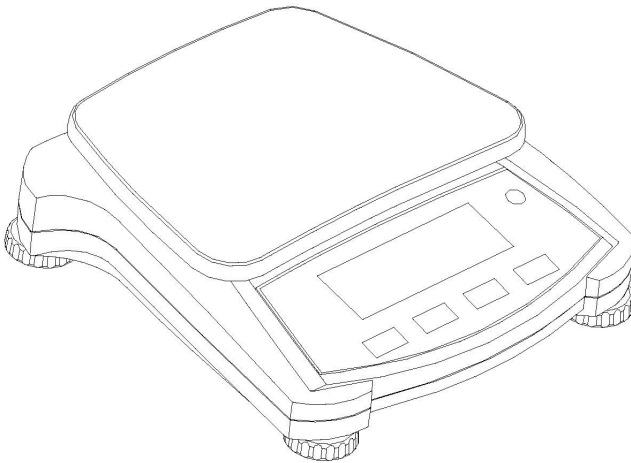




Portable Balances

Instruction Manual

Model # 49DF46, 49DF47, 49DF48
49DF49, 49DF50



1. INTRODUCTION

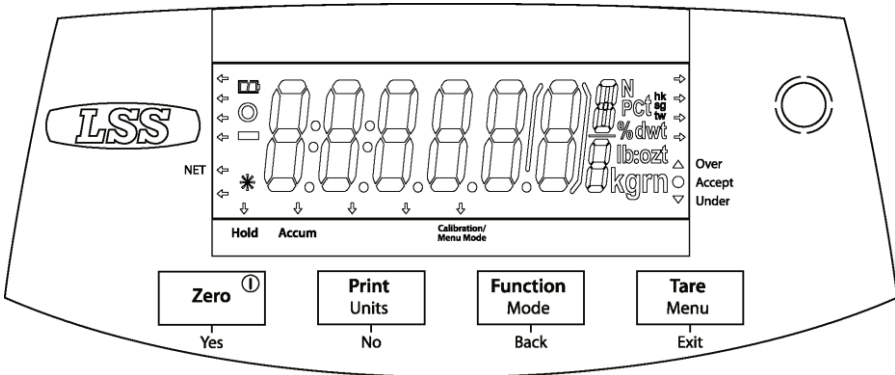
This manual contains installation, operation and maintenance instructions. Please read the manual completely before using the balance.

1.1 Safety Precautions

Please follow these safety precautions:

- Verify that the AC Adapter input voltage matches the local AC power supply.
- Only use the balance in dry locations.
- Do not operate the balance in hostile environments.
- Do not drop loads on the platform.
- Service should be performed only by authorized personnel.

1.2. Controls



Button	Functions
Zero ①	Short Press (when on): Sets display to zero (when off): Turns balance on Long Press (when on): Turns the balance off
Yes	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 Exit	Short Press: Enter / clear a Tare value Long Press: Enters User Menu Short Press (in Menu): Quickly exit User Menu

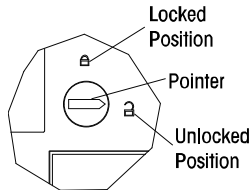
2. INSTALLATION

2.1 Package Contents

- Balance
- Pan
- Power Adapter
- Instruction Manual

2.2 Transportation Lock

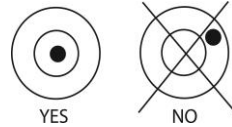
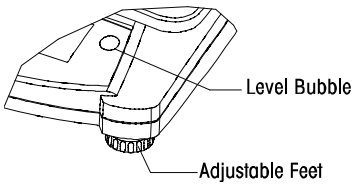
The Transportation Lock is located under the balance. Rotate the pointer to the unlocked position.



