

ALMEMO® NETWORK TECHNOLOGY

ALMEMO® networking technology

The ALMEMO® system provides optimal support for networked, decentralized measured data acquisition. Measured data can be acquired locally on site using short sensor signal lines and small modular measuring instruments and can then be evaluated all together on a central computer. This not only minimizes wiring requirements but also goes a long way to solving EMC problems (especially if optic fiber cables are used).

Via the cascable interface provided by ALMEMO® devices it is possible, thanks to our ALMEMO® networking technology, to manage up to 100 ALMEMO® measuring instruments from just one computer. User-friendly software packages (see Chapter 6) are available for automatically scanning measuring points within the network, for evaluating the measured values, and for graphically representing results in line chart or bar chart form. This permits measuring setups in which devices can be used with such high operational reliability and with such great flexibility that even the most demanding measuring tasks can be solved.

For example:

- ▶ Data connection from the PC to ALMEMO® devices via USB, Ethernet, RS232, RS422, Bluetooth, GSM mobile communications, telephone modem, wireless modem
- ▶ Can be combined in a wide variety of ways via the output sockets A1 and A2 on the ALMEMO® measuring instrument
- ▶ Various networking arrangements can be implemented.
- ▶ Measuring instruments can be installed in separate rooms; considerable distances can be bridged.
- ▶ ALMEMO® devices / networks can be connected to the PC via an existing Ethernet network.
- ▶ **New** PC and devices can be connected over a wireless link using Bluetooth modules.
- ▶ Measured data can be acquired and also read out from the measured value memory on an ALMEMO® data logger - all online - using the WinControl software package



PC connection via USB
(over a wireless Bluetooth link, see page 05.03)

Inexpensive for relatively short distances (up to 5 m) several connections in parallel (star-configured network) for mobile use, e.g. notebook

Necessary component ZA 1919 DKU
see page 05.05



PC connection via Ethernet
(over a wireless Bluetooth link, see page 05.03)

Measured data acquisition, on a decentralized basis, using existing LAN cabling (bus networking), relatively long distances, via Internet worldwide.


Necessary component(s) ZA 1945 DK
see page 05.05



PC connection via RS232
(over a wireless Bluetooth link, see page 05.03)

Single connection via COM interface (also USB with converter), up to 15 meters, and with optic fiber up to 50 meters

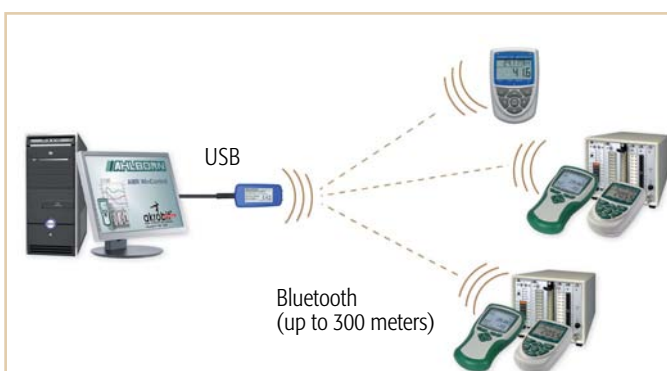
Necessary component ZA 1909 DK5
see page 05.05



Connection between ALMEMO® measuring instruments over ALMEMO® network cable
(over a wireless Bluetooth link, see page 05.03)

Inexpensive linear network solution, flexible, plug-and-play, easy to expand.

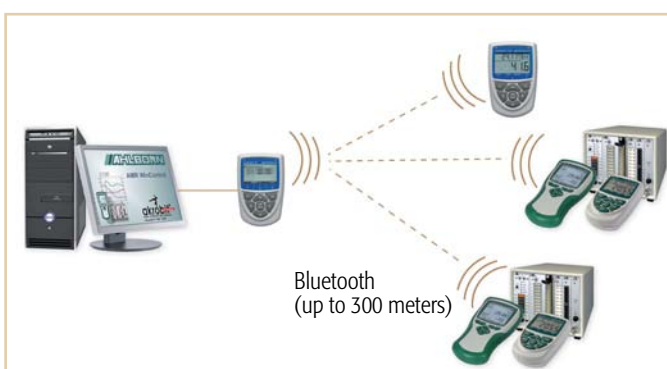
Necessary component ZA 1999 NK5
see page 05.06



Wireless Bluetooth link PC - USB

Inexpensive USB for mobile applications expandable for up to 7 ALMEMO® measuring instruments in parallel (star-configured network).

Necessary components
ZA1719BPVU,
ZA1719BT1XS or Bluetooth meas. instrument
MA2790BT1XS
see page 05.08



Wireless PC link with Bluetooth

Highly flexible irrespective of location expandable for up to 7 ALMEMO® measuring instruments in parallel (star-configured network) display and configuration of (multiple) connections via Bluetooth device CPU.

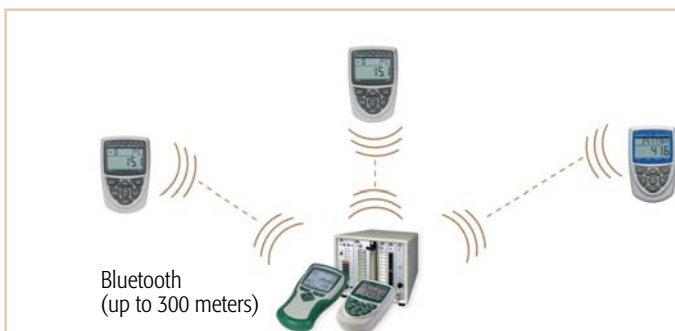
Necessary components
ZA2719BPVU or ZA2719BPVN
ZA1719BT1XS or Bluetooth meas. instrument
MA2790BT1XS
see page 05.09



Wireless Bluetooth link between ALMEMO® measuring instruments

For mobile networking highly flexible network topology (linear / star-configured network) all connections expandable for up to 7 ALMEMO® measuring instruments in parallel.

