UFT75-ST with data acquisition software

Universal USB humidity and temperature sensor in miniature design

Description

The new UFT75-ST sensor measures relative humidity, temperature, dew point and absolute humidity. It is operated directly at the USB port of a PC. The UFT75-ST is available in 3 versions, type ST1, ST2 or ST3. Type ST1 has an accuracy of ±1.5% RH at humidity and an accuracy of up to ±0.1°C at temperature.

In combination with the supplied data acquisition software, it forms a very flexible and precise measuring system with data logging and evaluation.

Specification

- Alert message via network (WLAN), SMS, voice mail, e-mail, starting applications (PC software)
- Transfer measurements in real time to Excel spreadsheet (PC software)
- Robust stainless steel housing with sinter filter (sensor head)
- Miniature construction
- Calibrated digital sensor
- High speed signal processing
- Measurement data acquisition, monitoring and logging software available
- Integrated USB 2.0 interface, electronics completely integrated in the USB connector
- Integration into your own applications via Embedded DLL or direct query is supported
- Accessible in LabView (example provided)
- No external power supply required*.
- Replaceable sensor head**
- On request available with DAkkS certification

*If many sensors are connected simultaneously, a Power HUB with its own power supply may be required.
**Damaged or aged sensor heads can be replaced if necessary.

Applications

- Climatic cabinets, air-conditioning systems
- server room monitoring
- laboratory tests
- ISO 9000 certifications for plants
- Greenhouses
- Food stuffs industry
- Plant engineering and construction

Safety notices

The UFT75-ST must not be used in applications where persons may be endangered or injured. It must also not be used as an emergency stop switch on systems and machines or in other safety-relevant areas!

The cable connection to the sensor must not be exposed to temperatures below -40°C or above +75°C, otherwise it could be damaged! Other versions are available for higher temperatures.

If the sensor head is exposed to extreme conditions or aggressive chemicals for a long time, this can have a negative effect on its function or permanently damage the sensor head!

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Technical Data Humidity measurement

Measuring range	0 ... 100% RH
Accuracy Type ST1	typical ±**1.5% RH** at 25°C, 0 ... 100% RH
Accuracy Type ST2 (default)	typical ±**2.0% RH** at 25°C, 0 ... 100% RH
Accuracy Type ST3	typical ±**3.5% RH** at 25°C, 0 ... 100% RH
Dissolution	0.01% RH
Non-linearity	< 1% RH typical (0 ... 100%), max. 3%
Hysteresis	±0,8 % RH entire measuring range
Repeat accuracy	±0.1% RH
RH Response time, 1/e (63%)	Typical ca. 3 seconds in slow moving air
Long-term stability (Drift)	Typical <1% RH pro year*
Calibration	The UFT75 sensor head is calibrated according to ISO/IEC 17025 at 25°C to 22%, 50% and 68% RH.
Total weight	95g

All specifications are valid at 25 °C

*If the sensor is exposed to extreme conditions (e.g. vapors from petrol, glue, dilution, vinegar, etc.) for a long time, this can accelerate the aging process. The durability is strongly dependent on the respective environmental conditions. Damaged or aged sensor heads can be replaced if necessary!

Technical data Temperature measurement

Measuring range	-40 ... +125°C
Accuracy Type ST1 **Accuracy Type ST2** **Accuracy Type ST3**	typical ±0.1 °C at (+20 to +60 °C) typical ±0.2 °C at (0 to +90 °C) typical ±0.3 °C at (-10 to +55 °C)
Dissolution	0.01°C
Repeat accuracy	±0.1°C
Reaction time	< 5 seconds

All specifications are valid at 25 °C

Power supply

Supply voltage	Power supply via USB
Current draw	< 20 mA

Pressure

Permissible overpressure	At least 8 bar

Outputs

Communication	USB 2.0 standard CDC (Communications Device Class) interface

Cable connection

Cable type	PVC (black)
Degree of protection	IP40
Temperature range	-25°C to +70°C
Length	Standard 2m (packable)