2.3 Location

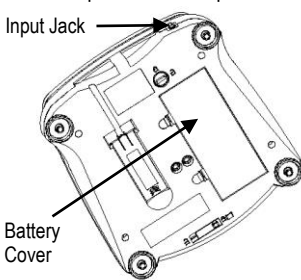
Use the balance on a firm, steady surface. Avoid locations with excessive air current, vibrations, heat sources, or rapid temperature changes.

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

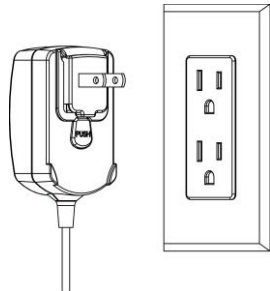


2.4 Power

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



Connect the AC Adapter plug to the input jack.



Connect AC Adapter to the proper AC supply.

2.5 Initial Calibration

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

Press and hold **Menu** until [**MENU**] (Menu) is displayed. When the button is released, the display will display [**C.A.L.**]. 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*	Capacity	Mass*
210g	200g	1600g - 2100g	1kg / 2lb
310g - 510g	300g	6000g	3kg / 5lb
1100g	500g / 1lb		

* Pound masses are used when calibrating in the lb unit.

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 [**WEIGH**] (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.APW**] (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 ID**]. 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.APW**] 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 [**Percent**] 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 [**PERCENT**] is displayed. Press **Yes** when [**CLR.REF**] is displayed.

3.4 Display Hold Mode

This mode holds the highest stable weight value for easy reference.

1. Press and hold **Mode** until [**Hold**] is displayed.
2. Place samples to be weighed on the pan. When the balance detects the highest stable weight the "Hold Indicator" will blink and the displayed weight will not change.
3. Press **Function** to release the held weight value.

3.5 Accumulation Mode

This mode allows the user to store the total of a series of weight measurements. With an Interface Option the component weights and the total weight can be transmitted.

1. Press and hold **Mode** until [**ACCUM**] (Accumulate) is displayed. [**CLR.ACC**] (clear accumulate) will then display.
2. Press **Yes** to clear the stored value or **No** to continue adding to the stored total.
3. If required, place an empty container on the pan and press **Tare**.
4. Add first item, its weight is displayed. Press **Function** to store the weight, the "Accum" indicator will flash and the display will show the total weight.
5. Remove the first item and add the next item. The balance will display its weight. Press **Function** to store its weight. The "Accum" indicator will flash and the new total weight will be displayed.
6. Repeat step 5 for all of the items to be added. Note: While the display indicates zero, press **Function** to view the current total number of samples and the total weight.
7. To clear the stored total press and hold **Mode** until [**ACCUM**] is displayed. Press **Yes** when [**CLR.ACC**] is displayed.

3.6 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 [**000.000** 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:

<i>Sub-Menus:</i>	<i>.C.a.l.</i>	<i>.S.e.t.u.p.</i>	<i>.M.o.d.e.</i>	<i>.U.n.i.t.</i>	<i>.E.n.d.</i>
<i>Menu Items:</i>	<i>Span Lin End</i>	<i>A-off Disply Bright End</i>	<i>Count Percnt Hold Accum Check End</i>	<i>ct, g, kg, gm, lb, oz, lb:oz, ozt, N, dwt, thk, tsg, twt, tola, tical End</i>	

Press and hold Menu until [MENU] (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 and (red) LED displays 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 [d SPLY] (on, auto, dim (LED), off (LCD)) - This setting controls the LCD backlight or the LED digits; constant on, automatic turn off after 5 seconds of balance inactivity, dimming of the LED after 60 seconds of balance inactivity or LCD backlight always off.
- Bright [br SHt] (hi, mid, low) - This setting controls the brightness of the LED display. LCD models will not see this menu item.

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.

