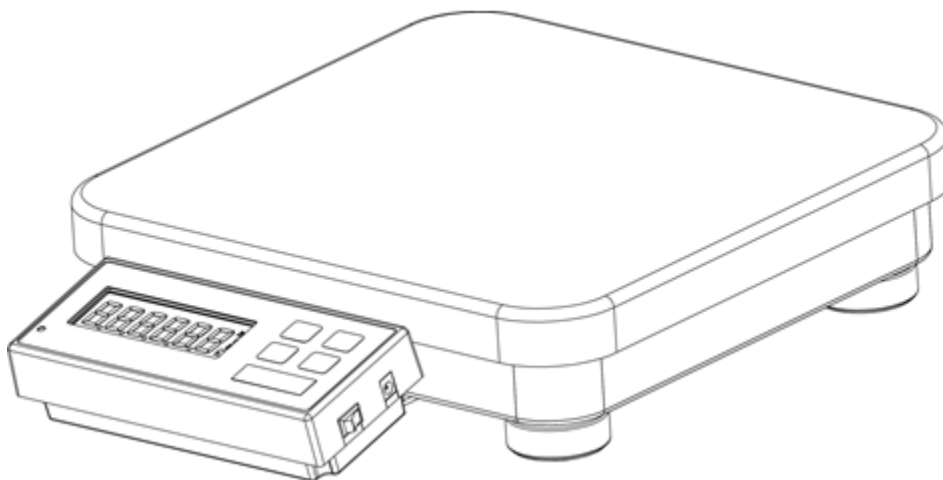




Professional Weighing Equipment

HRB Series intelligent weighing scale

**HIGH RESOLUTION BALANCE
WITH COUNTING FUNCTION**



HRB 30001 HRB 60001

Operation Manual

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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:HRB - High Resolution Balances

USA model


UK (Europe) model

HRB 30001

HRB 30001

HRB 60001

HRB 60001

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

Signature:



Boon Lim, R & D Manager

Date: 14. 05. 2017

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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 scale 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 and advice, please see Safety below.

Safety

Representations and symbols

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 (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.

Weight Scale PARTS DESCRIPTION

► **TOP UNIT** key(Changes weighing units)

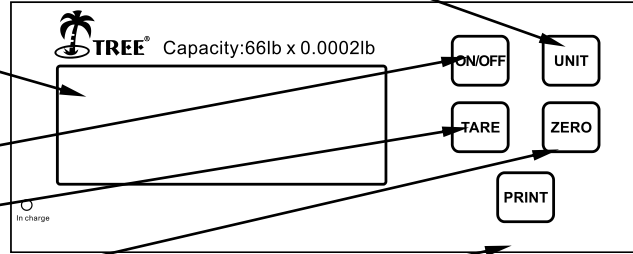
Display

ON/OFF key
Turns the scale
power on/off.

TARE key

ZERO key
Sets display to zero

PRINT key



► **BOTTOM**

Switch key

RS232

RS232 TO USB

DISPLAY



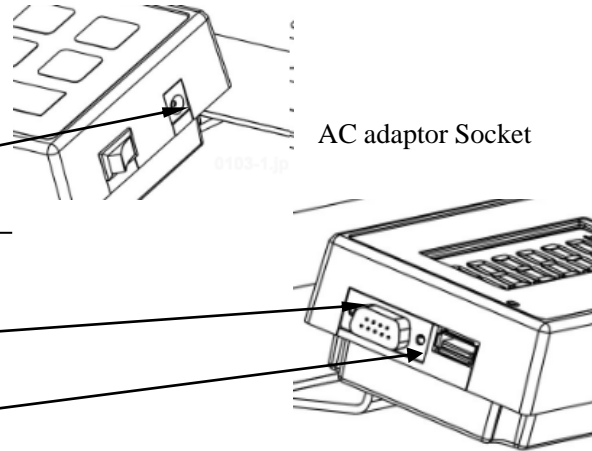
Low battery indicator

Negative value indicator

STABLE indicator
when the reading is stable.

