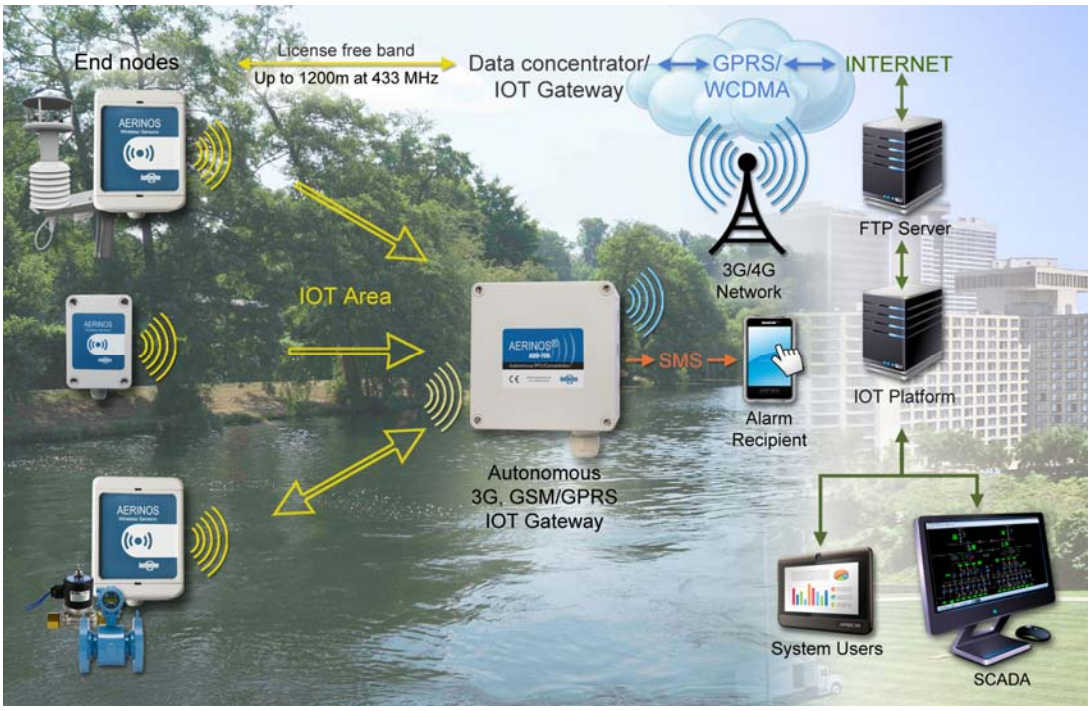
AERINOS® Profisens - Wireless IoT Platform



Introduction

AERINOS® ProfiSens is a local area wireless IOT platform. It comprises wireless sensor nodes and a 3G Data Gateway. Using ProfiSens, you can deploy anywhere your private IOT network. The battery powered, wireless end nodes, offer reliable communication and outdoor enclosures to satisfy a variety of measurement and monitoring applications. The acquired sensor data wirelessly transmits to the data concentrator with 3G connectivity, which forwards data files to an FTP server and alarm SMS to predefined users.
The coverage of the wireless network can reach a radius of 1-6 km (Line of sight). The network uses a proprietary protocol with bidirectional communications. Data concentrator and sensor end nodes support autonomous battery powered operation and provide options for external power supply.

System components

- ADU-700: Autonomous, wireless data concentrator with internal 3G modem
- ADS-10x Series: Wireless end nodes for low voltage, low power sensors
- ADS-20x Series: Wireless end nodes with multiple sensor support

Applications

- Agricultural Monitoring
- Tank level monitoring
- Water/wastewater
- Oil & Gas
- Asset management
- Environmental Monitoring
- Distributed Temperature Monitoring

Data concentrator & Gateway

ADU-700 Autonomous RTU

ADU-700 is a low power data concentrator for AERINOS® Profisens wireless end nodes. Modes of operation include autonomous battery operation and external power supply operation with uninterruptible transition to battery operation during power outage. ADU-700 incorporates a 3G, GSM/GPRS modem and supports periodical data transmission via FTP and alerting via SMS.

Features

- Up to 32 sensor end nodes, for a total of 64 measurement channels.
- Outdoor operation
- External power supply or battery powered operation.
- Available for different license free bands.

