PCE Instruments PCE-DFG N Series Force Gauge PC Software User Manual

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Contents

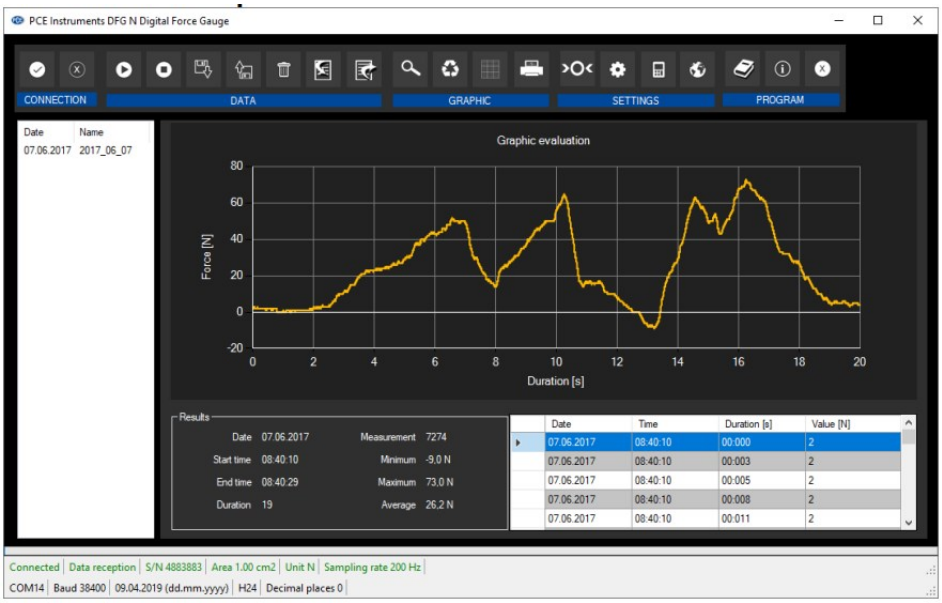
Requirements

- A PC with Windows operating system: Windows XP SP3 or above, with connected mouse, keyboard, screen and free USB interface (2.0 or higher)
- Installed .NET framework 4.0
- Minimum resolution of 800 x 600
- 4 GB RAM recommended
- Graphic card

Installation

Execute “Setup PCE-DFG N/NF.exe” and follow the instructions of the setup.

Screen description



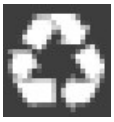
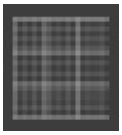
The main screen consists of several sections: Below the title bar, there is a tool bar with icons that can be selected by a mouse click. These icons are grouped according to their functions. Below this bar, you can find an area where the measuring points are displayed graphically (“Graphical evaluation”). To the left of the graphic, all series of measurements that can currently be loaded into the softwareare listed. The next section below the

graphic shows a chart with the measuring points determined on the right and an area with statistical data on the left-hand side. The lower edge of the main window shows two status bars containing important information, directly above each other.

The lower bar shows the statistical settings of the program that can be defined in the settings screen. The upper status bar shows the dynamic settings or data of the PCE-DFG N/NF which are directly taken from the connected device. These include the serial number of the device, the selected unit, the sampling speed and – relevant if pressure unit has been selected – the reference surface set in the device.

Meaning of the individual icons on the tool bar

Icon	**Description**
	Establish connection with the PCE-DFG N/NF
	Disconnect from the PCE-DFG N/NF
	Start measurement
	Stop measurement
	Load series of measurements from a file
	Save series of measurements in a file
	Remove series of measurements from the software
	Import series of measurements from the PCE-DFG N/NF
	Export measurement data

	Enlarge (“zoom“) graphics area or move enlarged graphic
	Restore original graphic
	Change background and representation of the graphic
	Print currently displayed graphic
	Make zero point adjustment on PCE-DFG N/NF
	Show settings window for static device data
	Show settings window for dynamic device data
	Select a language supported by the system
	Show information window
	Close program

Preparing the measurement

Introductory information
The language selected by the user when installing the software is also offered by the software as the standard language. If you want to use a language different from the one selected when installing the software, you can select it via the relevant icon (“selection of a language supported by the system”) on the tool bar. Before the PCE-DFG N/NF works in combination with the software, you must set the assigned COM port as well as the baud rate in the device as well as in the software. This has to be done only once.

