

## SenNet IoT CO<sub>2</sub>-TH Sigfox

### General description

SenNet IoT CO<sub>2</sub>-TH Sigfox is a low power device, that take samples of **temperature**, **humidity** and **CO<sub>2</sub> level** with a interval of time setup.

Use sigfox network to connect with your cloud or platform.

These are the reference at depend of power supply type battery or AC power:

| Reference                         | Power supply type                     |
|-----------------------------------|---------------------------------------|
| CO <sub>2</sub> -TH Sigfox bat ++ | Battery<br>3.6v@18000mAh (LS26500 x2) |
| CO <sub>2</sub> -TH Sigfox AC     | AC Power supply<br>100-265Vac         |

### Wired & Setup



CE



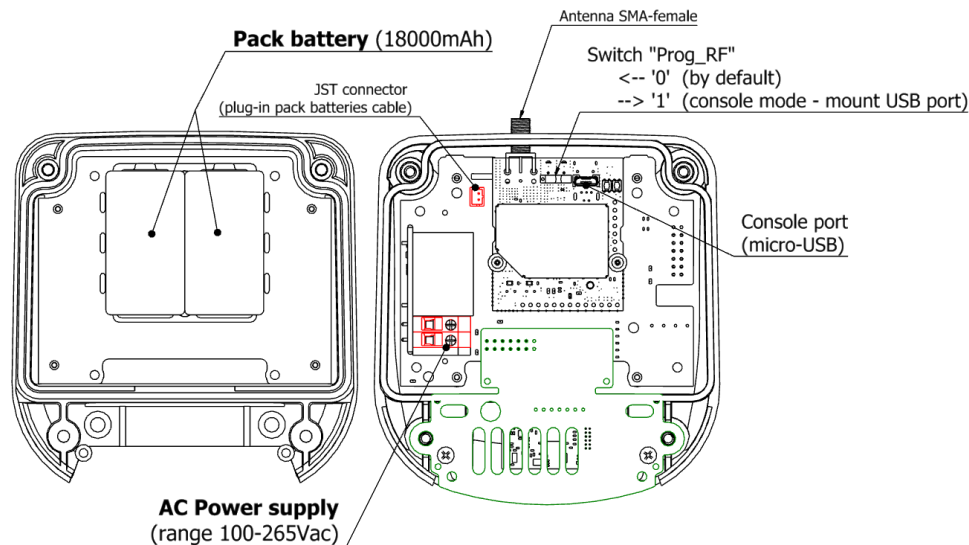
**Nivel de CO<sub>2</sub>**  
400-5.000ppm  
(+/-30ppm)



**Temperatura**  
0-50°C  
(+/-1°C) \*



**Humedad**  
0-100%RH  
(+/-5%) \*



### Basic steps to install:

1. Set interval to send (**by default 15 minutes**).
2. Take note ID / PAC to sign the device on Sigfox Cloud.
3. Plug-in pack batteries or AC power supply.

### Setup parameters methods:

- Through donwlink message (see donwlink message seccion) , recommend method.
- By cable micro-USB with PC console enter menu to set these parameters.

**Battery life**

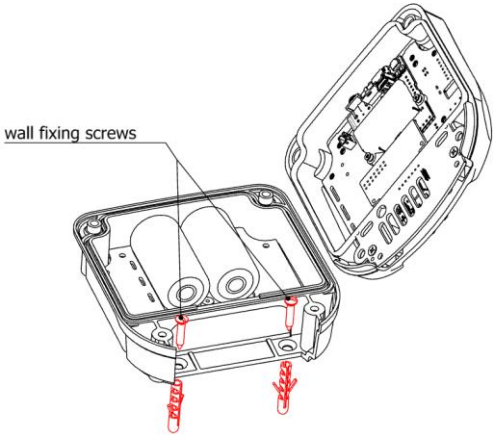
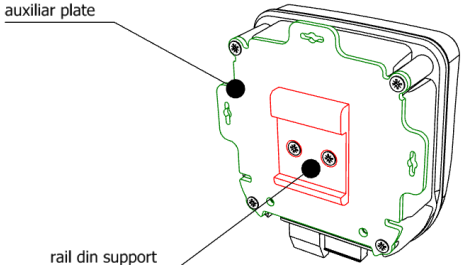
This device is desing to very long life. Life of batteries will depend of three variables: type message , interval to send, number of impulses readed. Adjust interval to send and type of message by customer requeriment

