2.1 ALMEMO® measuring instruments

Although measured values processing and the functions are virtually identical on all ALMEMO® measuring instruments, there are nonetheless numerous different variants to cover all conceivable requirements. The most important variants are listed below.

Hand-held devices:

2450-1/L 1 input, maximum / minimum / hold functions
Option With interface

2490-1/2/L 1 / 2 input(s), maximum, minimum functions, memory for 100 values
Options electr. isol. analog outputs, RS485 interface electr. isol. 24-V power supply

2590-2/3/4 2-4 inputs, graphics display, data logger, sleep mode, Option Memory or SD card

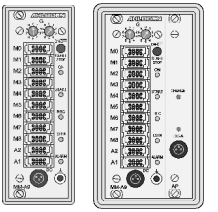
2690-8A 5 inputs, graphics display, data logger, sleep mode
new: With rechargeable battery and charge circuit

2890-9 9 inputs, data logger, sleep mode, graphics display
With rechargeable battery pack and charge circuit

Desktop devices

8590-9 9 inputs, 1 key, data logger, sleep mode - no display
Option Memory or micro SD card

8690-9A Same as above
With rechargeable battery module and charge circuit



Data acquisition systems:

5690-1 19-inch system with 9 inputs, maximum 99, with selector switch boards, data logger; option of memory or micro SD card

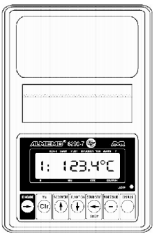
5690-2 As above but with keypad, graphics display, MMC memory; option of rechargeable battery pack

Control panel and control cabinet devices:

4390-2 Control panel device with 8-character LED display, 1 input, 5 keys, 2 relays; option of electrically isolated double analog output

Instrument with built-in printer:

6290-7 2 inputs, 6 keys, display, and built-in thermal printer, list printout, plotting function; option with rechargeable battery; option with memory



A detailed list of the equipment and functions of these device variants is provided in the following table.

2.2 Equipment and function

Measuring functions :	**2450**	**2490**	**2490**	**2590**	**2590**	**2590**	**2690**	**2890**	**8590**	**5690**	**5690**	**4390**
Standard equipment:	**-1**	**-1**	**-2**	**-2**	**-3S**	**-4S**	**-8A**	**-9**	**-9**	**-1**	**-2**	**-2**
Sensor inputs, maximum	1	1	2	2	3	4	5	9	9	99	99	1
Channels per input	4	4	4	4	4	4	4	4	4	1-4	1-4	4
Measuring channels, maximum	4	4	12	12	16	20	24	40	40	99	99	4
Maximum conversion rate 2.5 / 10 / 50 / 100 mops (measuring operations per second)	2.5	10	10	10	10	10	100	100	100	100	100	100
Output sockets / option	T2/3	T2/3	T2/3	2	2	2	2	2	2	2	2	2/3
Connection for analog output, relays / triggers	T	T	T	●	●	●	●	●	●	●	●	●
Connection for serial interface, network	T	T	T	●	●	●	●	●	●	●	●	●
Display type (C=LCD/G=graphics LCD/L=LED)	11C	11C	11C	168G	168G	168G	336G	336G	-	-	336G	8L
Display illumination, white LEDs	-	-	-	●	●	●	●	●	-	-	●	-
Function keys (S = softkeys / B = thumbwheel)	7	7	7	7S	7S	7S	9S	9SB	1	1	9S	5
Measuring and programming menus	-	-	-	●	●	●	●	●	-	-	●	●
Real-time clock with date	T	T	T	●	●	●	●	●	●	●	●	●
EEPROM, internal, in KB	-	-	-	-	64	64	1024	512	O512	O512	O512	128
Storage on external SD memory card	-	-	-	Z	Z	Z	Z	Z	Z	Z	●	Z
Sleep mode for long-term recording	-	-	-	Z	●	●	●	●	●	●	●	-
Power supply (B = battery / A = rechargeable battery / /N = mains)	B/O	B/O	B/O	B/N	B/N	B/N	B/N	A/N	N	N	N	N
Power supply from rechargeable battery (with rapid charging)	-	-	-	-	-	-	●	●	T	Z	Z	-
Power supply, 9 to 36 V, electrically isolated	O	O	O	Z	Z	Z	Z	Z	Z	Z	Z	O
Sensor / battery voltage monitoring	●	●	●	●	●	●	●	●	●	●	●	●
Functions for sensor parameters:												
Measuring range, programmable	TV	TV	TV	●	●	●	●	●	V	V	●	●
Function channels (maximum, minimum, average, differential, total)	oTV	oTV	oTV	●	●	●	●	●	V	V	●	●
Reference channels, programmable	oTV	oTV	oTV	●	●	●	●	●	V	V	●	V
Units, any 2 characters	TV	TV	TV	●	●	●	●	●	V	V	●	●
Measuring channel designation, 10 characters	TV	TV	TV	●	●	●	●	●	V	V	●	V
Time constant for measured value smoothing	oTV	oTV	oTV	●	●	●	●	●	V	V	●	●
Averaging mode (manual start / stop, single)	-	-	-	●	●	●	●	●	-	-	●	●
Averaging mode (continuous, cyclic)	TV	TV	TV	●	●	●	●	●	V	V	●	●
Input of cross-section or diameter	TV	TV	TV	●	●	●	●	●	V	V	●	●
Limit values, maximum and minimum	TV	TV	TV	●	●	●	●	●	V	V	●	●
Hysteresis for alarms, programmable	TV	TV	TV	●	●	●	●	●	V	V	●	●
Assigning of alarm relays to limit values	TV	TV	TV	●	●	●	●	●	V	V	●	●
Zero-point correction, gain correction	oTV	oTV	oTV	●	●	●	●	●	V	V	●	●
Multi-point calibration / programming	o	o	o	o	o	o	o/O	o/O	o/O	o/O	o/O	o
Emissivity factor	-	-	-	F	F	F	F	F	V	V	F	-
Base value, factor, exponent	oTV	oTV	oTV	●	●	●	●	●	V	V	●	●
Analog output scaling (start / end)	●	●	●	●	●	●	●	●	V	V	●	●
Minimum sensor voltage, programmable	oTV	oTV	oTV	●	●	●	●	●	V	V	●	V
Locking the sensor programming	TV	TV	TV	●	●	●	●	●	V	V	●	●

