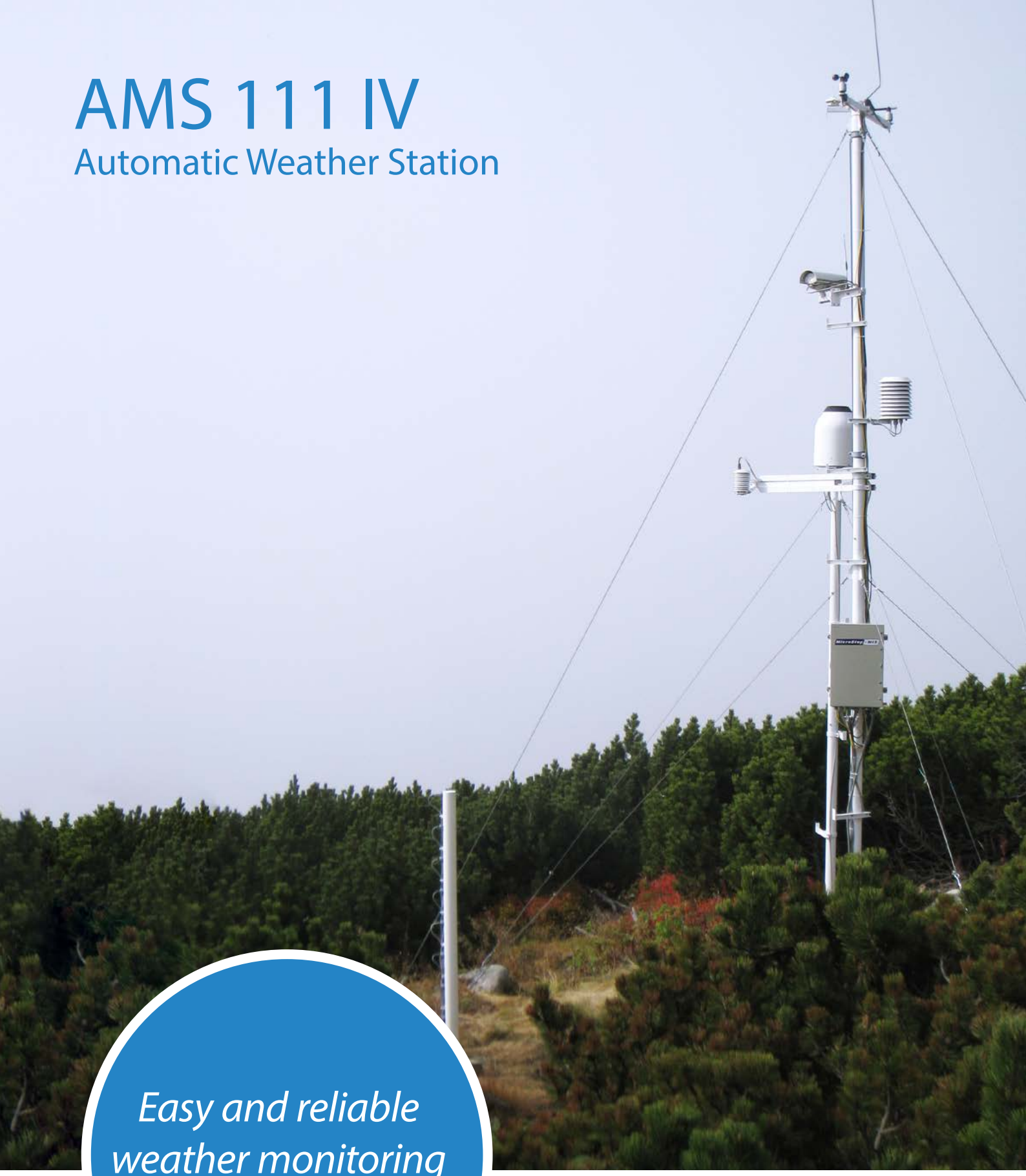
AMS 111 IV

Automatic Weather Station



Easy and reliable weather monitoring anywhere

AMS 111 IV

Automatic Weather Station

- Low power consumption, high reliability
- Rich set of interfaces
- Easily customizable configuration of inputs and outputs
- Native communication to central system and extensive state-of-the-health monitoring and reporting
- Special aviation software

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.

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, 3G), 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 RS485 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.

Basic AMS 111 IV module

P4-MBDA3	Mainboard - the board for interfacing sensors and/or communication devices

Optional extension modules

P4-DSP	Touch screen display (128 x 64 graphic display with 32-button touch screen)
P4-DSP57T	5,7" TFT display with touchscreen and resolution 640 x 480
PL-PSTN	External Modem module (leased line/dial-up modem)
P4-GSM	Modem module (wireless GSM/GPRS modem)*
P4-3G	Modem module (3G support)*
P4-WiFi	WiFi module*