weighing unit **TARE** indicator

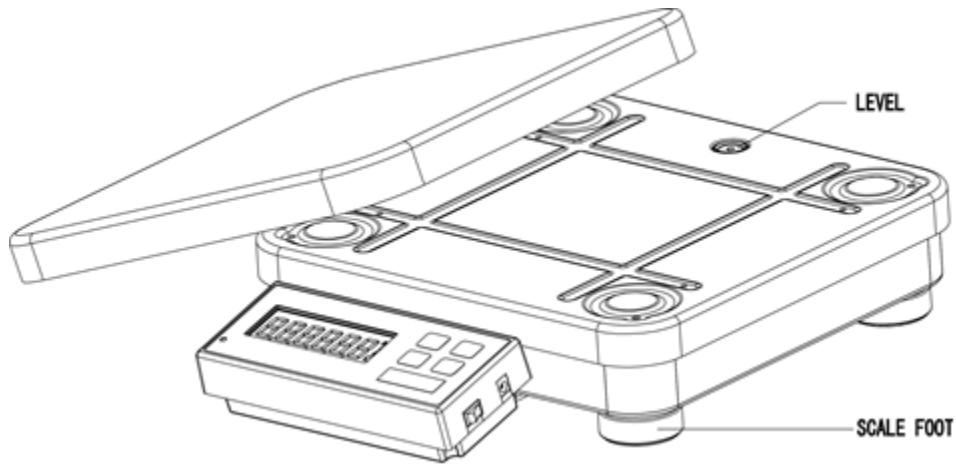
ZERO indicator



Functions

The HRB Series are high-quality electronic precision weighing scales the following specifications

Model number	Capacity	Graduation	Weighing pan Size
HRB 30001	30,000g	0.1g 300,00 division	320x310mm/12.6x12.2 inch
HRB 60001	60,000g	0.2g 300,00 division	320x310mm/12.6x12.2 inch
Net/gross weight	7.5 kg(16.5lb)/8.4kg(18.5lb)		
Package (Standard carton)	Individual carton 500x370x120mm / 19.7x14.6x4.7 inch		
Package (Master carton)	2 Units in a box 515x380x260mm / 20.3x15x10.2 inch		
Operating Temp.	0-40°C (32-104°F)		
Power source	Rechargeable battery AC/DC Adapter 12V / 1A		



Leveling the weighing machine

To function properly, the balance must be precisely horizontal. The balance is fitted with one bubble level. Adjustable feet for level-control, with the aid of which it is possible to compensate for small height differences and / or any unevenness in the surface on which the balance is positioned.

The scale foot must be adjusted so that the air bubble is precisely in the center of the sight glass of the bubble level (see Fig. 3.2)

Place the scale horizontally and keep the bubble inside the bubble level aligned with the red circle (See Fig.3.2). In order to get exact measurements, the balance must again be carefully leveled after each relocation.



Correct




incorrect

Fig. 3.2 correct leveling with the aid of the bubble level

Features

- Auto zero tracking
- Low battery indication
- Large bright backlit LCD
- Stability indication
- Auto calibration
- Selectable auto back light
- Selectable backlight
- Selectable auto shut off
- Net weight/stability indication
- Selectable conversion
- Highest quality sensor used
- RS-232/RS232 to USB
- 1/300000 division available

Note: When the recharging sign“” indicates, please charge the battery immediately. When the color of indicator light turns to green from orange, the recharging is finished. Normally, the time for charging is about 3 to 4hours.


WEIGHING

Before weighing

Whenever possible, please allow the balance to warm up for 10 minutes after first turning to power on, so that the balance will function properly and accurately.

Error messages

Err-O: Overload

: Low battery

Calibration may be required before weighing.

Read "CALIBRATION" first and if necessary, calibrate your scale/balance for accurate weighing.

Weighing procedures

1. Press [ON/OFF] to turn on the balance.

When power is turned on, all display segments appear on LCD for a few seconds and finally "0" will appear on the display.

2. Select the weighing unit with [UNIT].

Press [UNIT] to select a weighing unit, eg. "g", "ct", "....."

Once the unit has been selected, the selected unit will be displayed to the weight value.

