MK Lab

MKL SERIES

MKL 622
MKL 2002

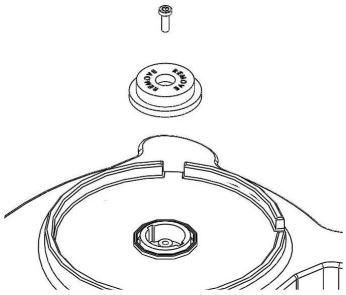
(p.n. 7.00.6.6.0272), Revision A2, Mar 2016

CONTENTS

1 INSTALLATION

1) Remove the balance, draft shield, top pan, AC adapter and pan support from the packaging

2) Remove the shipping protection screw and transit disc from the top of the balance and place the plastic top pan support on the balance. Do not use excessive force when removing and installing the screw.



3) Gently place the plastic pan support into the receptacle and secure with the supplied screw. Do not over-tighten the screw. It should be finger tight only. Put the Stainless steel pan on top of the pan support

4) Place the balance onto a firm surface and adjust it to be level using the rear feet before use. Use the spirit bubble level indicator for guidance.

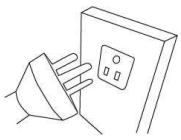
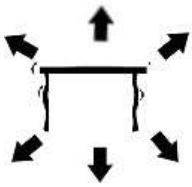
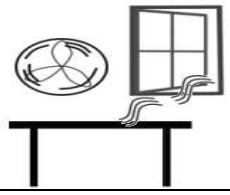
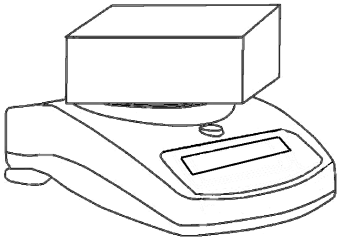
5) Unsure the operating area is free from drafts which will affect stable and accurate measurement.

6) If battery operation is desired, insert 6 X LR6 (AA) batteries into the battery compartment on the base of the scales. Take care to insert batteries with correct polarity as marked. **CAUTION:** Incorrect battery orientation can result in leakage or explosion. It is recommended to remove batteries if the scales are not going to be used for an extended period.

7) Battery power is only used if mains adapter is not inserted.

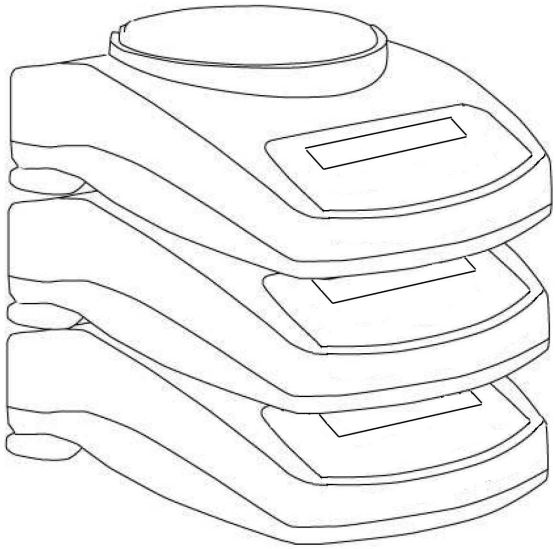
1.1 LOCATING AND PROTECTING YOUR BALANCE

In order to keep your balance functioning at its best we suggest that you do the following:

	Avoid extremes of temperature. Do not place in direct sunlight or near air conditioning vents.
	Make sure the balance is located on a strong table and free from vibration.
	Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors. Do not let the balance battery go flat – if you are not using it for a long time you should charge the battery up periodically to make sure the battery does not lose its charge.
	Keep free from vibration. Do not place near heavy or vibrating machinery.
	Avoid high humidity that might cause condensation. Keep away from direct contact with water. Do not spray or immerse the balance in water.
	Do not place near open windows, air-conditioning vents or fans that may cause a draft and unstable readings.
	Keep the balance clean. Do not stack material on the balance / balance pan when it is not in use. The MKL 622 balance has a stacking feature for stacking more than one unit on top of each other which does not apply weight to the pan. For more details on this see the section on storing.

1.2 STORING WHEN NOT IN USE (MKL 622 only)

MKL 622 models can be stacked on top of each other to save space and protect them from damage (MKL 2002 will stack on top of a MKL 622, but can only have items stacked on it if the top pan and pan support are removed).



