occupancy sensor

No camera

Integrated auto calibration

Can be connected to an external push button and 2 LED (green and red) for enhanced maintenance operation (optional)

Dimensions	74mm x 21 mm x 23,5 mm (l*L*H)
Housing	ABS Plastic
Manufacturing site	France
Power	AA battery 3.6V 2600mA
Battery lifetime	Up to 2 years
Operating temperature	0 to 55°C
Radio frequency band	ZigBee (2400-2483MHz)
Max. transmitting power	ZigBee: +10dBm
Range of Zigbee network	Up to 30m(indoor range) / Up to 100m with repeater
Laser measurement range	4 to 400 cm
Operating height in Person Counter mode	Up to 230 cm
Protection rating	IP53
Warranty	Standard -2 years
Regulatory compliance	Security : UL EMC : CE RoHs



3. Process of inclusion, exclusion and restoring factory settings

Before to begin, check that you are connected to the correct Automation whose access point name is "scap| Number_ID"

The 4 green leds must be visible on the front side.



Inclusion

Open the Multifunction Sensor battery cover.

- If the product is new, please remove the tab and go directly to step 2.
- If the tab has already been removed, please go to Step 1.

Be careful to respect the characteristics of the AA battery 3.6V 2600mAh and to check that no tab is apparent.

O Step 1

Insert a pin for **3s** into the hole and check that the led blinking (1 or 2 times)

O Step 2

Remove the battery







Go to **CEOS MANAGER** and choose the multifunction Sensor to include.

	E Plateau S&C	(103) Automation 178	
	DE	VICES	c
	A. Capteur Temperature CVC fauteuil Plateau S8C (103)	A. Multifunction Controller 111 Fauteuil Zone du fond	
	S A.Controle CVC coin fauteuil (McoHome M) Plateau S&C (103)	A.Contrôle CVC coin Fauteuil (McoHome S) Plateau S&C (103)	
	A.Parametre CVC Fauteuil Plateau S&C (103)	Capteur de fenêtre Commercial Plateau S&C (103)	
	Capteur de fenêtre Détente Plateau S&C (103)	Capteur de fenêtre marketing Plateau S&C (103)	
0	Step 4	E Plateau S&C (103) Autor	mation 178
	Click on the "Pair" button to set	Scene	
		Set Time Start BLE advertising	
		System Reset	

O Step 5

Put the battery back.

After 5s, the message Zigbee inclusion appears. Then wait a few seconds until the "Pair" button changes into "Unpair".

bureau 423 Automate	=	Plateau S&C (103) Automation 178
ZIGBEE INCLUSION	Mode	
Please set your Zigbee device into inclusion mode.	Scene	
	Set Time	
	Start BLE advertising	
Zwave Inclusion Node Ready	System Reset	
	Temperature	
Annuter		
	No. of the second se	
	UNPA	IR

Temperature

PAIR



Exclusion

There are two ways to exclude this device.

Hardware Exclusion

O Step 1

Insert a pin for **3s** into the hole and check that the LED is blinking (1 or 2 times).



Software Exclusion

O Step 1

Go to **CEOS MANAGER** and choose the Multifunction Sensor to exclude.

≡	Platea	u S&C (103) Automation 178	
		DEVICES	ø
This Ceos			
S	A. Capteur Temperature CVC fauteuil Plateau S&C (103)	A. Multifunction Controller 111 Fauteuil Zone du fond	
S	A.Controle CVC coin fauteuil (McoHome M) Plateau S&C (103)	A.Contröle CVC coin Fauteuil (McoHome S) Plateau S&C (103)	
	A.Parametre CVC Fauteuil Plateau S&C (103)	Capteur de fenêtre Commercial Plateau S&C (103)	
S	Capteur de fenêtre Détente Plateau S&C (103)	Capteur de fenêtre marketing Plateau S&C (103)	

O Step 2

Click on the **"Unpair"** button. Then wait a few seconds until you see the **"Device Removed"** success screen.

