



User Manual

PCE CT 26FN Material Thickness Meter



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

Last change: 12 December 2019
v1.0



Contents

1	Safety notes	1
2	Specifications	2
3	Operation	2
3.1	Start-up	2
3.2	Measurement	3
3.3	Measuring Range	4
3.4	Battery Indicator	4
3.5	Unit of Measurement	4
3.6	Display Flip	4
3.7	View Memory	5
3.8	SI and CO measurement mode	5
4	Standard Plastic Films & Calibration	6
4.1	Accuracy Checking	6
4.2	Calibration	6
4.3	Initialisation	7
5	Shutdown	7
6	Contact	8
7	Disposal	8

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 Specifications

Measuring range	0 ... 1250 μm (0 ... 50 mils)
Resolution	1 μm (0.1 mils)
Accuracy	$\pm (3\% + 2 \mu\text{m})$ or $\pm (3\% + 0.1 \text{ mils})$
Smallest measuring surface	5 x 5 mm
Smallest radius of curvature	Convex. 3 mm / concave: 50 mm
Smallest thickness of the base material	Fe: at least 0.5 mm
	NFe: at least 0.3 mm
Display	OLED display
Ambient temperature	0 ... 50 °C / 32 ... 120 °F
Power supply	2 x AAA battery 1.5 V
Dimensions	100 x 52 x 29 mm / 4 x 2 x 1.1 in
Weight	About 68 g / <1 lb (without batteries)

3 Operation

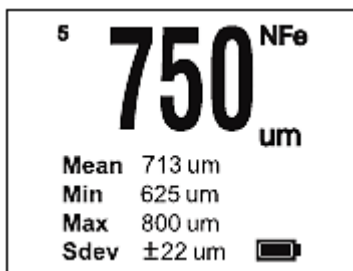
3.1 Start-up

The instrument is automatically turned on when the probe is pressed down to take a measurement and it is automatically turned off when no operation is taken within 90 seconds (refer to Shutdown). Important note:

- The meter needs to warm up for a few minutes, in order for the probe to reach environmental temperature. Please disregard the first several readings, if you are not sure whether the probe is stable under the current environmental temperature.
- Calibration may need to be carried out for accurate measurements, when the meter is taken to a new location with a different environmental temperature.

3.2 Measurement

Hold the instrument steadily and press the probe vertically against the coating or plating to take a measurement, the instrument will beep once and display the thickness value on the screen when the reading is acquired.



The image above shows a typical screen display.

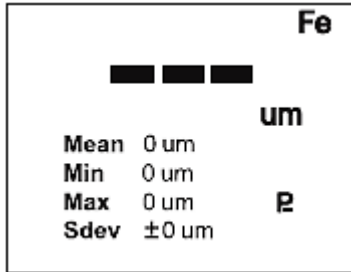
- 750μm - current measured value (the main reading)
- 5 (in blue colour, to the left of the main reading) - count of previous measurement values saved in the memory (excl. current)
- Mean 713μm - average between the current & previously saved values
- Min 625μm - the minimum between the current & previously saved values
- Max 800μm - the maximum between the current & previously saved values
- Sdev ±22μm - standard deviation of the current measurement (3%+2μm)
- NFe - non-magnetic base material (Fe: magnetic base material)

Important note:

- Be sure not to slide along the coating or plating surface to avoid scratching the surface and damage to the probe.
- For continuous usage, before taking a new measurement, the probe needs to be moved away from the coating or plating surface of the last measurement for at least 2 seconds.

3.3 Measuring Range

The meter is used to measure the thickness of coating or plating from 0 μm to 1,250 μm . In the case of thickness beyond this range, “---” will appear on the screen. Please refer to below figure:




The **P** icon means that the thickness measured is beyond the measuring range or the meter has failed to measure.

There may be some circumstances the meter could fail to get a reading. For example:


- On a non-metal base material
- On strong magnetic material
- If the base material is too thin
- If the surface area is too small
- A hardware error occurs (probe is broken or dust /dirt is on the probe)

3.4 Battery Indicator

The meter uses two AAA batteries as a power supply.

The battery icon  in green colour represents a full battery

Over time, the green bar becomes shorter, indicating the current capacity of the batteries

The  icon blinking in red indicates that the batteries are low. Please recharge or replace the batteries, otherwise it may affect measurement accuracy.