*only one module can be used / installed at the same time

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

AMS 111 IV

Data logger overview

Enclosure and accessories options

enclosure	dimensions	depth	display*	GSM Modem**	PSTN Modem**	4x AA battery (internal supply)***	Car adapter (12V)	Mains AC adapter	Backup battery	Air Pressure sensor	
PL-CSB1slim	195 x 175 mm	65 mm	✗	•	•	✓	•	✗	✗	✗	* touch screen display (or) none ** GSM modem (or) PSTN modem (or) none *** 4 x AA (or) acc. (or) AC adapter + acc.
PL-CSB1	195 x 175 mm	105 mm	•	•	•	•	•	✗	•	✗	
PL-CSB2	225 x 200 mm	140 mm	•	•	•	✗	•	•	•	•	✓ supplied • optional ✗ no in this model
PL-CSB3	260 x 230 mm	140 mm	•	•	•	✗	•	•	•	•	
LC1-III	160 x 160 mm	51.5 mm	•	•	•	✗	✗	✗	✗	✗	

PL-CSB1slim

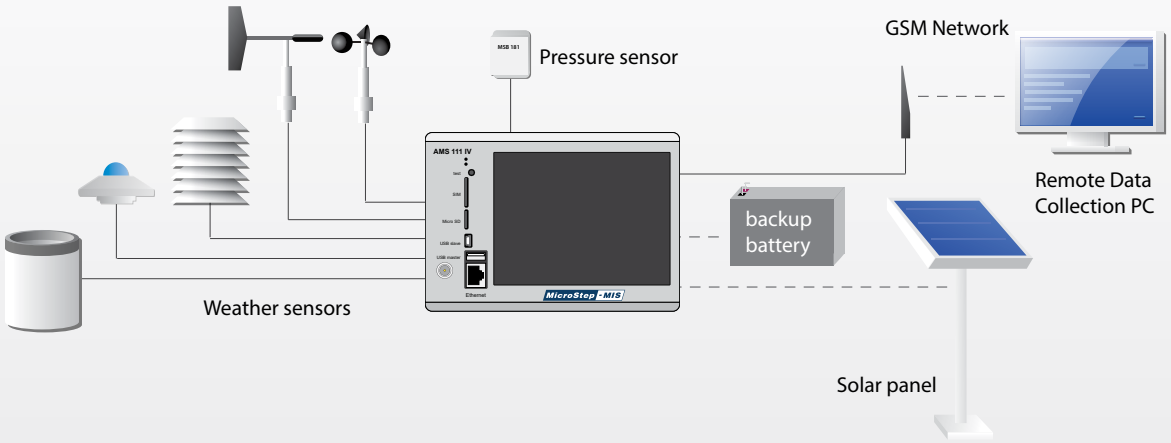
PL-CSB1

PL-CSB2

PL-CSB3

LC1-III

Meteorological station example



AMS 111 IV
Technical data

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

Analog inputs	22x precise differential inputs, ±2.5 V to ±19.5 mV
	Resolution 24 bit
	Accuracy: Voltage meassurement 0.031 % Resistance meassurement 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
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® A5 Core
	Slave processor 32 bit ARM® Cortex® M3

Communica-tion I/O ports	2xRS232 port (baud rate: 300 to 115200)
	2xRS485 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 RS485, 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, RS485, modem and display)
	In sleep mode: 72 µW (6 µA @ 12 V all peripherals off)

Touch-screen display

Monochrome graphic display with 32-button touchscreen matrix - optional user interface for previewing of measured values, adjusting system time, setting system variables and more - directly on the logger.

Resolution	128 x 64 pixels
Power consumption	102 mW (17 mA @ 6 V)
In sleep mode	180 µW (30 µA @ 6 V)

P4-DSP57T 5,7" TFT display with touchscreen

Resolution	640 x 480 pixels, color 262k, TFT transmissive
Operating temperature range	–10 °C to +60 °C
Power consumption	1,98 W
Brightness	400 cd/m^2
Viewing angle	60°
Responsive time	15 ms
Effective area	117.2 x 88.4 mm

PSTN modem (optional)

PSTN modem is suitable for dial-up or leased-line connection. It supports V.34bis, V.34, V.32bis, V.32, V.22.bis, V.22A/B, V.23, V.21, BELL 212A, BELL 103 com. protocols (opt. V.90). and AT command set with extensions.

Supported speeds	300 bps to 14400 bps, 28800 bps, 33600 bps
Error correcting	V.42 LAMP, MNP 2 to 4 and MNP 10
Data compression	V.42 bis and MNP 5

GSM modem (optional)

GSM modem for wireless communication via GSM network.

Specification	Quad-band GSM | GPRS 850 / 900 / 1800 / 1900 MHz
	Class 4 (2 W at 900 MHz)
	Class 1 (1 W at 1800 MHz)
	Data, SMS, SMS over GPRS
	GPRS class 10 Mobile station class B
Power supply	GPRS cl.10: 360 mA @ max power level
	Dedicated mode: 230 mA @ max power
	At Tx power max 2 W
	1.5 mA in idle mode
Operating temperature range	–40 °C to +85 °C

Environmental conditions	Operating temp. range: –40 °C to +70 °C
	Operating humidity range: 0 to 100 %
Degree of protection	IP65 (EN 60529)
	IP67 (when installed in junction box)