Note:
It is important that the baud rate is the same in the PCE-DFG N/NF and in the software. The COM port and the baud rate for the software can be set in the Settings window for static device data. In addition to the connection data, further settings like the date and time format and the number of decimal places shown can be set in this window.

Establish connection to the PCE-DFG N/NF

The connection to the PCE-DFG N/NF can be established by clicking on the relevant icon („Connect with the PCE-DFG N/NF“).

Select unit of measurement and sampling speed
After successful connection to the PCE-DFG N/NF, you can now set the unit and the sampling speed for future force measurements. You can do this via the Settings window for dynamic device data which is shown when you click on the relevant icon (“Show settings window for dynamic device data“) in the „Settings“ group.

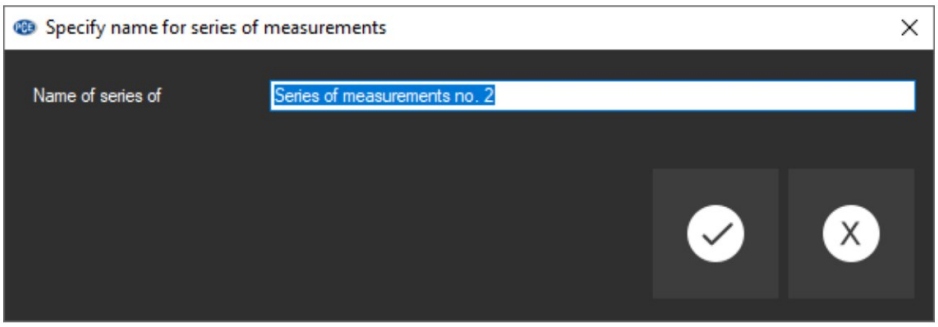
Note:
This window can only be shown if a connection to the PCE-DFG N/NF is active.

One pressure unit and three force units are available:
“pascal” (pressure unit), “newton”, “pounds” and “kilograms”.
Depending on the version, the following three picklists will be available:
“Pa”, “mN”, “mlb”, “g”(pascal, millinewton, millipound, gram)
or
“kPa”, “N”, “lb”, “kg”(kilopascal, newton, pound, kilogram)
or
“MPa”, “kN”, “klb”, “t”(megapascal, kilonewton, kilopound, ton)

The picklist for the sampling speed depends on the baud rate: the higher the baud rate selected, the higher the sampling speed can be. High sampling speeds are superfluous when the baud rate is too low as the many values measured cannot be transferred, which has a negative effect on the speed of communication to the PCE-DFG N/NF.

Note:
If at least one of the two settings has been changed (unit or sampling speed), the setting of the PCE-DFG N/NF will be changed via the software. This can cause short interruptions of the communication. However, the communication will recover after a short time.

Make a measurement
When there is an active connection to the PCE-DFG N/NF, a new measurement can be started. You can make a zero point adjustment by clicking on the relevant icon (“Carry out zero point adjustment on the PCE-DFG N/NF“). After clicking on the relevant icon (“Start measurement“) in the tool bar, a name for the series of measurements must be specified first.



Duration of measurement
A measurement always takes the time previously set. The duration can be entered in minutes or seconds. The selected duration of a series of measurements must be at least 5 seconds. The maximum possible duration is determined dynamically by the selected sampling rate so that the overall number of measured values does not exceed the maximum number of 1500000. The possible duration of measurement is limited to a maximum of 120 minutes. If you set a duration outside that range, the start of the measurement will be disabled. (“Please correct your entries.“)

Note:
Of course, an ongoing measurement can always be stopped manually. To stop the measurement, click on the icon

on the tool bar (“Stop measurement”).

Start trigger
The measurement can be started in three different ways:

1. **“Immediately”**
   The measurement will start immediately after the window has been closed by clicking on “Apply“.
2. **“Change of value”**
   The measurement (and thus the lapse of time) will not start before the measurement value changes.
3. **“Threshold value”**
   In an additional box, you can enter a value which is then used as a reference value, in combination with the previously set unit. The measurement will start when this value is measured by the connected sensor of the PCE-DFG N/NF.

