Professional Weighing Equipment

Weigh Bars

Dust and Waterproof Scale IP65

Operating Manual

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: Weigh Bar series

Imperial version   Metric version

WB 7500   WB 3400K

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

Date: 14. 08. 2012   Signature:

Boon

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LW Measurements LLC, 3510 Industrial Drive, Unit H Santa Rosa, CA 95403

Identification

Customer Service

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Introduction

What you should know about these Operating Instructions:

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 and the diverse possibilities of the weighing machine in your daily work.

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

For the labelling of potential hazards and advice, please see Section 1 Safety below.

Contents

1 Safety

1.1 Representations and symbols

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

⚠ DANGER

1.2 Safety recommendations

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

The weighing machine may only be used with the power adapter supplied exclusively for use with the weighing machine.

Before inserting the power adapter, the user must ensure that the operating voltage stated on the power adapter agrees 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 machine must immediately be disconnected from the electricity supply (pull out the power adapter).

The weighing machine may only be operated from mains electricity supply with a power adapter which is in perfect condition.

If there should be any reason to believe that it is no longer possible to operate the weighing machine without danger, the weighing machine is to be immediately unplugged from the electricity supply (pull out power adapter) and secured against inadvertent operation.

In carrying out maintenance work, it is essential to follow the recommendations in Chapter 6 Maintenance and service.

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

Care must be taken when weighing liquids to ensure that no liquid is spilt into the inside of the weighing machine or into connections on the rear of the equipment or the power adapter. If liquid is spilt on the weighing machine, it must immediately be unplugged from the mains electricity supply (pull out power adapter).
The weighing machine may only be operated again after it has first been re-checked by a service technician.

These operating instructions must be read by each operator of the equipment and must be available at the workplace at all times.

1.3 IP65 protection

Your Weigh Bar weighing machine is rated to IP65.

The IP rating system

- **IP** stands for Ingress Protection
- The rating's first digit e.g. IP**6**5 relates to the ingress protection against dust (6 means dust tight, see the table below)
- The second digit e.g. IP6**5** relates to the ingress protection against water (5 means protected against water jets, see the table below)

Protection against solid objects

1st Digit	Description	Definition
0	Non-protected	No special protection
1	Protected against solid objects greater than 50 mm	A large surface of the body such as the hand (no protection against deliberate access). Solid objects exceeding 50mm diameter
2	Protected against solid objects greater than 12 mm	Fingers or other objects not exceeding 80 mm in length. Solid objects exceeding 12 mm diameter
3	Protected against solid objects greater than 2.5 mm	Tools, wires, etc of diameter or thickness greater than 2.5 mm. Solid objects exceeding 2.5 mm diameter.
4	Protected against solid objects greater than 1.0 mm	Wires or strips of thickness greater than 1.0 mm. Solid objects exceeding 1.0 mm
5	Dust protected	Ingress of dust is not totally prevented but dust does not enter in sufficient quantity to interfere with satisfactory operation of the equipment
6	Dust-tight	No ingress of dust

Protection against liquids

| 2nd Digit	Description	Definition
0	Non-protected	No special protection
1	Protected against dripping water	Dripping water (vertically falling drops)
2	Protected against dripping water when tilted up to 15º	Vertically dripping water shall have no harmful effect when the enclosure is tilted at any angle up to 15º from its normal position
3	Protected against spraying water	Water falling as spray at an angle up to 60º from the vertical shall have no harmful effect
4	Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effect
5	Protected against water jets	Water projected from a nozzle against the enclosure from any direction shall have no harmful effect
6	Protected against heavy seas	Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities
7	Protected against the effects of immersion	Ingress of water in a harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time
8	Protected against submersion	The equipment is suitable for continuous submersion in water under conditions, which shall be specified by the manufacturer

2 Your weighing machine

2.1 Construction and functions

2.1.1 Construction of the weighing machine

The weighing machine consists of the weighing bars (1), the indicator (2), the adapter (3) and this operating manual.

