

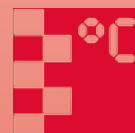
## Precision Hand-held Thermometer

### HND-T



- Measuring range from -220 °C ... +1768 °C
- Measuring accuracy starting with  $\pm 0.03\%$  MV
- Large selection of temperature probes
- Pt 100 or thermocouple element
- Serial interface, minimum/maximum memory, hold function, real-time clock, differential temperature, logger function
- Robust housing IP 65, front

T2



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## Description

Nearly all measuring tasks for the determination of temperature can be performed with the HND-T series KOBOLD manual temperature measuring units. Various housing designs make it possible to find the right housing with the appropriate equipment for every application.

The large selection of temperature probes can be supplied as Pt100 sensors or as thermocouple elements. The delivery program of the HND-T housings ranges from high-precision

thermometers with a high degree of accuracy and extensive additional functions to the standard thermometer for fast and simple measurement.

In the following table, all manual temperature measuring units are listed with their respective equipment characteristics to ensure fast classification. Further technical data and additional information regarding the individual housings can be found in the subsequent pages.

## Characteristics of the hand-held measuring units of the HND-T... series

Leistungsmerkmal		HND-T120	HND-T126	HND-T105	HND-T205
Temperature probe	Pt100	–	–	4-wire	4-wire
	Thermoelement	type K	type K	–	–
Measuring range*		-50... +1150 °C	-220... +1372 °C	-200... +850 °C	-200... +850 °C
Accuracy**		start. with 1% ±1 digit	±0,5 °C/ ±0,2 % of full scale	start. with ≤0,03 °C	start. with ≤0,03 °C
Display (LCD)		3½-digit	2 x 4½-digit	2 x 4½-digit	2 x 4½-digit
Output	0-1 Volt	–	–	x	x
	Interface	–	–	x	x
Min./max. value memory		–	x	x	x
Min./max. alarm		–	–	–	x
Alarm		–	–	–	x
Auto-off function		–	x	x	x
Hold function		–	x	x	x
Correction value for surface measurement		–	–	–	–
Zero point offset entry		–	–	x	x
Differential measurement		–	–	–	
Logger function		–	–	–	x
Real-time clock		–	–	–	x
Power supply	Battery	x	x	x	x
	External	x	–	x	x

\* Measuring range depends upon the probe used

\*\* Measuring unit accuracy, without taking the accuracy of the respective probe into consideration



#### HND-T120

- For thermocouple element type K
- Battery or external power supply
- Easy to use
- Economical temperature measurement



#### HND-T126

- For thermocouple element type K
- Easy and economical temperature measurement
- Min.-/max. memory
- Hold function
- Auto-off function

#### Technical Data

(The data listed refers to the measuring unit without considering the respective probe)

Measurement input:	thermocouple element, type K
Measuring range:	-50 ... +1150 °C
Accuracy:	(at nominal temp. 25 °C) from -20 ... +550 or +920 ... +1150 °C better 1% ± 1 digit from 550 ... 920 °C better 1.5% ± 1 digit
Resolution:	1 °C
Display:	3½-digit LCD
Operating temperature:	0 ... 45 °C
Storage temperature:	-20 ... +70 °C
Probe connection:	for 2-pin standard flat connector (free of thermoelectric voltage)
Power supply:	9 V-monobloc battery (included in the scope of delivery), external 10.5- 12 V <sub>DC</sub> via jack
Current consumption:	approx. 0.4 mA
Battery service life:	approx. 700 h
Material:	housing made of impact-resistant ABS plastic
Protection:	IP 65, front
Dimensions:	142 x 71 x 26 mm (H x W x D))
Weight:	approx 160 g

#### Description

The KOBOLD hand-held temperature measuring units HNDT120/ T126 make it possible to measure the temperature with a type K thermocouple element probe. With a very large selection of temperature probes, these compact housings can also perform nearly any measurement task.

Some application areas are very fast measurements on surfaces, in liquids, soft plastic media, air/gases, tiny objects, etc.

