ALMEMO® MEASURING INSTRUMENTS

The ALMEMO® System

Since the first ALMEMO® instrument, we have continuously improved the fascinating ALMEMO® system with its infinite possibilities for sensor connection, data processing and device networking. As a result, a wide range of all types of measuring instruments is now available; from 1-channel transmitters to data acquisition systems with more than 1000 measuring points.

The measuring instruments of the ALMEMO® series only differ from each other with regard to their enclosure (handheld instruments, desktop instruments, 19" systems, switchboard instruments, transmitters etc.), the number of measuring inputs (1 to 250), the display, output and operating controls, and the power supply. By means of the intelligent ALMEMO® connector, when connecting the sensors and interface cables, the instruments will be completely programmed up to the time-oriented sequential control. They provide a uniform function range and configurable options. Furthermore, all parameters can be accessed via the interface and can also be modified as the memory devices built into the connectors can be repeatedly overwritten.

► The ALMEMO® Principle: Only One Instrument For All Sensors:

There is a wide range of transducers, sensors and signals that, when using the patented ALMEMO® connector system, can be connected to any measuring input of any measuring instrument. No programming is required as all sensor data is contained in the connector plug, enabling the measuring instrument to be automatically configured as soon as it is connected. By means of the sensor data memory (EEPROM) all sensors can be calibrated, scaled and identified with a uniquely defined designation. This individual sensor designation allows for a neat arrangement of the measurement setup and avoids confusion. Sensor errors can be corrected within the connector, i.e. simple sensors become precision transducers. Standard signals can be displayed with their original dimension. For multi sensors, e.g. temperature and humidity, generally, only one shared connector will be required. The programming can be protected by a graded locking function. Conclusion: Highest possible precision at minimum expenditure; faulty measurements do not occur.

► You Will Not Need Any New Sensors To Use ALMEMO® Instruments!

We will provide you with the matching connector for your own existing sensors, which are very easy to connect. Furthermore, you can program ALMEMO® connectors on your own via keypad, terminal or software. The memory devices within the connector can be repeatedly overwritten.

► ALMEMO® Instruments Can Be Used Universally!

All instruments contain the same test input circuitry. More than 60 standard measuring ranges are available for branch-independent applications, e.g. for measuring the following:- Temperature, humidity, flow, heat flow, pressure, rotational speed, frequency, resistance, current, voltage, force, wire strain gauges, displacement, pH values, redox potential, conductivity, O_2, CO_2, CO, O_3 etc. Maximum and minimum values will be automatically stored. Measured values can be averaged over single measurements, over the output cycle or over the total duration of the measurement; limit values can be monitored by programming max/min values. Measured values can be corrected with regard to the zero point and slope (gain) and can be scaled by factor, exponent and dimension.

► ALMEMO® Instruments Are Nevertheless Individual!

ALMEMO® instruments automatically identify the characteristic data of the connected sensor. Specific functions will only be activated if the corresponding connector, interface cable or module are present. With humidity sensors the dew point, mixture ratio, vapour pressure and enthalpy will be automatically calculated. For measurements with psychrometers, Pitot tubes and probes for solute oxygen, the latest atmospheric pressure data can be entered or automatically compensated using pressure sensors. The influence of temperature can be compensated when measuring dynamic pressure, pH value, solute oxygen and conductivity. For volume flow measurements the cross section can be entered for flow sensors. Connectors with an integrated interface circuitry are available for special sensors.

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► **ALMEMO® Instruments Meet The Most Demanding Requirements!**

16-bit or 24-bit A/D converter, digital linearization (for Pt100 sensors according to the new ITS 90 temperature scale), digital calibration . Optimal cold junction compensation is ensured by using precision thermistors in the socket spring. Measuring inputs, power supply and interfaces are electrically isolated from each other.

