

ALMEMO® NETWORK TECHNOLOGY

Decentralized data acquisition consistently realized with the ALMEMO® system

The ALMEMO® system provides optimal support for networked, decentralized 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 the wiring requirements but also largely suppresses EMC problems (especially when using optic fiber cables).

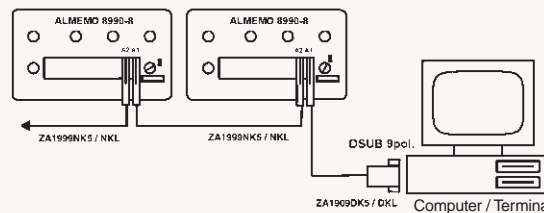
Via the cascadable interface and passive network cables or active distributors, one measuring computer can manage up to 100 ALMEMO® devices. User-friendly software packages (see Section 6) are available for automatically scanning measuring points within the network, for evaluating the measured values, and for graphically representing results in line chart or bar chart form.

This permits measuring setups with a high level of operating reliability and with such flexible use of the device technology that even the most demanding and sophisticated measuring tasks can be successfully solved, e.g.

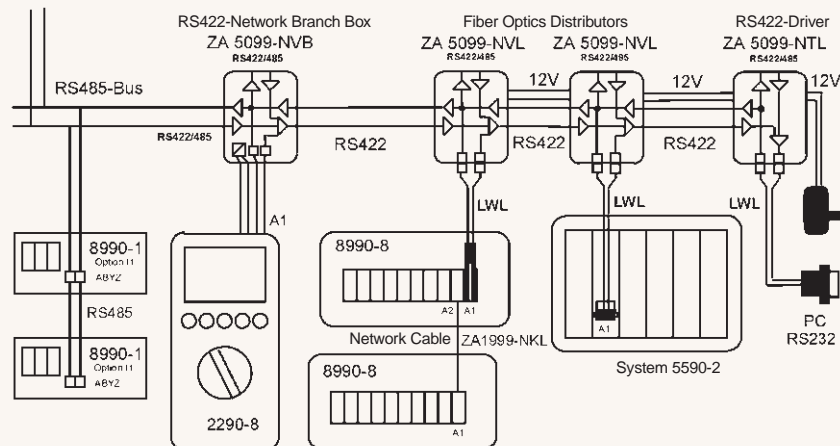
- ▶ evaluation via a measuring computer with an RS232 interface
 - ▶ interface conversion from RS232 to RS422
 - ▶ bridging of long distances of up to 1 km implementation of network branches
 - ▶ installation of measuring devices in separate rooms
 - ▶ direct connection of ALMEMO® measuring devices with an RS485 interface
 - ▶ ALMEMO® connections to industry standard interfaces
- We can, on request, supply customized modules for linking to Profibus, CAN-Bus, PLC S5 / S7.

Examples of Typical Applications

ALMEMO network cables for short distances and mobile measuring setups



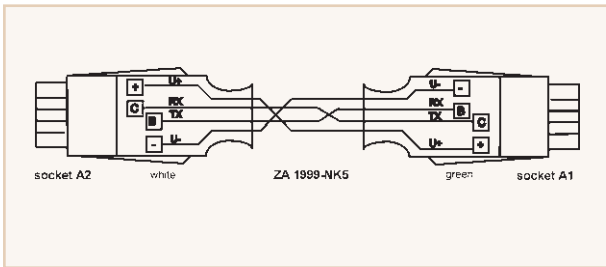
ALMEMO network RS422 / RS485 for longer distances and stationary measuring setups



Examples of typical applications describing all the many options provided by the ALMEMO® system for decentralized data acquisition would be beyond the scope of this catalog. Please ask for our ALMEMO® Manual. It will provide you with many valuable tips and a detailed description of our ALMEMO® network technology.

We shall, of course, provide you with competent, individual advice and support to help you solve your particular measuring tasks. Or you can arrange a date for a demonstration. Our experts will be pleased to visit you - to introduce and explain the numerous application options of the ALMEMO® system.

ALMEMO® Network Interface Cables Type ZA1999NK5



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.

👉 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.).

