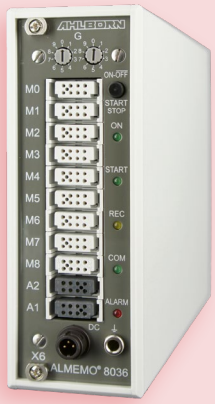
11/2025 • We reserve the right to make technical changes.

Reference measuring instrument ALMEMO® 8036-9



ALMEMO® Reference measuring instrument for temperature and humidity. Multi-channel measuring instrument with nine measuring inputs for Pt100 sensors and Pt100 psychrometers.
High-precision measuring with resolution of 0.001 K. For calibration laboratories, quality assurance procedures, and monitoring of test and measuring rooms.
For use either as PC interface or with external memory connector as data logger.

Technical data and functions

Multi-channel instrument for high-precision measuring

Reference measuring instrument ALMEMO® 8036-9 ensures very high levels of resolution, precision, and linearity when measuring temperature, using up to nine Pt100 sensors - or alternatively up to four Pt100 psychrometers.

This reference measuring instrument is suitable for use as calibration standard in calibration laboratories, for quality assurance procedures, or as a multi-channel instrument for high-precision measuring operations, e.g. in test and measuring rooms or climate chambers.

With the Pt100 the measuring ranges have been expanded considerably, up to +670 °C at the highest resolution of 0.001 K and up to +850 °C at a resolution of 0.01 K. The measured value units can be programmed to either °C / K / °F.

Reference measuring instrument ALMEMO® 8036-9 operates with special ALMEMO® plugs incorporating expanded programming possibilities. These plugs, it should be noted, cannot be interchanged with the ordinary plugs used with ALMEMO® V6 / V7 measuring instruments.

Very high precision thanks to multi-point adjustment and input of coefficients for the Pt100 characteristic

This very high level of precision is achieved by calibrating the measuring chain comprising Pt100 sensor and measuring instrument. For each individual sensor there are two error correction methods available.

1. Multi-point adjustment in up to 35 temperature points
2. Input of coefficients R0 and A, B, C for the Pt100 characteristic as per the Callendar / Van Dusen equation

Linearization is then performed using the sensor-specific Pt100 characteristic.

Both correction procedures can be used for any sensor simultaneously. The correction values from multi-point adjustment and the coefficients of the Pt100 characteristic are saved in the sensor connector.

Sensors are identified by means of a programmable 10-character alphanumeric designation stored in the sensor connector and a serial number. Similarly, for the purpose of monitoring the calibration interval, the date of the next calibration due and the calibration interval can be programmed and saved in the sensor connector.

High-precision humidity measuring with atmospheric pressure compensation and calculation as per Dr. Sonntag and W. Bögel

The Pt100 psychrometer incorporates two temperature sensors assigned to two measuring inputs.

The digital atmospheric pressure sensor integrated in the ALMEMO® device ensures that any pressure-dependent humidity variables are pressure-compensated automatically.

Humidity is calculated on the basis of formulae as per Dr. Sonntag and the enhancement factor as per W. Bögel (correction factor fw(t,p) for real mixed gas systems). This substantially widens the measuring range and improves the accuracy of humidity variable calculations.

Temperature is measured to a resolution of 0.001 K, relative humidity to 0.01 % RH, and dewpoint temperature to 0.01 K.

Humidity variables are calculated from the three primary measuring channels (real measurable variables) - dry temperature (TD °C), wet temperature (TW °C), and atmospheric pressure (mbar).

In the second ALMEMO® plug (dry sensor) there are up to three humidity variables, simultaneously programmable: relative humidity (%), dewpoint (°C), and mixture (g/kg), abs. humidity (g/m³), vapor pressure (mbar), enthalpy (kJ/kg).

Other equipment

- Five LEDs for indicating various operating states
- One pushbutton for switching the device on / off and to start / stop a measuring operation
- Data logger mode with plug-in ALMEMO® memory connector with micro SD card (accessory)
- Two ALMEMO® output sockets for simultaneously connecting a PC or network and an ALMEMO® memory connector

ALMEMO® Connect configuration software

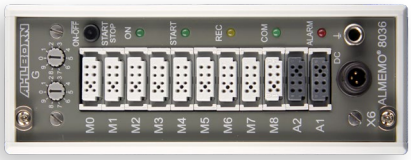
The ALMEMO® Connect software can be used on a PC to program all sensor parameters in the Pt100 sensor or in the Pt100 psychrometer: measuring range / resolution, units, smoothing, text description, calibration date and calibration interval, multi-point adjustment, locking level.

The ALMEMO® Connect software can also be used to completely program the device.

WinControl software for measured data acquisition

The WinControl software (accessory) can be used to acquire and document measured values from the reference measuring instrument. In the calibration laboratory the reference measuring instrument (reference standard) and the ALMEMO® device (test item) can be networked together and evaluated using WinControl.

