

## Operating instructions

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## ALMEMO® Bluetooth sensor link ZA1719-BT1XS and ZA1719-BT1XFM

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### 1. OPERATING CONTROLS



#### Sensor link ZA 1719-BT1XFV

comprising:

##### (1) Slave module ZA1719-BT1XS

Dark grey plug housing

**to be plugged in at socket A1  
on the sensor device**

##### (2) Sensor module ZA1719B1XFM

Light / dark gray plug housing

**to be plugged in at any sensor  
socket Mx on an ALMEMO®  
data logger**

#### Signal lights:

Green LED:	Power supply
Yellow LED:	Connection status
Flashing:	Search
Permanent:	Connected

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### 3. GENERAL

We should like to congratulate you on your purchase of these innovative ALMEMO® Bluetooth modules. The wireless system in particular stands out by virtue of its excellent specifications. Thanks to its power amplifier and active antenna it provides an especially wide operating range (up to 300 meters free field). These modules are preconfigured with a paired PIN code; as soon as they are connected to a measuring instrument used for data acquisition and recording or to a data logger used for saving measured values, a wireless link is established. You are strongly advised to take the time to carefully read these operating instructions and to properly familiarize yourself with the system's numerous functions and features. This is the best way to avoid operating errors and prevent damage to these devices. To help you find answers to your questions as quickly and easily as possible an index is provided at the end of these instructions and at the end of the Manual.

#### 3.1 Warranty

Each and every device, before leaving our factory, undergoes numerous quality tests. We provide a guarantee, lasting two years from delivery date, that your device will function trouble-free. In the unlikely event that a device does prove defective and you need to return it, please wherever possible use the original packaging materials for dispatch and enclose a clear and informative description of the fault and of the conditions in which it occurs.

This guarantee will not apply in the following circumstances:

- Any form of unauthorized tampering or alteration inside the device
- Use of the device in environments or conditions for which it is not suited
- Use of the device with an unsuitable power supply and / or in conjunction with unsuitable peripheral equipment
- Use of the device for any purpose other than that for which it is intended
- Damage caused by electrostatic discharge or lightning
- Failure to properly observe these operating instructions

The manufacturer reserves the right to change the product's characteristics in the light of technical progress or to benefit from the introduction of new components.

#### 3.2 Standard delivery

When you unpack the components check carefully for any signs of transport damage and ensure that delivery is complete:

ZA 1719-BT1XFV	ALMEMO® Bluetooth sensor link ZA1719-BT1XFV, comprising ALMEMO® Bluetooth sensor module A1719-BT1XFM ALMEMO®-Bluetooth slave module A1719-BT1XS
Each with	These operating instructions, CD with AMR-Control software and various useful accessories

In the event of transport damage please retain the packaging material and inform your supplier immediately.

### 3.3 Waste disposal



This symbol means that the product is subject to European Union regulations covering segregated waste disposal. This applies both to the product itself and to any accessories marked with the same symbol. Disposal of any such item as unsorted domestic waste is strictly forbidden.

Batteries and rechargeable battery packs are special waste and must not be discarded as normal domestic waste.

Please dispose of packaging materials, plastics, and electronic components separately and in the proper manner.

## 4. SAFETY INSTRUCTIONS



**CAUTION** This sign is intended to warn the user of a risk of damage to the device.

The user should carefully read the operating instructions in order to avoid errors, damage to equipment, and even the risk of personal injury.

The device may only be opened by duly authorized and qualified service technicians.



**WARNING** This sign is intended to warn the user of a possibly life-threatening situation with risk of fatal injury through exposure to dangerously high voltage.