| Battery life estimation |         |
|-------------------------|---------|
| 10 minutes sends        | 2 years |
| 20 minutes sends        | 5 years |
| 30 minutes sends        | 7 years |

**Holding case**

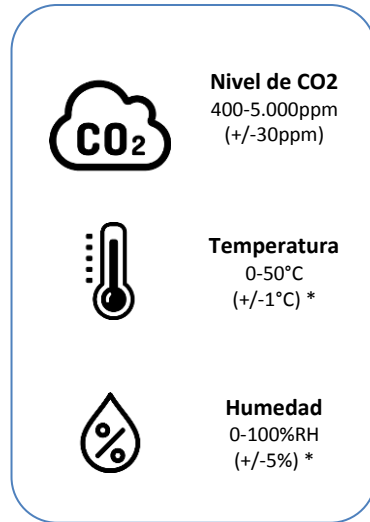
|                     |                   |
|---------------------|-------------------|
| IP Grade            | IP-60*            |
| Temperature details |                   |
| Working temperature | -20°C...+70°C     |
| Store temperature   | -20°C...+75°C     |
| Holding             |                   |
| Dimensions          | 119 x 111 x 53 mm |
| Type mount          | Wall or din rail  |
| Plastic Material    | ABS – V0          |

\*If you need an upper grade contact with out support team.

| wall mount (by default)  | rail din mount (accessory)   |
|--|--|
|  |  <p>*specify on your order</p> |

### Type Message

SenNet IoT CO2-TH Sigfox is an very low power device capable to measure temperature / humidity and CO2 level. There is only one type of message 01, and its format to use on parser function is:



A common point in all types of messages is the head (defined with 2 bytes) that includes important information embedded in the message (type device/type message/errors.. etc). In the next table are defined the mean of these info-fields.

| Field Info |   |   |   |  |   |   |   |                       |                       |                |                    |   |   |                    |   |   |
|------------|---|---|---|--|---|---|---|-----------------------|-----------------------|----------------|--------------------|---|---|--------------------|---|---|
| Byte       | Byte 1  |   |   |  |   |   |   | Byte 2                |                       |                |                    |   |   |                    |   |   |
|            | <u>Type Master Device</u>   |   |   | <u>Type Message</u>  |   |   |   | Low level Battery     | Internal Error Sensor | Downlink error | Not used           |   |   | Not used           |   |   |
|            | 01 - Easy Meter<br>02 – Pulse Counter<br>03 – Not defined<br>04 – Ambient Sensor<br>05 - PM<br>06 – GW Modbus<br>07 – Not defined |   |   | type 0 (info)<br>type 1 → CO2 + Temp + Hum<br>type 2 → Temp + Hum<br>type 3 (not defined)<br>type 4 (not defined)<br>..<br>type 15 (not defined) |   |   |   |                       |                       |                |                    |   |   |                    |   |   |
|            |   |   |   |  |   |   |   | <u>Feedback Error</u> |                       |                |                    |   |   |                    |   |   |
| Bit        | 7   | 6 | 5 | 4  | 3 | 2 | 1 | 0                     | 7                     | 6              | 5                  | 4 | 3 | 2                  | 1 | 0 |
|            | Byte1<br>Bit 7-6-5  |   |   | Byte1<br>Bit 4-3-2-1   |   |   |   | Byte1<br>Bit 0        | Byte2<br>Bit 7-6      |                | Byte2<br>Bit 5-4-3 |   |   | Byte2<br>Bit 2-1-0 |   |   |

