English

User Manual

PCE-CT 29 Coating Thickness Gauge

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

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Contents

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.

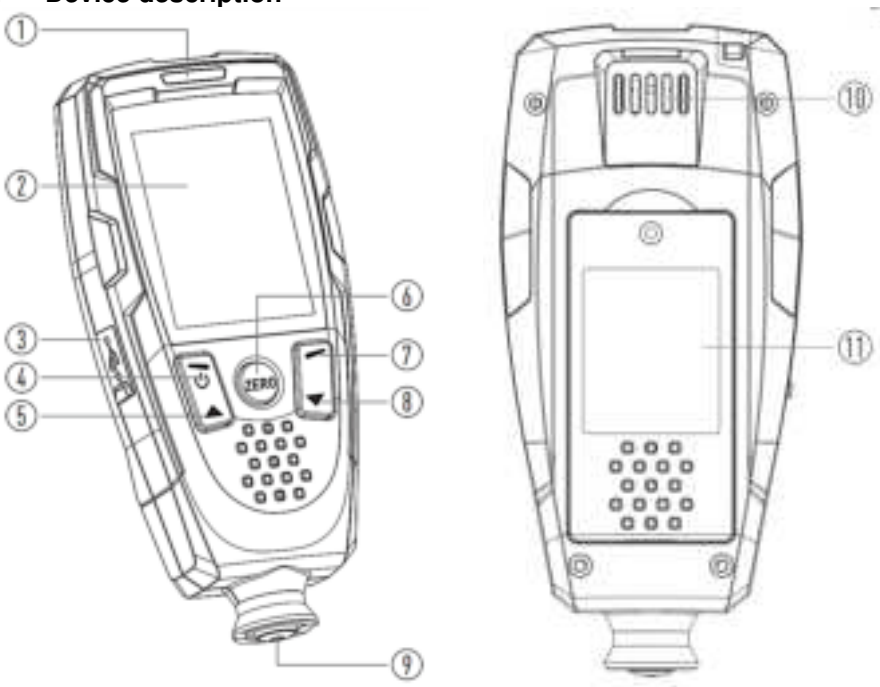
2 Specifications

Measurement on ferrous metal (Fe)	
Measurement range	0 ... 2000 µm
Resolution	0.1 µm at 0.0 ... 99.9 µm 1 µm at 100 ... 2000 µm
Accuracy	±2 % ±2 µm of Rd
Repeatability	±1 % ±1 µm of Rd
Smallest radius of curvature	1.5 mm
Smallest measuring surface	Ø7 mm
Smallest layer thickness	0.5 mm
Measurement on non-ferrous metal (NFe)	
Measurement range	0 ... 2000 µm
Resolution	0.1 µm at 0.0 ... 99.9 µm 1 µm at 100 ... 2000 µm
Accuracy	±2 % ±2 µm of Rd
Repeatability	±1 % ±1 µm of Rd
Smallest radius of curvature	3 mm
Smallest measuring surface	Ø5 mm
Smallest layer thickness	0.3 mm
Temperature	
Measurement range	0 ... 50 °C / 32 ... 122 °F
Resolution	0.1 °C / °F
Accuracy	±1.2 °C / ±2.2°F
Moisture	
Measurement range	0 ... 100 % RH
Resolution	0.1 % RH
Accuracy	±3.2 % RH at 20.0 ... 70.0 % RH ±4.0 % RH at 0.0 ... 19.9 % RH ±4.0 % RH at 70.1 ... 100.0 % RH
Further specifications	
Display	2.4" LC display
Automatic display orientation (measuring window only)	0, 90, 180 and 270 °, can be switched off
Statistical functions	average, highest, lowest and SDev measured value
Measuring modes	direct, groups, SSPC
Units	µm, mm, mils, inch
Power supply	2 x AA batteries
Interface	micro USB
Alarm	signal tone and / or LED signal light when the adjustable upper or lower alarm limit is exceeded
Automatic power-off	off, 30 seconds, 1 minute, 5 minutes
Menu languages	English, German, French, Spanish, Italian, Portuguese, Chinese, Japanese
Operating conditions	0 ... +50 °C 20 ... 90 % RH, non-condensing
Storage conditions	-10 ... +60 °C 20 ... 90 % RH, non-condensing
Dimensions	35 x 64 x 137 mm
Weight	175 g

