



LBS SERIES

Large Bench Scale

HIGH RESOLUTION BALANCE
WITH COUNTING FUNCTION



LBS 300 / LBS 500 / LBS 1000

Operating Manual

Professional Weighing Equipment

NOTE: THIS PRODUCT HAS BEEN FACTORY CALIBRATED. PLEASE
REFER TO THE MANUAL BEFORE RE-CALIBRATING PRODUCT!

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Declaration of Conformity

Declaration of conformity for apparatus with CE mark

We hereby declare that the product to which this declaration refers conforms to the following standards.

Electronic scale: **LBS Series**

Available Models:

LBS 300

LBS 500

LBS 1000

Mark Applied	EU Directive	Standards
	2004/108/EC	EN 61326-1: 2006

Signature:



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Date: 05/20/2013

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Customer Service

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Scan to Contact

Introduction

What you should know about this Operation Manual:

Tree® Professional Weighing Equipment products are simple to operate. Nevertheless, you should read through these operating instructions in their entirety, so that you can make optimum use of the full potential of the weighing scale in your daily work activities.

These operating instructions contain guidance in the form of pictograms and keyboard diagrams, which should help in finding the required information:

For the labeling of potential hazards, please refer to the safety proportion of this operation manual.

Safety

Representations & Symbols

Note: Important instructions which involve safety are highlighted with the appropriate mark:



Safety Recommendations

When using the weighing equipment in surroundings with increased safety requirements, the corresponding regulations must be observed.

The weighing scale may only be used with the power adapter supplied.

Before connecting the power adapter to the scale, the user must ensure that the operating voltage stated on the power adapter is compliant with the mains voltage. If not, please contact Customer Service at the address above.

If the power adapter or its cable is damaged, the weighing scale must immediately be disconnected from the electricity supply (unplug the power adapter).

If there should be any reason to believe that it is no longer safe to operate the scale, it should be immediately unplugged from the electricity supply (unplug power adapter) and secured against inadvertent operation.

During maintenance work, it is essential to follow the recommendations set out in maintenance and servicing.

The weighing scale must not be operated in an area subject to explosion risks.

Care must be taken when weighing liquids to ensure that no liquid is spilled inside the scale, into connections on the rear of the equipment, or the power adapter. If liquid is spilled on the scale, it must immediately be unplugged from the main electricity supply (unplug power adapter).

The weighing scale may be operated after it has first been inspected by a service technician.

These operating instructions must be read by each user and should always be easily accessible at the workplace.

Specifications and RS232 Data interface

RS232 Data Interface

Connector: DB9	
SCALE	PC
2	3
3	2

5	5
Transmissions Settings	
Mode: Simplex Asynchronous Serial	Baud Rate: 9600
Data Bit: 8	Parity Bit: None
Stop Bit: 1	Data Format: ASCII

Transmission Information Format : 20 Byte blank=20H					
1~2	3	4~13	14~18	19	20
W	P	Data	Unit	CR	LF
W:	Start of Data Transmission=57H+3AH				
P:	Polarity '+' = 2BH = Positive= 2DH =Negative				
Data:	12.345"=20H+20H+20H+20H+31H+32H+2EH+33H+34H+35H				
Unit:	'lb'=6CH+62H+20H+20H+20H 'kg'=6BH+67H+20H+20H+20H				
CR:	= 0DH				
LF:	= 0AH				

M= overload mode

W= normal weighing mode: =
weight information

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
W/M		±																CR	LF

Weight information

Unit formation

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
W/M		±							5	0	.	0	k	g				CR	LF

Example: 50kg

Features

1. Auto back light (selectable)
2. Auto off (selectable)
3. Hold function
4. Peak hold function
5. Any Cal calibration software
6. Two calibration weight units: kg, lb.
7. RS232 function
8. Two modes: normal mode / setting mode
9. Zero range: 0 to 4% of full capacity
10. Power on zero-setting range: +10%
11. Tare range 4% to full capacity
12. Display options : 5 digital LCD
13. Error message indication :
 -  Overload
 -  Unstable when power on
 -  Calibration code is not enough or operation error
 -  Low battery indication

Application & Conformity

The following are instructions on how to correctly use the indicator:

The indicator may only be used for the weighing of solid materials and of liquids contained in secure containers.

The maximum capacity load of the weighing scale must be correctly entered in the indicators program, otherwise the weighing scale may be damaged.

