



atim cloud wireless™
PRODUCT LINE

Atim Cloud Wireless®

Temperature & Humidity Sensor

User's guide



Models concerned :

ACW/SF8-THM-I

ACW/LW8-THM-I

ACW/SF8-THM-O

ACW/LW8-THM-O



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Version history of this document

Version	Date	Description	Author	Software version concerned
0.1	23/02/2021	Document creation	FR	
0.2	24/02/2021	Addenda	FR	
0.4	08/03/2021	Patches	FR	
0.5	31/03/2021	Add LoRa version	FR	
1.0	14/04/2021	Draft version	FR	
1.1	01/09/2021	Minor fixes	AJ	
1.2	02/09/2021	Add storage mode / battery depassivation	FR	
1.3	23/03/2022	Harmonization of the document	MD	

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Declaration of conformity

All ACW (Atim Cloud Wireless®) products comply with the regulatory requirements of the R&TTE Directive 1999/5/EC Article 3 :



1 Safety (Article 3.1a of Directive 1999/5/EC)

NF EN60950-1 Ed. 2006/A1:2010/A11:2009/A12:2011 (health)

EN62479: 2010 (power <20mW) or EN62311:2008 (power > 20mW)

2 Electromagnetic compatibility (Article 3.1b of Directive 1999/5/EC)

EN 301489-3 v1.4.1, EN 301489-1 V1.9.2

3 Efficient use of the radio frequency spectrum (Article 3.2 of Directive 1999/5/EC)

ETSI EN300 220-2 v2.4.1 and EN300 220-1 v2.4.1

Environmental recommendations

a. Environment

Observe the storage and operating temperature ranges of the products. Failure to do so may result in operational disruption and even damage to the equipment.

This equipment is not designed for an outdoor environment!

Follow the precautions and instructions listed below to ensure your safety and that of your environment and to prevent damage to your equipment.



General Danger - *If instructions are not followed, there is a risk of damage to equipment.*



WARNING: *Do not install near any heat or moisture.*



This symbol on the product or its packaging indicates that this product should not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste by taking it to a designated collection point for the recycling of electrical and electronic equipment. Separate collection and recycling of your waste at the time of disposal will help conserve natural resources and ensure environmentally and human health friendly recycling. For more information on the nearest recycling center to your home, contact the nearest city hall, the household waste disposal service or the store where you purchased the product.

b. Radio

The modems of the ACW series are part of the radiocommunication modems using the ISM (Industrial Scientific Medical) bands which can be used freely (free of charge and without authorization) for industrial, scientific and medical applications.

Technical specifications

a. Product

Dimensions	80 x 80 x 35 mm	
Weight	100g	
Antenna	Built-in (¼ wave)	
Temperature	-20°C to +55°C (operation) -40°C to +70°C (storage)	
Housing and Mounting	ABS - Wall mounted	
Power supply	1 pack of Lithium batteries 3.6V / 7.2Ah (Storage mode - battery depassivation)	
Radio rate	Sigfox : 100 bits/s	
	LoRaWAN: 300 bits/s to 10 Kbit/s	
Frequency	865 - 870 MHz (Europe zone)	
	25 mW (14 dBm)	
Power	Sigfox	LoRaWAN
Consumption	25 mA	50 mA
Tx mode	5 µA	1 µA
Standby mode	17 mA	22 mA

b. Temperature and humidity sensor

	Parameter	Typical value	
Temperature accuracy		+/- 0.3°C	from 0°C to 65°C
Humidity accuracy		+/- 3% RH	from 10 to 90% RH
Temperature repeatability		0.06°C	
Humidity repeatability		0.1% RH	