Technical Characteristics

Power supply	Internal: 3.6V, 13Ah Lithium Thionyl battery External: 9 - 24 VDC, 26VDC max
Maximum Range	433MHz: 1200m, 868MHz: 800m, 915MHz: 300m
Data memory	128kB EEPROM
Digital inputs	4, dry contact or 0-30VDC
Wireless modem	Quad Band, 3G, GSM/EGPRS (850/900/1800/1900MHz)
GNSS	GPS & GLONASS
Data transmission	FTP
Alarm transmission	SMS
Serial interface	USB, up to 115kBit/s
Temperature	-40°...65°C, operating
Indications	2 LED, Network status, Operation status
Dimensions	130 x 130 x 75 mm
Protection	IP66
Weight	0.5 kg

Sensor end nodes

ADS-10x series

ADS-10x are battery powered, wireless end nodes for low voltage, low power sensors. The units are available for the 433 MHz band and optional for license free bands 868 MHz and 915MHz.

Types

ADS-101: 1 Thermocouple input, 1 digital input
ADS-102: 2 analog inputs, 1 digital input

Common Characteristics

Power supply	3.6V, 2.6Ah Lithium Thionyl battery, AA-size
Maximum Range	433MHz: 1200m, 868MHz: 800m, 915MHz: 300m
Max output power	10dBm (10mW)
Antenna	internal
Data memory	16kB EEPROM
Transmission Period	300 sec
Serial port	TTL, 9600 to 115200 bps
Temperature	-40°C ... 65°C, operating
Dimensions	65 x 123 x 57 mm (with cable gland)
Protection	IP66
Weight	0.2 kg

Type characteristics

ADS-101

Analog inputs	1, Thermocouple Type K
Range	-100°C to +250°C (0°C to +500°C optional)
Accuracy	±2°C in the range of −25°C to +250 °C
A/D conversion	12 bit
Digital inputs	1, dry contact or 0-30 VDC (DI 1)
Counters	1, 2 kHz, common with DI 1

ADS-102

Analog inputs	2, 0-1V (0-2.5V, 0-5V optional)
Offset voltage:	50 µV max.
Input Bias Current	1 pA max.
A/D conversion	12 bit
Sensor excitation	3.6 VDC, 120mA (with TADIRAN TL-2100 Battery)
Digital inputs	1, dry contact or 0-30 VDC (DI 1)
Counters	1, 2 kHz, common with DI 1

ADS-20x series

ADS-20x are battery powered, wireless end nodes for low voltage, low power sensors. The units are available for the 433 MHz band and optional for license free bands 868 MHz and 915MHz.

Types

ADS-200: 1 configurable input as digital or analog, SDI-12 & RS-485 Sensors support

ADS-201: 1 high accuracy Strain gauge Bridge Amplifier input, 1digital input

Common Characteristics

Power supply	3.6V, 13-18 Ah Lithium Thionyl battery, D-size
Maximum Range	433MHz: 1200m, 868MHz: 800m, 915MHz: 300m
Max output power	10dBm (10mW)
Antenna	external or internal
Data memory	16kB EEPROM
Transmission Period	300 sec
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

Type characteristics

ADS-200

Discrete inputs	1, Configurable as: • Digital input, 0-30VDC, configurable as Counter (1kHz) • Analog input, 0-1VDC, 12 bit resolution
SDI-12 Bus	16 Channels, multiple sensor support.
RS-485, MODBUS	8 Channels, multiple sensor support.
Transducer excitation	12V/250mA, 5V/200mA

ADS-201

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 (50, 250 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

Ordering Information

ADU-700 - Y: Autonomous, wireless data concentrator with internal 3G, GSM/EGPRS modem

ADS-101 - X - Y: Sensor end node with 1 Thermocouple K input + 1 digital input
X = 25, Range: -100°C to +250°C (Default)
X = 50, Range: 0°C to +500°C (Option)

ADS-102 – X - Y: Sensor end node with 2 analog inputs + 1 digital input
X = 10, Analog input Range: 0-1V (Default)
X = 25, Analog input Range: 0-2.5V (Option)
X = 50, Analog input Range: 0-5V (Option)

ADS-200 – Y - Z: Sensor end node with multiple sensor support

ADS-201 – Y - Z: Sensor end node with Strain Gage Bridge Amplifier

Y=4: 433MHz band, default (Worldwide)
Y=8: 868MHz band, optional (CE)
Y=9: 915MHz band, optional (FCC)
Z=1: Internal µSplatch™ Antenna (Linx)
Z=2: External SMA Antenna connector

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CE

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