In using the indicator in combination with other devices including those produced by other manufacturers, the appropriate regulations for the safe use of the relevant attachments and their application in accordance with instructions must be observed.

The indicator has been manufactured and tested in accordance with the standards and recommendations set out in the declaration of conformity.

The power adapter supplied for the indicator complies with the appropriate electrical protection class.

The following applies to all LBS series indicators.

Power supply:

Input: 110V AC 50Hz to 60Hz

Output: 10v 500mAh (LBS 300 / LBS 500)

Output: 12v 1000mAh (LBS 1000)

Allowable ambient conditions:

Temperature: 32°F - 104°F / 5°C - 40°C

Relative humidity:

25% - 85%, non-condensing

*****NOTE: If you have any questions on the technical data or require detailed technical information on your balance, please contact your technical representative. *****

Getting Started

The indicator is packaged in an environmentally friendly carton, which provides optimum protection for the indicator during transportation.

We suggest that you keep the original packaging to avoid damage if you are shipping or transporting the scale to a different location. It is also the best way to keep it in the best condition if it will not be used for an extended period.

To avoid damage, please follow the instructions provided below, when unpacking the scale:

- Unpack the indicator carefully.
- When outside temperatures are very low, the indicator should be stored for a couple hours in its box in a dry room at normal temperature. This prevents condensation from settling on the unit when opening the box.
- Check the indicator immediately after unpacking for any external visual damage. If there is any damage on the indicator, contact customer service immediately.
- If the indicator is not to be used immediately after purchase, it should be stored in a dry place where fluctuations in temperature are low. (reference pg.18).
- Read through these operating instructions before you work with the unit and pay attention to the safety recommendations (reference Safety pg. 5).

Delivery

Inspect delivery for completeness immediately upon unpacking all components.

Checklist for complete delivery

Component	Present Yes / No
Indicator unit	
Power adapter	
Operating manual	
Mounting bracket	

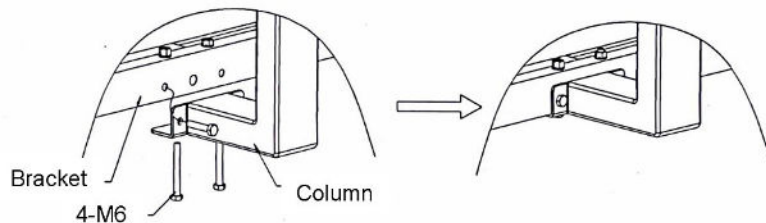
Assembly & Installation

The weighing machine is delivered in a partly dismantled condition. Assemble the individual components in the following sequence:

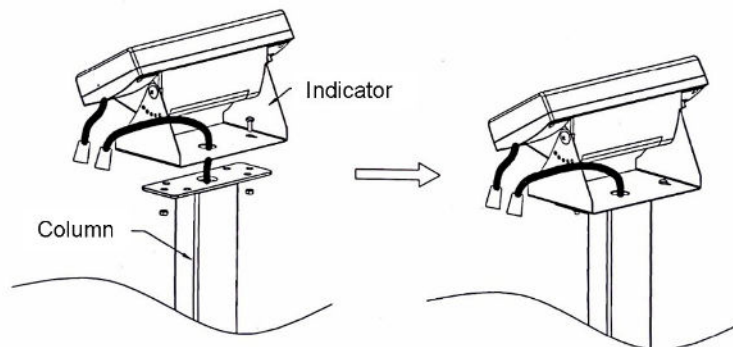
- Place your machine on a level, stable, clean, and dry surface to obtain accurate readings.
- Loosen the screw on the handle.
- Pull the column upward to a 90-degree angle.
- Insert the column into the slot and screw into place.
- Fix the indicator bracket to the column with screw and nut.
- Connect the power cord to the indicator

NOTE: The AC input requirement could be 110, 120, 220, 230, or 240 volts (50/60 Hz) depending on the area where its being used, so please verify that the adapter is correct.

