

AMR

MA2590 Portable Indicating/Datalogging Instrument

2, 3 or 4 Measuring Inputs, Internal Memory or Memory Card, 2 Outputs

DESCRIPTION

Model MA2590 is an economical and versatile tool. As part of the ALMEMO family of measuring instruments, virtually any sensor may be connected. The MA2590 features 2, 3, or 4 input sockets, electrically isolated, for all ALMO sensors and four additional internal function channels. The units have two output sockets and standard cables are available for analog, V24, USB and ethernet interface.

The MA2590 uses the patented ALMEMO connection system, whereby sensor-specific parameters are stored in non-volatile memory in the sensor's connection plug and remain with the sensor! More than 65 measuring ranges are available for the MA2590, as are a wide variety of factory-made sensors including those to measure pressure, liquid and air flow, temperature, light intensity, pH, conductivity, gas concentration (CO₂, O₂, and CO), relative humidity, rotational speed, linear displacement, etc. Also, inexpensive ALMEMO connection plugs are available for connecting devices with electrical outputs to the logger. With these "blank" plugs, virtually any sensor with a linear signal output may be connected and programmed to display in correct engineering units and scaling factor.

Sensor calibration changes may be made via microprocessor interface, whereby zero and span changes may be made easily and accurately. The changes remain with the sensor because they are stored in the sensor's connection plug. For certain sensors, multiple measurements (4 max.) are available from each input channel. For instance, with a relative humidity probe the air temperature and the relative humidity as well as the calculated variables dew point, mixture ratio, or partial vapor pressure may be viewed. All from a sensor plugged into one input socket.

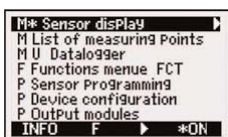


SPECIFICATIONS

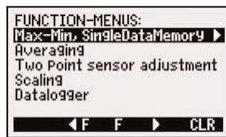
Measuring inputs:	2590-2 2 ALMEMO®-input sockets 2590-3S 3 ALMEMO®-input sockets 2590-4S 4 ALMEMO®-input sockets
Electrically isolated :	Semiconductor relay (50 V)
Channels:	4 channels / connector for double sensors and function channels, 4 internal channels (e.g. differential)
A/D converter:	Delta-sigma 16-bit, 2.5 or 10 mops
Sensor power supply:	Battery 9V, maximum 150 mA; AC adapter, 12 V, maximum 150 mA
Outputs:	2 ALMEMO® sockets for all output modules (analog, data, trigger, relay cables, memory etc.)
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
AC adapter:	110VAC to 12VDC. Order 29-013
DC:	adapter cable, electr. isol. ZA2690-UK 10 to 30 V, 250 mA
Current consumption (without input & output modules):	Active mode- approx. 20 mA Qith lighting- approx. 40 mA Sleep mode approx. 0.05 mA
Housing (LxWxH):	127 x 83 x 42 mm, ABS (maximum 70 °C), 290 g

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 VDI2080
- 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 Ohms, 100 kOhms, 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 MMC card
- Sleep mode for long-term recording

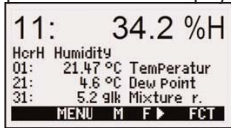


Menu
Selection
Function
Menus

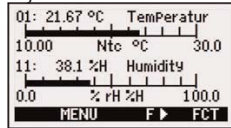


Measured Value Display (Examples):

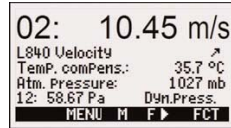
Sensor reading with large measured value. For each sensor type further important measurable variables or parameters are also displayed automatically:



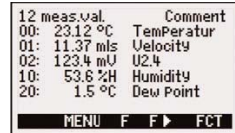
Humidity Display with other humidity values



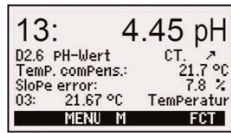
Temperature/Humidity Display in bar chart form



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



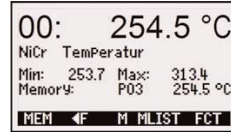
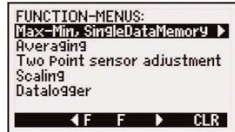
List of measuring points providing a complete and clearly understandable overview of all sensors



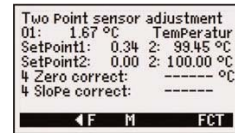
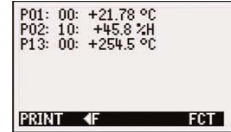
pH-Display, measured value with automatic temperature compensation

Function Menus:

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



Temperature Display with 100 Points Memory for Single Values

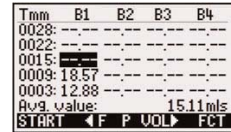
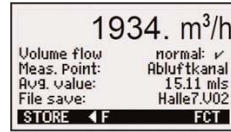
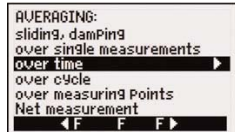


Two-point adjustment for purposes of correcting sensors (e.g. temp., force)



Data logger function for cyclic saving

Selecting the average value function:



Option VN : Volume flow with array measuring in the flow channel

ORDERING INFORMATION

Model

- MA25902 Universal measuring instrument ALMEMO® 2590-2, 2 inputs, 2 outputs, Cascadable interface, LCD graphics screen, 7 keys, real-time clock MA25902
- MA25903S Universal measuring instrument ALMEMO® 2590-3S, like the ALMEMO® 2590-2, but with 3 inputs and 59-KB EEPROM
- MA25904S Universal measuring instrument ALMEMO® 2590-4S, like the ALMEMO® 2590-2, but with 4 inputs and 59-KB EEPROM

Options (must be ordered with model):

- OA2590VN Volume flow with array measuring per VDI2080
- SB0000R2 Temperature ranges for 8 coolants
- OA2590HS Top hat rail mounting

Accessories

- 29-013 AC adapter 12V/200mA
- ZA2690UK DC adapter cable, 10 to 30 V DC, 12 V / 0.25 A, electr. isol.
- ZA1904MMC Memory connector with MMC card, including USB card reader
- ZA1601RK Analog output cable, -1.25 to 2.0 V, 0.1 mV / digit
- ZA1006EGK Trigger and alarm cable (2 relays, 1 ohm, 300 mA, 50 V)
- ZA1999NK5 Network cable, electr. isol., max. 115.2 KB
- ZB2490TK Instrument case
- ZA1909DK5 ALMEMO® RS232 data cable, electrically isolated, max. 115.2kbaud, 1.5m
- ZA1919DKU USB data cable, electr. isol., maximum 115.2 KB
- ZA1945DK Ethernet data cable, electr. isol., maximum 115.2 KB