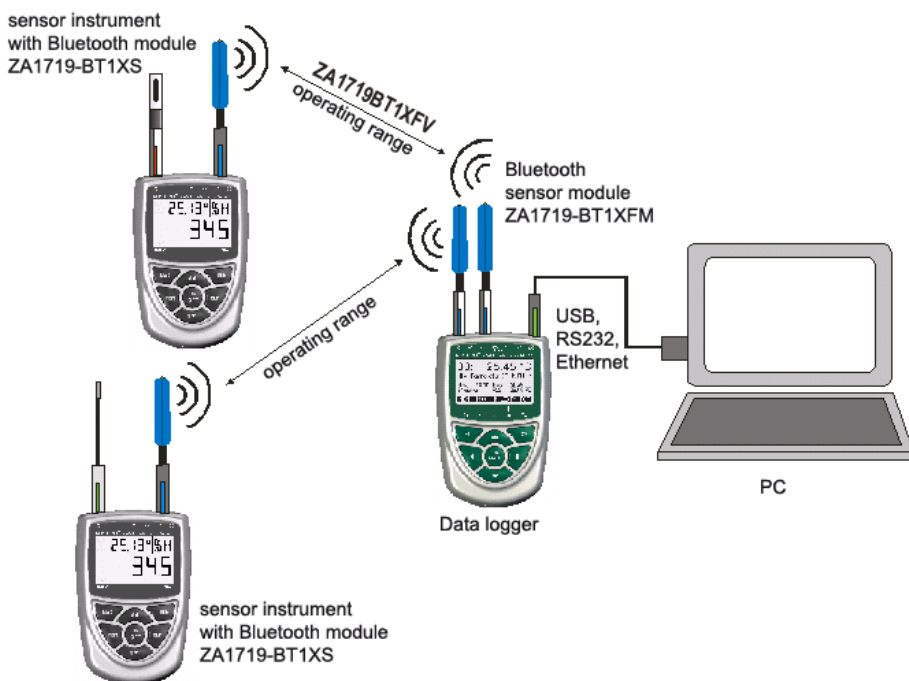
Before connecting any equipment to the power supply always ensure that the operating voltage is correct.

Please note that the device may be susceptible to damage by electrostatic discharge or lightning.

### 5. THE ALMEMO® BLUETOOTH SYSTEM

The new ALMEMO® Bluetooth system provides wireless networking of addressable ALMEMO® measuring instruments and a wireless sensor link from sensor devices with maximum 1 sensor with up to 4 channels to the sensor sockets on an ALMEMO® data logger. What you have purchased is a sensor link of this nature - ZA1719-BT1XFV; it comprises a Bluetooth slave module and a Bluetooth sensor module. The slave module should be connected to the sensor device; the sensor module should be connected to any sensor socket on the data logger. Or, alternatively, there is sensor link MA2790-BT1XFV; this incorporates a sensor device with an integrated Bluetooth module, which can even be run in energy-saving sleep mode. The number of wireless links that can be operated at the same time is virtually infinite; they cause no mutual interference. The two function modules are already paired; they do not need further configuration. The link is established automatically as soon as the device is plugged in or the operating voltages are switched on. A break in any such link automatically triggers an attempt to re-establish it.

#### Bluetooth sensor connection ZA1719BT1XFV



## 6. PUTTING INTO SERVICE

1. Connect Bluetooth slave module ZA 1719-BT1XS at interface socket A1 on the sensor device.
2. Connect Bluetooth sensor module ZA 1719-BT1XFM at sensor socket Mxx on the ALMEMO® data logger.
3. Switch on the sensor device and the data logger.
4. The green LEDs on the Bluetooth module should light up; this indicates that the power supply is correct.  
The yellow LEDs on the Bluetooth module should flash initially; this indicates that they are attempting to establish a wireless link.
5. The two yellow LEDs should then light up permanently; this indicates that the wireless link has been successfully established; and in the data logger the measured values from the sensor on the sensor device should then appear on the channels of the sensor module.

## 7. CONNECTING THE BLUETOOTH MODULES

Connect Bluetooth slave module ZA 1719-BT1XS (dark gray plug housing) at interface socket A1 on the sensor device. Basically any ALMEMO® measuring instrument can be used as sensor device; however, our own compact hand-held devices (ALMEMO® 2420, 2450, 2490) with just one sensor are especially suitable because only the measuring channels of the first sensor are transmitted to socket M0.



Care must be taken therefore to ensure that measuring channel M00 is selected and that the device address is set to G00. No measuring operation should be in progress.