#### Areas of application

- Chemical, pharmaceutical, food industry
- Machine and apparatus construction
- Piping and container construction

#### Technical Data

(The data listed refers to the measuring unit without considering the respective probe)

Measurement input:	thermocouple element, type K
Measuring range:	-220 ... +1372 °C
Accuracy:	(±1 digit, at nominal temp. 25 °C) ±0,5 °C / ±0,2 % of full scale
Resolution:	0.1 °C or 1 °C (0.1 °F or 1 °F)
Display:	2 x 4½ digits
Operating temp.:	-25 ... +50 °C
Storage temperature:	-20 ... +70 °C
Probe connection:	for 2-pin standard flat connector
Power supply:	9 V-monobloc battery (included in the scope of delivery)
Current consumption:	approx. 0.15 mA
Battery service life:	approx. 2000 h
Material:	housing made of impact-resistant ABS plastic
Protection:	IP 65, front
Dimensions:	142 x 71 x 26 mm (H x W x D)
Weight:	approx. 150 g

#### Scope of functions HND-T126

- **Auto-off function:**  
1 to 120 minutes adjustable or continuous operation.
- **Min.-/max.-value memory**
- **Hold function:** »Freezing« of the current value

#### Order Data

Order-no.	Housing design
HND-T 120	Thermocouple element input
HND-T 126	Thermocouple element input

Suitable probes and accessories see pages 8-10



## HND-T105 and HND-T205

- For Pt 100 / 4-wire
- High degree of accuracy
- Analogue output or serial interface
- Logger function with HND-T205

## Description

The KOBOLD hand-held temperature measuring units HND-T105 or HND-T205 are highly precise, compact thermometers for PT100 4-wire-probes that can be used universally. The high degree of accuracy of these housings makes them extremely well suited for all calibration tasks. In conjunction with the appropriate temperature probes, precise measurement results over the entire measuring range can be achieved. Various probes are available for a multitude of measuring tasks and special applications. The respective measurement task determines which combination is selected. Naturally, these first-rate KOBOLD-measuring units can display more than just the temperature values. All housings in this series allow for minimum/maximum value memory, hold function, automatic self-shut-off, and zero point/increase entry, for example.

## Areas of application

- Chemical, pharmaceutical, food industry
- Machine and apparatus construction
- Piping and container construction

## Technical Data

(The data listed refers to the measuring unit without considering the respective probe)

Measurement input:	Pt 100, 4-wire, acc. to DIN EN 60751
Measuring range:	-199.99 ... +199.99 °C or -200.0 ... +850.0 °C (Fahrenheit values accordingly)
Accuracy:	(at nominal temperature 25 °C) ≤ 0.03 °C in the range -199.99 ... 199.99 °C ≤ 0.1 °C ±1 digit in the range 200.0 ... 850.0 °C
Resolution:	0.01 °C or 0.1 °C (0.01 °F or 0.1 °F)
Display:	2x4½-digit LCD
Operating temperature:	-25 ... +50 °C
Storage temperature:	-25 ... +70 °C
Storage humidity:	0 ... 95% rH (non-condensing)
Probe connection:	4-pin shielded Mini-DIN plug

Output:	0 - 1 V, freely scalable or serial interface (via 3-pin jack, transformer on RS232 or USB optional)
Power supply:	9 V-monobloc battery (included in the scope of delivery), external 10.5-12 V <sub>DC</sub> via jack
Current consumption:	approx. 1 mA
Material:	housing made of impact-resistant ABS plastic
Protection:	IP 65, front
Dimensions:	142 x 71 x 26 mm (H x W x D)
Weight:	approx. 155 g

## Scope of functions

- **Min.-/max. value memory**
- **Hold function:** »Freezing« of the current value
- **Automatic-off function:**  
1...120 min (can be deactivated)
- **Zero point and increase entry:** zero point and increase correction can be entered digitally

## Additional functions with HND-T205

- **Min.-/max.-Alarm** (can be deactivated)
- **Alarm:** 3 alarm settings  
**Off:** Alarm function inactive  
**On:** Alarm notification via display, internal horn and serial interface
- **No sound:** Alarm notification only via display
- and interface