3 Scope of delivery

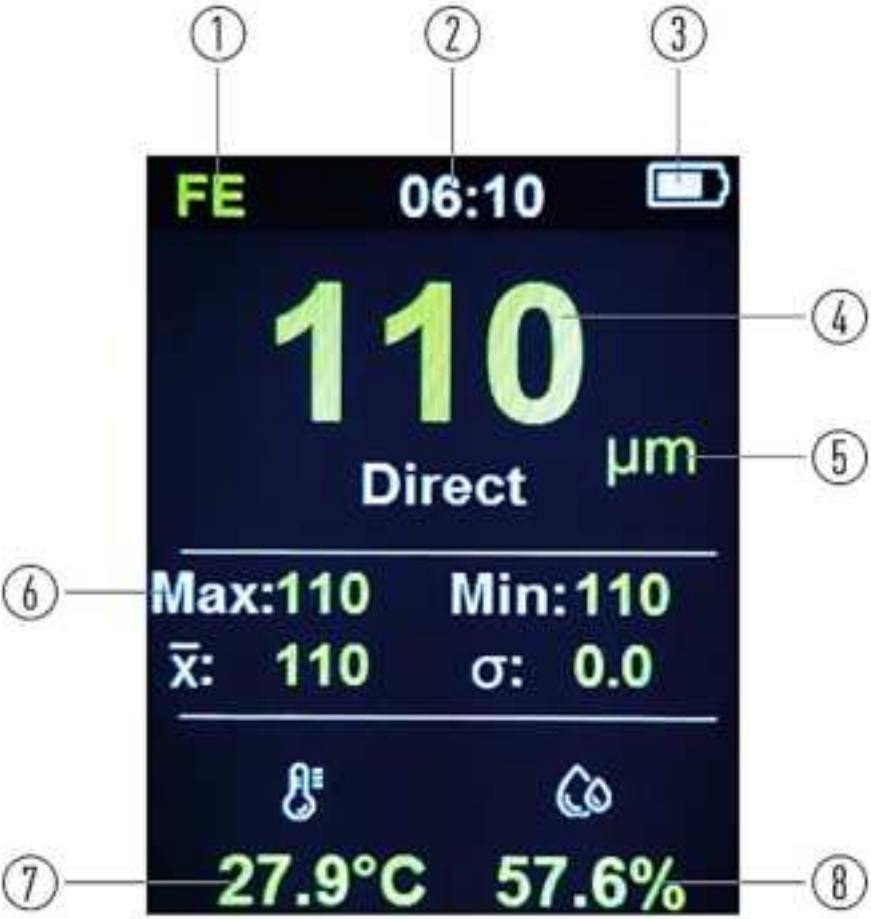
1 x PCE-CT 29 coating thickness gauge
1 x set of standard foils
1 x calibration plates (Fe and NFe)
1 x USB pen drive
2 x 1.5 V AA battery
1 x carrying case
1 x user manual

4 Device description



No.	Description of the
1	LED with three different signals
2	LCD
3	Micro-USB interface
4	Menu key Back key On and off switch
5	Arrow up key
6	Zero calibration key
7	Enter key
8	Arrow down key
9	Coating thickness sensor
10	Temperature and humidity sensor
11	Battery compartment cover

4.1 Display description



No.	Description of the
1	Display of the method used for measurement
2	Set time
3	Current battery charge
4	Measured value
5	Unit
6	Statistics Largest, smallest measured value, average and standard deviation
7	Ambient temperature
8	Ambient humidity

5 Inserting or replacing batteries

If the battery is discharged, it is possible that the meter can no longer be switched on or that the measured values are no longer within the specified accuracies.
To insert or replace the batteries, first switch off the meter. Open the battery compartment on the back, remove the batteries if necessary and replace them with 2 new 1.5 V batteries. Ensure that the polarity is correct when inserting the batteries.

6 Switching the meter on and off

To switch on the meter, press and hold the on and off switch for two seconds. After switching on, the measurement can be carried out immediately. To switch the meter off again, press and hold the switch again for two seconds.

6.1 Menu

To make settings, press the menu key. The arrow keys can now be used to select between the individual setting options and to change parameters. Press the enter key to accept the respective setting or open the setting option. Use the back key to go back one level if settings are not to be accepted or the measurement is to be resumed.
The menu is organised as follows:

Function	Meaning
Work mode	Settings for the individual operating modes
Fe/NFe	Setting the measurement method
Units	Setting the unit of coating thickness measurement
Environment	Setting the temperature, humidity and dew point
Calibration	Calibration of the meter
Limits	Set limit values
User settings	Other settings for the meter

6.1.1 Set work mode

To set the work mode, go to the settings and select "Work mode". Here, you can switch between the individual work modes.

