



**FEATURES AND SPECIFICATIONS**



	<b>STANDARD BASEWORK SIZE RANGE</b>				
	<b>U</b>	<b>S</b>	<b>M</b>	<b>D</b>	<b>L</b>
<b>SIZE (w x l)</b>	380 x 280	400x 300	520 x 370	520 x 420	600 x 420
30kg x 5g	✓	✓	✓	✓	✓
60kg x 10g		✓	✓	✓	✓
150kg x 20g		✓	✓	✓	✓
300kg x 50g				✓	✓
600kg x 100g					✓

- Scales with the U platform size is 600mm high and suitable for bench top use without pole shortening. The remaining models are 930mm high.
- Larger 600mm x 600mm and 600 x 800mm platforms are available ex factory





**SPECIFICATION**

Model	<b>WS2-30</b>	<b>WS2-60</b>	<b>WS2-150</b>	<b>WS2-300</b>
Capacity (Kg)	30	60	150	300
Division (Kg)	0.005	0.010	0.020	0.050
Display Resolution	Normally set to 1/6000 but can run to 1/30000 ( internal resolution 1/300,000)			
Calibration weight	User defined			
Linearity adjust	3 point linearity adjustment			
Pan size	See above table but can be connected to 4 x 350Ω loadcells max			
Available Ranges	Single, dual or triple			
Selectable Units	Kg, lb, pcs			
Power Source	110v/240vAC or 6V DC 4.5 AH rechargeable battery 20 – 30hrs operation			
Overall size	Overall height varies from 600mm to 930mm. Pole can be cut down to suit			
Display Type	Large 40mm LCD 30mm character height			
Calibration	Simple calibration using front panel controls and a calibration weight			
Protection	Double overload protection			
Counting	Simple counting function			
Hi Limits	Hi – OK – Lo checkweighing functions available if hold functions are not enabled			
Hold Function	Hold function available if checkweighing is not selected			
RS232	RS232 interface or Serial printer output option			
Relay Outputs	Relay output with three contact sets option			
Display Back light	Standard			
Tare	100%			
Tare Adding	Yes			
Tare Subtraction	Yes			

**FEATURES – WHAT THEY DO AND HOW THEY WORK**

**WHAT IS IT**

This is a good weighing scale that can also do weight accumulation, basic counting, Checkweighing, peak hold, has three relay outputs, and RS232. The indicator can also be connected to any other basework with a maximum of four 350 ohm loadcells. This can include the base from the WS4, the Red Deck and the Weigh Bars

**CONSTRUCTION**

The basework is sturdy and well constructed. A mix of cast aluminium, welded painted steel and a stainless steel top plate are coupled with a quality loadcell. Four leveling feet are provided and the indicator is mounted on a pole attached to the back of the platform. The pole can be omitted and the indicator wall or desk mounted. The pole can be easily cut down for a lower height if desired. This is particularly useful for benchtop operation.





The indicator is housed in a moulded plastic case. The attachment bracket for the indicator to the pole is adjustable for a good viewing angle. The LCD display is large and backlit. 10 buttons in two rows complete the face.

## SITING THE SCALE

Locate the counting scale on the floor or a firm stable bench. Avoid area of vibration or winds. Make sure the scale is level, use the adjusting feet to bring the level bubble inside the inner ring.

## POWER

The unit is dual powered, it can be operated on its internal rechargeable battery or operated from the mains. Recharging the battery is done simply by plugging into the mains. Without backlight or RS232 a fully charged battery will last 200 hours before auto shut off to save the battery. With normal backlight operation the battery will last 60 hours reducing to 56 hours if RS232 is added. The scale has a charging lights and a low battery symbol warning on screen. The low battery gives 3 – 5 hours warning if the backlight is active.

## AUTO POWER OFF

This unit does not have Auto power off. Turn it on it stays on until turned off, or the battery goes flat.