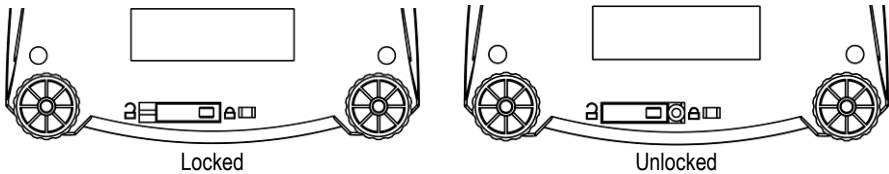
- Parts Count [Count] (on, off) - Set on for the mode to be active.
- Percent [PERcnt] (on, off) - Set on for the mode to be active.
- Hold [Hold] (on, off) - Set on for the mode to be active.
- Accumulate [ACCUM] (on, off) - Set on for the mode to be active.
- Check Weigh [CHECK] (on, off) - Set on 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. The ounce (oz) and pound:ounce (lb:oz) units include the option of decimal [**dEe**] or fractional [**Frac**] readouts. Due to different agency requirements the grain unit has two icon display options, gr or grm.

4.6 Sealing access to balance settings

The Menu Lock switch limits changes to the Cal, Setup, Mode and Unit menus. The switch in type approved models may set some balance settings as required by the approval agency. The switch may be secured using paper seals, wire seals or plastic ties.



5. MAINTENANCE

5.1 Troubleshooting

The following table lists common problems and possible causes and remedies. If the problem persists, contact your authorized dealer.

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 rREr	Fail to write EEPROM.	Contact an authorized service agent
Err 53 CSuP	Invalid checksum data	Contact an authorized service agent

5.2 Service Information

If the troubleshooting section does not resolve or describe your problem, contact your authorized dealer.

5.3 Accessories

Contact your authorized dealer to purchase required accessories:

RS232 Interface Kit
 USB Interface Kit
 Ethernet Interface Kit
 In-Use Cover Kit
 Carrying Case Kit
 Printers and Cables

6. TECHNICAL DATA

The technical data is valid under the following ambient conditions:

Ambient temperature: 10°C to 40°C

Relative humidity: 20% to 85% relative humidity, non-condensing

Height above sea level: Up to 4000 m

Operability: assured at ambient temperatures between 0°C and 40°C

Power: AC Adapter – 12VDC 420mA output, 4 batteries

Protection: dust and water

Pollution degree: 2

Installation category: Class III

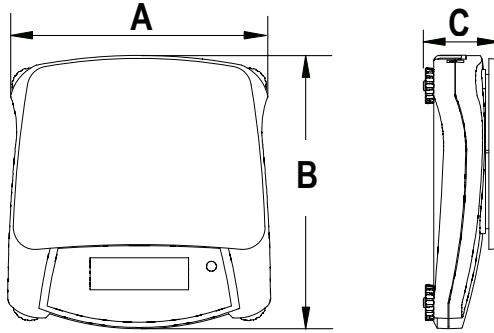
EMC: See Declaration of Conformity

6.1 Specifications

Typical specifications:

Stabilization Time	≤1 seconds
Tare range	To capacity by subtraction
Application Modes	weigh, percent, parts count, check weigh, accumulate, hold
Weighing Units	ct, g, kg, grn, lb, oz, lb:oz, ozt, N, dwt, tael (3), tola, tical
AC Power	AC Adapter (supplied)- 12 VDC or 12VAC, 420 mA
Battery Power	4 AA (LR6) batteries (not supplied)
Calibration	Digital with external weight
LCD Display	6-digit 7-segment LCD with white LED backlight
LED Display	6-digit 7-segment LED
Display Size	20 mm / 0.78" digits
Keypad	4-button overlay
Pan Size (W x D)	190 mm x 138 mm
Net Weight	0.9 kg / 2.2 lb
Shipping Weight	1.4 kg / 3.1 lb

6.2 Drawings



A	B	C
204 mm / 8 in.	212 mm / 8.4 in.	58 mm / 2.3 in.

6.3 Compliance

FCC Note

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Industry Canada Note

This Class B digital apparatus complies with Canadian ICES-003.



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