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

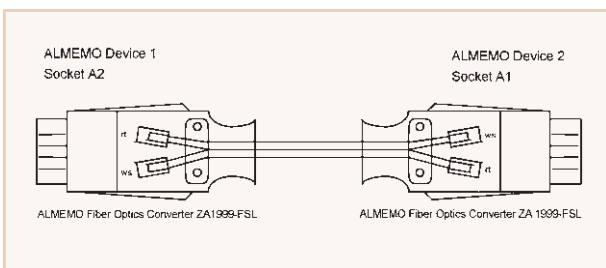
2 Network connectors (a couple) with screw terminals for local self-assembly

Order No. ZA1999NK5

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

Order No. ZA1999FS5

ALMEMO® Network Interface Cable with Fiber Optics Type ZA1999NKL



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.

👉 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.).

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

ALMEMO® NETWORK TECHNOLOGY

RS422 network distributor ZA5099NVL

RS232 / RS422 network driver ZA5099NTL, 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, stranded in pairs

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

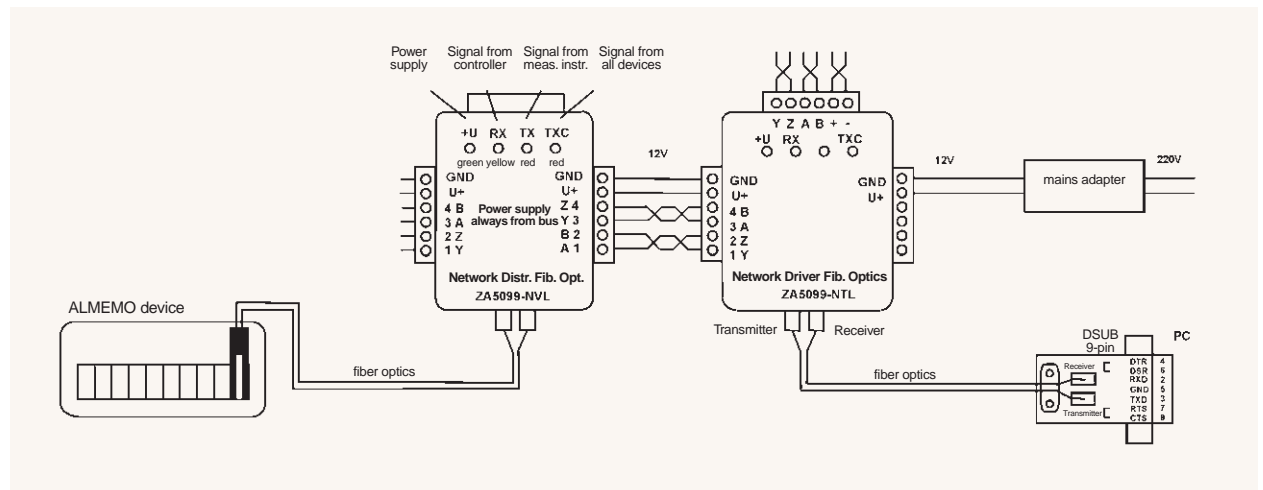
Power supply: 10 to 12 V DC, via terminal connector

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.



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 / 200 mA
- Cable housing for ZA5099NVx (1 set = 3 pieces)
- Data line 3 x 2 leads, stranded in pairs, per meter

Order no. ZA 5099 NVL

Order no. ZA 5099 NTL

Order no. ZB1012NA1

Order no. ZB5099KG

Order no. LD0032

ALMEMO® NETWORK TECHNOLOGY

RS422 network distributor ZA5099NVB RS232 / RS422 network driver ZA5099AS, 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.

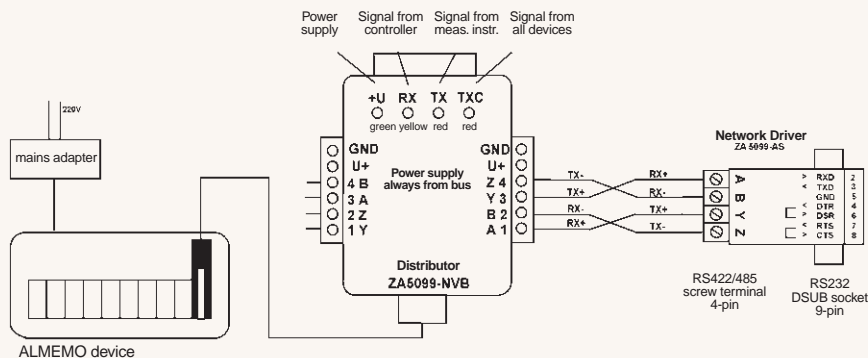
Advantages:

- ▶ 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.



