PR Series Balances
Instruction Manual

Balanzas Serie PR
Manual de Instrucciones

Balance de Séries PR
Manuel d'instruction

PR Serie Waagen
Bedienungsanleitung

Bilance Serie PR
Manuale di Istruzioni

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1. INTRODUCTION

1.1 Description

The PR balance is a precision weighing instrument that will provide you with years of service if properly cared for.

PR balances are available in capacities from 62 grams to 6200 grams.

1.2 Features

Operation Controls: backlit display, with 3 weighing applications and many features.

1.3 Definition of Signal Warnings and Symbols

Safety notes are marked with signal words and warning symbols. These show safety issues and warnings. Ignoring the safety notes may lead to personal injury, damage to the instrument, malfunctions and false results.

WARNING	For a hazardous situation with medium risk, possibly resulting in injuries or death if not avoided.
CAUTION	For a hazardous situation with low risk, resulting in damage to the device or the property or in loss of data, or injuries if not avoided.
Attention	For important information about the product
Note	For useful information about the product

Warning Symbols

General Hazard

Electrical Shock Hazard

Alternating current

Direct current

1.4 Safety Precautions

CAUTION: Read all safety warnings before installing, making connections, or servicing this equipment. Failure to comply with these warnings could result in personal injury and/or property damage. Retain all instructions for future reference.

- Verify that the AC adapter's input voltage range and plug type are compatible with the local AC mains power supply.
- Make sure that the power cord does not pose a potential obstacle or tripping hazard.
- Do not position the balance such that it is difficult to reach the power connection.
- The balance is for indoor use only. Do not operate the equipment in hazardous or unstable environments.
- Operate the equipment only under ambient conditions specified in these instructions.
- Do not drop loads on the pan.
- Use the balance only in dry locations.
- Disconnect the equipment from the power supply when cleaning.
- Use only approved accessories and peripherals.
- Service should only be performed by authorized personnel.

2. INSTALLATION

2.1 Unpacking

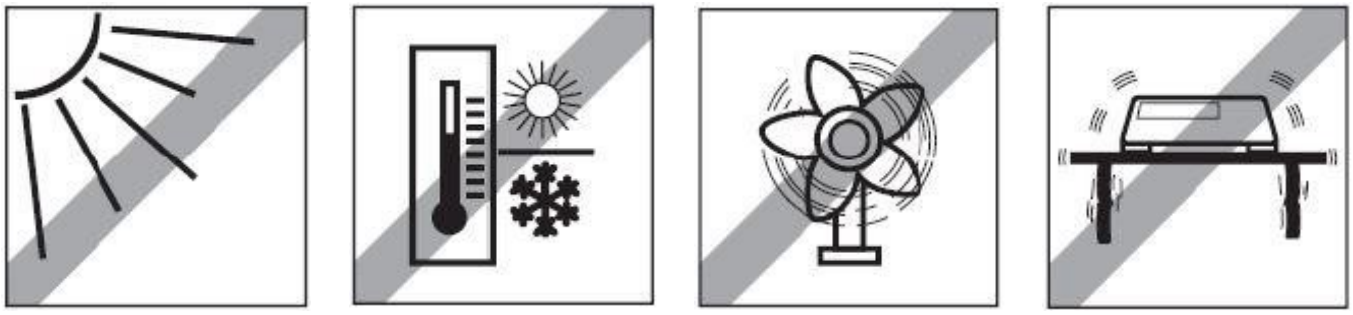
Carefully remove your PR balance and each of its components from the package. The included components vary depending on the balance model. Save the packaging to ensure safe storage and transport. Please read the manual completely before installing and using the PR balance to avoid incorrect operation.

Components included:

- Balance
- Power adapter + Attaching plug
- Stainless steel pan
- Pan support (for 0.1 g / 0.01 g model only)
- Warranty card

2.2 Select the Location

Avoid heat sources, rapid temperature changes, air current or excessive vibrations. Allow sufficient space.