Alarm monitoring
You can set an upper limit and a lower limit for the measurement. When these are exceeded / fallen below, a “silent alarm” will be triggered. This means that the alarm is recorded but does not cause early termination of the measurement. If alarms occur during a measurement, these can be listed after completion of the measurement. More information can be found under “Alarms“. You have the following options:

“deactivated”:
No monitoring is active.

“fracture”:
Monitoring for material overload
Here, you must define an upper limit and a stage value in per cent. If the upper limit is reached or exceeded during a measurement, this will be recorded as an alarm. If from this time on the measured value drops to or below the percentage set as the stage\ value, an alarm will be recorded every time this occurs.

“within” / **“beyond”:**
For these two types of monitoring, an upper and a lower limit must be defined.

Depending on the selected type of alarm, an alarm will be triggered when the measured value is „within“ or „beyond“ the selected range.

Graphical representation
Here, you can choose whether you want the graphic to be shown during or after the measurement.

Make a measurement

Ongoing measurement
During an ongoing measurement, the current measurement value will be shown in the lower left area (“Results“) of the display in large letters. Moreover, in a small area above the status bars, a green level display can be found.

Note:
As very high sampling rates can mean huge amounts of readings, not all readings are displayed during a measurement dynamically. This applies to graphics as well as to charts. The actual number of readings will only be displayed when the measurement is completed. This becomes apparent when the graphic or chart changes directly after completion of a measurement.

The actual number of readings shown during a measurement depends directly on the sampling speed selected:

Sampling speed	No. of readings in the preview
6	Every reading
12	Every reading
25	Every reading
50	One in 3 readings
100	One in 6 readings
200	One in 12 readings
400	One in 25 readings
800	One in 50 readings

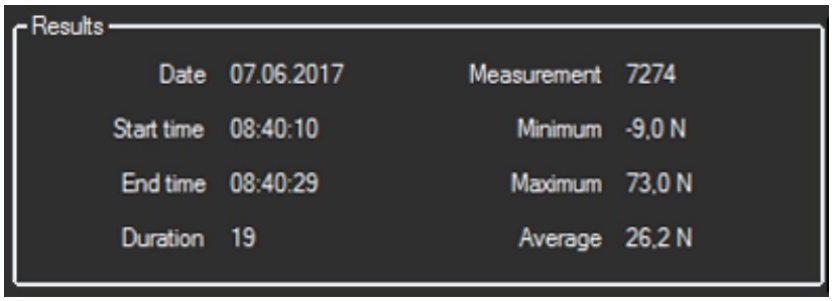
After the measurement – evaluation

After completion of a measurement, all recorded measurement data are available. There are various sections in the main window to view these data.

Numerical display

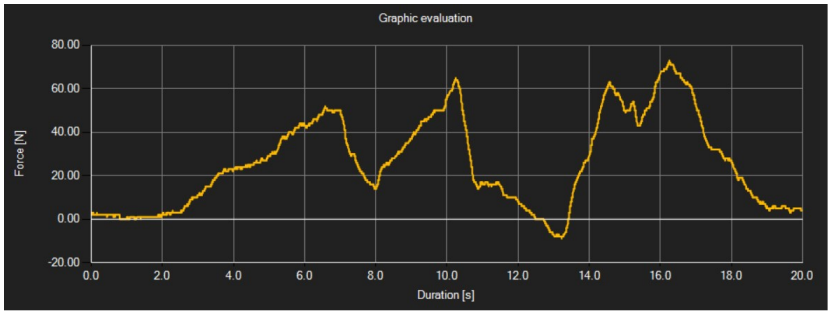
In the lower right area of the main window, all readings are shown in a chart. The individual readings are listed as: date, time, duration and reading in numerical terms incl. unit. The chart can be sorted by columns when you click on the header of the respective column (“Date”, “Time”, “Duration [s]”, “Measurement value […]”).