Necessary components
ZA1719BNV,
ZA1719BT1XS or Bluetooth meas. instrument
MA2790BT1XS
see page 05.10

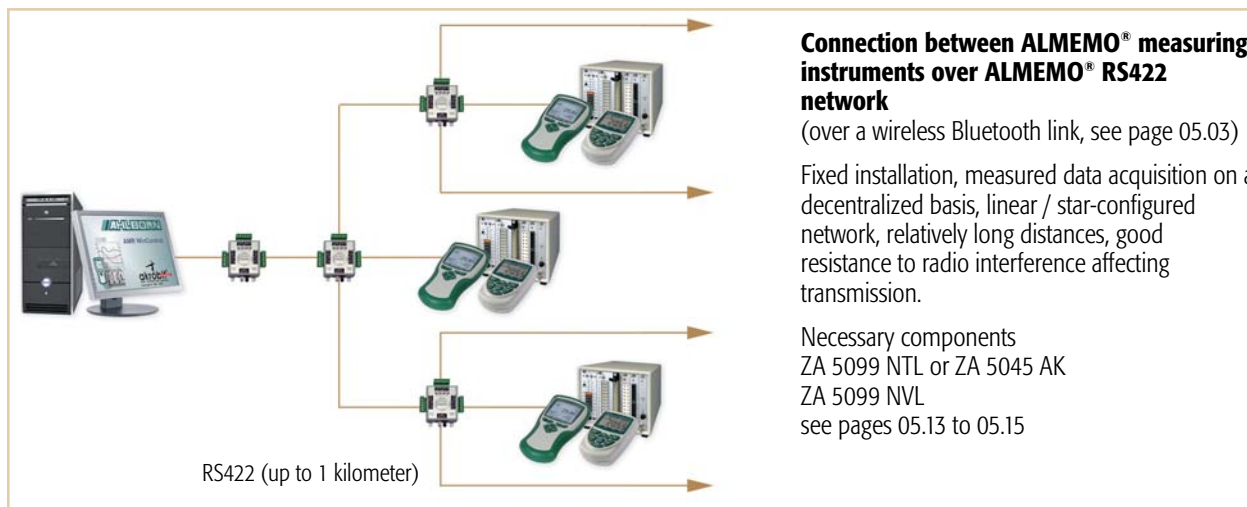


Wireless sensor connection via Bluetooth (ALMEMO® wireless sensor)

Single connection from a measuring ALMEMO device (wireless sensor) to a receiving ALMEMO device with display and saving of measured values (also without PC). Any number of sensor connections in parallel.

Necessary components
ZA1719BT1XFV or ZA2790BT1XFV
(with Bluetooth measuring instrument)
see page 05.12

ALMEMO® NETWORK TECHNOLOGY



ALMEMO® PC connection using USB data cable ZA 1919 DKU RS232 data cable, type ZA 1909 DK5, USB adapter cable ZB 1909 USB



- ▶ ALMEMO® USB data cable for data connection between an ALMEMO® device and a PC with a USB interface
- ▶ ALMEMO® RS232 data cable with a DSUB socket for data connection between an ALMEMO® device and a PC with a COM interface
- ▶ ALMEMO® optic fiber cable (RS232 or with adapter to USB) for absolute electrical isolation and extensive protection against lightning.

Types:

USB data cable, electrically isolated, maximum 115.2 kbaud, cable length 1.5 meters, including CD with Windows driver

as above but cable length 5 meters

RS232 data cable electrically isolated, max. 115.2 kbaud, Current consumption : approx. 1 mA Cable length : 1.5 m

As above, but cable lengths 5m / 10m / 15m

RS232 data cable with optic fiber, max. 115.2 kbaud, Cable length 1,5 m

Longer optic fiber (up to 50 m) for interiors, Duplex plastic 2.2 x 4.3mm, per meter

Converter, USB to RS232, 9-pin DSUB for ALMEMO® data cable ZA1909DKx, including WINDOWS driver

ZA1919DKU

ZA1919DKU-05

Order no. ZA1909DK5

Order no. ZA1909DK5-05 /-10 /-15

Order no. ZA1909DKL

Order no. LL2243L

Order no. ZB1909USB

ALMEMO® PC connection using Ethernet data cable ZA 1945 DK



Technical data

Ethernet	Socket RJ45 (10/100 base-T)
	Automatic switchover 10 / 100 MHz
ALMEMO®	ALMEMO® connector for socket A1 Baud rate standard 9600 bd, max. 115.2 kbd (can be changed via XPort-Installer and browser)
Power supply	12 V DC via measuring instrument (suitable mains supply unit recommended)
Current consumption	<60 mA (10 MHz), <90 mA (100 MHz)

- ▶ For connecting almost any ALMEMO® measuring instrument to an Ethernet PC network.
- ▶ Linking up to the Internet now possible.
- ▶ Terminal operation using our AMR-Control software, available free-of-charge.
- ▶ XPort-Installer configuration software also included on the AMR CD.
- ▶ Measured data acquisition via several Ethernet modules using our Win-Control software. (Version SW5600WC2 and above, see page 06.06)

Accessories

Patch cable RJ45, plug / plug, 2 meters

Order no. ZB 1904 PK2

Type :

Ethernet data cable, RJ45 socket on ALMEMO® connector, cable length 1.5 meters

Order no. ZA 1945-DK

ALMEMO® NETWORK TECHNOLOGY

ALMEMO® Network Interface Cables ZA 1999 NK5



- +
- The device network will be blocked if the measuring instrument fails to operate.
No further peripheral devices can be connected (analog output, alarm relay etc.).

Uses:

- ▶ Especially suitable for short distances and mobile measuring setups.
- ▶ Up to 100 ALMEMO® measuring instruments can be networked.

