

Data logger ALMEMO® 500



ALMEMO® data logger
Precision measuring instrument,
up to 90 measuring inputs.
Comprehensive functions
covering all application areas.
PC control via app.



ALMEMO® 500

Solving complex measuring tasks using the ALMEMO® 500

The increasing digitalization and networking changes the entire chain of production. This also applies to measuring instruments that must be able to integrate themselves into existing networks – Keyword Industry 4.0. Our new web-based technology positions us future-proof for the era of increasing networking.

Our customer receives a scalable system for recording numerous measuring points with maximum precision. The device can be controlled via PC and state-of-the-art interfaces such as USB. A web service makes the measurement data accessible anywhere and anytime.

The new networking features are perfect for e.g. monitoring climate or production processes.

It is possible to access all networking features and measured value enquiries with the Windows App ALMEMO® 500 or as usual via PC using the WinControl software.

Modern control via app and web service

The user operates the ALMEMO® 500 on the PC with the Windows App ALMEMO® 500. An integrated web service enables access to the data logger.

However, the app not only visualizes the measurement data. The software also allows the user to configure the entire data logger as well as all attached sensors conveniently on the PC. It is possible to export data to Excel as well. This is useful in case the measurement data shall be further processed in Excel or other programs.

Thanks to the web service it is possible for several users to simultaneously log into the device e.g. from different locations in case of decentralized measured value monitoring. An intelligent permission management ensures that measurements are not accidentally changed.

A Wi-Fi hotspot integrated in the data logger is responsible for the connection between the PC and the data logger. In the standard configuration this is set up as an access point, which provides the user with a secure Wi-Fi network.

Alternatively, the data logger can also connect to an existing network as client. This is enabled by a special client mode in the measuring instrument that allows the user to access the data logger via a company network or an external VPN connection.

A configuration website integrated in the data logger allows the user to configure the Wi-Fi hotspot, e.g. network settings or encryption, in just a few steps. This works similar to the configuration of a router.

The ALMEMO® 500 enables the user to view historical measurement sequences saved on the measurement data storage using the app. The measurement sequences can be loaded offline as well as during measurement operations.

Monitor up to 90 measuring inputs in fail-safe operation

Ahlborn features the ALMEMO® 500 standard version with 20 galvanically isolated measuring input sockets. Depending on the housing width, the device can be augmented to up to 90 measuring input sockets by inserting further plug-in cards.

For thermocouple measurements, the data logger features internal cold junction compensation.

Optionally available battery compartments enable fail-safe long-term measurements. Operated with batteries, the ALMEMO® 500 can be used as a mobile device as well.

Store millions of measured values internally

A SD memory card is integrated in the data memory of the ALMEMO® 500. Depending on the measurement resolution, this card is sufficient for many millions of measured values. For long-term measurements, it is possible to configure the data memory as a ring memory. In case the memory is not sufficient, the user can plug in additional memory in form of an USB flash drive or an USB hard disk via the USB port. The ALMEMO® 500 will then save all measurement data to the external medium.

Networking thanks to state-of-the-art interfaces

It is possible to link several ALMEMO® 500 devices via the USB interfaces or via the integrated access point, using either Wi-Fi or LAN network. The user operates all devices via the Windows App ALMEMO® 500. Additionally, the measured values can also be queried and displayed using the measured value acquisition software WinControl.

Depending on the use case: desktop housing or rack housing

Ahlborn features the ALMEMO® 500 with a desktop housing of type TG6 and TG8. The side frames are manufactured using two-component injection molding (2-shot-molding). The device can be carried on stable aluminum handles. Rubberized components prevent the ALMEMO® 500 from slipping. Thanks to the particular form of the side frames, the housings are stackable.

Apart from the desktop housing, Ahlborn features an additional device version in the classic 19-inch rack housing suitable for cabinet solutions.

