User Manual

VWR E-SERIES BALANCES

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Congratulations and thank you for selecting a VWR-E Series Balance, we appreciate your business. Your balance was designed and manufactured to give you years of service.

SAFETY PRECAUTIONS

⚠️

- Check the instrument for any visible signs of damage before you apply power.
- Ensure the power supply is compatible with your instrument AND the local line voltage.
- Do NOT operate in Hazardous Locations. Check with your safety Officer regarding any questions or concerns.
- Do not locate in areas where corrosive gases are present.
- Make sure no liquid enters the housing. Use a damp cloth to clean the instrument.
- Avoid exceeding/overloading the weigh capacity or dropping samples onto the weigh pan. Weight overload and shock may damage the instrument and void the warranty.
- When utilizing the battery operation mode, do not mix batteries. Replace all six batteries at the same time. If the instrument will not be used for an extended period of time, remove all batteries from the instrument. Failure to do so may cause leakage and damage the instrument.

GETTING STARTED

First, check the contents of your shipping carton for the following:

- VWR-E Series Balance
- Weigh Pan and Sub Pan
- Operation Manual
- Power Adapter

Please read your operation manual and follow the instructions for installing your balance. Please keep your packaging for future transport and remember to return your Warranty Card.

INSTALLATION & SETUP
- Choose a location that is free from the influences of the following:
  - Drafts: Fans, Heat/Air Duct, Doorways or High Traffic Areas.
  - Vibrations.
  - Extreme Temperature Fluctuations: Sunlight, Ovens, or Environments with Wide Temperature Fluctuations
  - Voltage Fluctuations. Do Not Share Current with Other Instruments that Draw Voltage in an Inconsistent Manner such as Fluorescent Lights, Centrifuges and the like.
- Place Instrument on a Level, Rigid Surface.
- Level the Instrument.
- Allow 30 Minutes for Warm-up.
- Calibrate. All VWR-E Series are calibrated at the factory prior to shipment. Transportation of the instrument plus the differences in barometric pressure, humidity and ambient temperate conditions require calibration at the point of use. Calibrate regularly, at least once a week, to ensure accurate weighing results.

AC POWER CONNECTION & BATTERY OPERATION OPTION
- When connecting power use the original AC adapter supplied with the balance. Using an unapproved power supply may damage the instrument and void the warranty.
- Connect the plug to the instrument.
- Ensure the power supply is compatible with your instrument AND the local line voltage.
- Connect adapter to the power outlet.
- Original Power Supply:

	VWR-1002E, 3002E, 3001E & 6001E:	VWR-10001E, 20001E
Input:	100-240VAC, 50-60Hz, 0.2A	120VAC, 50-60Hz, 120mA
Output:	12VDC, 500mA	10.5VDC, 500mA
Polarity:	**Inside = -, Outside = +**	
Battery:	6 AA	Internal, Rechargeable

Do not mix batteries. Replace all six batteries at the same time. If the instrument will not be used for an extended period of time, remove all batteries from the instrument. Failure to do so may cause leakage and damage to the instrument.

LEVELING

For accurate calibration and weigh results level the balance upon installation and any time the instrument is moved to a new location.

Ensure the two rear feet are fully retracted and use the two front feet to level the balance.

CALIBRATION

Calibration is required at installation (see Installation & Set-up) and at regular intervals thereafter. Calibrate if the balance is moved to a new location.

1. Allow a 30-minute warm-up period.
2. Press Tare to zero balance – if required.
3. Remove all items from weigh pan.
4. Press **CAL Key**
   The appropriate calibration weight for your balance (see chart below) will "flash" on the display.
5. Place calibration weight on the weigh pan.
6. When calibration is complete the balance will display the selected calibration weight value, beep and return to the weigh mode.
   Calibrate on a regular basis, we recommend once a week, or more.

Calibration Weight Values

Model		Weight
VWR-1002E		1000g ASTM Class 1*
VWR-3002E		2000g ASTM Class 4*
VWR-3001E		2000g ASTM Class 4*
VWR-6001E		5000g ASTM Class 4*
VWR-10001E	x 2	5000g ASTM Class 4*
VWR-20001E	x 2	5000g ASTM Class 4*

* Or Better

WEIGH MODE SETTINGS

THE VWR-E Series offers sixteen modes of measurement. Press the **UNIT KEY** to toggle between weigh modes. The > indicator inside the display will highlight the selected weigh mode.