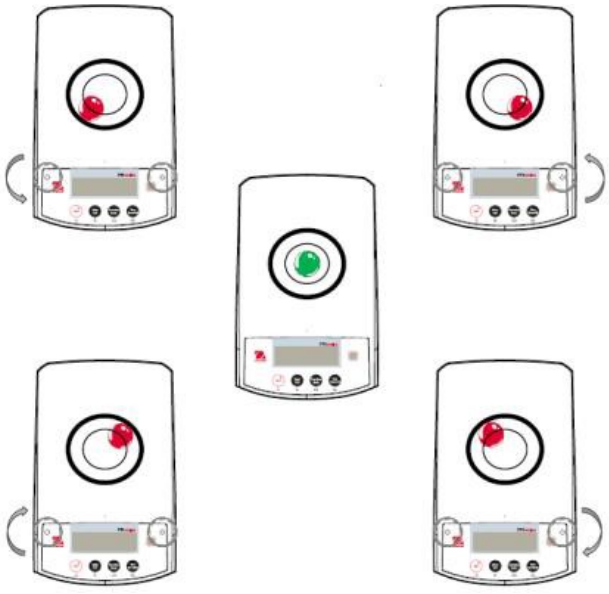
2.3 Leveling

Be sure the balance is level before it is used or after its location is changed.

The PR balance has a level bubble in a small round window beside the display.

To level the balance, adjust the 2 leveling feet until the bubble is centered in the circle.

Please refer to the right figure for leveling.



2.4 Connecting Power and Acclimatising the Balance

Connect the DC output connector to the power receptacle on the rear of the balance. Then connect the AC adapter plug to a suitable electrical outlet.

Acclimatising

It is suggested that the balance should not be used until it has been connected to power and acclimatised to the environment for a certain period of time. In the case of a balance with the precision above 0.1 mg, the acclimatisation time should be 1.5 hours; in the case of balance with the precision of 0.01 mg, the acclimatisation time should be more than 4 hours.

2.5 Connecting the Interface

The PR balance has a RS232 port.
Use the RS-232 port to connect either to a computer or a printer with a standard (straight-through) serial cable.

Interface connections on the rear of the balance

RS232

RS232：Used to connect to PC or Printer

Note: See the Printing section for Connecting, Configuring and Testing the Printer / Computer Interface.

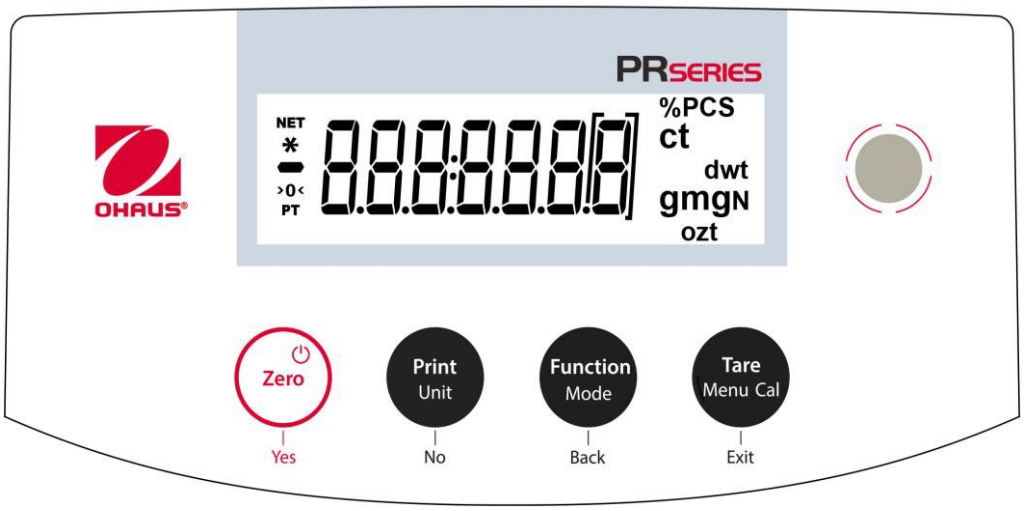
2.6 Initial Calibration

When the PR balance is first installed, or when it is moved to another location, it must be calibrated to ensure accurate weighing results. PR balances are classified into two categories, InCal models and ExCal models. InCal models have a built-in calibration mechanism which can calibrate the balance automatically and does not require the use of external calibration masses. If preferred, InCal models can also be manually calibrated with external masses. ExCal models are calibrated with external masses. Make sure to have the appropriate calibration masses available before beginning calibration.