Stacking illustration

2 SPECIFICATIONS

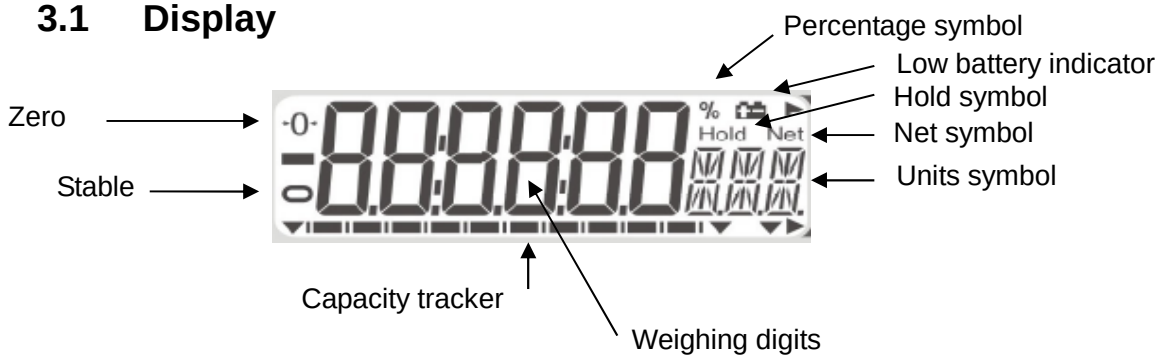
Model	**MKL 622**	**MKL 2002**
Capacity	620 g	2000 g
Readability	0.01 g	0.01 g
Resolution	1:62000	1:200000
Repeatability +/-	0.02 g	0.02 g
Linearity+/-	0.03 g	0.03 g
Units	g / N / oz	

Common Specifications

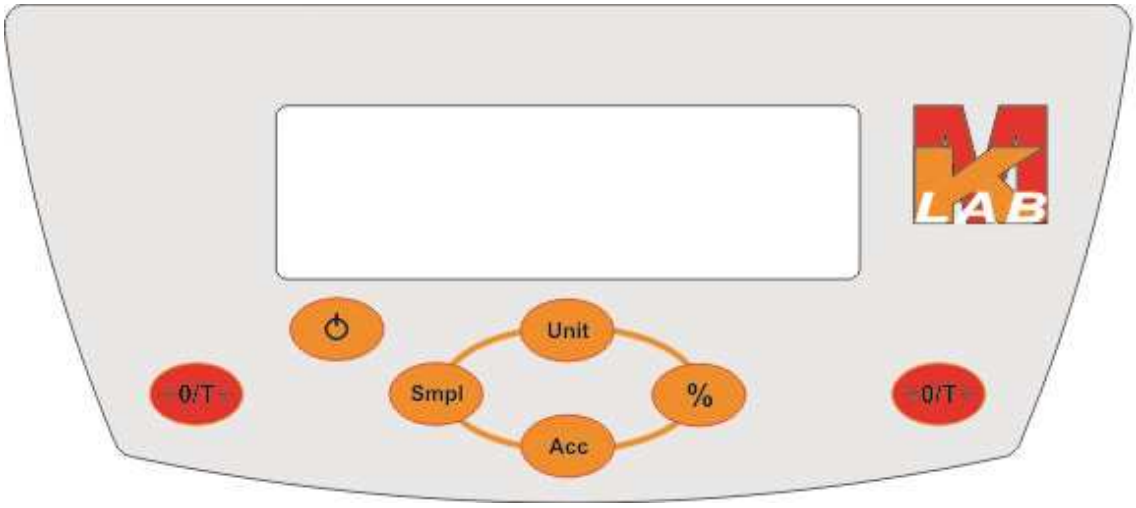
Interface	None
Stabilization time	2s
Operating temperature	0°C - 40°C / 32°F - 104°F
Power supply	12VDC @ 500 mA (or 6 X IEC-LR6 (AA) batteries)
Calibration	Push button calibration using external mass
Display	6 digit LCD, 18mm digits with blue LED backlight
Housing	ABS plastic
Size	178 x 257 x 84mm (7” x 10.1” x 3.1”)
Net Weight	870 g (1.9 lb.)

3 DISPLAY and KEYPAD

3.1 Display



3.2 Keypad



Key	Function
[On/Off]	TO POWER UP BALANCE
[Zero/Tare]	TO RE-ZERO OR DEDUCT WEIGHT OF EMPTY CONTAINER
[Sample)	TO ENTER AND OPERATE COUNTING MODE
[Unit]	TO SELECT THE REQUIRED WEIGHING UNIT
[Percent]	TO ENTER AND OPERATE PERCENTAGE WEIGHING MODE
[Accumulate]	TO ACCUMULATE MEASUREMENT TOTALS

