English



User Manual

Platform Scales PCE-PB N Series

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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 Technical data

Scale type	PCE-PB 60N	PCE-PB 150N
Weighing range (max.)	60 kg / 132 lbs	150 kg / 330 lbs
Minimum load (min.)	60 g / 2.1 oz	150 g / 5.3 oz
Readability (d)	20 g / 1.7 oz	50 g / 1.7 oz
Accuracy	±80 g / 2.8 oz	±200 g / 7 oz
Weighing platform	300 x 300 x 45 mm / 11 x 11 x 1.7"	
Display	LCD, 20 mm / 0.78" digit height (white on black background)	
Display cable	900 mm / 35" coiled cable extendable to approx. 1.5 m / 60" (plug connector)	
Measuring units	kg / lb / N (Newton) / g	
Working temperature	+5 ... +35 °C / 41 ... 95 °F	
Interface	USB, bidirectional	
Weight	approx. 4 kg / 8.8 lbs	
Power supply	9V DC / 200 mA mains adaptor or 6 x 1.5 V AA batteries	
Recommended calibration weight	Class M1 (freely selectable)	

3 Delivery scope

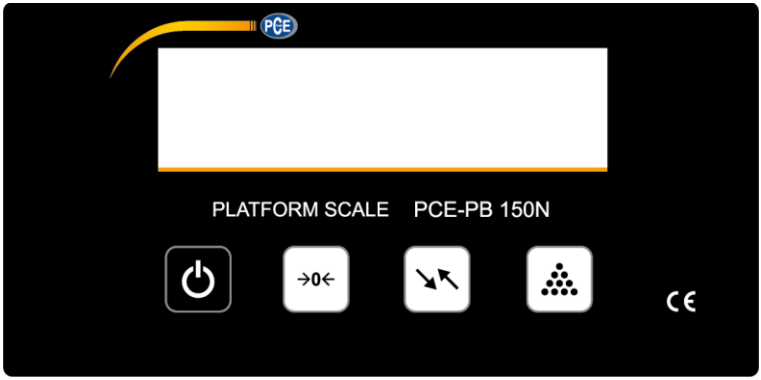
1 x platform scales
1 x display stand
1 x USB interface cable
1 x mains adaptor
1 x user manual



4 Introduction

Platform scales are scales that are used in almost any area due to their special function as multi-function scales. The display of the platform scales is connected to an approx. 90 cm / 35" long coiled cable that can be extended up to 1.5 m / 60". The objects to be weighed can thus be easily moved across the weighing surface of 300 x 300 mm / 11 x 11 x 1.7". The objects to be weighed can thus easily protrude beyond the weighing surface of 300 x 300 mm / 11 x 11 x 1.7". The platform scales can be operated with a mains adaptor or with standard batteries. The special functions are: multiple taring over the complete weighing range, Auto ON-OFF can be deactivated, Auto Zero can be deactivated, adjustable data transfer, bidirectional USB interface.

5 Display overview



5.1 Key description

ON/OFF key	Turns the scales ON or OFF
ZERO / TARE key (dual function)	1. Tare - The weight is tared, for gross / net weighing. 2. ESC (Escape) - In the menu, you exit the functions with this key.
UNIT / PRINT key (triple function)	1. Change measuring unit in kg / lb / N / g 2. Print measured value / send to PC (press and hold for 2 s) 3. Switch between settings in the menu
COUNT / ENTER key (dual function)	1. Activate the piece counting function (function explained in chapter 10) 2. Confirmation key in the menu (Enter)
& MENU / SETTINGS (key combination)	Enter the menu by pressing these two keys at the same time

6 First use

Remove the scales from the packaging and place them on an even and dry surface. Make sure that the scales stand firmly and securely. Now, if the display is to stand on the desk, you can slide the display stand into the display (see back of display). Now connect the coiled cable of the platform to the display, insert the batteries (6 x 1.5 V AA) or the 9 V mains adaptor into the scales (depending on which power supply you want to use).