Measuring functions :	**2450 -1**	**2490 -1**	**2490 -2**	**2590 -2**	**2590 -3S**	**2590 -4S**	**2690 -8**	**2890 -9**	**8590 -9**	**5690 -1**	**5690 -2**	**4390 -2**
Measured value	●	●	●	●	●	●	●	●	V	V	●	●
B = bar chart, line chart	-	-	-	B	B	B	●	●	-	-	●	-
Differential measurement	oTV	oTV	●	●	●	●	●	●	V	V	●	V
Maximum value and minimum value	●	●	●	●	●	●	●	●	V	V	●	●
Date and time-of-day of maximum and minimum values	TV	TV	TV	●	●	●	●	●	V	V	●	V
Single values memory (hold function), number	1	100	100	100	100	100	-	-	-	-	-	-
Average value, number of averaged values	-	-	-	●	●	●	●	●	V	V	●	●
Volume flow (average value x cross-section)	-	-	-	●	●	●	●	●	V	V	●	●
Atmospheric pressure compensation (psychrometer, O_2)	TV	TV	TV	●	●	●	●	●	V	V	●	●
Cold junction compensation, internal, external, fixed	TV	TV	TV	●	●	●	●	●	V	V	●	●
Temperature compensation (RH, pH, conductivity, dynamic pressure, O_2)	●	●	●	●	●	●	●	●	●	●	●	●
Sensor adjustment	TV	TV	TV	●	●	●	●	●	V	V	●	●
Entering the setpoint	TV	TV	TV	●	●	●	●	●	V	V	●	●
Linearization, multi-point correction	●	●	●	●	●	●	●	●	●	●	●	●
Functions, device parameters												
Device designation, 40 characters	TV	TV	TV	●	●	●	●	●	V	V	●	V
Keypad locking	-	-	-	-	-	-	O	O	-	-	O	-
Choice of language	-	-	-	●	●	●	●	●	-	-	●	●
Continuous measuring point scanning with output	TV	TV	TV	V	V	V	●	●	V	V	●	V
Date and time-of-day	TV	TV	TV	●	●	●	●	●	V	V	●	●
Cycle	TV	TV	TV	Z/V	●	●	●	●	V	V	●	●
Baud rate, device address	TV	TV	TV	●	●	●	●	●	V	V	●	●
Output format - list / columns / table	TV	TV	TV	Z/V	●	●	●	●	V	V	●	V
Once-only meas. value scanning and output	TV	TV	TV	Z/V	●	●	●	●	V	V	●	●
Cyclic measured value scanning and output	TV	TV	TV	Z/V	●	●	●	●	V	V	●	●
Numbering of measuring operations	TV	TV	TV	Z	●	●	●	●	V	V	●	V
Numbers list, output	-	-	-	ZV	V	V	V	V	V	V	V	V
Start / stop by date and time-of-day	TV	TV	TV	Z/V	●	●	●	●	V	V	●	●
Start / stop by limit value / external trigger	TV	TV	TV	Z/V	●	●	●	●	V	V	●	V/●
Command macros	TV	TV	TV	V	V	V	V	V	V	V	V	V
Meas. val. memory, available memory capacity	-	-	-	Z	●	●	●	●	OZ	OZ	●	●
Continuous saving to memory	-	-	-	Z	●	●	●	●	OZ	OZ	●	V
Selective read-out from memory, according to start / end date and time	-	-	-	-	●	●	●	●	OZ	OZ	O	-
Output relays, controllable	TV	TV	TV	●	●	●	●	●	V	V	●	V