► **The ALMEMO® Data Acquisition Adapts To Your Requirements!**

Data loggers have a 512-KB memory (sufficient for 100,000 measured values), expandable up to 32 MB, and configurable as linear memory or ring memory. Data logger memories can be selectively read out according to time or number. The switchover between measuring points is electrically isolated using semiconductor relays that are totally wear-resistant. This permits continuous measuring point scanning at 10 or 50 measuring operations per second; this can even be performed on a permanent basis. Measuring point scans can be individually programmed. Measuring cycles and output cycles can be selected independently; and measured values, average values, and maximum / minimum values can be either output or saved to memory. The start and stop of each measuring point scan can be controlled, as required, via keypad or interface, by date and time-of-day, by limit value, or by means of an external signal. All measuring instruments can be addressed via the interface and can, therefore, be networked. Up to 100 instruments can be easily linked by using network cables. The output of measured values of all instruments in the whole network can be performed from any instrument. RS422 drivers and distributors are available for longer distances. This system minimises the equipment required, cabling costs and EMC problems, and can be extended as required.

► **ALMEMO® Instruments Accept Any Peripheral Equipment At Optimal Data Transmission!**

Analog or digital interfaces are not installed in the instruments but in the connectors and connecting cables. Depending on the requirements it is possible to connect the most varied peripheral devices, e.g.: Analog outputs, various interfaces (RS232, RS422, optic fiber, current loop, Ethernet, Bluetooth), alarm signal transmitters or trigger inputs. For remote enquiries with a maximum baud rate of 9600Bd data can be also transmitted via a standard communication line (analog or ISDN) or mobile radiocommunication modems.

► **ALMEMO® Instruments Allow For A Convenient Evaluation Of Measuring Data!**

Matching output formats are provided for printer or spreadsheet software. Various AMR software packages are available for the graphical presentation and evaluation of measuring data.

► **ALMEMO® Instruments Can Be Easily Programmed!**

The software protocol and the instruction list are identical for all instruments. Only one terminal is required to program all parameters and scan the measuring data. Free WINDOWS™ configuration software AMR-Control with terminal is available for this purpose.

ALMEMO® Measuring Functions

Some important ALMEMO® measuring functions are described on the following page. Listing all the measuring functions and application options would be beyond the scope of this catalogue. Please ask for our detailed ALMEMO® Manual!

ALMEMO® MEASURING INSTRUMENTS

Humidity Measurement:

The humidity sensors provide 4 channels, which can be optionally programmed for the variables temperature, relative humidity, dew point, mixture ratio, partial vapour pressure or enthalpy. The first 4 variables are available as standard. All measuring and programming functions (max, min, limit values) can be applied to all channels.

In addition, the function atmospheric pressure will be activated for psychrometers and allows for entering and compensating a strongly deviating atmospheric pressure (e.g. for high elevations above MSL).

A special moisture probe is set with the base value to the most varied materials within the material groups: construction materials, wood and paper.

Flow Measurement:

When using flow sensors, rotating vanes or dynamic pressure sensors the universal instrument ALMEMO® 2590-2 allows for activating averaging functions, volume flow, as well as cross sectional area or diameter of a channel. The volume flow is calculated over the cross sectional area by net measurements with averaged single values or continuous averaging. An automatic temperature compensation is available as the calculation of the flow velocity in Pitot tubes strongly depends on the air temperature. Furthermore, an attenuation filter with selectable time constant can be set so that undisturbed measured values can be used for critical measuring points within a channel.

Infrared Measurement with Emission Factor and Background Temperature:

For infrared temperature measurements it is essential to consider the emission factor and background temperature.
These two functions will be also activated and parameters will be stored in the connector when connecting IR probes.

Wet Bulb Globe Temperature Measurement:

The Wet Bulb Globe Temperature (WBGT) is used for evaluating the heat stress at a working place. It is calculated from the dry temperature TT, the natural humid temperature HT and the globe temperature GT, by means of a psychrometer with disengageable ventilator and a globe thermometer:

WBGT = 0.1µTT + 0.7µHT + 0.2µGT

A function channel, WBGT, is available for evaluating this formula.

