AERINOS™

ADS-300 NBIoT/LTE-M RTU

Introduction

ADS-300 is an ultra low power NBIoT/LTE-M End Node with multiple sensor support. The unit incorporates a built in modem, a USB serial port, 1 digital input/counter, an analog input, an optional 3-axis digital accelerometer, a Coulomb meter and multiple excitation options for powering and measuring transducers. The device supports acquisition of up to 8 measurement channels, based on the popular SDI-12 communication protocol and additional 8 channels, based on the MODBUS protocol. An ultra low power microcontroller is utilized for data sampling, subsystem activation and overall system control. The unit incorporates a Lithium Thionyl battery supplying system operation for up to 10 years.

Modes of operation

Modes of operation include autonomous battery operation or power supply through the USB port for unit configuration. During battery supplied operation, only the low power microntroller is awake. The microcontroller activates the modem during data transfer, as well as other subsystems for sampling and logging.

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Features

- Power network independent NBIoT/LTE-M End Node
- Up to 10 years maintenance free operation
- Quick and easy installation
- 1 digital input/counter, 1 analog input,
  internal 3-axis digital accelerometer (optional),
  Built in battery monitoring,
  SDI-12 and MODBUS sensor data acquisition
- Several excitation options for external sensors

Applications

- Security systems
- Power network, Cable fault monitoring
- Building Management & Home Automation
- Oil & Gas distribution
- Asset management
- Greenhouse controls & irrigation systems
- M2M systems

Technical characteristics

Power supply Battery External	 Internal 13.0 Ah Lithium Thionyl 5V (USB power)
Consumption	20μA max (Low power operation) 2 mA (AI sampling w/o sensors) ~50mA (Alarm messaging)
Digital inputs	1, 0-30VDC or potential free contact inputs
Analog inputs	1, 0-1V, 12 bit resolution
Counters	1, kHz max.
Transducer Excitation	5VDC/200mA or 12VDC/200mA max.
Serial port	USB serial, 9600 to 115200 bps
Modem	LTE Cat-M1/NBIoT with 2G fallback, Sierra Wireless HL Series 78xx
Antenna	internal or external, 4G LTE
Indications	2 LED, network status, device status
Temperature	-40°C…+70°C operating
Protection	IP66
Dimensions	124 x 79.5 x 70 mm, (with cable gland)
Weight	0.3 kg (w/o Battery)

Data Acquisition

Sampling period and data send rate are user defineable. Ultra low power standby mode followed by frequent data recording and transmission can be selected to fit the application needs, while maximizing the battery life.

SDI-12 Serial Bus

ADS-300 is compliant to the SDI-12 Standard Version 1.2 and supports extended commands for sensor configuration, in terminal mode. ADS-300 can collect data from several SDI-12 sensors for a total amount of 8 measurement channels.

RS-485 Serial Bus (MODBUS)

ADS-300 supports acquisition from sensors with RS-485 interface using the MODBUS protocol.

Transducer excitation

A user adjustable 5V/12VDC excitation output is available for powering low power external sensors.

Tilt Sensing

The unit has an optional accelerometer which is used for measuring angle declination.

Coulomb Meter

A user enabled Coulomb Meter allows for the monitoring of the battery's consumption.

Setup and programming

The unit can be programmed locally through the serial by using simple ASCII configuration commands. The command set features commands for configuring scaling and timing parameters.

Enclosure

Plastic enclosure (IP66/68) for in- and outdoor use.

Firmware features

Digital input alarm state	Transition selection
Analog input	Scale, gain selection
Accelerometer	Tilt Sensing
SDI-12	Compliant to SDI-12 Version 1.2
MODBUS	MODBUS ASCII protocol
Sampling interval	1-255 minutes
Sensor warm-up time	1-255 sec
Transmission rate	0-255 hours
Programming	ASCII command set
Local setup	via USB serial port

Ordering information

Code	**ADS-300**

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