Professional Weighing Equipment

Weigh Bars

Dust and Waterproof Scale IP65

Operation Manual

Table of Contents

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

WB 5000
WB 7500
WB 10000

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

Signature:

Boon Lim, R & D Manager

Date: 14. 11. 2012

LW Measurements LLC, 620 Carlson Court, Rohnert Park CA, 94928

Customer Service

USA

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

Safety

Representations & Symbols

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

⚠ DANGER

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 (pull out 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 (pull out power adapter) and secured against inadvertent operation.

In carrying out 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 into the inside of the scale or 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 (pull out 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 be easily accessible at the workplace at all times.

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. IP65 relates to the ingress protection against dust (6 means dust tight, see the table below)
- The second digit e.g. IP65 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

<u>Weight Scale</u>

Construction & Functions

The weighing scale consists of the following parts;

- The weighing bars (1)
- The indicator (2)
- The adapter (3)
- Operation manual

Figure 2.1   Your weighing machine

Functions

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 5000	5000 lb.	1 lb.	40 x 3.9 inches
WB 7500	7500 lb.	1 lb.	40 x 3.9 inches
WB 10000	10000 lb.	2 lb.	40 x 3.9 inches
Net/gross weight	WB 5000: 56 lb / 63 lb WB 7500: 48 lb / 57 lb WB 10000: 65 lb / 71 lb		
Package (Standard carton)	49 x 20 x 5 inches		
Operating Temp.	0-40℃ (32-104℉)		
Power source	6 x AA Dry cells (not included) or AC/DC Adapter 12V DC / 1A		

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
- Any Cal calibration software
- Selectable calibration units: kg or lb.
- RS232

Application & Conformity

The Following are instructions of how to correctly use the weight scale:

The weighing scale may only be used for the weighing of solid-materials and of liquids filled into secure containers.

The maximum capacity load of the weighing scale must never be exceeded, otherwise the weighing scale may be damaged.

In using the weighing scale in combination with other devices as well as with devices 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 weighing scale 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 weighing scale complies with the appropriate electrical protection class.

The following applies to Weigh Bar series

Power supply:
 Input: 110 or 230V AC (+/-15-20%); 50 to 60Hz
Output: 12V DC 1 A
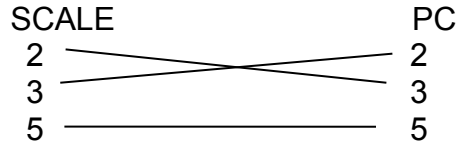Allowable ambient conditions
Temperature: 5°C - 40°C
Relative humidity: 25% - 85%, non-condensing

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

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

Getting Started

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

We suggest that you keep the original packaging in order 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 conditions if it will not be used for an extended period of time.

In order to avoid damage, please follow the instructions provided below, when unpacking the scale:

- Unpack the scale carefully.
- When outside temperatures are very low, the scale should be stored for a couple hours and kept in its box in a dry room at normal temperature, so that no condensation settles on the unit when opening the box.
- Check the scale immediately after unpacking for any external visual damage. If there is any damage on scale, contact customer service immediately.
- If the scale is not to be used immediately after purchase, it should be stored in a dry place where fluctuations in temperature are low. (Reference pg.).
- Read through these operating instruction, before you work with the unit and pay attention to the Safety recommendations (reference Safety pg. 5).

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	

Assembly & Installation

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.

Connecting the AC Adapter

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

⚠ **DANGER**

Placement of Scale

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

- Place the scale 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
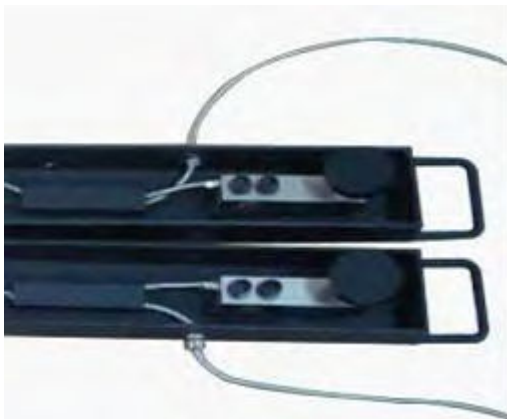- Avoid placing the scale near or on any magnetic surfaces

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.

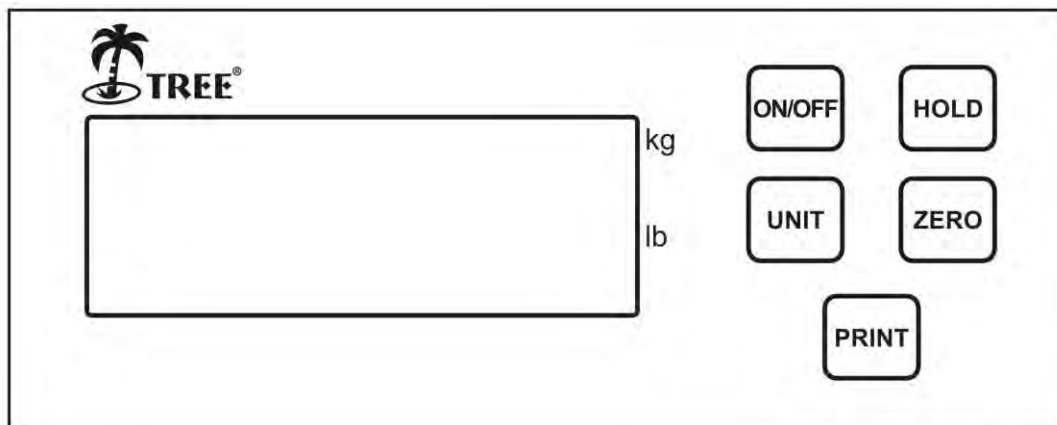Please complete the following steps before using the scale:

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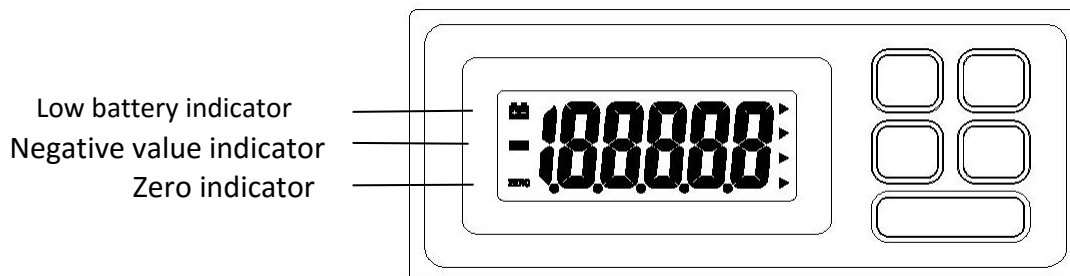
Step 2: Adjust the four scale feet horizontally.

Application Menu

Display messages:

Low battery indicator
Negative value indicator
Zero indicator

Key Functions:

- The ON/OFF key is to turn the Scale On or Off
- The HOLD key is to store the weight value.
- The UNIT key is to toggle different weighing units.
- The ZERO key: Zero feature if load weight below 4% of full capacity; Tare feature if load weight between 4 to 100% capacity.
- The PRINT key is to send data to external device through RS232 connector.

Program Options

Interface Settings

- Press 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.

Function settings

Setting Auto Shut off

Press the "Hold" key, then press the "On/Off" key to turn on the Scale, display will show "A ON" or "A OFF", Press the "Zero" key to select Auto shut off mode "ON" or "OFF".

Setting Backlight

Press the "hold" key, then press the "On/Off" key to turn on the scale, display will show "A ON" or "A OFF", Press the "Unit" key, display will show "L ON", "L OFF" or "L AU", press the "Zero" key to select back light On, Off or Au(auto).

Setting power-on mode

Press the "hold" key, then press the "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).

Working mode settings
- Press & hold the "Unit" key and "Hold" keys, then press the "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.

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

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 scales of 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 the "Zero" key and then press the "On/Off" key to turn on the scale, the display will show CAPu=

- Press the "Hold" key, display will show CAP, press the "hold" key again, the display will show CALu=, press the "Unit" key to select calibration unit (kg. or lb.), a triangle icon will display to indicate kg. or lb., press the "Hold" key to confirm, it will display CALu= again.

- Press the "Hold" key again, the display will show CAL, press the "Unit" key to set calibration weight, display will show XXXXX with a flashing digit, press the "Unit" key to move the flashing digit to right, press the "Zero" key to increase the value of the flashing digit, press the "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 the "Print" key, display will show CAL and then the AD value, press the "Unit" key when the stable indicator displayed, it will show the flashing calibration weight.

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

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

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

Maintenance & 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; 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 the transportation. Make sure that there are no marked temperature fluctuations during the 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 which meets the following conditions:

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

<u>Warranty</u>

LW Measurements products are under warranty against factory defects for a period of two (2) years from the date of shipment for Customers in the continental United States.

LW Measurements will pay for freight both ways within the first 30 days of purchase if technical support is required. (Determined by our certified Technical Support Team) In the event technical support is needed the customer is responsible for shipping the product back to us after the 30 day period has expired. Once the product is received, the technical support team will inspect and as necessary repair or replace the scale. LW Measurements will ship the product back to the customer at our expense.

Any new scales returned for warranty must be properly packaged in the original box. If they are not properly packed in the original box, the customer is responsible for the shipping cost. If we determine there is a factory defect, we will provide a replacement and accept responsibility for shipping back to customer. If we determine that it is not a factory defect, the customer will be responsible for shipping fees incurred.

For Customers outside the lower 48 States, including Mexico, Canada, Puerto Rico, Hawaii, Alaska and all other countries are responsible for all shipping fees incurred.

Our warranty does not cover misuse or neglect including but not limited to battery or water damage, overloading, and chewed or cut wires, keypad damage (punctures), scratched platforms, dented platforms unless caused by shipping (Must report/return within 30 days). If the product is found to have been misused or damaged by the customer, LW measurements is not responsible for the cost of return.

For warranty claims please call your customer service representative.