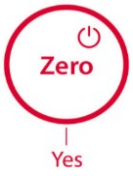
3. OPERATION

3.1 Overview of Controls and Display

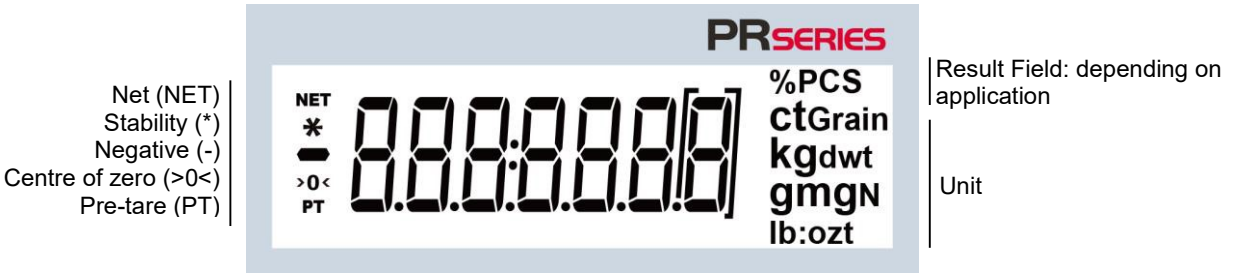
CONTROLS



CONTROL FUNCTIONS

Button				
	Yes	No	Back	Exit
Primary Function (Short Press)	**On / Zero** • If the balance is Off, turns on the balance. • If balance is On, sets zero.	**Print** • Sends the current displayed value to the serial interface.	**Function** • Operation is dependent on the application mode.	**Tare** • Performs tare operation.
Secondary Function (Press and Hold)	**Off** • Zeroing current value.	**Unit** • Changes weighing units.	**Mode** • Changes application mode.	**Menu-Cal** • Enters the main menu. Calibration is the first sub-menu. • Views the preset Tare value.
Menu Function (Short Press)	**Yes** • Accepts the current (blinking) setting on the display.	**No** • Rejects the current (blinking) setting on the display. • Increments a value being entered.	**Back** • Reverts back to previous menu item. • Decrements a value being entered.	**Exit** • Immediately exits the sub-menu. • Aborts a calibration in progress.

MAIN APPLICATION SCREEN



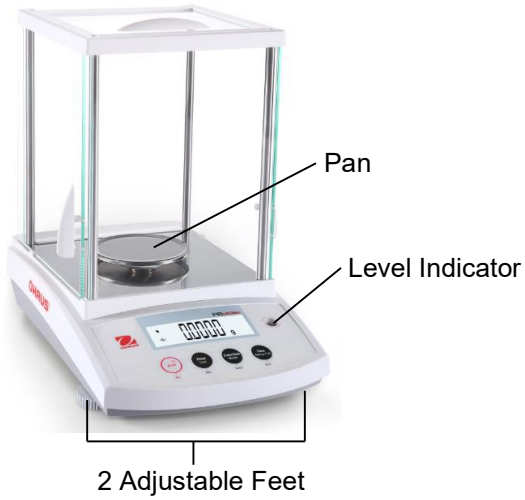
3.2 Principal Functions

Weighing: First press **Zero** to set the display to zero. Place an object on the pan. The display indicates the gross weight.

Taring: With no load on the pan, press **Zero** to set the display to zero. Place an empty container on the pan and press **Tare**. Add objects to the container and its net weight is displayed. After the container and the objects are removed, the load will be displayed as a negative number. Press **Tare** to clear.

Zero: Press **Zero** to zero the balance.

3.3 Overview of Parts and Features – Draft Shield Models



3.4 Overview of Parts and Features – Non-Draft Shield Models

4. APPLICATIONS

The PR balance can be operated in 3 application modes by long pressing the **Function / Mode** button.

4.1 Weighing

Note: Before using any application, be sure the balance has been leveled and calibrated.

Use this application to determine the weight of items in the selected unit of measure.

Weighing

1. Press **Tare** or **Zero** if necessary to begin. 2. Press and hold the **Function / Mode** button to select WEIGH (this application is the default).	
3. Place objects on the pan to display the weight. Once the reading is stable, the * will appear. 4. The resulting value is displayed in the active unit of measure.	

Item Settings

To view or adjust the current settings.

- **Weighing Units:** Change the displayed unit. See Section 5.4 for the detailed processes.
- **Filter Level:** Change Filtering level. See Section 5.3.1 for more information.
- **GLP Data:** See Section 5.7 for more information.
- **Print Settings:** Change printing settings. See Section 7 for more information.