SMART

CONNECTIVE

	Plateau S&C (103) Automation 178	
Mode		10
Scene		DEVICE REMOVED
Set Time		You successfully removed the device
Start BLE advertising		
System Reset		
Temperature		Swine Expression Process Greepons
		Ajouter un autre objet
	All	Betour sur vue générale

Restoring factory settings

The restoring factory settings allow to empty the memory.

• Process

Insert a pin for **3s** into the hole and check that the led is blinking (1 or 2 times)







Before to begin the installation

Before to begin the process of inclusion, we advise you to configure the **CEOS With Zigbee technology**, it is important to include the sensors closest to the automation at first, then the furthest in a second time. If a sensor seems to be too far from the automation, you can use a repeater. You should know that every cable-powered product using the Zigbee radio protocol is considered as repeater.

As a first step, we recommend that you use light adhesive tape to determine the right position and then permanently fix it with double-sided adhesive tape.

Depending on the working Mode, the physical installation in the room is different.

Level Mode

Allows you to measure a distance thanks to its integrated laser. (4cm to 400 cm in normal light condition). It is useful for controlling the filling level of a container (garbage can, sorting bin), tank, paper dispenser...

Positioning

Step 1

Position the sensor in front of the material to be measured

Setting

Once the Multifonction Sensor is fixed and well paired (see the section on pairing), you must select the LEVEL mode on the Smart & Connective portal.



O Step 1

Go to Smart & Connective Portal and select the site you are looking for

9	SMART & CONNECTIVE			La sgintegrateur@	smartandconnective.com V	🜲 🍽 FR 🛩
Mes site	es					Nouveau site
S	Nom	Туре	Ville	Pays		
ок	Site 10 Smart & Connective	Bureau	valbonne	France		Q



O Step 2

Go to the «Devices» tab and select the right sensor you are looking for.

All parameters not hidden when creating the devices, will be available.

-Go to the parameter "Level Mode".

O Step 3

Click on LEVEL MODE



EKHO Bureau Direction - Ekho Mode

Device:	EKHO Bureau Direction						
Nœud:	0x3ced-0xf4ce360b5479fdfd						
Action:	Off Level Occupancy Hit Counter People Counter						
Activité:	T minutes ago						

Calibration is automatic. In less than 30s, the sensor recognizes the distance between it and the nearest obstacle.

This distance is observable on the portal in millimeters (mm).

Remarks:

- The parameter «Set level period (ms)» can be interesting in order to increase the life of the sensor. Indeed, depending on the application, it is not necessary to have a measurement every second. It may be enough to have a measurement every 5 minutes for example (So put 300,000 ms)

- When the sensor in LEVEL mode works, you should know that a smoothing system is set up for the return of the distance. That is, if the distance between the sensor and the trash is 1m, it will not go from 1m to 10 cm directly. This allows to have a better interpretation of the fill rate.



Hit Counter Mode

This mode allows you to control and know the frequencies of use of various equipment / consumables.

Positioning

- The sensor must be positioned just below the desired equipment.

- Sensors and LEDs must be positioned horizontally.

Setting

Once the sensor is fixed and well paired (see the section on pairing), you must select the **«Hit Counter»** mode on the Smart & Connective portal and execute the calibration.

O Step 1

Go to Smart & Connective Portal and select the site you are looking for

9	SMART & CONNECTIVE			💄 sgintegrateur@sma	rtandconnective.com 💙	▲ ► FR →
Mes site	es					Nouveau site
S	Nom	Туре	Ville	Pays		
ок	Site 10 Smart & Connective	Bureau	valbonne	France		Q

O Step 2

- Go to the **«Devices»** tab and select the right sensor you are looking for.

- Go to the **«Level MODE»**
- Click on **«Occupancy»**









Occupancy Mode

This mode makes it possible to know and manage the occupation of the offices. In real time, we can know the number of people who are present in their office. This makes it possible to :

- Optimize the cleaning of offices
- Save energy
- Improving the comfort of users

Positioning

- The sensor should be positioned under the table, about 10cm from the edge of the table.

- When the chair is stored, the sensor must arrive in the middle of it.

- When a person is sitting, the sensor must be close to their knees.

- Sensors and LEDs must be directed to the ground.



