

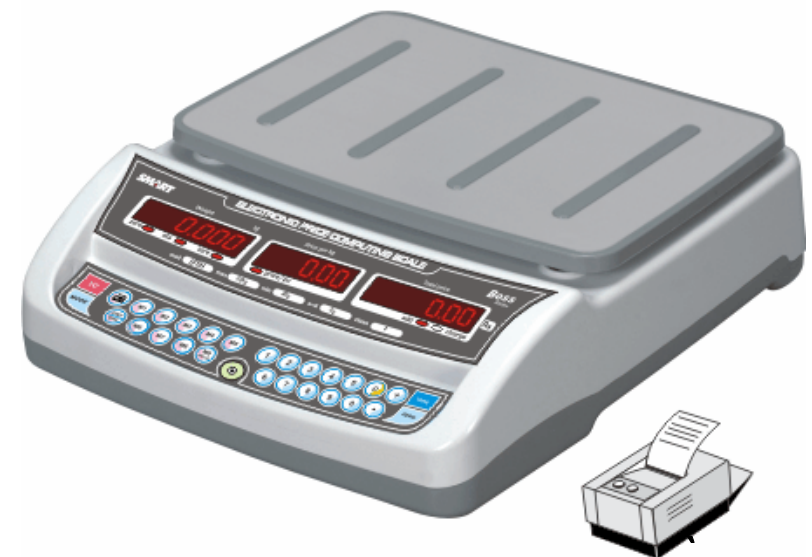
## 9 TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	REMEDY
Scale will not power on	If running on batteries, the battery may have fully discharged. AC Power cord not connected.	Connect scale to power source. Recharge battery
Battery does not give enough backup	The battery is defective. The battery may have past its useful life. (Generally 6months – 1 year)	Change the battery.
Weight reading on scale does not stabilize	External Rubbing / Friction A scale cannot measure accurately if an object is rubbing or pressing against the scale platform. Mobile interference, Vibration or wind could be other possible reasons	Move the scale away from mobile signal, breeze or vibration areas.
Scale does not show weight accurately	Improper calibration	Calibrate the scale again to and check for the problem again.

# SMART

## BOSS Series

### Electronic Piece Counting Scale



### Scale Users Guide

## 1 About BOSS Series Counting Scale

We would like to thank you for choosing **SMART** as your preferred choice for your weighing requirements.

The BOSS series counting scale weighing scale is an accurate, fast and versatile series of weighing scales, loaded with time saving features and ease of customer use.

The scale has 3 0.56" LED displays to show weight, unit weight and number of pieces all at the same time one for the user and the other for the customer

There are different models in this series, with capacities 3kg up to 40 kg and with least count from 2g up to 100mg.

They all have stainless steel weighing platforms on an ABS pan assembly with anti slip lining. The loadcell is mounted on a dual aluminum diecasted mounting providing precise overload protection of up to 200% FS load capacity.

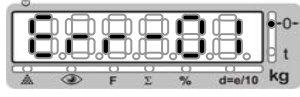
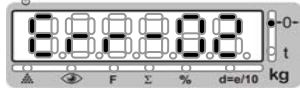



The soft touch keypad buttons are ideally sized, color coded, and bear symbolic tags for easy recalling scale functions. The displays are large easy to read LED type displays for easy view in different lighting conditions.

The scale is loaded with features like, automatic zero tracking, overload alarm, low battery protection, "SMART" weighing mode to display quick weighing results effects, pre-set tare and an accumulation function to add pieces being counted and finally recall the accumulated total.

The scales feature auto zero tracking to automatically compensate for small fluctuations in zero such as a build up of material on the platform.

To extend battery life an auto-off feature is standard the operator can set the auto off timing to between 1 minute and 30 minutes of inactivity to suit the application. Alternatively the auto off function can be switched off, leaving the scale permanently on until switched off by the operator.

