LAB BASICS

VALIDO^{TM} Series Balances
Instruction Manual

1. INTRODUCTION

This manual contains installation, operation and maintenance instructions for the Valido™ Series. Please read the manual completely before using the balance.

1.1 Definition of Signal Warnings and Symbols

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

General hazard

Electrical shock hazard

1.2 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.
- Position the instrument such that the AC adapter can be easily disconnected from the wall socket.
- Position the power cord so that it does not pose a potential obstacle or tripping hazard.
- Operate the equipment only under ambient conditions specified in these instructions.
- The equipment is for indoor use only.
- Do not operate the equipment in hazardous or explosive environments.
- Only use the equipment in dry locations.
- Only use approved accessories and peripherals.
- Disconnect the equipment from the power supply when cleaning.
- Service should only be performed by authorized personnel.

1.3 Intended Use

Use the instrument exclusively for weighing as described in the operating instructions. Any other type of use and operation beyond the limits of technical specifications without written consent from Scientific Laboratory Supplies, is considered as not intended. This instrument complies with current industry standards and the recognized safety regulations; however, it can constitute a hazard in use. If the instrument is not used according to these operating instructions, the intended protection of the instrument may be compromised and Scientific Laboratory Supplies assumes no liability.

1.4 Controls
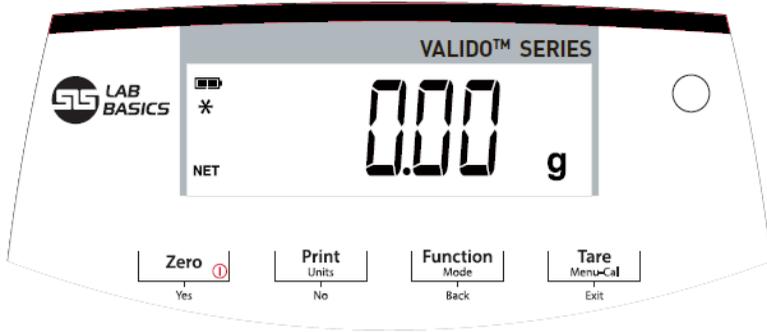
Button	Functions
Zero ① **Yes**	Short Press (when on): Sets display to zero (when off): Turns balance on Long Press (when on): Turns the balance off Short Press (in Menu): Selects/accepts displayed setting
Print **Units** **No**	Short Press: See Interface Manual for operation description. Long Press: Toggles through active units Short Press (in Menu): Toggles through available settings
Function **Mode** **Back**	Short Press: Selects function setting Long Press: Selects active Mode Short Press (in Menu): returns to previous settings
Tare **Menu-Cal** **Exit**	Short Press: Enter / clear a Tare value Long Press: Enters User Menu Short Press (in Menu): Quickly exit User Menu

2. INSTALLATION

2.1 Transportation Lock
The Transportation Lock is located under the balance. Rotate the pointer to the unlocked position.
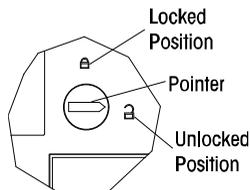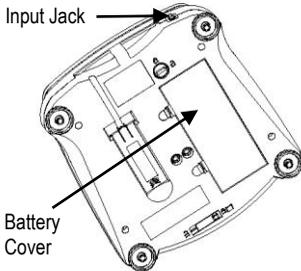

2.2 Location
Use the balance on a firm, steady surface. Avoid locations with excessive air current, vibrations, heat sources, or rapid temperature changes.

Adjust the leveling feet so the bubble is centered in the circle.

Level Bubble

Adjustable Feet

YES   NO
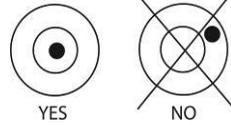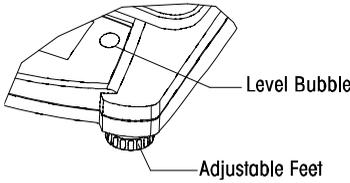
2.3 Power

The AC Adapter is used to power the balance when battery power is not needed.

Input Jack

Battery
Cover

Connect the AC Adapter plug to the
input jack.

Battery installation (without optional internal battery)**:**
Remove battery cover and install 4 batteries using the polarity indications as shown in the compartment.

