ALMEMO® MEASURING INSTRUMENTS

ALMEMO® 2590-2, 2590-3S, 2590-4S kompact universal measuring instruments with 2, 3, or 4 measuring inputs, with measured value memory either internal or with memory card, and 2 outputs USB, RS232, Ethernet, analog


Technical features :

▶ Modern, compact housing (IP54 option is available on request)
▶ 2, 3, or 4 input sockets, electrically isolated, for all ALMEMO® sensors, 4 additional internal function channels
▶ 2 ALMEMO® output sockets for digital interfaces, analog output, trigger input, alarm contacts, memory card
▶ High-resolution A/D converter, 16-bit, 10 mops
▶ Graphics display with white illumination, easy and convenient operation by means of 4 soft-keys and cursor block,
▶ Clear and easy-to-understand menu system : 3 measuring menus (1 menu can be freely configured by user from a range of 50 functions), measured values displayed numerically, 1 to 12 measured values can be displayed in two sizes or graphically in bar chart form.
▶ Intelligent sensor readings with sensor-specific functions : Cold junction compensation, temperature compensation, and atmospheric pressure compensation
▶ Measuring functions Measured value, zero-setting, setpoint adjustment
▶ Function menus : Maximum value, minimum value, memory for 99 measured values, average value over time / individual values / measuring points, smoothing, easy and convenient volume flow with centre measuring, two-point adjustment, scaling, data logger with configuration menus
▶ Option VN: volume flow with array measuring per DIN EN 12599
▶ Programming menus ensuring clear and easy-to-understand sensor programming, range, units, designation, right through to special functions, configuration of device parameters and of output modules
▶ Multi-point calibration and special ranges in the ALMEMO® connector, e.g. 50.000 Ω, 100 kΩ, NTC -5.000 to 46.000 °C
▶ Choice of languages : German, English, French (other options also available)
▶ Type 2590-3S and 2590-4S with EEPROM with capacity for 7 ... 12000 measured values, internally configurable as linear or ring memory
▶ Memory connector with pluggable micro SD card
▶ Sleep mode for long-term recording

Menu selection

Function menus
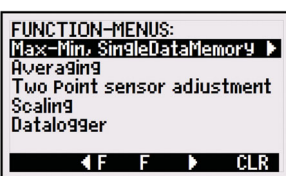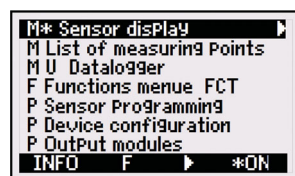
Technical data :

Measuring inputs:	2590-2	2 ALMEMO®-input sockets
	2590-3S	3 ALMEMO®-input sockets
	2590-4S	4 ALMEMO®-input sockets
Electrically isolated	Semiconductor relay (50 V)	
Channels	4 channels / connector for double sensors and function channels, 4 internal channels (e.g. differential)	
A/D converter	Delta-sigma 16-bit, 2.5 or 10 mops (see Technical data, page 01.05)	
Sensor power supply	Battery 9, maximum 0.5A; mains adapter, 12 V, maximum 1A	
Outputs	2 ALMEMO® sockets for all output modules (analog, data, trigger, relay cables, memory etc.)	

Standard equipment	
Display	Graphics, 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 with internal battery
Internal memory	2590-xS only: 59-KB EEPROM (7 ... 12000 meas.values)

Power supply	
Battery	3 AA alkaline batteries
Mains adapter	ZA1312NA7 230 VAC to 12 VDC, 1A, electrically isolated
DC adapter cable, electr. isol.	ZA2690-UK 10 to 30 V, 250 mA
Current consumption without Input and output modules	active mode approx. 20 mA with lighting approx. 40 mA Sleep mode approx. 0.05 mA
Housing	(LxWxH) 127 x 83 x 42 mm, ABS (maximum 70 °C), 290 g