Advantages:

- ▶ Devices can be quickly and easily interconnected and networked.
- ▶ Low power consumption (approx. 1 mA) without additional power supply.
- ▶ You can easily assemble the network cable yourself, up to 50m in length, using just two single network connectors ZA1999FS5 (a couple) and one four-wire cable.

Types:

Network cable for cascading several devices for baud rates up to 57.6 kbaud
current loop, electrically isolated, 1.5 m long

As above, but cable lengths 5m / 10m / 15m

2 Network connectors (a couple) with screw terminals for local self-assembly

Order no. ZA1999NK5

Order no. ZA1999NK5 -05/-10/-15/-xx

Order no. ZA1999FS5

ALMEMO® Network Interface Cables with Fiber Optics ZA 1999 NKL



- +
- In the event of the measuring instrument failing, the network will be blocked.
No further peripheral devices can be connected, (analog output, alarm relays, etc.).

Uses:

- ▶ Especially suitable for safe and reliable data transmission in industrial environments with high levels of interference.
- ▶ Up to 10 ALMEMO® measuring instruments can be networked (at 9600 baud, double this number, if the transmission rate is halved).

Advantages:

- ▶ Devices can be quickly and easily interconnected and networked.
- ▶ No EMC problems, highest possible immunity to interference, absolute electrical isolation of the instruments - even under high voltages.
- ▶ No additional voltage supply is required.
- ▶ You can easily assemble the network cable with plastic optic fiber yourself, up to 50m in length, using just two single network connectors ZA1999FSL, without needing any special tools.

Types:

Network cable with optic fiber for cascading several devices 1.5 m long
for baud rates up to 57.6 kbaud

As above, but cable lengths 5m / 10m / 15m

Longer optic fiber cable for interiors, Duplex plastic 2.2 x 4.3 mm

Network connector with optic fiber converter for local self assembly

Order no. ZA1999NKL

Order no. ZA1999NKL -05/-10/-15/-xx

Order no. LL2243L (please specify length L)

Order no. ZA1999FSL

Wireless data links using ALMEMO® Bluetooth modules

new!

Various types of connection are possible

Wireless PC connection see page 05.08/05.09

Wireless connection from a PC with ALMEMO® Bluetooth CPU to up to 7 ALMEMO® measuring instruments each with Bluetooth slave

Wireless device connection see page 05.10

Wireless connection from an ALMEMO® measuring instrument with Bluetooth CPU to up to 7 ALMEMO® measuring instruments each with Bluetooth slave

Wireless sensor connection see page 05.12

Wireless sensor connection from a measuring ALMEMO® device with Bluetooth slave to the measuring input on a receiving ALMEMO® device with Bluetooth sensor module.

Up to 4 measuring channels can be transmitted per connection..

Common technical data

Bluetooth	Class 1 with active antenna
Protocol	SPP (sequence packet protocol) (128-bit encryption)
Operating range	300 meters (free field)*
ALMEMO® data rate	1200 baud up to 115.2 kbaud
Module housing	(LxWxH) 61 x 30 x 12 mm Polystyrene (-10 to +70 °C)
Cable length	for plug-in module with option OA1719BK Length = 1 meter

* Inside a building the operating range of the wireless link will be substantially lower.

Advantages of ALMEMO® connections using Bluetooth compared with other wireless technologies

- ▶ Bluetooth wireless technology is industrial standard in compliance with IEEE 802.15.1; it ensures high transmission reliability.
- ▶ The frequency hopping procedure used ensures robustness against interference. The Bluetooth partners move continually to and fro among the 79 wireless channels available.
- ▶ Any number of Bluetooth connections can operate in parallel with complete reliability.
- ▶ The multi-digit PIN code ensures that all Bluetooth participants are identified reliably and unequivocally.
- ▶ These links - once configured - will, as soon as the device is switched ON, be automatically setup - and, in the event of interruption, be automatically restored.
- ▶ One Bluetooth CPU supports up to 7 parallel connections to Bluetooth slaves.
- ▶ These powerful new Bluetooth class 1 wireless modules incorporate an integrated active antenna ensuring an especially wide operating range (up to 300 meters free field); there is no need for an extra antenna.

Common technical features

- ▶ Bluetooth links are supplied already paired, i.e. simply plug in and start measuring.
- ▶ In the event of interruption to the Bluetooth connection the USB / COM interface in the PC remains available for the software being used. For continuous monitoring purposes this ensures very high transmission reliability.
Advisory note : The Bluetooth links integrated in some laptops / PCs cannot be used for these purposes because in the event of interruption the operating system deactivates the COM interface and this must then be reactivated manually each time.
- ▶ Any ALMEMO® measuring instrument with a Bluetooth slave module connected can be used.
- ▶ Using the Bluetooth CPU on the PC or a plug-in Bluetooth CPU module on the ALMEMO® measuring instrument up to 7 measuring instruments with Bluetooth slave modules can participate in a star-configured network. Compared with paired single connections star-configured networking saves on additional master modules.
- ▶ To extend the operating range or raise the number of parallel connections further CPUs can be cascaded as repeaters or routers (increasing the switchover times for device scanning in the WinControl software).
- ▶ The plug-in module variant with a 1-meter cable can, in order to optimize the wireless link, be positioned away from the measuring instrument between the ALMEMO® connector and the module (option OA1719BK) and specially aligned (using Velcro fastener).
- ▶ All (multiple) connections can be configured end-to-end quickly and easily either with the AMR-Control software or on the Bluetooth device CPU via the display and keypad.
- ▶ To search through and select from all the available Bluetooth slave partners the user simply enters the appropriate PIN codes. The Bluetooth device CPU can also be configured fully automatically by simply plugging in the slave module; (pairing is performed automatically in an exchange of PIN codes and hardware addresses).

01/2011 We reserve the right to make technical changes.

ALMEMO® NETWORK TECHNOLOGY

new!

