FEATURES AND SPECIFICATIONS

	STANDARD BASEWORK SIZE RANGE				
	U	S	M	D	L
SIZE (w x l)	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					✔

Larger 600mm x 600mm and 600 x 800mm platforms are available ex factory

SPECIFICATION

Model	WS4-6	WS4-15	WS4-30	WS4-75	WS4-150	WS4-300
Capacity (Kg)	6kg	15kg	30kg	60kg	150kg	300kg
Division (Kg)	0.002	0.002	0.005	0.010	0.02	0.05
Platform Size	250 x 300 x 600mm			300 x 400 x 600		420 x 500 x 900
Display Resolution	Normally set to 1/6000 but can run to 1/15000 (internal resolution 1/300,000)					
Calibration weight	User defined					
Linearity adjust	Up to 8 point linearity adjustment					
Pan size	See above but can be connected to 4 x 350Ω loadcells max					
Available Ranges	Single, dual or triple					
Selectable Units	Kg, g, lb, lb oz, oz, GN, dwt, ct. Up to 5 can be toggled from front panel.					
Power Source	110v/240vAC adaptor or 6V DC 4.5 AH rechargeable battery 56 – 200hrs operation					
Auto Power Off	Selectable timer after 1 – 9 minutes idle.					
Overall size	Overall height varies from 600mm to 930mm. Pole can be cut down to suit					
Display Type	Large 35mm LCD 25mm character height					
Calibration	Simple calibration using front panel controls and a calibration weight					
Overload	Double overload protection					
Counting	Simple counting function with auto unit weight averaging function					
Hi Limits	Hi – OK – Lo checkweighing functions available					
Hold Function	Peak or Stable Hold function available					
RS232	Bi directional RS232 interface standard					
Protection	IP67 indicator					
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 Waterproof weighing scale that can also do weight accumulation, basic counting, Checkweighing, peak or stable hold and has bidirectional RS232 as standard.   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 WS2, the Red Deck and the Weigh Bars

CONSTRUCTION

The basework is constructed of welded stainless steel with a stainless steel top plate. The loadcell is mounted inside an enclosure that is sealed to the mount plate and is fitted with a diaphram to seal the platter

mount to the loadcell. The cased loadcell is vented on its under side so care is required not to submerge the basework. 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 on its built in bracket. The pole on larger capacity models can be easily cut down for a lower height if desired.

The indicator is housed in a Stainless Steel casing. The attachment bracket for the indicator to the pole is adjustable for a good viewing angle. The LCD display is large and backlit. Five control buttons 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 powered DC adaptor. Recharging the battery is done simply by plugging into the adaptor.   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 has an autopower off function that is selectable between disabled and in 1 minute increments up to 9 minutes. Autopower off will activate when the load on the scale is under 10d and the scale has been idle for the specified time.

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 1:15000. This means, as an example, that the stock 30kg x 5g can become 30kg x 2g. 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 1:15000 or less and the increments are 1, 2, or 5 multiples.

UNITS

The unit can be set up to switch between 5 different customer specified units plus pcs. Options available are kg, g, lb, lb and oz, oz, GN, dwt and carats. It is also possible to customise the weighing units and the calibration units.

BACKLIGHT

The Backlight operation can be set to either On and Off. When enabled the backlight comes on when the weight goes over 10d and goes off 5 seconds after the scale goes under 10d.

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 adding does not function if hold is enabled.

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.

SIMPLE COUNTING

Use the UNITS button to toggle through the available units until 0 Pcs appears on the screen. Place a known sample of 10. 20, 50, 100 or 200 pieces on the scale Use the NET/GROSS key to toggle through the preset sample quantities to match the quantity on the scale and press the UNITS key. The screen will show dashes then the quantity.   Containers should be Tared off before switching units to pieces.

AUTO UNIT WEIGHT AVERAGE

If the Auto Unit Weight Average function has been set in Advanced functions, the scale can refine the unit weight from an additional sample. Just add an additional amount that is 5pcs more than the original sample size and less than double the original sample and the scale will automatically refine the unit weight.

RECALL THE LAST UNIT WEIGHT

Each time the counting mode is activated the scale will default to the last unit weight. This Unit weight is retained until replaced by a new/different unit weight.

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.

CHECKWEIGHING

This unit can function as a checkweigher. The user specify a maximum and minimum weight. Application of a weight that is within the specified units will show an OK symbol on the display, The display will show HI and LO respectively for an over or underweight item. There is an audible buzzer that is user configured, to sound either when the weight is within limits or the weight is outside limits and can be set to sound on stable weight or on unstable weights. The buzzer can be disabled.

Checkweighing functions are useful when packing to a set weight or when checking product falls within specified limits

HOLD FUNCTIONS

The scale can be configured to hold the displayed weight in one of three ways,

Peak Hold   The scale will display the maximum weight seen in this weighing until released by pressing any key.

Stable Hold 1 When the weight is stable the display will show the current value until released by pressing any key.

Stable Hold 2 This is similar to Stable Hold one except the display is cleared when the weight returns to zero. This function is useful in packing operations allowing a longer time to take a reading without needing operator intervention.

RS232 FUNCTIONS

This scale has a built in RS232 interface. The baud rate and protocol settings are variable and there are a number of output formats.   Output is can be either streamed, (continuous output variable timed from 1 per second to more than 16 per second), automatic transmission (either stable only or stable and unstable) or requested by command. There is no manual output option. Automatic transmission can be set for stable only or stable and unstable output and the required weight change for new transmission can be set from 0 to 99 divisions.

Command Mode The scale can be set and controlled via command mode.   Here commands can be sent to the scale, from programs such as Hyperterminal, to change parameters and to request information and output.

SIMPLE CALIBRATION

This scale can be calibrated from the front panel controls. This function can be disabled so Calibration can only be accessed via the calibration switch.

LINEARITY

The linearity can be adjusted at up to eight test points. These need not be evenly spread across the span.

GRAVITY ZONE COMPENSATION

The value of local gravity can be changed to allow the scale to be moved to a different region without requiring calibration.

NOISE FILTER

There are user configured filter settings that can compensate for adverse environments or can be used to speed response times in ideal conditions

WATERPROOFNESS

This scale is rated at IP67.

HOW DOES IT PERFORM

A 30kg unit was set up as a single range machine with 2g divisions. This is the limit of this scale. This unit was tested with a ten point repeatability test at one third and full load, an off centre load test to see if it made any difference where on the pan the load was placed and a 6 point linearity test.

The repeatability test at one third load (10kg) and at full load (30kg) showed no difference between any of the ten readings.
There were no corner errors at one third of capacity. The six point linearity test (done at 5kg steps) showed no errors either with increasing loads or decreasing loads

A counting test was performed using M4 x 10mm machine screws of a piece weight of around 2g. The initial sample of ten was set and a further eight added to activate auto unit weight calibration. This worked satisfactorily and a further 110 screws were added to total. The count was accurate.

In all a very satisfactory test with no errors apparent even when running at the resolution limit

APPLICATIONS

Warehouses, factories, shops, packing companies, distribution.