Optional rechargeable battery
Balances with the optional rechargeable battery will need to be charged for 12 hours before the balance can be operated on battery power for the first time. The battery is protected from overcharging so the balance can remain connected to the AC power. When the battery is fully charged the battery indicator on the display will stop blinking.

To remove the rechargeable battery option and install C cell batteries, reference the Recharging Battery Option instruction manual for step by step instructions as well as disposal instructions.

⚠️ **CAUTION:** Risk of explosion can occur if the rechargeable battery is replaced with the wrong type or if it is not properly connected.

Note:
After power on, it is recommended to warm up the balance for at least 5 minutes before using it.

2.4 Initial Calibration

When the balance is first installed it should be calibrated to ensure accurate results.

Press and hold **Menu-Cal** until [$mMeNU$] (Menu) is displayed. When the button is released, the display

will display [$.CAL.$]. Press **Yes** to accept, [$SpaN$] will then be shown. Press **Yes** again to begin the span

calibration. [--C--] blinks while zero reading is stored. Next, the display shows the calibration weight value. Place the specified calibration mass on the pan. [--C--] blinks while the reading is stored. The balance returns to the previous application mode and is ready for use.

Required Span Calibration Mass (sold separately)

Capacity	Mass
600 g	300 g
2000 g	1000 g

3. OPERATION
All modes except for weighing must be activated in the User Menu before they are available, see Section 4.

3.1 Weigh Mode

1. Press and hold **Mode** until [wJelGH] (Weigh) is displayed.
2. If required, place an empty container on the pan and press **Tare**.
3. Add material to the container. The display shows the weight of the material.

3.2 Parts Counting Mode
This mode counts large numbers of items based on the weight of a reference count.

1. Place an empty container on the pan and press **Tare**.
2. Press and hold **Mode** until [Count] (Count) is displayed. [CLr.APU] (Clear Average Piece Weight) will then display.
3. Press **No** to use the stored APW. Proceed to step 6.
4. Press **Yes** to establish an APW. The balance will then display the stored sample size, i.e. [Put

   10]. Press **No** or **Back** to toggle the choices (5, 10, 20, 50 or 100).
5. Put the indicated number of pieces on the pan then press **Yes** to calculate the APW. The display shows the piece count. Note: Press **Function** to view the current APW.
6. Add additional pieces until the desired count is reached.
7. To clear the stored APW press and hold **Mode** until [Count] is displayed. Press **Yes** when

   [Clr.APU] is displayed.

3.3 Percent Mode
This mode measures the weight of a sample as a percentage of a reference weight.

1. Place an empty container on the pan and press **Tare**.
2. Press and hold **Mode** until [Percnt] is displayed. [Clr.ref] (clear reference) will then display.
3. Press **No** to use the stored reference weight and proceed to step 6.
4. Press **Yes** to establish a new reference. Balance will now display [Put.ref].
5. Add the desired reference material to the container. Press **Yes** to store the reference weight. The display shows 100%.
   Note: Press **Function** to view the current reference weight.
6. Replace the reference material with the sample material. The display shows the percentage of

the sample compared to reference weight.

7. To clear the stored reference press and hold **Mode** until [Percnt] is displayed. Press **Yes** when
   [Clr.ref] is displayed.

3.4 Checkweigh Mode
This mode sets low and high weight limits for portion control processes.

1. Press and hold **Mode** until [CHeCk] (Check) is displayed. [Clr.ref] (clear references) will then display.
2. Press **No** to use the stored reference weight limits and proceed to step 5.
   Note: Press **Function** to view the low and high reference weight limits.
3. Press **Yes** to establish new reference values. The balance will then display [Set. Lo]. Press **Yes** to view the "Low" limit value. Press **Yes** to accept or **No** to edit the "Low" limit value. The stored value then displays with the first digit highlighted [ooo.ooo kg]. Repeatedly press **No** until the desired number appears. Press **Yes** to accept and highlight the next digit. Repeat until all the digits are correct. Press **Yes** to accept the "low" limit value, [Set. Hi] will be displayed.
4. Repeat the same procedure to accept or edit the "high" value.
5. Place sample material on the Pan. The "Accept" indicator will now show that the sample weight is within the acceptable range.
6. To clear the stored reference values press and hold **Mode** until [CHeCk] is displayed. Press **Yes** when [Clr.ref] is displayed.

4. SETTINGS
The User Menu allows the customizing of balance settings.
Note: Additional Sub-Menus may be available if Interface Options are installed. See Interface User Manual for the additional setting information.