Measurement of Heat Flow, Temperature Coefficient and U Value:

For each heat flow plate the calibration value is stored in the connector as factor allowing for heat flow measurements without requiring a setting of the calibration value. Furthermore, it is possible to use function channels to determine the average heat flow value, a temperature difference with an average value, and a temperature coefficient from the quotient of both average values. Depending on the arrangement of the temperature sensors the heat transfer coefficient α, the heat conductivity coefficient Λ or the heat transition coefficient U (U value) can be determined.

Force Measurement including Adjustment of Zero Point and Final Value:

Force transducers allow to adjust the constant load (tare) and to enter the final value as nominal value.
The correction value will be automatically calculated from this. A connector that switches on this resistor for the adjustment is available for force transducers with integrated reference resistor.

Adjustment and Temperature Compensation of pH Probes:

pH probes are subject to ageing and, therefore, must be periodically re-calibrated. The calibration of zero point and slope (gain) can be performed by the push of a button using the standard reference buffer solutions. A big advantage is the fact that the calibration setting will be stored in the connector so the probe can also be operated with other instruments. It is even possible to use several probes with individual calibrations.
The temperature compensation function can be automatically performed by using a combined temperature/pH value probe, or manually, by entering the temperature of the medium.

Conductivity Measurement with Temperature Compensation:

By using the conductivity probe the temperature of the medium is measured and the conductance referred to 25°C will be calculated.

ALMEMO® MEASURING INSTRUMENTS

General Technical Specifications

Inputs:

Channel switching between input sockets	4-contact with photo-MOS relay Potential separation : Maximum 50 V (for measuring modules with higher potential separation, see Chapter 03) Offset voltage : <5 µV
Cold junction compensation :	Effective in range –30 to +100 °C Accuracy ±0.2 K ±0.01 K / °C
Nominal temperature :	22 °C ±2 K
Sensor power supply :	6 to 12 V depending on power supply
Self-calibration :	Automatic zero-point correction, measuring current calibration
Check functions	Automatic sensor and sensor breakage detection

A/D converter:

Delta-sigma, 15-bit resolution (ALMEMO® 2450, THERM 2420)

Measuring rate	2.5 mops
Common-mode input range	-0.26 to +2.6 V Overload -4 to +5 V
Input current	<2 nA
System accuracy	±0.1 % of measured value ±3 digits
Temperature drift	0.01 %/K

16-bit resolution

	Multi-slope, integrating (ALMEMO® 6290)	**Delta-sigma** (ALMEMO® 2490, 2590, 8390)
Measuring rate :	2.5 or 10 measuring operations per second	
Common-mode input range:	–4...+4 V overload ± 5V	–2.0...+5 V overload -2 ...+5V
Input current:	< 50 nA	< 20 nA
Measuring current	Pt 100: appr. 1 mA Pt 1000: appr. 0,1 mA	Pt100, Pt1000 0.3 mA
System accuracy:	±0.03% of measured value ±2 digits (at 2.5 measuring operations per second)	
Temperature drift:	0.005 % / K	

Delta-sigma 24-bit resolution (ALMEMO® 2690, 2890, 4390, 5690, 8490, 8590, 8690)

Measuring rate	2.5 / 10 / 50 / 100 mops with option SA0000Q4 400 mops (see below)
Common-mode input range	–3 to +3 V in DC range (2.6 V) –2.0 to +1.7 V in all other measuring ranges
Overload	maximum ±12 V
Input current	500 nA in DC range (2.6 V) 500 pA in all other measuring ranges
Measuring current	Pt100 approx. 1 mA; Pt1000 approx. 0.1 mA
System accuracy:	0,02% ±1 digit at 2.5 und 10 measuring operations per second 0,05% ±3 digit at 50 measuring operations per second
Temperature drift:	0,003 % / K
Functional restrictions	Impaired sensor breakage detection and higher interference - at 50 mops and above caused by : mains hum (suppression no longer possible, can be remedied by using twisted wiring)

new!