Wireless PC link with Bluetooth

Bluetooth USB CPU module ZA 1719 BCU

Wireless connection from a PC with ALMEMO® Bluetooth CPU to up to 7 ALMEMO® measuring instruments with Bluetooth slave



ZA 1719 BCU

ZA 1719 BT1XS

- Connection of the CPU module to the USB interface on a PC
- Connection of the plug-in slave module to socket A1 on an ALMEMO® device

Technical data

Common technical data see page 05.07

Cable	ZA1719BCU	Length = 1.5 meters
Voltage supply	ZA1719BCU	via USB interface on the PC
	ZA1719BT1XS	via ALMEMO® measuring instrument, approx. 35 mA (9 V)

Option for plug-in module ZA1719BT1XS

Cable between ALMEMO® connector and module

Length = 1 meter

Order no. OA1719BK

Variants

Paired wireless PC connection (USB) for 1 ALMEMO® measuring instrument (configured and ready-to-operate)

Bluetooth CPU module with USB (ZA1719BCU)
and plug-in Bluetooth slave module (ZA1719BT1XS)

Order no. ZA1719BPVU

Paired connection with Bluetooth measuring instrument ALMEMO® 2790 see page 05.11

Extension for multiple connections

Plug-in Bluetooth slave module for 1 ALMEMO® device
Bluetooth measuring instrument ALMEMO® 2790 see page 05.11

Order no. ZA1719BT1XS

new!

Wireless PC link with Bluetooth

Bluetooth device CPU ZA 2719 BC

Wireless connection from a PC with ALMEMO® Bluetooth CPU to up to 7 ALMEMO® measuring instruments with Bluetooth slave.



- Connection of the device CPU to the USB interface on a PC
Or, alternatively, an ALMEMO® data cable can be used (Ethernet, RS232, or RS422).
- Connection of the plug-in slave module to socket A1 on an ALMEMO® device

Display



Selection menu

main menu



device configuration

connecting menu

Technical features of the device CPU

Common technical features see page 05.07

- Modern, compact housing - also suitable for DIN top-hat rail mounting
- Graphic display - shows status of connections - can be illuminated
- All (multiple) connections can be configured end-to-end using the display and keypad.
- **Use as repeater**
This extends the operating range or raises the number of parallel connections. An ALMEMO® Bluetooth slave module is connected to socket A1 on the CPU. Power is supplied via a mains unit.

Technical data

Common technical data see page 05.07

ALMEMO® Bluetooth device CPU ZA 2719 BC

Display	Graphics display 128x64 (55x30mm)
Illumination	2 white LEDs
Keypad	7 silicone keys (of which 4 softkeys)
Housing	(LxWxH) 127 x 83 x 42 mm ABS (-10 to +70 °C) 290 g

Voltage supply ZA2719BC	with USB data cable ZA1919DKU5 via USB interface on the PC or with connector mains unit 12V 1A ZA1312NA8 or battery set (3 AA cells), approx. 40 mA (5 V)
ZA1719BT1XS	with illumination approx. 70 mA (5 V) via ALMEMO® measuring instrument approx. 35 mA (9 V)

Accessories for device CPU ZA2719BC:

Fixture for DIN rail mounting	Order no. ZB2490HS
Rubberized impact protection	Order no. ZB2490GS2

Option for plug-in module ZA1719BT1XS:

Cable between ALMEMO® connector and module Length = 1 meter	Order no. OA1719BK
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Variants

Paired wireless PC connection (USB) for 1 ALMEMO® measuring instrument (configured and ready-to-operate) comprising :
Bluetooth device CPU (ZA2719BC) including USB cable ZA1919DKU5
and plug-in Bluetooth slave module (ZA1719BT1XS)

Order no. ZA2719BPVU

Paired wireless PC connection for 1 ALMEMO® measuring instrument (configured and ready-to-operate) comprising :
Bluetooth device CPU (ZA2719BC) including connector mains unit ZA1312NA8 (without data cable)
and plug-in Bluetooth slave module (ZA1719BT1XS)

ALMEMO® RS232 data cable
ALMEMO® Ethernet data cable

Paired connection with Bluetooth measuring instrument ALMEMO® 2790 see page 05.11

Extension for multiple connections

Plug-in Bluetooth slave module for 1 ALMEMO® device
Bluetooth measuring instrument ALMEMO® 2790 see page 05.11

Order no. ZA1719BT1XS

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ALMEMO® NETWORK TECHNOLOGY

new!

Wireless device connection with Bluetooth

Wireless connection from an ALMEMO® measuring instrument with Bluetooth CPU to up to 7 ALMEMO® measuring instruments with Bluetooth slave.



ZA 1719 BC ZA 1719 BT1XS

- ▶ Connection of the plug-in CPU module to socket A2 on an ALMEMO® device
- ▶ Connection of the plug-in slave module to socket A1 on a second ALMEMO® device

Technical data

Common technical data see page 05.07

Voltage supply	
ZA1719BC	via ALMEMO® measuring instrument, approx. 20 mA (9 V)
ZA1719BT1XS	via ALMEMO® measuring instrument, approx. 35 mA (9 V)

Option for plug-in module ZA1719BT1XS:

Cable between ALMEMO® connector and module

Length = 1 meter

Order no. OA1719BK

Variants

Paired wireless device connection (configured and ready-to-operate) between 2 ALMEMO® measuring instruments comprising:

Plug-in Bluetooth CPU module (ZA1719BC)

and plug-in Bluetooth slave module (ZA1719BT1XS)

Paired connection with Bluetooth measuring instrument ALMEMO® 2790 see page 05.11

Order no. ZA1719BNV

Extension for multiple connections:

Plug-in Bluetooth slave module for 1 ALMEMO® device

Bluetooth measuring instrument ALMEMO® 2790 see page 05.11

Order no. ZA1719BT1XS

new!

