

Connects everything

# YOUR IOT / M2M / RF PARTNER

# DESIGNER & MANUFACTURER DE REMOTE SOLUTIONS

# SINCE 25\*YEARS

**ATIM Radiocommunications** 



**CLIENTS REFERENCES** 



www.atim.com



Modules

IoT & M2M sensors

Gateways

Custom solutions

## ATIM - Radio and IIoT expert solution provider

Created in 1996, ATIM is a 15 employees' company, based in Villard-de-Lans, French Alps. IoT-radio pioneer and expert, ATIM solves a wide range of problematics thanks to its robust, performant and complete portfolio. Our experienced R&D team puts its hard work into making IoT solutions that are dedicated to the client. Our goal is to provide our clients with a robust remote solution: ease of installation/configuration, great autonomy and technical features to maximize your ROI.

We develop and market a wide portfolio of solutions that deals with infinite applications in industry, construction, smart city, smart building, transport, energy, sport, etc. We offer a complete range of IIoT (Industrial Internet of Things) sensors communicating locally (M2M radio modems) or via LPWAN (Low Power Wide Area Network) radio networks.

Our role is to support you in finding an effective solution by offering you a global offer, from sensors to data visualization thanks to the Atim Cloud Wireless<sup>®</sup> web platform. The data collected by our sensors allow the implementation of a simplified and intuitive operational management. As a hardware manufacturer, we push the radio performances of the devices as well as on their autonomy and reliability.

For your specific projects, we can offer a custom-development, from specifications to industrialization, including the various industrial phases, prototyping, certifications, etc.

ATIM connects everything...

## www.atim.com

## LPWAN & M2M TECHNOLOGIES

Which one? As an IoT and M2M radio expert, ATIM will tell you the best solution in functions your applications.

## **IOT NETWORKS**



You can not speak about the Internet of Things without mentioning Sigfox and its OG technology. This Toulouse-based company initiated the era of connected objects in 2012 with its revolutionary concept Ultra Narrow Band! ATIM has been a pioneer and has been working with Sigfox since the start of the adventure in 2011 being its first partner. The Sigfox network is present on the 5 continents (65

countries) and covers 1 billion inhabitants with a total of more than 15 million connected objects.

The advantage of this technology is the simplicity of deployment, the low TCO (Total Cost of Ownership), the autonomy, the worldwide roaming and the robustness of the radio link which is impossible to jam and which allows thousands of simultaneous connections.



This communication protocol created by the Grenoblebased company CYCLEO<sup>®</sup>, bought by SEMTECH<sup>®</sup> in 2013, has become a new essential standard for the IoT applications as an LPWAN protocols.

It is based on LoRa<sup>®</sup> CSS (Chirp Spread Spectrum) technology offering exceptional performance in terms of range and low power consumption.

Although deployed by operators like ORANGE and BOUYGUES TELECOM in France, the strong point is being able to create your own private network using a gateway and a Network Server.

The LoRa Alliance has more than 400 members including behemoths like IBM, CISCO, ST, etc.

## **CELLULAR TECHNOLOGIES**



NB-IoT technology is deployed on existing 4G networks and is driven by operators in different countries. Radio performance is improved compared to 4G, and thanks to the low speed, to allow better penetration inside buildings and basements. However, be careful with the consumption, which is greater than in LoRa or Sigfox!



LTE-M (or CAT-M1) is also derived from 4G and allows higher speeds than NB-IoT, as well as the transmission of images and voice. Roaming agreements between operators are in progress. However, battery life is substantially less than LoRa or Sigfox!

## M2M

## **FSK local mode**

This mode has been used for many years on ATIM radio modems. When you want to establish pointto-point or multipoint links on an industrial site for example, this modulation (Frequency-Shift Keying) works very well. Sensitivities are deeply optimized, which makes it possible to achieve interesting ranges even at low power at 868MHz, for example 4 kms at sight in 25mW (14dBm) and more than 20kms in 500mW (27dBm). The ATIM ARM-SE and ARM-D radio modems operate in this mode within the ISM band (without license) according to the EN300-220 standard. They are often used in mirror mode (input-output copying) or in Modbus.

## Point to point (P2P) LoRa®

ATIM specific implementation offering the possibility of communicating on an internal network while benefiting from the robustness of LoRa® technology. ATIM has developed its point-to-point / multipoint communication protocol using the LoRa radio communication layer. This allows various products to be interfaced together in a direct link while avoiding the deployment of an entire network. The advantage is that you can switch with the same module from LoRaWAN mode to LoRa mode just by AT commands. This makes it possible to establish local communication between several devices while having a link with a private gateway or with operated base stations.