New: **Measuring rate 400 mops (Option SA0000Q4)**

It is also possible, in addition to the standard conversion rates, to set 400 mops (measuring operations per second). It is thus possible to save 1 selected measuring channel at the rate of 400 mops. This can only be used with sensors with voltage or current ranges or NTC sensors. Change channels during such a measuring operation is not permitted. The resolution, the accuracy, and the sensitivity to disturbance caused by mains hum or electromagnetic interference are comparable with measuring operations performed at 50 mops. Care must be taken to ensure that the working environment is free from interference and that the sensor lines are short. Data can only be output to an MMC card. Accessories ZA1904MMC Memory connector with MMC (as of connector version 1.17, 2.04). The data is saved in table format (separated by semi-colons) and with a time-stamp whose resolution is 0.0001 seconds. This format can be processed using the WinControl software (as of version 6.1.1.6).

ALMEMO® MEASURING INSTRUMENTS

Measuring Ranges

Type of Sensor	Model	Meas. Range	Dim.	Resol.	Linearisation Accuracy	Connector Progr.
Resistance-based temperature sensors:						
Pt100/1000-1 4-conductor	FP Axxx	–200.0 … +850.0	°C	0.1 K	±0.05 K ±0.05 % of meas.v.	ZA 9030-FS1 / 4
Pt100/1000-2 4-conductor	FP Axxx	–200.00 …+400.00*	°C	0.01 K	±0.05 K	ZA 9030-FS2 / 5
Pt100-3 4-conductor	FP Axxx	8.000 …+65.00*	°C	0.001 K	±0.002 K	ZA 9030-FS7
Ni100/1000 4-conductor		–60.00 …+240.00	°C	0.1 K	±0.05 K	ZA 9030-FS3 / 6
Ntc type N	FN Axxx	–50.00 …+125.00	°C	0.01 K	±0.05 K	ZA 9040-FS
Thermocouples:						
NiCr-Ni (K)	FT Axxx	–200.0 …+1370.0	°C	0.1 K	±0.05 K ±0.05 % of meas.v.	ZA 9020-FS
NiCroSil-Nisil (N)		–200.0 …+1300.0	°C	0.1 K	±0.05 K ±0.05 % of meas.v.	ZA 9020-FSN
Fe-CuNi (L)		–200.0 … +900.0	°C	0.1 K	±0.05 K ±0.05 % of meas.v.	ZA 9021-FSL
Fe-CuNi (J)		–200.0 …+1000.0	°C	0.1 K	±0.05 K ±0.05 % of meas.v.	ZA 9021-FSJ
Cu-CuNi (U)		–200.0 … +600.0	°C	0.1 K	±0.05 K ±0.05 % of meas.v.	ZA 9000-FSU
Cu-CuNi (T)		–200.0 … +400.0	°C	0.1 K	±0.05 K ±0.05 % of meas.v.	ZA 9021-FST