ATTENTION:
If the scales are operated by electricity (mains adaptor), the batteries must be removed to prevent damage.

Press the "ON/OFF" key to start the scales.
When the display shows 0.00 kg, the scales are ready for use.

7 Weighing

Do not start weighing until the display shows 0.00 kg. If a weight is already shown in the display although the scales are not loaded, press the "ZERO / TARE" key to zero the value, otherwise you would obtain falsified values.
When the display shows 0.00 kg, you can start weighing. When the weight display is stable (no fluctuating values), the result can be read in the display. The stable value is indicated by a circle at the top right.



8 Zero / tare function

Formula weighing / gross - net weighing
As already described, the "ZERO / TARE" key can be used to zero (tare) the result shown on the display. Although the display shows a 0.00 kg value, the zeroed weight is saved in the scales' internal memory and can be recalled.
The scales allow multiple taring until the maximum capacity is reached.

ATTENTION!
Taring/zeroing the weights does not increase the weighing range of the scales. (see weighing range)

It is possible to switch between the net weight and the gross weight once. To do this, press and hold the "ZERO / TARE" key until "notArE" appears in the display.

Example:
After starting, the scales display "0.00 kg". The user places an empty box on the scales, the scales display e. g. "2.50 kg". The user presses the "ZERO / TARA" key, the display briefly shows the information "tArE" and then "0.00 kg", although the box of "2.50 kg" is still on the scales. Now the user removes the box from the scales, the scales now show "-2.50 kg" and the user fills the box with the goods to be weighed, e. g. 7.50 kg of apples. After the box has been placed on the scales again, the scales now show "7.50 kg" in the display, i. e. only the weight of the goods to be weighed (net weight).

If you now want to see the total weight on the scales (apples + box = gross weight), press and hold the "ZERO / TARE" key. After a short time, approx. 2 s, the display shows the information "notArE" and then the gross weight. In this case, the scales show "10.00 kg" in the display.

9 Weighing units

With the help of the "PRINT / UNIT", key you can change the weighing unit of the scales. By pressing the "PRINT / UNIT" key several times, you can switch between kg / lb / Newton and g.

g = gramme / kg = kilogramme = 1000 g / lb = pound = 453.592374 g / N = Newton = 0.10197 kg

10 Piece counting function

The scales enable piece counting with the help of reference weights. The piece weight should not fall below the readability (resolution = d). Observe the minimum load, resolution and accuracy of the scales. (see 2 Technical data)

The first use of the function is done in two steps.

1. Place 5 / 10 / 20 / 25 / 50 / 75 or 100 pieces of the products to be counted on the scales.

2. When the weight value is stable, press and hold the "COUNT / ENTER" key until the display changes to "PCS" and one of these numbers flashes on the display: 5 / 10 / 20 / 25 / 50 / 75 or 100.



3. Use the "PRINT / UNIT" key to switch between the numbers 5 / 10 / 20 / 25 / 50 / 75 and 100. Select the number that matches the reference number you are using and confirm it with the "COUNT / ENTER" key. The number stops flashing and the scales are now in counting mode. (see picture)

You can switch between the counting function and the normal weighing function by pressing the "COUNT / ENTER" key. The determined piece weight remains saved until the next change.

If you want to continue counting with the last used piece weights, press the "COUNT / ENTER" key. The display then changes to counting mode. (Display info "PCS")

Hint:
To obtain a more accurate count, the reference weight should be determined with as high a piece count as possible. Fluctuating piece weights are quite common; therefore, a good average value should be determined as the piece weight. (Observe minimum load / readability and accuracy).

Example: The user places 10 objects with a total weight of 1.50 kg on the scales. The scales count 1.50 kg: 10 = 0.15 kg (150 g) piece weight. Each weight determined is simply divided by the 150 g and shown as the piece count on the display.