Bluetooth measuring instrument ALMEMO® 2790 with integrated Bluetooth slave

Measuring instrument ALMEMO® 2790 operates as Bluetooth slave in an ALMEMO® Bluetooth network.
(connection to a CPU on a PC or on an ALMEMO® device)



ALMEMO® 2790
with Option T/RH

Technical features

- ▶ Modern, compact housing - also suitable for DIN top-hat rail mounting
- ▶ Generously dimensioned 2-row static 7 / 16 segment display including units
- ▶ Operating functions: Key locking with password, atmospheric pressure compensation, device address

Technical data

Measuring input	1 ALMEMO® input socket
A/D converter, measuring ranges, equipment, functions (except for 100 measured values memory)	
Housing	as for ALMEMO® 2490-1 see page 01.15 but :
Sensor supply	6 to 12 V (depending on the minimum sensor supply voltage programmed in the ALMEMO® connector) maximum 150 mA
Voltage supply	5 to 13 VDC not electrically isolated
Battery set	3 AA alkaline batteries
Current consumption	approx. 19 mA wireless (without sensor)
Bluetooth connection	Integrated slave module

Accessories:

Connector mains unit, 12 V, 1 A	Order no. ZA1312NA8
DC adapter cable 10 to 30 VDC	
12V / 0.25A, electrically isolated	Order no. ZA2690UK
DIN top hat rail mounting	Order no. ZB2490HS

Option:

Integrated temperature / humidity sensor (For technical data see FHAD462, page 09.09)	Order no. OA2790RHS
Integrated temperature sensor (not with option RHS)	Order no. OA2790TS
Integrated atmospheric pressure sensor (For technical data see FDAD12SA, page 11.12)	Order no. OA2790APS

Variants (including manufacturer's test certificate)

Bluetooth measuring instrument ALMEMO® 2790

1 measuring input, LCD screen, 7 keys, 1 ALMEMO® socket for mains unit / interface
Integrated Bluetooth slave, 3 AA alkaline batteries

Order no. MA2790BT1XS

Paired wireless connection (configured and ready-to-operate) from a Bluetooth CPU to Bluetooth measuring instrument ALMEMO® 2790

Paired PC connection (USB) see page 05.08 comprising :

Bluetooth CPU module with USB (ZA1719BCU)
and Bluetooth measuring instrument 2790 (MA2790BT1XS)

Order no. ZA1790BPVU

Paired PC connection (USB) see page 05.09 comprising :

Bluetooth device CPU (ZA2719BC) including USB cable ZA1919DKU5
and Bluetooth measuring instrument 2790 (ZA1719BT1XS)

Order no. ZA2790BPVU

Paired PC connection see page 05.09 comprising :

Bluetooth device CPU (ZA2719BC) including connector mains unit ZA1312NA8 (without data cable)
and Bluetooth measuring instrument 2790 (MA2790BT1XS)
ALMEMO® RS232 data cable

ALMEMO® Ethernet data cable

Order no. ZA2790BPVN

Order no. ZA1909DK5

Order no. ZA1945DK

Paired wireless device connection see page 05.10 comprising :

Plug-in Bluetooth CPU module (ZA1719BC)
and Bluetooth measuring instrument ALMEMO® 2790 (MA2790BT1XS)

Order no. ZA1790BNV

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ALMEMO® NETWORK TECHNOLOGY

new!

Wireless sensor connection with Bluetooth

Wireless sensor connection from a measuring ALMEMO® device with Bluetooth slave to the measuring input on a receiving ALMEMO® device with Bluetooth sensor module. Up to 4 measuring channels can be transmitted per connection. Any number of sensor connections can operate in parallel.



Sensor connection with plug-in slave module



ZA 1719 BT1XS ZA 1719 BT1XFM

- Connection of the plug-in slave module to socket A1 on the measuring ALMEMO® device
- Connection of the plug-in sensor module to input socket Mxx of a receiving ALMEMO® device

Technical data

Common technical data see page 05.07

Voltage supply	
ZA1719BT1XS	via ALMEMO® measuring instrument, approx. 35 mA (9 V)
ZA1719BT1XFM	via ALMEMO® measuring instrument, approx. 35 mA (9 V)

Option for plug-in module ZA1719BT1XFM/S:
Cable between ALMEMO® connector and module
Length = 1 meter Order no. OA1719BK

Variants

Paired wireless sensor connection (configured and ready-to-operate) with plug-in slave module comprising :
Plug-in Bluetooth slave module (ZA1719BT1XS) and plug-in Bluetooth sensor module (ZA1719BT1XFM)

Order no. ZA1719BT1XFV

Sensor connection with Bluetooth sensor measuring instrument ALMEMO® 2790 with integrated Bluetooth module



MA 2790 BT1XF



ALMEMO® 2790
with Option T/RH



ZA 1719 BT1XFS

Technical features

- Modern, compact housing - also suitable for DIN top-hat rail mounting
- Generously dimensioned 2-row static 7 / 16 segment display including units
- Operating functions : cycle, key locking with password, atmospheric pressure compensation
- Energy-saving sleep mode (cycle of 1 minute and above), up to 20,000 measuring operations per set of alkaline batteries.