3. Start weighing

If you do not use a container for weighing

Verify the reading is "0". If not, press [ZERO] to display "0".

Place objects on the weighing platform to weigh.

When the reading becomes stable, the stable indicator is displayed.

If you use a container for weighing

Place an empty container on the platform.

Wait for the stability indicator to be displayed and press [ZERO].

Place the objects to be weighed in the container.

When the reading becomes stable, the stable indicator is displayed

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 HRB series

Power supply:

HRB 30001 & HRB 60001

Input: 110V or 230V AC (+/-15-20%); 50 to 60Hz

Output: 10-12v DC 150mA

Allowable ambient conditions

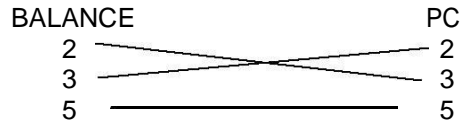
Temperature: 5°C - 40°C

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.

RS232 Data interface

1. Connector: DB9



2. Transmissions Settings

Mode: Simplex Asynchronous Serial
 Data Bit: 8
 Stop Bit: 1

Baud Rate: 9600
 Parity Bit: None
 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: 'g' =67H+20H+20H+20H+20H
 'oz ' =6FH+7AH+20H+20H+20H
 'lb' =6CH+62H+20H+20H+20H
 'dwt' =64H+77H+74H+20H+20H
 'ozt ' =6FH+7AH+74H+20H+20H
 'ct ' =63H+74H+20H+20H+20H
 'tl.T' =74H+6CH+2EH+54H+20H
 'tl.H' =74H+6CH+2EH+48H+20H
 'tl.J ' =74H+6CH+2EH+4AH+20H
 'GN' =47H+4EH+20H+20H+20H
 'dr' =64H+72H+20H+20H+20H
 'MM' =4DH+4DH+20H+20H+20H
 'tola' =74H+6FH+6CH+61H+20H
 'gsm' =67H+73H+6DH+20H+20H
 'T/A/R' =54H+2FH+41H+2FH+52H
 'T/M/R' =54H+2FH+4DH+2FH+52H
 'pcs' =50H+43H+53H+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. 19).
- Read through these operating instruction, before you work with the unit and pay attention to the Safety recommendations (reference Safety pg. 6).

Delivery

Inspect delivery for completeness immediately on unpacking all components.

Checklist for complete delivery

	Component delivered present yes / no
Weighing unit body	
Weighing pan	
Power adapter	
Operating manual	

Assembly & Installation

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

- Place your machine on a level, clean, and dry surface to obtain accurate readings.
- Place the stainless steel platter on top of the weighing unit body.

Connecting the AC Adapter

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



The Scale should only be connected to the mains voltage socket with the power adapter supplied. Check before connecting the power adapter to the mains socket, 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 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.

Key Functions:

- The On/Off key is to turn the Balance On or Off (Note: it has an On/Off hard switch at the bottom).
- The Zero key allows the user to subtract the container value multiple times within the capacity weight, and is used to set or re-adjust the weighing scale in correct zero position.
- The Print key is to send data to external device through RS232 connector.
- The Unit key is to toggle between different units of measurement.

Program options

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

Interface Settings

- Press “On/Off” to turn on the scale, when instrument displays -----
- Press “Print”, the display will show b xxx BAU value
- Press “Unit” to select among (1200,2400,4800,9600), default setting is 9600
- Press “Zero” to enter Parity mode, the display will show P xxx PAR
- Press “Unit” to select odd, even or none (odd stands for 7 data bits with odd parity, even stands for 7 data bits with even parity, none stands for 8 data bit without parity), default setting is none
- Press the “Zero” key to enter print mode, the display will show n xxx mod
- Press “Unit” to select CON, OFF, KEY, STB (Default setting is KEY)
 - OFF stands for serial data output disabled
 - KEY stands for manual mode by pressing “PRINT”
 - STB stands for automatic print when scale is stable
 - CON stands for continuous print
- Press [Zero] again to return to weighing mode

Parameter settings

Parameter settings

Setting Zero range when power on

Press ON/OFF key, and when “- - - - -” shows, press TARE key, display will show “Pzr x.x”, press UNIT key to select, factory default setting is 20