## 8 ERROR CODES

ERROR – DISPLAY	Error	Solution
	<ul style="list-style-type: none"> <li>Zero not in range</li> </ul>	Remove weight from pan and restart the machine. If the problem persists, the machine may have been overloaded.
	<ul style="list-style-type: none"> <li>Weight not enough for the selected setting</li> </ul>	Keep weight or Add more weight on pan for correct results.
	<ul style="list-style-type: none"> <li>RAM ERROR</li> </ul>	Switch Off/On the machine. If problem persists call support.
	<ul style="list-style-type: none"> <li>Internal / External calibration variance larger than 2%</li> </ul>	You are trying to calibrate the scale with a incorrect weight.
	<ul style="list-style-type: none"> <li>LOW Battery. Machine displays message and turns off</li> </ul>	Battery is low. Connect scale to power so that the battery can be charged.

## 7.2 INTERNAL SERVICE CALIBRATION (Refer Service Manual)

Step Description	WEIGHT kg	PIECE WT g	NO OF PCS
To start calibration turn the scale off and then turn it on. During the count down, press and hold down the Zero button (do not release until the display shows "CAL". The display shows "NoLoAd" momentarily and shows the counts at zero level.	<i>NOLoAd</i> <i>15213</i>	<i>CAL--</i> <i>CAL--</i>	<i>--MODE</i> <i>--MODE</i>
Make sure there is no weight on the pan. Press Tare / Enter key and the display shows "LoAd" momentarily and shows the counts	<i>15213</i>	<i>CAL--</i>	<i>--MODE</i>
Put a known weight on the weighing pan (Ex.: 5kg). Press the Enter key. The display will now show all "000000" in the weight panel	<i>00.000</i>	<i>CAL--</i>	<i>--MODE</i>
If you put 5kg weight, Enter "05.000" using the number keys	<i>05.000</i>	<i>CAL--</i>	<i>--MODE</i>
Press the Enter key once again	<i>END</i>	<i>CAL--</i>	<i>--MODE</i>
With the weight still on the pan, press Enter key once again to return to weighing mode. Check calibration.	<i>5.000</i>	<i>00000</i>	<i>000</i>

## 2 TECHNICAL DATA

Basic Parameters					
Measurement Data	BOSS-3K1M	BOSS-6K2M	BOSS-15K1G	BOSS-30K2G	BOSS-40K5G
Capacity	3000g	6000g	15,000g	30,000g	40,000g
Readout / Interval	100mg	200mg	1g / 2g	2g / 5g	5g / 0.5g
Tare range subtractive	3000g	6000g	15,000g	30,000g	30000g
Repeatability	±1d	±1d	±1d	±1d	±1d
Display Resolution	1:30000	1:30000	1:15000	1:15000	1:8000 / 80000
Application Modes	Weighing, Counting, Accumulation, Percentage				
Product Features	Auto Off, Pre-Set Tare, Piece Counting, Glow Control				
Keyboard	6 membrane keys (On/off, Counting, F, Mode, Tare and Zero)				
Display Indicators	Stability, Zero Position, Tare, Charging Status, Accumulation, Percentage mode, function active, d=e/10 mode				
Weighing Units	Kg				
Calibration	Digital with external weight.				
Weight	6kg Approx				
Pan Size	230mm x 310mm				
Front Display Type	0.8" Bright red LED display				
Pole Display	Optional, Available with 0.8" LED Display				
Rear Display	Optional, Available with 0.8" LED Display				
Communication	Optional RS232C for PC communication				
Stabilization	2 seconds				
Power	9V AC Adaptor / built in battery for backup to 45hrs. / 70 hrs with sleep mode active				
Operating Temp.	50° to 98° F / 10° to 35° C				
Dimensions	190 x 230 x 265 (w x d x h) – including pole.				

## 3 INSTALLATION

### 3.1 Unpacking

Unpack and verify that the following components have been included:

- BOSS Scale
- Weighing Platform (plastic base with stainless steel pan cover)
- Instruction Manual
- AC Adapter / Attached power cord (customer specific)

Save the packaging material. This packaging ensures the best possible protection for the storage or transport of the product.