Technical data

Measuring input	1 ALMEMO® input socket
A/D converter, measuring ranges, equipment, housing as for ALMEMO® 2490-1 see page 01.15, but	
Sensor supply	6 to 12 V (depending on the minimum sensor supply voltage programmed in the ALMEMO® connector) maximum 150 mA
Voltage supply	5 to 13 VDC not electrically isolated
Battery set	3 AA alkaline batteries
Current consumption	appr. 19 mA wireless (without sensor) approx. 30 mA in sleep mode approx. 0.1 mAh per meas. operation
ALMEMO® DC socket	for mains unit / interface
Bluetooth connection	Integrated slave module

Accessories

Connector mains unit, 12 V, 1 A	Order no. ZA1312NA8
DC adapter cable, 10 to 30 VDC, 12 V / 0.25A, electrically isolated	Order no. ZA2690UK
DIN top hat rail mounting	Order no. ZB2490HS

Option

Integrated temperature / humidity sensor (For technical data see FHAD462, page 09.09)	Order no. OA2790RH
Integrated temperature sensor (not with option RHS)	Order no. OA2790T
Integrated atmospheric pressure sensor (For technical data see FDAD12SA, page 11.12)	Order no. OA2790AP

Variants

Paired wireless sensor connection (configured and ready-to-operate) with Bluetooth sensor measuring instrument ALMEMO® 2790 comprising :

Bluetooth sensor measuring instrument ALMEMO® 2790, 1 measuring input, integrated Bluetooth, including 3 AA alkaline batteries (MA2790BT1XF) and plug-in Bluetooth sensor module (ZA1719BT1XFS)

Order no. ZA2790BT1XFV

RS422 network distributor ZA 5099 NVL

RS232 / RS422 network driver ZA 5099 NTL, Device / PC connection via optic fiber



Uses:

- ▶ Standard solution for stationary measuring setups in industrial environments.
- ▶ Suitable for relatively long distances, up to 1 km.
- ▶ Up to 100 ALMEMO® measuring instruments can be networked.

Advantages:

- ▶ Absolute electrical isolation of connected instruments - even under high voltages.
- ▶ Common mode interference on the transmission line is largely suppressed.
- ▶ Trouble-free implementation of branches and stub lines, directly inter-connectable, also as RS485 bus master.
- ▶ Easy to install - using a surface-mount housing, fastening brackets, and a screw terminal connector.
- ▶ Further peripheral devices can be connected to the ALMEMO® device, (analog output, alarm relays, etc.).

Technical Data:

Connection :

- ZA5099NVL: 3 x RS422, 4-wire, via terminal connector
1 x optic fiber cable, 1.5 m long via ALMEMO® connector to ALMEMO® device
- ZA5099NTL: 2 x RS422, 4-wire, via terminal connector
1 x RS232 optic fiber cable, 1.5 m long via 9-pin sub-D to the PC

Wiring arrangements: RS422, 4-wire
plus voltage supply, 2-wire data line,
(2 x 2 wires, duplicated) stranded in pairs

Max. line length: between two RS422 distributors,
1 km optic fiber cable to the ALMEMO®
device or PC, 50 m

Power supply: 10 to 12 V DC, via terminal connector

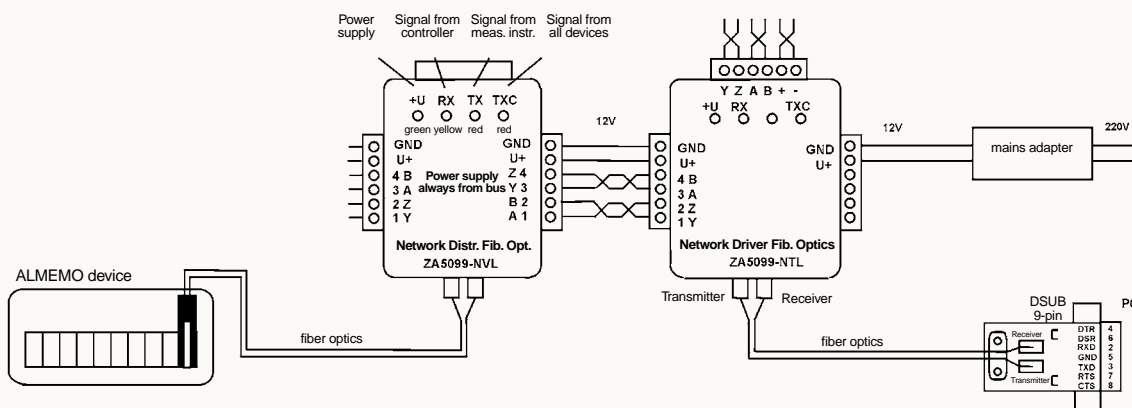
Current consumption: approx. 10 to 18 mA

Dimensions: L 71,5/90 x W 61,5/95 x H 30 mm



The distributor is supplied via the RS422 network or via its own mains power unit. The network remains functional - even when the ALMEMO® device is switched off or disconnected.

01/2011 We reserve the right to make technical changes.



Types:

RS422 network distributor, ALMEMO, device connection via optic fiber (length = 1.5 m),
Power supply via the mains supply unit

RS232 / RS422 network driver ZA5099NTL, computer connection via optic fiber (length = 1.5 m)
Power supply via the mains supply unit

Mains supply unit, 12 V DC / 1000 mA

Cable housing for ZA5099NVx (1 set = 3 pieces)

Data line 4 x 2 wires, stranded in pairs, per meter (power supply, 2 x 2 wires, duplicated)

