

# OPERATION MANUAL



## Humidity- temperature probe with USB-Interface

### Description



### Characteristic features

- Combined temperature and humidity measurement
- USB-Interface
- Large measuring range, high resolution
- Very good linearity and long term stability
- Two product variants with stainless steel or plastic probe tube
- Calibratable with salt reference cells

### Areas of application

- Monitoring of store rooms or in food industry, quality assurance or air-conditioning
- Humidity measuring system for customised projects, micro-controller applications for windows and Linux platforms

### Windows-Software

- Calculation and display of dew point, absolute humidity, vapour pressure, saturated vapour pressure and enthalpy
- Tabular representation of measured values
- Recording of data on hard disk

### Technical data

Humidity measurement	
Humidity measuring range	SET1: 10...95 % RH SET2: 0...100 % RH
Humidity resolution	0.01 % RH
Typical accuracy (at 23 °C)	SET1: ±3 % RH SET2: ±2 % RH
Temperature measurement	
Temperature measuring range	SET1: -20...+60 °C SET2: -40...+80 °C
Temperature resolution	0.01 K
Accuracy	±0.5 K for 0...40 °C
General	
PC-connection	Plug USB, Type A, 1.1, 2.0 or 3.0 compatible
Power supply	Over USB, approx. 20 mA
Dimensions	Handle approx. Ø18 x 120 mm
Probe tube	SET1: Ø12 x 70 mm, plastic SET2: Ø12 x 127 mm, stainless steel
CE-conformance	2004/108/EG
EN-noise emission:	EN 61000-6-3:2011
EN-noise withstanding:	EN 61000-6-2:2007
Scope of supply	In carry case including PC-Software "RECORDER"
Accessories	See ordering number overview

### Description

With this innovative product the PC or laptop serves as an efficient temperature and humidity measuring system. The power supply will be warranted over the USB-interface which is integrated in the handle. A precise NTC has been used as temperature sensor. The humidity measurement is carried out with a long term stable, capacitive polymer sensor. The integrated micro controller corrects the Linearity error and temperature drift of the sensors. The applied compensation method guarantees outstanding resolution, measuring accuracy and long term stability.

The recording and graphical representation of measured values occurs with the PC. An easy to use Windows software for measured value display and data recording is covered in the scope of supply.

Model SET1: With plastic probe tube Ø12 x 70 mm, measuring range 10...95 % RH ±3 % and -20...+60 °C ±0.5 K,

Model SET2: With stainless steel probe tube Ø12 x 125 mm and sinter filter, measuring range 0...100 % RH ±2 % and -40...+80 °C ±0.5 K.

Accessories (not in scope of supply): The optional software „PCLOG“ offers additional graphical online representation of measured data. Different protection filters of PE or sinter steel are available for protection of the sensors in stainless steel model (SET2).



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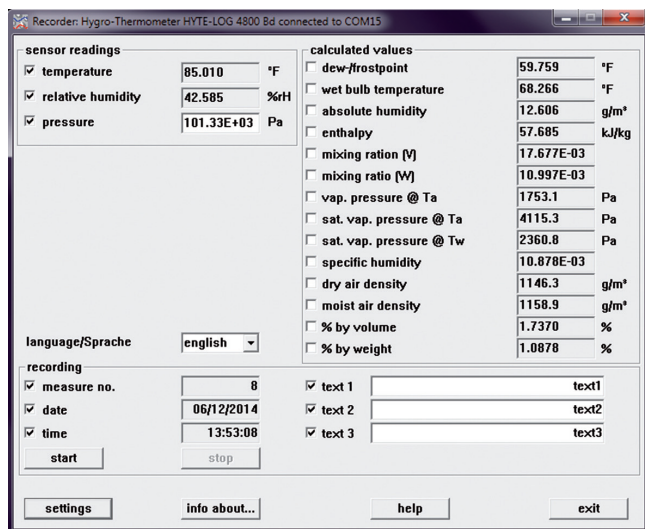


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### WINDOWS-Software RECORDER

With the help of this program, which is covered in the scope of supply, the measured values can be received through the USB-interface and recorded on the PC. The displayed file is compatible with any desired spreadsheet program, with which it is possible to further process, statistically evaluate or visualise the measurement data .

In addition, the PC-Software also calculates dew point, absolute humidity, enthalpy and vapour pressure from the measured values of relative humidity and temperature. The calculated figures can also be stored .



### System requirements

Windows 98, 2000, XP, Vista or Windows 7 with RS232 or USB-interface. Important tip: First connect the USB-Version to the PC after installing the software. This simplifies driver installation and enables „Plug&Play“ feature.

### Installation

A detailed installation instruction is provided on the CD, which automatically gets started by inserting the CD (prerequisites: Internet-Explorer 5.0 or higher).

### Manual Installation

Insert the enclosed CD into your drive and select „Run“ in the start-menu and then browse to select the file ‚setup.exe‘ under the path E:\software\RECORDER\TEMPLOG\disk1. Then follow the instructions of the installation program.