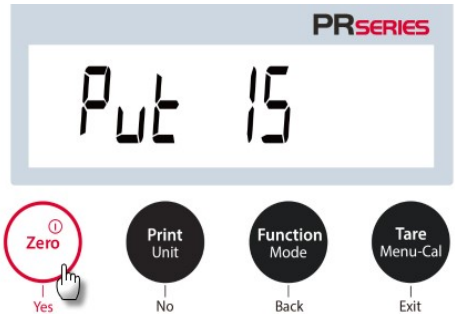
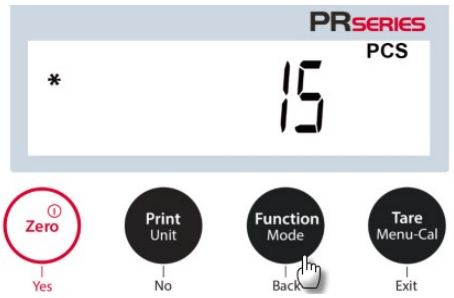
4.2 Parts Counting

Note: Before using any application, be sure the balance has been leveled and calibrated. The minimum piece weight should be no less than 0.1d. In the LFT mode, the minimum piece weight is 3e, the minimum Sample Size is 10.

Use this application to count samples of uniform weight.

Parts Counting

1. Press **Tare** or **Zero** if necessary to begin. 2. Press and hold the **Function / Mode** button until Count appears.	

3. After confirmation by pressing **Yes**, the message CLr.APW will appear on the screen.	
4. Press **Yes**, and the message Put 10 will display with the numeral 10 (default) flashing. The user can press **No** or **Back** to increase or decrease the value. For instance, to increase the value to 15, please press **No**. Then, Put and 15 will flash simultaneously.	
4. Place 15 samples on the pan. Press the **Function / Mode** button so that the weight of the 15 samples is used to establish the average piece weight (APW). The display will show 15 pieces.	
5. Remove the 15 samples from the pan and then place additional samples on the pan. The corresponding number of pieces will display on the screen.	
6. To view the total weight or the number of pieces of the objects, press the **Function / Mode** button.	

Item Settings

To view or adjust the current settings.

Sample size: The sample size ranges from 1 to 100. The default value is 10. **Note:** If the APW of the last parts counting operation needs to be kept, the user can press **No** when the display shows the message CLr.APW (clear the average piece weight. Place additional objects on the pan, and the corresponding number of pieces will display.	

APW Optimization: Improving counting accuracy by re-calculating the piece weight automatically as parts are added. APW Optimization occurs only when the number of pieces added to the pan is between one and three times the number already on the pan.	
Print Settings: Changing printing setup. See Section 7 for more information.	

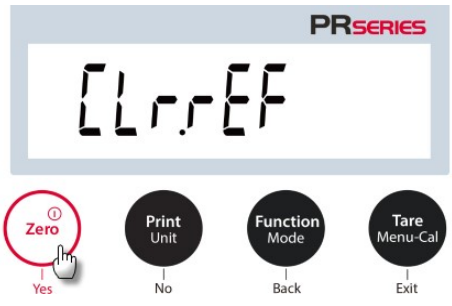
4.3 Percent Weighing

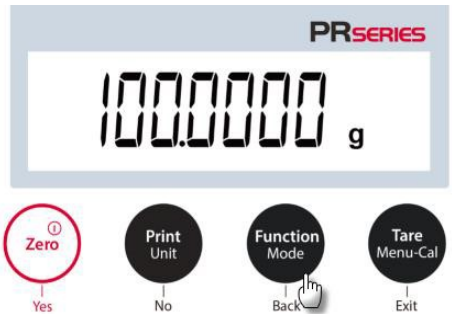
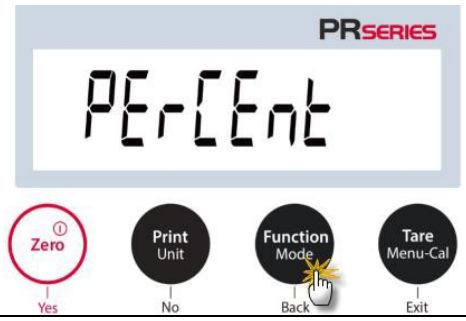
Note: Before using any application, be sure the balance has been leveled and calibrated.

Use Percent Weighing to display the weight of a test object as a percentage of a pre-established reference sample.

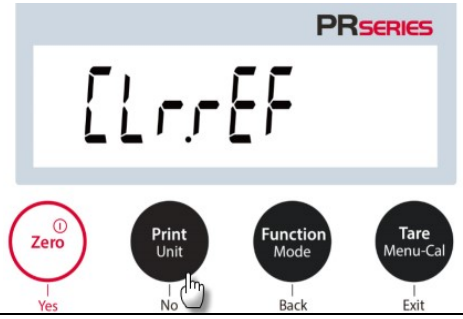
Note: The minimum reference weight should be no less than 0.1d.

