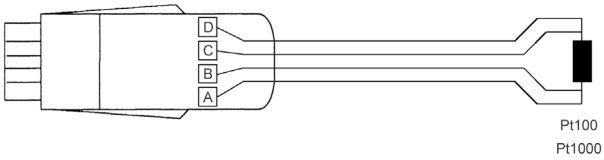
Digital ALMEMO® D7 measuring connector for Pt100 / Pt1000 temperature sensor

High-level resolution of 0.01 K across the entire measuring range up to 850 °C
Linearization of the Pt100 / Pt1000 characteristic calculated
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-S, 204.



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 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

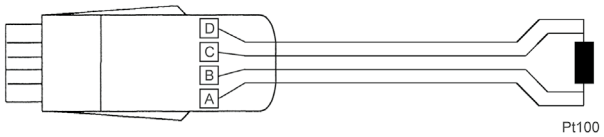
Linearization	calculated (not an approximation)
Accuracy Pt100 Pt1000	 0.07 K +2 digits 0.08 K +2 digits
Nominal temperature	+22 °C ±2 K
Temperature drift	0.003 % / K (30 ppm) (resistance)
Supply voltage	from 6 V up. from ALMEMO® device (sensor supply voltage)
Current consumption	approx. 9 mA
Environmental conditions	see page 16 onwards

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 Pt100 temperature sensor

Digital temperature sensors now also for ALMEMO® V6 measuring instruments, e.g. ALMEMO® 5690, 2690, 2590
Resolution of 0.01 K across the entire measuring range up to 400 °C
Linearization of the Pt100 characteristic calculated
Calibration with greater accuracy by subjecting the temperature sensor to multi-point adjustment



The new ALMEMO® D6 measuring connector provides even greater precision!

Technical data and functions

- The digital ALMEMO® D6 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 400 °C. Linearization of the Pt100 characteristic is calculated in compliance with DIN IEC 751 (not an approximation).
- The overall accuracy of the measuring operation is unaffected by the presence of an ALMEMO® display device / data logger. The whole measuring chain, comprising e.g. a Pt100 sensor and the connected ALMEMO® D6 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 ALMEMO® D6 measuring plug operates with its own refresh rate. The measured values are scanned digitally at the conversion rate of the ALMEMO® measuring device.

Technical data

Sensor type	Pt100, 4 conductors or
Measuring input	electrically interconnected with the power supply (ALMEMO® device ground)
Measuring range	-200 to +400 °C
Resolution	0.01 K
Refresrate:	0,1 s
Measuring current Pt100	approx. 1 mA
Linearization	calculated (not an approximation)

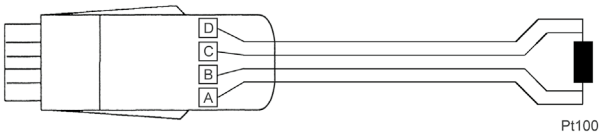
Accuracy Pt100	0.07 K +2 digits
Nominal temperature	+22 °C ±2 K
Temperature drift	0.003 % / K (30 ppm) (resistance)
Supply voltage	from 6 V up. from ALMEMO® device (sensor supply voltage)
Current consumption	approx. 9 mA
Environmental conditions	see page 16 onwards

Types:

Type	Measuring range	Resolution	Order no.
Pt100, 4 conductors	-200...+400 °C	0.01 K	**ZAD030FS**

Digital ALMEMO® D7 Precision measuring connector for Pt100 temperature sensor, resolution 0.001 K

Digital precision measuring connector with highest resolution of 0.001 K across the entire measuring range up to 400 °C
Linearization of the Pt100 characteristic calculated
Calibration with greater accuracy by subjecting the temperature sensor to multi-point adjustment
For ALMEMO® V7 measuring instruments, including ALMEMO® 500, 710, 809, 202-S, 204.



