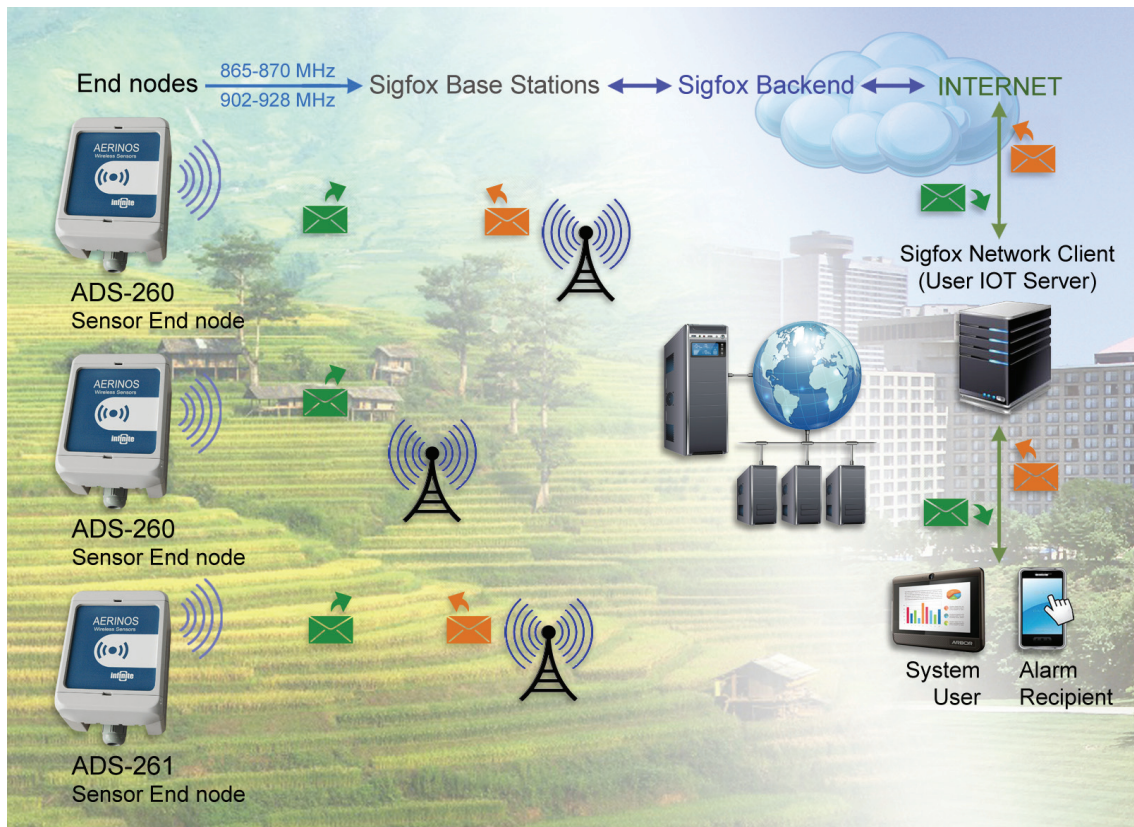


# AERINOS<sup>®</sup> SIGFOX IOT Solutions



## 1. Introduction

Sigfox is a communication protocol that is used to read data from sensors through a fixed network of base stations. It works like a low cost “SMS” service. As an end-user, you only need to buy a subscription to connect to the data network operated by SIGFOX. Sigfox uses Ultra Narrow Band (UNB) radio technology and operates in the license free bands (ISM). Sigfox has the advantage of covering larger areas than other fixed local systems.

The AERINOS<sup>®</sup> wireless sensors platform provides smart end nodes for the SIGFOX Network. The wireless sensor nodes offer reliable communication and outdoor enclosures to satisfy a variety of measurement and monitoring applications.

