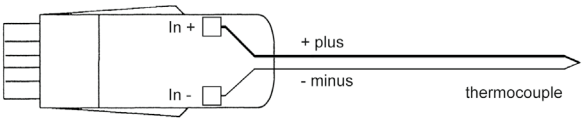
Digital ALMEMO® D7 measuring connector for thermocouple sensors of type K, N, T, J, R, S, B, E

ALMEMO® D7

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, ALMEMO® 202-S, 204, 104, 710, 510, 809.





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.
- 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 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.

Technial data

Sensor type:	Thermocouple type: K, N, T, J, R, S, B, E
Measuring input:	galvanically isolated, dielectric strength 50 V
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 N2 -200.00 to +1300.00 °C
Resolution:	0.1 K* respectively 0.01 K for measuring range K2 / N2
Conversion rate:	2.5*, 10, 50, 100 mops
Linearization:	calculation method (not an approximation)

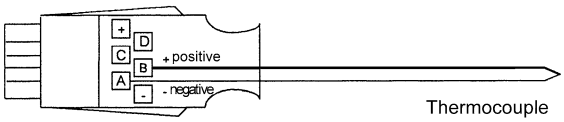
System accuracy at conversion rate 10 mops:	
type K, K2, N, N2, J, T	±0.2 K ±0.02 % of measured value
type E	±0.1 K ±0.02 % of measured value
type R, S, B	±0.8 K ±0.02 % of measured value
Temperature drift:	0.003 %/K (30 ppm)
Cold junction compensation sensor:	NTC 10 K at 25 °C
Cold junction compensation effective in the range -10 °C to +60 °C:	-30 °C to +100 °C
System accuracy:	±0.2 K ± 0.01 K/°C
Nominal temperature:	23 °C ± 2 K
Supply voltage:	6, 9, 12 V from ALMEMO® device
Current consumption:	approx. 5 mA
Environmental conditions see general technical specifications	

* 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**

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



Variants (with thermal material)

Model	Meas. Range	Resolution	Order no.
NiCr-Ni (K)	–200.0 to +1370.0 °C.	0.1 K	**ZA9020FS**
NiCrSi-NiSi (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 general technical specifications)
Measuring rate	2.5 measurements/sec.

Electrical isolation	1 kV DC/AC permanent, 4 kV for 1 s
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) 127 x 83 x 38 mm, 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**

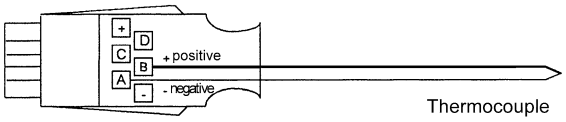
Please note: thermocouple must be ordered extra; e.g. thermo-wires see Chapter Temperature

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

11/2025 • We reserve the right to make technical changes.

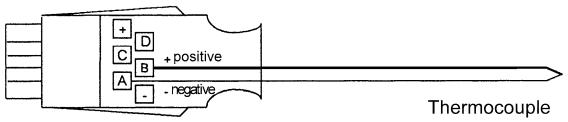
Input connectors for thermocouples

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



Types			Order no.
Model	Meas. Range	Resolution	
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:			Order no.
Model	Meas. Range	Resolution	
NiCr-Ni (K)	–200.0 to +1370.0 °C	0.1 K	**ZA9400FSK**
NiCrSi-NiSi (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**