# INDEX

IoT product line - ACW (Atim Cloud Wireless <sup>®</sup> )	6
M2M product line – ARM (Advanced Radio Modem <sup>®</sup> )	32
LoRaWAN Gateways LoRaWAN – 1Gate®	35
Data process & visualization	37
Custom solution	39
Antennas & Accessories	40
Modules	41

# ATIM CLOUD WIRELESS® IOT LPWAN SENSORS











TACWTH-0

Features

# **TEMPERATURE & HUMIDITY** INDOOR AND OUTDOOR

	Smart B	uilding	Smart City	Sma	art Industry
				W	Range : –50°C / +125°C Precision : +/- 0.3°C between -10°C – 85°C
S LORAMAN	•	(((((		Ś	Range : 0% RH / 100% RH Precision : +/- 3% RH between 0 – 80 % RH
O'Anton & @				<b>()</b>	Plug & Play : <10 min of installation
				4	2 interchangeable batteries
Outdoor		Indoor		4	1 temperature + humidity measurement per hour Sigfox 5+ years* LoRa 12+ years*
				Q٥	Radio range >15 kms
es monitors and t	transmits t	the indoor or		٥	ACW-TH-I : indoor, IP30 ACW-TH-O : outdoor, IP66
temperature and	d humidity	of all types of		4	GPS embedded version available in LoRaWAN

ACW-TH mo outdoor tem buildings (industrial, tertiary, hospital, etc.).

transmission regular intervals Data at configurable through the ACW configurator.

SMS or e-mail alerts when a threshold is exceeded\*\*.

Compatible with Sigfox repeater (ACW-GW) and LoRaWAN (ACW-EXT, only on Orange network).

## References

Indoor version	Outdoor version	Technology
ACW/SF8-TH-I	ACW/SF8-TH-O	Sigfox
ACW/LW8-TH-I	ACW/LW8-TH-O	LoRaWAN
ACW/LW8-TI-G	ACW/LW8-TO-G	LoRaWAN + GPS

(temperature monitoring exclusively)

\* Subjected to the environment conditions

\*\*Available with a subscription to Atim Cloud Wireless™ web platform

# **TEMPERATURE & HUMIDITY : USE CASES**

## OPTIMIZE AND CONTROL PERFORMANCE ENERGY EFFICIENCY OF BUILDINGS AND THE COMFORT OF THEIR USERS

- Monitoring of the ambient temperature and humidity of a public building.
- Comply with the law on energy transition which recommends an ambient temperature of 19 ° C in tertiary buildings and 22 ° C in hospitals.
- Limit periods of overheating
- Rapid ROI thanks to energy savings
- ATIM works with the largest energy suppliers





- Guarantee the comfort and satisfaction of your clients
- Ensure optimum temperature in all rooms
- Control the building's energy budget
- ATIM sensors are installed in many hotels in France and abroad

- Monitor the temperature inside a work site electrical cabinet
- Prevent the potential risk of fire due to an electrical overload or too high temperature
- Locate your electrical cabinets on different sites and ease inventories thanks to the GPS version
- ATIM equips thousands of construction sites for a major player in the construction industry



# Air Quality TEMPERATURE – HUMIDITY - CO<sub>2</sub> - VOC



**Smart Building** 



Smart City



Smart Industry



## Features

ACW/THAQ monitors air quality indicators such as temperature, humidity,  $CO_2$  and volatile organic compounds (VOCs, such as benzene, ethanol, butane, etc.) from all types of buildings (industrial, tertiary, hospital, educational establishments, etc.).

Transmission of data at regular intervals & visualization of data for each indicator (Temperature, Humidity, Co2, VOC) on the Atim Cloud Wireless<sup>®</sup> \* platform.

Indication of air quality by flashing LED (colour code on preset thresholds according to European standard, modifiable by configuration). One flash every 5 seconds (function can be deactivated by configuration).

SMS or Email alerts when a threshold is exceeded \*.



\*\*Available with a subscription to Atim Cloud Wireless<sup>™</sup> web platform



## References

Part number	Technology
ACW/SF8-THAQ	Sigfox
ACW/LW8-THAQ	LoRaWAN

## INDOOR AIR QUALITY - ENERGY MONITORING

OPTIMISE AND MONITORE AIR QUALITY OF BUILDINGS AND THE CONFORT OF THE END USERS

- Children spend most of their time in class, the quality of the inhaled air is a major issue for their health, especially since some VOCs are classified as carcinogenic
- Thanks to the LED indicating the air quality according to a precise colour code, teachers will be able to take immediate ventilation measurements (optional function)
- Optimal air quality has been shown to have an effect on children's concentration and wellbeing (less coughs, allergies, etc.)





- The labour code provides that for all closed work premises, the air must be renewed in order to maintain a state of purity of the atmosphere and to avoid exaggerated rises in temperature
- A real-time indicator of the levels of Co2, VOC, temperature and humidity helps ensure the proper functioning of air treatment equipment to take action in the event of a malfunction

Overview of the visualization of air quality indicators on the Atim Cloud Wireless ™ platform



