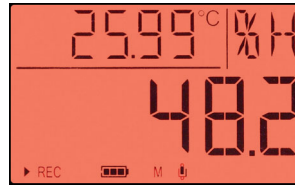
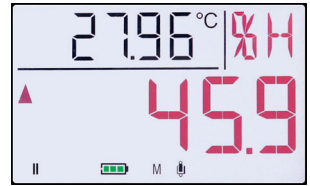


# ALMEMO® MEASURING INSTRUMENTS

**ALMEMO® 2470 series**  
**Universal measuring instrument for limit value monitoring, long-term data logger**  
**Illuminated segmented color display**  
**With 1 or 2 measuring inputs, suitable for all ALMEMO® sensors.**



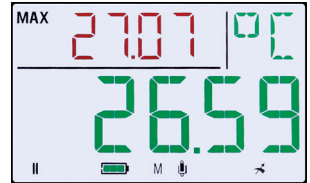
Automatic Alarm (red background) display impaired measured value



Dual display:  
 1. Humidity: measured value (red) exceeds the limit  
 2. Temperature



1. Measured value (blue) below the limit  
 2. Limit



1. Measured value (green) in the normal range  
 2. MAX peak (red) over below the limit



Programming  
 1. Memory cycle  
 2. Sleep mode

**Special features of the ALMEMO® 2470 series:**

- ▶ **new:** Segmented color display with bright, white illumination, Clear and easy-to-understand display of measuring and programming values in 5 different colors. Alarm display against a red background
- ▶ Easy operation by means of 7 keys, with configurable key and function locking
- ▶ Measuring functions : Maximum and minimum values, measured value smoothing, zero-setting, sensor adjustment
- ▶ Programming functions : Limit values, sensor correction with base value and factor
- ▶ Data logger functions (2470-1S and -2S only) Memory cycle, real-time clock (buffered via device's power supply), sleep mode for long-term recording
- ▶ **new:** (2470-2 and -2S only) Power supply, 3 AA rechargeable NiMH batteries, with charging via the device itself.

Standard equipment	ALMEMO® 2470-1S	ALMEMO® 2470-2	ALMEMO® 2470-2S
Application	Long-term data logger with display	Monitoring, mobile / stationary display	Monitoring, mobile / stationary display / data logger
Measuring inputs ALMEMO® input sockets, electr. isolated.	1	2	2
Data logger: Internal - measured value memory External - SD memory card	up to 100 000 values -	- -	up to 100 000 values up to 30 million values
Long-term recording in sleep mode Power supply with operating time at memory cycle 15 minutes (e.g. with humidity sensor)	AA batteries >1.5 years	- -	rechargeable batteries >1 year
Individual value memory (manual)	-	99 values	-
Outputs ALMEMO® sockets for relay, analog, and trigger cables	-	A1, A2	A1, A2
Digital interface Without electrical isolation - via DC socket  With electrical isolation - via socket A1	USB (including power supply) with cable ZA 1919 DKU5 -	USB (including power supply) with cable ZA 1919 DKU5, USB, RS232, Ethernet, wireless	USB (including power supply) with cable ZA 1919 DKU5, USB, RS232, Ethernet, wireless
Power supply: internal External, via ALMEMO® DC socket	AA batteries Power supply unit	rechargeable batteries Power supply unit	rechargeable batteries Power supply unit
Battery charging via the device itself	-	ja	ja

10/2011 We reserve the right to make technical changes.

## Other technical features:

- ▶ Modern, compact housing (IP54 option)
- ▶ High-resolution A/D converter, 24-bit, 10 measuring operations per second (mops)  
More than 65 standard measuring ranges
- ▶ Support for ALMEMO® plugs with multi-point calibration, special linearization, and special measuring ranges
- ▶ All ALMEMO® functions programmable via interface.

## Options:

IP54 protection Order no. OA2470W  
(if water-proof plugs / sensors are used)

## Accessories: (see Chapters 04, 05, 07)

Rubberized impact protection, gray	ZB2490GS2
Instrument case	ZB2490TK
Mains adapter 12 V / 1A	ZA1312NA7
DC cable 10 to 30 V, 12 V / 0.25 A, electr. isolated	ZA2690UK
Memory connector with micro SD card, 512 MB	ZA1904SD
USB data cable with 5-V power supply	ZA1919DKU5
USB data cable, electrically isolated	ZA1919DKU
V24 data cable, electrically isolated	ZA1909DK5
Ethernet data cable, electrically isolated	ZA1945DK
Analog output cable, -1.25 to +2.0 V, 0.1 mV / digit	ZA1601RK
Trigger and relay cable (2 relays, 500 mA, 50 V)	ZA1006EKG

Network technology, Bluetooth modules see Chapter 05

## Technical data:

<b>Measuring inputs:</b> 2470-1S	1 ALMEMO® input socket
2470-2 / -2S	2 ALMEMO® input sockets
electr. isolated	Semiconductor relay (50 V)
<b>Channels:</b>	4 channels / plugs for double sensors and function channels,
2470-2 / -2S	4 internal chan. (e.g. differential)
<b>A/D converter:</b>	Delta - sigma, 24 bit, low power, 2, 2.5, or 10 mops
<b>Sensor supply:</b>	
voltage in battery mode:	Sensor voltage 6 V with 400 mA 9V with 300 mA, 12V with 200 mA
with mains adapter:	12 V with 400 mA
<b>Outputs:</b>	ALMEMO® DC socket for mains adapter or USB cable with supply ZA 1919 DKU5
2470-2 / -2S	ALMEMO® sockets A1 and A2 for all output modules (analog, data, trigger, relay cables, etc. see Chapters 04 and 05)