Percent Weighing

1. Press and hold the **Function / Mode** button until PErCEnt appears.	
2. After confirmation by pressing **Yes**, the message CLr.rEF (clear the reference) will appear on the screen.	

3. Press **Yes**, and PUt.rEF (put the reference weight) will display.	
4. Place the reference sample on the pan to display the weight. When the reading is stable, the * appears. 5. Press the **Function / Mode** button so that the weight of the reference sample is stored in memory. The display will show 100%.	
6. Remove the reference sample, and place the test object on the pan. The ratio of the test object to the reference sample weight is displayed as a percentage.	
7. To view the reference sample weight or the percentage of the test object weight to the reference sample weight, press the **Function / Mode** button.	
8. To establish a new reference sample weight, long press the **Function / Mode** button and repeat the steps described above.	

Item Settings

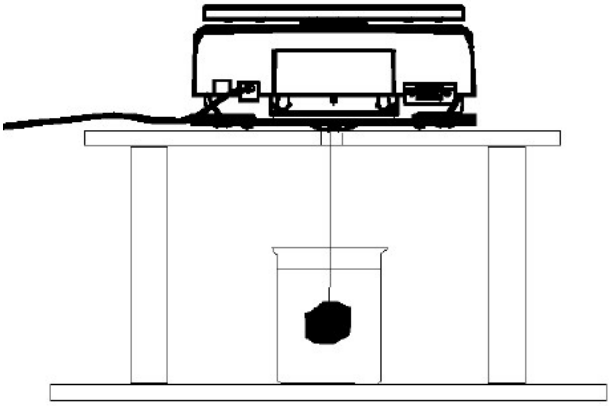
Note: If the reference weight of last Percent Weighing operation needs to be kept, press **No** when the message CLr.rEF (Clear reference) displays.	

Printing Setup:
Changing printing setup. See Section 7 for more information.

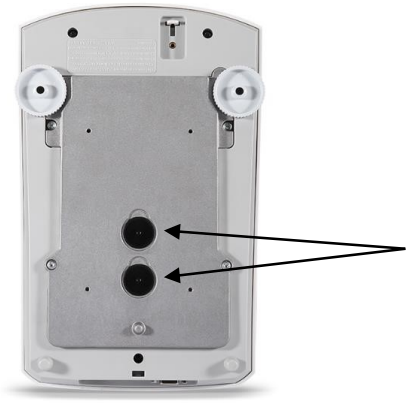
4.4 Additional Features

Weigh Below
Note: Ensure the balance has been leveled and calibrated.

The PR balance is equipped with a weigh below hook for weighing below the balance (as shown below).



Before turning the balance over, remove the pan and draft shield elements (if present) to prevent damage. Do not place the balance on the pan support cone or load cell pins.
To use this feature, remove power from the balance, then remove the protective cover for the weigh below opening.
Power on the balance, and then use a string or wire to attach items to be weighed.



5. MENU SETTINGS

5.1 Menu Navigation

Calibration	Setup	Unit	RS232	Print	GLP	Reset	Lock
InCal	Filter Level	Gram	Baud Rate	Stable Only	Header 1	Reset All	Calibration
Cal Adjust	AZT	Kilogram	Parity	Numeric Only	Header 2		Setup
Span Cal	Auto Tare	Milligram	Handshake	Single Header	Header 3		RS232
Linearity Cal	Graduations	Carat		Auto Print	Balance Name		Print
	Date Format	Pound		Header	User Name		GLP
	Date Setting	Ounce		Date and Time	Project Name		Reset
	Time Format	Ounce Troy		Balance ID			
	Time Setting	Penny Weight*		Balance Name			
	Brightness	Newton		User Name			
	Auto Dim	Grain		Project Name			
	LFT	TW Tael		Application Name			
		Custom 1		Result			
				Gross Weight			
				Net Weight			
				Tare Weight			
				Signature Line			
				Line Feed			

5.1.1 Changing Settings

To change a menu setting, navigate to that setting using the following steps:

Enter the Menu
Long press the Menu button to enter the **Menu**.

Select the Sub-Menu
Press **No** to step between the sub-menus, and press **Yes** to enter the sub-menu.

Select the Menu Item
Press **No** to step through the Menu Items, and press **Yes** to enter the displayed Menu Item.