## CAPACITY AND RESOLUTION

As stocked these are set to a 1:6000 resolution. However they are easily set to operate up to a resolution of 1:30000. This means, as an example, that the stock 30kg x 5g can become 30kg x 2g or 30kg x 1g. They can also be dual ranged, ie 0 – 15kg x 2g and 15 – 30kg x 5g. The capacity and readability are pretty much free form provided loadcell capacity is not exceeded, resolution is 1:30000 or less and the increments are 1, 2, or 5 multiples.

## UNITS

The unit can be set up to switch between kg and lb with calibration either in kg or lbs. It can also be set to display g in the kg mode and/or oz in the lb mode.

## BACKLIGHT

Use the UP ARROW  key to set the Backlight mode. Choices are Auto, On and Off. In Auto the backlight comes on when the weight goes over 10d and goes off 5 seconds after the scale goes under 10d.

## WEIGHING

Use the CE key to set the scale to weighing mode or clear unit weights. The scale then functions as a standard weighing scale.

## TOTALISING

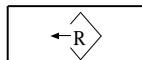
The scale will totalise the weighings up to 9999 before it must be reset. The scale will store the totalised weight value after the weight is stable but the button can be pressed before this. To operate, place the object to be weighed on the scale and let it become stable. Press the + key and the scale will show the number of accumulations, followed by the accumulated total and the arrow above M+ will flash. After a few seconds the display reverts to display the weight on the pan. The scale will not allow a second accumulation unless



the weight changes by more than 10d plus or minus. The scale does not need to come back to zero.

## Recall Totals

Totals can be recalled by pressing the RECALL KEY



The scale will display the number of accumulations followed by the total weight.

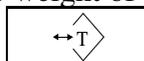
## Clearing Totals

Totals can be cleared by pressing the RECALL key followed by the CE key

Totals are also cleared when the scale is switched off, the weight unit is changed or the scale is changed from counting to weighing or vice versa.

## TARE

Tare can be used to deduct the weight of a container etc so that net weight is displayed. Place a container on the scale and press the TARE



key. The display will show 0.00 and the word "Net" will

display on the left of the screen. Place product in the container and the display will show the weight of the product in the container.

## TARE ADDING

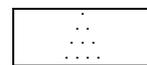
A useful function often used to make up a recipe of ingredients. Here each ingredient is added to the pan/container to the required weight. Once at the required weight and the weight is stable press the tare button to zero the weight reading. Repeat the process with each ingredient in turn. This scale will tare to 100% of capacity

## TARE SUBTRACTION

This works in a similar way to Tare Adding except the product is being removed from the container in sub amounts. For example the operator may need to take out eight lots of 10g of product from a bulk container of a greater amount. With the net weight showing zero extract the required weight from the container. Press the Tare key to zero the net weight and repeat the process as many times as is desired. This function aids the measuring process.

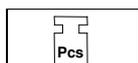
## COUNTING

This scale will perform simple counting. To enter the Counting mode press the SAMPLE



key.

Press the Pieces



key to toggle through the available number of sample pieces, 10, 20, 50 or 100.

Place the required number of pieces on the scale and press the SAMPLE key. Once the weight is stable the display will show the number of pieces. Add the rest of the product to be counted. The minimum sample size is equivalent to 20 divisions. If the sample is too small the display will ask for more

## RECALL THE LAST UNIT WEIGHT

Pressing the Sample button will recall the last unit weight. This Unit weight is retained until replaced by a new/different unit weight



## HI \_ OK \_ LO LIMITS (CHECKWEIGHING)

Hi and Lo limits can be set, the bit in between is the OK weight. The limits are programmed in Configuration F4 and this function cannot be used if F8 hold functions are selected. The on board buzzer can be set to sound when the weight is OK or when the weight is not OK. The buzzer can also be turned off. The buzzer and Icons can be set to display in one of three options; when the weight is stable the buzzer is set to sound and the HI, OK or LO icon is displayed, or, the HI, OK, LO icons display irrespective of stability but the buzzer only sounds when the weight is stable or the buzzer sounds and the icons display irrespective of weights stability.

This facility is useful when packing or filling to a set weight as well as checking that a product is between specified limits.