## Standard equipment:

<b>Display:</b> 16 segments:	Measured value 5 x 15 mm Units 2 x 9 mm
7 segments:	Function 4½ x 9 mm 21 symbols Illumination 2 RGB LEDs
<b>Keypad:</b>	7 silicone keys
<b>Date and time-of-day:</b>	Real-time clock, buffered via device battery
<b>Memory internal 2470-1S, -2S</b>	512kB EEPROM (100,000 values)
<b>Individual memory 2470-1</b>	99 individual measured values
<b>Power supply:</b>	1 ALMEMO® DC socket
2470-1S	3 3 AA batteries
2470-2/S	3 AA rechargeable NiMH batteries, integrated charge circuitry
<b>Mains adapter:</b>	ZA1312NA7 230V AC to 12V DC, 1A electr. isolated
<b>DC adapter cable, el. isol.:</b>	ZA2690UK, 10 to 30 V, 0.25 A
<b>Current consumption</b>	Active without illumination approx. 12 mA
(without input and output modules):	Active with illumination approx. 30 mA Sleep mode approx. 60 µA
<b>Housing:</b>	127 x 83 x 42 mm (LxWxH) ABS (maximum 70 °C) 290 g

Other general data see Technical Data, page 01.05

## Product overview

### Data logger measuring instrument ALMEMO® 2470-1S

1 input, 1 output, EEPROM measured value memory, segmented color LCD, battery

**Order no. MA24701S**

### Universal measuring instrument ALMEMO® 2470-2 in case

2 inputs, 3 outputs, segmented color LCD, rechargeable battery, including mains adapter ZA1312NA7 and case

**Order no. MA24702KN**

### Data logger measuring instrument ALMEMO® 2470-2S in case

Same as ALMEMO® 2470-2KN, plus EEPROM measured value memory

**Order no. MA24702SKN**

# ALMEMO® MEASURING INSTRUMENTS

**Data logger ALMEMO® 2470-1SRH for long-term measuring operations, for monitoring and documenting indoor climates with digital sensor for temperature, atmospheric humidity, atmospheric pressure**  
**1 additional measuring input for other environmental parameters**



## Technical features

- ▶ Data logger for long-term measuring operations, for documenting indoor climates, e.g. in museums, churches, storage premises, while simultaneously monitoring limit values
- ▶ **new:** Compact measuring instrument with plug-in digital sensor for measuring temperature and atmospheric humidity, with integrated digital atmospheric pressure sensor
- ▶ 1 additional universal measuring input for an extra sensor, e.g. probe for UV radiation or illuminance, sensor for CO<sub>2</sub> content, sensor for surface temperature
- ▶ Can be fitted on a wall quickly and easily
- ▶ Limit values can be separately programmed per measuring channel.
- ▶ **new:** In the event of a limit value being overshoot / undershot, various freely configurable alarm messages are available, namely acoustic signal, visual LED signal, alarm display on a red background.
- ▶ **new:** These alarm messages are configurable, similarly, for long-term monitoring and remain active in sleep mode. In sleep mode the most recent measured value is displayed continuously as well.
- ▶ Alarm messages can be cancelled manually by pressing a button on the keypad.
- ▶ Brightly lit screen, values clearly displayed in 5 different colors
- ▶ Dual display for showing measured values and maximum / minimum / limit values simultaneously
- ▶ Quick and easy operation via the keypad, configurable locking of keys and functions

For more information regarding the technical features and display examples see pages 01.36, 01.37.

## Technical data

### Measuring instrument

Measuring input	1 ALMEMO® input socket
Memory, internal	512-KB EEPROM (100,000 measured values)
Output	ALMEMO® DC socket for mains adapter or USB cable ZA1919DKU5

For more information regarding the technical data see ALMEMO® 2470-1S, page 01.37.

### Digital atmospheric pressure sensor,

integrated in the measuring instrument	
Measuring range	700 to 1100 mbar
Accuracy	±2.5 mbar (at 0 to +65 °C)

### Digital sensor for temperature / atmospheric humidity

(including A/D converter), plugged in on the measuring instrument	
Operative range	-10 to +60 °C / 10 to 90 % RH (non-condensing)
Accuracy Humidity	±1.8 % RH at nominal temperature
Accuracy Temperature	± 0.3 K at nominal temperature
Nominal temperature	+25 °C
Mechanical design	Slotted sensor cap, Ø 8 mm, length 36 mm

General description and other technical data see page 09.24, 09.26

## Accessories

can be fitted on a wall using a DIN rail mounting	Order no. ZB2490HS
Rubberized impact protection, gray	ZB2490GS2
Instrument case	ZB2490TK
Mains adapter 12 V / 1 A	ZA1312NA7
USB data cable with 5-V power supply	ZA1919DKU5
Replacement sensor, digital, in slotted sensor cap, adjusted	FH0D462

## Options

IP54 protectio (if water-proof plugs / sensors are used)	OA2470W
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## Standard delivery

Batteries, Operating instructions, Plug-in digital sensor for measuring temperature and atmospheric humidity, Manufacturer's test certificate

Data logger - measuring instrument  
ALMEMO® 2470-1SRH

**Order no. MA24701SRH**