# TEMPERATURE MEASUREMENT DEPORTED PROBE

ACW PROD	ç	Gmart Building	Smart City	Smart	Industry	
				Range : -55° -196 Precision : + + Plug & Play 4 interchan 1 or 2 temp Sigfox 7+ yu LoRa 14+ yu	C / +125°C for TMxD °C / +150°C for TMxP-CRYC /- 0.5°C with TMxD betwee /- 0,15°C with TMxP betwe : <10 min of installation geable batteries perature measurements pe ears* ears*	D en -10°C / +85°C en -25°C / +70°C r hour
1 Featu	1 probe version	2 probes version		Radio rang	e >15 kms v of data and datalogging	
The A one or The se digital	CW-TMxP/TMxD mo r two remote tempera ensor is available with or analog probes.	nitors and transmits ature (s). 0,1 or 2 external	ے Refe	Setup via do	wnlink or Bluetooth (BLE 4 showing network quality correct connection	.2)
Data ti configi configi	ransmission at regula urable as required thi urator.	r intervals rough the ACW		1 digital probe	2 digital probes	Technology
SMS o exceed	r e-mail alerts when a ded **.	a threshold is	ر م -	ACW/SF8-TM1D ACW/LW8-TM1D 1 PT1000 probe	ACW/SF8-TM2D ACW/LW8-TM2D 2 PT1000 probes	Sigfox LoRaWAN
Compa LoRaW	atible with Sigfox rep VAN (ACW-EXT, only c	eater (ACW-GW) and on Orange network).	, F	ACW/SF8-TM1P ACW/LW8-TM1P	ACW/SF8-TM2P ACW/LW8-TM2P	Sigfox LoRaWAN
*	* Subjected to the environment conditi	ons	AC	1 CRYO probe W/SF8-TM1P-CRYO	2 CRYO probes ACW/SF8-TM2P-CRYO	Sigfox
	subjected to the crisi official collution					

ACW/LW8-TM1P-CRYO ACW/LW8-TM2P-CRYO

LoRaWAN

\*\*Available with a subscription to Atim Cloud Wireless<sup>™</sup> web platform

# DEPORTED TEMPERATURE MONITORING : USE CASES

## COMPLY WITH SANITARY STANDARDS, REDUCE THE ENERGY BILL THANKS TO ALERTS WHEN THRESHOLDS ARE EXCEEDED

- Monitor the temperature at the inlet to the outlet of the domestic water network
- Comply with legislation requiring regular monitoring of the water temperature, which must be between 55 ° C and 60 ° C in all public buildings



Limit the legionella risk



- Guarantee compliance with the cold chain and hygiene rules
- Control the temperature of your cold rooms, refrigerated banks, refrigerated trucks
- Keep the data transmitted in the event of an inspection
- Control and avoid any health risk

- Monitor the water temperature at the outlet of the network
- Avoid overheating the water, it is advisable not to heat above 60 ° C to avoid the risk of severe burns
- Reduce the energy bill by maintaining an optimal and constant temperature



# TEMPERATURE & HUMIDITY COLD ROOM WITH DEPORTED PROBE



## Features

The ACW-TCR monitors and transmits instantaneous temperature with inertia and humidity through an external probe.

The sensor is typically used for cold room monitoring and can be set for any cold chain supervision application.

Data transmission at regular intervals configurable as required through the ACW configurator.

SMS or e-mail alerts when a threshold is exceeded \*\*.



## References

Part number	Technology
ACW/SF8-TCR	Sigfox
ACW/LW8-TCR	LoRaWAN

\* Subjected to the environment conditions

\*\*Available with a subscription to Atim Cloud Wireless™ web platform

# DEPORTED TEMPERATURE MONITORING : USE CASES

## COMPLY WITH SANITARY STANDARDS, REDUCE THE ENERGY BILL THANKS TO ALERTS WHEN THRESHOLDS ARE EXCEEDED

- Monitor the storage conditions of goods during their transportation and logistics
- Ensure an insurance coverage in the event of damaged good when cold chain is maintained and proved so



Increase food safety



- Guarantee compliance with the cold chain and hygiene rules
- Control the temperature of your cold rooms, refrigerated banks, refrigerated trucks
- Keep the data transmitted in the event of an inspection
- Control and avoid any health risk

- Greenhouses require close supervision of temperature & humidity on specific locations
- Central visualization of the measured conditions to take action for irrigation, and parameters adjustments
- Increase crops development and production efficiency of gardens



# Smart Metering Water – Electricity - Gaz



<sup>\*</sup> Subjected to the environment conditions

\*\*Available with a subscription to Atim Cloud Wireless™ web platform

# **REMOTE MONITORING : USE CASES**

## ENERGY AND SECURITY MANAGEMENT WITHIN A BUILDING

- Monitor the consumption index of your electricity or water meters in real time
- Analyse data and detect peaks in consumption
- Identify the most energy-intensive workstations or sectors and develop an appropriate action plan to reduce consumption
- Identify water leaks with an alert in the event of abnormal consumption





- Monitor the consumption index of your gas meters in real time
- Quickly identify a gas leak in the event of unusual consumption
- React quickly to avoid the risks associated with this leak

- Connect the opening and closing system of a secured door to monitor a limited access site such as a warehouse
- Detect an intrusion or an opening outside of common time slots



# Presene Detection Infrared



The PIR product line allows information on the occupancy rate of a room or different places to be transmitted over the network over the course of a day.

Counting of the passages of individuals or vehicles at specific locations.

Two operating modes: alarm mode (intrusion detection) or counting mode (determine percentages of attendance or occupancy).

Data transmission at regular intervals.

SMS or e-mail alerts when a threshold is exceeded \*\*.