Parameter

Once the multifunction sensor is fixed and well paired (see the section on pairing), you must select the «Occupancy» mode on the Smart & Connective portal and execute the calibration.

In order to perform the calibration, we will need an empty chair stored under the desk. The calibration will both measure the distance between the sensor and the chair and to recognize the ambient thermal radiation (which will be different with or without people on the chair).



O Step 1

Go to Smart & Connective Portal and select the site you are looking for

0	SMART & CONNECTIVE				sgintegrateur@smartandconnective.com 🛩	₩ FR ¥
Mes site	98					Nouveau site
S	Nom	Туре	Ville	Pays		
ок	Site 10 Smart & Connective	Bureau	valbonne	France		Q

O Step 2

Go to the «**Devices**» tab and select the right sensor you are looking for.

- -Go to the parameter "Level Mode".
- -Click on "Occupancy".

MOD Leve	DE	LEVEL (ww.) mm	OCCUPANCY SENSO No motion
ureau 422 > Ekho Propriété/biens				
		Devices	Regies	Regiages

EKHO Bureau Direction - Ekho Mode

Device:	EKHO Bureau Direction							
Nœud:	0x3ced-0xf4ce360b5479fdfd							
Action:	Off Level Occupancy Hit Counter People Count	er						
Activité:	▲ a few seconds ago							

O Step 3

- Go to the parameter « **START SENSOR CALIBRATION** »

- Enter **1** at the « **Action** » and press the button "**Trigger**".

The calibration is automatic and autonomous. Just wait about **30s** and the sensor is ready for use.



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EKHO Bureau Direction - Start Sensor Calibration





People Counter Mode

This mode allows you to control the entrances and exits of a room, to know the number of people, but also the frequencies of passage.

This mode is used in order to save energy, but also to improve the comfort of users by controlling in particular the light, the air conditioning, and the occupancy rate of a room

Positioning

-In the center of the upper part of the door frame

-On the opposite side of the door opening

-The visible sensors closest to us

- Sensors and LEDs must be parallel to the ground





To check that the sensor is well positioned, it is necessary to respect its 3 conditions:

1. Max sensor height 2m30

2. Max door width 1m

3. Two people cannot cross each other at the same time under the door (normally this is physically impossible for standard doors)

It is possible to change the direction of counting of inputs and outputs (parameter Set people counter direction USB Outwards)

Parameter

Once the multifunction sensor is fixed and well paired (see the section on pairing), you must select the «People Counter» mode on the Smart & Connective portal and execute the calibration.



O Step 1

Go to Smart & Connective Portal and select the site you are looking for

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Mes site	s					N	louveau site
S	Nom	Туре	Ville	Pays			
ок	Site 10 Smart & Connective	Bureau	valbonne	France			Q

O Step 2

Go to the **«Devices**» tab and select the right sensor you are looking for.

-Go to the parameter "Level mode".

-Click on "People counter".



EKHO Bureau Direction - Ekho Mode

Device:	EKHO Bureau Direction			
Nœud:	0x3ced-0xf4ce360b5479fdfd			
Action:	Off Level Occupancy Hit Counter People Counter			
Activité:	7 minutes ago			

O Step 3

- Check that the door is properly closed and that there are no obstacles under the sensor.

- Go to the parameter « **START SENSOR CALIBRATION** »

- Enter **1** at the « **Action** » and press the button "**Trigger**".

The calibration is automatic and autonomous. Just wait about 30s and the sensor is ready for use.





Possible options

Change the direction of entry/exit accounting. To do this, simply use the parameter "Set People Counter Direction USB Outwards"

- You have to go to the parameter in question, enter **0** at the **Action** and click on the button "**Trigger**"

- To return to the normal direction (identified previously in the positioning part) simply enter **1** at the **Action** and click on the button "**Trigger**"

Restrict a maximum detection height

It may be useful to control the maximum detection distance. (For example, to avoid counting animals or vacuum cleaners of housekeepers.) This also means determining a minimum detection height.

To do this, just use the parameter "Set People Counter Distance Threshold (mm)

- Enter the maximum distance in mm
- Press the button «Trigger»

For example, for a sensor located in the upper frame of a door **2m** from the ground, you can insert in the parameter "Set People Counter Distance Threshold (mm)": **1400, so 140cm**

This means that between the ground and 60 cm in height, nothing will be counted.