3.5 Unit of Measurement

Use the “ $\mu\text{m}/\text{mil}$ ” button to toggle the unit of measurement between μm and mil.

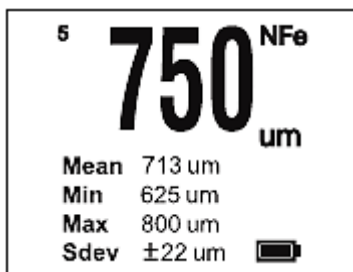
3.6 Display Flip

Use the “Flip” button to rotate the display 180°. Press “Flip” again to flip the display back. This feature is useful if you need to measure the underside of a surface.

3.7 View Memory

- Use the “Mem” button to enter the memory storage for last 99 measurement values
- “0” (in white colour) will appear to the left of the main reading (main reading still shows the current measured value), press “+” or “-” to browse the saved values one by one
- “1” indicates the latest value previous to current measured value, “2” is the second latest, etc

Please refer to below figure:



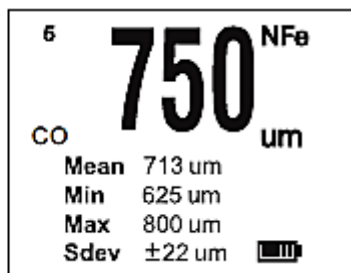
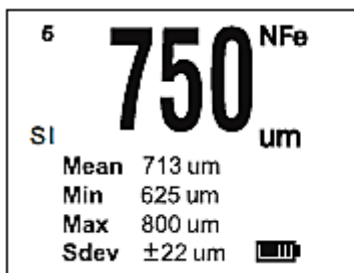
- Use the “Mem” button again to exit the memory storage.
- When the meter is switched off (automatically or manually) or initialization is carried out, the saved values will be cleared, and the measurement counter returns to zero.

3.8 SI and CO measurement mode

By default, the meter is in single measurement mode after start-up and “SI” appears on the screen. Press the “+” and “-” buttons at the same time to enter continuous measurement mode. “CO” will appear on the screen. In this mode, the probe keeps moving on the measured surface. During one cycle of continuous measurement, 10 measurements will be acquired and the data will be saved automatically.

Press the “+” and “-” buttons again to exit CO mode.

Please refer to below figure:



Important note:

- Continuous measurement may cause damage to the probe and measured surface. Please use with caution!



4 Standard Plastic Films & Calibration

The meter is provided with standard plastic films, which can be used to check the measurement accuracy, and also used to cover rough or hot surfaces during measurement to protect the sensor from possible damage.

4.1 Accuracy Checking

The user may check the accuracy of the meter according to the given reference standards, using the standard plastic films and substrate blocks supplied in the package.

The measured value should be within the accuracy range specified in the user's manual.

For example, if the accuracy is specified as $\pm (3\%+2\mu\text{m})$, the reading should be 46~54 μm when used to measure the standard plastic film with 50 μm thickness. Otherwise, the instrument should be calibrated.

4.2 Calibration

The meter has been carefully calibrated in factory and the built-in self-check functions every time before beginning a measurement. Therefore, in most cases, the only thing needed to do is to check whether the reading is zero when taking a measurement on metal with no coating or plating. If not, the "Zero-In" procedure is suggested.

4.2.1 Zero-In

- Press and hold the "+" button for 2 seconds
- "000" will blink on the screen
- Take a normal measurement on an uncoated metal surface
- The reading is now calibrated to zero automatically

After the Zero-In procedure, the meter can be used to accurately measure thickness. However, due to abnormal base materials or severe environmental circumstances, errors may occur. In such cases, you can use the standard plastic film for further calibration.

4.2.2 Calibration with Standard Plastic Film

Measure the standard plastic films on a substrate block, in case the measured value is beyond the accuracy range specified in user's manual.

- Press and hold the "Mem" button for 2 seconds to enter the calibration procedure
- The measured value on the main display will blink and the buzzer will sound
- Press "+" or "-" (or long press "+" or "-" for fast adjustment) to adjust the value to the actual thickness
- Press "M" again to exit the calibration

Two standard plastic films are provided for better calibration, i.e., for calibrating with a thin or a thick film alternatively. In case the coating or plating to be measured is relatively close to one of the standard plastic films in thickness, it is enough to use only one standard plastic film with the similar thickness to do the calibration.

