Input connectors and adapter cables

Content

Input connectors and adapter cables

ALMEMO® Input connectors

The intelligent ALMEMO® input connector turns every measuring setup into an exceptionally flexible measuring system. Instead of preconfigured ALMEMO® sensors you can take your own existing sensors. We supply ALMEMO® plugs specially pre-programmed for this purpose with the necessary sensor parameters and the appropriate measuring range. These plugs have six screw terminals and can be easily and conveniently connected.

All devices and plugs offer the following functions:

- Each measuring point can be assigned a specific designation
- Sensor signals can be scaled
- Measured values can be corrected for zero-point and gain

Several measuring instruments offer the following options with the ALMEMO® plug:

- Multi-point calibration data can be saved in the plug.
- User-defined linearization with up to 30 points can be programmed in the plug.
- Control points with actual / setpoint value can be entered easily via the AMR-Control software.
- Any special measuring ranges programmed in the plug can be processed.
- Calibration schedules can be managed in the plug and are detected automatically
- The plug`s exact designation can be called up.

The overall performance quality and the already high level of precision provided by ALMEMO® measuring technology is thus raised even further.

New: Digital ALMEMO® D6- and D7-plugs

Numerous analog sensors and measurable variables can be digitized via the digital ALMEMO® D6 and D7 plugs. Thus, the ALMEMO® system is open for any desired extension of measured variables, measured values, and applications:

- Digital ALMEMO® D6 and D7 plugs enable new measuring ranges and linearization independent of the ALMEMO® device.
- The overall accuracy of the digital ALMEMO® sensor is independent from the ALMEMO® display device / data logger and from the extension cables used. The complete measuring chain, consisting of sensor and connected ALMEMO® D6 or D7 plug (with integrated A/D converter), is calibrated (DAkkS / factory) and can be replaced or exchanged as and whenever necessary.
- The pluggable digital extension cables (see chapter General accessories) provide high transmission reliability.

New: Digital ALMEMO® D7-measurement plugs: Special applications / features

Important! ALMEMO® D7 measurement plugs can only be connected to ALMEMO® measuring instruments of the V7 generation, i.a. ALMEMO® 500, ALMEMO® 710, ALMEMO® 809, ALMEMO® 202.

- Every ALMEMO® D7 plug features up to 10 display and function channels.
- Digital ALMEMO® D7 plugs enable high measuring speeds or a high level of precision. Thus these plugs can be used for a vast variety of measuring tasks
- The ALMEMO® D7 plug measures dynamic processes using the setting High Speed Measuring Options at high sampling rate. In case high resolution and stable values are needed (e.g. for accuracy transducers), the ALMEMO® D7 measurement plug measures with reduced sampling rate, if the setting High Resolution is selected.
- The digital ALMEMO® D7 measurement plug comes with an integrated A/D converter. The measuring rate is solely determined by the A/D converter. All D7 measurement plugs run in parallel on the ALMEMO® V7 measuring instrument with their own measuring rate. This makes it possible to obtain high measuring speeds.
- The measured values can be provided with a unit featuring up to 6 characters. To designate a sensor it is possible to program comments with up to 20 characters.
- The user can easily perform the configuration via the ALMEMO® V7 measuring instrument.

ALMEMO® multi-point adjustment for precisely correcting measuring chains

1. Individual sensor linearization

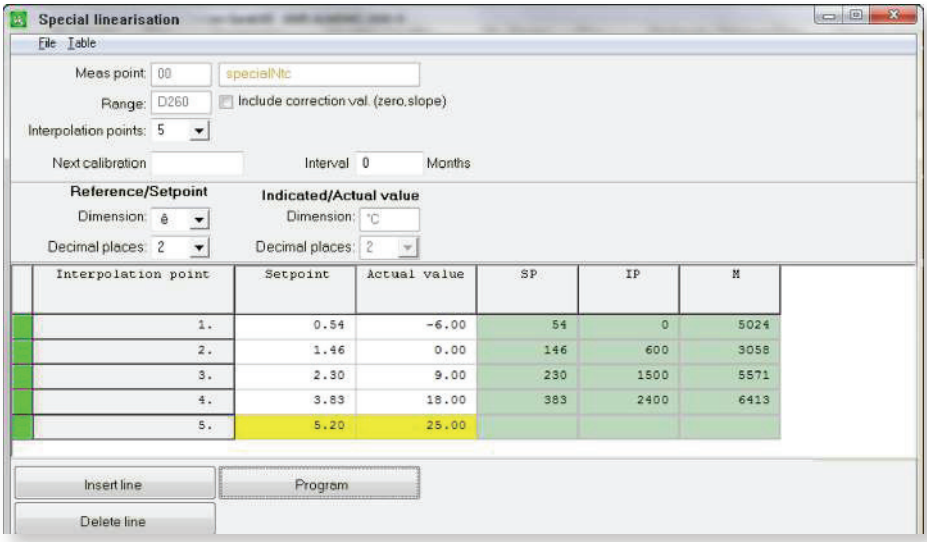
In addition to the sensor characteristics (e.g. range, dimension, scaling- and limit values, comments) it is now possible to save complete characteristic curves of a sensor in the ALMEMO® plug. This offers the great opportunity to connect also non-linear sensors to the ALMEMO® system whose linearizations (measuring ranges) are not saved to the device itself. Consequently, the variety of sensors compatible with ALMEMO® devices is immensely increased.

Usage

The user is able to carry out the special linearization by himself. By means of the free software ALMEMO® CONTROL a linearization table is converted to an interpolation table containing over 30 basic values and saved onto the ALMEMO® plug. Using the function "consider correction value zero and gradient" the linearization with the already pre-scaled readouts is carried out for a pre-scaled measuring range. This procedure requires an ALMEMO® device (e.g. ALMEMO® 2690-8) featuring the option "KL" (multi-point adjustment and special measuring ranges).

Sensor with non-linear port

ALMEMO® plug with 4K EEPROM. Correction values and sensor characteristics are saved to the plug.



Interpolation point	Setpoint	Actual value	SP	IP	M
1.	0.54	-6.00	54	0	5024
2.	1.46	0.00	146	600	3058
3.	2.30	9.00	230	1500	5571
4.	3.83	18.00	383	2400	6413
5.	5.20	25.00			

Measuring instrument ALMEMO® 2690-8 with programming option KL

ALMEMO® 2470

The linearization table programmed on the ALMEMO® plug can be saved as a file to the PC and additionally as an Excel table for archiving purposes. O course, it is possible to load the linearization table again from the archived file as well as from the ALMEMO® plug. Consequently, the user is able to access his special linearizations at all times.

Hand units from series ALMEMO® 2470, 2490 as well as 2590 are already able to process ALMEMO® plugs with a programmed characteristic curve as standard. Individual linearizations are possible in all measuring ranges of the ALMEMO® measuring instruments.

2. Maximum precision due to multi-point adjustment

Measurement deviations from a reference or a measurement standard, which were identified during the calibrating of the device, can be used to permanently correct a sensor or a measurement chain. In this case, we speak about adjustment.

To adjust a device, the readout of the measurement instrument (actual value) is as well as possible leveled to the reference value (setpoint) to obtain a correct readout. Measurement deviations concerning several measuring points are saved to the ALMEMO® plug as fine adjustment. In this way it is possible to significantly increase the measurement accuracy of e.g. inexpensive standard sensors.

Two-point adjustment

Sample table Two-point adjustment at 0°C and 100°C

(using the parameters ZPC = zero-point correction / SC = slope correction)
example given: ZPC = -0,20 / SC = 1.0010

Measuring range PT100 204 (-200.00°C to 400.00 °C)			
basic value	**setpoint**	**actual value**	**corrected value** (= readout on test device)
1. Start of meas. range	-200	-200	
2.	-20	-20.25	-20.07
3.	0.00	-0.20	0.00
4.	50.00	49.80	50.05
5.	100.00	99.75	100.00
6.	150.00	149.60	149.95
7. End of meas. range	400.00	400.00	

Readout values concerning zero point and slope are corrected.

Multi-point adjustment

Sample table multi-point adjustment at all five meas. points

Measuring range PT100 204 (-200.00°C to 400.00 °C)			
basic value	**setpoint**	**actual value**	**corrected value** (= readout on test device)
1. Start of meas. range	-200	-200	
2.	-20	-20.25	-20.00
3.	0.00	-0.20	0.00
4.	50.00	49.80	50.00
5.	100.00	99.75	100.00
6.	150.00	149.65	150.00
7. End of meas. range	400.00	400.00	

Multi-point adjustment allows to exactly correct the readout values to the reference values.