Statistical data (“Results”)



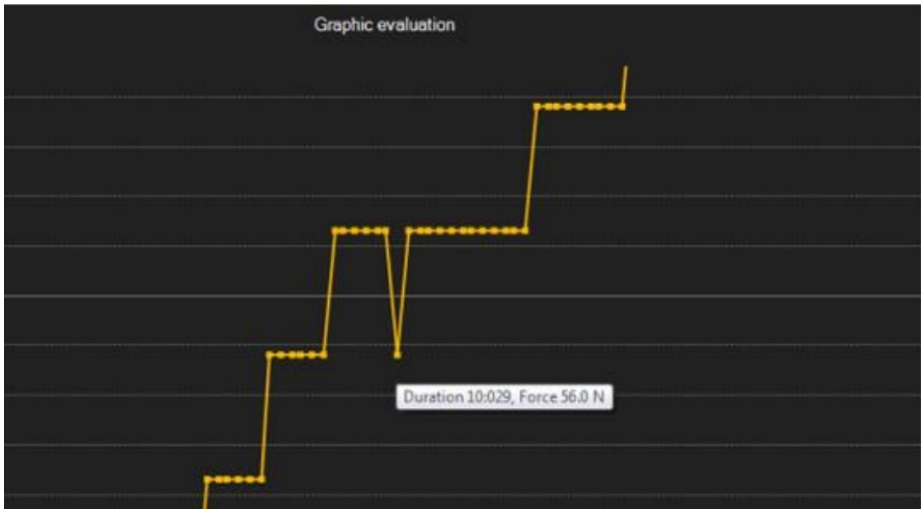
In this area, the following data are shown in numerical terms: start date of the measurement, start and end time, duration of the measurement in seconds, number of recorded readings, minimum and maximum value, average of all readings.

Graphical evaluation



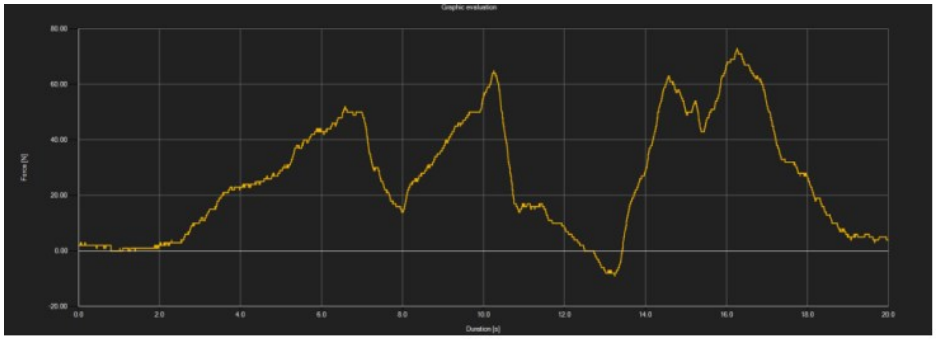
In the graphical evaluation area, the selected unit (force or pressure) is shown on the y axis and the time lapse is shown on the x axis. When moving the cursor over a dot on the displayed line, a small information box will appear

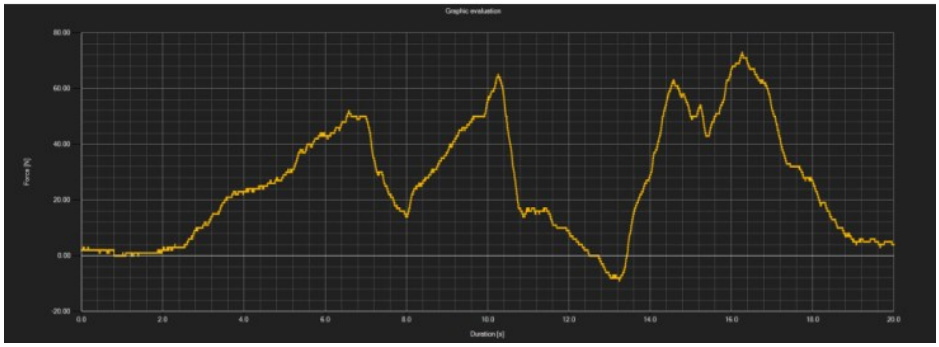
after a short time, showing the data (time and unit) of the currently selected measurement value. This value can be selected from the chart by doubleclicking on it.

