ALMEMO® Measuring Instruments

new

ALMEMO® 470-1

**Wireless data logger ALMEMO® 470-1.
Wireless ALMEMO® sensor for temperature, atmospheric humidity, atmospheric pressure. For monitoring the room air condition or with extended operating temperature range from -40 to +85 °C.
Wireless ALMEMO® interface for ALMEMO® D7 sensor. For various measurable variables.**

Wireless data logger, Wireless ALMEMO® sensor and wireless ALMEMO® interface

ALMEMO® 470-1 wireless data logger

The professional measuring instrument ALMEMO® 470-1 is a professional wireless data logger, which receives the measured values with timestamp from wireless sensors that are positioned remotely, saves the measured values and shows them on graphical display.

The acquisition of the measured values occurs in a cycle that can be individually adjusted to each wireless sensor: short cycle times from 1 second for fast measurements, i.a. in climate chambers, or long cycle times for long term measurements, i.a for monitoring the room air condition or environmental measurements.

For a wireless communication, the data logger ALMEMO® 470-1 operates in the 2.4 frequency band. The network topology between wireless sensors and data logger is radial. You can connect up to 30 wireless sensors to a data logger.

The data logger ALMEMO® 470-1 is intended to be mounted on a wall. The power is supplied via an external mains unit. An additional rechargeable battery in the device serves as a temporary buffer in case of power failure or during a brief mobile usage.

Wireless ALMEMO® sensor for temperature, atmospheric humidity, and atmospheric pressure.

The wireless sensors operate with a plugged-on digital multi-sensor module for temperature, atmospheric humidity, and atmospheric pressure. The sensor module has a data medium on which all sensor specific data, such as serial number, adjustment data, and calibration data, is saved. The sensor module can therefore be replaced any time.

For monitoring the room air condition or with extended operating temperature range from -40 to +85 °C.

The standard version of the wireless sensor is used for monitoring the room air condition.

The version with an extended operating temperature range from -40 to +85 °C and splash-water protection is used i.a. for measurements in conditioning and climate chambers or for outdoor tasks in the environmental measurement technology.

Wireless ALMEMO® interface for ALMEMO® D7 sensors. For a vast variety of measurable variables.

The digital wireless interface broadens the range of applications considerably. Almost all ALMEMO® D7 sensors for various measurable variables can be connected via the integrated

ALMEMO® input socket to the wireless interface and their measured values can be transferred over the air to the wireless data logger.

Power supply of the wireless sensors and the wireless interfaces

The wireless sensors and the interfaces are supplied by an integrated rechargeable battery. Thanks to the very low current consumption the battery lasts up to one year depending on the connected sensors and on the measuring cycle set. The rechargeable battery can be charged via the integrated micro USB port. A continuous power supply via mains unit is possible as well.

Evaluation and storage of the measured data.

Via an external PC measured data is recorded and visualized by the WinControl software. The data logger ALMEMO® 470-1 and the PC are either connected via USB interface or via Ethernet interface.

An industrial SD card integrated in the data logger ensures a safe storage of the measured data. Additionally, the actual measured data is cached in every wireless sensor to make sure that the complete measured data is available also in case of a short-time failure of either the wireless connection or the data logger.
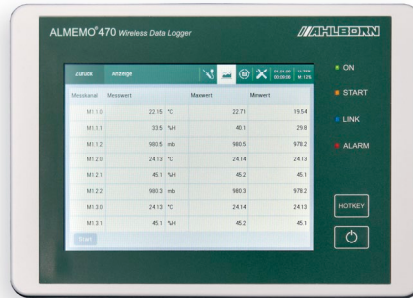
Configuration of the wireless system

The sensors in the wireless network are configured and managed on the data logger ALMEMO® 470-1 via the clear touch display. Various functions are available, i.a. to couple and de-couple the wireless sensors with the data logger or to configure the cycles and limit values of the wireless sensors. In addition, it is possible to add a comment to every wireless sensor to be able to assign a particular measurement point to the sensors.