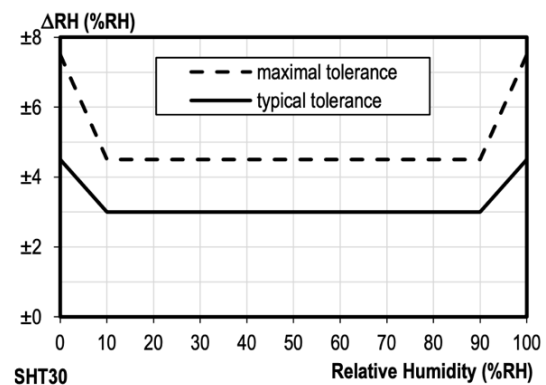
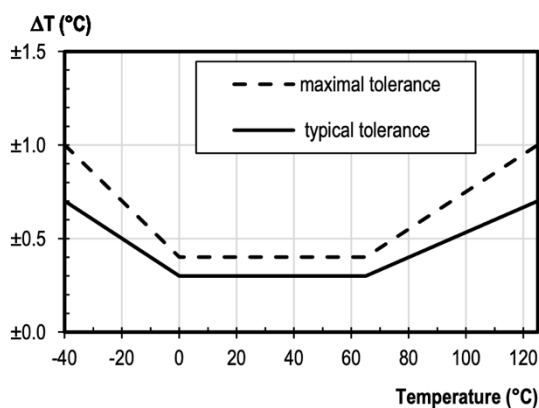
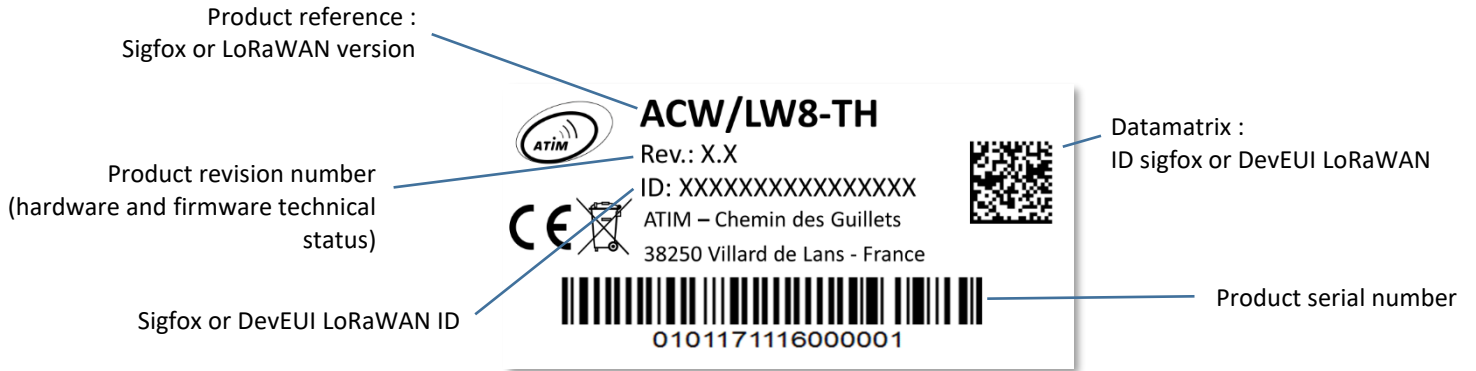


Figure 2 Tolerance of RH at 25°C for SHT30

Housing

a. Identification

The product ID can be seen on the outer label on the back of the product, inside on the electronic board and in the status bar of the configuration software.



ACW-THM label

Each product of ATIM's ACW range has a QR Code label visible either on the sidewall or on the front of the product.

This QR code can be easily read with any 2D barcode reading application on smartphone.

The reading of this code indicates for example the following information (for an ACW/LW8-TH):

```
ATIM|ACW/LW8-TH|C.0|190114|1|3.0|5.11|70B3D59BA0008C0A
```