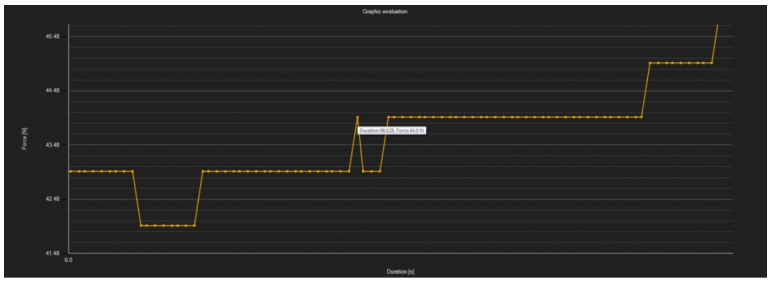


The displayed graphic can also be shown in enlarged form in any other area. To change this, the relevant icon in the tool bar (“Enlarge / zoom graphic area or move enlarged graphic“) must be a magnifier.

When you press and hold the mouse key, you can draw a rectangle over the graphic area. When you release the mouse key, the selected area will appear as a new graphic. When you have zoomed / enlarged at least once, zoom mode can be changed into move mode by clicking on the icon (“Enlarge / zoom graphic area or move enlarged graphic“) with the magnifier. In this mode, the magnifier icon turns into a hand icon. By moving the mouse over the graphic area and then pressing and holding the left mouse key, the displayed segment can be moved. When you click on the hand icon again, zoom mode will be re-activated. The icon will turn into a magnifier again. The original graphic can be restored at any time by clicking on the icon (“Restore original graphic“) next to the magnifier / hand icon. The icon to the right (“Change background and graphical representation“) can be used to change the background of the graphic and the way it is displayed. You can change this by clicking on the icon: A single click will change the background to have more lines and the graphic to have some additional dots. Another click on the icon will change back to standard view.







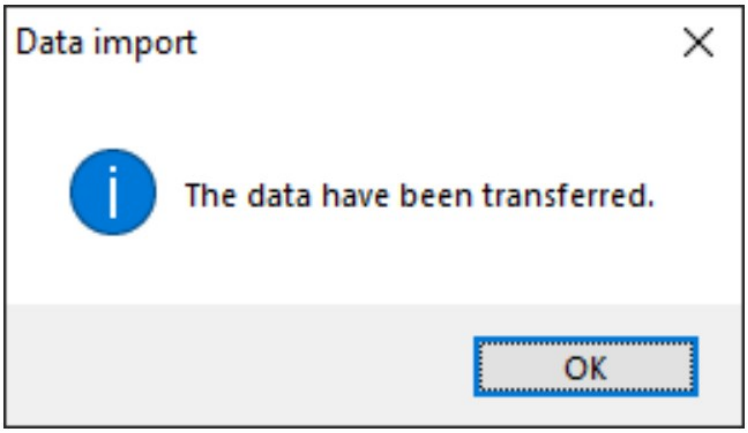
The currently displayed graphic can be printed. You can open the “Print“ window by clicking on the relevant icon (“Print currently visible graphic”).

Load and save series of measurements
Via the relevant icon in the tool bar (“Load series of measurements from a file” or “Save series of measurements in a file”), you can load and save a series of measurements.

Export measurement results
A series of measurements cam be exported. Via the corresponding icon in the tool bar (“Export measurement data”), the complete data content from a series of measurements can be exported in csv format, separated by a semicolon.

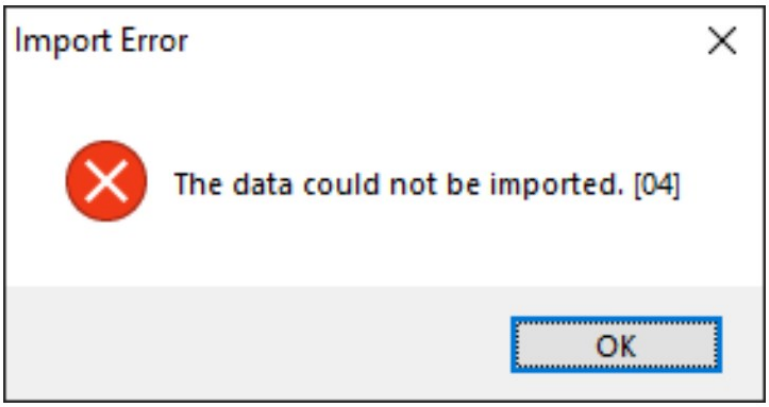
Note:
If the number of lines exceeds the limit of 1048576 (220), they will automatically be divided into several export files as some spreadsheet programs have their limitations.