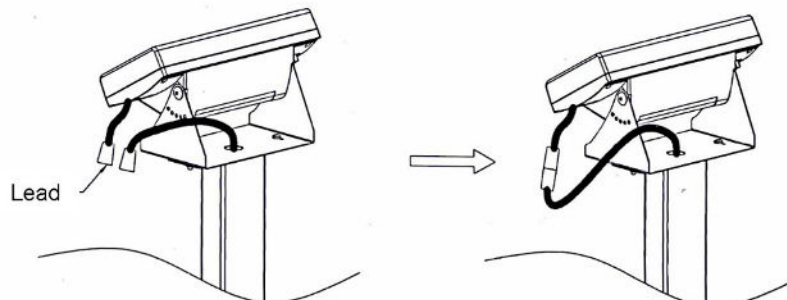
1. Fix Column to Bracket



2. Fix Indicator to Column



3. Connect Electronic Cables



Weight Scale

Construction & Functions

The weighing scale consists of the following parts.

- Weighing Scale
- Indicator
- A/C Adapter
- Operating Manual.



Connecting the AC Adapter

The following safety recommendations must be observed when connecting the balance:



The scale should only be connected to the mains voltage socket with the power adapter supplied. Before connecting the power adapter to the mains socket, check that the operating voltage stated on the power adapter complies with the local mains voltage.

If the operating voltage is not the same as the mains voltage, the power adapter must not be connected to the mains socket and contact customer service.

Placement of Scale

The location in which the scale is placed is very important for the scale to work to its full potential. Certain conditions can affect the capabilities of the scale, such as presence of air flow, variations in temperature, and direct sunlight. Please follow the recommendations given below when choosing a location to place your scale.

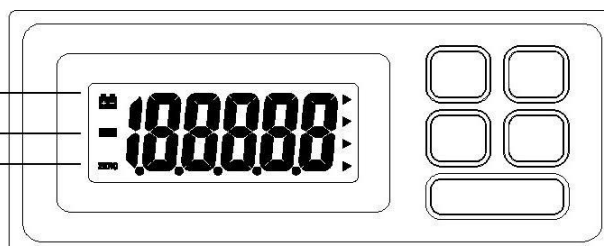
- Place the indicator on a solid, firm, and preferably vibration-proof surface.
- Make sure that the indicator cannot be shaken or knocked over.
- Protect from direct solar radiation.
- Avoid drafts and excessive temperature fluctuations.
- Avoid placing the indicator near or on any magnetic surfaces.

Application Menu

Display Messages & Key Functions

Display Messages:

- Low battery indicator
- Negative value indicator
- Zero indicator



Functions

The LBS Series is a high-quality electronic precision weighing machine with the following specifications

Imperial Specifications

Model Number	Capacity	Graduation	Platter Size
LBS 300	300 lb.	0.05lb.	18 x 24 in
LBS 500	500 lb.	0.1 lb.	18 x 24 in
LBS 1000	1000 lb.	0.2 lb.	24 x 24 in
Shipping Weight	45 lb. (LBS 300 & LBS 500) 51 lb. (LBS 1000)		
Package (Standard Carton)	33 x 28 x 7 in (LBS 300 & LBS 500) 34 x 33 8 (LBS 1000)		
Operating Temp.	40-95 °F		
Power Source	AC/DC Adapter 10V DC / 500mA (LBS 300 & LBS 500) AC/DC Adapter 12V DC / 1000mA (LBS 1000)		

FEATURES

- Display options: 5 digital LCD
- Power: AC adapter 9V / 400mA
- Auto back light (selectable)
- Auto shut off (selectable)
- Operating temperature: 5-35 °C
- Operating humidity: 25% - 95% RH
- Zero Range (0 to 4% of full capacity)
- Tare Range (4% to full capacity)
- Two calibration weight units: kg, lb.
- Open calibration capacity
- Power on zero-setting range: +10%
- Two modes: normal mode / setting mode
- RS232 function

Key Functions

1.  (icon) key turns the indicator on or off.
2.  key is used to hold the weight value.
3.  key sets display to zero or subtracts the container weight.
4.  key changes the weight units, kg, lb.
5.  key is used to send data to an external device through RS232 connection.



Function Settings

Auto Shutoff

- Press and hold  key then press  key to turn on the scale, the display will show **A-ON** or **A-OFF**, press  key to select (**A-ON** means auto power off function activate, **A-OFF** means auto power off function inactivate). Continue to backlight.

Backlight

- Press  key, the display will show **L-ON**, **L-OFF**, or **L-Au**, press  key to select (**L-ON** means auto backlight function is **active**, **L-OFF** means auto backlight function is **inactive**, **L-Au** means backlight under **auto** mode). Continue to print function.

