

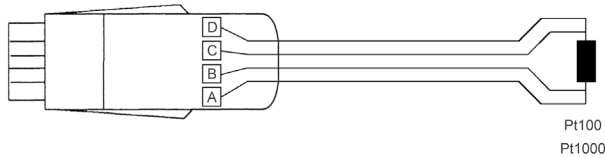
Digital ALMEMO® D7 measuring connector for Pt100 / Pt1000 temperature sensor

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

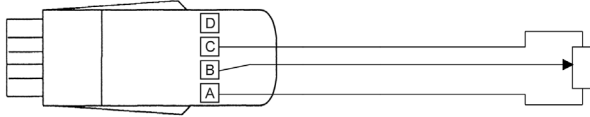
Sensor type	Pt100, 4 conductors or Pt1000, 4 conductors	Linearization	calculated error-free (not an approximation)
Measuring input	electrically interconnected with the power supply (ALMEMO® device ground)	Accuracy	
		Pt100	0.07 K +2 digits
		Pt1000	0.08 K +2 digits
Measuring range	-200 to +850 °C	Nominal temperature	+22 °C ±2 K
Resolution	0.01 K	Temperature drift	0.003 % / K (30 ppm) (resistance)
Conversion rate	10 mops	Operative range	-10 to +60 °C / 10 to 90 % RH (non-condensing)
Measuring current		Supply voltage	from 6 V up. from ALMEMO® device (sensor supply voltage)
Pt100	approx. 1 mA	Current consumption	approx. 9 mA
Pt1000	approx. 0.1 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® 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:

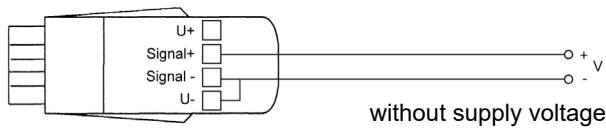
Type	Display range	Resolution
Potentiometer	0...100 %	0.01 %

Order no.

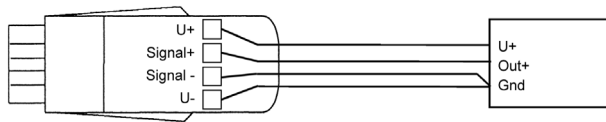
ZWD700FS

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.



without supply voltage



with supply voltage



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:

Galvanic isolation up to 50 V for ALMEMO® D7 sensors. pluggable cabel, length = 0,2 m

Order no.

ZAD700GT

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
-250...+250 mV*	0.001 mV, 5 mops*		5 GOhm	±2.8 V	ZED700FS2
-64...+64 mV					ZED702FS
-20...+20 Volt	0.1 mV, 5 mops* / 1 mV, 500 mops / 10 mV, 1000 mops		110 kOhm	±30 V	ZED702FSV15** ZED702FSV24**
-20...+20 mA	0.1 µA, 5 mops* / 1 µA, 500 mops / 10 µA, 1000 mops		130 Ohm	±28 mA	ZED701FS ZED701FSV15** ZED701FSV24**

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

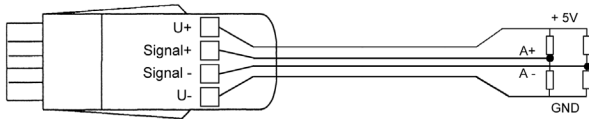
** Sensor supply see above: Technical data

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
DMS2*	±50 000 digits	1000 mops
or: DMS1	±200 000 digits	10 mops

Order no.

ZKD700FS

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

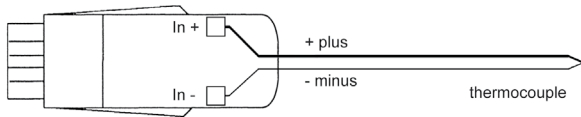
Digital ALMEMO® D7 measuring connector for thermocouple sensors of type K, N, T, J, R, S, B, E

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 D7 measuring 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.

Technical data

Sensor type:	Thermocouple type: K, N, T, J, R, S, B, E																		
Measuring input:	galvanically isolated, dielectric strength 50V																		
Measuring ranges:	<table border="0"> <tr><td>K</td><td>-200.0 to +1370.0 °C</td></tr> <tr><td>N</td><td>-200.0 to +1300.0 °C</td></tr> <tr><td>J</td><td>-210.0 to +1100.0 °C</td></tr> <tr><td>E</td><td>-270.0 to +800.0 °C</td></tr> <tr><td>T</td><td>-200.0 to +400.0 °C</td></tr> <tr><td>S</td><td>-50.0 to +1760.0 °C</td></tr> <tr><td>R</td><td>-50.0 to +1760.0 °C</td></tr> <tr><td>B</td><td>+250.0 to +1820.0 °C</td></tr> <tr><td>K2</td><td>-200.00 to +1370.00 °C</td></tr> </table>	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
K	-200.0 to +1370.0 °C																		
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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:

ALMEMO® D7 measuring connector for thermocouples. Fast measuring rate. Integrated galvanic isolation.

Order no.

ZTD700FS