



Operating Instructions
for
Precision Second Portable
Thermometer

Model: HND-T126



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Manufactured and sold by:

Kobold Messring GmbH
Nordring 22-24
D-65719 Hofheim
Tel.: +49(0)6192-2990
Fax: +49(0)6192-23398
E-Mail: info.de@kobold.com
Internet: www.kobold.com

2. Note

Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.

The instruction manuals on our website www.kobold.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form against an applicable postage fee.

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the measuring unit should be used only when the machines fulfil the EC-machine guidelines.

3. Instrument Inspection

Instruments are inspected before shipping and sent out in perfect condition. Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:

The standard delivery includes:

- Precision Second Portable Thermometer model: HND-T126

4. Regulation Use

Any use of the Precision Second Portable Thermometer, model: HND-T126, which exceeds the manufacturer's specification, may invalidate its warranty. Therefore, any resulting damage is not the responsibility of the manufacturer. The user assumes all risk for such usage.

5. Operating Principle

The KOBOLD manual temperature measuring units HND-T120/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.

6. Electrical Connection

When using a power supply unit, please note that operating voltage has to be 10 to 12 V_{DC}. Do not apply overvoltage!! Cheap 12 V-power supply units often have excessive no-load voltage. We, therefore, recommend using regulated voltage power supply units. Trouble-free operation is guaranteed by our power supply HND-Z002. Prior to connecting the plug power supply unit with the mains supply, make sure that the operating voltage stated at the power supply unit is identical to the mains voltage.

7. Operation / Configuration / Adjustments

7.1 Safety Instructions:

This device has been designed and tested in accordance to the safety regulations for electronic devices.

However, its trouble-free operation and reliability cannot be guaranteed unless the standard safety measures and special safety advises given in this manual will be adhered to when using it.

1. Trouble-free operation and reliability of the device can only be guaranteed if it is not subjected to any other climatic conditions than those stated under *8 Technical Information*.

If the device is transported from a cold to a warm environment condensation may result in a failure of the function. In such a case make sure the device temperature has adjusted to the ambient temperature before trying a new start-up.

2. If device is to be connected to other devices the circuitry has to be designed most carefully. Internal connection in third party devices (e.g. connection GND and earth) may result in not-permissible voltages impairing or destroying the device or another device connected.
3. **Warning:** Just devices with mains input: If device is operated with a defective mains power supply (e.g. short circuit from mains voltage to output voltage) this may result in hazardous voltages at the device (e.g. at sensor socket)
4. If there is a risk whatsoever involved in running it, the device has to be switched off immediately and to be marked accordingly to avoid re-starting. Operator safety may be a risk if:
 - there is visible damage to the device
 - the device is not working as specified
 - the device has been stored under unsuitable conditions for a longer time
In case of doubt, please return device to manufacturer for repair or maintenance.
5. **Warning:** Do not use this product as safety or emergency stop devices or in any other application where failure of the product could result in personal injury or material damage.
Failure to comply with these instructions could result in death or serious injury and material damage.

7.2 In General: Measuring Temperature with Thermocouples

- Temperature differences between the instrument and the probe connector may produce measuring errors. Therefore, wait after connecting or touching the connector until the temperatures have adjusted (can take up to 15 min.).
- The device is suitable to measure large temperature ranges. But consider the allowable range of your probe!
- When measuring air temperature, the probe has to be dry. Otherwise, the cold due to the evaporation causes to low measurements.

7.3 MIN-/MAX Value Memory

watch MIN value (Lo):

- press key 'Mode' shortly once
- display changes between 'Lo' and MIN value

watch MAX value (Hi):

- press key 'Mode' shortly once again
- display changes between 'Hi' and MAX value

restore current value:

- press key 'Mode' shortly once again
- current value is displayed

clear MIN-/MAX- value:

- press key 'Mode' for 2 seconds
- MIN and MAX value are cleared. The display shows shortly 'CLr'.

7.3.1 Hold – Function

By shortly pressing the 'Hold' key the currently measured value is 'frozen', The display changes between 'Hld' and the 'frozen' value Pressing the key 'Hold' shortly once again resets the display to the current value.



Please note: Measuring keeps on running in the background, the MIN/MAX values are updated continuously.

7.3.2 Offset and Scale Adjustment

The offset and scale adjustment is mainly intended to be used to compensate errors of the external temperature probes. The display value is given by following formula:

unit = °C:

Display = (measured value - offset) * (1 + scale adjustment [%])

unit = °F:

Display = (measured value - 32 °F - offset) * (1 + scale adjustment [%]) + 32 °F

To adjust a measuring offset and scale proceed like follows:

1. Switch off the instrument.
2. Press the 'Hold' key while switching on the instrument. Keep 'Hold' key pressed until 'OFS' appears in the display (about 3 seconds).
3. Press 'Mode' or 'Hold' key, the currently selected offset adjustment appears.
4. Choose the desired value by pressing 'Mode' or 'Hold' key. (max. input range: ±5.0 °C or ±9.0 °F)
5. Enter by pressing On/Off-key: SCL appears in the display
6. Press 'Mode' or 'Hold' key, the currently selected scale adjustment appears
7. Choose the desired value by pressing 'Mode' or 'Hold' key. (max. input range: ±5.00 %) The input is displayed in %.

example:

*scale adjustment is 4.00 => scale is increased by 4.00 % => Scale = 104 %
At a measured value of 100.0 (without offset correction) the instrument would show 104.0*

8. Store the values by pressing 'On/Off' key.



Please note: If during the changing of the offset adjust no key is pressed within 20 seconds, the input will be aborted. Eventually made changes won't be stored!