11 Settings / functions

The special feature of these scales lies in the useful setting options. From the settings of the USB interface to the settings of the automatic switch-off to the RESET, the scales offer the possibility to adapt ideally to your requirements.

To enter the menu where the scale settings can be made, press and hold the "UNIT / PRINT" and the "COUNT / ENTER" keys for approx. 2 s.
The display briefly shows "Pr-Set" and then one of the following menu items (see below).

- SEnd
- bAUd
- Au-Po
- bA-LI
- Zero
- FIL
- Ho-FU
- CALib
- rESEt

11.1 Functions of the keys in the settings menu

 ZERO / TARE key	This key allows you to jump back one step in the menu or to exit the menu.
 UNIT / PRINT key	This key allows you to switch between the menus and change the settings.
 COUNT / ENTER key	This key is a confirmation key, i. e. for applying settings.

11.2 SEnd

Setting the USB interface or data transmission
The USB interface of the scales is a bidirectional interface. Bidirectional interfaces enable two-way communication. This means that the scales cannot only send data but also receive data or commands. For this purpose, there are different possibilities when the data is to be sent to the PC. For this purpose, the scales offer the following transfer options:

- **KEY** = Data transfer by pressing a key. Press and hold the "UNIT / PRINT" key (approx. 2 s) until a second beep signals data transfer.
- **Cont** = Continuous data transfer (approx. two values per second)
- **StAb** = With this setting, the data is sent automatically but only when the weight value is stable (see stability icon in the display).
- **ASK** = Data transfer on request from PC
  This is where the special feature of the bidirectional interface comes into play. With the help of the following commands, the scales can be controlled remotely. This enables convenient integration into systems such as merchandise management systems or shipping software.

TARE command (-T-)
The command tares the weight that is on the scales
Command: **ST + CR + LF**

Entering a tare value
The command allows you to enter a tare value to be subtracted from the weight.
Command: **ST**_ _ _ _ (note the digits, see "entry option" below).

Entry option for 60 kg scales from ST00060 to ST60180 (min. 60 g / max. 60,180 g)
Entry option for 150 kg scales from ST00150 to ST150450 (min. 150 g / max. 150,450 g)

If the tare value entered is higher than the weighing range of the scales, the display shows "*****" (The command does not work if the PEAK Hold or the animal weighing function is active!)

Requesting the current weight indication
Command: **Sx + CR + LF**

OFF Switching off the scale
Command: **SO + CR + LF**

Attention!
If a command is sent that the scales do not know, the error **"Err 5"** appears in the display**.**

Interface description
USB interface settings are:

Baud rate 2400 - 9600 / 8 bits / none parity / one bit stop

Format 16 characters

The weight display including the weight unit ("g" / "kg" etc.) including the "+" or "-" characters is max. 16 characters long.

Example: + 60 kg

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
±	SPACE	-	-	-	6	0	.	5	0	SPACE	-	k	g	CR	LF

Byte	1	-character "+" or "-
Byte	2	-SPACE
Byte	3 to 10	-number (weight indication) or SPACE
Byte	11	-SPACE
Byte	12 to 14	-Display unit (Newton / kg / g / lb or PCS)
Byte	15	-CR (0Dh)
Byte	16	-LF (0Ah)

11.3 bAUd

Setting the baud rate
In order to establish trouble-free communication, the baud rate of the scales must be matched with the settings of the PC and the software. The following are available for selection:
2400 / 4800 or 9600 baud

11.4 AU-Po

Auto Power OFF
The scales allow you to activate or deactivate the automatic switch-off. This is useful if, for example, batteries are to be conserved. If the function is active, the scales are automatically switched off if not used for a longer period of time (approx. 5 minutes). To start the scales, simply press the "ON/OFF" key on the scales again.

You can select:

- on	OFF after approx. 5 minutes
- oFF	Scales remain ON until the "ON/OFF" key is pressed

11.5 bA-LI

Setting the display backlight
This function allows you to adjust the backlight of the display to your needs.