Print Function

- Press  key, the display will show **P-XX**. Press  key to select **OFF**, **key**, **con**, or **Stb**. (**OFF** means **RS232** function is **inactive**; **Key** means that you can output the data by pressing  key. **Con** means that the data outputs **continually**. **Stb** means that the data will output when the reading is **stable**.) Continue to power-on mode.

Power-On Mode

- Press  key, the display will show **J-ON** or **J-OFF**, press  key to select (**J-ON** means showing **zero** when turning on the power, **J-OFF** means showing **weight** placed when turning on the power.) Continue to weighing function.

Weighing Function

- Press  key, the display will show **F-Nor**, **F-PEA**, or **F-Ani**. Press  key to select (**F-Nor** means **normal weighting function** is activated. **F-PEA** means **peak hold weighing function** is activated. **F-Ani** means **animal weighing function** is activated). Continue to display mode.

Display Mode

- Press  key, the display will show **N-dsp** or **N-Ind**. Press  key to select (**N-dsp** means it can display synchronously as a separate **display** for another indicator through the RS232 output. **N-Ind** means it works only as an **indicator** for the scale.) Continue to peak hold mode.

Peak Hold Mode

- In **FUNCTION SETTING 5**, please choose **F-PEA**. **F-PEA** means **peak hold weighing function** is active, before weighing, please press  key. Continue animal anti shock range.

Filter Range (F-Ani only)

- Press **[UNIT]** key, the display will show **Fd 0.5, Fd 3, Fd 5, Fd 10**. Press **[Zero]** key to select **animal scale filter range** among **0.5, 3, 5, or 10**. Continue to animal scale filter time.

Animal Scale Filter Time (F-Ani only)

- Press **[UNIT]** key, the display will show **Ft 1, Ft 2, Ft 3, or Ft 4**. Press **[Zero]** key to select **animal scale filter time** among **1, 2, 3, or 4**. Continue to unit select function.

Unit Select Function

- Press **[UNIT]** key, the display will show **U-on** or **U-off**, press **[Zero]** key to select **U-on** or **U-off**. (**U-on** means you can switch unit between **kg** and **lb.**, **U-off** means **lb.** unit will be **disabled**.)

Turn indicator off to save selections.

*****NOTE: Kd, Fd, and Ft work in Animal Weighing Mode (F-Ani) only. *****

HOLD Function

- Place the item on the scale platform. Wait for the **stable indicator** to be displayed.
- Press the **[HOLD]** key. The “. “(**hold indicator**) will turn **ON**.
- Remove the item from the scale platform. The item's weight reading will remain on the display. Now you can also select **unit (lb. or kg)** by pressing **[UNIT]** key. (**lb.** cannot be selected if **lb.** is disabled in **Function Setting**)

Quit HOLD function:

- Once an item is weighed and the hold function is enabled, and you want to **quit** the **HOLD function**.
- Press the **[HOLD]** key again to **cancel** the “. “ (hold indicator) and return the scale to **weighing mode**.

Calibration

What you need:

1. Using a calibration or test weight that is **2/3** of the max capacity is strongly recommended for recalibration.
2. If you do not have a test weight or calibration weight. You can use any object of “known weight” to calibrate with our scales **AnyCal** Calibration software.

****NOTE: When calibrating even if you use a “known weight” the more exact the weight is the more precise the calibration will be. ****

Prepare for calibration by following these steps:

- While the indicator is **OFF** press and hold  key then press  key. The display will show **CAPU=**.
- Press  key to select **capacity unit kg** or **lb**. (unit **lb**. cannot be selected if the **lb**. is disabled in FUNCTION SETTING).
- Press  key to confirm the selection.
- Press  key again to enter the next menu, the display will show **CAP**.
- Press  key to set **capacity**, press  key to move the flashing digit to **right**, press  key to **increase** the flashing digit value.
- Press  key to confirm the selection.
- Press  key again to enter the next menu, the display will show **CALU=**.
- Press  key to select **calibration unit kg** or **lb**. (unit **lb**. cannot be selected if the **lb**. is disabled in **Function Settings**).
- Press  key to confirm the selection.
- Press  key again to enter next menu, the display will show **CAL**.