6.1.1.1 Switch work mode

To switch to a different work mode, select the desired work mode under "Mode select". You can choose between "Group" and "SSPC (Society of Protective Coatings)"

6.1.1.2 Set group mode

To choose between the individual groups, go to "Group select" where you can choose between 50 different groups where the measured values are saved. The number of measured values already saved is displayed for each group. 50 measured values can be saved for each group.
No measured values are saved with "Direct".

6.1.1.3 Set SSPC mode

To set the SSPC mode, go to "SSPC mode". The number of measuring points can be set there.

Function	Meaning
Times/Spots	Number of measurements per surface Smallest value: 3
Spots/Area	Number of surface that are measured Smallest value: 5

Note: The limit values are taken from the limit value function. See also 6.1.6 Set alarm limit values.

6.1.1.4 Clear memory

To clear the memory, go to "Clear Memory". If you really want to clear the memory, confirm the entry by selecting "Yes".

6.1.2 Ferrous and non-ferrous measuring substance

To switch between the measurement of ferrous (Fe) and non-ferrous (NFe) metals, go to "Fe/NFe" in the settings. Here, you can select which method should be used for measurement. The measurement method is automatically selected if you choose "Both".
Note: It is recommended to select "Both".

6.1.3 Set units

To set the coating thickness unit, go to "Units" in the menu. The coating thickness unit can be set there. The following options are available: µm, mm, mils, inch.

6.1.4 Change temperature, humidity and dew point

To set the temperature, humidity and dew point, go to the menu and select "Environment". From there, you can set which measured values are to be displayed. The following options are available:

Selection	Meaning
Temp only	Temperature display
Temp/Humidity	Display of temperature and humidity
Temp/Dew Point	Display of temperature and dew point
Enviro off	No display

6.1.4.1 Set temperature unit

To set the temperature unit, go to "Units". From there, you can change the temperature unit. You can choose either °C or °F.

6.1.5 Calibration

To calibrate the meter, go to "Calibration" in the settings.
There are four different options for calibration:

Selection	Meaning
Zero Only	Calibration of the zero point
Single Point	Zero point calibration with calibration of a reference
SSPC Mode 1	Calibration of a reference
SSPC Mode 2	Calibration with two references
Reset	Reset all calibration points

Select the desired function and follow the instructions on the display. Depending on the selection, a calibration must first be carried out on the zero standard or with a reference foil. If calibration is carried out with reference foils, the measured value can be adjusted using the arrow keys after the measurement with a reference.

6.1.6 Set alarm limit values

To set the alarm limits for the measurement, go to the "Limits" item in the menu.

6.1.6.1 Switching the limit value alarm on and off

To switch the limit alarm function on and off, switch "Limit" on or off.

6.1.6.2 Setting the limit value alarm indicator

To set the limit value alarm indicator, go to "Warning Indication".
The following settings can be made from there.

Setting option	Meaning
Beeper	An acoustic signal is emitted as soon as the set limit value is exceeded. **Note:** The sound must be active in the settings for the signal tone to be active.
LED Flash	The LED indicator signals whether the measured value is within the set limit value.
Both	Both the acoustic signal and the LED indicator show whether the measured value is within the set limit values. **Note:** The sound must be active in the settings for the signal tone to be active.
Off	No signal when limit values are exceeded

6.1.6.3 Set alarm limit values

Go to "Set High Limit" to set the upper alarm limit value. To set the lower limit value, go to "Set Low Limit".

7 Software

First install the software on your computer with administrator rights. Then connect the meter to your PC. Then start the software with administrator rights.

Symbol	Meaning
	Measured values are transferred live from the meter
	Data memory is read out
	Mark all displayed measured values
	Mark measured values selected by the user
XLS	Export measured values in XLS file format
CSV	Export measured values in CSV file format

If you switch from live transfer to retrieving the data memory, you will be asked whether the currently displayed measured values should be overwritten. Therefore, make sure that the currently displayed measured values have been exported.
Then select which memory group you want to transfer to the PC.
Here, you can choose between "Group" and "SSPC". The import can be cancelled with "Cancel".

8 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.

9 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 re-use 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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