AMS 111 IV

Data Logger

The MicroStep-MIS AMS 111 IV data logger is designed for standard or mobile meteorological stations, as well as for the applications in areas where the commercial power or communication networks are limited or do not exist.

Rich set of interfaces

Low power consumption, high reliability

Native communication to central system

Easily customizable configuration of inputs and outputs

Special aviation software

The AMS 111 IV is the third generation of MicroStep-MIS data loggers. Now it is designed on modular platform which supports different main systems and is based on Linux supporting modules.

The AMS 111 IV interfaces with various sensors and telecommunication devices. Embedded with the state-of- the-art software, AMS 111 IV is a reliable and cost-effective solution for meteorological and environmental monitoring.

System flexibility allows wide application range from simple compact systems to multipurpose stations. 24 bit A/S conversion and software features such as data validation and quality control ensure the accuracy of the measured data. System supports data output to RS-232/485 lines, modems and cellular phones (SMS, GPRS, 4G), radio-modems and satellites.

Modular design

The AMS 111 IV data logger may be supplied with or without touchscreen graphic display, and optionally with GSM (wireles) or PSTN modem - depending on user's requests. Two sizes of special housing boxes are optional.

AMS 111 IV supports intelligent sensors on RS-485 and SDI-12 bus. Support for USB mass storage devices now allows easy distribution of data, configuration or firmware updates between AMS stations, as well as from/to the managing PC systems.

The typical AMS 111 IV is usually housed in weather-proof enclosure (up to IP 67), which includes mainboard, display (optional), sensor-connection terminal, AC adapter or battery power supply (optional), backup battery (optional), pressure sensor (optional), and built in GPS (optional).

The AMS 111 IV data logger board is running on the embedded Linux with the MicroStep-MIS data logger application.

Analog inputs

22 x precise differential inputs, ±2.5 V to ±19.5 mV

Resolution 24 bit

Minimal sampling period 0.25 s

Input impedance more than 10 MΩ

Accuracy:
Voltage measurement 0.031 %
Resistance measurement 0.042 %
5x additional analog inputs 0 - 5 V / 0 - 2.5 V
±2.5 mV (on special request)

Digital inputs

12 x digital input, 0 V to 20 V

(log0 < 6.2 V log1 > 7.1 V) or 0-5 V TTL (optional)

counters up to 5 kHz

Digital outputs

4x digital output, open collector 35 V / 1 A

Power outputs

8x switching power supply up to 1.5 A

Battery charger

Integrated automatic battery charger

Digital configuration of battery parameters

Maximal charging current 2 A

Battery monitoring with full charge state and cut off voltage

Environmental parameters

Operating temperature range	-40 °C to +70 °C
Operating humidity range	0 to 100 %

Memory and RTC

Internal 128 MB Flash memory

Internal 128 MB DRAM memory

Secure digital card up to 64 GB

External USB mass storage up to 256 GB

Real time clock (backup with Lithium battery)

Processors

Main processor 32 bit ARM® Cortex® M7

Slave processor 32 bit ARM® Cortex® M4

Communication I/O ports

3x RS-232 port (baud rate: 300 to 115200), 1x UART

2x RS-485 port

Interface for GSM / Wifi / Radio module

Ethernet 10/100 Mbit

USB master, USB slave

2x SDI-12

Supported Protocols: FTP server, FTP client, HTTP server, telnet, SMTP, SMTPS, MODBUS RS-485, MODBUS, NTP Ethernet

Power supply

Voltage 3.5 V to 18 V

Consumption max.: 2.5 W (205 mA @ 12 V all peripherals on, Ethernet connected, with TFT display)

Consumption middle: 780 mW (65 mA @ 12 V without Ethernet, RS-485, modem and display)

In sleep mode: 72 µW (6 µA @ 12 V all peripherals off)