ADU-500

Autonomous RTU/Data Logger

Introduction

ADU-500 is an ultra low power wireless RTU with data logging and alarming capabilities. The battery powered RTU incorporates three digital inputs, two analog inputs, one pulse counter input and multiple excitation options for powering measuring transducers. The device supports acquisition of up to 48 measurement channels, based on the popular SDI-12 communication protocol and additional 10 channels, based on the MODBUS protocol. The RTU incorporates the common flexible form factor (HL, CF3™) Modem modules of Sierra Wireless. OEM versions of ADU-500 can now virtually support any LPWA, 4G, 3G, 2G mobile network technology. The 3G Version of the RTU (ADU-500-3G) includes GNSS capability (GPS & Glonass Sirf V).

Measurements & Data Logging

The digital inputs are scanned by the system controller for detecting an alarm condition. Analog input gain, scaling and alarm limits are user definable. The analog inputs and SDI-12 sensors are sampled according to the user defined sampling rate. Sampling rate and sampling duration affect the battery life according to the transducer power supply requirements.

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Features

- Maintenance free operation for over 10 years
- 2G, 3G, 4G LTE Versions (Optional GPS)
- Quick and easy installation
- 2 analog inputs, 3 digital inputs
- SDI-12 sensor data acquisition
- Several excitation options for external sensors

Applications

- Water management
- Environmental Telemetry
- Weather Monitoring
- Irrigation systems
- M2M systems

Technical characteristics

Power supply	internal 13.0 Ah Lithium Thionyl battery or external 9-24V power adaptor
Temperature	-40 to 65°C operating
Consumption	18μA max. (standby) Aver. 2.7mA (measurement w/o sensor current) Aver. 240mA (GPRS/EGPRS) Aver. 650mA (3G,4G)
Digital inputs	0-30VDC, potential free contacts
Pulse counters	2, 2KHz, common with DI 2&3
Battery Monitor	Built in counter
Analog inputs	2, 0-5V, 0-2.5V, 0-1V, 0-20mA differential inputs, 12 bit resolution, 1 to 200 programmable gain (PGA).
SDI-12 Bus	48 Channels, multiple sensor support.
MODBUS (RS-485)	10 Channels, multiple sensor support.
Transducer excitation	12V/250mA or 9V/350mA, 5V/200mA, 3.3V/1A
Serial port	USB, 9600 to 115200 bps
Wireless MODEM	Multiband 2G, 3G, 4G Sierra Wireless HL Series
Indications	LED, Network & Operation status
GNSS	GPS & Glonass Sirf V (2G and 3G Version only)
Dimensions	130 x 130 x 75 mm
Weight	0.5 kg
Protection	IP66

SDI-12 Serial Bus

SDI-12 is an asynchronous, ASCII, serial communications protocol that was developed for intelligent sensory instruments that typically monitor environmental data. The communication is achieved by digital communications. The addressing system allows data recorder to communicate with several microprocessor-based sensors over a single line. ADU-500 is compliant to the SDI-12 Standard Version 1.2 and supports extended commands for sensor configuration, in terminal mode. ADU-500 can collect data from several SDI-12 sensors for a total amount of 48 measurement channels.

RS-485 Serial Bus (MODBUS)

ADU-500 supports acquisition from sensors with RS-485 interface using the MODBUS protocol.

Transducer excitation

The unit provides multiple excitation options for measuring transducers.

Alarming & messaging

SMS announcements include Alarm messages and periodical Status messages for verifying unit availability. The unit supports discrete recipient alarming for several users. Alarm message texts are user definable.

Data Transmission

ADU-500 supports periodical data transmission according to user defined parameters. The unit can send data via SMS to predefined users or to an internet FTP server via the FTP protocol.

Setup and programming

The unit can be programmed locally through the serial port or remotely via SMS by using simple ASCII configuration commands. The command set features commands for configuring input alarm parameters, scaling parameters and alarm limits, timing parameters and defining user groups. ADU-500 can be remotely reconfigured by sending configuration commands to the unit during the periodical status message processing.

Firmware features

Digital input alarm state	Open or closed contact selection
Analog input	Scale, gain, alarm limits selection
Sample interval	1-9999 minutes
Alarming	Transition of a digital input, 2 alarm limits on each analog input
Alarm delay	1-255 sec
SDI-12	Up to 16 SDI12 Sensors
MODBUS	MODBUS ASCII& RTU protocol
Message texts	1-30 characters
Status Messaging	1-99 days
Messaging Retries	1-99
Retry intervall	1-255 sec
Data send	SMS, FTP
Programming	ASCII command set
Remote setup	via SMS
Local setup	via serial port
User setup	1-20 users, discrete recipient Alarming

Ordering information

Code	**ADU-500-X**

X= 2G, 3G, 4G

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