\* Subjected to the environment conditions

\*\*Available with a subscription to Atim Cloud Wireless<sup>™</sup> web platform

References

Part number	Technology	Part number	Technology
ACW/SF8-PIR90-I	SIGFOX	ACW/LW8-PIR90-I	LoRaWAN
ACW/SF8-PIR90-O	SIGFOX	ACW/LW8-PIR90-O	LoRaWAN
ACW/SF8-PIR180-O	SIGFOX	ACW/LW8-PIR180-O	LoRaWAN
ACW/SF8-PIR360-I	SIGFOX	ACW/LW8-PIR360-I	LoRaWAN

# INFRARED DETECTION : USE CASES

## OPTIMIZE OCCUPANCY RATES, DETECT INTRUSIONS ON PROTECTED SITES

- Analyse the occupancy rate of the various workspaces in a building
- Organize the meeting room reservation schedule
- Thanks to the information transmitted regularly, it is possible to ensure that the occupancy gauges (Covid-19) are respected





- Depending on the information transmitted, it is possible to adapt the management of rooms and open spaces (cleaning, maintenance, etc.)
- Heating being a very expensive item, it will become easy to identify unoccupied rooms and adapt the heating system accordingly (energy savings)

- The alarm mode allows you to be warned in the event of an unwanted or intrusive presence
- This operation is ideal for monitoring a protected access, an intrusion, or places with restricted access
- Thanks to the alert sent immediately, the intervention is quick



# LEAKS DETECTION LIQUIDS



## References

Detection [IP66]	Technology
ACW/SF8-WL-I	Sigfox
ACW/LW8-WL-I	LoRaWAN
Detection [IP68]	
ACW/SF8-WL-O	Sigfox
ACW/LW8-WL-O	LoRaWAN
Detection + localisation [IP66]	
ACW/SF8-WLL-I	Sigfox
ACW/LW8-WLL-I	LoRaWAN

The ACW-WL helps prevent flooding in multiple locations such as boiler rooms, data centers, basements (heating networks), etc.

This sensor is equipped with a buzzer on the indoor version, which alerts in case of detection.

The antenna is integrated on the indoor version and deported on the outdoor version.

The detection and localization of the leak by cable is possible with the indoor box (specific cable: CAB-WL / CAB-WLL).

SMS or e-mail alerts in case of detection \*\*.

<sup>\*</sup> Subjected to the environment conditions

<sup>\*\*</sup>Available with a subscription to Atim Cloud Wireless™ web platform

# LEAKS DETECTION : USE CASES

## REAL-TIME ALERTS TO PREVENT MATERIAL DAMAGE

- Watch for water leaks in data centers and avoid the risk of fires and floods
- Avoid downtime as well as the damage caused





- Watch for water leaks and the risk of flooding in underground heat networks
- Respond quickly in the event of an alert and shut off the water supply
- Reduce water consumption by preventing and repairing water leaks
- The Water Leak has been in operation on heating networks since 2012

- Detect liquid leaks in electrical transformer stations
- React quickly from the alert to avoid a power outage that would deprive a number of homes of electricity



# DISTANCE MEASUREMENT ULTRASONIC



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Smart City



Smart Industry



## Features

ACW-LVL transmits a length measurement through an ultrasonic sensor. It will get the water, sand or snow level as well as the filling rate of silos or containers.

Data transmission can be setup through ACW configurator.

SMS or e-mail alerts when a threshold is exceeded \*\*.

Compatible with Sigfox repeater (ACW-GW) and LoRaWAN (ACW-EXT, only on Orange network).



## References

Part number	Technology
ACW/SF8-LVL	Sigfox
ACW/LW8-LVL	LoRaWAN

\* Subjected to the environment conditions

\*\*Available with a subscription to Atim Cloud Wireless™ web platform

# DISTANCE MEASUREMENT: USE CASES

## MONITOR THE FILLING LEVEL OF TANKS

- Monitor the filling rate of household waste containers
- Collect data from sensors placed in various areas of the city
- Organize garbage collection
- Optimize routes by limiting empty passages





- Monitor in real time the filling level of raw material silos on construction sites (sand, gravel, etc.) or on farms (cereals, grains, etc.)
- Quickly identify remaining stocks
- Be responsive by scheduling a restocking so you don't run out of stock

- Monitor the water level of a river
- Identify rising water levels during heavy rainfall
- Respond and take safety measures when you notice that the level is rising too quickly



# Smart Metering / Control Remote Equipments



## Features

ACW-DINDxxx monitors the status of dry contacts status and meters' index consumption and control digital outputs (open collector, push / pull and dry contact type) and send the data to LoRa or Sigfox.

Remotely control equipment or PLCs using the dry contacts outputs.

Possibility to add a digital temperature probe via jack plug (option).

SMS or e-mail alerts in the event of a change of state \*.

Compatible with Sigfox repeater (ACW-GW) and LoRaWAN (ACW-EXT, only on Orange network).

