PW-2050
Digital Dry Matter Weigher
Instruction Manual

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Product Codes: ***POT/HYD/DIG***
 POT/HYD/DIGUSB

INTRODUCTION

The PW-2050 weighs potatoes to measure their specific gravity, percentage dry matter and Starch. It works by comparing the weight in air with the weight in water of a minimum of 1.5kgs of potatoes and converts this to specific gravity and dry matter. The PW-2050 is battery operated and will weigh for up to 15 hours between re-charging and will retain all weights even when the batteries are flat or taken out.
All information is stored until the CLEAR sequence has been completed.

Standard and USB versions *(POT/HYD/DIG and POT/HYD/DIGUSB)*
The maximum weight the unit can weigh is 10kg (20lbs).
NOTE: If the weight exceeds 10kgs the loadcell will be damaged.

The instrument is suitable for normal use, and for testing potatoes in French Fry production. Neither type requires an exact sample weight, but should be at least 1.5kg.

COMPONENTS

Hard carry case

PW-2050 Digital Hydrometer

Instruction manual

USB stick
(Only available with the POT/HYD/DIGUSB)

AC Mains Adapter

Basket & Chain

PW-2050 Control Panel

Charger and USB sockets are on the side.

KEY PAD
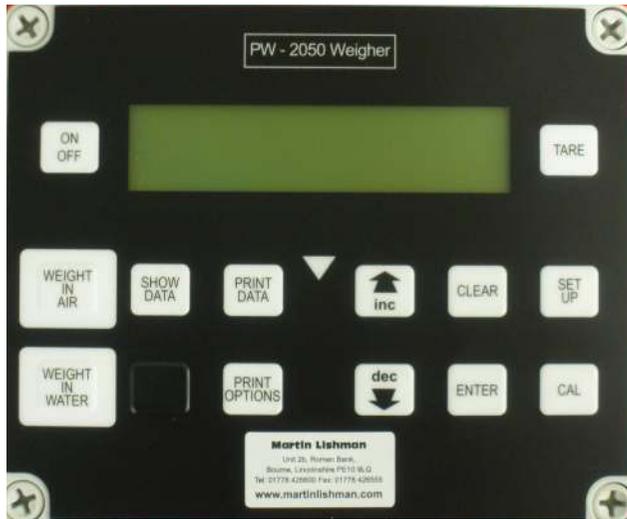
Button	Function	Button	Function
ON OFF	Turns unit ON and OFF	**CLEAR**	Clears data stored
TARE	Tares weight on the hook	**SET UP**	Settings
WEIGHT IN AIR	Stores the weight in air measurement	**WEIGHT IN WATER**	Stores the weight in water measurement
SHOW DATA	Displays data stored		
PRINT DATA	Prints data stored	**PRINT OPTIONS**	Set type of printout
inc ↑	Increase settings	**ENTER**	Steps through menus
dec ↓	Decrease settings	**CAL**	Basket calibration
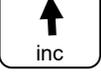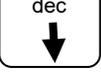
SAFETY CONSIDERATIONS

The PW-2050 is a rugged unit but it is a loadcell-based weighing device and should be handled with care. The unit can be cleaned with a damp cloth but under no circumstances be immersed in water. **It is not waterproof.** This unit is fitted with rechargeable batteries and will last for 3-4 years if charged/discharged correctly.

WEIGHT CONSIDERATIONS

POT/HYD/DIG and POT/HYD/DIGUSB
A weight from 1.5 to 6kg should be used.
Both units are fitted with a 10kg loadcell and under no circumstances should the weight of the potatoes and basket exceed this otherwise the loadcell will be damaged and will not be covered by Warranty.

TAKING A READING

STEP 1 - SELECTING THE BASKET AND CONTAINER

1.1   A wire basket or plastic mesh bag large enough to hold at least 1.5kg of washed potatoes will be required. The size and weight of the receptacle is not important, but it must be possible for it to be lowered into a container of water so that the potatoes in it are fully immersed.

1.2   It will be easier to use the weigher if it is suspended from a fixed point and the basket is lowered into the water container. **It is extremely important that the weigher itself is NOT lowered into the water or allowed to become wet in any way. Serious and possibly irreparable damage will occur to the weigher if water is allowed to get inside the working mechanism and electronics.**

Please use the chain when operating the Digital Hydrometer to prevent the weigher contacting the water.

STEP 2 - SETTING THE TIME AND DATE

2.1   Turn the weigher on by pressing the **ON/OFF** button. The display will show **READY**. Press **SET UP** and the display will show:
HOUR
 00:00   (MINUTE   DAYMONTH   YEAR)

2.2   To set the time and date, press the [inc ↑] or [dec ↓] buttons until the correct hour is displayed, then **press ENTER**.
The same procedure is repeated for minute, day, month and year.