Accessories for installing the components for different applications

Thanks to an integrated holder, the data logger ALMEMO® 470-1 can be mounted to the wall.

Regarding the wireless sensors, different accessories for mounting the sensors are available: wall mount, suction cup fastening, magnetic mount, or rope to hang the sensors.

Wireless data logger ALMEMO® 470-1

Wireless data logger for 30 wireless sensors. Interface to the PC for WinControl software for measured data scanning and measured value processing.

Technical data

Measuring inputs:	30 wireless sensors of type
	- wireless ALMEMO® sensor
	  for atmospheric humidity, temperature
	  and atmospheric pressure FH 1746-1Cx
	- wireless ALMEMO® interface
	  for ALMEMO® D7sensor ZA 1770-1IF
		Date and time-of-day:	Real-time clock (4.7 ppm)
			buffered with lithium battery

Channels:	up to 120 measuring channels	**Power supply:** Rechargeable battery:	5 rechargeable NiMH batteries AA (1900 mAh),
Interfaces:	USB, Ethernet for connection to the PC and measured value scanning via WinControl	operating time with rechargeable battery approx. 2 hours mains adapter:	ZB 1112-NA10 100 to 240 VAC to 12 VDC, 2 A, galvanically isolated, via an hollow connector
Standard equipment: Display:	graphics display 5,7", TFT-LCD VGA 640x480,	**Operating temperature:**	0 to +40 °C
	illumination while LED, dimmable	**Storage temperature:**	-5 to +50 °C

Keypad:	capacitive touch screen and
	3 additional keys on front foil
		Housing:
		  Protection class:
		  Dimensions:
			IP50
			190 x 135 x 40 mm (WxHxD)

Memory:	512 MB industrial flash memory as micro SD card. Storage capacity up to 1 million measured values (sum of all channels)	Weight:	(without wall mount) ca. 0.8 kg (including rechargeable batteries)

Accessories	**Order no.**
WinControl software for measured value scanning and measured value processing for any number of devices and channels For further explanations and descriptions, see chapter Software	**SW5600WC2**

Standard delivery	**Order no.**
Wireless data logger ALMEMO® 470-1 with Ethernet interface and USB interface, SD memory, rechargeable battery. Including mains unit ZB1112NA10 and wall mount.	**MA4701**

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Wireless ALMEMO® sensor for atmospheric humidity, temperature, atmospheric pressure

FH 1746-1C2VR2   FH 1746-1C2VR1   FH 1746-1C4 / HT

Replacement multi-sensor module
FH0D 46-C

Replacement sensor module
FH0D 46-C2

Technical data

Measuring input:	for 1 multi-sensor element for humidity, temperature and atmospheric pressure FH0D 46-Cx	mains adapter:	ZB 1505-NA1 100 to 240 VAC to 5 VDC, 1 A, galvanically isolated, via micro USB
Channels:	4 measuring channels	**Operating temperature:**	-5 to +50 °C (standard version) -40 to +85 °C (version with extended temperature range)
Accuracy:	see sensor specification FH0D 46-Cx		
Galvanic Isolation:	yes (wireless)		
Measuring cycle *:	1 s to 24 h	**Storage temperature:**	-20 to +50 °C (standard version). -40 to +85 °C (version with extended temperature range)
Interfaces:	USB for supply and update		

Standard equipment:
Display: 3 LEDs
Keypad: foil keypad
Memory: 20 kB memory, storage capacity up to 2500 measured values (sum of all channels)

Date and time-of-day: clock synchronization via data logger ALMEMO® 470-1

Power supply:
Rechargeable battery: 2 rechargeable NiMH batteries AA (1900 mAh)
Operating time with rechargeable battery:
depends on the measuring cycle, for a measuring cycle > 1 hour Operating time up to one year applicable for nominal temp. (22°C +/- 2K), depends on the batteries capacity

Housing:
Protection class: (with sensor)
FH 1746-1C4 IP54
FH 1746-1C2VR1 IP20
Dimensions: (without mount)
FH 1746-1C4 43 x 135+30* x 21 mm (WxHxD). (*filter cap)
FH 1746-1C2VR1 43 x 135+50* x 21+50* mm (WxHxD). (*sensor tube)
FH 1746-1C2VR2 43 x 135+40* x 21+100* mm (WxHxD). (*sensor tube)
Weight: approx. 0.1 kg (including rechargeable batteries)

* depending on the number of data logged with the data logger ALMEMO® 470-1 connected wireless sensors

Standard delivery

Order no.

