



# User Manual

Thermometer PCE-T312N



User manuals in various languages (français, italiano, español, português, nederlands, türk, polski, русский, 中文) can be found by using our product search on: [www.pce-instruments.com](http://www.pce-instruments.com)

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## 1 Safety notes

Please read this manual carefully and completely before you use the device for the first time. The device may only be used by qualified personnel and repaired by PCE Instruments personnel. Damage or injuries caused by non-observance of the manual are excluded from our liability and not covered by our warranty.

- The device must only be used as described in this instruction manual. If used otherwise, this can cause dangerous situations for the user and damage to the meter.
- The instrument may only be used if the environmental conditions (temperature, relative humidity, ...) are within the ranges stated in the technical specifications. Do not expose the device to extreme temperatures, direct sunlight, extreme humidity or moisture.
- Do not expose the device to shocks or strong vibrations.
- The case should only be opened by qualified PCE Instruments personnel.
- Never use the instrument when your hands are wet.
- You must not make any technical changes to the device.
- The appliance should only be cleaned with a damp cloth. Use only pH-neutral cleaner, no abrasives or solvents.
- The device must only be used with accessories from PCE Instruments or equivalent.
- Before each use, inspect the case for visible damage. If any damage is visible, do not use the device.
- Do not use the instrument in explosive atmospheres.
- The measurement range as stated in the specifications must not be exceeded under any circumstances.
- Non-observance of the safety notes can cause damage to the device and injuries to the user.

We do not assume liability for printing errors or any other mistakes in this manual.

We expressly point to our general guarantee terms which can be found in our general terms of business.

If you have any questions please contact PCE Instruments. The contact details can be found at the end of this manual.



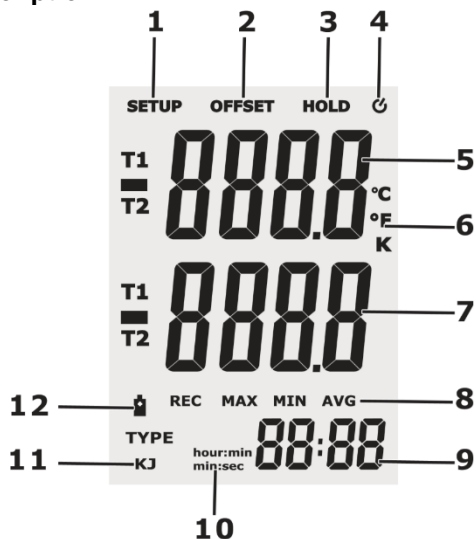
## 2 Delivery contents

- 1 x Contact Thermometer PCE-T312N
- 2 x TF-500 Thermo-wire sensor
- 3 x 1.5V AAA batteries
- 1 x User manual

## 3 Specifications








Thermocouple types	Type K and Type J
Measuring range thermocouple Type K	-200 ... 1372°C / -328 ... 2501°F
Measuring range thermocouple Type J	-210 ... 1100°C / -346 ... 2012°F
Measurement units	°C / °F / K
Display	Large, dual LCD with backlight
Display functions	T1, T2, T1-T2, MAX, MIN, AVG
Power supply	3 x 1.5V AAA batteries
Automatic shutdown	After 20 minutes of inactivity
Temperature accuracy over -100°C (148°F)	± [0.15% rh +1°C (1.8°F)]
Temperature accuracy under -100°C (148°F)	± [0.5% rh +2°C (3.6°F)]
Temperature accuracy T1-T2	± [0.5% rh +1°C (1.8°F)]
Operating temperature	0 ... 50°C (4 ... 122°F)
Storage temperature	10 ... 50°C (14 ... 122°F)

## 4 Display description






No.	Short description	Long description
1	"Setup" icon	Shows that you are in the menu
2	"Offset" icon	
3	"Hold" icon	Shows that the reading has been held
4	"Auto-Off" icon	Shows that the meter will turn off automatically
5	Primary display	Shows the reading of T1, T2 as well as the difference between T1 and T2
6	Units	Shows the unit (°C, °F, K)
7	Secondary display	Shows the following functions: MAX, MIN, AVG, Offset, T1 and T2
8	MAX, MIN, AVG display	Shows what function is shown in the secondary display
9	Measurement period	Shows the measurement period
10	Time units	Shows if hours and minutes or minutes and seconds are displayed in the field for the measurement period
11	Type of thermocouple	Shows the set type of thermocouple
12	Battery level indicator	Shows that the batteries are flat and must be replaced