1. By default, a linear interpolation between the endpoints of the adjusted range and the device-specific upper and lower measuring range limits is carried out.
2. Optionally it is possible to disable any measurement outside the adjusted range (i.e. no incorrect measurements outside the adjusted range). The device will only signalize whether the result is exceeding or falling below the measurement range.

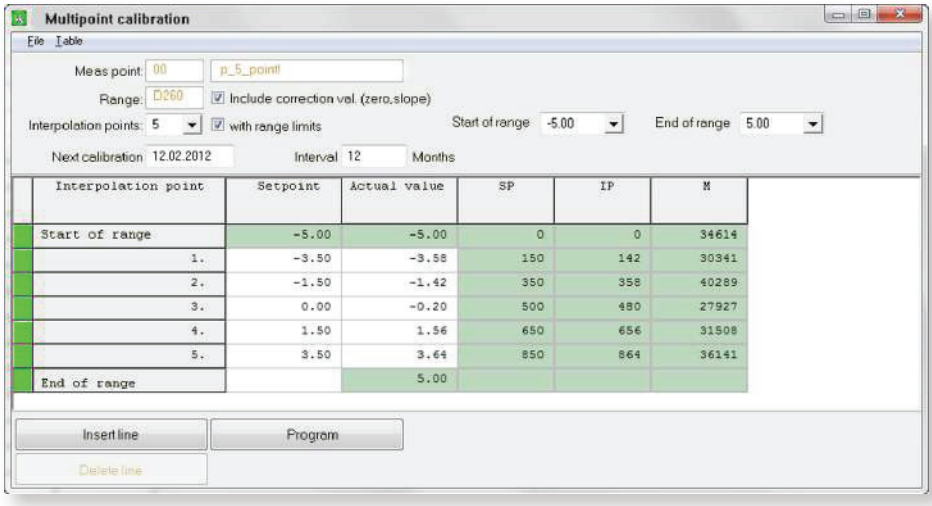
Input connectors and adapter cables

Usage
In case reference or correction values are available, the user can carry out the multi-point adjustment by himself. By means of the free software ALMEMO® CONTROL a correction table is converted to an interpolation table containing over 30 basic values and saved to the ALMEMO® plug. Using the function "consider correction value zero and gradient" the readouts of a pre-scaled sensor are corrected. This procedure requires an ALMEMO® device (e.g. ALMEMO® 2690-8) featuring the option "KL" (multi-point adjustment and special measuring ranges).

Sensor with multi-point adjustment

ALMEMO® plug with 4K EEPROM. Characteristic curve and sensor characteristics are saved to the plug

The correction table programmed on the ALMEMO® plug can be saved as a file to the PC and additionally as an Excel table for archiving purposes. Of course, it is possible to load the correction table again from the archived file as well as from the ALMEMO® plug. Consequently, the user is able to access his multi-point adjustments at all times.
Hand units from series ALMEMO® 2450, 2470, 2490 as well as 2590 are already able to process ALMEMO® plugs with a programmed multi-point adjustment as standard. For sensors that have special linearizations saved on the ALMEMO® plug, a multi-point adjustment is not possible.



Interpolation point	Setpoint	Actual value	SP	IP	M
Start of range	-5.00	-5.00	0	0	34614
1.	-3.50	-3.58	150	142	30341
2.	-1.50	-1.42	350	358	40289
3.	0.00	-0.20	500	480	27927
4.	1.50	1.56	650	656	31508
5.	3.50	3.64	850	864	36141
End of range		5.00			

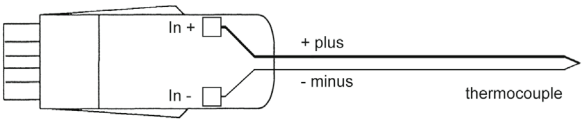
Measuring instrument ALMEMO® 710 a precision measuring instrument with touchscreen

Calibration
During the calibration of the ALMEMO® measuring technology, the sensor deviation is determined in every calibration point and saved as correction value to the ALMEMO® plug. The measured values for such multi-point adjusted sensors are then listed in the calibration certificate. Compared to the reference values, the identified sensor deviations are close to zero. Measurements within the calibrated interval can then be carried out with minor deviations. The measured value displayed on the ALMEMO® measuring instrument is the already corrected value and can be used directly. It is not necessary anymore to correct the displayed measured value on the basis of the calibration certificate.

Input connectors and adapter cables

Digital ALMEMO® D7 measuring connector for thermocouple sensors of type K, N, T, J, R, S, B, E

Measure dynamic temperature changes with up to 100 measurement operations per second.
One single connector for different thermocouple types (programmable).
Optimal linearization accuracy of the thermocouple characteristic by calculation methods as per the DIN IEC 584.
Increased accuracy thanks to multi-point adjustment of the thermocouple sensor during calibration. For current measuring instruments ALMEMO® V7, i.a. the precision measuring instruments ALMEMO® 710 or ALMEMO® 202.



Technical data and functions

- The digital ALMEMO® D7 measuring connector for thermocouples can be used for a variety of thermocouple types. Once connected, the thermocouple type is programmed via the ALMEMO® V7 measuring instrument.
- *new:* the range for thermocouple type E. For use at lowest temperatures.
- The thermocouple is connected via 2 screw terminals integrated in the measuring connector. Every measuring connector has an integrated temperature sensor directly in the screw terminals for measurement and automatic compensation of the cold junction temperature.
- The input of the ALMEMO® D7 measuring connector is galvanically isolated from the ALMEMO® V7 measuring instrument. Therefore the connected thermocouple sensor is galvanically isolated from the other connected ALMEMO® sensors as well.
- The digital ALMEMO® D7 measuring connector operates with its own integrated A/D converter. The linearization of the thermocouple characteristic is calculated using an error-free method in compliance with DIN IEC 584 (not an approximation).
- For measuring dynamic temperature changes, the ALMEMO® D7 measuring connector operates at a fast conversion rate. The measuring rate is determined exclusively by the integrated A/D converter.
- On the ALMEMO® V7 measuring instrument all D7 measuring connectors operate in parallel - each at its own measuring rate. The measuring instrument`s very short scan cycle is determined by the measuring rates of the D7measuring connectors - nearly irrespective of their number. The ALMEMO® V7 measuring instrument saves the measured values; the measuring software WinControl displays them graphically.
- The overall accuracy of the measuring operation is unaffected by the presence of an ALMEMO® V7 display device / data logger. In case the measuring chain - consisting of a thermocouple sensor and the connected ALMEMO® D7 measuring connector - is calibrated, the measuring chain can be connected to any ALMEMO® V7 measuring device without any additional measuring uncertainties.
- At constant ambient conditions, an increased system accuracy is achieved by calibrating the thermocouple sensor using multi-point adjustment.
- To designate a sensor it is possible to program comments with up to 20 characters.

Technial data

Sensor type:	Thermocouple type: K, N, T, J, R, S, B, E
Measuring input:	galvanically isolated, dielectric strength 50V
Measuring ranges:	K -200.0 to +1370.0 °C N -200.0 to +1300.0 °C J -210.0 to +1100.0 °C E -270.0 to +800.0 °C T -200.0 to +400.0 °C S -50.0 to +1760.0 °C R -50.0 to +1760.0 °C B +250.0 to +1820.0 °C K2 -200.00 to +1370.00 °C
Resolution:	0.1 K* respectively 0.01 K for measuring range K2
Conversion rate:	2.5*, 10, 50, 100 mops
Linearization	error-free calculation method (not an approximation)

System accuracy at conversion rate 10 mops:	
type K, K2, N, J, T	±0.2K ±0.02% of measured value
type E	±0.1K ±0.02% of measured value
type R, S, B	±0.8K ±0.02% of measured value
Temperature drift	0.003 %/K (30 ppm)
Cold junction compensation sensor:	NTC 10K at 25°C
Cold junction compensation effective in the range -10 °C to +60 °C:	-30°C to +100°C
System accuracy:	±0,2K ± 0,01K/°C
Nominal temperature:	23 °C ± 2 K
Operative range:	-10 to 60°C, 10 to 90 % RH. (non-condensing)
Supply voltage:	6, 9, 12 V from ALMEMO® device
Current consumption:	approx. 5 mA

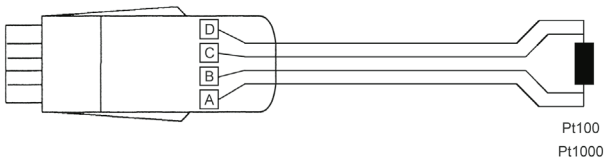
* Factory setting. The desired measuring range can be programmed on the ALMEMO® V7 device..