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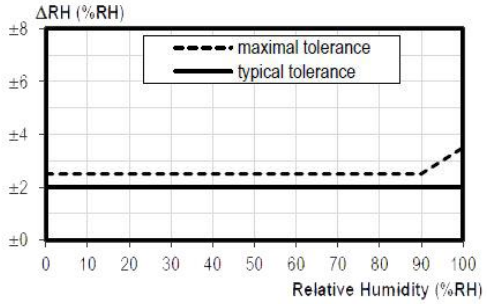
Dimensions FT75-EN

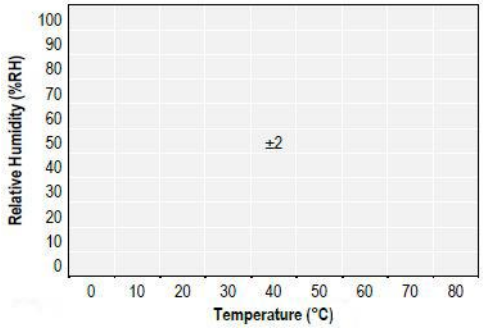
Length:	51.5 mm
Diameter:	8.0 mm
Weight:	ca. 10 g
Housing:	Stainless steel, sintered metal
Connector:	Plug, 4-pin

Accuracy

Abs. accuracy relative humidity



Accuracy Temperature



Storage and assembly

The sensor can be stored under the same conditions as during operation. If the sensor has been stored for a long time in hot or dry environments or exposed to aggressive substances, accelerated aging or damage to the sensor element is possible, which has a negative impact on the measurement result. The sensor can then be reactivated under certain circumstances by exposing it to a humidity of over 74% at a temperature of 20...30°C for at least 24 hours.

During installation, it must be ensured that the sensor element is installed in slowly flowing air. Since the relative humidity always relates to the temperature of the air, the sensor should also be attached to a representative location related to the temperature. Hot spots, e.g. on machines, can strongly influence the measurement result.

The sensor has a USB 2 compatible interface and supports the USB CDC standard (Communication Device Class), so that usually no driver installation is required.

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Conforms to the following directives and standards

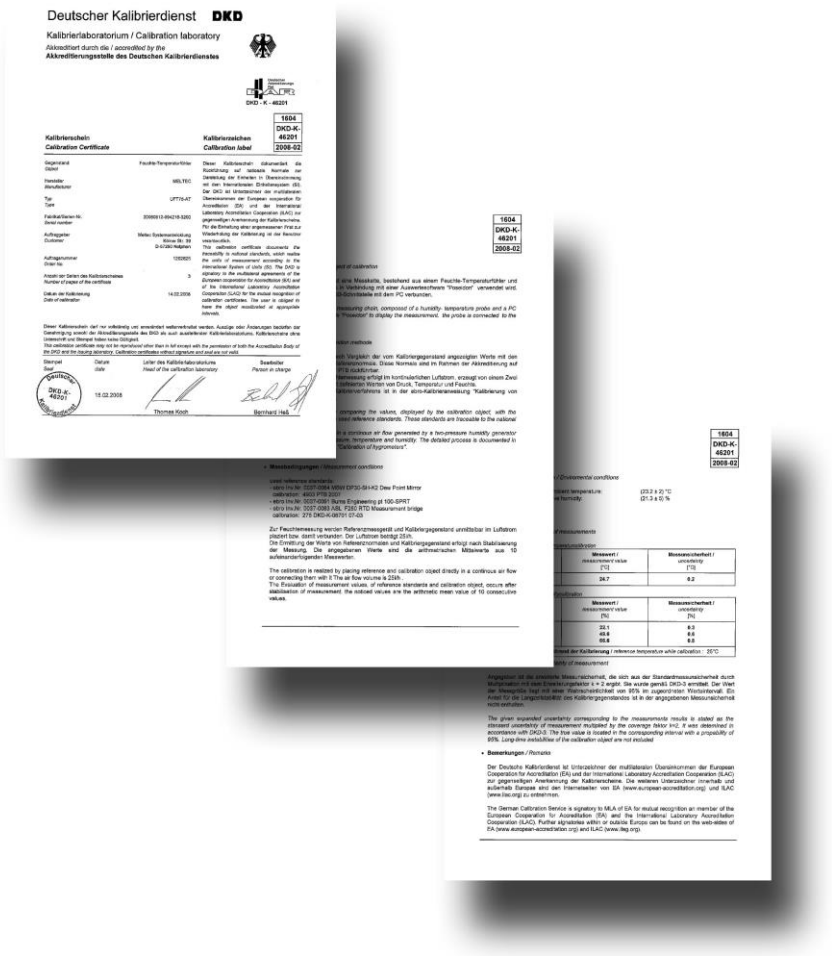
Emitted interference:		
Test basis:	Product standard	EN 55022:1998+A1:2000+A2:2003
Electrical interference field strength		
Immunity to interference:		
Test basis:	Product standard	EN55024:1998+A1:2001
Discharge static Electricity according to		EN 61000-4-2
Electromagnetic fields according to		EN 61000-4-3