4.1 Menu Navigation
User Menu:

Sub-Menus:	.C.a.l.	.S.e.t.u.p.*	.M.o.d.e.	.U.n.i.t.*	.E.n.d.
Menu Items:	Span Lin End	A-off Disply Bright End	Count Percnt Check End	g kg … End	

* Note: Available settings vary by models and regions

Press and hold Menu until [mMeNU] (Menu) is displayed. When released the first sub-menu [.C.a.l.] (Cal) will be shown.
Press **Yes** to enter the displayed sub-menu or press **No** to advance to the next.
Selecting a sub-menu will display the first menu item. Press **Yes** to view the menu item setting or press **No** to move to the next menu item. When viewing the setting, press **Yes** to accept the setting, or

press **No** to change the setting. When [End] is displayed, press **Yes** to return to the sub-menu selections or **No** to return to the first item in the current menu.

4.2 Cal Sub-Menu

- Span [SpaN] (yes, no) - Initiates a span calibration procedure (zero and span). A span calibration is important when initially setting up the balance.
- Lin [Lin] (yes, no) - Initiates a linearity calibration procedure (zero, mid-point and span).

4.3 Setup Sub-Menu
The backlit LCD display will have different menu items or settings based on the functionality.

- Auto Off [A-Off] (on, off) - When Auto Off is set to "on" the balance will turn off automatically after 5 minutes of inactivity. Auto off is used to save battery power.
- Display [disply] (on, auto, off) - This setting controls the LCD backlight; constant on, automatic turn off after 5 seconds of balance inactivity, or always off.

4.4 Mode Menu
This sub-menu activates modes so they will be available for use with the Mode button. Weigh mode is always active.

- Parts Count [Count] (on, off) - Set on for the mode to be active.
- Percent [Percnt] (on, off) - Set on for the mode to be active.
- Check Weigh [CHECk] (on, off) - Set on for the mode to be active.

4.5 Units Menu
This sub-menu activates units so they will be accessible with the **Units** button. The units in the menu must be turned "on" to be active.
Note: Available units and modes vary by model and local regulations.

4.6 Sealing access to balance settings
You can use the Menu Lock switch to lock the settings of the user menu. The switch can be secured using paper seals, wire seals or plastic ties. Once the switch is in the "locked" position, the user menu cannot be accessed.

Locked   Unlocked
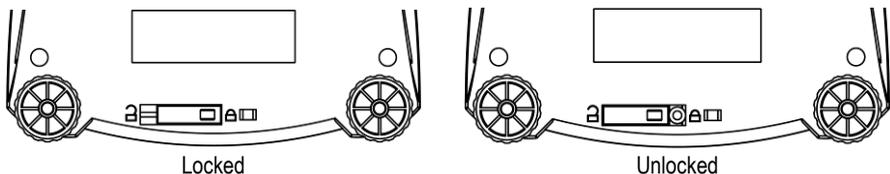
5. MAINTENANCE
5.1 Cleaning

WARNING: Electric Shock Hazard. Disconnect the equipment from the power supply before cleaning.
Make sure that no liquid enters the interior of the instrument.
Attention: Do not use solvents, harsh chemicals, ammonia or abrasive cleaning agents.

The exterior surfaces of the instrument may be cleaned with a cloth dampened with water and a mild detergent.

5.2 Troubleshooting

The following table lists common problems and possible causes and remedies.
If the problem persists, contact Scientific Laboratory Supplies.

Symptom	Possible Cause	Remedy
Cannot turn on	No power to balance	Verify connections and voltage
Poor accuracy	Improper calibration Unstable environment	Perform calibration Move balance to suitable location
Cannot calibrate	Unstable environment Incorrect calibration weight	Move the balance to suitable location Use correct calibration weight
Cannot access mode	Mode not enabled	Enter menu and enable mode
Cannot access unit	Unit not enabled	Enter menu and enable unit
Lo ref	Reference weight is too low	Increase reference weight.
ref err	Parts counting– sample weight <1d.	Shows error - exits mode or goes to [Clr.ApU].
Err 3.0 Cal	Incorrect calibration weight	See section 2.5 for correct weights
Err 4.4 full	RS232 buffer is full	Set Handshake on, see Interface User Manual.
Err 8.1 ⌐Load⌐	Power on zero range exceeded	Clear pan, check Shipping Lock setting
Err 8.2 ⌐Load⌐	Power on zero under range	Install pan, check Shipping Lock setting
Err 8.3 ⌐Load⌐	Overload (>cap+9e)	Load exceeds balance maximum capacity
Err 8.4 ⌐Load⌐	Under load	Reading below min. range - Re-install pan.
Err 8.6 999999	Displayed value >999999	Result exceeds display capability.
Err 9 Data	Internal data error.	Contact an authorized service agent
Err 13 mMEmM	Fail to write EEPROM.	Contact an authorized service agent
Err 53 CSumM	Invalid checksum data	Contact an authorized service agent