Types:	**Order no.**
ALMEMO® D7 measuring connector for thermocouples.Fast measuring rate. Integrated galvanic isolation.	**ZTD700FS**

Input connectors and adapter cables

Digital ALMEMO® D7 measuring connector for Pt100 / Pt1000 temperature sensor

High-level resolution of 0.01 K across the entire measuring range up to 850 °C
Linearization of the Pt100 / Pt1000 characteristic calculated error-free
Calibration with greater accuracy by subjecting the temperature sensor to multi-point adjustment
Only for latest ALMEMO® V7 measuring instruments, including ALMEMO® 500, 710, 809, 202.



The new ALMEMO® D7 measuring connector provides even greater precision!

Technical data and functions

- The digital ALMEMO® D7 measuring connector uses its own integrated A/D converter. It provides a high-level resolution of 0.01 K across the entire measuring range up to 850 °C. Linearization of the Pt100 / Pt1000 characteristic is calculated error-free in compliance with DIN IEC 751 (not an approximation).
- The overall accuracy of the measuring operation is unaffected by the presence of an ALMEMO® V7 display device / data logger. The whole measuring chain, comprising e.g. a Pt100 / Pt1000 sensor and the connected ALMEMO® D7 measuring connector, can be calibrated end-to-end. Calibration can be performed with greater accuracy by subjecting the temperature sensor to a process of multi-point adjustment.
- The measuring rate is determined entirely and exclusively by the integrated A/D converter. On the ALMEMO® V7 measuring instrument all D7 measuring connectors operate in parallel at their own measuring rate. The measuring instrument‘s very short scan cycle is determined by the measuring rates of the D7 measuring connectors - irrespective of their number.
- Sensor identification can be programmed with designations up to 20 characters in length.

Technical data

Sensor type	Pt100, 4 conductors or Pt1000, 4 conductors
Measuring input	electrically interconnected with the power supply (ALMEMO® device ground)
Measuring range	-200 to +850 °C
Resolution	0.01 K
Conversion rate	10 mops
Measuring current Pt100 Pt1000	 approx. 1 mA approx. 0.1 mA

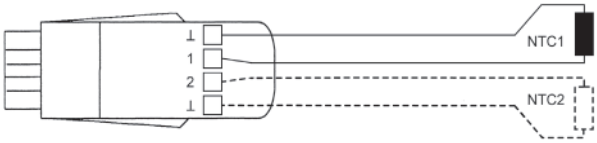
Linearization	calculated error-free (not an approximation)
Accuracy Pt100 Pt1000	 0.07 K +2 digits 0.08 K +2 digits
Nominal temperature	+22 °C ±2 K
Temperature drift	0.003 % / K (30 ppm) (resistance)
Operative range	-10 to +60 °C / 10 to 90 % RH (non-condensing)
Supply voltage	from 6 V up. from ALMEMO® device (sensor supply voltage)
Current consumption	approx. 9 mA

Types:

Type	Measuring range	Range	Resolution	Order no.
Pt100, 4 conductors	-200...+850 °C	DP04	0.01 K	**ZPD700FS**
Pt1000, 4 conductors	-200...+850 °C	DP14	0.01 K	**ZPD710FS**

Digital ALMEMO® D6 measuring connector for temperature sensors NTC

High levels of precision and resolution 0.001 K across measuring range -20 to +65 °C
Linearization of the NTC characteristic - calculated error-free using Galway Steinhart coefficients
Increased measured value accuracy - thanks to multi-point adjustment of the NTC sensor during calibration
For all ALMEMO® V6 and V7 measuring instruments, including ALMEMO® 2490 and ALMEMO® 202.



Technical data and functions

- The digital ALMEMO® D6 measuring connector uses its own integrated A/D converter. Linearization of the NTC characteristic is calculated error-free using the Galway Steinhart coefficients (not an approximation). Across measuring range -20 to +65 °C this produces the very high resolution of 0.001 K.
- The digital temperature sensor reaches this high level of precision irrespective of any extension cables used and of any processing in the ALMEMO® display device / data logger. Overall accuracy is determined exclusively by the NTC sensor and the ALMEMO® D6 measuring connector. This increased measured value accuracy is achieved by subjecting the NTC sensor to multi-point adjustment during calibration.

New:
With the ALMEMO® D6 measuring plug, customer-specific NTC sensors can be connected to the Almemo® system after the corresponding Steinhart-Hart coefficients have been configured via the sensor menu.
When using own sensors with 10 kOhm resistance at 25 °C, no additional adjustment of the connector is necessary (sensors with different resistance values on request).

Technical data

Sensor type	NTC type N
Measuring input	Electrically interconnected with the power supply (ALMEMO® device ground)
Measuring ranges	see variants
Resolution	see variants
Refresh rate	0.3 seconds for up to two channels
Linearization	Calculated error-free (not an approximation)

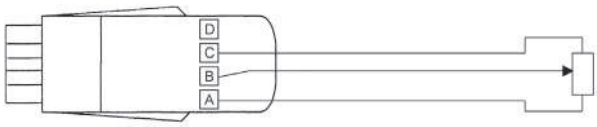
Accuracy	
Range DNtc / DNt2	±0.05 K at -50 to +100 °C
Range DNtc3	±0.02 K at -20 to +65 °C
Nominal temperature	23 °C ±2 K
Temperature drift	0.004 % / K (40 ppm)
Operative range	-10 to +60 °C, 10 to 90 % RH (non-condensing)
Supply voltage	from 6 V up, from ALMEMO® device (sensor supply voltage)
Current consumption	approx. 4 mA

Types:

Type / input	Measuring range	Range	Resolution	Order no.
NTC, 1 input	-50...+125 °C	DNtc	0.01 K	**ZAD040FS**
NTC, 2 inputs	-50...+125 °C	DNtc/DNt2	0.01 K	**ZAD040FS2**
NTC, 1 input	-20...+65 °C	DNt3	0.001 K	**ZAD040FS3**

Digital ALMEMO® D7 measuring connector for potentiometric sensors (displacement transducers, etc.)

For displacement transducers and other potentiometric sensors
High-speed measuring at 100 measuring operations per second (mops) and a resolution of 10,000 digits
Only for the latest ALMEMO® V7 measuring instruments, including ALMEMO® 500, 710, 809, 202.



This new, innovative ALMEMO® D7 measuring connector successfully combines high precision and high speed. The user can set the preferred configuration quickly and easily on the ALMEMO® V7 measuring instrument itself.

Technical data and functions

- The ALMEMO® D7 digital measuring connector operates with its own integrated A/D converter. Overall measuring accuracy is unaffected by the presence of an ALMEMO® V7 display device / data logger. The whole measuring chain, comprising e.g. a displacement transducer and the connected ALMEMO® D7 measuring connector, can be adjusted end-to-end.
- The measuring rate is determined exclusively by the integrated A/D converter. On the ALMEMO® V7 measuring instrument all D7 measuring connectors operate in parallel - each at its own measuring rate. The measuring instrument‘s very short scan cycle is determined by the measuring rates of the D7 measuring connectors - more or less irrespective of their number.
- For measuring dynamic processes the ALMEMO® D7 measuring connector operates at a fast conversion rate. The ALMEMO® V7 measuring instrument saves the measured values; the measuring software WinControl displays them in graphical form.
- The voltage drop is measured at the potentiometer. The 2-volt reference voltage is supplied via the ALMEMO® D7 plug.
- The sensor is scaled to the physical quantity (e.g. displacement in mm); this is performed via the ALMEMO® V7 device (on the device itself or using ALMEMO® Control software) - with zero-point adjustment and final value adjustment. The measured value‘s assigned units can be up to 6 characters in length. Sensor identification can be programmed with a comments text up to 20 characters in length.