## References

16 inputs	8 inputs	Technology
ACW/SF8-DIND160	ACW/SF8-DIND80	Sigfox
ACW/LW8-DIND160	ACW/LW8-DIND80	LoRaWAN
ACW/LW8-DIND160-G	ACW/LW8-DIND80-G	LoRaWAN + GPS

8 inputs 8 outputs	4 inputs 4 outputs	2 inputs 1 output	Technology
ACW/SF8-DIND88	ACW/SF8-DIND44	ACW/SF8-DIND21	Sigfox
ACW/LW8-DIND88	ACW/LW8-DIND44	ACW/LW8-DIND21	LoRaWAN
		ACW/868-DINDIO	Local

\*Available with a subscription to Atim Cloud Wireless™ web platform

# REMOTE EQUIPMENT CONTROL/MONITORING : USE CASES

## SUPERVISE AND CONTROL YOUR EQUIPMENT AND PLCS

- Communicate the PLCs of a production line
- Immediately detect a failure or shutdown and react quickly
- Re-engage the PLC remotely using the dry contacts outputs
- Boost the productivity of the production chain by limiting downtime and making installations more reliable





- Connect the street lighting of a city
- Quickly identify a fault, react quickly to restore normal operation
- Switch on or off the lighting in a specific area remotely
- Reduce the city's energy consumption by ensuring compliance with regulatory light ranges

- Detect a circuit breaker in an electrical cabinet
- Monitor the number of worksite equipment stoppages
- Improve the productivity of construction sites by reducing the number and hours of downtimes (a stopped crane represents a significant financial loss)
- Product of the year selected by a major player in the construction industry for all its public worksites in France



# Modbus Master Gateway RS485S Link



Smart Industry







## Features

ACW-DINRSM interrogates up to 49 modbus registers from slaves PLCs and sends its answers to LoRa or Sigfox.

The devices act as a Master reading and writing into the Slaves to monitor or request on demand specific registers.

When connected in serial link ,up to 49 PLCs can be controlled by 1x ACW-DINRSM.

Data frequency of transmission, registers and slaves' requests setup are to be made on the ACW configurator.

SMS or e-mail alerts can be set\*.

Compatible with Sigfox repeater (ACW-GW) and LoRaWAN (ACW-EXT, only on Orange network).



LoRaWAN class C

[4]

10-30 Vdc external power supply

V

Setup via USB or downlink

	meters	Modbus Frames	0/32, Radio Frame	s: 0/1, Radio Load: 0%		$\times$ Delete all	Add
RS Type:	R5485	Radio header	Function code	@Device @Reg/@	Bit Quantity Reg / Bit		
Baudrates:	19200 bps						
nanty:	None						
itee bits:	e una						
Timeout M	odbus: 1,0 s						
Debug Rs							

## References

Part number	Technology
ACW/SF8-DINRSM	Sigfox
ACW/LW8-DINRSM	LoRaWAN

\*Available with a subscription to Atim Cloud Wireless<sup>m</sup> web platform

# INTERROGATE MODBUS SLAVE REGISTERS: USE CASES

## SUPERVISE YOUR EQUIPMENT AND PLCs

- Interrogate isolated sensors such as soil sensors (temperature, humidity, pH, etc.)
- Consult the sensor information on the internet and analyze the data
- Adapt your crop management (irrigation, control of a solenoid valve)





- Consult the data related to your meter (voltage, current, active power, reactive power)
- Regularly read data from remote submeters

USAGE PATTERN: SERIAL LINK DATA TRANSMISSION TO THE NETWORK



# BRIDGE MODBUS RADIO MODEM RS232/RS485



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Utilities









ACW-DINRS/RS+ transmits data from one Modbus device to another via radio.

Versions in 25mW or 500mW are available in function of the needed radio range.

The devices are connected to the PLCs via an RS232 or RS485 link (transparent mode).

Bridge mode: allows you to create a point-to-point or pointto-multipoint link by interconnecting devices equipped with an RS232 or RS485 interface.

The bridge mode setup is to be made on the ACW configurator.

adio 868/SF8	and Serial		(	АТІМ
Serial parameters © FS322 © RS455 Baudrate: 19200 8 bits    No parity Bridge mode © Sigfox \$ Short range radio	bps     tops     tops	Radio parama Baudrate (bps) : Channel : Max power : @Modem : @Remote :	eters 1200 522 14 27dBm 0 255	÷
Advanced	) Slave	Compatibilit	y with ARM modem	

## References

Part number	Technology
ACW/868-DINRS (25mW)	Local
ACW/868-DINRS+ (500mW)	Local

# SERIAL LINK COMMUNICATION: USE CASES

## COLLECT DATA FROM AN ISOLATED SENSOR

- Retrieve information from all types of analog sensors (pressure, temperature, level, etc.) equipped with an RS232 / RS485 port
- Regularly check the proper functioning of your equipment





- Interrogate your weather station and collect the data
- Identify and understand climate change
- Adapt the management of your crops (wind, rain, frost, etc.) according to the data received

## PATTERN: SERIAL DATA TRANSMISSION



# ANALOGUE INPUT MONITORING 4-20 MA – 0-10V



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Anlog input 4-20 mA or 0-10V
 Radio range >15 kms

10-30 Vdc external power supply

Setup via USB or downlink



## References

Part number	Technology
ACW/SF8-DINDA	Sigfox
ACW/LW8-DINDA	LoRaWAN

## Features

ACW-DINDA monitors an analog input and transmits it to the LoRa or Sigfox network.

