

# A1-SDI

Status V1 (6/2005)



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## 1 Please read before using for the first time

- Before using the instrument, please read the operating manual carefully and follow the instructions in every detail.
- Pay attention to the measurement ranges of the sensors (overheating can cause destruction).
- Pay attention to the storage and transport conditions (protect the instrument against direct solar radiation).
- Please refer to the data sheet for technical data and storage and transport conditions.

**Designated use:**

- The measuring instrument must only be operated within the range of the specified technical data. You can obtain this data on the Internet or from your local dealer.
- The measuring instrument must only be used under the conditions and for the purposes for which it was designed.
- The operating safety of the instrument can no longer be guaranteed if it is modified or converted.

## 2 A1-SDI

The new, all-purpose display instrument for taking all types of physical measurements has the following features:

- SDI input – a large number of sensors is already available (SDI = serial digital interface)
- PT100 input
- Large, backlit display
- Simple, thumb-wheel operation
- Robust, attractive housing
- Low price



**A1-SDI**

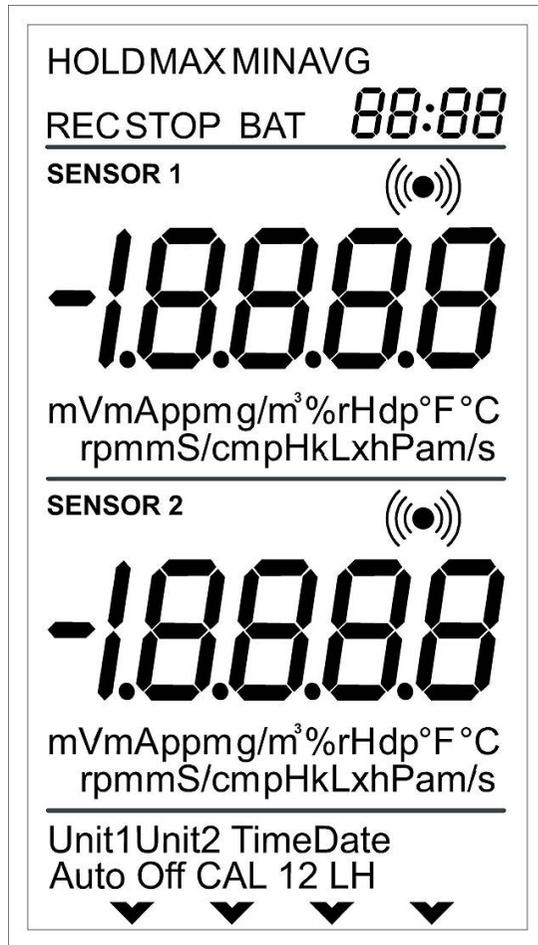
**Instead of many measuring instruments for individual tasks, with the A1-SDI you now need only one measuring instrument for many tasks!**

By connecting various SDI sensors, the different measurement values can be presented on the display. In doing so, the sensor can calculate measurements independently (absolute humidity, dew-point, flow velocity etc.) and transmit these to the measuring instrument. All of the calibration data is also stored directly in the SDI sensor.

The sensor is detected automatically when the A1-SDI is switched on.

Details of the sensors already available can be obtained on the Internet or from your local dealer.

### 3 The display



F1 F2 F3 F4

◀ Upper menu with date and time

◀ Measurement display and units of Sensor 1

◀ Measurement display and units of Sensor 2

◀ Lower configuration and calibration menu

## 4 Operation



**THUMB-WHEEL**

In contrast to conventional hand-held measuring instruments, the A1-SDI does not have a keypad; rather it has what is known as a “**THUMB-WHEEL**” on the left hand side of the device.

The wheel can be moved up and down by 15° and can also be pressed in the middle.

The upper menu is selected by moving the wheel upwards. The lower configuration and calibration menu is selected by moving the wheel downwards.

The thumb-wheel must be pressed in the middle position to switch the instrument on and off and to confirm input values.