Connect Bluetooth sensor module ZA 1719-BT1XFM (light / dark gray plug housing) at any sensor socket Mxx on the ALMEMO® data logger. The module appears in the measuring instrument as digital sensor with up to 4 measuring channels each with the DIGI range. Measuring point numbering depends on the socket to which the sensor module is connected. Scanning is performed at 10 measuring operations per second (mops). Measured value, units, designation, and limit values are taken from the sensor on the sensor device. Measured value correction and / or scaling are performed in the sensor device; in the data logger the associated parameters are deleted. The limit values can be evaluated by both these devices.

It is perfectly possible to operate several sensor links in parallel all on one or on different measuring instruments.



In so doing please note that inside buildings interior walls or other similar obstacles may cause the operating range to drop sharply.

### 8. POWER SUPPLY

The Bluetooth modules are powered via the measuring instruments. This voltage will correspond to the sensor voltage; it may be between 6 and 12 V. For prolonged operation the devices should wherever possible be powered from an external source.

### 9. TROUBLE-SHOOTING

If measured values from the sensor fail to reach the data logger, the cause is only very rarely a device defect; more usually it is incorrect operation by the user, an invalid setting, or unsuitable cabling. In such event try to pinpoint and clear the problem with the aid of the following tests.

**Error** Green LED on a Bluetooth module does not light up.

**Remedy** Check the power supply to the device concerned.

**Error** Yellow LED on a Bluetooth module does not stop flashing.

**Remedy** Wireless link has not yet been established.

The modules may be too far apart; also, inside a building, attenuation may be too high; try reducing the distance between modules; or try using a cable to connect the sensor module and re-aligning the wireless module. Switch the devices OFF and then back ON again.

**Error** Both yellow LEDs light up but data does not appear in the data logger.

**Remedy** In the sensor device ensure that measuring point M00 is selected.

In the sensor device ensure that device address 00 is set.

In the sensor device ensure that no measuring operation is in progress.

In the sensor device check whether the measured values are correct.

In the data logger check the channels for the socket to which the sensor module is connected

If, after performing the above-listed checks and remedial steps, a device still fails to behave as described in the operating instructions, it must be returned to our factory in Holzkirchen, accompanied by a brief explanatory note, error description, and if available test printouts. (see XREF) With the AMR-Control software you can print out screenshots showing the relevant programming and save and / or print out a comprehensive "Function test" in the device list or terminal mode.

## 10. DECLARATION OF CONFORMITY

Ahlborn Mess- und Regelungstechnik GmbH declares herewith that Bluetooth modules ZA 1719-BT1XS and ZA 1719-BT1XFM carry the CE label and comply in full with the requirements of EU directives relating to low voltage and to electromagnetic compatibility (EMC) (89/336/EWG).

The following standards have been applied in evaluating these products :

EMC: EN 61326: 2006



If a product is modified in any manner not agreed with us in advance, this declaration becomes void.

## 11. ANNEX

### 11.1 Technical data

Bluetooth	Class 1PA with active antenna
Protocol	SPP (sequence packet protocol) (128-bit encryption)
Operating range	approx. 300 meters free field, in buildings much less
Power supply	via ALMEMO® device
Current consumption	approx. 35 mA (9 V)
Transmission cycle	10 per second
Baud rate	115.2 kbaud
Module housing	(LxWxH) 61 x 30 x 12 mm; ABS PC GF; (-10 to +70 °C)
Cable length	only with type K approx. 1 meter
Suitable conditions	
Operating temperature	-10 to +50 °C; Storage temperature -20 to +60 °C
Ambient atm. humidity	10 to 90 % RH (non-condensing)

### 11.2 Product overview

Order. No.:

#### ALMEMO® Bluetooth sensor link

comprising plug-in slave module and sensor module, paired  
(i.e. ready-to-operate without further configuration)  
1 meter cable between ALMEMO® connector and module

ZA1719BT1XFV  
OA1719BK

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## 11.4 Your contact partner

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We reserve the right to make technical changes without advance notice.**