

# THERMOSTICK

## Universal free programmable USB thermocouple measuring device

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### Description



The MELTEC THERMOSTICK is operated directly on the USB port of a PC. This measuring system is freely programmable over the entire temperature range from -270°C to 1820°C and is accurate up to  $\pm 1^\circ\text{C}$  (typical).

In connection with most thermocouples and the measurement data acquisition and evaluation software supplied free of charge, this electronic system forms a high-precision, network-compatible measurement system.

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### Specifications

- Smallest construction and high-precision
- Can be calibrated using a tool with cold junction compensation from -270°C to 1820°C
- Freely parameterizable from -270°C to 1820°C (scales adapt automatically)
- Integrated USB 2.0 interface, electronics completely integrated in the USB connector
- The number of devices that can be connected is only limited by the USB system
- No external power supply required\*
- Measurement data acquisition, monitoring and logging software, line recorders, data loggers
- Transfer measurements to an Excel table in real time

\* If many sensors are connected at the same time, a Power HUB with its own power supply may be required.

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### Applications

- Measurement, recording and monitoring of temperature
  - Laboratory applications
  - Air conditioning and ventilation technology
  - food industry
  - Furnaces/blast furnaces
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### Safety instructions



The THERMOSTICK must not be used in applications where people can 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 from the USB stick to the thermal cable connection of the THERMOSTICK must not be exposed to temperatures below  $-20^\circ\text{C}$  or above  $+70^\circ\text{C}$ , otherwise it can be damaged!



This sensor has protection class IP40 and is NOT waterproof.

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### Technical data, temperature measurement

Measuring range	-270 ... +1820 °C (depending on the sensor type)
Accuracy (typical)	± 0,3 °C (at 25 °C)
Resolution (typical)	0.01 °C
Repeatability (typical)	±0.1 °C
Response time (typical)	about 100 ms
Supported types	B, E, J, K, N, R, S, T

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### Cable from USB stick to thermal cable

Cable type	PVC (schwarz)
Protection class	IP40
Temperature range	-20 °C bis +70 °C
Length	Standard 2m (can be assembled)

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### Power supply

Power supply	from USB
Power consumption	< 20 mA

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### Outputs

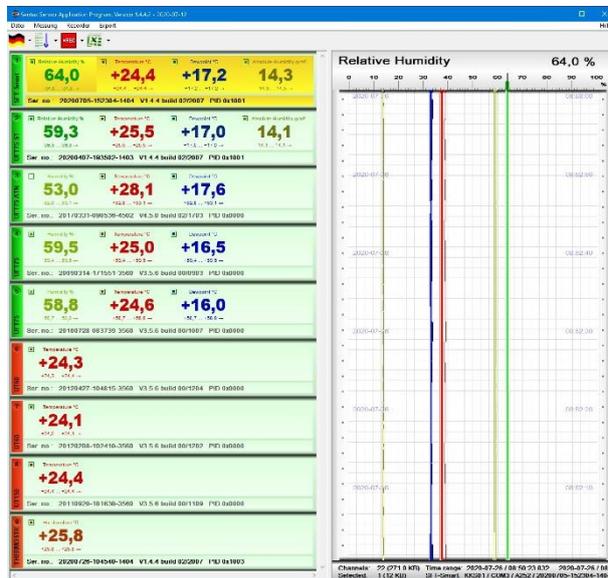
Communication	USB 2.0 standard-CDC (Communications Device Class) interface
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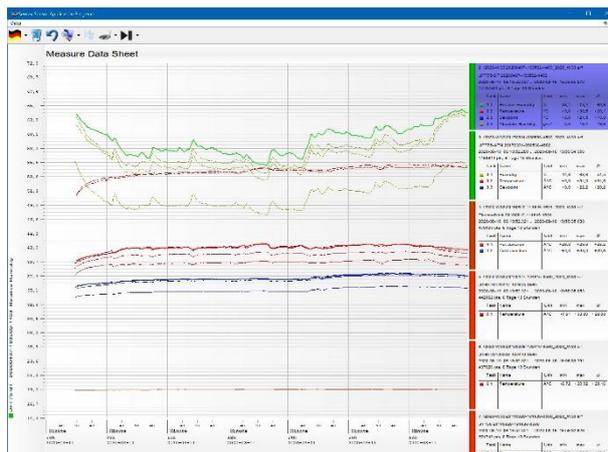
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The Sentax, a Windows application software, is supplied free of charge with the sensor. This is a universal tool for recording, processing and evaluating measurement data from all MELTEC USB sensors.



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.



Datlogger

- 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.

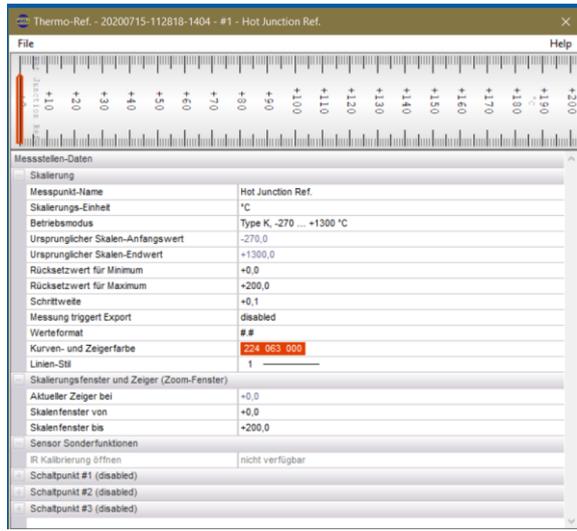
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## Universal free programmable USB thermocouple measuring device