You can select:

- on	Backlight permanently ON
- oFF	Backlight OFF
- Au-to	Backlight "ON" when scales are used (approx. 5 s)

11.6 Zero

Setting the weight zero point when starting the scales
These functions are related to the starting point of the scales. If the scales are started with a weight on the platform, the weight is automatically zeroed so that no incorrect weighing can be made. However, there are situations where it is better not to zero the weight. Example: level control.

These functions serve this purpose:

- **AuT-Zo** Here you can deactivate automatic zeroing (taring) of the scales
- on (Zero the weight when starting)
- oFF (The weight is displayed at start-up (from zero point))

Example**:** The user has placed a 50.00 kg barrel on the scales and switches it off overnight. Overnight, 10.00 kg are taken from the barrel. If the function is active (Aut-Zo= ON), the scales show 0.00 kg in the display after starting. If the "Aut-Zo" function is OFF, the scales show 40.00 kg in the display after starting.

Attention!
If the function is deactivated, major measurement deviations may occur. Note that the "tare memory" should be cleared when activating this function. To achieve higher accuracies, we recommend adjusting the scales.

Important:
This does not increase the measurement range. The total weight must not exceed the maximum load of the scales. (see 2 Technical data)

- **SET-Zo** In connection with the above function, a weight that is to be deducted when the scales are started can be saved here.

To do this, place the weight to be subtracted on the scales and confirm the "SET-Zo" function with the "COUNT / ENTER" key. Then exit the menu by pressing "ZERO / TARE" and restart the scales.
When a new zero point is set, the function listed above is set to Aut-Zo= OFF.

Example**:** The user places an empty barrel (weight 5 kg) on the scales and sets a new zero point using the "SET-Zo" function. If the scales are now restarted, they show 0.00 kg in the display. Now the barrel is filled with 45.00 kg. The display shows 45.00 kg although a total weight of 50.00 kg is on the scales. If the scales are now switched off and e. g. 15.00 kg are taken from the barrel, the scales show 30.00 kg after starting although the total weight on the scales is 35.00 kg.

Attention!
Note that the "tare memory" must be cleared when activating this function in order to avoid incorrect measurements. To do this, set the "Aut-Zo" function to ON and restart the scales.

Important:
This does not increase the measurement range. The total weight must not exceed the maximum load of the scales. (see 2 Technical data)

11.7 FIL

Filter setting / response time of the scales
This function allows you to adjust the response time of the scales to your needs. For example, if you are blending mixtures with these scales, we recommend setting a quick response time. However, if you have a measuring location that is subject to vibration, e. g. next to a machine, we recommend a slower response time as otherwise the values would keep jumping.

You can select:

- FIL 1 quick response time
- FIL 2 standard response time
- FIL 3 slow response time

11.8 Ho-FU

Hold function / hold weight value in the display
This function makes it possible to keep the weight value on the display even though the load has already been removed from the scales.

You can select:

- **KEY-Ho*** Hold function by key combination ( & )

When this function is active, the value in the display can be held using the key combination (see above). To do this, simply keep both keys pressed until "Hold" appears in the display. Now the value remains on the display until you press the "ZERO / TARE" key again.

- **Auto** Automatic hold function after value stabilisation

This function automatically holds the weight value in the display as soon as it is stable. The value is held for approx. 5 seconds and the scales then automatically return to weighing mode.

- **PEAk** PEAK hold function / maximum value display

This function allows the maximum measured value to be shown in the display. (approx. 2 Hz with FIL 1)

Example: The scale display shows "0.00 kg". The user puts 5 kg on the scales which then show "5.00 kg". The user now places 20 kg on the scales so that they now show "20.00 kg". Now the user places 10 kg on the scales. The scales still show "20.00 kg" although there are only 10 kg on the scales. The scalse will hold the maximum measurement until the user presses the "ZERO / TARE" key and the display shows "0.00 kg".