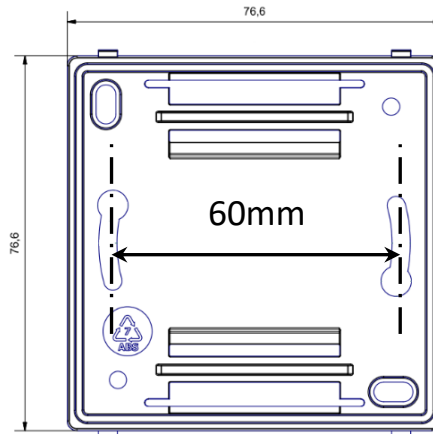


Interpretation

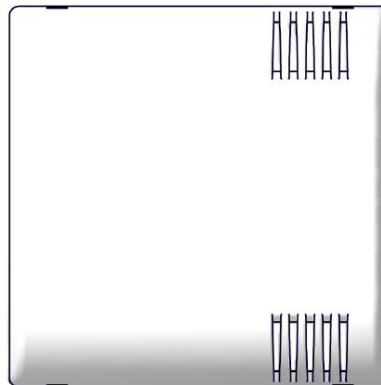
ATIM	ACW/LW8-TH	C.0	190114	1	3.0	5.11	70B3D59BA0008C0A
Manufacturer name	Product reference	Revision version	Date of manufacturing	Manufacturing site	Hardware version	Application firmware version	Sigfox identifier or DevEUI LoRaWAN

b. Assembly and disassembly

The box is mounted on a flat, vertical wall. Place and fix the back of the box on the wall following the direction indicated by the arrows on the back. Use \varnothing 5 mm screws.



The holes of the cover must be on the right side, in the same direction as the picture on the right.



NOTE IMPORTANTE
Pour mettre le produit sous tension, appuyez sur le bouton poussoir pendant 2 secondes, la LED doit clignoter 3 fois pour indiquer le passage en mode exploitation.

Match the pivots at the top of the case base with their respective locations on the back panel.

To remove both sides, place a screwdriver in one of the two mounting areas at the bottom* of the front panel and press inward until the base cover is released.



WARNING

It is imperative to open the box from the bottom; opening from the top can damage the circuit.

c. Installation

For best results, it is recommended to install the box without environmental obstruction and to place it at a minimum height of 1.5m.

The antenna is integrated in the box.

The product should be mounted on a vertical support, or fixed to a wall.

WARNING

Do not install on a metal pole.

The product incorporates a digital temperature and humidity sensor. The values are read according to the period defined by the network (Downlink). By default, this period is set to a measurement every hour.

Operation

The ACW-THM sensor measures a temperature and a humidity rate at the time "t" and sends these data by radio on the Radio network (Sigfox or LoRaWAN).

In this version, only the periodic mode is available as well as the life frame.

a. Product start-up

On delivery, the product is in storage mode, it only emits these life frames (1 emission every 4 days).

WARNING

To start it, it is necessary to press the push button on the rear panel for 2 seconds (see previous page).

b. Periodic frames

This reading and transmission period is adjustable by the user, with a minimum of 10 minutes.

NOTE

By default this period is set to every hour.

c. Trames de vie

Celles-ci sont émises une fois par jour ou une fois tous les 4 jours.

NOTE

By default, the period for sending life frames is set to once a day

Configuration

There is no USB or Bluetooth connector on this version.

The configuration is done at the factory and can only be changed by Downlink (from the customer's platform).

Frame format

Sigfox and LoRaWAN

Type	Description	Frame format						
		octet 0 (dec)	octet 0 (hex)	octet 1 (hex)	octet 2 (hex)	octet 3 (hex)	octet 4 (hex)	octet 5 (hex)
Keep Alive	Life frame	1	01	Supply voltage IDLE (mV)		Supply voltage TX (mV)		64
Test	Test pattern	5	05	Counting				
TH	Temperature-humidity plot	23	17	Temperature value		Humidity value		

Sensor data is decoded as follows :

$$T(^{\circ}\text{C}) = \frac{\text{Temperature value} \times 175.72}{65536} - 46.85$$

$$H(\%RH) = \frac{\text{Humidity value} \times 125}{65536} - 6$$

NOTE

The battery voltage of the product is good if "Supply voltage" is higher than 2.9V.

Downlink

The operation of the Downlink is explained in the document [ATIM_ACW-DLConfig_UG_EN](#).

The parameters specific to the ACW-THM are the following:

a. Frequency of emission of the line frame

Parameter code (Octet 1)	Parameter value (Octet 2)
0x03	0x00 = once a day 0x01 = once every 4 days 0x02 = once every 8 days

NOTE

DEFAULT VALUE: 4 days (01)

b. Temperature and hygrometry measurement period

Parameter code (Octet 1)	Parameter value (Octet 2)
0x0C	0xYY
0x0D	0xZZ

The measurement period will be every 0xYY hours and 0xZZ minutes.