Ausführungen:

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 / 200 mA
Cable housing for ZA5099NVx (1 set = 3 pieces)
Data line 3 x 2 leads, stranded in pairs, per meter

Order no. ZA5099NVB
Order no. ZA 5099 AS
Order no. ZB1012NA1
Order no. ZB5099KG
Order no. LD0032

03/2003 We reserve the right to make technical changes.

ALMEMO® NETWORK TECHNOLOGY

new!

Ethernet / RS422 network driver ZA5099NVE, device connection via optic fiber



Technical Data:

Connections :

- 2 x RS422, 4-wire, via terminal connector
- 1 x optic fiber cable, 1.5 m long via ALMEMO® connector to the ALMEMO® device
- 1 x Ethernet RJ45 (10BASE-T), (cable not included in delivery)

Wiring arrangements : RS422, 4-wire
(plus voltage supply, 2-wire, if necessary)
data line, stranded in pairs

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

Power supply : 10 to 12 V DC, via clamp connector,
Mains unit ZB1012NA2

Current consumption : approx. 250 mA

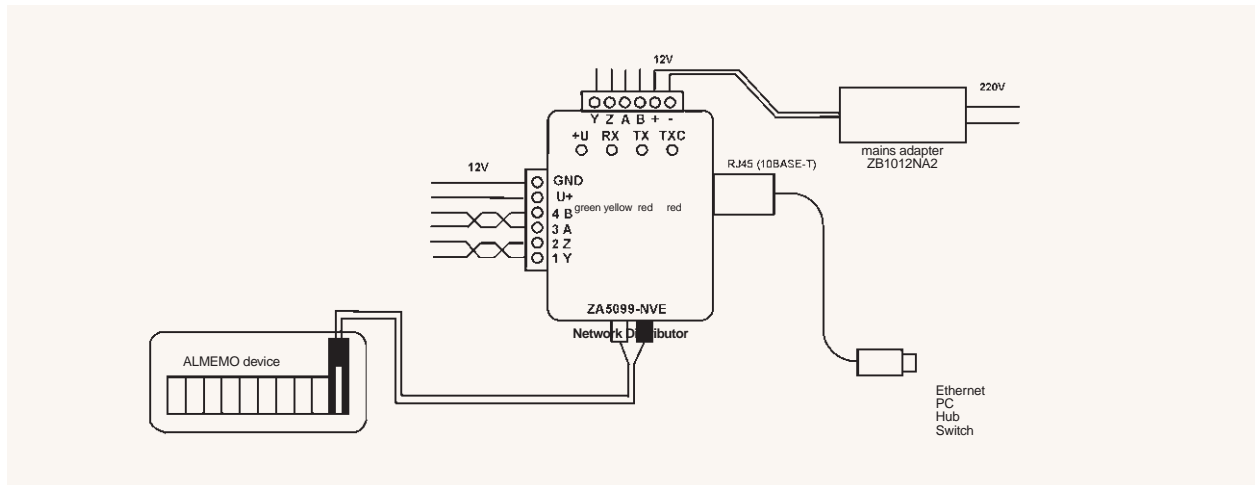
Dimensions: L 71,5/90 x W 61,5/95 x H 30 mm

Uses:

- ▶ Networking of decentralized ALMEMO® devices via an existing Ethernet PC network
- ▶ Linking up a complete ALMEMO® measuring network RS422

Advantages:

- ▶ No additional wiring necessary
- ▶ Safe and reliable transmission using the Ethernet standard
- ▶ Linking up via the worldwide Internet
- ▶ Combination with ALMEMO® devices linked via an existing PC to the Ethernet
- ▶ Use of the ALMEMO® PC software with the TCP/IP option and the diversion software AMR2ips (see Section 06, page 06.14)



Types:

Network driver Ethernet-RS422, input Ethernet RJ45, with connection for ALMEMO® device, optic fiber cable, 1.5 m long, Output 2 x RS422, including mains supply unit ZB1012NA
Cable housing for ZA5099NVx (1 set = 3 pieces)
Data line 3 x 2 leads, stranded in pairs, per meter
Patch cable, RJ45, plug-plug, Length = 2 meters
Patch cable, RJ45, plug-plug, Length = 5 meters
PC measuring software, see Section 06

- Order no. ZA5099NVE**
- Order no. ZB5099KG**
- Order no. LD0032**
- Order no. ZB1904PK2**
- Order no. ZB1904PK5**