## 5 Key description

Key	Description
	Turns the meter on/off
	When you are in the settings screen, you can open a menu item and confirm the set value with this key.
	Changes what is shown on the primary and secondary display. Options: T1, T2 and T1-T2
	Changes the unit. Options: °C, °F and K
	By pressing this key once in the measuring screen, the reading will be held. By pressing the key again, the measurement will be continued. In the settings, this key can be used to select a menu item and parameters within a menu can be changed.
	By pressing this key in measuring mode, you can select between MIN, MAX and AVG. In the settings, this key can be used to select a menu item and parameters within a menu can be changed.
	By pressing this key once, the backlight is activated. By pressing the key again, the backlight is deactivated. To enter the settings, press and hold this key for three seconds. To leave the settings, press and hold this key again for three seconds.

## 6 Settings

To enter the settings, press and hold the  key for three seconds. To leave the settings, press and hold the  key again for three seconds. To select a menu item or to change parameters within the menu items, use the arrow keys at the side of the meter. To confirm a change or to open a menu item, press the  key. The settings are arranged as follows:

Menu	Display	Possible settings
Set type of thermocouple	TYPE	K and J
Offset	OFFSET	Range $\pm 5.0$ °C / $\pm 9.0$ °F
Auto Off	SLP	ON and OFF

**Note:** As long as the MIN MAX AVG function is activated, you cannot enter the menu.

### 6.1 Change type of thermocouple

If the connected type of thermocouple is different from the type shown in the lower left-hand side of the display, the meter's thermocouple setting must be changed accordingly. To do so, enter settings mode and change the type as required. Thermocouples of the types K and J can be connected.

## 6.2 Set offset

When the accuracy is outside the specifications, an offset can be carried out. The possible range for the offset is  $\pm 5.0\text{ }^{\circ}\text{C}$  /  $\pm 9.0\text{ }^{\circ}\text{F}$ . To be able to set the offset, first connect the meter to the thermocouples. Then place the thermocouples into a liquid of known temperature, for instance ice water. Now wait for the displayed reading to stabilise. Then go to the settings and change the offset until the displayed reading equals the value of the reference liquid. Offsets must be set for each channel individually.

## 6.3 Automatic Power Off


The meter has an automatic power off function. This means that the meter turns off automatically after 20 minutes of inactivity. To disable this function temporarily, enter the settings. In the menu item "SLP", you can disable this function.

ON = enabled, OFF = disabled

**Note:** Everytime the meter is powered on, this function will be enabled automatically.




## 7 Thermocouples

If you want to use thermocouples, connect these via the connectors at the upper side of the meter. Observe correct polarity. Now power on the meter. After approx. a second, a reading will be displayed. If no thermocouple is attached for a channel, "----" will be displayed. When the reading is exceeded, "OL" will be displayed.

With the  key, you can select T1, T2 or T1 – T2 to be shown in the primary or secondary display.

**Note:** Ensure that you have set the correct type of thermocouple. The type of thermocouple can be changed in the settings. The current thermocouple is shown in the lower left-hand part of the display.


## 8 Hold reading


To hold the currently displayed reading, press the  key during the measurement. "HOLD" will be displayed. While "HOLD" is displayed, the  key will be active. To continue the measurement, press the  key again.

## 9 MIN / MAX / AVG

The temperature meter has the following measuring functions:

Name	Description
MIN	Shows the lowest reading
MAX	Shows the highest reading
AVG	Shows the average value

To activate one of these functions, press the  key. "REC" will appear in the display along with the function you set. The current reading will only be shown in the primary display now. In the secondary display, the respective value of the measuring function will be displayed. At the same time, the measurement period will start, which will show you when the value has been determined. You can switch between the different measuring functions at any time. All values are determined

continuously. To leave this function, press and hold the  key for three seconds.

**Note:** After leaving this measuring function or when the meter is turned off, the saved readings will be lost.

## 10 Replacing the batteries

As soon as the battery icon appears in the display, the batteries must be replaced to make sure the meter works in line with its specifications. To replace the batteries, first turn off the meter. Then open the battery compartment at the rear side. Replace the batteries by three new 1.5 V AAA batteries, observing correct polarity. The meter is ready to be used again after closing the battery compartment.



## 11 Contact

If you have any questions, suggestions or technical problems, please do not hesitate to contact us. You will find the relevant contact information at the end of this user manual.

## 12 Disposal

For the disposal of batteries in the EU, the 2006/66/EC directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose.

In order to comply with the EU directive 2012/19/EU we take our devices back. We either reuse them or give them to a recycling company which disposes of the devices in line with law.

For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations.

If you have any questions, please contact PCE Instruments.





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