Figure 2.1   Your weighing machine
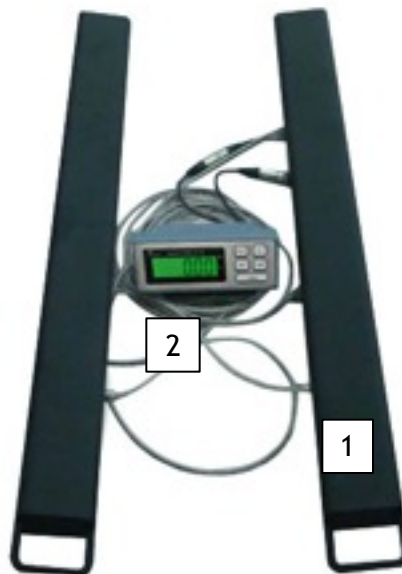
2.1.2 Functions of the weighing machine

The Weigh Bars are high-quality electronic precision weighing machines with the following specifications

Imperial weight unit version

Model number	Capacity	Graduation	Weighing Platform Size
WB 7500	7500 lb	1 lb	40 x 3.9 inches / 102 x 9.9 cm
Net/gross weight	WB 75000: 56 lb / 63 lb (30 kg / 33 kg)		
Package (Standard carton)	125 x 49.5 x 13(cm		
Operating Temp.	0-40℃ (32-104℉)		
Power source	6 x AA Dry cells (not included) or Adapter 12V DC / 150mA		

Metric weight unit version

Model number	Capacity	Graduation	Weighing Platform Size
WB 3400K	3400kg	0.5kg	40 x 3.9 inches / 102 x 9.9 cm
Net/gross weight	WB 3400k: 56 lb / 63 lb (25.4 kg / 29 kg)		
Package (Standard carton)	125 x 49.5 x 13(cm		
Operating Temp.	0-40℃ (32-104℉)		

Power source	6 x AA Dry cells (not included) or Adapter:12V DC / 150 mA

FEATURES

- Selectable auto backlight
- Selectable auto shut-off
- Hold function
- ZERO range (0% - 4% of full capacity)
- TARE range (4% - 100% of full capacity)
- Animal weighing mode
- AnyCal calibration software
- Selectable calibration units: kg or lb
- RS232

2.2 Application, conformity

2.2.1 Correct use of the weighing machine

The maximum allowable load of the weighing machine must never be exceeded, otherwise the weighing machine may be damaged.

In using the weighing machine in combination with other appliances as well as with appliances 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.

2.2.2 Conformity

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

The power adapter produced for the operation of the weighing machine and intended exclusively for this application, complies with the appropriate electrical protection class.

2.3 Data and parameters

2.3.1 Technical data

The following applies to Weigh Bar series

Power supply:

. Input: 110 or 230V AC (+/-15-20%); 50 to 60Hz
. Output: 12V DC 150mA
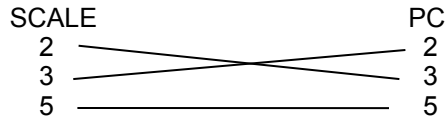
Allowable ambient conditions

Temperature: 5°C - 40°C
Relative humidity: 25% - 85%, non-condensing

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

2.3.2 RS232 Data interface

1. Connector: DB9

```
SCALE                          PC
  2 ──────────┐   ┌────────── 2
              ╲ ╱
  3 ──────────╱ ╲────────── 3
  5 ─────────────────────── 5
```

2. Transmissions Settings

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

3. 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

3 Getting started with your weighing machine

3.1 Unpacking the equipment

The machine is delivered in an environmentally-friendly carton, specifically developed for this precision instrument, which provides optimum protection for the balance during transportation.

We suggest that you retain the original packaging in order to avoid transportation damage if re-shipping or transporting the balance and to allow the unit to be stored in the best conditions if it is out of operation for an extended period.

In order to avoid damage, attention must be given to the following points when unpacking the balance:

Unpack the weighing machine carefully. It is a precision instrument.

When outside temperatures are very low, the balance should first be stored for some hours in the unopened transport package in a dry room at normal temperature, so that no condensation settles on the unit when unpacking.

Check the weighing machine immediately after unpacking for externally visible damage. If you should find transport damage, please inform your service representative immediately.

If the unit is not to be used immediately after purchase but only at a later time, it should be stored in a dry place where fluctuations in temperature are as small as possible (see Chapter 7 .Transport, storage.).

Read through these operating instructions, even if you already have prior experience with weighing equipment, before you work with the unit and pay attention to the Safety recommendations (see Chapter 1 .Safety).

3.2 Scope of delivery

Inspect delivery for completeness immediately on unpacking all components.