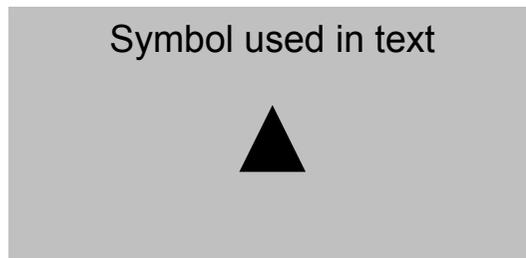
The 3 positions of the **THUMB-WHEEL**

To switch on: Press for a short time

To switch on with light: Press for approx. 2 seconds

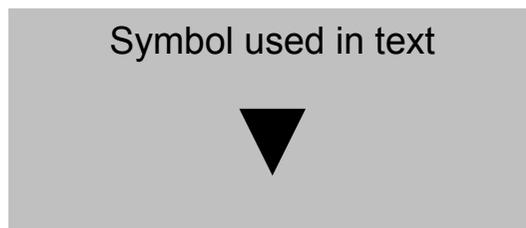
To switch off: Press for approx. 2 seconds (no menu activated)

To delete the Min/Max memory: Press for a short time (in normal operation - no menu activated)



Activate upper menu with **HOLD MAX MIN AVG**.

Select with ▲, confirm with ►, cancel with ▼ or do not press for 20 seconds.



Activate lower configuration and calibration menu

Select with ▼, confirm with ►, cancel with ▲ or do not press for 20 seconds.

## 5 The upper menu

The standard functions:

### HOLD MAX MIN AVG

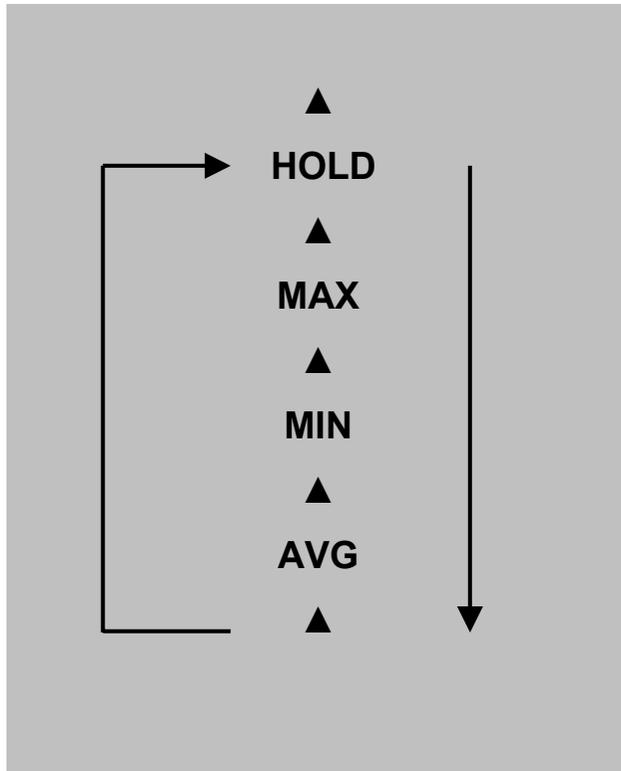
can be selected in the upper menu. Selection is made using ▲, the selected function flashes and is confirmed with ►. A confirmed function is shown permanently on the display. The menu can be cancelled with ▼ or by not pressing the thumb-wheel for 20 seconds.