## Logger functions

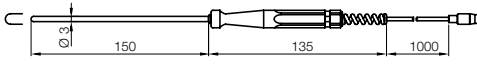
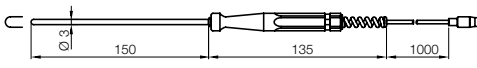
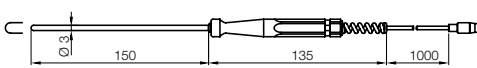
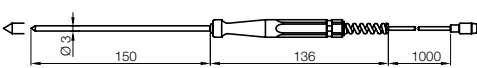
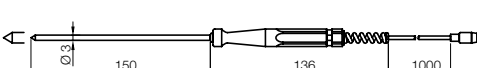
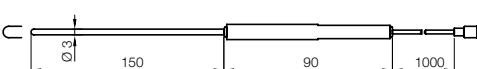
- **Manual:** 99 datasets  
**Cyclic:** 16384 datasets  
Adjustable cycle time: 1 s ... 1 h
- **Real-time clock:** Current time with date and year

## Order Data

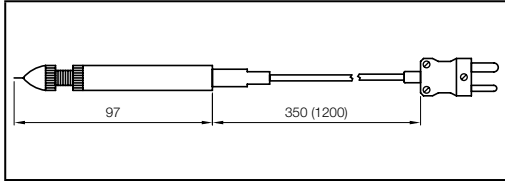
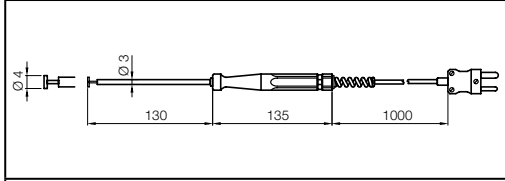
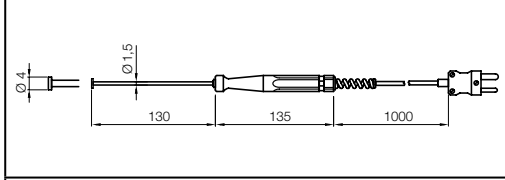
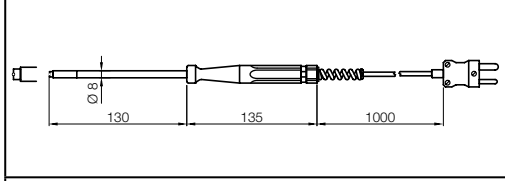
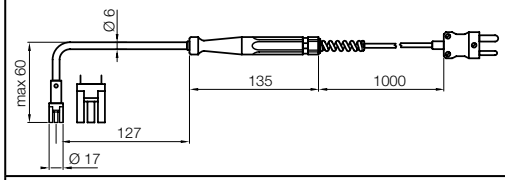
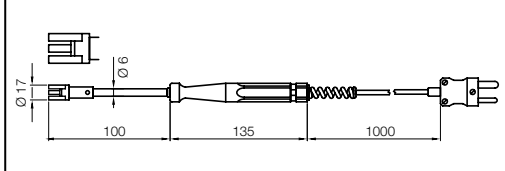
Order-no.	Housing design
HND-T 105	Pt 100 input, standard
HND-T 205	Pt 100 input with additional functions (see techn. data)