### 3.2 Placing your scale

Before you install the scale, identify the best location for the equipment. The proper environment enhances its operation and

longevity. Keep in mind the following factors, which might have a negative influence on the scale's operation:

- Vibration:** Vibration diminishes the scale's ability to measure accurately. Electrical machinery such as conveyors and drill presses can cause inaccurate and non-repeatable readings. The scale may also read inaccurately if it is not leveled properly. The scale incorporates a SMART weighing mode where the scale can reject readings with vibration up to some extent.
- Drafts / Air currents:** Moving air can cause the scale to read wind movement as an additional force and cause inconsistency in the weighing results.
- External Rubbing / Friction:** A scale cannot measure accurately if an object is rubbing or pressing against the scale platform.

### 3.3 Leveling the scale

Level the scale by turning the adjustable feet. It is leveled correctly when the bubble indicator is in the center of the circle.

### 3.4 Power Source

The unit works on 220V AC Level the scale by turning the adjustable feet. It is leveled correctly when the bubble indicator is in the center of the circle.

The scale is fitted with a built in 6V 4Ah battery which provides backup of more than 45 – 70 hours depending on glow setting and sleep mode setting.

### 3.5 Calibration Check

Put a known weight on the machine and make sure that the scale reads the correct weight on the display. In case of a variation in the display reading, it is recommended to calibrate the scale again with the procedure explained in section 7.1 later in the manual.

## 7 CALIBRATION

All SMART weighing scales come pre-calibrated from the factory. However the scale may require re-calibration. Temperature changes, geographic gravity variations, altitude changes and abuse are few reasons why a scale may need recalibration. The scales can be calibrated using a known external weight.

### 7.1 EXTERNAL USER CALIBRATION

Step Description	WEIGHT kg	PIECE WT g	NO OF PCS
To start calibration turn the scale off and then turn it on. During the count down, press and hold down the Zero button (do not release until the display shows "CAL". The display shows "NoLoAd" momentarily and shows the counts at zero level.	<i>NOLOAD</i> <i>15213</i>	<i>CAL--</i> <i>CAL--</i>	<i>--MODE</i> <i>--MODE</i>
Make sure there is no weight on the pan. Press Tare / Enter key and the display shows "LoAd" momentarily and shows the counts	<i>15213</i>	<i>CAL--</i>	<i>--MODE</i>
Put a known weight on the weighing pan (Ex.: 5kg). Press the Enter key. The display will now show all "000000" in the weight panel	<i>00.000</i>	<i>CAL--</i>	<i>--MODE</i>
If you put 5kg weight, Enter "05.000" using the number keys	<i>05.000</i>	<i>CAL--</i>	<i>--MODE</i>
Press the Enter key once again	<i>END</i>	<i>CAL--</i>	<i>--MODE</i>
With the weight still on the pan, press Enter key once again to return to weighing mode. Check calibration.	<i>5.000</i>	<i>00000</i>	<i>000</i>

## 6.10 SETTING PIECE TARGET LIMITS

An acoustic signal is sounded as soon as the number of parts placed on the balance reaches or exceeds a pre-set limit. The scale has a facility to set up LOW and HIGH limits

Step Description	WEIGHT kg	PIECE WT g	NO OF PCS
Press the "." button to set up the limits. The scale will read as show	<i>LIMIT</i>	<i>LOW</i>	<i>000</i>
If you wish to set the low enter a value greater than zero by using the number keys. Say you enter 20	<i>LIMIT</i>	<i>LOW</i>	<i>020</i>
Press the Tare /Enter button to enter the high limit. And press Tare again to return to counting mode.	<i>LIMIT</i>	<i>HIGH</i>	<i>022</i>