### First time operation

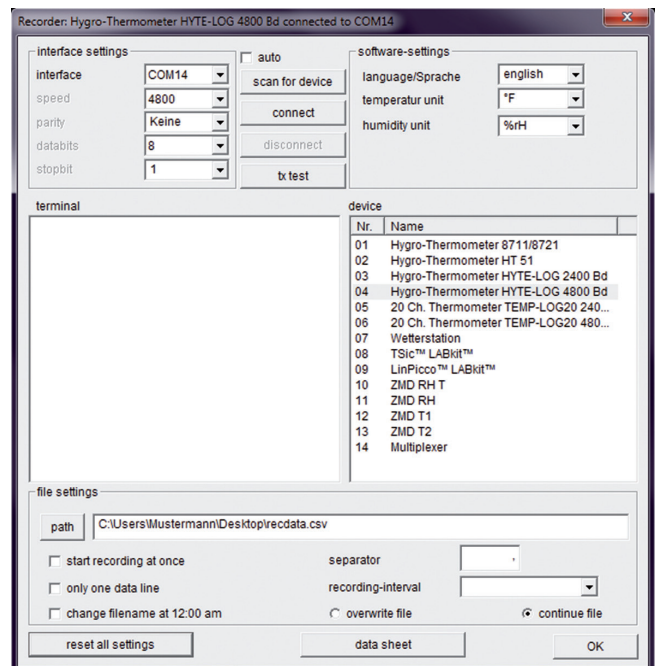
Connect the humidity measuring system to the USB-interface of a PC. After the software runs the first time, go to menu option „settings“ and

select device type as „HYTELOG 4800Bd“ and also select the COM-Port. (Note: By USB-version, the COM-Port number under „interface“ will be specified during driver installation). The remaining settings (Data rate, Parity, Start and Stop bit) are automatically selected and need not be changed. If the connection is established, the data communication appears on the terminal window.

Then select „OK“. The current settings will be stored.

If you are not able to establish data link between PC and the measuring probe, then first please check the USB cable connection to the PC. Further information on debugging is available under FAQ's on the CD or at our Homepage under SUPPORT.

Data recording: First activate all the measurement channels for recording by checking the channels. In „Text 1“, „Text 2“ and „Text 3“ you can enter a description, as headed of the top of data file. The data is recorded in a file, which is declared under „Settings -> path“. The recording begins by pushing the ‚Start‘ button.



### EXCEL™

The file will be recorded in CSV-Format. In order to display the measured data, you can use graphic tools, for example, the diagram-assistant. However, other programs such as Excel or OpenOffice can also be used to graphically represent or evaluate the measured data.

### Calibration

The measuring probe is supplied in calibrated condition. The accuracy at 23 °C is of  $\pm 0.3$  °K and  $\pm 2$  % RH. Under normal operating conditions, it is not necessary to re-calibrate the probe. The cross



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checking of measuring accuracy of the humidity measurement part can be done by end user with the salt reference cells available as special accessories. The cross checking must be done in temperature stable environment. The detailed instructions for calibration are available for download at our homepage.

Alternatively, the measuring system can be sent to our calibration laboratory for cross checking or calibration.

### Internal data transfer

The communication between PC and measuring probe happens serially by means of a COM port emulation. Therefore, it is very simple to link the measurements to your own software, programming knowledge presupposed.

For the used USB UART FTDI 232 Interface, drivers are available for Linux, MAC or even PDAs.

The interface works on a data rate of 4800 Baud, 8 Data bits, No parity and one Stop bit. Further information on data protocol can be downloaded from our website.

### Accessories (Optional)

### Humidity reference cells

The B+B Humidity reference cells serve as humidity standards, in order to create stable humidity values for experimental purposes or for calibration of the measuring device. The accuracy possible under stable temperature environment conditions is in the range of  $\pm 1$  % relative humidity. The working principle is based on a saturated salt solution, over which a specific relative humidity value adjusts itself. The cells also contain a semi-permeable Teflon membrane (diaphragm) through which the salt solution is separated from the measurement area.

### Protection filter

The stainless steel probes can be fitted with various types of protection filters, if required. The PE protection filter is water repellent, the stainless sinter filter is robust, temperature resistant and protects the sensor element against dust. The filter with tip is suitable for measurement in

bulk materials and granules.

### Ordering number catalogue

Article	Art.-No.
USB-Humidity-Temperature stainless steel probe	HYTELOG-USB-SET2
USB-Humidity-Temperature plastic probe	HYTELOG-USB-SET1
Handheld temperature probe with integrated USB-Interface	TLOG-USB-SET1
PE-Sinter filter, hydrophobic	0400 0449-40
Stainless steel sinter filter flat	0400 0449-10
Stainless steel sinter filter pointed	SIF112-V2A-SP1227
Humidity reference cells, diverse values	Special brochure on request

For further information visit our website:  
[www.bb-sensors.com](http://www.bb-sensors.com)

### Attention

Please avoid extreme mechanical and inappropriate exposure.

The device/product is not suitable for potential explosive areas and medical-technical applications.