Up to 144 daily 0-10V or 4-20mA values can be monitored.

Data transmission can be setup through ACW configurator.

SMS or e-mail alerts can be set\*.

Compatible with Sigfox repeater (ACW-GW) and LoRaWAN (ACW-EXT, only on Orange network).

\*Available with a subscription to Atim Cloud Wireless™ web platform

## SENSORS MONITORING : USE CASES

## MONITOR THE STATE OF AN ANALOGUE OUTPUT

- Connect your anemometers to the network
- Find out in real time the power of the wind
- Quickly identify a favourable window for energy production
- Anticipate the risks and accidents associated with strong winds





- Connect isolated level sensors to LPWAN networks
- Transmit the water level remotely (dam, lock, precipitation, etc.)
- Quickly identify the possible risks associated with too much flooding

- Connect your sensors installed in a controlled atmosphere room (pressure, temperature, humidity, etc.)
- Monitor regularly whether the levels are sufficient or too high
- React quickly in the event of a change in one of the levels thanks to configurable alerts
- Avoid manual reading errors



# **NETWORK TESTER & REPEATERS** LORAWAN – SIGFOX



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4 USB rechargeable battery

Visual signal showing network quality and sensor correct connection

## References

Part number	Technology
ACW/SF8-TST	Sigfox
ACW/LW8-TST	LoRaWAN





## Features

Repeats LoRaWAN products (only on the Orange LoRa network) located in isolated areas (basement boiler rooms, underground car parks, pipes, etc.).

Transmits repeated sensor messages to the Orange LoRa network.

## **Features**

Evaluate and transmit by radio the quality of the network coverage \*.

Ideal product for field assessment prior to sensor deployment.

## **Sigfox Repeater**



Option : IP65 casing + 220V power supply + antenna

## **Features**

Repeats Atim's Sigfox products located in isolated areas (basement boiler rooms, underground car parks, pipes, etc.) or in Faraday cages.

Transmits repeated product messages \* on the Sigfox network.

## References

Part number	Technology
ACW/SF8-GW	Sigfox
ACW/LW8-EXT	LoRaWAN

\*Available with a subscription to Atim Cloud Wireless™ web platform

## www.atim.com

# GAMME ADVANCED RADIO MODEM® RADIO MODEMS

# M2M



## SERIAL LINK / ETHERNET RADIO MODEM



## ARM-SE8/500

The ARM-SE (Advanced Radio Modem<sup>®</sup> Serial + Ethernet) Ethernet radio modem offers an attractive alternative to WiFi solutions. It is well suited for long distance wireless communications in obstructed and disturbed areas.

Part number	Technology
ARM-SE8/500	Local

## SERIAL LINK RADIO MODEM



#### ARM/868-SE

Le modem radio ARM-SE (Advanced Radio Modem<sup>®</sup> Serial V2) est adapté à la communication sans fil longue portée dans les zones obstruées et perturbées. Il intègre le dernier module ARM-N8-LD.

Part number	Technology
ARM-868-SE	Local
ARM-868-SE	Local

#### Features:

Features :

Bridge-Ethernet mode

Repeater mode

RS232/RS485 transparent mode

Gateway Modbus/TCP-RTU

- RS232/RS485 transparent mode
- Repeater mode
- Modbus/TCP-RTU Gateway
- ARM-N8-LD module

## DIGITAL + ANALOGUE RADIO MODEM



## ARM/868-Dxxxx

The ARM-D radio modem is well suited to applications for transmitting Boolean information (all or nothing) and reporting logic and analogue states: remote control, monitoring, remote management, alarm reporting.

Part number	Technology
ARM/868-Dxxxx	Local
ARM/SF8-Dxxxx	Sigfox
ARM/LW8-Dxxxx	LoRaWAN

### Features:

- 2 digital inputs + 2 digital outputs (by default)
- Modbus and Mirror modes
- Option:
  - 4 x Input/Output (Digital or Analogue)
  - RS 485

# REMOTE EQUIPMENT CONTROL: USE CASES

## SUPERVISION OF A DAM

- Detect the dam level by analog measurement
- Control the opening or closing of valves using digital outputs
- Remote supervision from the control post



## USAGE PATTERN: POINT-TO-POINT DATA TRANSMISSION



# 1GATE<sup>®</sup> LORA PRODUCT LINE GATEWAYS





# LORAWAN GATEWAYS

## INDUSTRIAL GATEWAY



The 1Gate LoRaWAN gateway is an indoor gateway. Easy to use, it offers a wide selection of configurations and management modes whatever your project. It can also be configured with all types of servers.

#### Design:

- Fixation sur Rail DIN
- Boitier ventilé en aluminium

Part number	Technology
AGT/INDUS	LoRaWAN

#### Features:

- DIN-rail mounting
- Up to 1000 devices support
- >15 kms range at sight
- Power supply 9-36 Vdc / 2.5A
- Ethernet / WiFi / Bluetooth connection

## OUTDOOR GATEWAY



The 1Gate LoRaWAN gateway is an outdoor gateway. Easy to use, it offers a wide selection of configurations and management modes whatever your project. It can also be configured with all types of servers.