Technical data

Sensor type	Potentiometer
Measuring input	Electrically connected to the power supply (ALMEMO® device ground)
Input range	-2 to +2 V
Display range	0.00 to 100.00 %
Resolution	0.01 %
Conversion rate	100 mops

Reference voltage	2 V
System accuracy	0.02 % ?*? ±2 digits
Nominal temperature	22 °C ±2 K
Temperature drift	0.003 % / K (30 ppm)
Operative range	-10 to +60 °C, 10 to 90 % RH (non-condensing)
Supply voltage	from 6 V up, via the ALMEMO® device itself (sensor supply)
Current consumption	approx. 8 mA (without sensor)

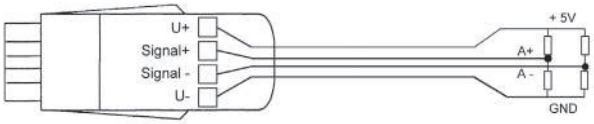
Types:

Type	Display range	Resolution	Order no.
Potentiometer	0...100 %	0.01 %	**ZWD700FS**

Input connectors and adapter cables

Digital ALMEMO® D7 measuring connector for bridge differential mV

For force transducers (tension / compression), torque transducers, or strain gauges
High-speed measuring at 1000 measuring operations per second (mops) and resolution 50,000 digits or high-level resolution at up to 200,000 digits and 10 mops
Only for latest ALMEMO® V7 measuring instruments, including ALMEMO® 500, 710, 809, 202.



The new ALMEMO® D7 measurement plug enables high measuring speeds or high measuring accuracy applicable for a vast variety of measuring tasks.
The user can select the preferred configuration quickly and easily on the ALMEMO® V7 measuring instrument itself.

Technical data and functions

- The digital ALMEMO® D7 measuring connector uses its own integrated A/D converter. The overall accuracy of the measuring operation is unaffected by the presence of an ALMEMO® V7 display device / data logger. The whole measuring chain, comprising e.g. a force transducer and the connected ALMEMO® D7 measuring connector, can be calibrated end-to-end.
- The measuring rate is determined entirely and exclusively by the integrated A/D converter. On the ALMEMO® V7 measuring instrument all D7 measuring connectors operate in parallel at their own measuring rate. The measuring instrument‘s very short scan cycle is determined by the measuring rates of the D7 measuring connectors - irrespective of their number.
- For measuring dynamic processes the ALMEMO® D7 measuring connector operates in the high-speed range at a fast conversion rate. The ALMEMO® V7 measuring instrument saves the measured values; the measuring software WinControl displays them in graphical form. If high-level resolution and stable values are required, e.g. precision transducers for force, the ALMEMO® D7 measuring connector operates in the „High-level resolution“ range but at a reduced conversion rate.
- Measurements are taken using a full bridge with a 4-conductor circuit. The bridge is powered from the ALMEMO® D7 plug.
- The sensor is scaled to its actual physical quantity (e.g. end value 1 kN with characteristic 2 mV / V); this is performed via the ALMEMO® V7 device (device itself or ALMEMO® Control software). - zero-point adjustment, - scaling of end value by entering characteristic mV / V or adjustment by loading the bridge with end value The assigned units can be up to 6 characters in length. Sensor identification can be programmed with designations up to 20 characters in length.

Technical data

Sensor type	Full bridge, 4 conductors
Measuring input	electrically interconnected with the power supply (ALMEMO® device ground)
Input range	-29.3 to +29.3 mV
Display range, Conversion rate,	see variants
Bridge power supply	5 V, self-calibrating with divider chain Accuracy 0.01 % Temperature drift 10 ppm / K

System accuracy	0.02 % +2 digits at 10 measurements / second
Nominal temperature	+22 °C ±2 K
Temperature drift	0.003 % / K (30 ppm)
Operative range	-10 to +60 °C / 10 to 90 % RH (non-condensing)
Supply voltage	from 6 V up. from ALMEMO® device (sensor supply voltage)
Current consumption	approx. 15 mA (without force transducer)

Types:

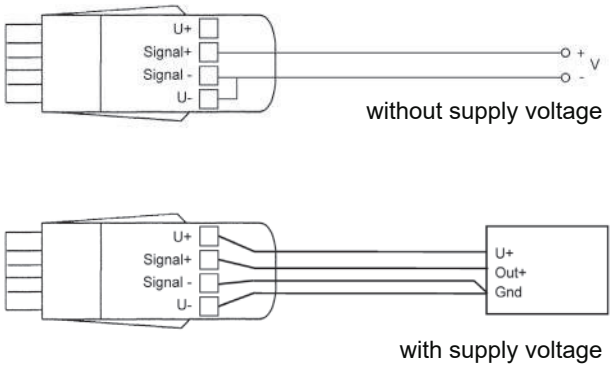
Range	Display range	Conversion rate	Order no.
DMS2*	±50 000 digits	1000 mops	**ZKD700FS**
or:			
DMS1	±200 000 digits	10 mops	

* Factory setting : The desired measuring range can be programmed on the ALMEMO® V7 device itself.

Input connectors and adapter cables

Digital ALMEMO® D7 measuring connector for DC voltage differential (volt) / DC current differential (mA)

Fast measuring rate, up to 1000 measuring operations per second (mops) at resolution up to 1 mV / 10 µA (2,000 digits) or High resolution up to 0.001 mV / 0.1 µA (200,000 digits) at 5 mops
Only for latest ALMEMO® V7 measuring instruments, including ALMEMO® 500, 710, 809, 202.



The new ALMEMO® D7 measurement plug enables high measuring speeds or high measuring accuracy applicable for a vast variety of measuring tasks.
The user can select the preferred configuration quickly and easily on the ALMEMO® V7 measuring instrument itself.

Technical data and functions

- The digital ALMEMO® D7 measuring connector uses its own integrated A/D converter. The overall accuracy of the measuring operation is unaffected by the presence of an ALMEMO® V7 display device / data logger. The measuring rate is determined entirely and exclusively by the integrated A/D converter. On the ALMEMO® V7 measuring instrument all D7 measuring connectors operate in parallel at their own measuring rate. The measuring instrument's very short scan cycle is determined by the measuring rates of the D7 measuring connectors - irrespective of their number.
- For measuring dynamic processes the ALMEMO® D7 measuring connector operates in the high-speed range at a fast conversion rate. The ALMEMO® V7 measuring instrument saves the measured values; the measuring software WinControl displays them in graphical form. If high-level resolution and stable values are required, e.g. precision transducers for pressure, the ALMEMO® D7 measuring connector operates in the high-resolution range but at a reduced conversion rate.
- Measuring transducers without their own mains unit and needing a power supply are powered from the ALMEMO® D7 plug. Each signal is scaled to its actual physical quantity (e.g. pressure 25 bar at voltage 10 volts); the assigned units can be up to 6 characters in length. Sensor identification can be programmed with designations up to 20 characters in length.

Technical data

Measuring input	electrically interconnected with the power supply (ALMEMO® device ground)
Measuring range	see variants
Conversion rate, resolution	see variants
Overload	see variants
Internal resistance	see variants
Input current	100 pA
System accuracy	0.02 % +2 digits at 5 measurements / second

Nominal temperature	+22 °C ±2 K
Temperature drift	0.003 % / K (30 ppm)
Operative range	-10 to +60 °C, 10 to 90 % RH (non-condensing)
Supply voltage	6 / 9 / 12 V, from ALMEMO® device (sensor supply voltage)
Current consumption	approx. 8 mA (without transducer)
Sensor supply	6 / 9 / 12 V, from ALMEMO® device ZED70xFSV15: 15 V, max. 50 mA at device voltage 12 V ZED70xFSV24: 24 V, max. 30 mA at device voltage 12 V

Accessories

	Order no.
Galvanic isolation up to 50 V for ALMEMO® D7 sensors. pluggable cabel, length = 0,2 m	**ZAD700GT**

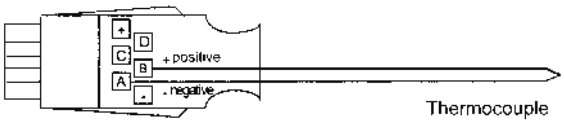
Input connectors and adapter cables

Types:

Measuring range	Resolution Conversion rate (mops)	Internal resistance	Overload	Order no.
-2.2...+2.2 Volt	0.01 mV, 5 mops* / 0.1 mV, 500 mops / 1 mV, 1000 mops	110 kOhm	±3 V	**ZED700FS**
-64...+64 mV -250...+250 mV*	0.001 mV, 5 mops*	5 GOhm	±2.8 V	**ZED700FS2**
-20...+20 Volt	0.1 mV, 5 mops* / 1 mV, 500 mops / 10 mV, 1000 mops	110 kOhm	±30 V	**ZED702FS** **ZED702FSV15**** **ZED702FSV24****
-60...+60 Volt	1 mV, 5 mops* / 10 mV, 500 mops / 10 mV, 1000 mops	103 kOhm	±60 V	**ZED702FS2**
-20...+20 mA	00.1 µA, 5 mops* / 1 µA, 500 mops / 10 µA, 1000 mops	100 Ohm	±28 mA	**ZED701FS** **ZED701FSV15**** **ZED701FSV24****

* Factory setting : The desired measuring range can be programmed on the ALMEMO® V7 device itself..
** Sensor supply see above: Technical data

ALMEMO® Connector for Thermocouple Types K, N, J, T



new: Digital ALMEMO® D7 measuring plug, see page 02.24

- One single plug for different thermocouple types (programmable).
- Fast measuring rate for dynamic temperature changes.
- Best linearization accuracy thanks to calculation methods.
- Calibrated sensor independent of the measuring instrument.
- Increased accuracy thanks to multi-point adjustment.

Variants (with thermal material)

Model	Meas. Range	Resolution	Order no.
NiCr-Ni (K)	–200.0 to +1370.0°C.	0.1 K	**ZA9020FS**
NiCroSil-NiSil (N)	–200.0 to +1300.0°C.	0.1 K	**ZA9021FSN**
Fe-CuNi (J)	–200.0 to +1000°C.	0.1 K	**ZA9021FSJ**
Cu-CuNi (T)	–200.0 to +400°C.	0.1 K	**ZA9021FST**

ALMEMO® measuring module for thermocouples, types K, J, T, electrically isolated, up to 1000 V Type ZAD 950 AB

- Electrically isolated measurement of thermocouples (in particular bare thermo-wire types) on live parts
- Digital transfer of measured values to the ALMEMO® measuring instrument
- Connecting cable, fitted with ALMEMO® plug

Technical data

Sensor	Thermocouple
Measuring range	
ZAD950ABK	NiCr-Ni (K) -200 to 1370 °C
ZAD950ABJ	Fe-CuNi (J) -200 to 1000 °C
ZAD950ABT	Cu-CuNi (T) -200 to 400 °C
Resolution	0.1 K
Linearization accuracy	±0.05 K ±0.05 % of measured value
Precision class	C (see page 01.05)
Measuring rate	2.5 measurements/sec.

Electrical isolation	1 kV DC/AC permanent, 4 kV for 1s
Sensor connection	4-mm safety sockets and safety plugs (with screw terminals)
Power supply	6 to 13 VDC via ALMEMO® device
Current consumption	approx. 30 mA
Connecting cable	1.5 meters with ALMEMO® plug
Housing	Dimensions (LxWxH) 127x83x38mm, ABS (acrylonitrile butadiene styrene)

Types:

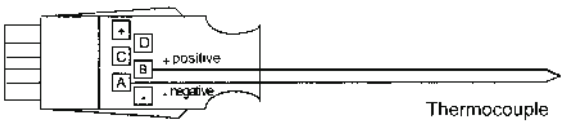
	Order no.
ALMEMO® measuring module for NiCr-Ni (K), including 1.5 meters ALMEMO® connecting cable	**ZAD950ABK**
ALMEMO® measuring module for Fe-CuNi (J) including 1.5 meters ALMEMO® connecting cable	**ZAD950ABJ**
ALMEMO® measuring module for Cu-CuNi (T) including 1.5 meters ALMEMO® connecting cable	**ZAD950ABT**

Please note : thermocouple must be ordered extra; e.g. thermo-wires see Chapter Temperature

DAkkS- or Factory calibration KE90xx, electrically, for digital measuring module, see Chapter Calibration.
DAkkS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Input connectors and adapter cables

ALMEMO® Connector for Thermocouple Types U, L, S, R, B, AuFe-Cr



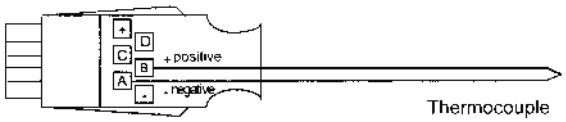
new: Digital ALMEMO® D7 measuring plug, see page 02.24

- One single plug for different thermocouple types (programmable).
- Fast measuring rate for dynamic temperature changes.
- Best linearization accuracy thanks to calculation methods.
- Calibrated sensor independent of the measuring instrument.
- Increased accuracy thanks to multi-point adjustment.

Types

Model	Meas. Range	Resolution	Order no.
Cu-CuNi (U)	–200.0 to +600.0°C	0.1 K	**ZA9000FSU**
Fe-CuNi (L)	–200.0 to +900°C.	0.1 K	**ZA9000FSL**
PtRh10-Pt (S)	0.0 to +1760.0°C	0.1 K	**ZA9000FSS**
PtRh13-Pt (R)	0.0 to +1760.0°C	0.1 K	**ZA9000FSR**
PtRh30-PtRh6 (B)	+400.0 to +1800.0°C	0.1 K	**ZA9000FSB**
AuFe-Cr (A)	–270.0 to +60.0°C	0.1 K	**ZA9000FSA**

ALMEMO® Connector with integrated cold junction sensor for all thermocouples

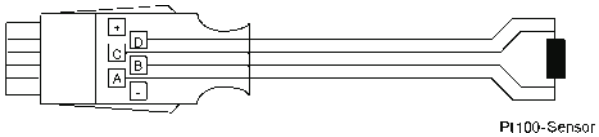


For especially exacting applications demanding the highest possible level of precision or performed under unfavorable conditions (e.g. subject to thermal irradiation)
Programming:
1st channel, NTC, integrated cold junction sensor, resolution 0.01 K
2nd channel, thermocouple, resolution 0.1 K; please specify type !

Types:

Model	Meas. Range	Resolution	Order no.
NiCr-Ni (K)	–200.0 to +1370.0°C.	0.1 K	**ZA9400FSK**
NiCroSil-NiSil (N)	–200.0 to +1300.0°C.	0.1 K	**ZA9400FSN**
Fe-CuNi (L)	–200.0 to +900°C.	0.1 K	**ZA9400FSL**
Fe-CuNi (J)	–200.0 to +1000°C.	0.1 K	**ZA9400FSJ**
Cu-CuNi (T)	–200.0 to +400°C.	0.1 K	**ZA9400FST**
Cu-CuNi (U)	–200.0 to +600.0°C	0.1 K	**ZA9400FSU**
PtRh10-Pt (S)	0.0 to +1760.0°C	0.1 K	**ZA9400FSS**

ALMEMO® Connector for Pt100 Sensors/Pt1000 Sensors



New: Digital ALMEMO® D7 measurement plug, see page 02.06

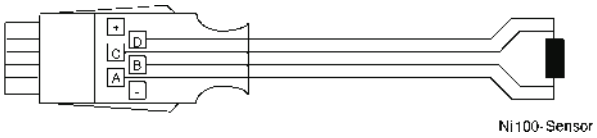
- Applicable for Pt100 sensors.
- High resolution of 0.01 K up to 850 °C.
- Linearization with accurate calculation method.
- Calibrated sensor independent from the measuring instrument.
- Increased accuracy due to multi-point adjustment.

