LW MEASUREMENTS, LLC

Professional Weighing Equipment

MRB Series Mid Resolution Balances

Compact Scales

Operating Manual

MRB 500g
MRB 1200g
MRB 2500g
MRB 6000g
MRB 10000g

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: MRB Compact Scales

Models

MRB 500g
MRB 1200g
MRB 2500g
MRB 6000g
MRB 10000g

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

Date: 21. 08. 2013

Signature:

Boon Lim,
R & D Manager

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Refer to our website for information about local customer service centers and details of their addresses.

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 and advice, please see Safety below.

Contents

6	**Calibration**
7	**Maintenance and service**
8	**Transport and storage**
	8.1 Transportation and shipping 8.2 Storage

1 Safety

1.1 Representations and symbols

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

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 connecting 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 to 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.

- Do not mix the type of batteries. Replace all batteries at the same time.

- Avoid overloading the weighing machine, as that could cause damage to the machine.

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

- Keep this weighing machine away from water – this machine is NOT water resistant. Shock, injury and electrical damage can occur if used in a wet location.

- Care must be taken when weighing liquids to ensure that no liquid is spilled into the inside of the weighing machine or into connections on the rear of the equipment or the power adapter. If liquid is spilled 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.

2 Your weighing machine

2.1 Construction and functions

2.1.1 Construction of the weighing machine

The weighing machine consists of (1) the weighing machine body (2) the weighing platter (3) the adapter and this operating manual.

Figure 2.1 Your weighing machine

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2.1.2 Functions of the weighing machine

The MRB Series are high-quality electronic precision weighing machines with the following specifications:

Model number	Capacity	Division	Weighing pan Size
MRB 500	500 g	0.1 g	175 x 160 mm
MRB 1200	1200 g	0.1 g	175 x 160 mm
MRB 2500	2500 g	0.1 g	175 x 160 mm
MRB 6000	6000 g	1 g	175 x 160 mm
MRB 10000	10000 g	1 g	175 x 160 mm
Package (Standard carton)	29.8 x 21.6 x 8.8.5 (cm^3)		
Package (Master carton)	12 Units in one box: 61×48.5×38 (cm^3)		
Operating Temperature	0-40C^o		
Power Source	6 x AA batteries or AC/DC Adapter 9V / 100mA		

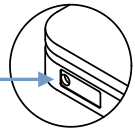
FEATURES

- Auto zero tracking
- Auto shut off
- Low battery indication
- Large LCD (6 digits, 15 mm high)
- Large square weighing pan
- Auto calibration
- Selectable auto backlight
- Net weight indication
- Weighing units: kg,g, lb, oz, lb:oz
- 1/2000~1/15000 division available

2.1.3 Description

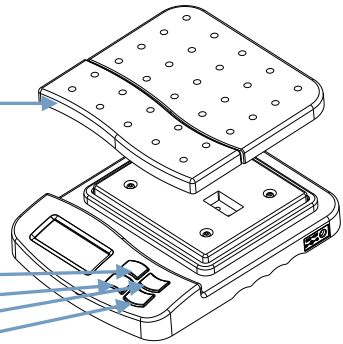
RIGHT SIDE

AC adapter socket



TOP

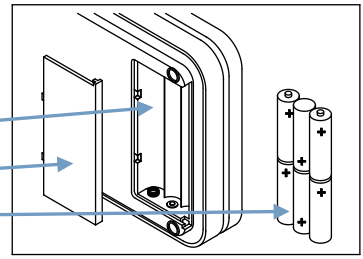
Weighing platform
(The arched face of the platform is the front)



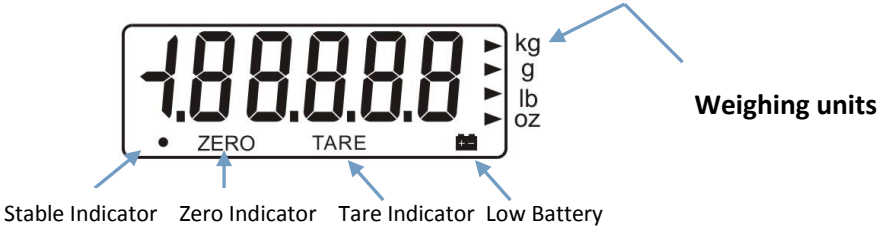
Display
ON/OFF key
TARE key (subtracts weight of container)
UNIT key
ZERO key
(sets display to 0)

BOTTOM

Battery compartment
Battery compartment cover
Batteries 6 AA (not included)



DISPLAY



2.2 Application & Conformity

2.2.1 Correct use of the weighing machine

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

The maximum allowable load of the weighing machine must never be exceeded; otherwise the 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 all MRB series weighing machines:

Power supply:

- Input: 120V or 230V AC (+/-15-20%); 60Hz
- Output: 9v DC 100mA

Allowable ambient conditions:

- Temperature: 0°C - 40°C / 32 - 104ºF
- 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.

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 unit during transportation.