Part number	Technology
AGT/OUTDOOR	LoRaWAN
AGT/OUTLTEM	LoRaWAN + LTE-M

### Features :

- IP66 enclosure
- Up to 1000 devices support
- >15 kms range at sight
- Power over Ethernet
- Ethernet / WiFi / Bluetooth connection



## www.atim.com

# PROCESSING & VISUALISATION OF DATA

# Atim Cloud Wireless





The Atim Cloud Wireless platform is a secure website that enables data management and use of ACW range products.

Whether you are a customer or a distributor, the platform can be personalized according to your needs. The use of preconfigured Use Casess (heating networks, water leak detection, etc.) or graphics makes supervision more efficient. The platform also allows the global visualization of the main information of your fleet of sensors. The hierarchical model allows you to control the sub-assemblies as you wish.

Thanks to the various networks dedicated to the Internet of Things (IoT) such as Sigfox, LoRaWAN <sup>™</sup>, LTE-M or NB-IoT, we can send messages sent to the Cloud directly to our platform for real-time visualization.



## https://portal.atim.com

www.atim.com

# **CUSTOM SOLUTIONS**

ATIM supports you in the design and industrialization of your product including a radio frequency communication brick.

Many projects are carried out each year for our industrial customers, our confidentiality agreements do not allow us to present them all here.



# <section-header><section-header> Examples of coston solutions Electrical cabine monitoring Electring Electrical cabin

## **SMART CITY** :

ATIM has developed a fire hydrant monitoring system for the BAYARD company. This product is IP68 (submersible) and autonomous for 10 years. It feeds back all operating information in real time via the Sigfox network (water draw, temperature, movement) and alerts the departments concerned. It is deployed throughout France both in urban and rural areas.

## **SMART BUILDING :**

ATIM has developed sensors with integrated GPS; ACW-T (temperature sensor) and ACW-DINDIO8 / 16 (digital input / output monitoring), available with 8 or 16 digital inputs. These sensors allow remote monitoring of electrical cabinet malfunctions (abnormal temperature, tripping, etc.), the on-board GPS allows site managers to monitor their electrical cabinets on site.

# ANTENNAS & ACCESSORIES

Wires – Connectors – Batteries – Fasteners (DIN rail, Mast, Wall)

## ANTENNAS - 868 MHz

	Part Number	Description	Gain	Size
	ANT868-12FSC	SMA $^{1}/_{2}$ wave whip antenna with 0 to 90 $^{\circ}$ swivel elbow	2,5 dBi	165 mm
	ANT868-14S4.0	<sup>1</sup> / <sub>4</sub> wave roof antenna with cable 4m + SMAM connector	0 dBi	95 mm
	ANT868-12S3.8	<sup>1</sup> / <sub>2</sub> wave roof antenna with 3m80 cable + SMAM connector	2,5 dBi	190 mm
2 <sup>17</sup>	ANT868-BZ	Omnidirectional antenna Bazooka N female connector. External mast mounting	4,15 dBi	360 mm
	ANT868-O3	PRO 8dBi base station antenna (high performance). N female connector. Flange for external mast mounting	3 dBi	295 mm
	ANT868-08	PRO 8dBi base station antenna (very high performance). Flange for external pole mounting, female N connector	8 dBi	1 473 mm
	ANT868-Y12	6 elements Yagi directive antenna, male FME connector. Mast mounting bracket	11,5 dBi	580 mm
	ANT868-Y15	Yagi directive antenna 10 elements, male FME connector, with mast mounting flange	15 dBi	980 mm

# Advanced Radio Modem<sup>®</sup> product line radio Modules









## MODULES – IOT & M2M

## SIGFOX & MONARCH MODULE



#### ARM-nano Sigfox + Monarch Option



Operates on every single Sigfox radio zones thanks to its Monarch embedded service. This module deals with ultra high sensibility and optimized consumption. The module is available in two versions:

- RC1 without Monarch Option - RC1-2-3-4-5-6 Monarch embedded

Part number	Technology
ARM-N8-SF	Sigfox RC1
ACW-NWW	All Sigfox RC

Power Tx	25mW / 200mW
Sensitivity	-131 dBm
Current Rx (3,3V)	17,8 mA
Current Tx ( 14 dBm / 3,3V )	23 mA
Current Tx ( 22 dBm / 3,3V )	177 mA
Standby current	<b>1,25</b> μA
Dimensions	30 x 18 x 2 mm

## LORAWAN / LORA MODULE

## 

M2M



## ARM-nano LoRa P2P + LoRaWAN

Ultra high sensibility : -141 dBm (SF12). Operates on both LoRa P2P et LoRaWAN. In addition to the "standard" mode, the "standalone" mode enables immediate operation via settings, without any additional programming.

ARM-nano Long Distance / Low Power

Same factor than the ARM module product line, N8-LP and N8-LD modules are

optimized for a local mode communication

ARM-N8-LD with a radio power of 500mW

(27dBm) allows a long-distance radio

transmission (>20kms on sight) when the ARM-N8-LP has a very low power

Power Tx	25mW / 100mW
Link budget	+ 155 dB/+161 dB
Datarate	300 à 47 Kbits/s
Current Tx	53 mA/120 mA
Current Rx	22 mA
Standby current	<1 µA
Dimensions	30 x 18 x 2 mm

Part number Technology ARM-N8-LRW LoRaWAN

## POINT TO POINT MODULES





consumption.	
Part number	Technology
ARM-N8-LP (Low Power)	Local
ARM-N8-LD	Local

(Long distance)

in 868 MHz.