The hours must be between 0 and 24 hours.

Minutes must be between 0 and 59 min.

EXAMPLE

If 0xYY = 0x02 and 0xZZ = 0x0A, the product will make a measurement every 2h10.

NOTE

DEFAULT VALUE: 1h00 (01-00)

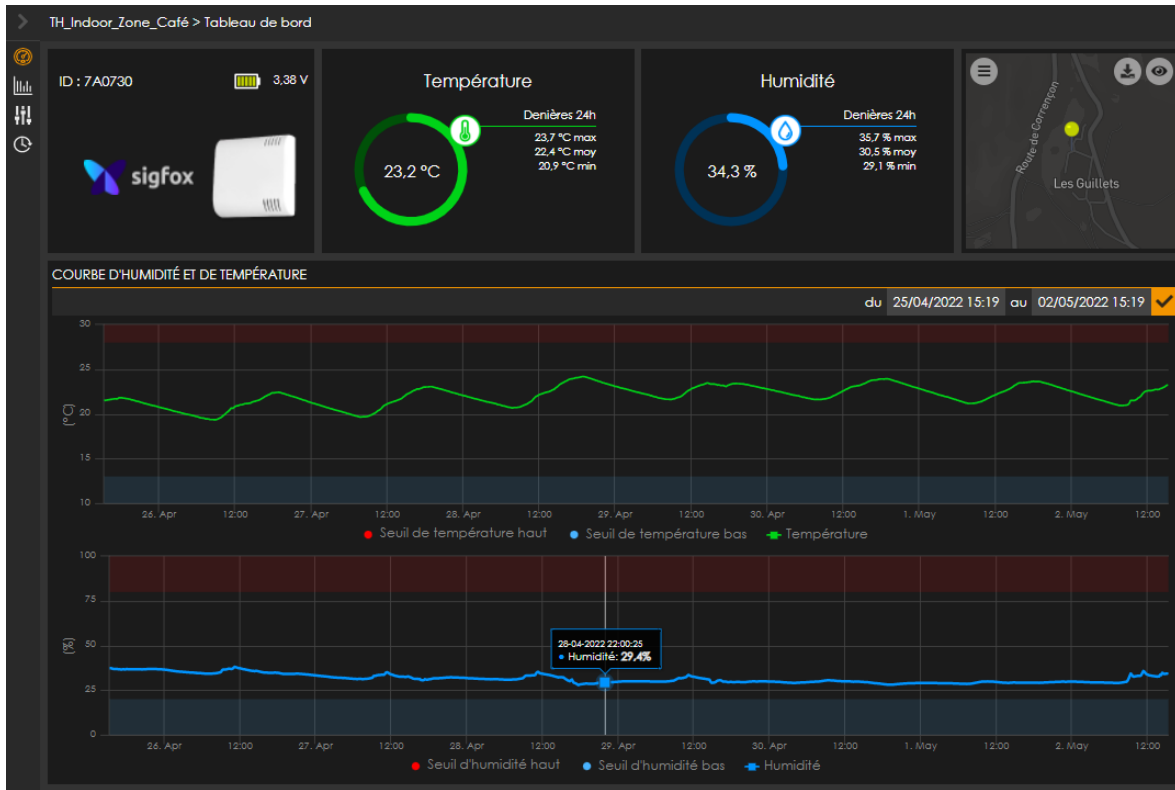
a. Pairing to the LoRaWAN network

Parameter code (Octet 1)	Parameter value (Octet 2)
0x0F	0x00 = ABP 0x01 = OTAA

NOTE

DEFAULT VALUE: OTAA (01)

Example of data visualization on the ACW platform



Troubleshooting

Radio data is not received

- Check if the power supply is properly connected to the modem
- Check if the modem has been registered to the network
- Check if network coverage is available
- Check if the light is illuminated when transmitting

Technical support

For any information or technical problem, you can contact our technical support on this page:

[Technical support | ATIM](#)