VWR-E SERIES Weigh Modes:

g, oz, lb, dwt, ct, ozT, tlT, tlH, tlJ, gn, dr, mm, tola, gsm, tar, tmr

BACKLIGHT SETTINGS

All VWR-E Series balances come with an adjustable backlight display (on or off). The factory default setting is on. However, should you wish to deactivate the backlight feature:

Press ON/OFF Key to turn the power off, press again to turn power on. When instrument displays------- --.

Press TARE KEY until **A. OFF** appears on the display.

Press UNIT KEY once **L. ON** will appear on the display. To toggle between Backlight On **(L_ON)** and Backlight Off **L_OFF)** **Press TARE KEY**.

Press ON/OFF to turn the power off, **Press ON/OFF** again to turn on the power and the scale return to the weighing mode.

AUTO SHUTOFF SETTINGS

All VWR-E-Series balances come with an AUTO OFF feature, typically used in the battery operation mode. The AUTO OFF feature is deactivated at the factory. However, should you wish to activate the Auto Off feature:

Press ON/OFF Key to turn the power off, press again to turn power on. When instrument displays-------- --.

Press TARE KEY until **A. OFF** appears on the display**.** To toggle between AUTO ON (**A. ON)** and AUTO OFF **(A. OFF) Press TARE KEY.** AUTO ON **(A. ON)** indicates auto shut off function is active.

Press ON/OFF to turn the power off, **Press ON/OFF** again to turn on the power and return to the weighing mode.

TARE FUNCTION

TARE is defined as net weight. Should you wish to use a beaker, flask or some other container for your sample simply place the container on the weigh pan and press the **TARE KEY**. Please note that any container that is "tared" will decrease the remaining capacity available on the balance by the weight of the container.

If you do not use a container for weighing verify the reading is "0" before placing a sample on the weigh pan. If not, press **TARE KEY** to display "0".

CARE & MAINTENANCE

- Unplug the instrument from the power source and remove all batteries from the battery compartment.
- Wear appropriate safety protection.
- Clean the instrument inside hood when appropriate.
- A damp cloth is recommended for basic cleaning. Do not use solvents on the instrument housing, sub-pan, keypad, power cord and power jack.
- Make sure no liquid enters the instrument housing.
- Handle with care to avoid damage to the weigh cell.
- Consult with your safety officer with any questions or concerns.

ERROR MESSAGES & TROUBLESHOOTING GUIDE

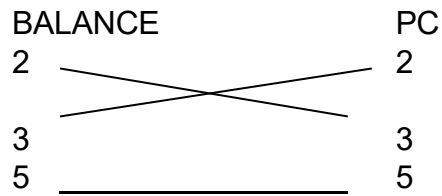| ERROR CODE	ISSUE	SOLUTION
Blank Display	Power	Check Adapter & Outlet
ERR-0	Overload	Capacity Exceeded or Damaged Weigh Cell
ERR-2	Zero Tracking (weight on weigh pan during power on sequence)	Remove All Weight From Weigh Pan and Sequence Power
	Stainless Steel Weigh Pan Not Assembled at Calibration	Reassemble with Weigh Pan, Sub Pan and Calibrate
ERR-5	Internal Signal Unstable	Weigh Pan Alignment Ensure Weigh Pan & Draft Ring Placement are Correct – Nothing Touching
		Unstable Power – Check Power Supply/Transformer
ERR-C	Calibration Error Incorrect Weight	Repeat Calibration Process Ensure Correct Calibration Weight Is Used – See Page 3
ERR-L	Calibration Error	Repeat Calibration Process
	No Weight Placed On Weigh Pan	
🔋:	Low Battery Indicator	Replace Batteries 6 AA, Replace all Batteries at Same Time
ERR-E	Memory Error	Cycle Power (On/Off Switch)

INTERFACE SETTINGS

All VWR-E Series Balances come complete with RS232 interface. Below you will find the factory settings and programming instructions for the optional settings for the Print (send), Baud Rate, Parity and Stability commands.