Setting Zero range of ZERO key

Press ON/OFF key, and when“- - - - -” shows, press TARE key, and then press ZERO key, display shows “Kzr xx”, press UNIT key to select, factory default setting is 4

Setting Zero range of TARE key

Press ON/OFF key, and when“- - - - -” shows, press TARE key, and then press ZERO key multiple times till display shows “Ktr xxx”, press UNIT key to select, factory default setting is 100

Setting overload range

Press ON/OFF key, and when“- - - - -” shows, press TARE key, and then press ZERO key multiple times till display shows “Ovr xx”, press UNIT key to select, factory default setting is 9d

Setting Beeper

Press ON/OFF key, and when“- - - - -” shows, press TARE key, and then press ZERO key multiple times till display shows “b2 ON” or “b2 OFF”, press UNIT key to switch it ON or OFF.

Setting ZERO and TARE function merge function

Press ON/OFF key, and when“- - - - -” shows, press TARE key, and then press ZERO key multiple times till display shows “Zt ON” or “Zt OFF”, press UNIT key to switch it ON or OFF, in this model, it has to be set OFF

Setting Auto Shut off

Press ON/OFF key, and when“- - - - -” shows, press TARE key, and then press ZERO key multiple times till display shows “A ON” or “A OFF”, Press UNIT key to select Auto shut off mode “3/5/10” or “OFF”.

Setting Backlight

Press ON/OFF key, and when“- - - - -” shows, press TARE key, and then press ZERO key multiple times till display shows “L ON”, “L OFF” or “L AU”, Press UNIT key to select backlight to be “On”, “Off” or “Auto”.

Setting Division

Press ON/OFF key, and when“- - - - -” shows, press TARE key, and then press ZERO key multiple times till display shows “d.0.1g”, Press UNIT key to select **Division** to be “0.2g”, “0.5g” or “1g”.

Calibration

Using an External Calibration Weight

Calibration is required when the weighing scale is initially installed or if the balance is moved to a substantial distance from the original location.

We recommend using at least half the scale capacity for calibration. Use F class test weights or better for higher precision.

30 minutes' warm-up of the balance is always needed before weighing and calibration.

- Turn the Balance on and when display shows "-----", press ZERO key
- The display will show "CAL"
- Press ZERO key again, the display will show "X0000.0", "X" is the flashing digit
- Press UNIT key, the flashing digit will move to right
- Press the TARE key to increase the value of the flashing digit ("X" is the calibration weight can be set according to users' requirements.)

- Press the ZERO key, the display will show a series of digits known as the A/D value, these numbers will continuously move, once the display shows the stable indicator (please see page 7 for help locating the stable indicator), press the UNIT key, the display will then show -----, then r "X0000.0".
- Place the corresponding test weight on the center of the pan
- The display backlight lights up and returns to weighing mode
- Now the calibration is completed
- Turn off the power, then turn on the power again, place a known weight on the platform to verify if it is accurate.
- If the weight displayed does not correspond with the value of the calibration weight, please repeat above steps.

Maintenance & Service

The weighing scale is a precision instrument, it must be treated carefully and cleaned regularly

DANGER

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 perform maintenance to 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

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.

Transport & 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

Warranty

The products are under warranty against factory defects for a period of two (2) years from the date of shipment.

For Customers within the lower 48 states of the continental United States. LW Measurements will pay for freight both ways for the first 30 days after purchase. After 30 days expire the customer is responsible for shipping the product back to us. After the product is received we will inspect it and as necessary we will repair or replace and 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 and in the original box, the customer pays for shipping cost. If we determine there is a factory defect, we will pay for the shipping back. If we determine that it is not a factory defect, the customer will pay shipping.

For Customers outside the lower 48 States, including Mexico, Canada, Puerto Rico, Hawaii, Alaska and all other countries, customers must pay for shipping.

Our warranty does not cover misuse or neglect including but not limited to battery or water damage, overloading, and chewed or cut wires. 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 go online to lwmeasurements.com and fill out the warranty submission form or call your customer service representative.