ALMEMO® 8036-9



Technical data

Measuring inputs	Nine ALMEMO® measuring inputs for Pt100 sensors and Pt100 psychrometers
Electrical isolation	Semiconductor relay (50 V)
A/D converter	Delta-sigma, 24-bit, 1.25 mops
Measuring range	Pt100, 4 conductors, -200 to +670 °C Resolution 0.001 K Pt100, 4 conductors, -200 to +850 °C Resolution 0.01 K
Measuring current	1 mA
Measuring method	ratiometric
Accuracy	±0.010 K ±1 digit in range -50 to +560 °C Resolution 0.001 K ±0.05 K ±1 digit in range -100 to +850 °C Resolution 0.01 K
Nominal conditions	+23 °C ±2 K, 1013 mbar
Temperature drift	typical 2 ppm / K
Calculated humidity variables	Analytic equation (not an approximation)
Digital atmospheric pressure sensor (integrated in the device)	
Measuring range	700 to 1100 mbar
Accuracy	±2.5 mbar (at 23 °C ±5 K)
Outputs	Two ALMEMO® sockets for interface cable and ALMEMO® memory connector
Standard equipment	
Operation	1 key, 5 LEDs, 2 coding switches
Date and time-of-day	Real-time clock, buffered by lithium battery
Power supply	
Mains adapter	ZB1212NA12 100 to 240 VAC to 12 VDC, 1.5 A, electrically isolated
Current consumption	without input and output modules
Active mode	approx. 35 mA (with memory connector approx. 45 mA)
Sleep mode	approx. 0.05 mA
Housing	180 x 49 x 137 mm (LxWxH) Polystyrene (PS), approx. 490 g
Ambient conditions	see general technical specifications

Input connector ALMEMO® 8036-9

	Order no.
ALMEMO® input connector for the user's own third party high-precision sensors, Pt100, 4 conductors, 0.001 K resolution, for ALMEMO® 1030, 1033, 1036, 8036	**ZA9030FS7P3**
ALMEMO® input connector for the user's own third party high-precision sensors, Pt100, 4 conductors, 0.01 K resolution, for ALMEMO® 1030, 1033, 1036, 8036	**ZA9030FS2P3**

Accessories

	Order no.
Memory connector with micro SD, including USB card reader (see chapter ‚General accessories')	**ZA1904SD**
WinControl software for measured data acquisition	
per device up to 20 channels	**SW5600WC1**
for any number of devices and channels	**SW5600WC2**

Connecting cables

	Order no.
USB data cable, electrically isolated	**ZA1919DKU**
Ethernet data cable, electrically isolated	**ZA1945DK**

Standard delivery

	Order no.
Reference measuring instrument ALMEMO® 8036-9, nine inputs for Pt100 sensors and Pt100 psychrometers, integrated atmospheric pressure sensor, including mains unit ZB1212NA12	**MA80369**

DAkkS accredited calibration KD92xxD, atmospheric pressure, for measuring chain (sensor and device), see chapter „Calibration certificates".
The DAkkS accredited calibration meets the requirements of DIN EN ISO/IEC 17025 for test equipment.

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Pt100 high-precision sensor FPA923L0250 for reference measuring instrument ALMEMO® 1030-2 / 1033 / 1036-2 / 8036-9



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

Technical data

Measuring element	Pt100 wire-wound	Nominal length	250 mm
Class	1/10 B (DIN EN 60751) at 0 °C	Sensor tube	Stainless steel, diameter 3 mm
Measuring tip	Operative range -50 to +400 °C	Connecting cable	2 meters, FEP / silicone
Response time T90	5 seconds	ALMEMO® plug	Resolution 0.001 K

Accessories

	Order no.
Aluminum profile case for 1 sensor (up to 500 mm in length)	**ZB9000TK1**

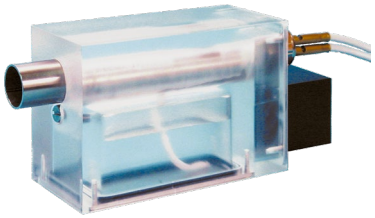
Standard delivery

	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**

Other version:
Pt100 precision sensor FPA924L0500H for the operating range -100 ... +660 °C see chapter 01, ALMEMO® 1033.
On request: Precision resistance temperature sensor Pt100 for the application range -200 ... +250 °C

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.

Pt100 high-precision psychrometer FPA 836-3P3 for reference measuring instrument ALMEMO® 1036-2 / 8036-9



! To achieve a high precision, it is absolutely necessary to calibrate the measuring chain! Please order additionally!

Technical data

Operating temperature	0...+90 °C (no ice formation)	Housing	Plastic PMMA
Humidity measuring range	approx. 10 to 100 % RH	Dimensions	175 x 50 x 75 mm (LxWxH)
Measuring system	psychrometric	Ventilator power supply	12 VDC via mains unit Cable, approx. 1.5 meters (included in delivery)
Accuracy	±0.8 % RH in the range of 10 to 100 % RH at 10 to 90 °C and 900 to 1050 mbar	Connecting cables	2 cables, each 5 meters, FEP/shield/FEP
Temperature sensors	sheet resistance 2 x Pt100 class B, ALMEMO® adjusted	ALMEMO® plug	Pt100, resolution 0.001 K

Accessories

	Order no.
Spare wicks (2 pieces)	**ZB98462ED**

Standard delivery

	Order no.
Psychrometer with two Pt100 sensors, fitted cable, with two ALMEMO® plugs, resolution 0.001 K for ALMEMO® 1036-2 / 8036-9, mains unit, extension cable for power supply unit ZB5090VK05, water bottle, 1 pair of wicks, carry case ZB2490TK2	**FPA8363P3**

DAkkS accredited calibration KD92xxD, atmospheric pressure, for measuring chain (sensor and device), see chapter „Calibration certificates“. The DAkkS accredited calibration meets the requirements of DIN EN ISO/IEC 17025 for test equipment.