Checklist for complete delivery

	Component delivered present yes / no
Weighing Bars (2pcs)	
Indicator	
Power adapter	
Operating manual	

3.3 Assembling your weighing machine

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

- Place the unit holder in position.
- Insert the power adapter cable plug into the socket at the rear of the balance.

3.4 Choice of a suitable location

The environment in which your weighing machine is used is very important. Air movement, temperature changes, vibrations, direct sunlight, etc. all influence the performance of high precision weighing machines. Therefore, place your weighing machine on a solid, sturdy surface that is free of air currents, vibration and not in direct sunlight. The surface should not be magnetic and should be located away from doors, windows, heaters, air conditioners and fans.

To summarize:

- Put the weighing machine on a solid, firm and preferably vibration-proof, horizontal base

- Make sure that the weighing machine cannot be shaken or knocked over

- Protect from direct solar radiation

- Avoid drafts and excessive temperature fluctuations

3.5 Checking the mains voltage

The following Safety recommendations must be observed when connecting the balance to the mains:

⚠ **DANGER**

The balance may only be operated with the power adapter supplied.

Check before connecting the power adapter to the mains supply, that the operating voltage stated on the power adapter agrees with the local mains voltage.

If the operating voltage is not the same as the mains voltage, the power adapter must on no account be connected to the mains supply. Contact customer service.

IMPORTANT NOTE: DO NOT TURN THE INDICATOR ON UNTIL ALL CONNECTIONS ARE MADE. IF THE INDICATOR IS ON PRIOR TO MAKING CONNECTIONS, AND THE CONNECTIONS ARE MADE, DAMAGE MAY OCCUR.

Please complete the following steps before using the scale:

Step1: Connect the cable to the load cell and plug the metal connectors under power off condition.
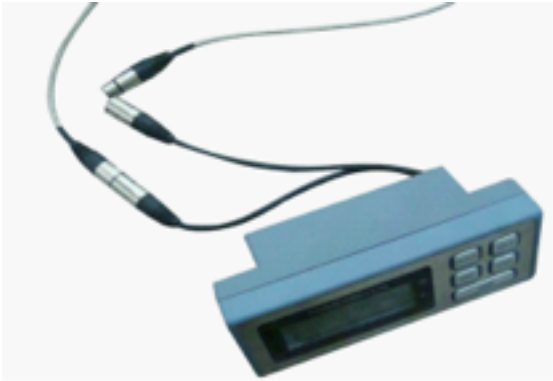
Step 2: Adjust the four scale feet horizontally.
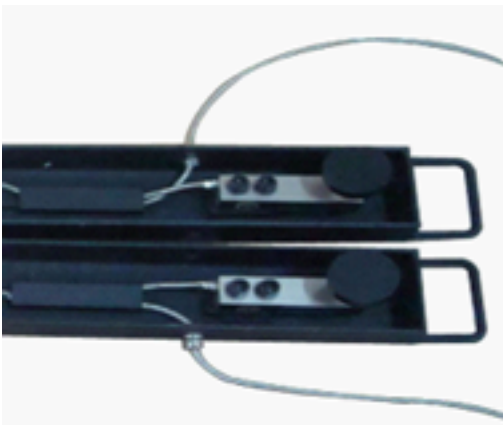
3.6 Calibrating the weighing machine

Since the Earth's gravity is not the same everywhere, each balance must be adjusted to compensate for the gravity differences at each location in accordance with the underlying physical weighing principles. This adjustment process, known as calibration and must be carried out on initial installation and after each subsequent relocation.
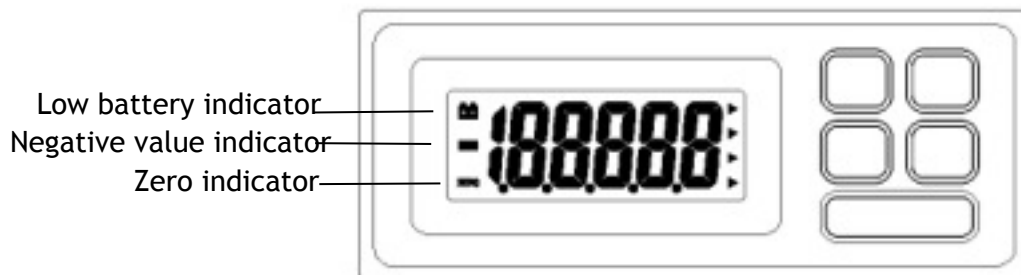
In order to ensure exact measurements, it is recommended that the balance should be calibrated regularly using a known external calibration weight (see Section 5 below).