Declaration of conformity

Supplier declaration for the ROHS directive 2011/65/EU

We hereby confirm that the amount of restricted substances in the assemblies supplied by us does not exceed the maximum concentration values in accordance with RoHS Directive 2011/65/EU of the European Parliament and the Council of June 8, 2011. This means that the assemblies we deliver are EU RoHS-compliant.

Optionally with DAkkS calibration certificate



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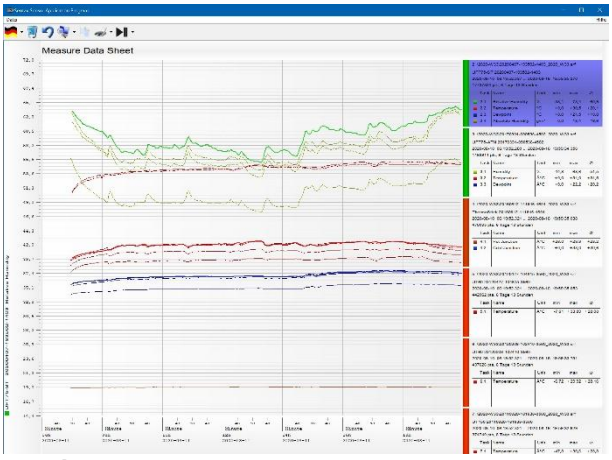
The Sentax, a Windows application software, is supplied free of charge with the sensor. This is a universal tool for recording, processing and evaluating measurement data from all MELTEC USB sensors.

Measuring points with line recorder

- The measurement of each measuring point is recorded in real time and displayed as a separate curve in the recorder window. Depending on the type of sensor connected, up to several hundred measurements per second can be read out (usually 20 to 200 per second).
- In parallel to the display in the line recorder window, all measurement data can also be recorded in files with an exact time stamp. The time resolution can be up to one millisecond.
- The measurement data recorded over a long (or short) period of time can be evaluated and displayed as curves on a measurement sheet.



Datalogger

- The Sentax data logger records the measurement data with a precise time stamp over long periods of time with high resolution.
- The representation can be scaled from a whole year down to the millisecond level. Simply zoom into the desired section with the mouse.
- The measurement data are saved in a clear folder structure, sorted by sensor and calendar week.

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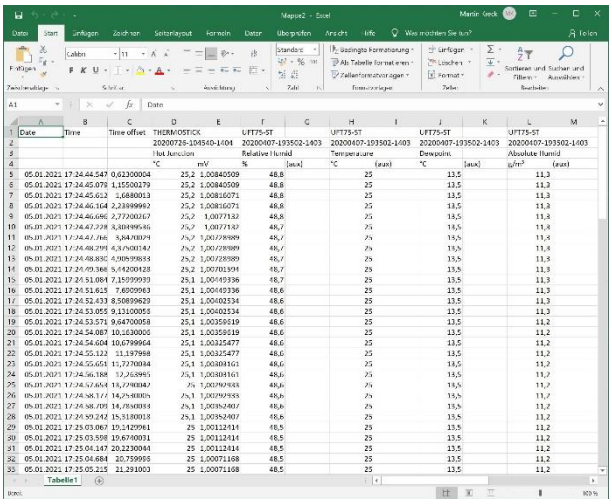
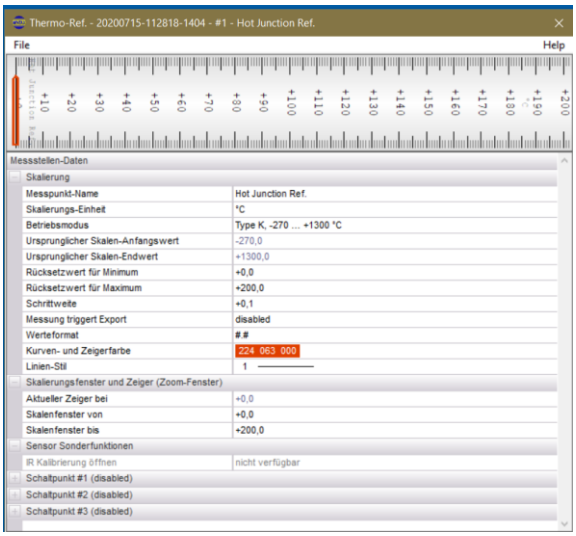