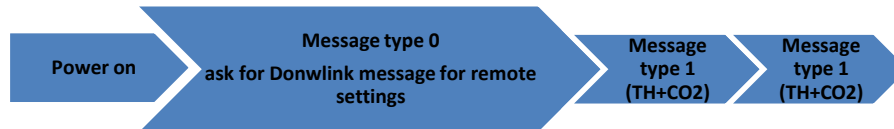
Table 1

| Type 1 : CO2 + Temperature + Humidity |             |   |   |   |   |
|---------------------------------------|-------------|---|---|---|---|
| Field                                 | Info        |   | Temperature   | Humidity  | CO2 Level   |
| Type data                             | See Table 1 |   | 1 byte temperature Payload<br>[-10°C...60°C] conversion function<br>Temperature=Payload*0.2745-10 | 1 byte humidity Payload<br>[0-100%]<br>Humidity=Payload | 2 byte CO2 level<br>[0-5000ppm]<br>CO2 level =Payload |
| Byte                                  | 1           | 2 | 3   | 4   | 5 6   |

First message after power on the device is debug message with internal information about build firmware. This message must be not parser by client platform, and requeriment a donwlink message for remote settings.

| Type 0 : debug message |             |   |           |            |             |          |
|------------------------|-------------|---|-----------|------------|-------------|----------|
| Field                  | Info        |   | HW device | Version FW | Revision FW | Not used |
| Type data              | See Table 1 |   |           |            |             | -        |
| Byte                   | 1           | 2 | 3         | 4          | 5           | 6-9      |

Sequence of messages:



### Downlink Message

It's possible set the device in the cloud without interacting with it locally, setting interval to send. That method is optional but it's not necessary.

| Byte  | 1                             |   | 2 - 5                  | 6                 | 7                          | 8        |
|-------|-------------------------------|---|------------------------|-------------------|----------------------------|----------|
| Field | Easy Meter Setup byte (1byte) |   | Not used (4 bytes)     | Not used (1 byte) | Interval to send (minutes) | Not used |
| Value | Bit 7                         | 1 (by default)                          | 0x00 0x00<br>0x00 0x00 | 00                | [11...59]                  | 0x00     |
|       | Bit 6                         | 0 (by default)                          |                        |                   |                            |          |
|       | Bit 5                         | 0 (by default)                          |                        |                   |                            |          |
|       | Bit 4                         | 1/0 enable/disable set Interval to send |                        |                   |                            |          |
|       | Bit 3                         | 0 (by default)                          |                        |                   |                            |          |
|       | Bit 2                         | 0 (by default)                          |                        |                   |                            |          |
|       | Bit 1                         | 0 (by default)                          |                        |                   |                            |          |
|       | Bit 0                         | 0 (by default)                          |                        |                   |                            |          |

Example for downlink message:

**90 00 00 00 00 00 0F 00** → With this downlink message setup interval to send to 15minutes.

## Warranty

Satel Spain guarantees its products against all manufacturing defects for a period of 1 year.



No return of material will be accepted, nor will any equipment be repaired if it is not accompanied by a report (RMA) indicating the defect observed or the reasons for the return.

The warranty will be void if the equipment has suffered "misuse" or the storage, installation or maintenance instructions in this manual have not been followed. "Misuse" is defined as any use or storage situation contrary to the National Electrical Code or that exceeds the limits indicated in this manual.

Satel Spain declines all responsibility for possible damage to the equipment or to other parts of the installations and will not cover possible penalties derived from a possible breakdown, poor installation or "misuse" of the equipment. Consequently, the guarantee is not applicable to breakdowns produced in the following cases.

- Due to overvoltage and/or electrical disturbances in the supply.
- By water, if the product does not have the appropriate IP rating.
- For exposing the equipment to extreme temperatures, which exceed the operating or storage temperature limit.
- Due to a modification of the product by the client without prior notice to Satel Spain.

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