PtRh10-Pt (S)		0.0 …+1760.0	°C	0.1 K	±0.3 K	ZA 9000-FSS
PtRh13-Pt (R)		0.0 …+1760.0	°C	0.1 K	±0.3 K	ZA 9000-FSR
PtRh30-PtRh6 (B)		+400.0 …+1800.0	°C	0.1 K	±0.3 K	ZA 9000-FSB
AuFe-Cr		–270.0 … +60.0	°C	0.1 K	±0.1 K	ZA 9000-FSA
Electrical and digital signals:						
Millivolt DC		–10.0 … +55.0	mV	1 µV	–	ZA 9000-FS0
Millivolt 1 DC		–26.0 … +26.0	mV	1 µV	–	ZA 9000-FS1
Millivolt 2 DC		–260.0 … +260.0	mV	0.01 mV	–	ZA 9000-FS2
Volt DC		–2.6 … +2.6*	V	0.1 mV	–	ZA 9000-FS3
Volt DC		–26 … +26	V	1 mV	–	ZA 9602-FS
for measuring bridges, supply 5V (example)		-26.0 ... +26.0	mV	1 µV	-	ZA9650FS1V
for potentiometer, supply 2.5V		-2.6 ... +2.6*	V	0,1mV	-	ZA9025FS3
Volt AC (50Hz…2kHz) (example)		0 … +26	V	0.1 V	–	ZA 9603-AK3
Volt AC (11Hz…250Hz) (example)		0 … +400	V	1 V	–	ZA 9903-AB5
Ampere AC (11Hz…250Hz) (example)		0 … +10.00	A	0.01 A	–	ZA 9904-AB2
Volt DC (sampling rate 1kHz) (example)		0 … +400	V	1 V	–	ZA 9900-AB5
Ampere DC (sampling rate 1kHz) (example)		0 … +10.00	A	0.01 A	–	ZA 9901-AB4
Milliampere DC		–32.0 … +32.0	mA	1 µA	–	ZA 9601-FS1
Percent (4-20mA DC)		0.0 … 100.0	%	0.01 %		ZA 9601-FS2
Ohm		0.00 …500.00*	Ω	0.01 Ω	–	ZA 9003-FS
Ohm		0.0 …5000.0*	Ω	0.1 Ω	–	ZA 9003-FS2
Frequency		0 … 15000	Hz	1 Hz	–	ZA 9909-AK1U
Pulses/measuring cycle		0 … 65000			–	ZA 9909-AK2U
Digital interface		0 … 65000			–	ZA 9919-AKxx
Digital input		0.00… 100.00	%		–	ZA 9000-ES2
Capacitive humidity sensors:						
Relative humidity	FH A646	5.0 … 98.0	%H	0.1 %	–	
Relative humidity with TC	FH A646-R/C	5.0 … 98.0	%H	0.1 %	±0.5 %	
Dew point temperature		–25.0 … 100.0	°C	0.1 K	±0.2 K	
Mixture ratio		0.0 … 500.0	g/kg	0.1 g/kg	±0.5 % of meas.v.	
Partial vapour pressure		0.0 … 1013.2	mbar	0.1 mbar	±0.1mbar ±0.1 % of meas.v.	
Enthalpy		0.0 … 400.0	kJ/kg	0.1 kJ/kg	±0.5 % of meas.v.	
Psychrometer	FN A846					ZA 9846-AK
Humid temperature		0.00 …+100.00	°C	0.01 K	±0.05 K	
Relative humidity		0.0 … 100.0	%H	0.1 %	±1.0 %H	
Dew point temperature		–25.0 … 100.0	°C	0.1 K	±0.2 K	
Mixture ratio		0.0 … 500.0	g/kg	0.1 g/kg	±0.5% of meas.v.	
Partial vapour pressure		0.0 … 1013.2	mbar	0.1 mbar	±0.1mbar ±0.1% of meas.v.	
Enthalpy		0.0 … 400.0	kJ/kg	0.1 kJ/kg	±0.5% of meas.v.	