Import series of measurements from the device
By clicking on the relevant button, all series of measurements saved to the meter can be imported from the meter into the software. This can take a few minutes, depending on the number and the size of the series of measurements as well as on the selected transmission rate.



The data will first be read completely before they are imported. After successful transmission, each saved series of measurements will be listed at the left-hand edge of the main window. A series of measurements can be displayed in the software by leftclicking it. It is recommended to save the recently imported series of measurements in order to avoid losing them.

Note:
Only the newer versions of the meter are able to interpret the measurement series to be imported. If the data are not compatible, for instance because you have an older version of the meter, an error message will pop up.



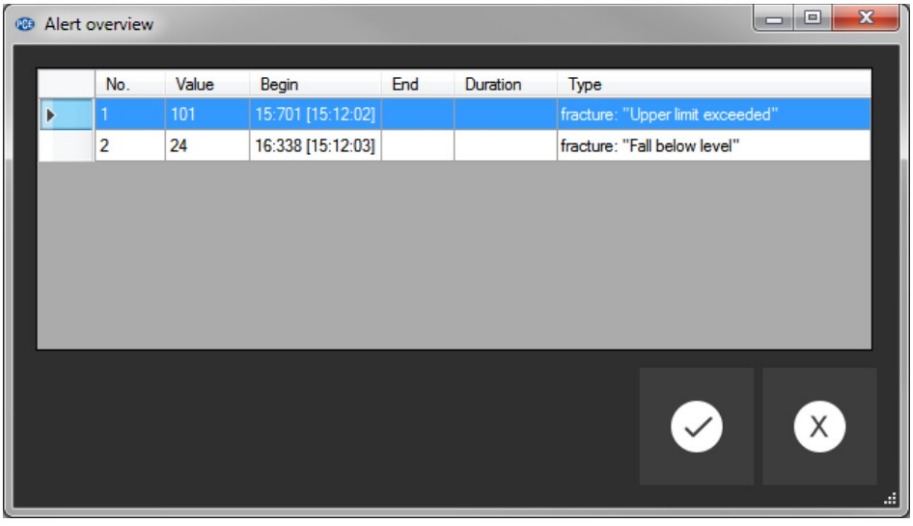
Note:
The two-digit number within square brackets at the end of the message is a code for more information on the reason of the error:

1. No header data found for the saved series of measurements.
2. No end marker found in the saved series of measurements.
3. The saved series of measurements do not contain any data.
4. The version of the data is not correct.

Alerts

If the pre-set values have been exceeded or fallen below during a measurement, the status bar for dynamic data will indicate this after the measurement. If alerts have occurred, just click on the box in the status bar to see some more information on these alerts.

In the “alert overview“, all alerts occurred are listed in a chart. This chart shows when the alert started, when it ended, what type of alert it was and what reading triggered the alert.



Warranty

You can read our warranty terms in our General Business Terms which you can find here: https://www.pce-instruments.com/english/terms.

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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Documents / Resources

	PCE Instruments PCE-DFG N Series Force Gauge PC Software [pdf] User Manual PCE-DFG N series, PCE-DFG NF series, PCE-DFG N Series Force Gauge PC Software, Force Gauge PC Software, PC Software

References

- France.fr : Actualités, destinations et infos du tourisme en France
- iberica.es
- instruments.cn
- Computer Instruments | Home
- Discover Italy: Official Tourism Website - Italia.it
- N.E.E.D.S., (Nutritional Ecological Environmental Delivery System) specializes in providing products, information, and education
- PCEï¼ˆåŒ—äº¬ï¼‰ç§‘æŠ€æœ‰é™å…¬å¸
- Industrial Measurement Products and Solutions | PCE Instruments
- Improtek LTDA Distribuidor oficial de PCE Instruments | PCE Instruments
- PCE Deutschland GmbH Prüfgeräte vom Hersteller | PCE Instruments
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