**HOLD:** HOLD "freezes" the measurement value.

**MAX:** MAX presents the maximum value in the activated time period.

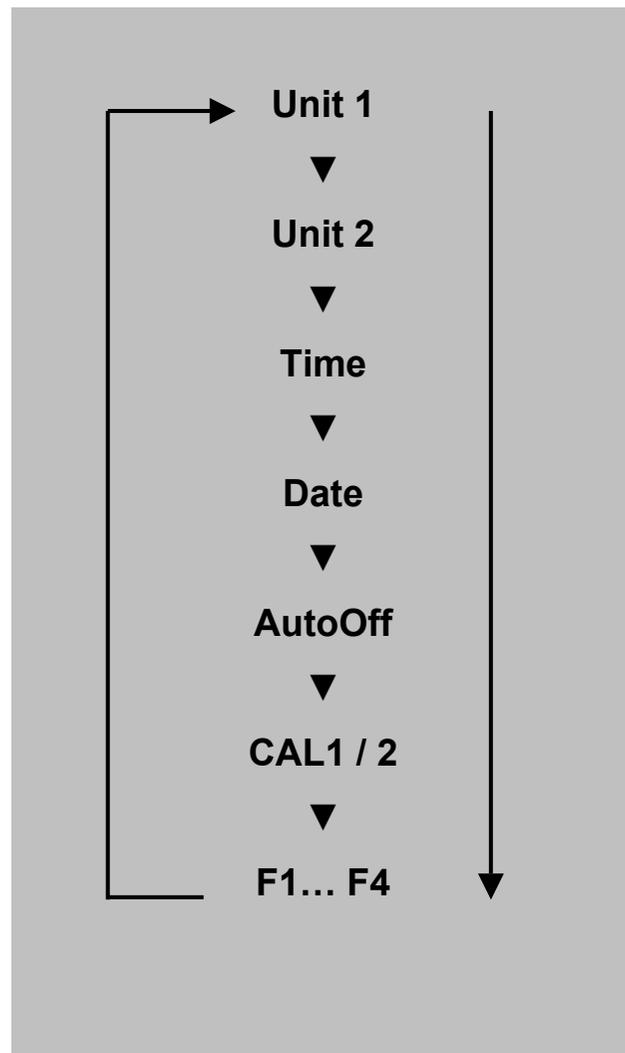
**MIN:** MIN presents the minimum value in the activated time period.

**AVG:** AVG presents the arithmetical mean value in the activated time period.



The MAX / MIN / AVG memory is deleted by switching the A1-SDI on or off, connecting or disconnecting the sensor, or by pressing ► for a short time in normal operation.

For sensors with one physical measurement (e.g. PT100 - temperature), the HOLD, MAX, MIN and AVG values are displayed on the second measurement line. For sensors with two physical measurements (temperature/relative humidity, temperature/velocity etc.), the HOLD, MAX, MIN and AVG values are displayed on the corresponding sensor line, instead of the measurement value.



## 6 The lower menu

The functions:

**UNIT1 UNIT2 Time Date AutoOff CAL 12 F1 F2 F3 F4**

can be selected in the lower configuration and calibration menu. Selection is made using ▼, the selected function flashes and is confirmed with ▶. The menu can be cancelled with ▲ or by not pressing the thumb-wheel for 20 seconds.

The lower menu functions depend partly on the sensor that is connected at the time. Additional menu functions can be provided alongside the standard functions already available, such as date, time and AutoOff, depending on the sensor that is connected at the time, Elements that depend on the sensor are, for example, UNIT1 or UNIT2 to select the displayed unit, CAL xx calibration functions and, potentially, various arrow menus (F1 to F4).

**UNIT1:** *UNIT1* allows various units to be selected for the first sensor channel. The selected unit flashes and can be activated via ►. The units can be selected with both ▲ and ▼. Unit1 can only be selected if the connected sensor supports at least 2 different units.

**UNIT2:** *UNIT2* allows different units to be selected for the second sensor channel. The selected unit flashes and can be activated via ►. The units can be selected with both ▲ and ▼. *UNIT2* can only be selected for SDI sensors, provided that their second channel supports at least 2 different units.

For UNIT1/UNIT2, available units that can not be presented on the display are shown via the arrow menus (F1 to F4). The relationship of the indication F1 to F4 to the corresponding unit can be found on your SDI sensor.



A digital display showing the time 12:00. The digits are in a black, seven-segment font. The display is underlined.

**Time:** Sets the time. Hours and minutes are entered consecutively. Selection can be made using ▲ and ▼; confirmation with ►.



A digital display showing the date 30.12. The digits are in a black, seven-segment font. The display is underlined.

**Date:** Sets the date. Day, month and year are entered consecutively. Selection can be made using ▲ and ▼; confirmation with ►.



A digital display showing the AutoOff period 00:59. The digits are in a black, seven-segment font. The display is underlined.