OFF Mode

This mode allows to put the sensor in OFF mode. No action will be taken. This allows the counters of all modes to be reset to 0. This reset is not visible directly by clicking on OFF, but when returning to a mode.

For example, if I am in «People Counter» mode with 3 people detected. I switch it to OFF, the counter is still at 3. But if I go back to a mode, then the counter goes to 0.



5. S&C Portal User guide

It is with the Smart & Connective Portal that we can configure and control all aspects of multifunction sensor behavior. We will also be able to create automatic rules both to control our building and be able to save energy.

Here are all the settings:

Name	Function	Working mode	Controllable / Status feedback
Mode	Working Mode (OFF, Level, Occupancy, Hit counter, People Counter)	Thermostat	Controllable
Level(mm)	Distance between the sensor and the obstacle	LEVEL	Status feedback
Occupancy Sensor	Status feedback (Motion or no motion)	Occupancy	Status feedback
Hit counter	Usage frequency counter	Hit Counter	Controllable and Status feedback
People counter	Displays the number of people in real time detected by the sensor	People Counter	Controllable and Status feedback
System Reset	Reset all counters	All	Controllable
Erase Settings	Reset all settings	All	Controllable
Set level period (ms)	Period between 2 sensor measurements	Level	Controllable
Set level max threshold (mm)	Max level alert distance	Level	Controllable
	1/3		



Name	Function	Working mode	Controllable / Status feedback
Set level min threshold (mm)	Minimum level alert distance	Level	Controllable
Set people counter Period(ms)	Minimum counting period possible	People counter	Controllable
Set people counter distance threshold (mm)	Max counting alert distance	People counter	Controllable
Set people counter direction USB Outwards	Changes the direction of input - output accounting 0= Direction reversed 1=Normal direction	People counter	Controllable
Start sensor calibration	Start the automatic calibration (about 30s)	People counter Occupancy Hit Counter	Controllable
Battery Percentage	Display of the remaining battery level in percentage	All	Status feedback
Set Occupancy Sensors PIR+Laser	Allows to use PIR + Laser technology for calibration	Occupancy	Controllable but not recommended
Set Occupancy Sensors PIR+IR	Allows to use PIR + IR technology for calibration Selected by default	Occupancy	Controllable
Set Occupancy Sensors PIR+LASER+IR	Allows to use PIR + LASER + IR technology for calibration	Occupancy	Controllable but not recommended
Start Bluetooth advertising	Enables Bluetooth	All	Controllable
	2/3		





Function	Action / Description	Indication
Inclusion	Press and hold the button for 3s -The led makes 1 or 2 quick flashes - Remove the battery Set your CEOS in inclusion mode	3s LED
	- Put the battery back	
Exclusion	-Press and hold the button for 3s - The led makes 1 or 2 quick flashes Or - Set your CEOS in inclusion mode via CEOS MANAGER	3s LED
Reboot	- Press and hold the button for 1s - The led must flash quickly for 4s	LED
Reset	- Press and hold the button for 3s - The led makes 2 quick flashes	LED 3s
Active the Bluetooth	- Press and hold the button for 1s	1s LED



Function	Action / Description	Indication
Working mode	 OFF = Everything is off LEVEL= Level sensor Occupancy= Desk occupancy Hit Counter= Frequency of use of various equipment/consumables People Counter= count how many people are in a room 	
S&C portal	<u>https://my.smartandconnective.net/#/</u> login/form	Allows you to configure everything
CEOS Manager	<u>http://10.10.10.1:5000/#/manager</u>	Allows you to include/exclude devices
Pocket assistant	<u>https://play.google.com/store/</u> apps/details?id=com.pocketassis- tant&hl=en≷=US	App for users
Site S&C	<u>https://smartandconnective.com/</u> <u>se-connecter/</u>	Integrator access on the main site of S&C
Account creation	<u>https://my.smartandconnective.net/#/</u> <u>signup/form</u>	Allows you to create an integrator or user account

