

ALMEMO® 500



ALMEMO® precision measuring instrument and data logger, up to 90 measuring inputs. Comprehensive functions covering all application areas. Tablet 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 tablet 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 via tablet app or – as usual with Ahlborn devices – via PC using the WinControl software.

Modern control via app and web service

The user operates the ALMEMO® 500 via an included 8-inch tablet and a preinstalled app. 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 tablet. 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 tablet 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 600 million measured values internally

A 4GB SD memory card is integrated in the data memory of the ALMEMO® 500. Depending on the measurement resolution, this card is sufficient for up to 600 million 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 ALMEMO® 500 app. 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)

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 an 8-inch tablet with a preinstalled app (included in delivery)
- 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 4GB SD card, sufficient storage for up to 600 million 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

Technical data

Measuring inputs:

Standard configuration: 20 ALMEMO®-input sockets for all ALMEMO® sensors (standard, DIGI, D6, D7)

Channels (standard): up to 200 measurement channels

Expansion: up to 90 input sockets (depending on the device housing)

Precision class: AA (see Catalog, p.01.04)

Total sampling rate: CPU up to 4000 mops, per input board up to 2000 mops

Measuring rate for analog sensors, DIGI and D6 sensors: 100 / 50 / 10 / 2.5 mops

Galvanic Isolation for analog sensors: using semiconductor relays (50V) additional galvanic isolation between measuring input and power supply (device ground)

Sensor power supply: 6 / 9 / 12V, per board max. 400mA, each data logger max. 1.2 A

Interfaces: 2 USB ports for additional memory and networking, Ethernet, Wi-Fi for accessing the web service and networking

Standard equipment:

Control unit: industrial tablet (Samsung SM T365) with preinstalled app ALMEMO® 500

Memory: 500 MB SD card (built-in) (for up to 75 million measured values)

Date and time-of-day: Real-time clock (4.7ppm) buffered with lithium battery

Power supply:

Mains adapter: ZB1212NA10, 100 to 240VAC, 12VDC, 2A galvanically isolated

Recharg. battery (accessory): 2 lithium-batteries, total of 13.8 Ah, integrated high-speed charging (3h)

Power consumption (without input and output modules) approx. 300 mA without sensors (default configuration)

Housing

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

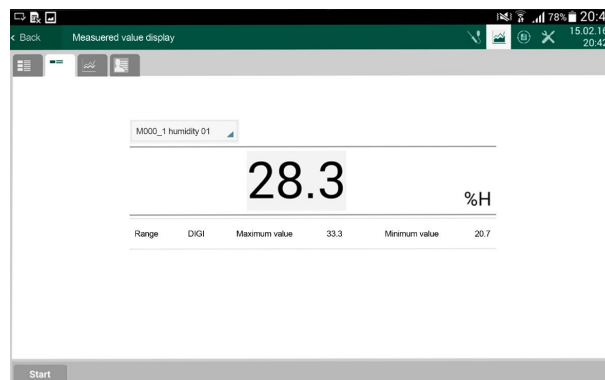
for further general data: see ALMEMO® Technical Data, page 01.04

ALMEMO® 500

Numerous measured value displays

The ALMEMO® 500 app 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
 Li-Ion battery pack, 13.8 Ah. Required space: 2 slots. Included mains adapter ZB 1212 NA10
 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

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

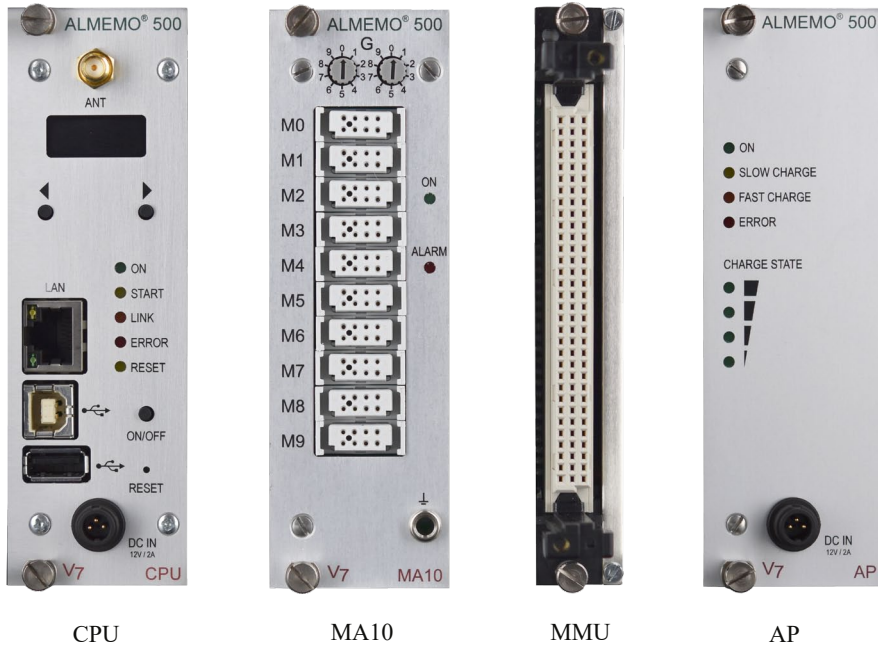
CPU card including interfaces and web service. 4GB SD memory card. 2 active measuring circuit cards MA10 featuring 20 input sockets for all ALMEMO® sensors (standard, DIGI, D6, D7). Manufacturer's test certificate. Mains adapter ZB 1212 NA10
 PC connecting cable (USB, Ethernet). Control unit (Tablet Samsung SM T365) with preinstalled app, mount for control unit.

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

MA500CPUA20TG6B
MA500CPUA20TG8B
MA500CPUA20BT8B

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

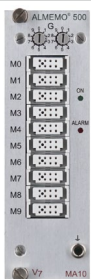
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Input boards for ALMEMO® 500

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 01.05) |
| Sensor supply | 6, 9 or 12 V, max. 400mA (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 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