Date	Time	Time offset	THERMOSTICK	UFT75-ST	UFT75-ST	UFT75-ST	UFT75-ST	UFT75-ST
05.01.2021	17:24:44.547	0.62300004	25.2	1.00840509	48.8	25	13.5	11.3
05.01.2021	17:24:45.079	1.15500279	25.2	1.00840509	48.8	25	13.5	11.3
05.01.2021	17:24:45.612	1.68800553	25.2	1.00840509	48.8	25	13.5	11.3
05.01.2021	17:24:46.144	2.22099827	25.2	1.00840509	48.8	25	13.5	11.3
05.01.2021	17:24:46.676	2.75399101	25.2	1.00771130	48.8	25	13.5	11.3
05.01.2021	17:24:47.208	3.28698375	25.2	1.00771130	48.7	25	13.5	11.3
05.01.2021	17:24:47.740	3.81997649	25.2	1.00771130	48.7	25	13.5	11.3
05.01.2021	17:24:48.272	4.35296923	25.2	1.00771130	48.7	25	13.5	11.3
05.01.2021	17:24:48.804	4.88596197	25.2	1.00771130	48.7	25	13.5	11.3
05.01.2021	17:24:49.336	5.41895471	25.2	1.00771130	48.7	25	13.5	11.3
05.01.2021	17:24:49.868	5.95194745	25.1	1.00771130	48.7	25	13.5	11.3
05.01.2021	17:24:50.400	6.48494019	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:50.932	7.01793293	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:51.464	7.55092567	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:52.000	8.08391841	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:52.532	8.61691115	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:53.064	9.14990389	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:53.596	9.68289663	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:54.128	10.21588937	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:54.660	10.74888211	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:55.192	11.28187485	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:55.724	11.81486759	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:56.256	12.34786033	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:56.788	12.88085307	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:57.320	13.41384581	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:57.852	13.94683855	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:58.384	14.47983129	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:58.916	15.01282403	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:59.448	15.54581677	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:24:59.980	16.07880951	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:00.512	16.61180225	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:01.044	17.14479499	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:01.576	17.67778773	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:02.108	18.21078047	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:02.640	18.74377321	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:03.172	19.27676595	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:03.704	19.80975869	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:04.236	20.34275143	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:04.768	20.87574417	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:05.300	21.40873691	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:05.832	21.94172965	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:06.364	22.47472239	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:06.896	23.00771513	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:07.428	23.54070787	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:07.960	24.07370061	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:08.492	24.60669335	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:09.024	25.13968609	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:09.556	25.67267883	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:10.088	26.20567157	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:10.620	26.73866431	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:11.152	27.27165705	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:11.684	27.80464979	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:12.216	28.33764253	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:12.748	28.87063527	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:13.280	29.40362801	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:13.812	29.93662075	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:14.344	30.46961349	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:14.876	31.00260623	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:15.408	31.53559897	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:15.940	32.06859171	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:16.472	32.60158445	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:17.004	33.13457719	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:17.536	33.66756993	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:18.068	34.20056267	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:18.600	34.73355541	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:19.132	35.26654815	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:19.664	35.79954089	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:20.196	36.33253363	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:20.728	36.86552637	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:21.260	37.39851911	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:21.792	37.93151185	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:22.324	38.46450459	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:22.856	38.99749733	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:23.388	39.53049007	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:23.920	40.06348281	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:24.452	40.59647555	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:24.984	41.12946829	25.1	1.00771130	48.6	25	13.5	11.2
05.01.2021	17:25:25.516	41.66246103	25.1	1.00771130	48.6	25	13.5	11.2

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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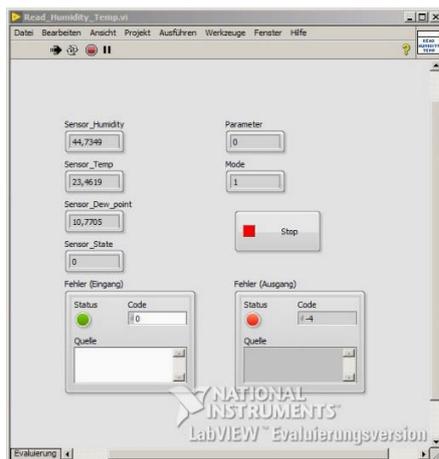
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Index	Reading	Reference
0	-0.909090908	-0.000000000
1	-0.529720011	-29.000000000
2	-0.063418000	-9.100000038
3	+0.489827900	-19.896898627
4	+1.131013399	+33.000001153
5	+1.600120399	+54.799999524
6	+2.677168986	+75.800003055
7	+3.582195900	+96.800003055
8	+4.575130944	+117.800003055
9	+5.659004911	+138.899996385
10	+6.824815273	+159.899996385
11	+8.001554490	+180.899996385
12	+9.202621111	+201.800006110
13	+10.688878233	+222.600006110
14	+12.379437445	+243.500006110
15	+13.967937930	+264.500000000
16	+16.684314811	+285.500000000
17	+17.488750000	+306.500000000
18	+19.341062255	+327.399993380
19	+21.301313440	+348.399993380
20	+23.349303965	+369.399993380
21	+25.405623113	+390.299997779
22	+27.709650009	+411.299997779
23	+30.021689228	+432.299997779
24	+32.421630866	+453.299997779
25	+34.909007775	+474.200011221
26	+37.483321044	+495.200011221
27	+40.149074455	+516.200011221
28	+42.900764447	+537.099975559
29	+45.740330778	+558.099975559
30	+48.667967311	+579.099875559
31	+51.683460324	+600.000000000

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 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.