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

Digital precision resistance sensor Pt100 FPD723L0250A3D (example)

Technical data and functions

- The digital ALMEMO® D7 precision measuring connector becomes a reference sensor with highest accuracy when used with a suitable Pt100 sensor (see following page).
- The digital ALMEMO® D7 precision measuring connector uses its own integrated A/D converter. It provides a highest resolution of 0.001 K across the entire measuring range up to 400 °C.
- Linearization of the Pt100 characteristic curve in the measuring connector is calculated 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 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
Measuring input	electrically interconnected with the power supply (ALMEMO® device ground)
Measuring range	-200 to +400 °C
Resolution	0.001 K
Conversion time:	3.4 seconds
Measuring current	approx. 1 mA
Linearization	calculated (not an approximation)

Accuracy	± 0.015K ± 2 digits
Nominal temperature	+22 °C ±2 K
Temperature drift	0.003 % / K (30 ppm) (resistance)
Supply voltage	starting at 6 V from ALMEMO® device (sensor supply voltage)
Current consumption	approx. 9 mA
Ambient conditions see from page 16	

Types:

Type	Measuring range	Resolution	Order no.
Pt100, 4 conductors	-200...+400 °C	0.001 K	**ZPD730FS**

Note on suitable sensors:
The sensor determines the accuracy, stability, hysteresis and long-term stability of the measuring chain consisting of sensor and digital connector. For the sensor, the following must be taken into account:
- The type of Pt100 sensor element determines, among other things, the achievable measurement uncertainty / stability.
- The design (sensor diameter, installation of the sensor element, powdered or with thermal paste) influences the self-heating and the hysteresis for the measurement uncertainty.

The self-heating must be included in the measurement uncertainty: If the self-heating is NOT known for the sensor design at hand, a lump sum must be charged.

Example: For a sufficiently long sheath element, an amount of 17 mK is recommended. In comparison: For the Ahlborn precision probe FPA923/FPD723 the self-heating was determined and is included in the measurement uncertainty with typ. 2 mK.
The hysteresis must be described in addition to the measurement uncertainty:
If the hysteresis is not determined, a lump sum of up to 0.2 % of the span is recommended in international regulations.
Example: Calibration range 0 to 400 °C, hysteresis lump sum up to 0.8 K or calibration range 0 to 100 °C up to 0.2 K (200 mK).

Digital precision resistance sensor Pt100 up to 400 °C with resolution of 0.001 K as reference sensor, with ALMEMO® D7 connector for ALMEMO® V7 measuring devices / data logger

Digital precision resistance sensor with highest accuracy and linearity for temperature measurements in a wide temperature range. Application as reference probe for comparison measurements in research, development, quality assurance and production processes.
For ALMEMO® V7 measuring instruments: ALMEMO® 500, 710, 809, 202-S, 204.

Digital precision resistance sensor Pt100
FPD723L0250A3D (example)

Technical data

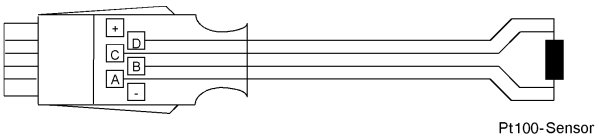
see chapter 07 Temperature

Types

	Order no.
Digital precision resistance sensor Pt100 as reference sensor, with cable and ALMEMO® D7 connector. Incl. DAkkS calibration certificate (2 temperature points at 0°C and 100°C incl. multi-point adjustment).	**FPD723L0250A3D**

Input connectors for Pt100

ALMEMO® Connector for Pt100 Sensors/Pt1000 Sensors



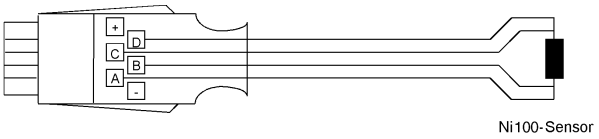
Pt100-Sensor

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**
Pt1000 4-conductor	–200.0 to +400.0°C *	0.01 K	**ZA9030FS5**

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

ALMEMO® Connector for Ni100 Sensors/Ni1000 Sensors

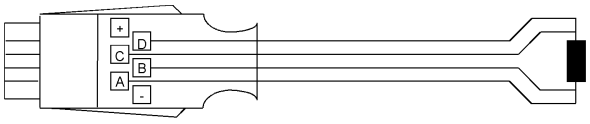


Ni100-Sensor

Types:

Model	Meas. Range	Resolution	Order no.
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 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:

Model	Meas. Range	Resolution	Order no.
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)