Automatically export measurement data to Excel

- The recorded data can be automated exported to Excel and further are processed.
- All measurements or only data in the event of changes can be exported in real time to an MS Excel™ table.
- All measurements or only changed measured values can be output in real time into a text file.
- Each measuring point of each sensor is exported to a table column. A precise time code is available for each line, consisting of the calendar date and the exact time with a resolution of 1 millisecond.



Parameterization of sensors

- The Sentax application software also enables the advanced parameterization of each connected sensor device.
- Each measuring point can be comprehensively configured and adapted.
- The scaling of the measuring range can be set as required.
- Measuring points can be specifically designated by the user.
- The graphical display with color and line width can be set in a wide range by the user as required.

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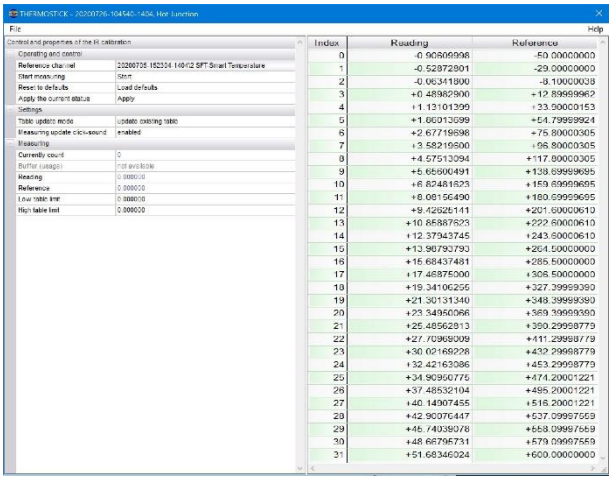
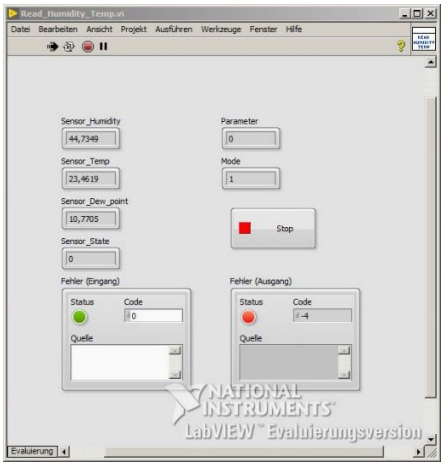


Calibrations

- Some sensor devices also support calibration functions. The Sentax application software offers all the functions required to carry out a qualified calibration of the sensor devices. In special cases, this can significantly increase the accuracy of the sensors as a whole or for a specific measuring range.
- The calibration of sensor inputs and sensor outputs is supported.
- The outputs of sensors with analog output can be specially adapted to many applications.

Read measured values into LabView



- Of course, the data can also be can be adopted in LabView. One included sample application makes this task easier.

System integration using dll or protocol essentials

- A simple communication protocol for the sensors is available to developers if required. Integrate the sensors directly into your own development, or access the measurement data directly with LabView™ or other systems.
- An interface DLL is also available. Integrate the DLL into your developments and use simple functions for querying measurement data.