ALMEMO® 500



Ports for ALMEMO® sensors and for networking (OLED status display)



Easy programming and visualization of measurement data with the Windows App ALMEMO® 500 on the PC

Technical data and functions ALMEMO® 500

- ALMEMO® data logger from the latest V7 generation
- Access via integrated web service and access point, two Wi-Fi access modes: access point or client (for integration in an existing network)
- The device is easy and intuitive to use thanks to the Windows App ALMEMO® 500 on the PC
- Visualizing measured values and configuring the data logger via the preinstalled app, simultaneous login of several users possible, integrated user and permission management
- Connecting the new ALMEMO® D7 sensor generation: Measuring rate up to 1000 mops, simultaneous operation of high speed and low speed sensors, display of measured values up to 8 digits, up to 10 channels per sensor, comments up to 20 characters, dimensions up to 6 characters, measured value damping for up to 4 channels per sensor
- Display of measured values as numerical single measurement values, value lists or freely configurable displays
- Graphic display of measured values as line graph for depicting up to 20 measurement sequences, integrated sidebar for switching quickly between three display modes
- Measurement function: measured value, minimum value, maximum value, zeroing, target value comparison, damping, average value over a period of time or over several measurement points, limit value monitoring, cold junction compensation and temperature compensation
- Stored measurement sequences can be displayed offline as well as during ongoing measurement operation
- Modern desktop housing in two variants: TG6 and TG8, side frames manufactured by the use of 2-shot-molding, stackable or available in 19-inch rack housing
- 20 ALMEMO® input sockets (galvanically isolated) for connecting up to 20 ALMEMO® sensors of all generations (standard), up to 200 sensor channels, can be upgraded to up to 90 ALMEMO® input sockets, up to 900 sensor channels
- 2 USB ports for connecting external memory and PC, Ethernet and Wi-Fi for accessing the web service via app
- Networking via integrated access point, using LAN or Wi-Fi network, or via USB using WinControl
- High speed and high resolution A/D Converter (ADC)
- Integrated SD card, for storage of measured values, configurable as linear or ring memory, memory expansion possible via USB port
- Choice of languages: German, English (other options available on request)
- Programming menu for concise parametrization of e.g. cycles, times, memory and power supply
- OLED display (0.82 inch) and LED displays for visualization of network parameters and system messages directly on the device
- Option KL: multi-point adjustment, customer specific linearization
- Battery compartments (accessory) for fail-safe long-term measurements or for mobile device usage
- Relay/trigger/analog interface RTA6 as plug-in card (as accessory) for output of alarm and control signals.

Technical data

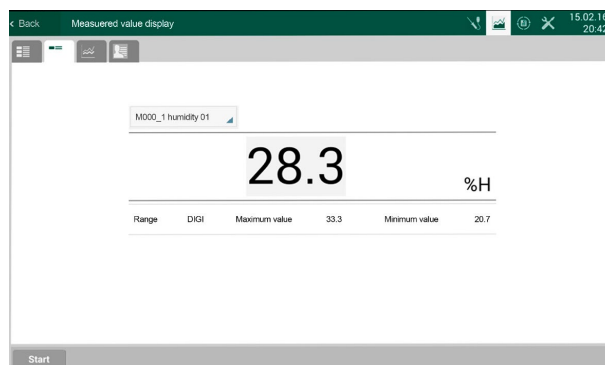
Measuring inputs:		Standard equipment:	
Standard configuration:	20 ALMEMO®-input sockets for all ALMEMO® sensors (standard, DIGI, D6, D7)	Control:	via Windows App ALMEMO® 500 for PC (free download)
Channels (standard):	up to 200 measurement channels	Memory:	500 MB SD card (built-in) (for up to 75 million measured values)
Expansion:	up to 90 input sockets (depending on the device housing)	Date and time-of-day:	Real-time clock (4.7 ppm) buffered with lithium battery
Precision class:	AA (see Catalog, p. 16)	Power supply:	
Total sampling rate	CPU up to 4000 mops, per input board up to 2000 mops	Mains adapter:	ZB1212NA11, 100 to 240 VAC, 12 VDC, 2.5 A galvanically isolated
Measuring rate for analog sensors, DIGI and D6 sensors:	100 / 50 / 10 / 2.5 mops	Recharg. battery (accessory):	2 lithium-batteries, total of 13.8 Ah, integrated high-speed charging (3 h)
Galvanic Isolation for analog sensors	using semiconductor relays (50 V) additional galvanic isolation between measuring input and power supply (device ground)	Power consumption (without input and output modules)	approx. 300 mA without sensors (default configuration)
Sensor power supply:	6 / 9 / 12 V, per board max. 400 mA, each data logger max. 1.2 A	Housing	
Interfaces:	2 USB ports for additional memory and networking, Ethernet, Wi-Fi for accessing the web service and networking	Desktop housing TG6	390 x 160 x 260 mm (W x H x D), appr. 4 kg
		Desktop housing TG8	497 x 160 x 260 mm (W x H x D), appr. 4.5 kg
		Rack housing BT8	483 x 132 x 273 mm (W x H x D), appr. 4.5 kg
		Environmental conditions and general technical data	see page 16 onwards