4 Working with the application menu using the Intelligent Key-Pad
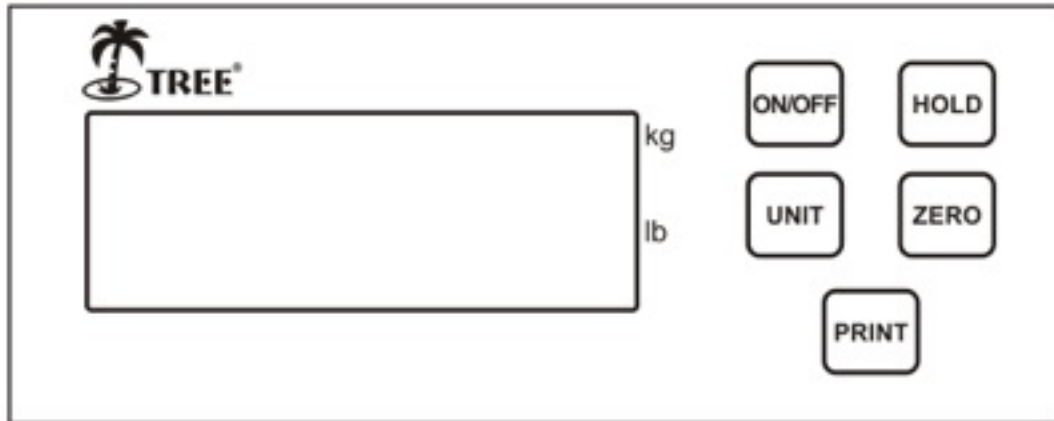
4.1 Display messages and key functions

4.1.1 Display messages:

4.1.2 Key Functions:

1. The ON/OFF key is to turn the Scale On or Off

2. The HOLD key is to store the weight value.

3. The UNIT key is to toggle different weighing units.

4. The ZERO key: Zero feature if load weight below 4% of full capacity; Tare feature if load weight between 4% to 100% of capacity.

5. The PRINT key is to send data to external device through RS232 connector.

4.2 Program options

Please see our web-site at http://lwmeasurements.com for practical demonstrations of application usage.

4.2.1 Interface Settings

–   Press and hold HOLD key, and then press ON/OFF key to turn on the scale, display will show A-ON or A-OFF

–   Press UNIT key, display will show "L-ON" or "L-OFF"

–   Press UNIT key again, display will show "P-XX"

–   Press ZERO key to select CON,OFF, KEY, STB

a)   OFF stands for serial data output disabled

b)   KEY stands for manual mode by pressing [PRINT]

c)   STB stands for automatic print when scale is stable

d)   CON stands for continuous print

–   Press ON/OFF key to turn off the Scale.

4.2.2 Function settings

4.2.2.1 Setting Auto Shut off

Press and hold HOLD key, then press ON/OFF key to turn on the Scale, display will show "A ON" or "A OFF", Press ZERO key to select Auto shut off mode "ON" or "OFF".

4.2.2.2 Setting Backlight

Press and hold HOLD key, then press ON/OFF key to turn on the Scale, display will show "A ON" or "A OFF", Press UNIT key, display will show "L ON", "L OFF" or "L AU", press ZERO key to select back light On, Off or Au(auto)

4.2.2.3 Setting power-on mode

Press and hold HOLD key, then press ON/OFF key to turn on the Scale, display will show "A ON" or "A OFF", Press UNIT key three times, display will show "J ON" or "J OFF", press ZERO key to select "J ON" (means showing zero when scale is turned on) or "J OFF" (means showing the weight placed when the scale is turned on).

4.2.3 Working mode settings

- Press & hold UNIT and HOLD keys, then press ON/OFF key to turn on the scale

- The display will show Ani. Su, press UNIT key to enter, press ZERO key to select ON (means animal weighing mode) or OFF (means normal weighing mode), press HOLD key to confirm.