Suitable probes and accessories see pages 7-10

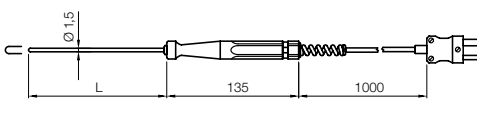
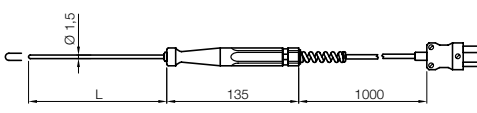
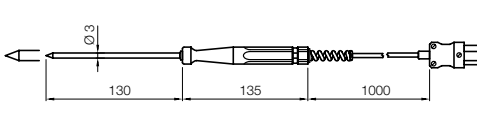
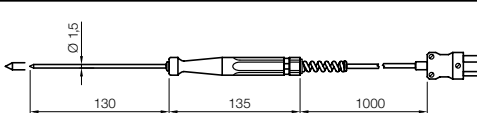
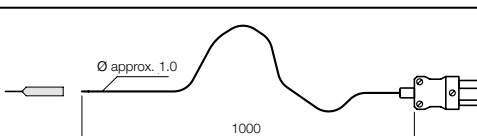
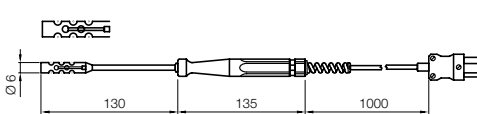
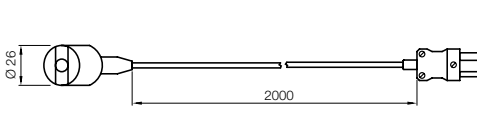
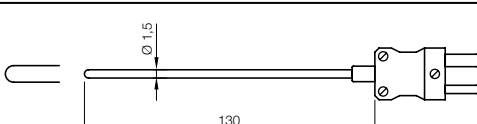
## PT100-measuring probe Class B for HND-T105 and HND-T205

Dimensions	Probe type	Temperature/ response time ( $t_{90}$ )	Order-no.
	<b>Immersion probe for liquids and gases, 4-wire</b> Rustproof V4A-tube, plastic handle, approx. 1m 4-pin PVC-cable, strain relief screw connection, 4-pin Mini-DIN plug	-50 ... +400 °C approx. 10 sec	HND-TF01
	<b>Immersion probe for liquids and gases, 4-wire</b> Like HND-TF01, but with 1/3 DIN Class B ( $\pm 0.1$ °C at 0 °C)	-50 ... +400 °C approx. 10 sec	HND-TF02
	<b>Immersion probe for liquids and gases, 4-wire</b> Like HND-TF01, but with 1/10 DIN Class B ( $\pm 0.03$ °C at 0 °C) and flexible sheath tube, $\varnothing$ 3 mm	-50 ... +400 °C approx. 10 sec	HND-TF03
	<b>Insertion probe for soft, plastic media, 4-wire</b> Technical data like HND-TF01, but with needle-shaped knife-edge tip	-50 ... +400 °C approx. 10 sec	HND-TF04
	<b>Insertion probe for soft, plastic media, 4-wire</b> Like HND-TF04, but with 1/3 DIN Class B ( $\pm 0.1$ °C at 0 °C)	-50 ... +400 °C approx. 10 sec	HND-TF05
	<b>Immersion probe for liquids and gases, 4-wire</b> Rustproof V4A-tube, approx. 1 m 4-pin PVC-cable, 4-pin Mini-DIN-plug	-50 ... +400 °C approx. 10 sec	HND-TF06

Thermocouple element meas. probe type K Class 1 for HND-T120, HND-T126

 <p>Diagram of a tire probe with a depth stop. Dimensions: 97 mm for the main body, 350 (1200) mm for the cable length.</p>	<p><b>Tire probe</b> Insertion probe with depth stop (adjustable to a depth of approx. 14 mm), for soft, plastic media</p>	<p>-50 ... +200 °C approx. 5 sec</p>	<p><b>HND-TF31</b></p>
 <p>Diagram of a surface probe with a spring-mounted Cu-plate. Dimensions: 130 mm for the main body, 135 mm for the spring, 1000 mm for the cable length.</p>	<p><b>Surface probe</b> For straight and solid metal surfaces spring-mounted Cu-plate</p>	<p>-65 ... +500 °C approx. 3 sec</p>	<p><b>HND-TF32</b></p>
 <p>Diagram of a surface, diving, air and gas probe. Dimensions: 130 mm for the main body, 135 mm for the spring, 1000 mm for the cable length.</p>	<p><b>Surface, diving, air and gas probe</b> For solid surfaces of all kinds, probe not spring-mounted</p>	<p>-65 ... +500 °C approx. 5 sec</p>	<p><b>HND-TF33</b></p>
 <p>Diagram of a surface probe with a spring-tip. Dimensions: 130 mm for the main body, 135 mm for the spring, 1000 mm for the cable length.</p>	<p><b>Surface probe</b> For solid surfaces of all kinds, spring-tip</p>	<p>-65 ... +900 °C approx. 2 sec</p>	<p><b>HND-TF34</b></p>
 <p>Diagram of a surface probe for fast measurements. Dimensions: 127 mm for the main body, 135 mm for the spring, 1000 mm for the cable length.</p>	<p><b>Surface probe</b> For fast measurements</p>	<p>-65 ... +400 °C approx. 2 sec</p>	<p><b>HND-TF35</b></p>
 <p>Diagram of a surface probe for fast measurements. Dimensions: 100 mm for the main body, 135 mm for the spring, 1000 mm for the cable length.</p>	<p><b>Surface probe</b> For fast measurements</p>	<p>-65 ... +400 °C approx. 2 sec</p>	<p><b>HND-TF36</b></p>