ALMEMO® 500

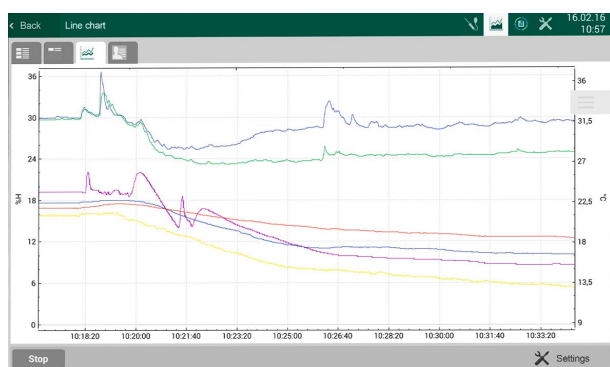
Numerous measured value displays

The Windows App ALMEMO® 500 on the PC offers different measured value displays.

- Measured values can be displayed as numerical single measurement values, value lists or freely configurable measurement value displays.
- The measurement functions include inter alia measured value, minimum value, maximum value and average value.
- To graphically display the measured values, the line graph is able to show 20 measurement sequences.
- An integrated sidebar enables the user to quickly switch between three different display modes: automatic, manual and entire measurement.



Single measurement value displays for monitoring single measured values



Line graphs for monitoring measurement sequences for a set period of time

Measuring channel	Measured value	Maximum value	Minimum value
M000_0 temperature 01	23.1 °C	25.3 °C	20.7 °C
M000_1 humidity 01	28.3 %H	33.3 %H	20.7 %H
M000_2 dew point 01	5.1 °C	5.3 °C	4.7 °C
M000_3 atm. pressure	938.1 mb	939.3 mb	937.8 mb
M001_0 temperature 02	22.7 °C	24.3 °C	18.7 °C
M001_1 temperature 03	18.2 °C	19.7 °C	18 °C
M001_2 temperature 04	18.1 °C	19.3 °C	18 °C
M001_3 temperature 05	17.9 °C	19.3 °C	17.8 °C

Value lists for displaying several measurement values and function values simultaneously

Accessories

Order no.

- Active measuring circuit card MA10 and MMU (expansion). 10 see next page
- Relay/trigger/analog card, 2 slots. Up to 4 cards are supported per system, see chap. output modules
- Li-Ion battery pack, 13.8 Ah. Required space: 2 slots
- Carrying case, aluminum profile frame, suitable for ALMEMO® 500 in desktop housing TG6
- Rack case with handle, suitable for ALMEMO® 500 in rack case BT8

- ES500RTA6
- ES500AP
- ZB500TK1
- ZB5090RC

Option

Order no.

Multi-point adjustment or linearization can be programmed by the customer with any ALMEMO® plug version

OA500KL

Standard delivery

Order no.