7.3.3 Configuration of the Instrument:

To configure the instrument, proceed like follows:

1. Switch off the instrument.
2. Press the 'Mode' key while switching on the instrument, keep 'Mode' key pressed until 'PoF' appears (about 3 seconds).

I.) Auto Power Off Time

The auto power off time is entered in minutes. If no key is pressed during a measuring, the instrument switches itself off automatically after the entered period of time.

3. Press 'Mode' or 'Hold' key, the currently selected power off time will be displayed (off, 1..120 min)
4. Enter the desired time by pressing 'Mode' or 'Hold' key.
Possible input:
off: The auto power off function is deactivated (permanent operation)
1...120: auto power off time in minutes.
5. Confirm the value by pressing 'On/Off' key, 'Uni' appears in the display

II.) Display Unit: Choice of the temperature display unit: °C or °F – valid for all temperature displays.

6. Press 'Mode' or 'Hold' key, the currently selected unit will be displayed (°C or °F)
7. Enter the desired unit by pressing 'Mode' or 'Hold' key.
8. Confirm the value by pressing 'On/Off' key, 'rES' appears in the display

III.) Display Resolution: Choice of the temperature display resolution: 1° or 0.1°

9. Press 'Mode' or 'Hold' key, the currently selected resolution will be displayed (1° or 0.1°)
10. Enter the desired resolution by pressing 'Mode' or 'Hold' key.
0.1°: Display 0.1 °C or 0.1 °F. When exceeding the display range (>199.9°) the display automatically changes to 1° resolution
1°: Display with 1 °C or 1 °F resolution
11. Confirm the value by pressing 'On/Off' key. The values will be stored, the instrument will restart (segment test).



Please note: If during the configuration no key is pressed within 20 seconds, the configuration will be aborted. Eventually made changes won't be stored!

7.3.4 System Messages:

- Er. 1 = measuring range has been exceeded
- Er. 2 = meas. values have fallen below perm. range
- Er. 7 = System fault - the device has detected a system fault (defective or far outside allowable ambient temperature range)
- = No temperature probe connected or probe defective

If the symbol "BAT" is displayed at the left side of display, the battery is weak, measuring can be continued for a certain time. If "bAt" is displayed in the main display the battery is used up and needs to be replaced. Measuring is no more possible.

8. Technical Information

Technical data

Measurement input:	thermocouple element, type K
Measuring range:	-220 °C...+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:	2x 4½ digits
Operating temp.:	-25 °C...+50 °C
Storage temperature:	-25 °C...+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:	IP65, front
Dimensions:	142 x 71 x 26 mm (HxWxD)
Weight:	approx. 150 g

Scope of functions:

- Auto-off function:
1 to 120 minutes adjustable or continuous operation
- Minimum/maximum value memory
- Hold function: »Freezing« of the current value

9. Order Codes

Order-no.	Housing design
HND-T126	Thermocouple element input

9.1 Thermocouple element meas. probe type K Class 1

Order. No.	Device version
HND-TF31	Tire probe insertion probe with depth stop adjustable to a depth of approx. 14 mm), for soft, plastic media
HND-TF32	Surface probe for straight and solid metal surfaces spring-mounted Cu-plate
HND-TF33	Surface, diving, air and gas probe for solid surfaces of all kinds, probe not spring-mounted
HND-TF34	Surface probe for solid surfaces of all kinds, spring-tip
HND-TF35	Surface probe for fast measurements
HND-TF36	Surface probe for fast measurements
HND-TF37	Immersion probe economical, fast, spring-mounted (fixed), Ø 1.5 mm, L = 130 mm
HND-TF38	Immersion probe for the highest temperatures sheath thermocouple element, flexible, Ø 1.5 mm, L = 150 mm
HND-TF39	Insertion probe for the highest temperatures economical, spring-mounted (fixed), Ø 3.0 mm
HND-TF40	Insertion probe for soft plastic media, Ø 1.5 mm
HND-TF41	Insertion probe for higher temperatures in gases, air and for solid surfaces (not for liquids)
HND-TF42	Air and gas probe for measuring room temperature, smoke gases, etc.
HND-TF43	Surface magnet probe adheres to magnetic materials heavy duty design (greater magnetic cohesion)
HND-TF44	Immersion probe also for gases and air also suitable for surfaces on a limit basis)

9.2 Accessories

Description	Order no.
Protective housing bag, nappa leather, with cut-out for round sensor connection for HND-T105, HND-T205	HND-Z011
Protective housing bag, nappa leather, with cut-out for square sensor connection for HND-T110, HND-T120, HND-T125	HND-Z013
Protective housing bag, nappa leather, with cut-out for two sensor connections for HND-T115 and HND-T215	HND-Z014
Case with recess (275x229x83 mm)	HND-Z021*
Universal case with egg crate foam (275x229x83 mm)	HND-Z022*
Large case with recess (394x294x106 mm)	HND-Z023*
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-TF21/22/23	HND-Z041

Additional probe accessories upon request

* Observe instrument dimensions

10. EU Declaration of Conformance

We, KOBOLD Messring GmbH, Hofheim-Ts., Germany, declare under our sole responsibility that the product:

Precision Second Portable Thermometer

Model: HND-T126

to which this declaration relates is in conformity with the standards noted below:

EN 61326-1:2013

Electrical equipment for measurement, control and laboratory use - EMC requirements – Part 1: General requirements

EN 50581:2012

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Also, the following EC guidelines are fulfilled:

2014/30/EU
2011/65/EU
2015/863/EU

Electromagnetic compatibility
RoHS (category 9)
Delegated Directive (RoHS III)

Hofheim, 23 Nov. 2021



H. Volz
General Manager



M. Wenzel
Proxy Holder