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

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Measuring Ranges

Type of Sensor	Model	Meas. Range	Dim.	Resol.	Linearisation Accuracy	Connector Progr.
Flow sensors:						
Rotating vane, normal	FV A915-S120	0.30 … 20.00	m/s	0.01 m/s	±0.1 m/s ±0.2% of meas.v.	ZA 9915-AKS1
Rotating vane, normal	FV A915-S140	0.40 … 40.00	m/s	0.01 m/s	±0.2 m/s ±0.2% of meas.v.	ZA 9915-AKS2
Rotating vane, micro	FV A915-S220	0.50 … 20.00	m/s	0.01 m/s	±0.1 m/s ±0.2% of meas.v.	ZA 9915-AKS3
Rotating vane, micro	FV A915-S240	0.60 … 40.00	m/s	0.01 m/s	±0.2 m/s ±0.2% of meas.v.	ZA 9915-AKS4
Rotating vane, macro	FV A915-MA1	0.10 … 20.00	m/s	0.01 m/s	±0.1 m/s ±0.2% of meas.v.	ZA 9915-AK5
Water turbine	FV A915-WM1	0.00 … 5.00	m/s	0.01 m/s	±0.1 m/s ±0.2% of meas.v.	ZA 9915-AK6
Dyn. pressure sensor	FD A602-S1K	0.5 … 40.0	m/s	0.1 m/s	±0.1 m/s	
Dyn. pressure sensor	FD A602-S6	1.8 … 90.0	m/s	0.1 m/s	±0.1 m/s	
Thermoanemometer	FV A935-TH4	0 … 2.000	m/s	0.001 m/s	–	
Thermoanemometer	FV A9355-TH3	0 … 20.00	m/s	0.01 m/s	–	
Thermoanemometer	FV A605-TA1	0.01 … 1.000	m/s	0.001 m/s	–	
Thermoanemometer	FV A605-TA5	0.15 … 5.00	m/s	0.01 m/s	–	
Chemical probes:						
Conductivity	FY A641-LF	(e.g.)0.0 … 20.000	mS	0.001 mS	±0.2% of meas.v.	
O_2 dissolved, saturation	FY A640-O2	0 … 260	%	1%	–	
O_2 dissolved, concentration	FY A640-O2	0.0 … 40.0	mg/l	0.1 mg/l	±0.2 mg/l	
O_2 in gases	FY 9600-O2	1 … 100	%	1%	–	
O_3 in gases	FY 9600-O3	0 … 300	ppb	20 ppb	–	
CO probe	FY A600-CO	(e.g.) 0 … 300	ppm	1 ppm	–	
CO_2 in gases	FY A600-CO2	(eg) 0.000 … 0.500	%	0.01 %	±0.2 % of meas.v.	
pH-probe	FY 96PH-Ex	0.0 … 14.00	pH	0.01 pH	–	ZA 9610-AKY4W
Redox probe	FY 96RX-Ex	0.0 … 2600.0	mV	0.1 mV	–	ZA 9610-AKY5W
Optical radiation (examples):						
Lux measuring probe	FL A613-VL	0 … 260000	lux	1 lux	–	
Lux measuring probe	FL A603-VL2	0.05 … 12500	lux	0.01 lux	–	
Lux measuring probe	FL A603-VL4	1 … 250000	lux	1 lux	–	
UV measuring probe	FL A613-UV	0 … 87.00	W/m^2	0.01 W/m^2	–	
UVA measuring probe	FL A603-UV24	0.0004 … 100	mW/cm^2	0.1 $\mu W/cm^2$	–	
Radiometric meas. head	FL A603-RW4	0.00004 … 10	mW/cm^2	0.01 $\mu W/cm^2$	–	
Photosynthesis meas. head	FL A603-PS5	0.0002 … 100	$mmol/m^2s$	0.1μmol/m^2s	–	
Further transducers that can be connected (examples):						
Heat flow plates	FQ Axxx	–260.0 … +260.0	mV	0.01 mV	–	ZA 9007-FS
Moisture sensor for materials	FH A696-MF	0 … 50.0	%	0.1%	–	
Differential pressure	FD A612-SR	0 … 1000	mbar	0.1 mbar	–	
Barometer	FD A612-SA	0.0 … 1050	mbar	0.1 mbar	–	
Pressure transducers	FD-A602xx	(e.g.) 0.00 … 10.00	bar	0.01 bar	–	
Force transducer	FK Axxx	(e.g.) 0.0 … 50.00	kN	0.01 kN	–	
Displacement transducers	FW Axxx	(e.g.) 0.0 … 150.00	mm	0.01 mm	–	
Tachometer	FU A919-2	8 … 30000	rpm	1 rpm		ZA 9909-AK4U
Function values:						
Difference					–	
Max. value					–	
Minimum value					–	
Average value over time					–	
Average value over meas. pt.					–	
Sum over measuring points		0 … 65000			–	
Total number of pulses	ZA 9909-AK2U	0 … 65000			–	
Pulses/print cycle	ZA 9909-AK2U	0 … 65000			–	
Alarm value		0.0 … 100.00	%		–	
Thermal coefficient	M (q) / M (ΔT)				–	
Wet bulb globe temp.	(0.1TT+0.7HT+0.2GT)				–	
Measuring value:						
Cold junction temperature			°C		–	
Number of average values					–	
Volume flow		0 ... 65000	m3/h	m3/h		