Wireless ALMEMO® sensor with multi-sensor module for humidity, temperature and atmospheric pressure. Ring memory, integrated rechargeable battery.

Straight sensor version, with protective cap PTFE. Standard version.	**FH17461C4**
Straight sensor version, with extended operating temperature range.	**FH17461C4HT**
Digital replacement multi-sensor module for humidity, temperature and atmospheric pressure (adjusted, pluggable) for FH 1746-1C4	**FH0D46C**
Angled sensor version, with short angled sensor tube, slotted sensor cover.	**FH17461C2VR1**
Angled sensor version, with long angled sensor tube, slotted sensor cover.	**FH17461C2VR2**
Digital replacement multi-sensor module for humidity, temperature and atmospheric pressure (adjusted, pluggable) enclosed in slotted sensor cover for FH 1746-1C2x	**FH0D46C2**

DAkkS or works calibration KH9xxx, humidity, temperature and KD92xx, atmospheric pressure, for digital sensors (see chapter „Calibration certificates"). DAkkS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025

Wireless ALMEMO® interface ZA 1770-1IF

Technical data

Measuring input:	1 ALMEMO® socket for ALMEMO® D7 sensors	**Power supply:**	
		Rechargeable battery:	2 rechargeable NiMH batteries AA (1900 mAh)
Channels:	up to 10 measuring channels	Operating time with rechargeable battery:	
Accuracy:	see specifications of the ALMEMO® D7 sensor		depends on current consumption of the ALMEMO® D7 sensor and the measuring cycle
Galvanic isolation:	yes (wireless)		
Sensor supply:	6 V, 30 mA (operated with rechargeable battery or with mains adapter)	Mains adapter:	ZB 1505-NA1 100 to 240 VAC to 5 VDC, 1 A, galvanically isolated, via micro USB
Measuring cycle*:	1 s to 24 h	**Operating temperature:**	-5 to +50 °C
Interfaces:	USB for supply and update	**Storage temperature:**	-20 to +50 °C
Standard equipment:		**Housing:**	
Display:	3 LEDs	Protection class:	IP50
Keypad:	foil keypad	Dimension:	43 x 135 x 21 mm (WxHxD) (without mount)
Memory:	20 kB memory, storage capacity up to 2000 measured values (sum of all channels)	Weight:	ca. 0.1 kg (including rechargeable batteries)
Date and time-of-day:	clock synchronization via data logger ALMEMO® 470-1		

* depending on the number of data logged with the data logger ALMEMO® 470-1 connected wireless sensors

Standard delivery
Order no.

Wireless ALMEMO® Interface with 1 ALMEMO® input socket for 1 ALMEMO® D7 sensor.
Ring memory, integrated rechargeable battery.

ZA17701IF

Accessories for wireless ALMEMO® sensor and wireless ALMEMO® interface
Order no.

For battery charge respectively permanent supply:
Switch-mode power supply / connector version, 100 to 240 V AC / 5 V DC including cable with micro USB plug — **ZB1505NA1**
Wall mount: mounting plate (including magnet). Dimension: 35 x 50 mm (WxH). — **ZB9700WH**
Suction cup fastening: 2 suction cups with mount (including magnet). Dimension: approx. 50 x 110 mm (WxH). — **ZB9700SH**
Magnet mount: round magnet (including fastening screw). Dimension: Ø 31 mm. — **ZB9700MH**
Rope to hang the housing. — **ZB9700TB**

Magnet mount   Mounting plate   Suction cup fastening