Types:

Model	Meas. Range	Resolution	Order no.
Pt100 4-conductor	–200.0 to +850.0°C	0.1 K	**ZA9030FS1**
Pt100 4-conductor	–200.0 to +400.0°C *	0.01 K	**ZA9030FS2**
Pt1000 4-conductor	–200.0 to +850.0°C *	0.1 K	**ZA9030FS4**

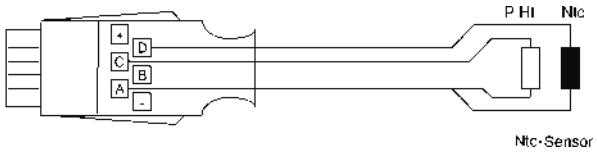
* Data may vary depending on device; (see data sheet per device)

ALMEMO® Connector for Ni100 Sensors/Ni1000 Sensors



Types:			Order no.
Model	Meas. Range	Resolution	
Ni100	–60.0 to +240.0°C	0.1 K	**ZA9030FS3**
Ni1000	–60.0 to +240.0°C	0.1 K	**ZA9030FS6**

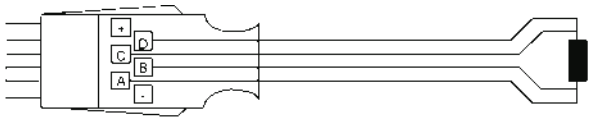
ALMEMO® Connector for Ntc Sensors



New: Digital ALMEMO® D6 measurement plug, see page 02.07
- Applicable for NTC sensors.
- High resolution of up to 0.001 K (-20 to 65 °C).
- Linearization with accurate calculation method.
- Calibrated sensor independent from the measuring instrument
- Increased accuracy due to multi-point adjustment.

Types:			Order no.
Model	Meas. Range	Resolution	
Ntc Typ N	–50.0 to +125.0°C	0.01 K	**ZA9040FS**
2xNtc Typ N	–50.0 to +125.0°C	0.01 K no electrical isolation	**ZA9040FS2**

ALMEMO® Connector for Resistance



Technical Data ZA9003SS4:

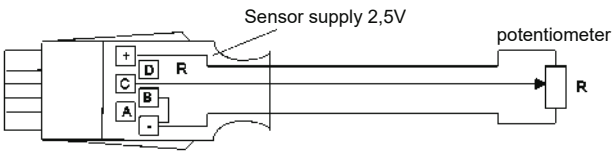
Connection	2-wire
Linearization accuracy:	±0,2 % ± 0,02 kOhm Linearization is saved in the ALMEMO® connector; (this is not available with ALMEMO® 2450, 8390)

Types:			Order no.
Model	Meas. Range	Resolution	
Ohm	0.00 to 500.00	0.01 Ω*	**ZA9003FS**
Ohm	0.0 to 5000.0*	0.1 Ω*	**ZA9003FS2**
kOhm	0 to 110.00 kOhm	0.01 kOhm	**ZA9003SS4**

* Data may vary depending on device; (see data sheet per device)

Input connectors and adapter cables

ALMEMO® Connector for Potentiometer pickoffs



Technical Data

Sensor supply:	2.5 V
Temperature coefficient:	< 50 ppm/K

New: Digital ALMEMO® D7 measurement plug, see page 02.08
- High-speed measuring operations with 100 mops.
- Adjusted sensors independent from the measuring instrument.

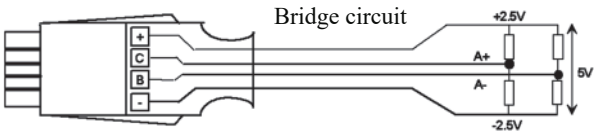
Types:

Model	Meas. Range	Resolution	Order no.
2.6 V DC Differenz	–2.6 to +2.6*	0.1 mV	**ZA9025FS3**

* Data may vary depending on device; (see data sheet per device)

ALMEMO® Connector for measuring bridges, millivolt / volt differential

With zero-symmetrical voltage supply of ±2.5 V stabilized from the ALMEMO® device



Technical Data

Sensor supply	
Voltage U_F:	5V ± 0.05V
Temperature coefficient:	<50ppm/°C
Output current:	25 mA at U_G = 12 V 30 mA at U_G = 9 V 50 mA at U_G = 6 V
Ruhestrom:	approx. 3 mA
Energy saving	So long as the measuring point is not selected, the bridge voltage remains switched OFF.

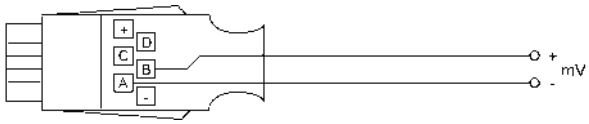
New: Digital ALMEMO® D7 measurement plug, see page 02.10
- For measuring bridges (force transducer or similar)
- High-speed measuring operations with up to 1000 mops
- Alternatively high resolution with up to 200 000 digits.
- Accuracy independent from the measuring instrument.

Types:

Model	Meas. Range	Resolution	Order no.
55mV DC	–10.0 to +55.0	1 µV	**ZA9105FS0**
26mV DC	–26.0 to +26.0	1 µV	**ZA9105FS1**
260mV DC	–260.0 to +260.0	10 µV	**ZA9105FS2**
2.6V DC	–2.6 to +2.6*	0.1 mV	**ZA9105FS3**

* Data may vary depending on device; (see data sheet per device)

ALMEMO® Connector for Voltage Millivolt

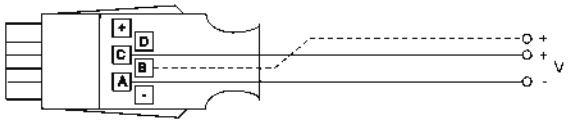


New: Digital ALMEMO® D7 measurement plug, see page 02.09
- Dynamic measuring operations of DC voltages.
- High-speed measuring operations with up to 1000 mops.
- Alternatively high resolution.
- Accuracy independent from the measuring instrument.

Types:

Model	Meas. Range	Resolution	Order no.
55 mV DC	–10.0 to +55.0	1 µV	**ZA9000FS0**
26 mV DC	–26.0 to +26.0	1 µV	**ZA9000FS1**
260 mV DC	–260.0 to +260.0	10 µV	**ZA9000FS2**

ALMEMO® Connector for Volt DC



Technical Data

Accuracy divider:	only 5.5 / 26 V connector, ±0.1% of measured value Temperature coefficient: <10 ppm/K Nominal temperature: 23°C ±2 K

New: Digital ALMEMO® D7 measurement plug, see page 02.09
- High-speed measuring operations with 1000 mops.

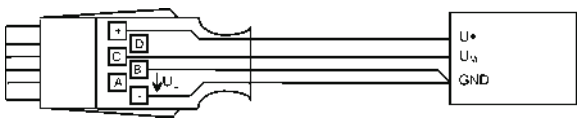
Types:

Model	Meas. Range	Resolution	Order no.
2.6 V DC	–2.6 to +2.6*	0.1 mV	**ZA9000FS3**
5.5 V DC (divider 100:1)	-1.0 to 5.5	0.1 mV	**ZA9602FS4**
26 V DC (divider 100:1)	–26.0 to +26.0	1 mV	**ZA9602FS**
2 mal 26 V DC (2 x divider)	–26.0 to +26.0	1 mV no electrical isolation	**ZA9602FS2**

* Data may vary depending on device; (see data sheet per device)

ALMEMO® Connector for DC voltage difference millivolts / volt

for sensors / transmitters, Supply from ALMEMO® device



(Connection diagram for connectors with 4 clamps, see next page)

Technical Data

Sensor supply	(for voltage see technical data of ALMEMO® device)
Accuracy divider:	only 26V connector ±0,1% of meas. value Temperature coefficient: <10 ppm/K Nominal temperature: 23°C ±2 K

New: Digital ALMEMO® D7 measurement plug, see page 02.09
- High-speed measuring operations with up to 1000 mops.

Types:

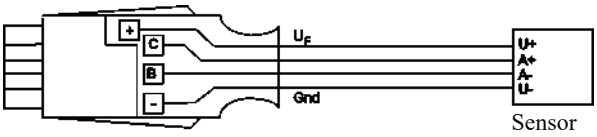
Model	Meas. Range	Resolution	Order no.
55 mV DC	–10.0 to +55.0	1 µV	**ZA9000FS0D**
26 mV DC	–26.0 to +26.0	1 µV	**ZA9000FS1D**
260 mV DC	–260.0 to +260.0	10 µV	**ZA9000FS2D**
2.6 V DC	–2.6 to +2.6*	0.1 mV	**ZA9000FS3D**
26 V DC (divider 100:1)	–26.0 to +26.0	1 mV	**ZA9602FS3**

* Data may vary depending on device; (see data sheet per device)

Input connectors and adapter cables

ALMEMO® Connector for DC Millivolt / Volt Differential

for sensors / transmitters, Supply : 12 V from the ALMEMO® device



Technical Data

Sensor supply U_F:	12.2 ... 12.5V (15V/24V on request)
Device voltage U_G:	8 ... 12 V
Output current:	100mA at U_G = 9 ... 12V
Accuracy divider:	only 26V connector ±0,1% of meas. value Temperature coefficient: <10 ppm/K Nominal temperature: 23°C ±2 K

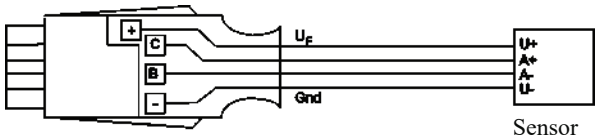
New: Digital ALMEMO® D7 measurement plug, see page 02.09
- High-speed measuring operations with up to 1000 mops.