- Press  key to set calibration weight, press  key to move the flashing digit to **right**, press  key to **increase** the flashing digit value.
- Press  key to confirm the selection (the calibration weight should be more than **2/3** of full capacity).
- Press  key again to enter next menu, the display will show **DIV**,
- Press  key to select **division**.
- Press  key to confirm the selection.
- Press  key again to enter next menu, the display will show **Adb**, press  key to select (19.20).
- Press  key to confirm the selection.

Start the calibration by following these steps:

- Press  key, the display will show **CAL**, then **AD value**.
- Press  key when the **stable indicator** lights, the display will show the flashing **calibration weight**, place the shown weight on the platform.
- Press  key when the stable indicator lights, the display will show "-----", and **AD value**.
- Turn **OFF** the scale.
- **Calibration is complete.**
- Turn **ON** the scale, place tested weight to check whether it is correct.
- If not, please repeat the above instructions.

If this device has been previously programmed, please see "Start Calibration" steps above for a simplified procedure.

Maintenance & Service



- For maintenance work, the balance must be disconnected from the power supply (remove power adapter plug from socket). Also, ensure that the balance cannot be connected to the power supply during the work by a third party.
- Make sure that no liquid spills into the scale while performing maintenance work. If liquid is spilled on the scale, it must be inspected by a service technician.
- **Regularly** maintain the weighing pan and the weighing pan holder by removing any dirt or dust from under the weighing pan and on the weighing scale housing. Use a soft brush or a soft, lint-free cloth moistened with a mild soap solution.
- **Never** use solvents, acids, alkalis, paint thinners, scouring powders, or other aggressive or corrosive chemicals for cleaning; these substances can cause damage to the surfaces of the scale housing.

Transportation & Storage

Your weighing machine is a precision instrument, treat it carefully. Avoid shaking, severe impacts, and vibration during transportation. Make sure that there are no marked temperature fluctuations during transportation and that the weighing machine does not become damp (condensation).

If you would like to take the weighing machine out of service for an extended period, disconnect it from the electricity supply, clean it thoroughly (refer to Maintenance & Service) and store it in a place that meets the following conditions:

- No violent shaking or vibrations
- Minimum temperature fluctuations
- No direct solar radiation
- Minimum moisture

The weighing machine should preferably be dispatched and transported in the original packaging to avoid transportation damage.

CAUTIONS

Overcharging will cause permanent damage.

- When the recharging sign “” indicates, please charge the battery for 8 to 10 hours. When the charging is done, the orange light will turn green.
- Only use the charger (adapter) supplied with the indicator.
- After recharging, if the battery does not last long, replace it with a new battery.

Troubleshooting

Error Code	Issue	Troubleshoot	Solution
ERR-O/0	Overload error	Turn scale off, then back on, and try weighing using weight under the max capacity to verify the loadcell still functions.	If scale still registers accurate weight refrain from continued over loading. If error continues loadcell may be damaged.
ERR-Z/2	Exceeded zero tracing range when powered on.	Turn scale off and clear weighing platform. Turn scale back on and attempt recalibration.	If the scale was recalibrated successfully then the error is resolved. If error persists, scale may need a linearity calibration or has a damaged loadcell.
ERR-S/5	Scale not stable when powered on.	Make sure scale is stable when powered on. Do not touch, shift, or place anything on the weighing platform until after the countdown.	If error persists, scale may need recalibration. If error continues after recalibration, then loadcell may be damaged.
ERR-C	Calibration weight was not entered during calibration	Enter calibration weight during calibration process.	If error persists, call support.
ERR-P	Counting set error	Place sample before entering counting settings.	If error persists, call support.
ERR-L	Calibration weight was not placed during calibration.	Be sure to place weight when recalibrating.	If error persists, call support.
ERR-E	Software issue	If error persists, call support.	If error persists, call support.
ERR-B/6	Low battery error	Attempt to charge battery.	If error persists, battery will need to be replaced. Make sure to not leave scale with rechargeable battery plugged in constantly.
<u>For any error that is not shown on this list or that persists after troubleshooting you will need to contact support.</u>			



We are genuinely grateful for your recent purchase. Your decision to choose TREE by LW Measurements means a lot to us.

Your support enables us to continue creating and providing high-quality products and services. We hope you enjoy your new scale and that it brings you as much satisfaction as it brings us to serve customers like you.

We would love to know what you think of our TREE products and your experience with us. If you have a chance, please visit www.lwmeasurements.com and leave a review.

Thank you for being a part of the LW Measurements family. We look forward to serving you again in the future.

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U.S.**

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