2.3 After the date settings the display will show the **DRY BASKET** calibration value and then the **WET BASKET** value. After this the display will show the **TUBER TEMP** and then the **WATER TEMP**. Just continue to press **ENTER** until **READY** is displayed.

2.4 If you are not going to use the tuber and water temperatures then these must be left at 10°C to give a zero correction.

2.5 All these values can be changed using the [↑ inc] and [↓ dec] keys and the menus are stepped through using the **ENTER** key.

STEP 3 - CALIBRATING THE BASKET

3.1 With nothing on the hook check that the display reads zero, and if it does not then press the **TARE** key.

3.2 Attach the chain to the basket and the Hydrometer using the hooks at either end (see photo).
Place the empty basket onto the hook and press the **CAL** key, **CALIBRATING BASKET** will be displayed and then **BASKET.**

3.3 Lift the hook on the basket on to the Digital Hydrometer hook before pressing the WEIGHT IN AIR button.
Press the **WEIGHT IN AIR** button, when the weight has been accepted the display will show **DRY WEIGHT** and the red triangle light will come on.

3.4 Allow the basket to hang freely and submerge into the water (see photo).
Place the empty basket into the water and press **WEIGHT IN WATER**, when the weight has been accepted the display will show **SAVING NEW SETTINGS**, the display will then show **READY.**

STEP 4 - WEIGHING THE DRY MATTER OF THE POTATOES

4.1 A weight of 1.5kg to 6kg of potatoes must be used. **The maximum weight must not exceed 10kg.**
The potatoes must be washed before being weighed.

4.2 Turn the weigher **ON** with the chain and basket already on the hook.

4.3 Place the potatoes into the basket and press the **WEIGHT IN AIR** button. The display will then show that the weight has been accepted.

4.4 Allow the basket to hang freely and submerge into the water.
Press the **WEIGHT IN WATER** button.
The display will then show **ACCEPTED**. When the basket has been removed it will be stored automatically.

4.5 To check for variability within loads, repeat the measurement with different potatoes from the same lot and average the results.

STEP 5 - SHOW DATA

5.1 Press the **SHOW DATA** key and the display will show **STORE** with the time and date.

5.2 Press **ENTER** and the display will show **DRY MATTER*** and **SPEC GRAVITY**.

5.3 Press **ENTER** again and the display will show **DRY WEIGHT** and **WET WEIGHT.**

5.4 Press **ENTER** again and the display will show **DRY BASKET** and **WET BASKET.**

5.5 Press **ENTER** again and the display will show **TUBER TEMP** and **WATER TEMP**. (The standard setting 10°C for both gives zero correction.

5.6 Press **ENTER** and the display will show the next stored weight.

Each weighing is stored in the memory and up to 5000 individual weights can be stored.
*You can choose to display Starch % instead of Dry Matter by going to PRINT OPTIONS, push the ENTER button until it reads DISPLAY STYLE and you can set STARCH, DRY MATTER or SPEC GRAV using the [↑] [↓] keys. Press PRINT OPTIONS to cycle through the menu until SAVING NEW SETTINGS appears.

CLEARING FOR NEW DATA

1. To clear the memory, press the **CLEAR** button. The display will show: **CLEAR MEMORY (ENTER)=YES.**

2. Press **ENTER** and the display will show: **ARE YOU SURE? (SET UP)=YES.**

3. Press **SET UP** and the display will show: **CLEARING MEMORY FOR NEW DATA.**

USING THE USB SOCKET *(POT/HYD/DIGUSB & POT/HYDDIGUSB)*

1. Select the **PRINT OPTIONS.**

2. Select **WRITE TO USB** using the [↑ inc] or [↓ dec] key and insert the USB stick.

3. Press the **PRINT DATA** key and the display will show **WRITING TO USB.**

4. When the weigher has finished the display will flash up **FILE WRITTEN OK** and the display will go back to the standard weighing display.

5. The USB stick can now be removed and used on a computer.

6. On your PC, go to **MY COMPUTER** and open **USB DISK FILES.**

7. Now select all the files and right click, a small dropdown menu should appear with the option **OPEN WITH…** now select **CHOOSE DEFAULT PROGRAM** and select **MICROSOFT EXCEL.**

OR

1. Open **MICROSOFT EXCEL**. Select **FILE** in the top left corner and then click **OPEN.** It will now open a small window, click on **MY COMPUTER** and select the **USB DISK** icon. Select all the files you want to see and then click open. (You select multiple files by holding down **CTRL** and clicking each file).

2. If there is no USB stick in the weigher when you try to write to the USB the display will show **WRITING TO USB** followed by **NO STICK FOUND**. If the USB stick is faulty or removed before the file is written the display will show **WRITING TO USB** followed by **ERROR WRITING**.