Types:

Model	Meas. Range	Resolution	Order no.
55mV DC	–10.0 to +55.0	1 µV	**ZA9600FS0V12**
26mV DC	–26.0 to +26.0	1 µV	**ZA9600FS1V12**
260mV DC	–260.0 to +260.0	10 µV	**ZA9600FS2V12**
2.6V DC	–2.6 to +2.6*	0.1 mV	**ZA9600FS3V12**
26V DC (divider 100:1)	-26.0 to +26.0	1 mV	**ZA9602FS3V12**

* Data may vary depending on device; (see data sheet per device).

for sensors / transmitters, Supply : 5 V from the ALMEMO® device



Technical Data

Sensor supply U_F:	5 V ±2 % (max.)
Device voltage U_G:	8 ... 12 V
Output current:	50 mA at U_G = 9 ... 12V
Accuracy divider:	±0,1% v. Mw. Temperature coefficient: <10 ppm/K Nominal temperature: 23°C ±2 K

Types:

Model	Meas. Range	Resolution	Order no.
5.5 V DC (divider 100:1)	-1.0 to 5.5	0.1 mV	**ZA9602FS5V05**

ALMEMO® Measuring Module for DC Voltage, with Electrical Isolation, 1kV

Technical Data

see Chapter Electrical variables

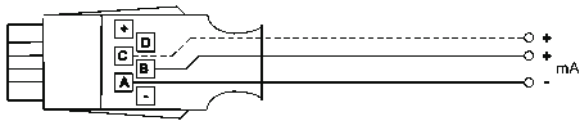
New: Digital ALMEMO® D7 measurement plug with galvanic isolation up to 50 V, see page 02.09
- Dynamic measuring operations of DC voltages.
- High-speed measuring operations with 1000 mops.
- Alternatively high resolution with up to 200 000 digits.
- Accuracy independent from the measuring instrument.

Types:

Measuring range	Resolution	Overload	Internal resistance	Order no.
±2.000 V	0.001V	±400 V	800 kΩ	**ZA9900AB2**
±20.00 V	0.01V	±500 V	1 MΩ	**ZA9900AB3**
±200.0 V	0.1V	±500 V	1 MΩ	**ZA9900AB4**
±400 V	1V	±1000 V	4 MΩ	**ZA9900AB5**

DAkkS- or Factory calibration KE90xx, electrically, for digital measuring module, see Chapter Calibration.
DAkkS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

ALMEMO® Connector for DC Current mA



Technical Data

Accuracy shunt:	±0,1% of measured value Temperature coefficient: <25 ppm/K Nominal temperature: 23°C ±2 K

New: Digital ALMEMO® D7 measurement plug, see page 02.09
- Dynamic measuring operations with up to 1000 mops.
- Accuracy independent from the measuring instrument.

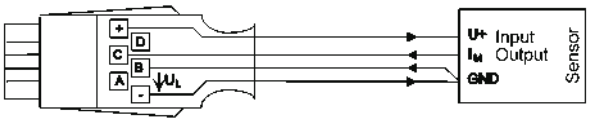
Types:

Model	Meas. Range	Resolution		Order no.
32 mA DC	–32.0 to +32.0*	1 µA		**ZA9601FS1**
4/20 mA DC	0 to 100%	0.01 %		**ZA9601FS2**
2 mal 32 mA DC	–32.0 to +32.0*	1 µA	no electrical isolation	**ZA9601FS3**
2 mal 4/20 mA DC	0 to 100%	0.01 %	no electrical isolation	**ZA9601FS4**

* Data may vary depending on device; (see data sheet per device)

ALMEMO® Connector for DC mA Differential

for sensors / transmitters, Supply from the ALMEMO® device



Technical Data

Sensor supply	(for voltage see technical data of ALMEMO® device)
Accuracy shunt:	±0,1% of measured value Temperature coefficient: <25 ppm/K Nominal temperature: 23°C ±2 K

New: Digital ALMEMO® D7 measurement plug, see page 02.09
Dynamic measuring operations with up to 1000 mops.

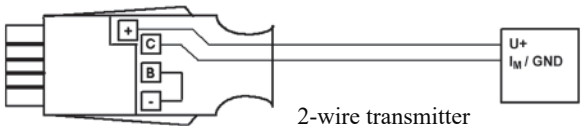
Types:

Model	Meas. Range	Resolution	Order no.
32 mA DC	–32.0 to +32.0*	1 µA	**ZA9601FS5**
4/20 mA DC	0 to 100%	0.01 %	**ZA9601FS6**

* Data may vary depending on device; (see data sheet per device)

ALMEMO® for DC mA Differential

for sensors / transmitters, Supply 12V from the ALMEMO® device



2-wire transmitter
(3-wire transmitter can also be connected)

Technical Data

Sensor supply U_F: Device voltage U_G:	12,2 ... 12,5V (15V/24V on request) 8 ... 12V
Output current:	100mA at U_G = 9 ... 12V
Accuracy shunt:	±0,1% of measured value Temperature coefficient: <25 ppm/K Nominal temperature: 23°C ±2 K

New: Digital ALMEMO® D7 measurement plug, see page 02.09

Types:

Model	Meas. Range	Resolution	Order no.
32mA DC	–32.0 to +32.0*	1 µA	**ZA9601FS5V12**
4-20mA DC	0 to 100%	0.01 %	**ZA9601FS6V12**

* Data may vary depending on device; (see data sheet per device)

Input connectors and adapter cables

ALMEMO® Measuring Module for DC, with Electrical Isolation, 1kV

Technical Data

see Chapter Electrical variables

New: Digital ALMEMO® D7 measurement plug with galvanic isolation up to 50 V, see page 02.09

- Dynamic measuring operations of DC voltages.
- High-speed measuring operations with 1000 mops.
- Alternatively high resolution with up to 200 000 digits.
- Accuracy independent form the measuring instrument.

Types:

Measuring range	Resolution	Overload	Internal resistance	Order no.
±20.00 mA	0.01mA	±0.1 A*	10 Ω	**ZA9901AB1**
±200.0 mA	0.1mA	±1 A*	1 Ω	**ZA9901AB2**
±2.000 A	0.001A	±10 A*	0.1 Ω	**ZA9901AB3**
±10.00 A	0.01A	±20 A*	0.01 Ω	**ZA9901AB4**
±20,0 A	0,1 A	±30 A*	0.002 Ω	**ZA9901AB5**

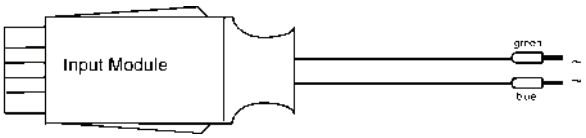
*Without fuse, overload condition only up to 1 minute maximum

DC via external shunt:

±200.0 mV	0.1mV	±40 V	50 kΩ	**ZA9900AB1**

DAkkS- or Factory calibration KE90xx, electrically, for digital measuring module, see Chapter Calibration.
DAkkS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

ALMEMO® Adapter Cable for AC Voltage



Technical Data

Frequency range:	50 Hz to 10 kHz
Accuracy:	± 0.2% of final val. ± 0.5% of meas. val. (40Hz … 2kHz sinusoidal),
Crest factor:	3 (add. error 0.7%), 5 (add. error 2.5%)

! NEVER connect voltages higher than 50V! DANGER!

