

# ARM-IO

Advanced Radio Modem

Licence free M2M\*

>1 km in 868 MHz  
50mW

Serial / Digital / Analog / PT100  
& Low Power



## Radio modems ARM-IO 868MHz 50mW

have been developed in order to answer to a big wireless report data need in disturb industrial environment (400m), and in outside environment until 1000m in line of sight.

Presented in a IP65 box with cable gland and antenna, these modules exist in different versions: Serial (RS232/RS485), Digital, Analogical (4-20mA, PT100), and Low Power.

ARM-IOD and -IOA can work like Modbus slaves or in mirror mode. ARM-IOS allowed creating a wireless point-to-point serial link, or multipoint serial link.

On the ARM-IOD and -IOA (with external power supply), the high-performance sleep mode divides the power consumption by 100, allowing to supply the modem with a small solar panel.

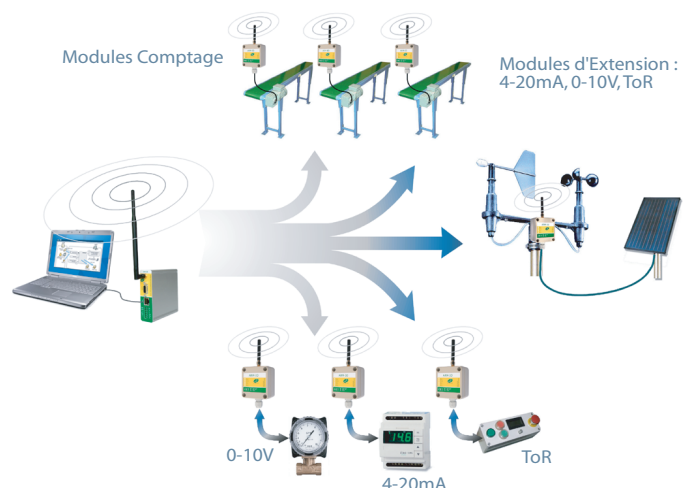
The ARM-IOD-LP (Digital, Low Power), with lithium battery can work in pulse counting or changing state counting, like reading water counter, or transmission of 2 digital information.

The ARM-IOA-LP (Analogical Low Power) is equipped with an output allowing supplying a sensor during the "awakeness" period, making the measurement, and transmitting it by radio.

These information can be getting back via an ARM-SE in modbus /TCP or /RTU, or via an ARM-X (or -D and -DA) in mirror mode.

- ▶ New radio modems range **868 MHz** (1 - 50mW)
- ▶ **European norm**, Licence free
- ▶ **Low cost** (best performance/price ratio)
- ▶ **Inputs/Outputs:** serial link **RS232/485** in transparent or secured mode, **digital input** counting ou boolean, **analogical input** 0-10V / 4-20mA / PT100, **lithium battery version**.
- ▶ **«NLOS» functioning** (non line of sight), alternative to Wi-Fi in obstructed and non line of sight areas.
- ▶ **Automatique configuration** (+ "expert" mode via radio)
- ▶ **Advanced functions :** LBT, repeater routing mode, ...
- ▶ **IP65 box** for outdoor use, antenna connector

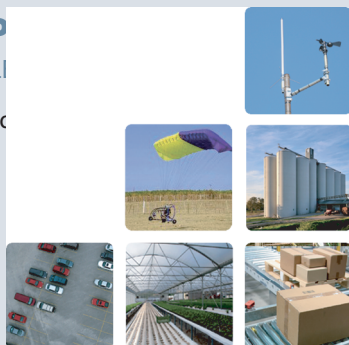
## >Infrastructure example M2M



## APPLICATIONS TYP

SIMPLE AND EFFICIENT WIRELI

- Street furniture, electronic road
- Water management
- Tower crane, anemometer
- Irrigation, greenhouses
- Grain silos
- UAV, UAV, military field ...



# ARM-IO

Advanced Radio Modem

IP65 ABS box  
for outside mounting

SMA female connector for  
external antenna

Weight : 100 g



## ARM range compatibility

ARM-SE : radio modem Serial / Ethernet

ARM-X : "eXtended" inputs/outputs versions

ARM-D : digital version, 2 inputs 2 outputs

ARM-DA : digital version, 2 inputs 2 outputs  
(+ 1 input and 1 output 4/20 mA)

ARM-C8 et -U8 : transceivers O.E.M version

## Articles references

ARM-IOS : serial version (RS232 / RS485)

ARM-IOD : digital version (1 input + 1 output)

ARM-IOA : analogical version (1 analogical input + 2  
digital outputs)

ARM-IO-P : PT100 (1 input PT100)

ARM-IOD-LP : Low Power lithium battery, 2 digital inputs

ARM-IOA-LP : Low Power lithium battery, 2 voltage  
inputs + 1 sensor power supply output

# Technical specifications

## FUNCTIONALITIES

### ARM-IOS (Serial)

Serial transmission, transparent or secured modes, 250 octets buffer  
Serial link debit : 1200bps to 11500bps  
Configuration via AT commands

### ARM-IOD/-IOA/-IOP/-LP (digital/analogical/PT100/low power)

Mirror mode (LBT, listen before talk + automatic change channel)  
Slave modbus mode  
"Sensor" mode, setting off emission with alarm

### COMMON FUNCTIONS

Possibility of configuration via radio with an ARM-SE  
Repetition path with routing

## GENERAL INFORMATION

### CONFIGURATION :

Automatic

Configuration and test mode in local and in a distance (depends on the version)

### ANTENNE :

SMA female antenna connector

Recommended antennas: angled 1/2 wave or shorted 1/4.

ENVIRONNEMENT : temperature functioning/storage: -30°C to +60°C/-40°C to +70°C

NORMALIZATION : Directive RTTE1995/5/CE - ETS300-220-3 v1.1.1

CEM EN 301 489-3 v1.4.1 - Sécurité NF EN60950 Ed.2000

LIGHTS AND OTHER : 1 or 2 LEDs, emission/reception (depending on the version)

1 jumper for reset (back to factory settings), 1 jumper for RS485 terminal resistance

## CONNECTIONS

Connection via terminal bloc 6 points at the 2.54mm pitch

-S: 1 port RS232 Rx/D Tx/D + 1 port RS485 2 wires A/B

-D: 1 input (bool or counter 100Hz max), 1 digital output

-A: 1 input 4-20mA or 0-10V + 2 digital inputs

-P: 1 input for temperature sensor PT100

-LP (low power) version:

-D-LP: 2 digital inputs

-A-LP: 2 inputs voltage 0-2,5V + 1 output PNP (power  
supply sensor)

Connection via M12 connector 4 points (watertight)

[0V - IN1 - IN2 - OUT1]

## RADIO INTERFACE "RF"

868-870MHz band, 1-25mW (0-14dBm)

GFSK modulation

Radio debit: 19200bps NRZI

16 channels configurable with soft or automatically

Sensibility in reception : -102dBm @ 9600bps

## POWER SUPPLY

ARM-IOS/-D/-A/-P : 5-30Vcc ARM-IO-LP: integrated lithium battery 3,6V

Consumption @ 12V : 100mA in emission, 25mA in reception, 250µA in sleep  
mode / ARM-LP ~15µA

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