4 OPERATION

4.1 Zero/Tare

- To zero the balance, press the **[Zero/Tare]** key and the reading will show zero. The zero symbol “>O<” will be displayed
- Put a container on the pan and the display will show its weight.
- Press **[Zero/Tare]** to tare the weight of the container from the balance, the display will now show zero and also display the zero symbol. The NET symbol will be displayed if the container weight is >4% of the machine capacity (MKL 622 – 24.8 g, MKL 2002 - 80 g)
- Put a sample into the container and the display will show the net weight of the sample.
- Remove the whole container, the display will show a negative value which is the weight of the container,
- Press the **[Zero/Tare]** to zero the reading and the display shows zero and the NET symbol will turn OFF

4.2 Weighing

- After zeroing the reading place a sample weight onto the pan and the display will show the weight of sample.
- The capacity tracker bar will indicate the percentage of the sample on the pan against capacity of the balance. When the reading is stable, the display will show the stable symbol.
- Users can select different weighing units by pressing the [Unit] key. The reading will change according to the unit selected. Previous recorded accumulated readings will be cleared when a new unit is selected.
- Units available: g / N / oz.

4.3 Percent Weighing

This is used to measure the percentage between the sample weight and a standard weight.

E.g. Put your standard weight onto the pan and press the **[%]** key, the display will show 100.0%.per. This would then be taken as the standard weight. Remove the standard weight and the reading goes to zero, the display will show “0.0%per”.

You now place your sample weight onto the pan, the display will show the percentage of this sample weight in relation to the standard 100% weight.

Press the **[%]** key again and the display will return to normal weighing mode. Note: if the standard weight is too small the percentage result may be not accurate.

4.4 Counting mode

- Put a sample onto the pan and when the reading is stable, press the **[Smpl]** key**,** the display will show “SP 10 pcs”**;**
- Press the **[Unit]** key to select sample values from 10, 20, 50, 100 and 200.
- Press the **[Smpl]** key again, the display will show the unit weight for 1 piece for 1 second and then show the quantity pcs.
- If you now remove the sample and place items to be counted on the pan then the display will indicate the count in pieces.
- To exit counting mode and return to weighing mode, press the **[Smpl]** key**.**

4.5 Accumulation mode

Accumulation of measured values can be done - two modes are available: weight accumulation and count accumulation.

4.5.1 Weight accumulation

- In weight accumulation mode, place a weight onto the pan. After the stable symbol shows, press the **[Acc]** key. The weight will then be accumulated. The display will show ”1 ACC ” for 1 second and then return to weighing mode,
- Remove the weight and the scale will show zero, then place another weight onto the pan and follow the same procedure to accumulate weight readings, the display will show “2 ACC” for 1 second.

4.5.2 Count accumulation

- In count accumulation mode, first enter counting mode (section 4.4).
- Now place the item(s) to be counted onto the pan. After the stable symbol shows press the **[Acc]** key. The count will then be accumulated. The display will show ”1 ACC ” for 1 second and then return to counting mode.
- Remove the item(s) and the scale will show zero. Then place further item(s) onto the pan and follow the same procedure to accumulate counts.

4.5.3 Accumulation readback

- When the reading is zero, press the **[Acc]** key. Users can check the amount of accumulations and the total value. The display will show the amount of accumulations as ”X ACC ” for 1 second and then show the total weight value “XXX.XX g” or total count value “XXX Tot” for 1 second, following this the display will return to accumulation mode.

4.5.4 Maximum accumulation value

- The maximum accumulation value is 999999. If the value exceeds 999999, the display will show FULL.

4.5.5 Clear Accumulation records

- In accumulation mode, press the **[%]** key to clear accumulation records.
- To exit counting mode and return to weighing mode, press the **[Smpl]** key**.**

5 PARAMETER SETTINGS

Users can press the **[Unit] key** to view and change parameter settings when the scale is counting down from POWER UP.

The balance has 5 parameters that can be set by the user.

FUNCTION	SECTION	DESCRIPTION
UNIT F1	See section 5.1	Sets the units to be used g / N / oz
EL F2	See section 5.2	Sets the backlight AUTO EL : backlight automatically turns on when weight is applied to the top pan OFF EL : backlight always off ON EL: backlight always on
OFF F3	See section 5.3	Sets the auto power-off parameter
SETUP F4	See section 5.4	User set up parameters
tECH F5	See section 5.5	Technical parameters setting mode / factory setting

5.1 Unit setting

You can enable and disable the weighing units available to the user when they press the **[Unit]** key as described in section *4.2.*

- In “Unit F1” mode, press **[Zero/Tare]** to check the status of each weighing unit.
- Press the **[Unit]** key to change the state of units.
- After the setting is made, press **[Zero/Tare]** to save changes.
- Press **[Acc]** to exit unit mode.