## RELAY OUTPUTS

This unit can be fitted with an option relay output board. This board has three relays that are triggered by the LO and HI limits. Each of the relays can be configured as normally open, (the default) or normally closed and can be internally DC powered or externally AC powered. Both of these are set by jumpers. Each relay can handle 10 amps. The relays are wired so that relay one is on in the Lo band, relay 2 is on in the OK band and relay 3 is on during the HI band. These relays can be used to control a weight dependent process, is open a valve, shut a valve, start or stop a mixer etc.

## HOLD FUNCTION

This scale has configurable weight hold settings. However the use of the hold function disables the checkweighing functions.

There are three types of hold.

**Hold 1 Peak Hold.** The scale will hold the maximum value in a continuously changing weight. The held value is released by pressing any key except the enter key. This is useful when the highest transient peak or maximum load is required.

**Hold Two Stable Hold Manual Release.** The scale will hold the first stable value that is displayed on the screen. This value is released by pressing any key except the ENTER key. This mode is useful where the load is only on for a short time or the environmental conditions are not conducive to stable readings. This mode allows additional time to gain an RS232 output.

**Hold Three Stable Hold Auto Release.** The scale will hold the first stable value that is displayed on the screen. The held value is released when the weight returns to zero (below 10 divisions)

**Print Held Values** In Hold mode pressing the ENTER key will print out the current held value

## RS232

This unit can be fitted with an optional RS232 comms board to connect to either a PC or a printer. The configuration allows the Baud rate to be set up to 9600 with the data, parity and stop bits permanently set to 8, none, 1. The output can be sent to a PC or to a serial printer. The data can be sent continuously, on stable weight or with a push of the enter button. The data is transmitted in either simple form or totalising mode where each weighing is shown. Two pushes of the enter key will get a printout/data transmit of the total. This shows the number of samples and the total weight. There is also a complete mode that transmits gross weight, Tare, Pretare and Net weight. Two pushes of the enter key should get a total transaction





printout but does not work in PC mode. It may work with a serial printer. The data outputs also work in counting mode.

## CALIBRATION

This scale can be calibrated using suitably accurate weights and the front panel controls and calibration lock located in an access port on the right hand side. There is no need to open up the Scale to access calibration locks. This calibration is a single point user defined calibration and assumes the linearity is OK. Linearity can also be adjusted in a 3 step process. Noise filters and Zero range settings are additional functions.

## COUNTING ACCURACY

All counting scales use the same principles of achieving counting accuracy. The best counting accuracy is a function of an accurate unit weight. This is either established on a precision balance or by the counting scale itself. The larger the sample size the more accurate the unit weight is a basic precept of all counting scales. As minimum the sample should be at least ten and at least ten scale divisions. Another important consideration is the amount the unit weight varies between individual pieces. Variations of more than 0.25 Unit weight will be unlikely to produce accurate counts.

It is important to select the smallest capacity counting scale that will do the job. This is especially important when the product being counted has a low unit weight. It is unreasonable to expect accurate counts from a 30kg capacity scale when the product unit weight is much less than a scale division. Better to use a lower capacity scale with a lower resolution.

## HOW DOES IT PERFORM

Very well. As a mid range machine it is a strong performer and is among the top group within its price class. We tested a 30kg x 5g machine taken at random from our store and re-calibrated it as a dual range machine, 0 – 15kg x 2g and 15 – 30kg x 5g. It was then configured as 30kg x 1g, single range and calibrated. Linearity was not adjusted nor was the scale warmed up before the test. We wanted to test it in much that way that it would be used. A five point repeatability test at both half and full load gave results of  $\pm 1g$  at full load and  $\pm 0g$  at half load. Accuracy and corners were  $\pm 1g$  and the scale was accurate with both increasing and decreasing loads. This is a severe test as the scale is operating at its maximum performance and the scale performed very well. Counting was tested using M4 x 10mm machine screws with a unit of weight of approximately 1.4g. We used a 20 piece sample and got excellent counting accuracy.

## APPLICATIONS

*Warehouses, factories, shops, packing companies, distribution.*