- ● Function is provided as standard and if appropriate can be programmed.
- **o** Programmed value is considered but cannot be programmed.
- **F** Function is activated by the appropriate sensor(s).
- **V** Function can only be called up and / or programmed via the serial interface.
- **T** Function depends on the device type.
- **O** Function is available as an option.
- **Z** Function is available as an accessory

2.3 Measuring ranges

Sensor type	Type	Measuring range	Dim	Resol.	Acuracy Linearisation
Resistance-based temperature sensors:					
Pt100/Pt1000-1 4-conductors	FP Axxx	-200.0... +850.0	°C	0.1 K	± 0.05 K ± 0.05 % of m.v.
Pt100/Pt1000-2 4-conductors	FP Axxx	-200.00... +400.00*	°C	0.01 K	± 0.05 K
Pt100-3 4-conductors	FP Axxx	0.000... +65.000*	°C	0.001 K	± 0.002 K
Ni100/Ni1000 4-conductors		-60.0 ... +240.0	°C	0.1 K	± 0.05 K
Ntc Typ N	FN Axxx	-50.00 ... +125.00	°C	0.01 K	± 0.05 K
Thermocouples:					
NiCr-Ni (K)	FT Axxx	-200.0 ... +1370.0	°C	0.1 K	± 0.05 K ± 0.05 % of m.v.
NiCroSil-Nisil (N)		-200.0 ... +1300.0	°C	0.1 K	± 0.05 K ± 0.05 % of m.v.
Fe-CuNi (L)		-200.0 ... +900.0	°C	0.1 K	± 0.05 K ± 0.05 % of m.v.
Fe-CuNi (J)		-200.0 ... +1000.0	°C	0.1 K	± 0.05 K ± 0.05 % of m.v.
Cu-CuNi (U)		-200.0 ... +600.0	°C	0.1 K	± 0.05 K ± 0.05 % of m.v.
Cu-CuNi (T)		-200.0 ... +400.0	°C	0.1 K	± 0.05 K ± 0.05 % of m.v.
PtRh10-Pt (S)		0.0 ... +1760.0	°C	0.1 K	± 0.3 K
PtRh13-Pt (R)		0.0 ... +1760.0	°C	0.1 K	± 0.3 K
PtRh30-PtRh6 (B)		+400.0 ... +1800.0	°C	0.1 K	± 0.3 K
AuFe-Cr		-270.0 ... +60.0	°C	0.1 K	± 0.1 K
Electrical signals:					
Millivolts DC		-10.0 ... +55.0	mV	1 uV	-
Millivolts 1 DC		-26.0 ... +26.0	mV	1 uV	-
Millivolts 2 DC		-260.0 ... +260.0	mV	0.01 mV	-
Volt DC		-2.6 ... +2.6*	V	0.1 mV	-
Volt DC		-26,0 ... +26,0	V	1 mV	-
Difference-millivolts DC		-10.0 ... +55.0	mV	1 uV	-
Difference-millivolts1 DC		-26.0 ... +26.0	mV	1 uV	-
Difference-millivolts2 DC		-260.0 ... +260.0	mV	0.01 mV	-
Difference-volts DC		-2.6 ... +2.6*	V	0.1 mV	-
Milliamperes DC		-32.0 ... +32.0*	mA	1 uA	-
Percent (4-20mA DC)		0.0 ... 100.0	%	0.01 %	-
Ohms 1		0.00 ... 500.00*	Ω	0.01 Ω	-
Ohms 2		0.00 ... 5000.0*	Ω	0.1 Ω	-
Frequency	ZA 9909-AK1	0 ... 15000	Hz	1 Hz	-
Pulses / measuring cycle	ZA 9909-AK2	0 ... 65000			-
Rotational speed	ZA 9909-AK4	8 ... 32000	UpM	1UpM	-
Digital input	ZA 9000-ES2	0.00 ... 100.00	%		-
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	FH A646	-25.0 ... 100.0	°C	0.1 K	± 0.2 K
Mixture ratio with PC	FH A646	0.0 ... 500.0	g/kg	0.1 g/kg	± 0.5 % of m.v.
Partial vapor pressure	FH A646	0.0 ... 1013.2	mbar	0.1 mbar	±0.1mbar ± 0.1% of m.v.
Enthalpy with PC	FH A646	0.0 ... 400.0	kJ/kg	0.1 kJ/kg	± 0.5 % of m.v.
Psychrometer					
Humid temperature	FN A846	0.00 ... +100.00	°C	0.01 K	± 0.05 K
Relative humidity with PC	FN A846	0.0 ... 100.0	%H	0.1 %	± 1.0 %H
Dew-point temperature with PC	FN A846	-25.0 ... 100.0	°C	0.1 K	± 0.2 K
Mixture ratio with PC	FN A846	0.0 ... 500.0	g/kg	0.1 g/kg	± 0.5 % of m.v.