Limit Settings Truth Table

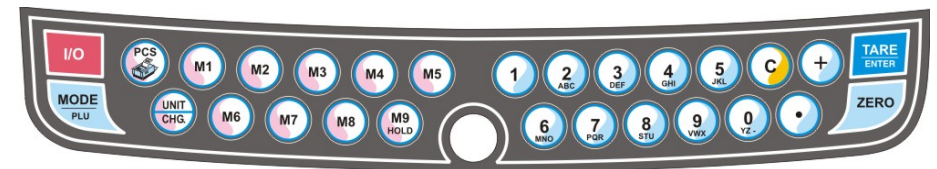
LIMIT BEEP TRUTH TABLE	LOW	HIGH	BEEP STATUS
The low limit is set only. High is not set or is zero	<i>20</i>	<i>-----</i>	The beep is audible in the piece range 1 - 20. The beep is off after 20
The high limit is set only. LOW is not set or is zero	<i>-----</i>	<i>30</i>	The beep is audible in the piece range above 30. The beep is off below 30
Both high and low limits are set	<i>10</i>	<i>12</i>	The beep is audible in the range 10 ~ 12 only

**NOTE THE LOW VALUE MUST BE LESS THAN THE HIGH VALUE IF HIGH IS NOT SET TO "0".**







## 4 DISPLAY SYMBOLS



## 5 CONTROLS & FUNCTIONS



SYMBOL	NAME	FUNCTION
	Power Key	<ul style="list-style-type: none"> <li>To power on and off the machine</li> </ul>
	Mode	<ul style="list-style-type: none"> <li>Recall stored PLU values</li> <li>Store values to designated PLU</li> <li>Select entry by unit wt or no of pcs</li> </ul>
	Direct Memory	<ul style="list-style-type: none"> <li>9 Direct Memories M1 ~ M9</li> <li>Recall direct stored PLU values</li> <li>Store values to designated PLU</li> </ul>
	No 0 to 9	<ul style="list-style-type: none"> <li>Number Entry keys</li> <li>Enter PLU values</li> <li>Enter Sample Size</li> </ul>

	<b>Tare / Enter Key</b>	<ul style="list-style-type: none"> <li>Tare the weight kept on the pan</li> <li>Enter Key – Accept the selected setting and exit from setting mode.</li> <li>Auto Zero Setting – Press, Hold the Tare button and switch on the machine.</li> </ul>
	<b>Zero / Enter Key</b>	<ul style="list-style-type: none"> <li>Zero the weight kept on the pan.</li> <li>Enter Calibration mode</li> <li>Set calibration parameters.</li> </ul>
	<b>Dot</b>	<ul style="list-style-type: none"> <li>Used to enter decimal point values (Advanced version only)</li> <li>Entry of High / Low Limits in terms of number of pieces.</li> </ul>
	<b>Clear Key</b>	<ul style="list-style-type: none"> <li>Cancel Key</li> <li>Clear to weighing mode</li> <li>Sets No of Pcs to Zero</li> <li>Clears the unit weight to zero</li> </ul>
	<b>Add Button</b>	<ul style="list-style-type: none"> <li>Add the indicated weight or piece count value into accumulation memory</li> <li>Long press – goes into clear memory mode.</li> </ul>
	<b>Print</b>	<ul style="list-style-type: none"> <li>Print button</li> </ul>

**6.8 RECALL STORED PLU (DIRECT MEMORY):**

Step Description	WEIGHT kg	PIECE WT g	NO OF PCS
Place the weight on the pan and press the tare button	0.223	0.000	000
Press the memory buttons M1 ~ M9 to recall the stored reference piece weight entry in the designated memory location. The scale will sound a short beep and show the no of pieces as per the weight kept.	0.223	001.115	200

**6.9 RECALL STORED PLU (INDIRECT MEMORY) :**

Step Description	WEIGHT kg	PIECE WT g	NO OF PCS
Place the weight on the pan and press the tare button	0.223	0.000	000
Press the Mode / PLU button Enter the designated memory location using the number keys	- - - - -	000000	PLU 00
Press the Tare /Enter button to accept the entry	0.223	001.115	200



## 6.6 STORING DIRECT PLU VALUES

The standard counting scale has 20 built in memories with 9 direct memories and 11 indirect memories. These memories are termed as PLU's

Step Description	WEIGHT kg	PIECE WT g	NO OF PCS
Make sure the scale reads weight as zero. To set your scale to zero press the "zero" button.	0.000	0.000	000
<b>DETERMINE REFERENCE WT</b> Place a known number of parts on the scale as reference weight. Once the weight display is stable, enter the number of parts via number keys. Say 200 Pcs	0.223	000200	SAMPLE
Press the memory buttons M1 ~ M9 to store the reference piece weight entry in the designated memory location. The scale will sound a long beep and return to weighing mode	0.223	001.115	200