1. **Press ON/OFF** Key to turn power off, press again to turn power on. When instrument displays ---------
2. **Press PRINT**: b (Baud Rate) will appear in the display.
3. **Press TARE** to select among 1200, 2400, 4800, 9600* Baud
4. **Press UNIT** to select Parity settings, P NONE* will appear in the display.
5. **Press TARE** to select among ODD, EVEN, NONE.
   a) ODD = 7 data bits with odd parity.
   b) EVEN = 7 data bits with even parity.
   c) NONE* = 8 data bit without parity.
6. **Press UNIT** to enter PRINT/SEND settings; **n** will appear in the display.
7. **Press TARE** to select among
   a) CON, continuous print/send (1 per second)
   b) OFF, serial data output disabled,
   c) KEY*, manual mode by pressing PRINT
   d) STB, automatic print when reading is stable
8. To save settings **Press ON/OFF** to turn the power off, **Press ON/OFF** again to turn on the power and return to the weighing mode.

* Factory Default Settings

RS232 DATA INTERFACE

1. Connector: DB9

```
        BALANCE              PC
        2  ___           ___ 2
              \         /
               \       /
                \     /
        3        \   /       3
        5  ___    \ /    ___ 5
                   X
```

2. Transmissions Settings

   Mode: Simplex Asynchronous Serial   Baud Rate: 9600

   Data Bit: 8   Parity Bit: None

   Stop Bit: 1   Data Format: ASCII

3. Transmission Information Format : 20 Byte , blank=20H

1~2	3	4~13	14~18	19	20
'W: '	P	DATA	UNIT	CR	LF

W: Start of Data Transmission=57H+3AH

P :   Polarity '+' = 2BH = Positive '-' = 2DH =Negative

DATA: ' 12.345'=   20H+20H+20H+20H+31H+32H+2EH+33H+34H+35H

UNIT: 'g'   =67H+20H+20H+20H+20H

        'oz '   =6FH+7AH+20H+20H+20H

        'lb'   =6CH+62H+20H+20H+20H

        'dwt'   =64H+77H+74H+20H+20H

        'ozt '   =6FH+7AH+74H+20H+20H

        'ct '   =63H+74H+20H+20H+20H

        'tl.T'   =74H+6CH+2EH+54H+20H

        'tl.H'   =74H+6CH+2EH+48H+20H

        'tl.J '   =74H+6CH+2EH+4AH+20H

        'GN'   =47H+4EH+20H+20H+20H

        'dr'   =64H+72H+20H+20H+20H

        'MM'   =4DH+4DH+20H+20H+20H

        'tola'   =74H+6FH+6CH+61H+20H

        'gsm'   =67H+73H+6DH+20H+20H

        'T/A/R'   =54H+2FH+41H+2FH+52H

        'T/M/R'   =54H+2FH+4DH+2FH+52H

        'pcs'   =50H+43H+53H+20H+20H

CR: = 0DH

LF: = 0AH

SERVICE AND TECHNICAL SUPPORT

If you have ANY questions or require technical, application or service support please contact Technical Support at 1-800-539-1886.

Please note that VWR International, LLC and affiliates cannot take back any instrument that has been exposed to biological or hazardous material contamination for replacement, credit, repair or disposal.

DISPOSAL

Please consider the environment when disposing of your instrument and the packing material. Please recycle all environmentally friendly waste. Please contact your local government agency, facilities manager or a commercial disposal operator on the proper disposal of the instrument, power supply and batteries.

CE Compliance & Marking

CE

This instrument complies with European Standards and EC Directives:

Electromagnetic Compatibility (EMC) Council Directive 89/336/EEC
Applicable European Standards:

Limitation of Emissions in accordance with standard EN 61326-1 Class B for residential areas.

72/23/EEC "Electrical Equipment Design within Certain Voltage Limits"
Applicable European Standards:

EN 60950

Safety Requirements for electrical equipment for measurement, control and laboratory use Part1: General requirements.

Note:
Modification of this instrument in any manner will void the warranty. The owner/operator is responsible to check, and if necessary, correct any modifications required in accordance to the standards listed above for immunity to interference. Operating standards for this instrument are available upon request.