6. TECHNICAL DATA

Equipment Ratings:
- Pollution degree 2;
- Installation category II;
- Altitude 2000m;
- Humidity: Maximum 80% for temperatures up to 31°C decreasing linearly to 50% at 40°C; non-condensing;
- Electrical supply: Rated 12VDC 500mA for use with a Certified/Listed power adapter or battery

operated;
- Indoor use only;
- The mains supply voltage fluctuations are not to exceed ± 10 % of the nominal supply voltage.

6.1 Specifications
Typical specifications:

Model	602	2002
Capacity (g)	600	2000
Readability (g)	0.01	0.01
Repeatability (Std. Dev.) (g)	0.02	0.02
Linearity (g)	0.02	0.03
Span Calibration Mass (Not Included)	300 g	1000 g
Linearity Calibration Mass	300, 600 g	1000 g, 2000 g
Stabilization Time (s)	1.5	
Construction	ABS housing & stainless steel pan	
Calibration	Digital with external weight	
Tare Range	Full capacity by subtraction	
Weighing Units	g, lb, oz, N	g, kg, lb, oz, N
Application Modes	Weighing, Parts Counting, Percent Weighing, Checkweighing	
Power Requirement	AC adapter (included) or 4 C batteries (not included)	
Typical Battery Life	270 hours with alkaline batteries	
Specified Temperature Range	10°C (50°F) to 40°C (104°F) at 10% to 85% relative humidity, non-condensing	
Storage Conditions	-20°C (-4°F) to 55°C (131°F) at 10% to 90% relative humidity, non-condensing	
Communication	RS232, USB, or Ethernet (available as accessories)	
Display Type	Liquid Crystal Display (LCD) with backlight	
Display Size	20 mm digits	
Pan Size (W x D)	Ø145 mm	190 x 144 mm
Balance Dimensions (W x D x H)	204 x 230 x 70 mm	
Shipping Dimensions (W x D x H)	300 x 250 x 182 mm	
Net Weight	1.0 kg / 2.2 lb	
Shipping Weight	1.5 kg / 3.3 lb	

6.2 Drawings
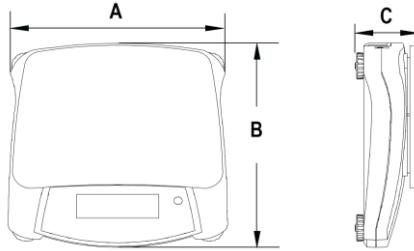
A	B	C
204 mm	230 mm	70 mm

6.3 Compliance

Compliance to the following standards is indicated by the corresponding mark on the product.

Mark	Standard
CE	This product complies with the EU Directives 2011/65/EU (RoHS), 2014/30/EU (EMC), 2014/35/EU (LVD) and 2014/31/EU (NAWI). The EU Declaration of Conformity is available from Scientific Laboratory Supplies.
🗑	This product complies with the EU Directive 2012/19/EU (WEEE). Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

LIMITED WARRANTY

Scientific Laboratory Supplies products are warranted against defects in materials and workmanship from the date of delivery through the duration of the warranty period. During the warranty period Scientific Laboratory Supplies will repair, or, at its option, replace any component(s) that proves to be defective at no charge, provided that the product is returned, freight prepaid, to Scientific Laboratory Supplies.

This warranty does not apply if the product has been damaged by accident or misuse, exposed to radioactive or corrosive materials, has foreign material penetrating to the inside of the product, or as a result of service or modification by other than Scientific Laboratory Supplies. In lieu of a properly returned warranty registration card, the warranty period shall begin on the date of shipment to the authorized dealer. No other express or implied warranty is given by T Scientific Laboratory Supplies. Scientific Laboratory Supplies shall not be liable for any consequential damages.

As warranty legislation differs from state to state and country to country, please contact Scientific Laboratory Supplies for further details.

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