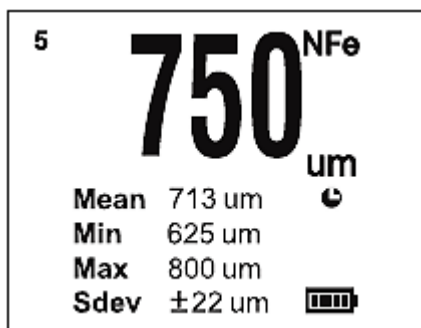
4.3 Initialisation

In case the zero-in procedure or calibration with standard plastic films does not work, please reinitialize the meter:

- Press and hold the “-” button for 2 seconds, “0”, “00”, and “000” will blink in sequence indicating that the initialization is completed
- To ensure high measurement accuracy, it is suggested to zero-in after initialization
- All previously saved values and settings will be cleared after initialization, the instrument is reset to factory default setting

5 Shutdown

To save battery power, the meter will shut down automatically after 90 seconds of inactivity. Please refer to below figure:



The  icon means the device will be powered down in 3 seconds.



6 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.

7 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.



PCE Instruments contact information

Germany

PCE Deutschland GmbH
Im Langel 4
D-59872 Meschede
Deutschland
Tel.: +49 (0) 2903 976 99 0
Fax: +49 (0) 2903 976 99 29
info@pce-instruments.com
www.pce-instruments.com/deutsch

Germany

PCE Produktions- und
Entwicklungsgesellschaft mbH
Im Langel 26
D-59872 Meschede
Deutschland
Tel.: +49 (0) 2903 976 99 471
Fax: +49 (0) 2903 976 99 9971
info@pce-instruments.com
www.pce-instruments.com/deutsch

The Netherlands

PCE Brookhuis B.V.
Institutenweg 15
7521 PH Enschede
Nederland
Telefoon: +31 (0)53 737 01 92
info@pcebenelux.nl
www.pce-instruments.com/dutch

United States of America

PCE Americas Inc.
711 Commerce Way suite 8
Jupiter / Palm Beach
33458 FL
USA
Tel: +1 (561) 320-9162
Fax: +1 (561) 320-9176
info@pce-americas.com
www.pce-instruments.com/us

France

PCE Instruments France EURL
23, rue de Strasbourg
67250 Soultz-Sous-Forêts
France
Téléphone: +33 (0) 972 3537 17
Numéro de fax: +33 (0) 972 3537 18
info@pce-france.fr
www.pce-instruments.com/french

United Kingdom

PCE Instruments UK Ltd
Unit 11 Southpoint Business Park
Ensign Way, Southampton
Hampshire
United Kingdom, SO31 4RF
Tel: +44 (0) 2380 98703 0
Fax: +44 (0) 2380 98703 9
info@pce-instruments.co.uk
www.pce-instruments.com/english

China

PCE (Beijing) Technology Co., Limited
1519 Room, 6 Building
Zhong Ang Times Plaza
No. 9 Mentougou Road, Tou Gou District
102300 Beijing, China
Tel: +86 (10) 8893 9660
info@pce-instruments.cn
www.pce-instruments.cn

Turkey

PCE Teknik Cihazları Ltd.Şti.
Halkalı Merkez Mah.
Pehlivan Sok. No.6/C
34303 Küçükçekmece - İstanbul
Türkiye
Tel: 0212 471 11 47
Faks: 0212 705 53 93
info@pce- cihazlari.com.tr
www.pce-instruments.com/turkish

Spain

PCE Ibérica S.L.
Calle Mayor, 53
02500 Tobarra (Albacete)
España
Tel. : +34 967 543 548
Fax: +34 967 543 542
info@pce-iberica.es
www.pce-instruments.com/espanol

Italy

PCE Italia s.r.l.
Via Pesciatina 878 / B-Interno 6
55010 Loc. Gragnano
Capannori (Lucca)
Italia
Telefono: +39 0583 975 114
Fax: +39 0583 974 824
info@pce-italia.it
www.pce-instruments.com/italiano

Hong Kong

PCE Instruments HK Ltd.
Unit J, 21/F., COS Centre
56 Tsun Yip Street
Kwun Tong
Kowloon, Hong Kong
Tel: +852-301-84912
jyi@pce-instruments.com
www.pce-instruments.cn