Data logger ALMEMO® 500

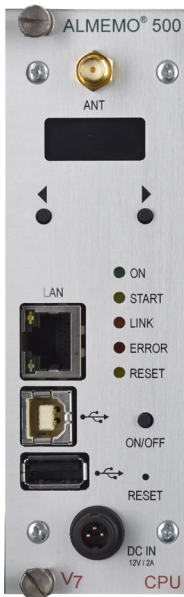
CPU card including interfaces and web service. 4GB SD memory card. 2 active measuring circuit cards MA10 featuring 20 input sockets for all ALMEMO® sensors (standard, DIGI, D6, D7). Manufacturer's test certificate. Mains adapter ZB 1212 NA11 PC connecting cable (USB, Ethernet). Control via Windows App ALMEMO® 500 for PC (free download).

- In desktop housing TG6, 9 free slots
- In desktop housing TG8, 15 free slots
- In 19-inch rack housing, 15 free slots

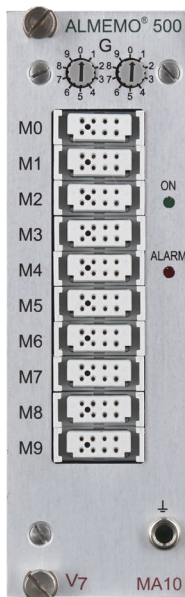
- MA500CPUA20TG6
- MA500CPUA20TG8
- MA500CPUA20BT8

DAkKS / DKD or factory calibration KE90xx, electrical, for measuring instruments, see chapter „Calibration certificates“. The DAkKS calibration meets the requirements of DIN EN ISO/IEC 17025 for test equipment.

CPU board, active measuring circuit boards and expansions for datalogger ALMEMO® 500



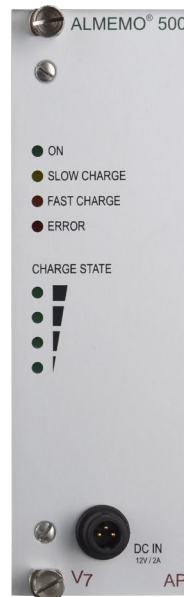
CPU



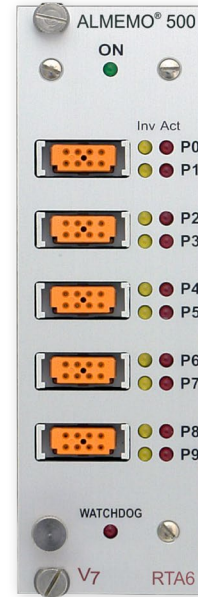
MA10



MMU



AP



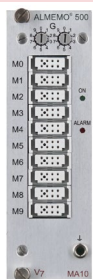
RTA6

Input boards for ALMEMO® 500

Technical data and functions

- Active measuring circuit boards with own A/D converter
- There are several design variants for different installations / input plugs.

Input board M-A10



10 inputs for all ALMEMO® sensors (default, digit, D6, D7). For flexible applications with individual sensors and measuring signals.

Technical data

Measuring inputs	10 ALMEMO® input sockets, electr. isolated for all ALMEMO® connectors (default, digit, D6, D7).
Measuring ranges	All ranges (see page 17/18)
Sensor supply	6, 9 or 12 V, max. 400 mA (per datalogger max. 1.2 A)
Footprint	2 slots

Standard delivery

Active measuring circuit board MA10

Order no.

ES500MA10

Input board MMU



10 inputs for ALMEMO® 10-way MU connectors. For permanently installing groups of 10, especially temperature sensors.

Technical data

Measuring inputs	10 inputs, electrically isolated, socket strip for ALMEMO® 10-way MU connector
Measuring ranges	all thermocouples, Pt100, Ni100, NTC ohms, 2.6 V, 260 mV, 55 mV, 26 mV
Sensor supply	None
Footprint	1 slot

Standard delivery

Active measuring circuit board MMU
ALMEMO® 10-way MU connector

Order no.

ES500MMU
ZA5690MU