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

ALMEMO® MEASURING INSTRUMENTS

Outputs:

ALMEMO® socket A1	Digital interface	Baud rates: 1200, 2400, 4800, 9600, 57.6K, 115.2K Data : 8 bit serial, 1 start bit, 1 stop bit, no parity RS232 with data cable ZA1909DK5 USB with adapter cable ZB1909USB USB with data cable ZA1919DKU wireless with Bluetooth modules ZA1709BTxDK RS422 with branch box ZA5099NVL Ethernet with data cable ZA1945DK
	Analog output	–1.25 to +2.0 V with recording cable ZA1601RK
ALMEMO® socket A2	Networking	Current loop with network cable ZA1999NK5 wireless with Bluetooth modules ZA1709BTxNK
	data storage	ALMEMO® memory connector for multi-media card ZA1904MMC
	Analog output	–1.25 to +2.0 V, not electr. isol., with recording cable ZA1601RK 0–6 to +10 V, 0/4 to 20 mA, electr. isol., with adapter ZA8006RTA3
	Trigger input	with trigger cable ZA1000-ET/EK/EAK, ZA8006RTA3
	Relay output	with relay cable ZA100x-EGK/EAK, ZA8006RTA3
Measuring instrument: Interface to all ALMEMO® connectors/modules:	I^2C bus	
Operating temperature:	–10 to +60°C	
Storage temperature:	–30 to +60°C	
Humidity range:	10 to 90% (non-condensing)	
Electromagnetic compatibility:	IEC 61 326, IEC 61 000-6-1, IEC 61 000-6-3, IEC 61 000-4-2, IEC 61 000-4-3, IEC 61 000-4-4	

Mains adapter and DC power supply cable see page 07.05

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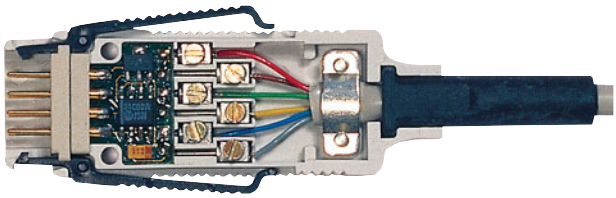
Up to Four Measuring Channels On One Measuring Input

Depending on the sensor and measuring instrument the ALMEMO® measuring system allows for acquiring a varying number of measuring channels at any measuring input. The reason for this advantage is the patented ALMEMO® connector system:



Inside the patented ALMEMO® connector 6 screw terminals are located: 2 for sensor power supply and 4 for the measuring signal of the sensor. If Pt100 sensors with 4-conductor circuit are used, all of the 4 free connectors will be required for the measuring signal. Therefore, only one sensor of this type can be connected for each measuring input. Electrical signals only require 2 terminals for the measuring signal. As a result, one connector allows to acquire two different measuring signals with one single measuring channel. For example, humidity sensors also often combine a temperature sensor. The corresponding operands (e.g. dew point, mixture ratio, partial vapour pressure, enthalpy) are programmed within the connector as additional measuring channels. However, one measuring input allows for an output of four measuring channels at maximum.

Document, Acquire, Evaluate!

ALMEMO® instruments allow you to perform a wide range of measuring tasks. The option to document series of measurements and to perform a decentralised (local) data acquisition and computer-aided evaluation of the measuring results is often a must for metrology users in the most varied industrial fields.