- Press HOLD key again, display will show Ani. Kd, press UNIT key to enter, press ZERO key to select anti-shock range between 50, 100, 200 and 400, press HOLD key to confirm.
*** This is the anti-shock range 50d, 100d, 200d or 400d. The smaller division range is suitable for smaller animals, the larger division range for larger animals

- Press HOLD key again, display will show Ani. Fd, press UNIT key to enter, press ZERO key to select filter range between 0.5, 3, 5 and 10, press HOLD key to confirm.
*** This is the filter range, 0.5d, 3d, 5d or 10d that the scale displays, for example, if we use LVS 700lb x 0.2lb for weighing a 300lb cow, if we set it to be 0.5d, then the scale will show 299.8lb, 300lb, 300.2lb..., if we set it to be 3d, then the scale will show 299.4lb, 300lb, 300.6lb... 0.5d can get much accurate weighing, but it won't be as stable; 10d will not obtain such an accurate weighing result, but it will be much more stable.

- Press HOLD key again, the display will show Ani. Ft, press UNIT key to enter, press ZERO key to select filter time between 1, 2, 3 and 4, press HOLD key to confirm.
*** This is the filter time, 1s, 2s, 3s or 4s that will take to display the weighing. Weighing will be more accurate if the user chooses 4 second (longer displaying time), but not so accurate if 1 second (faster displaying time) is chosen.

Press ON/OFF key to turn the scale off.

4.2.4 Hold function

- Press ON/OFF key to turn on the scale, place the item on the platform.

- Wait for the readings stable, press HOLD key, the " **.** " indicator will show

- Remove the item from the platform, the readings will still remain on the display

- Press HOLD key to quit hold function mode

5 Calibration - Using an External Calibration Weight

Calibration is generally required when the weighing machine is initially installed or if the weighing machine is moved to a substantial distance from the original location. 30 minutes of warming up of the scale is always needed before initial calibration.

A reminder when operating our larger capacity scales:

The WB series are calibrated at the factory. Usually no recalibration is necessary unless major inaccuracies are observed. If calibration is deemed necessary, an appropriate test weight of at least 2/3 of the full capacity of the scale should be used to obtain accurate weighing.

Calibration procedure:

- Press and hold ZERO key and then press ON/OFF key to turn on the scale, the display will show CAPu=

- Press HOLD key, display will show CAP, press HOLD key again, display shows CALu=, press UNIT key to select calibration unit KG or LB, a triangle icon will display to indicate KG or LB, press HOLD key to confirm, it will show CALu= again.

- Press HOLD key again, the display will show CAL, press UNIT key to set calibration weight, display will show XXXXX with a flashing digit, press UNIT key to move the flashing digit to right, press ZERO key to increase the value of the flashing digit, press HOLD key to confirm, it will show CAL again. (We recommend a calibration weight at least 2/3 of the full capacity to get an accurate weighing)

- Press PRINT key, display will show CAL and then the AD value, press UNIT key when the stable indicator displayed, it will show the flashing calibration weight,

- Place the known test weight on the platform, press UNIT key after stable indicator displayed, it will show ------, and then the AD value, now the calibration is finished.

- Turn off the scale, remove the test weight from the platform.

- Press ON/OFF key to turn the scale on to test if the weighing is accurate, if not, repeat above steps.

6 Maintenance and service

The weighing machine must be treated carefully and cleaned regularly. It is a precision instrument.

⚠ **DANGER**

For maintenance-work, the balance must be separated from the power supply (remove power adapter plug from socket). Also ensure that the balance cannot be reconnected to the power supply during the work by a third party.

See Section 1.3 above regarding IP65. The scale may be washed down.

⚠ **CAUTION**
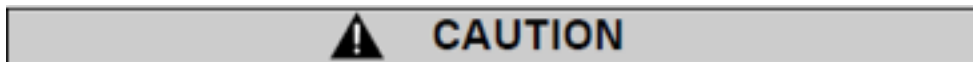
Never use solvents, acids, alkalis, paint thinners, scouring powders or other aggressive or corrosive chemicals for cleaning, since these substances attack the surfaces of the scale housing and can cause damage.

7 Transport, storage

7.1 Transportation and shipping of the weighing machine

Your weighing machine is a precision instrument. Treat it carefully. Avoid shaking, severe impacts and vibration during the transportation.

Take care that there are no marked temperature fluctuations during the transportation and that the weighing machine does not become damp (condensation).

7.2 Storage of the weighing machine

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 (see Section 6 .Maintenance and servicing.) and store it in a place which meets the following conditions:

- – No violent shaking, no 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.

The weighing machine should preferably be stored in the original packaging, since this provides optimal protection for the weighing machine.