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

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

- Unpack the weighing machine carefully. It is a precision instrument.
- When outside temperatures are very low, the machine 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 rather at a later time, it should be stored in a dry place where fluctuations in temperature are as minimal 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 upon unpacking all components.

Checklist for complete delivery

	Component delivered present yes / no
Weighing unit body	
Weighing platter	
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 base unit in position and add the weighing platter.
- 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 weighing machine to the mains:

⚠ DANGER

The weighing machine 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.

3.6 Calibration of the weighing machine

Since the Earth's gravity is not the same everywhere, each weighing machine 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

4.1 Function settings

To enter the function setting mode, press the ON/OFF key to turn the power off. Then press and hold the ZERO key and then press the ON/OFF key again. The display will show A_ON or A_OFF.

4.1.1 Selecting the auto backlight mode

– Press the UNIT key, the display will show L_ON, L_OFF, or L_Au. Press the ZERO key to select. L_ON means the auto backlight function is active. L_OFF means the auto backlight function is inactive, and L_Au means the auto backlight function is on Auto.

4.1.2 Selecting the auto shut off mode

– Press the UNIT key again, the display will show A_ON or A_OFF. Press the ZERO key to select. A_ON means the auto shut off function is active. A_OFF means the auto shut off function is inactive.

4.1.3 Key Functions

- ON/OFF KEY is used to turn the Scale On or Off.

- ZERO KEY sets or re-adjusts the machine into the correct zero position.
  - **Zero Range: 0-10% of full capacity**

- TARE KEY subtracts the gross weight on the platter (box or container, etc) to the tare weight.
  - **Tare Range: 10-100% of full capacity. Multiple TARE allowed within capacity.**

- UNIT KEY is used to toggle between different weighing units.

5 Operation

5.1 Tare

5.1.1 Clearing tare weight

- Place an empty container on the platter. Press the TARE key. The WEIGHT display shows 0.000.

- When the container is removed from the platter, the WEIGHT display will show a minus (-) value which is the weight of the container.

5.1.2 Clearing previous tare value

- Remove the weight from the platter then press the TARE key so that the TARE indicator will turn off and the WEIGHT display returns to Zero.

5.2 Weighing procedures

Whenever possible, before weighing, please allow the weighing machine to warm up for at least 10 minutes after turning it on. This will help to ensure optimal functioning and operation.

- Press the ON/OFF key to turn on the weighing machine. The display will show all segments for a few seconds and then the “0” will appear.
- Press the UNIT key to select the desired weighing unit – “kg”, “g”, “lb”, “oz”, “lb:oz”.
- To begin weighing, place the objects to be weighed in a weighing container or directly on the platter.
- The stable indicator will display when the reading becomes stable.

6 Calibration

Note: *Calibration is done in the factory. Don’t re-calibrate the machine unless it is not accurate. The weighing machine should be allowed to warm up for at least 10 minutes before calibration.*

- Before entering calibration mode, press the ON/OFF key to turn the power on for 1 minute.
- Next press the ON/OFF key again to turn the power off.
- Press and hold the UNIT key and then press the ON/OFF key. The display will show “CALu=”.
- Press the UNIT key to select the calibration weight units (g, lb, etc). Press the ZERO key to select the calibration weight. The display will show xxxxx. The X will be flashing. Press the UNIT key to move the flashing digit to the right. Press the TARE key to increase the flashing digit.

NOTE: *X is the calibration weight which can be set according to your requirements. The weight needed when re-calibrating your Tree scale needs to be at least half (1/2) of the capacity of the scale with two thirds (2/3) being ideal as this will give you the most accurate reading.* ***(Ex: For a 10,000g scale you would need at least 5,000g)***

- Press the Zero key to confirm the calibration weight. The display will show CAL and then the AD value. Once the stable indicator "(.)" is displayed, press the UNIT key. The display will flash the calibration weight.

- Place the calibration weight on the platter. After the stable indicator "(.)" is displayed, press the UNIT key. The display will show "--------", then the AD value. The calibration is now finished.

- To return to the weighing mode, press the ON/OFF key to turn the power off. Press the ON/OFF key again to turn on the power and return the machine to weighing mode. Place the weight on the platter again to ensure the weighing is correct. If not, repeat the calibration process.

7 Maintenance and service

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

⚠ DANGER

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

Take care during cleaning that no liquid penetrates into the weighing machine. If liquid is spilled on the machine, the latter must immediately be disconnected from the electricity supply. The machine may only be used again after it has first been checked by a service engineer.

The connections on the back of the machine and the power adapter should not come into contact with liquids.

Regularly dismantle the weighing platter from the base unit and remove any dirt or dust from under the weighing platter and on the weighing machine

housing with a soft brush or a soft, lint-free cloth, moistened with a mild soap solution. The platter can be cleaned under running water. Ensure that both parts are completely dry before they are re-installed on the scale.

⚠ 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 may cause damage

8 Transport and storage

8.1 Transportation and shipping

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).

8.2 Storage

If you would like to take the weighing machine out of service for an extended period, remove all batteries from the battery compartment to avoid leakage which may cause damage to the machine. Disconnect the machine 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.