SenNet IoT CO_2-TH Sigfox

General description

SenNet IoT CO2-TH Sigfox is a low power device, that take samples of **temperature**, **humidity** and **CO2 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:

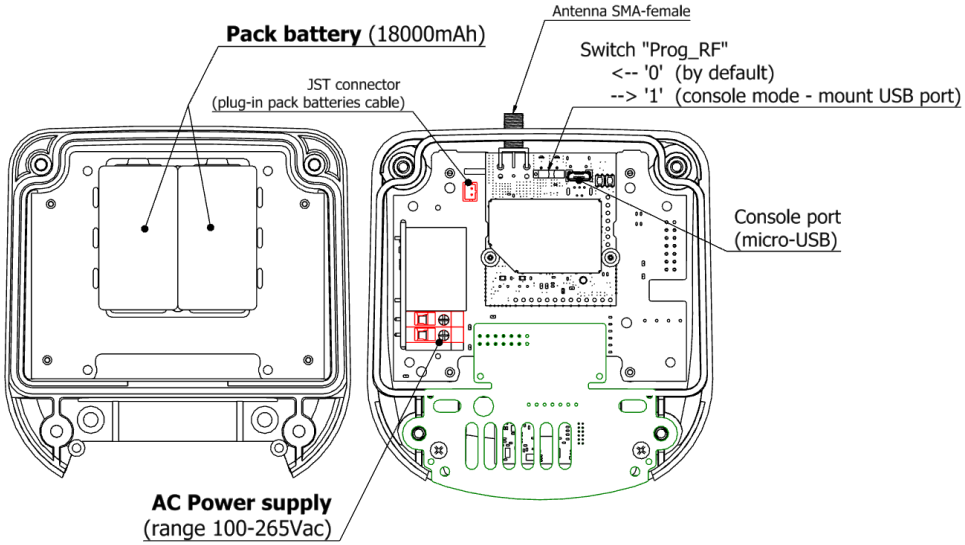
Reference	Power supply type
CO2-TH Sigfox bat ++	Battery 3.6v@18000mAh (LS26500 x2)
CO2-TH Sigfox AC	AC Power supply 100-265Vac

Nivel de CO2
400-5.000ppm
(+/-30ppm)

Temperatura
-10°C +60°C
(+/-1°C) *

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

Wired & Setup



Basic steps to intall:

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:

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

Battery life

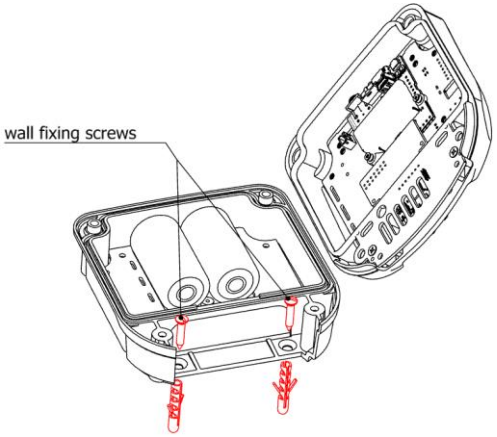
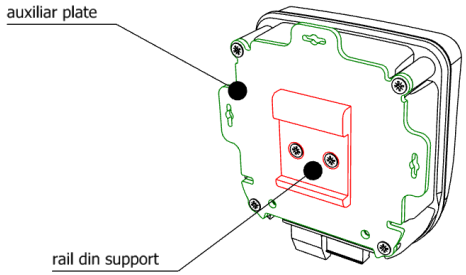
This device is desing to very long life. Life of batteries will depend of three variables:
type message , interval to send, number of impulses readed. Adjust interval to send and type of message by customer requeriment

Battery life estimation	
11 minutes sends	2.2 years
20 minutes sends	4.5 years
30 minutes sends	6.8 years

Holding case

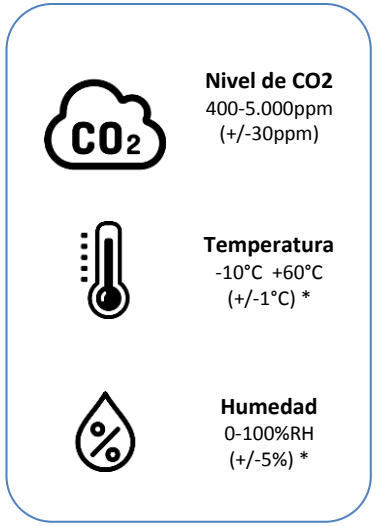
IP Grade	IP-60*
Temperature details	
Working temperature	-10°C...+60°C
Store temperature	-20°C...+75°C
Holding	
Dimensions	119 x 111 x 53 mm
Type mount	Wall or din rail
Plastic Material	ABS – V0

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

wall mount (by default)	rail din mount (accesory)
	 *specify on your order

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**											
	Type Device 01 - Easy Meter **02 –** Pulse Counter 03 – Not defined **03 – Enviroment Sensor** 05 – Not defined 06 – GW Modbus 07 – Not defined			**Type Message** type 0 (info) **type 1 →CO2 + Temp + Hum** type 2 →Temp + Hum type 3 (not defined) type 4 (not defined) .. type 15 (not defined)				**Low level Battery** **Feedback Error**	**Internal Error Sensor**	**Downlink error**	**Type Remote Nodes** 0x00 – No local Network 0x01 - PC LongNet 0x02 - TH LongNet 0x03 - CO2-TH LongNet 0x04 - PM LongNet 0x05 – GW Modbus LN 0x06 – Analog Input 0x07 – Not defined			**ID Remote Nodes** No Remote = 000 Remote ID = $001_b = 01_d$ $= 010_b = 02_d$ $= 011_b = 03_d$ $= 100_b = 04_d$ $= 101_b = 05_d$ $= 110_b = 06_d$ (6 nodes maximum) Type Message 0 (Debug) $= 111_b = 07_d$		
Bit	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0				
	Byte1 Bit 7-6-5			Byte1 Bit 4-3-2-1				Byte1 Bit 0	Byte2 Bit 7-6		Byte2 Bit 5-4-3			Byte2 Bit 2-1-0						

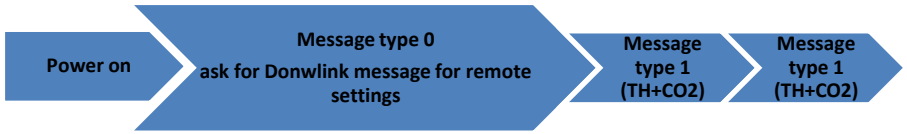
Table 1

Type 1 : CO2 + Temperature + Humidity						
Field	Field Info		Temperature	Humidity	CO2 Level	
Type data	***See Table 1***		1 byte temperature Payload [-10ºC...60ºC] conversion function Temperature=Payload*0.2745-10	1 byte humidity Payload [0-100%] Humidity=Payload	2 byte CO2 level [0-5000ppm] 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	Field Info		HW device	Version FW	Revision FW	Not used
Type data	***See Table 1***					-
Byte	1	2	3	4	5	6-9

Secuence 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	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 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.

Faced with possible errors in this technical sheet, keep it updated in our website.