

Reference Measuring Instruments

Reference measuring instrument ALMEMO® 1020-2



ALMEMO® Reference measuring instrument for temperature
High-precision measuring by means of thermocouples
Types N, S, R, B
Resolution 0.01 K, up to 1800 °C

ALMEMO® X6

Technical features

- Temperature measurement with very high levels of resolution, precision, and linearity, using thermocouples Types N, S, R, B
- Suitable as reference device in calibration laboratories and quality assurance procedures
- Very high accuracy thanks to multi-point adjustment of the thermocouple temperature sensor
- Each temperature sensor has its own cold junction stored in the ALMEMO® plug or externally. The cold junction temperature in the ALMEMO® plug is measured to a very high resolution of 0.001 K by means of an NTC sensor.
- Two electrically isolated measuring inputs for thermocouples, types N, S, R, B
- Resolution 0.01 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, differential, measuring point list, cold junction temperature
- 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
- Device configuration: Illumination, contrast, device address, baud rate
- Choice of language: German, English, French

Technical data ALMEMO® 1020-2

Measuring inputs	2 ALMEMO® input sockets for thermocouples
Electrical isolation	Semiconductor relay (50 V)
A/D converter	Delta-sigma, 24-bit, 1.25 mops
Measuring ranges	
NiCrSi-NiSi Type N	-200 to +1300 °C
PtRh10-Pt Type S	-50 to +1768 °C
PtRh13-Pt Type R	-50 to +1768 °C
PtRh30-PtRh6 Type B	+250 to +1820 °C
Resolution	0.01 K
Accuracy	±0.1 K ± 1 digit in range
Type N	-200 to +1300 °C
Type S	+50 to +1760 °C
Type R	+100 to +1760 °C
Type B	+500 to +1800 °C
Nominal conditions	23 °C ±2 K, 1013 mbar, battery mode
Temperature drift	typical 10 ppm / K
Cold junction temperature	Measuring operations with 0.001 K resolution

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 battery
Individual value memory, internal	100 measured values
Power supply	
Battery set	3 AA alkaline batteries
Mains adapter	ZA1312NA12 100 to 240 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
Environmental conditions	see page 16 onwards

Accessories

Ethernet data cable
 ALMEMO® memory connector with micro SD
 Rubberized impact protection, gray
 DIN rail mounting

Order no.

ZA1945DK
ZA1904SD
ZB2490GS2
ZB2490HS

Variants

Complete set comprising reference measuring instrument for temperature plus accessories, evaluation software, thermocouple sensor, with DAkkS calibration certificate

Reference measuring instrument ALMEMO® 1020-2, including 3 AA alkaline batteries, mains unit ZA1312NA12, USB data cable ZA1919DKU, instrument case, and evaluation software ALMEMO® View SW5500AV (see page 150)

Set with high-precision sheathed thermocouple sensor type N



Set

with sheathed thermocouple sensor type N FTAN926L0500P2 with DAkkS calibration certificate at 0 / 100 / 500 / 1000 °C, including adjustment

Accessories: Aluminum profile case for 1 sensor (up to 500 mm in length)

Order no.

SP10202ND

ZB9000TK1

Technical data:

Sheathed thermocouple sensor type N FTAN926L0500P2	
Measuring element	NiCrSi-NiSi, type N, class 1
Measuring tip	Mineral-insulated sheathed line, d = 6 mm, L = 500 mm
Operative range	-200 to +1150 °C
Connecting cable	1.5 meters, thermal line (stranded wire) FEP / silicone (-50 to +200 °C)
ALMEMO® plug	Resolution 0.01 K with integrated cold junction compensation sensor

Set with high-precision thermocouple sensor type S



Set

with thermocouple sensor type S FTAS916L0700P2 replacement ceramic protective tube, case for sensors ZB9000TK2 with DAkkS calibration certificate at 500 / 1000 / 1200 °C, including adjustment

Order no.

SP10202S1D

Technical data:

Thermocouple sensor type S FTAS916L0700P2	
Measuring element	PtRh10-Pt, Type S, Class 1
Measuring tip	Thermowire, d = 0.5 mm in ceramic protective tube diameter = 6 mm, length = 700 mm
Operative range	up to +1400 °C
Connection head	ceramic protective tube, screwed
Connecting cable	1.5 meters, compensation line FEP / silicone (-50 to +200 °C)
ALMEMO® plug	Resolution 0.01 K with integrated cold junction compensation sensor

Set with precision thermocouple sensor type S, with external cold junction



Set

with thermocouple sensor type S, with external cold junction FTAS906L0700P2, replacement ceramic protective tube, Case for sensors ZB9000TK2 with DAkkS calibration certificate at 500 / 1000 / 1200 °C, including adjustment

Order no.

SP10202S2D

Technical data:

Thermocouple sensor type S, with external cold junction FTAS906L0700P2	
Measuring element	PtRh10-Pt, Type S, Class 1
Measuring tip	Thermowire, d = 0.5 mm in ceramic protective tube diameter = 6 mm, length = 700 mm
Operative range	up to +1600 °C
Connection head	ceramic protective tube, screwed
Connecting cable	0.75 meters, insulated, thermo-wires PtRh10-Pt as far as cold junction
Cold junction	Stainless steel protective tube diameter = 5 mm, length = 250 mm
Connecting cable	2 meters, stranded copper wire
ALMEMO® plug	Resolution 0.01 K