Order no. ZA 5099 NVL

Order no. ZA 5099 NTL

Order no. ZB1012NA7

Order no. ZB5099KG

Order no. LD0042

AHLBORN
www.ahlborn.com

ALMEMO® NETWORK TECHNOLOGY

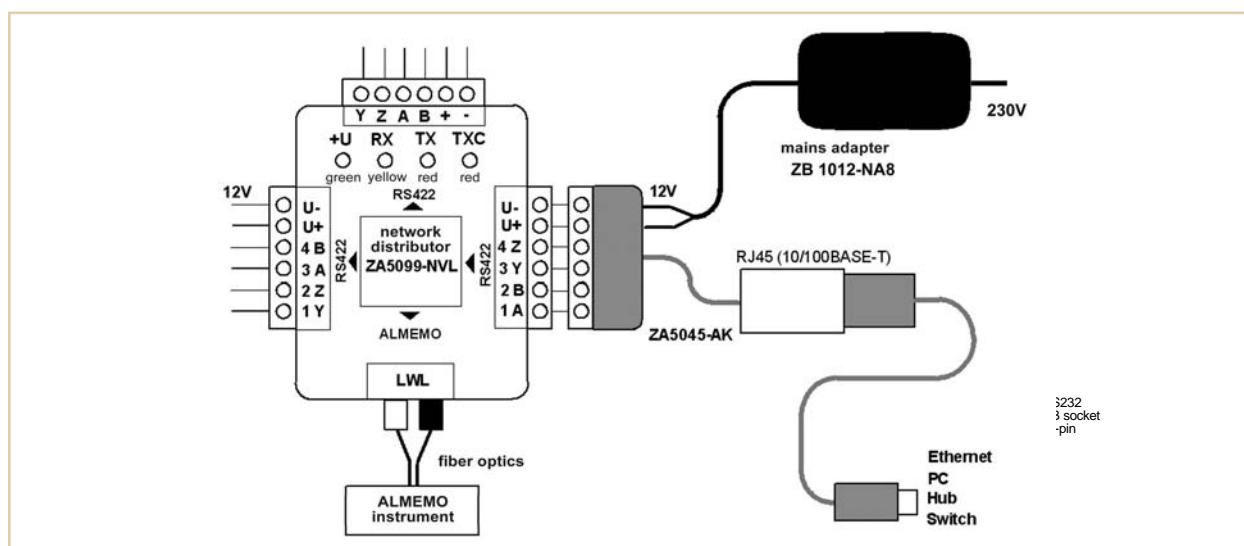
Ethernet network driver ZA 5045 AK



Technical data

Ethernet	Socket RJ45 (10/100 base-T) automatic switchover 10 / 100 MHz
RS422	6-pin screw terminal connector, 4-wire TX+, TX-, RX+, RX- and supply +12 V, -12 V; line length between driver and distributor, maximum 1 kilometer Baud rate maximum 115.2 kbaud
Power supply	9 to 12 V DC, <60 mA (10 MHz), <90 mA (100 MHz)

- ▶ Connection of all ALMEMO® networks to an Ethernet PC network.
- ▶ Linking up to the Internet now possible.
- ▶ Terminal operation using our AMR-Control software, available free-of-charge.
- ▶ Configuration software XPort/Device-Installer is also included on the AMR CD.
- ▶ Measured data acquisition using our WinControl software with the TCP/IP option and our AMR2ips diversion software; (see Chapter 06).
- ▶ Extension between driver and network distributor up to 1 kilometer now possible.
- ▶ Can also be used as RS485 bus driver.
- ▶ The driver in conjunction with network distributor ZA5099-NVL replaces previous Ethernet network distributor ZA5099-NVE.



Types :

Ethernet network driver, RJ45 to RS422, 4-wire
Mains adapter, 12 V DC, 1000 mA, with free ends, also for supplying other network distributors via the bus
Patch cable RJ45, plug / plug, 2 meters
Optic fiber network distributor RS422 to ALMEMO® optic fiber and 2 x RS422
Data line 4 x 2 wires, stranded in pairs, per meter (power supply, 2 x 2 wires, duplicated)
WinControl PC measuring software, AMR2ips diversion software; see Chapter 06

Order no. ZA5045AK

Order no. ZB1012NA7

Order no. ZB1904PK2

Order no. ZA5099NVL

Order no. LD0042

RS422 network distributor ZA 5099 NVB

RS232 / RS422 network driver ZA 5099 AS, device connection via screw terminals



Uses:

- Especially suitable for relatively long distances, up to 1 km, and for stationary measuring setups.
- Up to 100 ALMEMO® measuring instruments can be networked.

Advantages:

- Common mode interference on the transmission line is largely suppressed.
- Trouble-free implementation of branches and stub lines, directly inter-connectable, also as RS485 bus master.
- Easy to install - using a surface-mount housing, fastening brackets, and a screw terminal connector.
- Further peripheral devices can be connected to the ALMEMO® device, (analog output, alarm relays, etc.).

Technical Data:

Connection :

ZA5099NVB : 3 x RS422, 4-wire, via terminal connector
1 x cable, 1.5 m, via ALMEMO connector to the ALMEMO device

ZA5099AS : 1 x RS422, 4-wire, via terminal connector
1 x RS232, via 9-pin sub-D, to the PC

Wiring arrangements : RS422, 4-wire data line, stranded in pairs

Max. line length : between two RS422 distributors, 1 km

Power supply :

ZA5099NVB : via ALMEMO device (standard)

ZA5099AS : No external supply necessary

Current consumption : approx. 25 to 35 mA

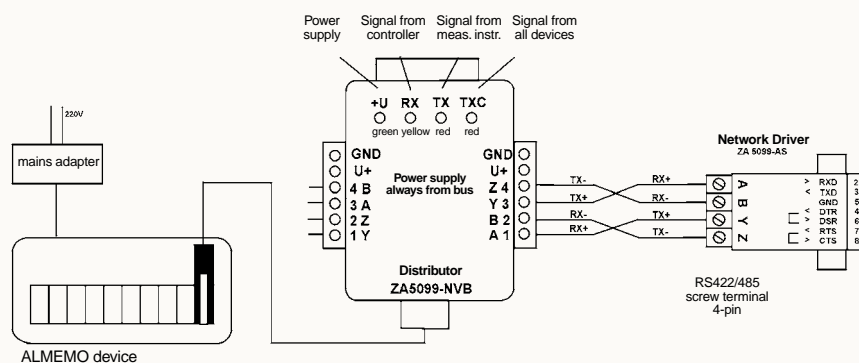
Dimensions :

ZA5099NVB : L 71,5/90 x W 61,5/95 x H 30 mm

ZA5099AS : L 50 x W 33 x H 16 mm



The power for the distributor is, as standard, supplied via the ALMEMO® device. The network is only functional when the ALMEMO® device is switched on. Alternatively, the power for the distributor can be supplied via the RS422 network or via its own mains power unit.