Sensor type	Type	Measuring range		Dim	Resol.	Acuracy Linearisation
Partial vapor pressure with PC	FN A846	0.0 ...	1013.2	mbar	0.1 mbar	±0.1mbar ± 0.1% of m.v.
Enthalpy with PC	FN A846	0.0 ...	400.0	kJ/kg	0.1 kJ/kg	± 0.5 % of m.v.
Rotating vane, normal	FV A915-S120	0.30 ...	20.00	m/s	0.01 m/s	± 0.1 m/s ± 0.2 % of m.v.
Rotating vane, normal	FV A915-S140	0.40 ...	40.00	m/s	0.01 m/s	± 0.2 m/s ± 0.2 % of m.v.
Rotating vane, micro	FV A915-S220	0.50 ...	20.00	m/s	0.01 m/s	± 0.1 m/s ± 0.2 % of m.v.
Rotating vane, micro	FV A915-S240	0.60 ...	40.00	m/s	0.01 m/s	± 0.2 m/s ± 0.2 % of m.v.
Rotating vane, macro	FVA915-SMA1	0.10 ...	20.00	m/s	0.01 m/s	± 0.1 m/s ± 0.2 % of m.v.
Water turbine	FV A915-WM1	0.00 ...	5.00	m/s	0.01 m/s	± 0.1 m/s ± 0.2 % of m.v.
Dynamic pressure sensor with TC and PC	FD A602-M1K	0.5 ...	40.0	m/s	0.1 m/s	± 0.1 m/s
Dynamic pressure sensor with TC and PC	FD A602-M6	1.8 ...	90.0	m/s	0.1 m/s	± 0.1 m/s
Chemical probes						
Conductivity probe with TC	FY A641-LF/2/3	0.0 ...	20.000	mS	0.001 mS	± 0.2 % of m.v.
CO_2 probe	FY A600-CO2	0.0 ...	25.00	%	0.01 %	± 0.2 % of m.v.
O_2 saturation with TC and PC	FY A640-O2	0 ...	260	%	1 %	-
O_2 concentration with TC	FY A640-O2	0.0 ...	40.0	mg/l	0.1 mg/l	± 0.2 mg/l
Function values						
Difference						-
Maximum value						-
Minimum value						-
Average value over time						-
Average value over measuring points						-
Summation over measuring points		0 ...	65000			-
Total number of pulses	ZA 9909-AK2	0 ...	65000			-
Pulses / print cycle	ZA 9909-AK2	0 ...	65000			-
Alarm value		0.0 ...	100.00	%		-
Thermal coefficient	M(q) / M(ΔT)					-
Wet bulb globe temperature (WBGT)	(0.1TT+0.7HT+0.2GT)					-
Digital interface	ZA 9919-AKxx	0 ...	65000			-
Battery voltage		0,00 ...	20.00	V	0.01V	-
Measured value *						-
Cold junction temperature *		-30.00...	+100.00	°C	0.01K	± 0.05 K
Number of averaged values *		0 ...	65000		1	-
Volume flow *		0 ...	65000	m^3/h	1 m^3/h	-
Timer 1s *		0 ...	60000	s	1 s	-
Timer 0.1s *		0 ...	6000.0	s	0.1 s	-

