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Reference measuring instrument ALMEMO® 1033-2





ALMEMO® Reference measuring instrument for temperature.
High-precision measuring with Pt100 sensors
Resolution 0.001 K
Measuring range up to 720 °C with highest resolution 1 mK

Technical data and functions

- Extended measuring range up to 720 °C with highest resolution 1 mK.
- Function expansion as standard. The 4 sensor-specific parameters R0 and A, B, C of the CvD equation (Callendar-van-Dusen equation) for any Pt100 sensor can be programmed by the user.
- Temperature measurement with very high resolution, precision, and linearity, using Pt100 sensors
- Suitable as reference device in calibration laboratories and quality assurance procedures
- Very high accuracy thanks to multi-point adjustment of the Pt100 temperature sensor
- 2 electrically isolated measuring inputs for Pt100 sensors
- Resolution: 0.001 K, Units: °C, °F, K
- High-resolution A/D converter, delta-sigma, 24-bit, 1.25 mops (measuring operations per second)
- Two output sockets for digital interface, ALMEMO® memory connector
- Compact, modern, ergonomic design
- Graphics display, illuminated with white light
- Easy and convenient to operate by means of 4 soft-keys and cursor block
- Measured value display 2 measured values and differential
- Measuring functions: Zero-setting, smoothing, maximum / minimum values, individual value memory for 100 values
- Data logger with ALMEMO® memory connector (accessory)
- Sensor programming: Smoothing, designation, units, resolution, multi-point adjustment
- Device configuration: Illumination, contrast, device address, baud rate
- Choice of language: German, English, French

Technical data ALMEMO® 1033-2

Measuring inputs	2 ALMEMO® input sockets for Pt100 sensors
Electrical isolation	Semiconductor relay (50 V)
A/D converter	Delta-sigma, 24-bit, 1.25 mops
Measuring range	
P314: Pt100, -200 to +720 °C resolution 0.001 K	
P214: Pt100, -200 to +850 °C resolution 0.01 K	
Measuring current	1 mA
Measuring method	ratiometric
Accuracy	
P314: ±0.010 K ±1 digit in range -100 to +720 °C	
P214: ±0.03 K ±1 digit in range -100 to +850 °C	
Nominal conditions	23 °C ±2 K, < 90 % r.H., battery mode
Temperature drift	typical 2 ppm / K
Outputs	2 ALMEMO® sockets for interface cable and ALMEMO® memory connector

Standard equipment	
Display	Graphics display, 128 x 64 pixels, 8 rows
Illumination	2 white LEDs
Keypad	7 silicone keys (of which 4 soft-keys)
Date and time-of-day	Real-time clock, buffered by device battery
Individual value memory, internal	100 measured values
Power supply	
Battery set	3 AA alkaline batteries
Mains adapter	ZA1312NA12 100 to 230 VAC to 12 VDC, 1.5 A, electrically isolated
Current consumption (without input and output modules)	approx. 20 mA
With illumination	approx. 40 mA
Housing	127 x 83 x 42 mm (LxWxH) ABS, 290 g
Ambient conditions see general technical specifications	

Input connectors

	Order no.
ALMEMO® input connector up to 720 °C, resolution 0.001 K (range P314)	**ZA9030FS7P3**
ALMEMO® input connector up to 850 °C, resolution 0,01 K (range P214)	**ZA9030FS2P3**

Accessories

	Order no.
Software WinControl for data acquisition for 1 device up to 20 channels	**SW5600WC1**
USB data cable, electrically isolated	**ZA1919DKU**
Ethernet data cable	**ZA1945DK**
ALMEMO® memory connector with micro SD	**ZA1904SD**
Mains adapter 12V, 1.5 A with ALMEMO® plug	**ZA1312NA12**
Rubberized impact protection, gray	**ZB2490GS2**
DIN rail mounting	**ZB2490HS**
Instrument case	**ZB2490TK2**

Standard delivery

	Order no.
Reference measuring instrument for temperature up to 720 °C. Batteries, operating instructions, manufacturer's test certificate.	**MA10332**

Precision resistance temperature sensor Pt100 FPA924L0500H for the operating range -100 ... +660 °C



Precision RTD temperature sensor
Pt100 FPA924L0500H in case
(Measuring device and accessories not included)

Technical data FPA924L0500H

Measuring element:	Pt100 resistor, according to ITS90
Measuring tip:	Application range -100 ... +660 °C
Sensor tube:	stainless steel, diameter 4 mm
Nominal length:	465 mm (visible)

Handle:	up to 60 °C
Connection cable:	2 m cable in PTFE/fiberglass protection hose.
ALMEMO® plug:	ZA9030FS7P3, resolution 0.001 K

! To achieve a high precision, it is absolutely necessary to calibrate the electrode incl. multi-point adjustment! Please order additionally!

On request: Precision resistance temperature sensor Pt100 for the application range -200 ... +250 °C

Standard delivery **Order no.**

Precision resistance temperature probe for the application range -100 ... +660 °C
Measuring element Pt100, class B, probe diameter 4 mm, length 465 mm, with handle, 2 m cable and ALMEMO® connector for ALMEMO® 1030, 1033, 1036, 8036, storage case **FPA924L0500H**

Precision resistance temperature probe Pt100 FPA923L0250 for the operating range -50 ... +400 °C



! To achieve a high precision, it is absolutely necessary to calibrate the measuring chain incl. multi-point adjustment! Please order additionally!

Accessories **Order no.**

Aluminum profile case for 1 probe (up to 500 mm length) **ZB9000TK1**

Technical data

Measuring element	Pt100 wire-wound
Class	1/10 B (DIN EN 60751) at 0 °C
Measuring tip	Operative range -50 to +400 °C
Response time T90	5 seconds

Nominal length	250 mm
Sensor tube	Stainless steel, diameter 3 mm
Connecting cable	2 meters, FEP / silicone
ALMEMO® plug	ZA9030FS7P3, resolution 0.001 K

Standard delivery **Order no.**

High-precision temperature sensor, measuring element Pt100 1/10 DIN class B, Sensor diameter 3 mm, length 250 mm, Measuring tip -50 to +400 °C, with 2-meter FEP / silicone cable and ALMEMO® plug Resolution 0.001 K for ALMEMO® 1030, 1033, 1036, 8036 **FPA923L0250**

DAkkS accredited calibration or factory calibration KT90xx temperature for sensor or measuring chain (sensor + device), see chapter „Calibration certificates“.
DAkkS accredited calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

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