Types:

Meas. Range	Resolution	Order no.
5 to 260mV$_{eff}$	0.1 mV	**ZA9603AK1**
0.05 to 2.6V$_{eff}$	0.001 V	**ZA9603AK2**
0.5 to 26.0V$_{eff}$	0.01 V	**ZA9603AK3**

ALMEMO® Measuring Module for AC Voltage, with Electrical Isolation, 1kV

Technical Data

see Chapter Electrical variables

Types:

Meas. range	Resolution	Peak	Overload	Internal resistance	Order no.
130.0mV$_{eff}$	0.1mV	±0.2V	±400V	0.5MΩ	**ZA9903AB1**
1.300V$_{eff}$	1mV	±2V	±400V	0.8MΩ	**ZA9903AB2**
13.00V$_{eff}$	10mV	±20V	±500V	1MΩ	**ZA9903AB3**
130.0V$_{eff}$	0.1V	±200V	±500V	1MΩ	**ZA9903AB4**
400V$_{eff}$	1V	±1000V	±1000V	4MΩ	**ZA9903AB5**

DAkkS- or Factory calibration KE90xx, electrically, for digital measuring module, see Chapter Calibration.
DAkkS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

ALMEMO® Measuring Module for AC, with Electrical Isolation, 1kV

Technical Data

see Chapter Electrical variables

Types:

Measuring range	Resolution	Peak	Overload	Internal resistance	Order no.
1.000A$_{eff}$	1mA	±2A	±10A*	0.10 Ω	**ZA9904AB1**
10.00A$_{eff}$	10mA	±20A	±20A*	0.01 Ω	**ZA9904AB2**
20.0 A$_{eff}$	0.1 A	±30 A	±30 A*	0.002 Ω	**ZA9904AB3**

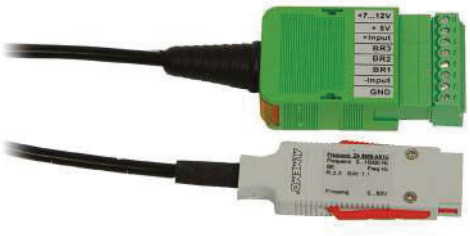
*Without fuse, overload condition only up to 1 minute maximum

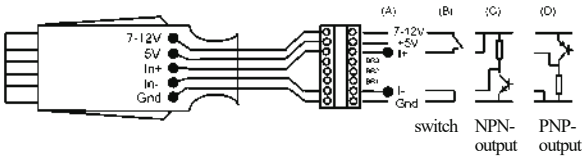
DAkkS- or Factory calibration KE90xx, electrically, for digital measuring module, see Chapter Calibration.
DAkkS calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Input connectors and adapter cables

ALMEMO® Adapter Cable for Frequency / Pulse / Rotational Speed

for sensors, Supply : 5 V or direct from ALMEMO® device





Technical Data

Frequency range:	0 to 15000 Hz (Resolution 1 Hz) 0 to 3200.0 Hz (Resolution 0.1 Hz)
Speed range:	8 to 32000 rpm (Resolution: 1 rpm)
Max. pulse count:	65000
Pulse length:	> 50 ms
Input voltage	6 to 40 V, square-wave via optocoupler
Current consumption:	3 mA
Sensor supply	direct from ALMEMO® device
(for voltage see technical data of ALMEMO® device)	
Option V12	
Sensor supply:	13.5V ±0.5V
Output current:	100mA at U_G = 12V 50mA at U_G = 9V 20mA at U_G = 7V (U_G = device voltage)

Types: (Cable lengths, 1.5 meters)

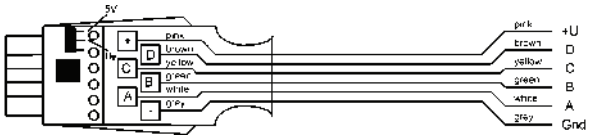
Model	Meas. Range	Resolution	Order no.
Frequency	0 to 15000 Hz	1 Hz	
Frequency	0 to 3200,0 Hz	0.1 Hz (can, by inserting wire jumper, be switched to)	**ZA9909AK1U**
Pulses / Cycle	0 to 65000 Imp	1 Imp	**ZA9909AK2U**
Speed	8 to 32000 UpM	1 UpM	**ZA9909AK4U**
Option sensor supply 12 V			**OA9909V12**

ALMEMO® Adapter Cable for Digital Input Signals

Types: (cable length, 1.5m each)

	Order no.
3 digital inputs, (optocoupler), for floating contacts, 5V auxiliary voltage led out	**ZA9000ES2**
4 digital inputs, electrically isolated (optocoupler) for external voltage, 4 to 30 V	**ZA9000EK2**

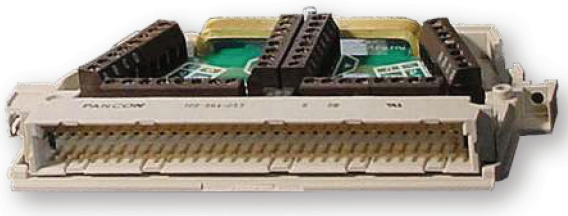
ALMEMO® Universal Adapter Cable with Free Ends



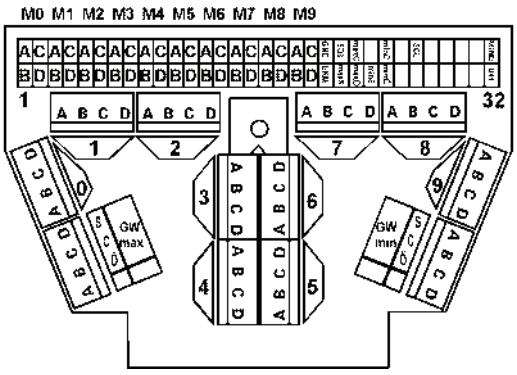
Types: **Order no.**

The ALMEMO® universal connector ZA 9000-FS is also available with connecting cable and free ends, as adapter cable ZA9000AK. The sensor supply voltage is present on terminal U+; it is supplied by the ALMEMO® device (sensor supply voltage 5 V, can be stabilized on request). Connecting cable : 8-wire, 8 x 0.14 mm², black, Length 1.5 m The wiring diagram and color code of the wires are consistent for all ALMEMO® sensors and cables, so that any pin configuration can be quickly and easily identified. **ZA9000AK**

ALMEMO® 10-Fold MU Connector for ALMEMO® Plug-In Boards with 64-Pin Spring Contact Strip



! NOT suitable for sensors needing interface circuitry (e.g. 26 V, AC voltage, mA, humidity sensors, rotating vanes, frequency, pulse, rotational speed) no sensor supply possible)



! The current MU connector version, ZA5690MU, can only be used in conjunction with the new ALMEMO® 5690 systems. The old MU connector version, ZA5590MU, can of course be used in conjunction with the old ALMEMO® 5590/5990 systems but is subject to certain restrictions with the current 5690 systems (e.g. only 1 measuring channel per input, no multi-point adjustment or connector linearization)

Types: **Order no.**

ALMEMO® 10-fold connector (64-pin) with EEPROM sensor memory for connecting 10 sensors; on request pre-programmed to your specifications for Data acquisition systems ALMEMO® 5690 and 500 (not for ALMEMO® 5590 / 5990)	**ZA5690MU**
For Data acquisition systems ALMEMO® 5590 und 5990	**ZA5590MU**

Input connectors and adapter cables

ALMEMO® Connector Adapter Cable, Digital Input of Third Party Device to ALMEMO® Device Type ZA 1000A KSW / ZAD 919A Kxx

Existing equipment incorporating a digital interface can, thanks to our flexible ALMEMO® system, continue being used. For this purpose, we can offer you the following service : 1. We program a device type protocol for you, which matches the output interface of your device. 2. We fit the interface cable for your device with the matching ALMEMO® connector.

Description:

- Data acquisition from external devices with digital interface and integration in the data acquisition with ALMEMO® devices.
- The digital connector of the adapter cable provides an electrically isolated serial interface and includes an interface processor for protocol conversion.
- Value-adding to existing measuring technology at a very interesting price-performance ratio.

Examples:

- Scales and weighing equipment
- Dial gauges and displacement transducers
- Multimeters
- Incremental displacement transducers
- Flue gas analysers

Types:	**Order no.**
For the purposes of programming the interface, please provide us with a detailed description of the output interface of the third-party device you want to have integrated, or a matching cable, or a connector including the pin configuration, plus the third-party device itself for the purposes of testing and checking.	
Interface programming for the device type protocol of the device to be integrated	**ZA1000AKSW**
ALMEMO® connector adapter cable	**ZAD919AK**