SPECIFICATIONS

Model	Capacity	Readability	Repeatability (s)	Linearity	Tare Range	VWR Cat. No.
VWR-1002E	1000g	0.01g	0.01g	0.03g	0 to 1000g	10204-990
VWR-3002E	3000g	0.01g	0.01g	0.05g	0 to 3000g	10204-992
VWR-3001E	3000g	0.1g	0.1g	0.3g	0 to 3000g	10204-994
VWR-6001E	6000g	0.1g	0.1g	0.3g	0 to 6000g	10204-996
VWR-10001E	10,000g	0.1g	0.1g	0.3g	0 to 10,000g	10204-998
VWR-20001E	20,000g	0.1g	0.1g	0.5g	0 to 20,000g	10205-000

Common Specifications:

Pan Size: (W x L)
        VWR-1002E: 135 x 120mm (5.3 x 4.7in)
        VWR-3002E, 3001E, 6001E: 170 x 180mm (6.7 x 7.1in)
        VWR-10001E, 20001E: 200 x 215mm (7.9 x 8.5in)
Stabilization Time: 3 Seconds
Operating Temperature: 5C to 40C (41-104F)
Power Requirements:
  Input: 100-240VAC, 50-60 Hz, 0.2A
  Output: 12VDC, 500 mA
  Polarity: **Inside = Negative (--),**
                                                                       Outside = Positive (+)
        Battery Mode: 6 AA   Internal, Rechargeable
  Do not mix batteries. Replace all six batteries at the same time. If the instrument will
  not be used for an extended period of time, remove all batteries from the instrument.
  Failure to do so may cause leakage and damage to the instrument.

Unit Dimensions:
        VWR-1002E, 3002E, 3001E, 6001E   258 x 190 x 82mm (10.2x x 7.5 x 3.2in)
   VWR-10001E, 20001E   330 x 215 x 90 (8.5 x 13 x 3.5in)
Net Weight:
        VWR-1002E, 3002E, 3001E, 6001E   2kg (4.4lb)
        VWR-10001E, 20001E   3kg (6.6lb)

FEATURES

- Large, Backlit Display
- Auto Shut Off Mode
- Low Battery Indicator
- Overload Protection
- RS232 Communication

- Simple, Five-Button Operation
- Automatic Calibration
- Sixteen Weigh Modes
- Stainless Steel Weigh Pans
- Five-Year Warranty

INSTRUMENT DIAGRAM

BACK SIDE

AC ADPTER INSERT

BOTTOM

BATTERY COMPARTMENT

6 AA Batteries, not included
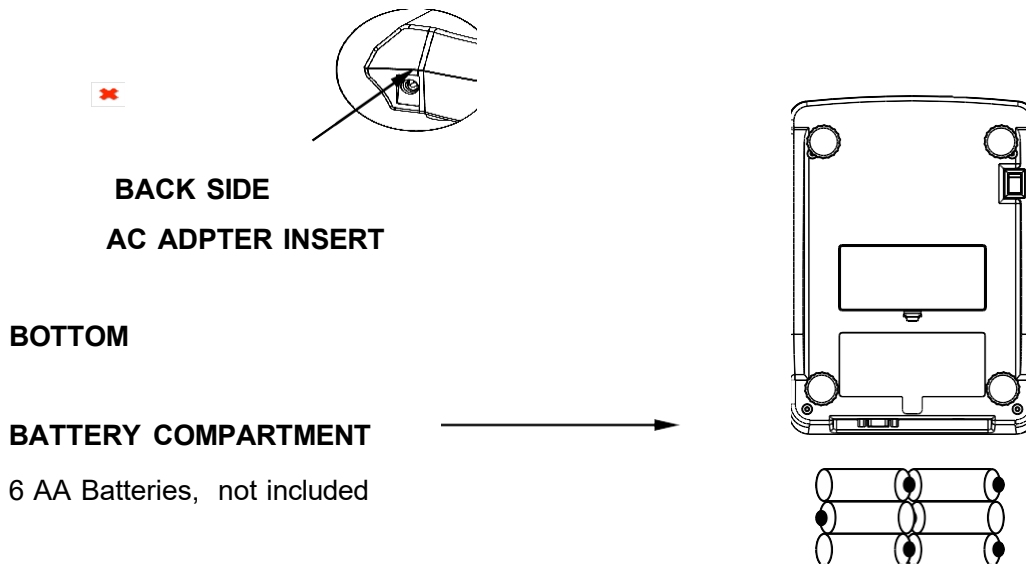
The status of the information and specifications in this manual is indicated by the date given below. VWR International, LLC reserves the right to make changes to any or all of the specifications, features or design of the instruments at any time and without notice.