Units and conversion rates

	unit	conversion	symbol
01	g	1.0	g
02	Newtons	0.009808	N
03	Ounce	0.035274	oZ

5.2 Backlight setting

The backlight may be enabled or disabled by the user. If the backlight is disabled, the battery life will be greater. The following settings are available:

- When the LCD shows “EL F2”, press **[Tare/Zero]**
- Three modes are available: always on, always off and automatic.

- **[Unit]** is used to change the setting; **[Tare/Zero]** enters the setting, and **[Print]** saves the setting.

AUTO EL	Sets the backlight to operate automatically when a weight is placed on the balance or a key is pressed.
OFF EL	Sets the backlight to be off.
ON EL	Sets the backlight to be on for full time.

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5.3 Auto power off

Users can select the standby time before the scale will power off automatically (when internal battery option is fitted).

- When the display shows “OFF F3” press **[Zero/Tare]** to select time from 0, 5m, 10m, 20m and 30m. When 0 is selected, the function of auto power off is turned off.
- **[Unit]** is to show settings between 0 and 30. **[Acc]** is to save changes and exit this mode.

5.4 Set Up

Users can select various settings that may be suitable for certain applications. Press **[Zero/Tare]** to change a value and **[Acc]** to save changes and exit currently selected mode.

- FIL controls the speed of response of the weighing, it can be set from 0-6, default is 3. Press **[Zero/Tare]** to change, **[Acc]** is to save changes and exit this mode.
- ZEO controls the zero tracking, it can be set from 0-6, default is 3.
- ZTR controls the sensitivity, it can be set from 0-6, default is 4.
- STA controls the speed of stability indication, it can be set from 0-6, default is 2

5.5 Technical parameters

When the display shows “tECH F5”, press **[Zero/Tare]** to enter the Technical parameter settings menu and then enter the dealer PIN. This is for dealers only.

6 SIMPLE CALIBRATION

Press **[Smpl]** and **[Acc]** together whilst the display is counting down from POWER UP, the display will show "UnLoAd CAL".

Make sure the top pan is empty and when the stable symbol shows, press **[Zero/Tare]** to enter calibration mode. The **[Unit]** key allows you to select a calibration weight value. See the table as below for usable weight values.

Press **[Zero/Tare]** to select the correct value

The display will show “LOAD WEI”. Place the weight onto the pan and press **[Zero/Tare]** when the stable symbol shows. If calibration is correct the display will show “PASS” and then go back to weighing mode.

If the weight placed on is more than 110% of the calibration weight value selected, the display will show “FA**I**L H”. If the weight placed on is less than 90% of calibration weight value selected, the display will show “FA**I**L L”.

Calibration weights:

Model	**MKL 622**	**MKL 2002**
Weights（g）	**200, 400, 500, 600**	**1000, 1500, 2000**

NOTE: Weights of OIML Class F_1 or better should be used for calibration.

7 ERROR MESSAGES

If an error message is shown, repeat the step that caused the message. If the error message is still shown then contact your dealer for support.

Code	Description	Reason	Solution
OVER err	A/D overload	There might be weight on the pan when the scale is turned on. Calibration fails. Load cell damaged.	Remove weights Recalibrate
UNDER err	A/D low .	Pan is not put on. Calibration fails Load cell damaged	Put on pan, restart the scale. Recalibrate
	Lack of power	Low voltage detected	Replace batteries or check mains adapter
FAIL	Calibration fails	Wrong calibration weight Users’ calibration exceeds factory calibration by 5％ Load cell damaged	Recalibrate with correct weight

CE

Manufacturer's Declaration of Conformity

MKLab Electronic Digital Balance Series

This product has been manufactured in accordance with the harmonised European standards, following the provisions of the below stated directives:

2014/30/EU	EN61326-1:2013 – Part 1
2014/35/EU	EN61010-1:2010 – Part 1:
2011/65/EC, RoHS 2	EN50581: 2012,

FCC / IC CLASS A DIGITAL DEVICE EMC VERIFICATION STATEMENT

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules and Canadian ICES-003/NMB-003 regulation. 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 their own expense.

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MKLab products have been tested with, and are always supplied with mains power adaptors which meet all legal requirements for the intended country or region of operation, including electrical safety, interference and energy efficiency. As we often update adaptor products to meet changing legislation it is not possible to refer to the exact model in this manual. Please contact us if you need specifications or safety information for your particular item. Do not attempt to connect or use an adaptor not supplied by us.

WEEE 2012/19/EU

This device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements. Disposal of batteries (if fitted) must conform to local laws and restrictions.