* The measuring range provided depends on the device type and version; in some cases this data may differ; (see device instructions).
TC = With temperature compensation
PC = With atmospheric pressure compensation

2.4 Special measuring ranges

Type of Sensor	V5 Option	V6Connector*	Meas. range	Dim	Resol.	Accuracy Linearisation.
Resistor-based Temperature Sensor						
NTC Typ N FNA xxx	SB0000 N3	ZA9040SS3	5.000...+46.000	°C	0.001 K	± 0.005 K
KTY 84	SB0000 K	ZA9040SS4	-40.0... +200.0	°C	0.1 K	± 0.1 K
YSI 400	SB0000 Y	ZA9641SS	-40.0... +130.0	°C	0.01 K	0..50°C:± 0.05K; or:±0.1K
50 Ohm	-	ZA9003SS3	0.000... 50.000	Ω	0.001Ω	-
110 kOhm	-	ZA9003SS4	0.00... 110.00	Ω	0.01kΩ	± 0.2 % v.Mw. ± 0.02KΩ
Infrared Sensors:						
Infrared 1		FIA628-1/5xSS	0.0 ... +200.0	°C	0.1 K	±0.05 K ± 0.05 % of m.v.
Infrared 4		FIA628-4xSS	-30.0 ... +100.0	°C	0.1 K	± 0.05 K .
Infrared 6		FIA628-6xSS	0.0 ... +500.0	°C	0.1 K	± 0.1 K ± 0.05 % of m.v.
Thermocouples						
W5Re-W26Re (C)	SB0000W5	ZA9000SSC	0.0...+2320.0	°C	0.1 K	± 0.25 K
NiCr-Ni (K)	SB0000 N2	ZA9020SS2	-100.0...+500.00	°C	0.01 K	± 0.025 K
Flow sensors						
Thermosensor SS20	SB0000 S	ZA9602SSS	0.50... +20.00	m/s	0.01 m/s	± 0.02 m/s
Temp. Measuring Range for Refrigerants						
Only with device option SB0000 R* :						
R22 (0...36 $bar_{absolut}$)	dewpressure		-90.0... +79.0	°C	0.1 K	<-24°C:± 0.2K;>-24°C:±0.1K
R23 (0...49 $bar_{absolut}$)	dewpressure		-100.0... +26.0	°C	0.1 K	<-24°C:± 0.2K;>-24°C:±0.1K
R134a (0...40 $bar_{absolut}$)	dewpressure		-75.0... +101.0	°C	0.1 K	<-16°C:± 0.2K;>-16°C:±0.1K
R404a (0...32 $bar_{absolut}$)	dewpressure		-60.0... +65.0	°C	0.1 K	± 0.1 K
R404a (0...32 $bar_{absolut}$)	boilpressure		-60.0... +65.0	°C	0.1 K	± 0.1 K
R407c (0... 46 $bar_{absolut}$)	dewpressure		-50.0... +86.0	°C	0.1 K	<-30°C:± 0.2K;>-30°C:±0.1K
R407c (0... 46 $bar_{absolut}$)	boilpressure		-50.0... +86.0	°C	0.1 K	<-30°C:± 0.2K;>-30°C:±0.1K
R410 (0... 49 $bar_{absolut}$)	dewpressure		-70.0... +70.0	°C	0.1 K	<-30°C:± 0.2K;>-30°C:±0.1K
R417a (0... 27 $bar_{absolut}$)	dewpressure		-50.0... +70.0	°C	0.1 K	<-35°C:± 0.2K;>-35°C:±0.1K
R507 (0... 37 $bar_{absolut}$)	dewpressure		-70.0... +70.0	°C	0.1 K	<-30°C:± 0.2K;>-30°C:±0.1K