#### N8-LD N8-LP Power Tx 500mW 25mW Link budget + 149 dB + 137 dB 1200 à 115 200 1200 à 115 Datarate 200 bits/s bits/s Current Tx 500 mA 62 mA Current Rx 33 mA 30 mA Standby <1 µA <1 µA current Dimensions 30 x 18 x 2 mm 30 x 18 x 2 mm

## MODULES - IOT & M2M

## AN ATIM'S EXCLUSIVITY, STAND ALONE MODE



Zero programming: Stand Alone mode allows you to use an ARM-nano module without writing a single line of programming: 1x battery, 1x antenna + sensors (no microcontroller needed!).

Thanks to a dedicated ATIM configurator, all the below parameters can be configured:

3x digital inputs
1x analog input
3x outputs (digital or PWM) to control your equipment
1x counter
1x digital output to control the supply to the sensors in "ultra low power" mode.



## SIGFOX MONARCH MODE

Monarch<sup>®</sup> is a unique feature of the Sigfox network, providing IoT devices the ability to adapt to the local radio frequencies, therefore to allow the tracking of assets all around the world. Monarch removes the barrier of global mobility while delivering on the LPWAN promise (low battery consumption, simplicity and cost effectiveness). It can benefit any type of IoT device: Moving objects: logistics, asset tracking and tracking, air and sea transport ... across continents, Stationary objects: a single product variant for several export countries, thus simplifying the manufacturing and distribution processes. One network, one contract and... one device!

ATIM has equipped its NWW "Nano WorldWide" module with an intelligent scanning system that saves energy while remaining connected to the grid anywhere in the world. The NWW module is also available in a simplified version for the Europe zone (RCZ1).

## www.atim.com

## SHIELDS

ATIM's shields are extension cards that allows an IoT transmission of the data from standard boards to LPWANs. Shields allow easy integration of ARM modules into a prototype board for your projects.

Connect your objects in a few moments on the Sigfox or LoRaWAN <sup>™</sup> networks.

**ARM-API** bookstore available on GitHub will help you to integrate the ATIM extensions cards to your boards.

## **ACW-RPI**





## Compatible : Raspberry Pi<sup>®</sup>

This adaptation card allows you to easily integrate the Sigfox or LoRaWAN<sup>™</sup> technology on Raspberry Pi boards

Part number	Technology
ACW-RPI/868	Local
ACW-RPI/SF8	Sigfox
ACW-RPI/LW8	LoRaWAN

## ACW-XBEE





## Compatible : Xbee<sup>™</sup>, The Airboard<sup>®</sup>

The shield for the XBee<sup>™</sup> module allows you to integrate easily the Sigfox or LoRaWAN<sup>™</sup> technology into your microcomputer and connect your device to LPWANs.

Part number	Technology
ACW-XB/868	Local
ACW-XB/SF8	Sigfox
ACW-XB/LW8	LoRaWAN

## ACW-DUINO



The ACW-DUINO shield provides connection to LPWANs from your Arduino board.

Part number	Technology
ACW-DUINO/868	Local
ACW-DUINO/SF8	Sigfox
ACW-DUINO/LW8	LoRaWAN

## SHIELDS

## **ACW-MPCIE**



## Compatible : Mini PCI-Express

This card connects to the Mini PCI Express bus and allows you to easily integrate Sigfox or LoRaWAN <sup>™</sup> technology on your development boards.

Part number	Technology
ACW-MPCIE/868	Local
ACW-MPCIE/SF8	Sigfox
ACW-MPCIE/LW8	LoRaWAN

## ACW-USB



The USB dongle allows to integrate the ATIM ARM-Nano modules to your development board equipped with USB ports. Plug it in to access to Sigfox or LoRaWAN<sup>™</sup> networks.

Part number	Technology
ACW-USB/868	Local
ACW-USB/SF8	Sigfox
ACW-USB/LW8	LoRaWAN

## ACW-SDK



#### Starter development kit

This SDK "Starter Development Kit" will allow you to test ATIM ARM-Nano product line easily. Standard pack includes a battery pack and a USB connector: Plug and Play!

Part number	Technology
ACW-SDK/868	Local
ACW-SDK/SF8	Sigfox
ACW-SDK/LW8	LoRa P2P + LoRaWAN

## **ACW-MANGOH**



## Compatible : MangOH<sup>®</sup> (SierraWireless<sup>®</sup>)

This Shield adapts to the MangOH<sup>®</sup> and allows you to easily integrate Sigfox or LoRaWAN<sup>™</sup> technology into your microcomputer.

Part number	Technology
ACW-MangOH/868	Local
ACW-MangOH/SF8	Sigfox
ACW-MangOH/LW8	LoRaWAN





## **OUR DISTRIBUTION'S NETWORK**



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