## 2. Types

- ADS-26x Series: Sigfox end nodes with multiple sensor support

## 3. Applications

- Agricultural Monitoring
- Tank level monitoring
- Water/wastewater
- Oil & Gas
- Security systems
- Environmental Monitoring
- Weather Monitoring

## 4. Radio characteristics

### 865-870 MHz Band (ETSI)

Input/output impedance	50Ω
Uplink Frequency (TX)	868.13 MHz
Downlink Frequency (RX)	869.525 MHz
Uplink data rate (TX)	100 bps
Downlink data rate (RX)	600 bps
Downlink sensitivity	-124 dBm
Max output power	+14 dBm

### 902-928 MHz Band (FCC)

Input/output impedance	50Ω
Uplink data rate (TX)	600 bps
Downlink data rate (RX)	600 bps
Sensitivity	-124 dBm
Adjacent channel rejection	64 dB
Max output power	+25 dBm

As of August 2015, SIGFOX has coverage and is operating and available in many countries across the world:

Nationwide coverage:

- France
- Spain
- The Netherlands

On-going nationwide rollouts:

- U.K. (ten largest cities already covered)
- Portugal (nationwide end of 2015)
- Belgium
- Luxembourg

Spot coverage:

- Bogota (Colombia)
- Dublin (Ireland)
- Graz (Austria)
- Munich (Germany)
- Milan (Italy)
- San Francisco (USA)
- Santiago (Chile)
- Seoul (Korea)
- Singapore (Singapore)
- Warsaw (Poland)

While SIGFOX has the ambition to reach a global coverage (60 countries within the next 5 years), new countries and spot locations are added regularly.

## 5. ADS-26x series

ADS-26x are battery powered, wireless end nodes for low voltage, low power sensors. The units are available for the 868 to 869 MHz and 902 to 928 MHz bands.



### 5.1 Types

**ADS-260:** 1 configurable input (digital or analog), SDI-12 & RS-485 Sensors support

**ADS-261:** 1 high accuracy Strain gauge Bridge Amplifier input, 1 digital input

#### 5.1.1 Common Characteristics

Power supply	3.6V, 13-18 Ah Lithium Thionyl battery, D-size
Antenna	internal or external
Data memory	16kB EEPROM
Messaging	
Uplink	Up to 140 messages/Day
Serial port	USB, 9600 to 115200 bps
Temperature	-40°C ... 65°C, operating
Dimensions	79.5 x 125 x 61 mm (with cable gland)
Protection	IP66
Weight	0.3 kg

## 5.1.2 Type characteristics

### **ADS-260**

Discrete inputs	IN1, configurable as: <ul style="list-style-type: none"> <li>• Digital input, 0-30VDC</li> <li>• Analog input, 0-1VDC, 12 bit resolution</li> <li>• Digital counter, 1 KHz</li> </ul>
SDI-12 Bus	8 Channels, multiple sensor support.
RS-485, MODBUS	8 Channels, multiple sensor support.
Transducer excitation	12V/250mA, 5V/200mA

### **ADS-261**

Analog inputs	1, Bridge Amplifier (Instrumentation Amplifier)
Input Impedance	
Differential	50 MΩ
Common Mode	10 GΩ
Input Offset Voltage	20 μV max.
Input Voltage Noise	0.7 μV p-p at f = 0.01 Hz to 10 Hz
Input Bias Current	1nA max.
Nonlinearity	0.003 % FS
Gain Drift	25 ppm/°C max.
Gain	100 (25, 50, 250, 500 optional)
Dynamic Response	DC to -3 dB = 1 kHz
Common-Mode Rejection	100 dB min. @ gain 100
Bridge Excitation	10VDC/200mA, 5 VDC/200mA
A/D conversion	16 bit resolution
Digital inputs	1, dry contact or 0-30 VDC (DI 1)
Counters	1, 1 KHz, common with DI 1

## 6. Ordering Information

**ADS-260-Y-Z:** SIGFOX end node with multiple sensor support

**ADS-261- Y-Z:** SIGFOX end node with Bridge Amplifier input

Y=82: 865-870 MHz Band (ETSI)

Y=92: 902-928 MHz Band (FCC)

Z=1: Internal  $\mu$ Splatch™ Antenna (Linx)

Z=2: External SMA Antenna connector

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