Other general data see Technical Data, page 01.05

Product overview :
Universal measuring instrument ALMEMO® 2590-2
2 inputs, 2 outputs, cascadable interface, LCD graphics screen, 7 keys, real-time clock, manufacturer's test certificate   MA25902
Universal measuring instrument ALMEMO® 2590-3S
like the ALMEMO® 2590-2, but with 3 inputs and 59-KB EEPROM   MA25903S
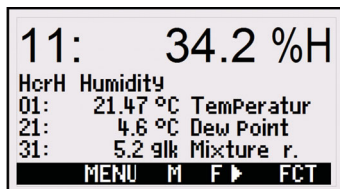**Universal measuring instrument ALMEMO® 2590-4S**
like the ALMEMO® 2590-2, but with 4 inputs and 59-KB EEPROM   MA25904S
Options:
Volume flow with array measuring per DIN EN 12599   OA2590VN
Temperature ranges for 8 coolants   SB0000R2
IP54 protection (if water-proof connectors are used)   OA2590W
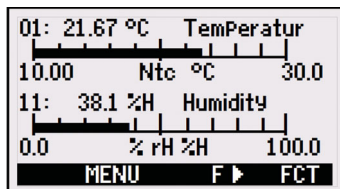**Accessories:**
Top hat rail mounting   ZB2590HS
Rubberized impact protection, green   ZB2490GS1
Magnetic fastening   ZB2490MH
Mains adapter 12V/1A   ZA1312NA7
DC adapter cable,
10 to 30 V DC, 12 V / 0.25 A, electr. isol.   ZA2690UK
Memory connector with micro SD card (see p. 04.03),
including USB card reader   ZA1904MMC
Analog output cable, -1.25 to 2.0 V, 0.1 mV / digit   ZA1601RK
Trigger and relay cable
(2 relays, 1 ohm, 0.5A, 50 V)   ZA1006EKG
USB data cable, electr. isol., maximum 230.4 KB   ZA1919DKU
V24 data cable, electr. isol., maximum 115.2 KB   ZA1909DK5
Ethernet data cable, electr. isol., maximum 115.2 KB   ZA1945DK
Network cable, electr. isol., max. 115.2 KB   ZA1999NK5
Instrument case   ZB2490TK
Network technology, Bluetooth modules, see Chapter 05

ALMEMO® MEASURING INSTRUMENTS
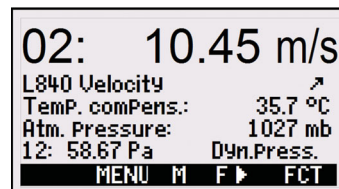
Measured Value Display (Examples):

Sensor reading with large measured value. For each sensor type further important measurable variables or parameters are also displayed automatically:
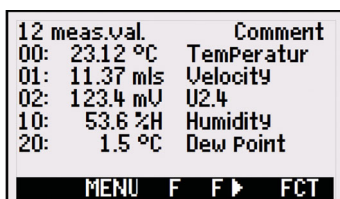
```
11:        34.2 %H
HcrH  Humidity
01:      21.47 °C  TemPeratur
21:       4.6 °C   Dew Point
31:       5.2 glk  Mixture r.
       MENU  M  F ▶  FCT
```

Humidity Display with further humidity variables, e.g. temperature, dew point, mixture ratio

```
01: 21.67 °C   TemPeratur
10.00    Ntc  °C    30.0
11:  38.1 %H   Humidity
0.0      % rH %H   100.0
       MENU      F ▶  FCT
```

Temperature / humidity display in bar chart form

```
02:       10.45 m/s
L840  Velocity          ↗
TemP. comPens.:     35.7 °C
Atm. Pressure:      1027 mb
12: 58.67 Pa   Dyn.Press.
       MENU  M  F ▶  FCT
```