CHARGING

The charging socket is situated on the side of the weigher. In the centre of the display is the battery charge indicator. When full the box will go completely black and as power is used the box will start to go clear. This is only a rough guide based on the battery voltage and does not show how much capacity is in the batteries.

Flash when charging

Battery Full   **Battery 50%**   **Battery Empty**   **Battery indicator will flash when being charged**
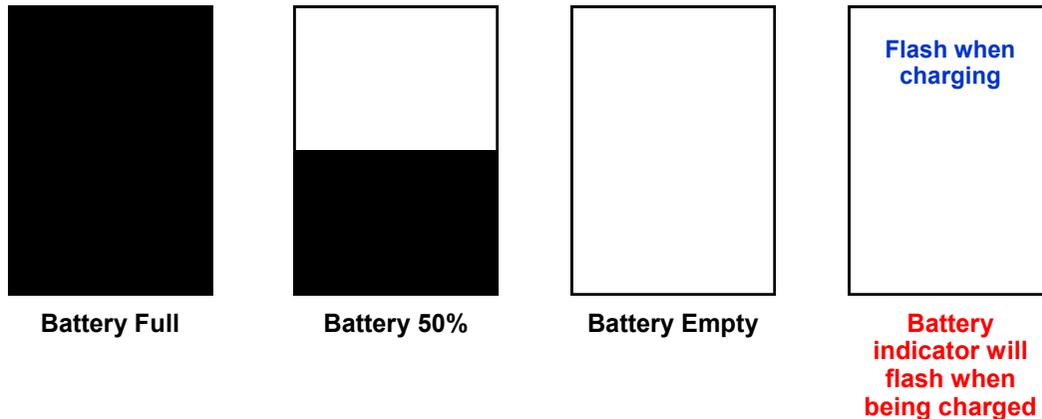
If the battery should go flat while weighing a **LOW BATTERY** warning will flash in the display and the weigher will eventually turn off. Data already stored in the weigher will remain in memory even if the unit automatically turns off.

To recharge the batteries fully, leave on charge over night.

To check the battery voltage or charging voltage
Hold the **SET UP** button down and turn **ON**.

The display will show **WELTECH SET UP** then **MODEM RATE**, press **CLEAR** and then the ⬆ key.

If the ⬆ or ⬇ key is pushed the display will show the date, time and battery charge. By pushing the ⬇ key while the weigher is on mains charge the display will show the charging rate from the charger.

TIMER SETTINGS - *how to change the timer setting to prevent PW2050 turning off*

1. Clear the memory (see CLEARING FOR NEW DATA).
2. Turn the unit **OFF**.
3. Hold down the **SET UP** button and turn the weigher **ON.**
4. Set up will be displayed, take finger off the **SET UP** button.
5. By pressing the **ENTER** button you can step through the various options.
6. You will come to a **TURN OFF** option which is set to 15 minutes.
7. By pressing the ⬆ arrow you can set the time up to 60 minutes.
8. When set press the **ENTER** key and then **SETUP**. The display will say **SAVE SETTING.**

TECHNICAL ASSISTANCE

If you experience any difficulty in operating the Weltech PW-2050 Potato Dry Matter Weigher, please contact Martin Lishman Ltd.
Tel: + (0)1778 426600
e-mail: sales@martinlishman.com

WARRANTY

The *Weltech* Potato Dry Matter Weigher (the unit) is guaranteed for 12 months from the date of purchase against any defect or malfunction caused by faulty parts or workmanship. To claim under warranty, the complete unit or part should be returned, at the claimant's expense, to Martin Lishman Ltd with a written explanation of the problem. Should there prove to be a defect or malfunction caused by faulty parts or workmanship, it will be repaired or replaced and returned to the claimant without charge. If a warranty claim is rejected, the cost of replacement or repair will be notified to the claimant before any work is carried out.

Any warranty claim will automatically be invalidated if the unit has been modified or internally tampered with in any way. The manufacturers will not cover under warranty damage or faults occurring to the unit which have been caused by inappropriate use or by use not in accordance with the operating instructions. Under no circumstances will Martin Lishman Ltd re-imburse any costs associated with a warranty claim if these costs have been incurred without agreement in advance.

Under the terms of warranty for the unit under no circumstances will liability exceed the cost of replacement or repair. The manufacturers and Martin Lishman Ltd will not be liable for any consequential or indirect loss suffered by purchasers or users of the unit, whether this loss arises from correct or incorrect use, defect or malfunction caused by faulty parts or workmanship or in any other way. Non-exhaustive illustrations of consequential or indirect loss are loss of profits, loss of contracts and damage to property.

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