Types:

RS422 network distributor, ALMEMO device connection via cable (length = 1.5 m), Supply via ALMEMO device or via network (selectable by jumpers)

RS232 / RS422 network driver, can be connected directly to the computer

Mains supply unit, 12 V DC / 1000 mA

Cable housing for ZA5099NVx (1 set = 3 pieces)

Data line 4 x 2 wires, stranded in pairs, per meter (power supply, 2 x 2 wires, duplicated)

Order no. ZA5099NVB

Order no. ZA 5099 AS

Order no. ZB1012NA7

Order no. ZB5099KG


Order no. LD0042

ALMEMO® NETWORK TECHNOLOGY

GSM Mobile Radio Communications Modem ZA 1709 GSM



- Ideally suitable for tele-polling and tele-configuring ALMEMO® measuring instruments and networked measuring setups using the ALMEMO® system.

 On the PC side an analog modem (ZB1709M2) is required.

Types:

GSM mobile radio communications modem for connecting to ALMEMO® devices, including data cable ZA1909DK5, AS adapter connector, mains supply unit, manual, cable set, and installation material

Order no. ZA1709GSMOK

Technical Data:

Command control language:	AT-Hayes AT special commands for GSM (ETSI standard GSM 07.07/07.05)
Data transmission:	asynchronous
Transmitting power:	2W GSM class 4
Data rate:	max. 9600 baud (GSM standard)
Connection:	RS232 interface with 9-pin SUB-D socket
Power supply:	mains supply unit 230V AC or externally: 11 to 31V DC
Current consumption:	active mode, approx. 325 mA standby mode, approx. 47 mA
Operat. temperature:	-20 to +70°C
Storage temperature:	-20 to +55°C
Dimensions:	115 x 54 x 33mm
Weight:	130g

Accessories

Supply cable for ALMEMO® devices, DC voltage, 10 to 30 VDC, with 2 outputs :

- 12 VDC, 1 A, electrically isolated, with DIN hollow connector, for ALMEMO® 2890-9
- not electrically isolated, with RJ connector for GSM modem

Order no. ZB2590UKGSM

Fixed-line network telecommunications modem ZA 1709 MK2, ZB 1709 M2



- For analog standard line Telekom connection.
- Ideally suitable for remote inquiries and remote control of ALMEMO® measuring instruments and networked measurement setups with ALMEMO® system.
- Factory-preconfigured particularly for the ALMEMO® system.
- Fully automatic dial-up and call identification.

Types:

Fixed-line network telecommunications modem, 56K (similar to illustration) for connecting to ALMEMO® devices, including data cable ZA1909DK5, adapter connector ZA1709AS, telephone connection cable, and mains unit, including adaptation and testing


Order no. ZA1709MK2

Fixed-line network telecommunications modem, 56K for connecting to a PC, serial interface, telephone connection cable, including PC connecting cable and mains unit

Order no. ZB1709M2

Technical Data:

Command control language	AT Hayes
Data transmission	asynchronous
ALMEMO® baud rate	9600
Connection	socket, D-sub 9-pin (RS232)
Power supply	Connector mains unit, 230 V AC or external 9 to 30 V AC, 9 to 42 V DC
Power consumption	2.75 W typical
Operating temp.	0 to +50 °C
air humidity	0 to 80% RH, non-condensing
Dimensions	(HxWxD) 38 x 108 x 140 mm
CE conformance	as per technical requirements, R&TTE (radio and telecommunications terminal equipment) for all EU member countries and Switzerland, tested as per EN 55022, class B, EN 55024, EN 60950, TBR21, EG201-121

 Communication is only possible between analog modem, e.g. ZA1709MK2 and ZB1709M2 or PC card.

Wireless data link for particularly long distances, radio modem ZB 1709 FM5



- ▶ Wireless data link between ALMEMO® device and PC.
- ▶ Wireless networking between ALMEMO® devices, also possible in a star-configured network (broadcasting mode).
- ▶ The radio modem is already configured and easy to install.
- ▶ Frequency band 869 MHz, approved in many European countries.
- ▶ Wide range (up to 5 kilometers unobstructed) and reliable data transmission.
- ▶ The range can be increased using a directional antenna and repeater mode.

Technical data

Radio link	869.4 to 869.65 MHz, 500 mW (as per EN-300-220/1)
Radio data rate	19200 baud
Duty cycle	10% / hour (as per RegTP) (Regulierungsbehörde für Telekommunikation und Post, the German telecommunications and postal regulator)
Antenna connector	SMA socket
Range	up to 5 kilometers unobstructed
Connection	RS232, D-sub 9-pin, socket
ALMEMO® data rate	9600 baud
Power supply	10 to 30 V DC, 13 to 24 V AC
Current requirement	(at 12 V DC) quiescent current 80 mA, during radio operation, 350 mA
Operative range	-30 to +60 °C, 0 to 99% RH, non- condensing
Dimensions	110 x 185 x 30 mm, aluminum housing with DIN rail holder
EMC	EN 300 683, 89/336/EEC

01/2011 We reserve the right to make technical changes.

Types :

Radio link complete from ALMEMO® device to PC, with 2 radio modems, 2 rod antennas,
1 ALMEMO® data cable with 1 adapter to the radio modem, 1 PC connecting cable,
2 connector mains units

Order no. ZA1709FM5DK

Single positions :

Radio modem, 869 MHz, 500 mW, with RS232 interface
Rod antenna (up to 1 kilometer unobstructed), directional antenna available on request
ALMEMO® data cable
Adapter connector for the radio modem
PC connecting cable
Connector mains unit, 230 V AC, 12 V DC, 1000 mA

Order no. ZB1709FM5
Order no. ZB1709FMKA
Order no. ZA1909DK5
Order no. ZA1709AS
Order no. ZB1909DV9
Order no. ZB1012NA7