## 6.7 STORING IN DIRECT PLU VALUES

The standard counting scale has 20 built in memories with 9 direct memories and 11 indirect memories. These memories are termed as PLU's

Step Description	WEIGHT kg	PIECE WT g	NO OF PCS
Make sure the scale reads weight as zero. To set your scale to zero press the "zero" button.	0.000	0.000	000
<b>DETERMINE REFERENCE WT</b> Place a known number of parts on the scale as reference weight. Once the weight display is stable, enter the number of parts via number keys. Say 200 Pcs	0.223	000200	SAMPLE
Press the Mode / PLU button designated memory location using the number keys	- - - - -	200	PLU 12
Press the Tare /Enter button to accept the entry	0.223	001.115	200

## 6 USER OPERATION

### 6.1 SWITCHING SCALE - ON / OFF

I/O

The scale is switched ON / OFF by pressing the Power BUTTON: This button is used to switch on and switch off the scale. It is a real ON/OFF which is implemented using the latest technology so that there is absolutely no power consumption when the scale is switched off.

USAGE:

- SWITCH ON: Press the button once, the scale will switch on.
- If the scale is already switched on, press the button again, display will show "SEE YOU SOON" and switch off after sounding a beep.

**Note:** Make sure the weighing pan is empty before turning on the scale.

**6.2 MANUAL TARE:** The TARE BUTTON is used for taring a weight to display 0.000. A Tare value is indicated by the "tare" LED on the panel.

Step Description	WEIGHT kg	PIECE WT g	NO OF PCS
Place the weight on the pan and press the tare button	0.200	0.000	000
The weight is tared and the machine will display weight zero and the tare LED will be ON.	0.000	0.000	000
To recall the tared weight, simply press the TARE button again. To TARE the value, again press the TARE button	0.200	0.00	000

### 6.3 ZERO OPERATION

Center of Zero is indicated by the zero LED on the panel. You can press the ZERO key to set the zero point from which all other weighing and counting is measured. **The zero will function within 5% of the internal zero setting.** The scale has an automatic auto-zeroing function to account for minor drifting or accumulation of material on the platform. This auto-zero range can be configured in the user setup. However you may need to press the ZERO key to re-zero the scale if small amounts of weight are shown when the platform is empty.

Step Description	WEIGHT kg	PIECE WT g	NO OF PCS
Place the weight on the pan and press the zero button	0.200	0.000	000
The weight is zeroed and the machine will display weight zero.	0.000	0.000	000

**6.4 SIMPLE WEIGHING :** This button is used for taring a weight to display 0.000. A Tare value is indicated by the "tare" LED on the panel.

Step Description	WEIGHT kg	PIECE WT g	NO OF PCS
Place goods onto weighing plate. The weight Panel will show the weight of the goods.	1.220	0.000	000

### 6.5 PARTS COUNTING

With parts counting you can either count parts into a container or remove parts from a container. To count a greater number of parts the average weight per part has to be determined with a small quantity (reference quantity). Larger the reference quantity, the better the counting result accuracy. High reference must be selected for small parts or parts with considerably different sizes

Step Description	WEIGHT kg	PIECE WT g	NO OF PCS
Make sure the scale reads weight as zero. To set your scale to zero press the "zero" button.	0.000	0.000	000
If you need to weigh in a container. Place the container on the scale	1.200	0.000	000
press the tare button	0.000	0.000	000
<b>DETERMINE REFERENCE WT</b> Place a known number of parts on the scale as reference weight. Once the weight display is stable, enter the number of parts via number keys. Say 200 Pcs	0.223	000200	SAMPLE
Press the Tare /Enter button to accept the entry	0.223	001.115	200
<b>COUNT THE ITEMS</b> Now you can place the parts to be counted onto the weighing plate. All quantity parameters of your goods to be weighed are displayed: Add more pieces	0.276	001.115	248