**AutoOff:** AutoOff sets the period in minutes for the automatic switch-off. If OFF (<1 minute) is selected the instrument will never switch off automatically. Selection can be made using ▲ and ▼; confirmation with ►.

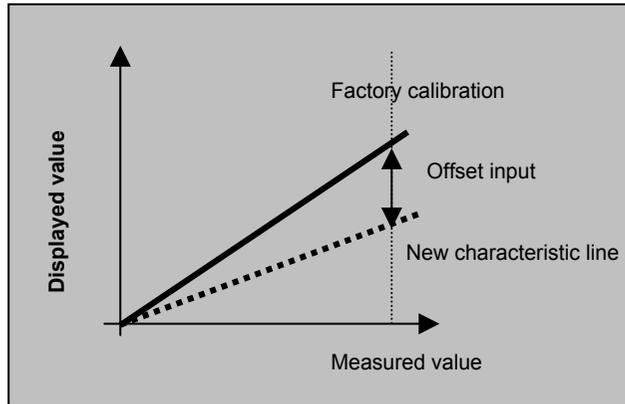


**Important: Calibration should only be carried out by trained personnel using suitable calibration equipment.**



**Single-point calibration of SDI sensors such as combined temperature/relative humidity sensors, flow/temperature sensors and PT100 sensors**

**CAL1:** *CAL 1* initiates single-point calibration on channel 1. The symbols for Sensor 1 and Sensor 2 disappear from the display. The set-point value for channel 1 is displayed in the upper area. The offset value for channel 1 flashes in the lower area. This can be increased with ▲ and decreased with ▼. The offset value is confirmed with ►. The menu is then automatically terminated and **CAL END** appears on the display. A failed calibration is confirmed with **CAL FAIL** and must be repeated. **The factory settings can be obtained by setting the offset to 0.0.**



Offset input for relative humidity

**CAL2:** CAL2 initiates single-point calibration on channel 2. The symbols for Sensor 1 and Sensor 2 disappear from the display. The set-point value for channel 2 is displayed in the upper area. The offset value for channel 2 flashes in the lower area. This can be increased with ▲ and decreased with ▼. The offset value is confirmed with ►. The menu is then automatically terminated and **CAL END** appears on the display. A failed calibration is confirmed with **CAL FAIL** and must be repeated. **The factory settings can be obtained by setting the offset to 0.0.**

**Important:** Inputting the offset for relative humidity causes the characteristic curve to move in the direction of the zero point.



CAL 2 L



## Two-point calibration of relative humidity

**CAL2L, CAL2H:** The lower adjustment value can be calibrated in the **CAL2L** menu and the upper adjustment value can be calibrated in the **CAL2H** menu. The lower value must be within the range from 10% to 40% RH (preferably 33% RH) and the upper value within the range from 60 to 90% RH (preferably 76% RH). A two-point calibration outside these ranges is not possible! The maximum offset per point is +/- 10% RH and can be input in steps of 0.1%.

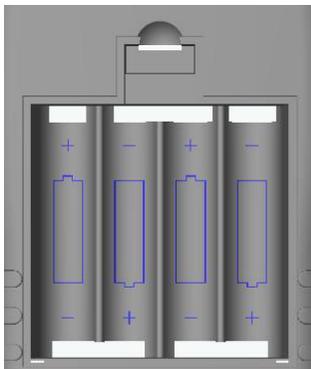
**Important:** In principle, two-point calibrations should be carried out by accredited laboratories.

The factory settings can be obtained by setting the offset to 0.0.

## 7 Changing the batteries

When "BAT" is displayed the batteries must be changed. Open the battery cover on the rear of the instrument. Remove the empty batteries and replace them with new ones.

Please use only high quality alkaline batteries type IEC LR6 AA. Do not use rechargeable batteries!



A1-SDI open battery compartment

When inserting the batteries please make sure that the polarity is correct and use only high quality batteries.

## 8 Service and calibration



The PT100 input should only be re-calibrated by specialist personnel or, ideally, by an accredited laboratory.

Clean the instrument with a damp cloth when necessary. Use clear water, not detergent, to dampen the cloth.