11.9 CALib

Calibration / adjustment setting
The scales are factory adjusted but should be checked for accuracy at regular intervals. In case of deviations, the scales can be readjusted with the help of this function. Reference weights are required for this. We recommend using approx. **2/3 of the maximum load** as calibration weight for the single-point adjustment "C-FrEE".
Example: for 60 kg scales, a calibration weight of 40 kg is recommended.

- **C-FrEE** Calibration / adjustment with freely selectable weight (single-point adjustment)

When the scale display shows "C-FrEE", press and hold the "COUNT / ENTER" key. The display now shows "W- _ _ _". Now press the "ZERO / TARE" key. The display now shows "W- 0 1 5". The flashing number can now be changed with the "UNIT / PRINT" key. Use the "COUNT / ENTER" key to jump from one number to the next. Use these keys to set the weight that you will use to adjust the scales.

ATTENTION!
Only weights in "kg" and without decimal places can be entered.

When you have entered the weight, confirm the entry using the "ZERO / TARE" key. The display briefly shows "LoAd-0", followed by a value of approximately "7078". If the value is now reasonably stable, press the "ZERO / TARE" key again. The display shows "LoAd-1".

Now place the set weight on the scales and press the "ZERO / TARE" key again. The display briefly shows the entered weight, followed by a value, e. g. "47253". When the value is relatively stable again, press the "ZERO / TARE" key again. If the adjustment was successful, the display shows "PASS" and switches off automatically.

The adjustment is now complete.

If you want to abort the calibration while it is made, press and hold the "COUNT / ENTER" key in "LoAd" state until "SEtEnd" appears in the display.

- **C-1-4Linear** Calibration / adjustment

A linear calibration is a more accurate adjustment option that is performed with multiple increasing weights. With this adjustment, a higher accuracy is achieved than with a single-point calibration. The weights are pre-set by the scales and cannot be changed.

When the scale display shows "C-1-4", press and hold the "COUNT / ENTER" key.
The display now shows the measurement range of the scales, e. g. "r - 60". If an incorrect weighing range is shown here, it can be changed with the "UNIT / PRINT" key. Then press the "ZERO / TARE" key. The display then shows a value of approx. "7078". If the value is now reasonably stable, press the "ZERO / TARE" key again. Now the display briefly shows the weight you have placed on the scales, e. g. "C-15", followed by a value, e. g. "0".

Now place the given weight on the scales, wait until the value stabilises and press the "ZERO / TARE" key again. Follow this procedure until the calibration is completed.

(If the message "Err-1" appears in the display, the adjustment has not been carried out successfully).

The following weights are required:

60 kg scales: 15 kg / 30 kg / 45 kg / 60 kg

150 kg scales: 30 kg / 60 kg / 90 kg / 120 kg

If you want to abort the calibration while it is carried out, press and hold the "ON/OFF" key in "LoAd" state until "OFF" appears in the display.

11.10 rESEt

Reset to factory settings
This function allows you to reset the scales to factory settings. When the scale display shows "rESEt", press the "ZERO / TARE" key until the display shows "SetEnd". Then restart the scales.

Attention!
The calibration/adjustment is not reset to the delivery status as this would invalidate possible calibration certificates.

12 Error messages / troubleshooting

Display indication	Error	Solution
"oooooo"	Measurement range exceeded	Check weight / readjustment
"PraiseAt"	Power supply below 5.8 V	Replace battery
"Err 0"	Calibration error	Adjust scales
"Err 1"	Calibration error	Repeat adjustment
"Err 3"	Load cell error	Check connection
"Err 5"	Command error	Check PC query command
55.20 kg	Incorrect weight values	Tare / zero point check / adjustment
	Scales cannot be switched on	Check power supply

If you have any questions, please contact the service department of PCE Instruments.

13 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.

14 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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