**Thermocouple element-meas. probe type K Class 1 for HND-T120, HND-T126**

Dimensions	Probe type	Temperature/ response time ( $t_{90}$ )	Order-no.
	<b>Immersion probe</b> Economical, fast, spring-mounted (fixed), Ø 1.5 mm, L = 130 mm	-65 ... +550 °C approx. 3 sec	<b>HND-TF37</b>
	<b>Immersion probe for the highest temperatures</b> Sheath thermocouple element, flexible, Ø 1.5 mm, L = 150 mm	-200 ... +1150 °C approx. 3 sec	<b>HND-TF38</b>
	<b>Insertion probe for the highest temperatures</b> economical, spring-mounted (fixed), Ø 3.0 mm	-65 ... +1000 °C approx. 5 sec	<b>HND-TF39</b>
	<b>Insertion probe</b> For soft plastic media Ø 1.5 mm	-65 ... +550 °C approx. 3 sec	<b>HND-TF40</b>
	<b>Insertion probe</b> for higher temperatures in gases, air and for solid surfaces (not for liquids)	-65 ... +400 °C approx. 0.3 sec	<b>HND-TF41</b>
	<b>Air and gas probe</b> For measuring room temperature, smoke gases, etc.	-65 ... +600 °C approx. 1.5 sec	<b>HND-TF42</b>
	<b>Surface magnet probe</b> adheres to magnetic materials heavy duty design (greater magnetic cohesion)	-65 ... +200 °C approx. 5 sec	<b>HND-TF43</b>
	<b>Immersion probe</b> also for gases and air (also suitable for surfaces on a limit basis)	-200 ... +1150 °C approx. 3 sec	<b>HND-TF44</b>

Additional probe designs upon request



#### Accessories for HND-T

Description	Order no.
Plug power supply unit (220/240 V, 50 / 60 Hz), 10.5 V / 10 mA	HND-Z002*
Protectiv housing bag, nappa leather, with cut-out for round sensor connection for HND-T105, HND-T205	HND-Z011
Protectiv housing bag, nappa leather, with cut-out for square sensor connection for HND-T120, HND-T126	HND-Z013
Case with recess (275 x 229 x 83 mm)	HND-Z021***
Universal case with egg crate foam (275 x 229 x 83 mm)	HND-Z022***
Large case with recess (394 x 294 x 106 mm)	HND-Z023***
Interface converter on RS232, galvanically isolated	HND-Z031**
Interface converter on USB, galvanically isolated	HND-Z032**
Adapter RS232 converter on USB-interface	HND-Z033**
Windows software for setting, data read out, and printing of the data of housings of the HND-series with logger function	HND-Z034
Software for recording measurement data on a computer, for instruments of the HND-series without logger function	BUS-S20M
Flat connector type N, free of thermoelectric voltage, for connection of thermocouple element probe HND-TF 21/22/23	HND-Z041

Additional probe accessories upon request

\* not for HND-T126

\*\* not for HND-T120 and HND-T126

\*\*\* Observe instrument dimensions