

3.10 Cable Extension for ALMEMO® Sensors

Passive extension cables ZA9060VK, ZA9020VK (NiCr-Ni), up to 4 meters

Passive 8-pin extension cables with ALMEMO® connectors are available in lengths of 1, 2, and 4 meters (ZA 9060 VK1/2/4); these are suitable for all sensors (except thermocouples). For NiCr-Ni thermocouples special extension cables with an integrated compensation line are available (ZA 9020 VK1/2/4). The cable length between sensor connector and measuring instrument must not exceed four (4) meters; if this maximum length is exceeded, communications with the connector EEPROM may be adversely affected.



The **total length** of all passive extension cables connected to an ALMEMO® measuring instrument must not exceed four (4) meters. If the total length exceeds this, the device's internal data bus may, depending on environmental conditions, be subject to interference.

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If distances exceeding this really are necessary, then - instead of extension cables - longer sensor lines must be used. For this purpose the sensor connector must be detached, the sensor cable extended in the conventional way, and the connector then refitted to the end.

Intelligent extension cable ZA9090-VKC with RS485, length from 5 meters

If the sensor cable cannot be extended using a passive extension cable, it is still possible to use new intelligent extension cable ZA9090-VKC with microcontroller system for up to 100 meters. Two microcontrollers transmit EEPROM data from the sensor connector and measured data from digital sensors (DIGI) interference-free in both directions via RS485 and makes this data available for the measuring instrument. Sensors can thus be freely interchanged as and when necessary (e.g. calibrated sensors with correction values, multi-point calibration, or special linearization (ZAxxxxSS)).



These intelligent extension cables cannot be used for thermocouples or for sensors with frequency / pulse output (e.g. turbines / rotary vanes FVA915, frequency / pulse / rotational speed ZA-9909AKx / FUA9192, DC measuring module ZA99xx-AB).

Before connecting / disconnecting sensors or extension cables, the measuring instrument must have been switched off first.

If an extension cable is being used, operation in sleep mode is not possible.

It is not permitted to connect several extension cables in series.

Compared with the old ZA9060-VKC cable the new version almost doubles current consumption up to approx. 8 mA.

Active extension cable ZA9020VKP for thermocouple NiCr-Ni, length from 5 meters

If the thermocouple cable cannot be extended using a passive extension cable, it is still possible to use an active extension cable ZA9020VKP (NiCr-Ni). This cable incorporates an ALMEMO® plug with an integrated EEPROM for data storage; this is a copy of the sensor connector. A compensation line is used for the extension. The plug terminals are themselves made from thermo material.

If correction values or other sensor-specific settings have been programmed in the sensor connector (e.g. comments, average values, etc.), these must also be programmed (being a copy) in the ALMEMO® plug on the extension cable. The active extension cable is then sensor-specific.

Cable laying

When routing and laying long sensor cables care must be taken to ensure that connection lines are not laid in the vicinity of solenoid valves, contactors, or motors nor alongside supply lines to such devices. Connection lines should wherever possible be kept as short as possible and be of sufficient cross-section. Electromagnetic interference can be avoided by using twisted wiring or by laying cables in steel tubes; electrostatic interference can be avoided mainly by using shielded cables. The metal braid must be connected to terminal A at the measuring input. Connection to protective ground is not always advisable because in industrial environments even the ground lead may be subject to high interference voltage peaks.