Flow Display, measured value with automatic temperature compensation, and atmospheric pressure compensation

```
12 meas.val.     Comment
00: 23.12 °C   TemPeratur
01: 11.37 mls  Velocity
02: 123.4 mV   U2.4
10:  53.6 %H   Humidity
20:   1.5 °C   Dew Point
       MENU  F  F ▶  FCT
```
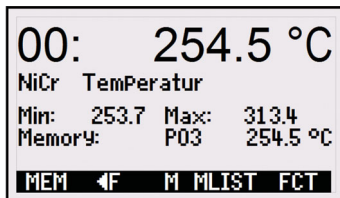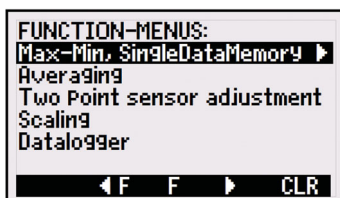
List of measuring points providing a complete and clearly understandable overview of all sensors connected

```
13:        4.45 pH
D2.6  PH-Wert       CT.  ↗
TemP. comPens.:      21.7 °C
SloPe error:          7.8 %
03:   21.67 °C   TemPeratur
       MENU  M       FCT
```
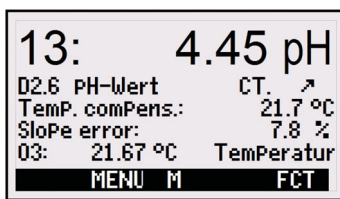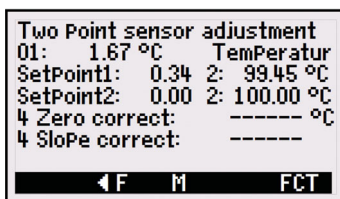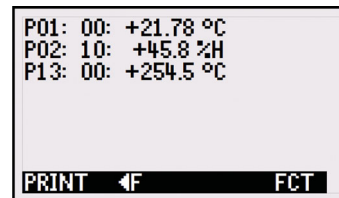
pH-Display, measured value with automatic temperature compensation

Function Menues:

Each measured value reading can be linked to 1 function menu :

```
FUNCTION-MENUS:
Max-Min, SingleDataMemory ▶
Averaging
Two Point sensor adjustment
Scaling
Datalogger
       ◀F  F   ▶     CLR
```

```
00:       254.5 °C
NiCr  TemPeratur
Min:   253.7  Max:   313.4
Memory:     P03   254.5 °C
MEM  ◀F   M MLIST  FCT
```

Temperature Display with 100 Points Memory for Single Values

```
P01: 00: +21.78 °C
P02: 10: +45.8 %H
P13: 00: +254.5 °C



PRINT  ◀F            FCT
```

```
Two Point sensor adjustment
01:   1.67 °C    TemPeratur
SetPoint1:  0.34  2: 99.45 °C
SetPoint2:  0.00  2: 100.00 °C
4 Zero correct:    ------ °C
4 SloPe correct:   ------
       ◀F   M      FCT
```

Two-point adjustment for purposes of correcting sensors (e.g. temp., force)

```
C ▶ REC COM I▶ ▶I R01 *  ▭
Time: 12:34:56 Date: 01.01.06
Cycle-timer:      00:00:30 nS
Memory int:          64.0 kB
Memory free:         58.3 kB
Number:           01-001 A
Filename:         ALMEMO.001
START  ◀F     F▶  MANU
```
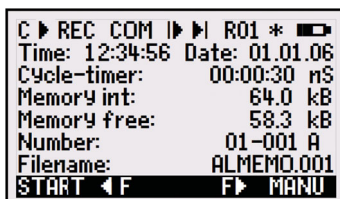
Data logger function for cyclic saving

Selecting the average value function:

```
AVERAGING:
sliding, damPing
over single measurements
over time                ▶
over cycle
over measuring Points
Net measurement
       ◀F   F   F▶
```

```
       1934. m³/h
Volume flow       normal: ✓
Meas. Point:      Abluftkanal
Avg. value:        15.11 mls
File save:        Halle7.V02
STORE  ◀F            FCT
```

Tmm	B1	B2	B3	B4
0028:	--.--	--.--	--.--	--.--
0022:	--.--	--.--	--.--	--.--
0015:	▮▮.▮▮	--.--	--.--	--.--
0009:	18.57	--.--	--.--	--.--
0003:	12.88	--.--	--.--	--.--
Avg. value:				15.11 mls
START	◀F P VOL▶			FCT
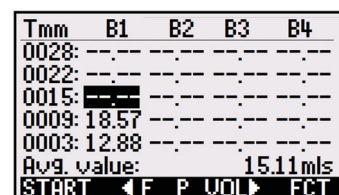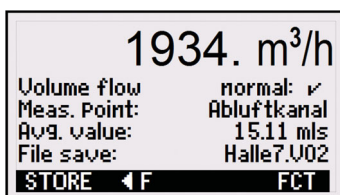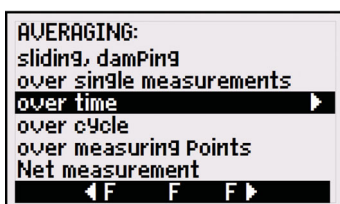
Option VN : Volume flow with array measuring in the flow channel