2.5 Technical data

Inputs

Channel switching	4-contact with photo-MOS relay, offset voltage <5 µV
between input sockets	Potential separation maximum 50 V Measuring modules with higher potential separation, see 4.2.8
Sensor power supply	6 to 12 V, depending on power supply
Self-calibration	Automatic zero-point correction, measuring current
calibration	
Nominal temperature	22 °C ± 2 K
Cold junction compensation	-30 to +100 °C
Accuracy	±0.2 K (±0.01 K / °C)
Monitoring functions	Automatic sensor recognition and sensor breakage detection

A/D converter

V5 device	Multi-slope integrating, 16-bit resolution
Measuring current	Pt100 approx. 1 mA; Pt1000 approx. 0.1 mA
Common-mode input range	-4 to +4 V
Overload	maximum ±5 V
Input current	<50 nA
Measuring rate	2.5 or 10 mops
System accuracy	±0.03 % of measured value ±2 digits (at 2.5 mops)
Temperature drift	0.005 % / °C

V6 devices 2420, 2450	Delta-sigma, 16-bit resolution
Common-mode input range	-0.26 to +2.6 V Overload max. -4 to +5 V
Input current	<2 nA
Measuring rate	2.5 mops
System accuracy	±0.1 % of measured value ±3 digits
Temperature drift	0.01 % / °C

V6 devices

2390, 2490, 2590, 8390	Delta-sigma, 16-bit resolution
Measuring current	Pt100, Pt1000 0.3 mA
Common-mode input range	-2 to +5 V Overload max. -2 to +5 V
Input current	<20 nA
Measuring rate	2.5 or 10 mops
System accuracy	±0.03 % of measured value ±2 digits (at 2.5 mops)
Temperature drift	0.005 % / °C

V6 devices

2890, 4390, 5690, 8590, 8690	Delta-sigma, 24-bit resolution
Measuring current	Pt100 approx. 1 mA; Pt1000 approx. 0.1 mA
Common-mode input range	-3.0 to +3.0 V in DC voltage 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 voltage range (2.6 V) 500 pA in all other measuring ranges
Measuring rate	2.5 / 10 / 50 / 100 mops, option 400 mops
System accuracy	0.02% ±1 digit (at 2.5 and 10 mops) 0.05% ±3 digits (at 50 mops)
Temperature drift	0.003 % / °C
Functional restrictions at 50 mops and above	Sensor breakage detection and higher interference - caused by : Mains hum (suppression no longer possible, can be remedied by using twisted wiring)

2690-8A	Same as above - except :
Common-mode input range	-1.9 to +2.9 V in all other measuring ranges
Input current	100 pA in all measuring ranges
Measuring rate	2.5 / 10 / 50 / 100 mops (measuring operations per second) Option 500 mops

Outputs

ALMEMO® socket A1

Digital interfaces	Baud rate 1200, 2400, 4800, 9600, 57.6k, 115.2k Data : 8 bit serial, 1 start bit, 1 stop bit, no parity RS232 with data cable ZA 1909-DK5 USB with data cable ZA 1919-DKU Optic fiber with data cable ZA 1909-DKL RS422 with network distributor ZA 5099-NVB/NVL Ethernet with adapter cable ZA 1945-DK Wireless with Bluetooth slave modules ZA 17x9BTxS
Analog output	-1.25 to +2.0 V with recording cable ZA 1601-RK 0 to 10 V / 20 mA with relay trigger adapter ZA8006-RTA3

ALMEMO® socket A2

Saving data	ALMEMO® memory connector, 128 / 256 KB, ZA1904-SS ALMEMO® memory connector for micro SD card, ZA 1904SD
Networking	Current loop with network cable ZA 1999-NK5 Wireless with Bluetooth CPU modules ZA 17x9BTxC
Analog output	-1.2 to +2.0 V with recording cable ZA 1601-RK 0 to 10V/20mA with relay trigger adapter ZA 8006-RTA3
Trigger input	with trigger cable ZA 1000-ET/EK/1006-EAK with relay trigger adapter ZA 8006-RTA3
Relay output	with relay cable ZA 100x-EGK/EAK, ZA 8006-RTA3 with relay trigger adapter ZA 8006-RTA3

Device

Interface to all connectors	I²C bus
Operating temperature	-10 to +60 °C
Storage temperature	-30 to +60 °C
Humidity range	10 to 90 % (non-condensing)
Electromagnetic compatibility (EMC)	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