



*Professional Weighing
Equipment*

MRW SERIES intelligent weighing machine

WASHDOWN WEIGHING SCALE - Dust and Waterproof Scale IP65

WITH PIECE COUNTING FUNCTION



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: MRW Washdown Scales

Imperial version

MRW-3
MRW-7
MRW-15
MRW-33

Metric version

MRW-1500
MRW-3000
MRW-7500
MRW-15k

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

Date: 14. 11. 2012

Signature:



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Identification

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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 labelling of potential hazards and advice, please see Safety below.

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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 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 MRW 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 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at any angle up to 15° from its normal position
3	Protected against spraying water	Water falling as spray at an angle up to 60° 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 machine body (1), the scale-pan (2), the adapter (3) and this operating manual.

Figure 2.1 Your weighing machine



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2.1.2 Functions of the weighing machine

The MRW Series are high-quality electronic precision weighing machines designed to function as counting scales and check-weighers with the following specifications

1. Imperial weight unit version

Model number	Capacity	Division	Weighing pan Size
MRW-3	3 lb	0.0001 lb	165 x 175mm
MRW-7	7 lb	0.0002 lb	165 x 175mm
MRW-15	15 lb	0.0005 lb	165 x 175mm
MRW-33	33 lb	0.001 lb	165 x 175mm
Package (Standard carton)	30.5x24x14.5(cm ³)		
Package (Master carton)	4 Units in one box: 48.5 x 33 x 31(cm ³)		
Operating Temperature	0-40°C(32-104°F)		
Power source	6 x AA dry cells or AC/DC Adapter 9V DC /100mA		

2. Metric weight unit version

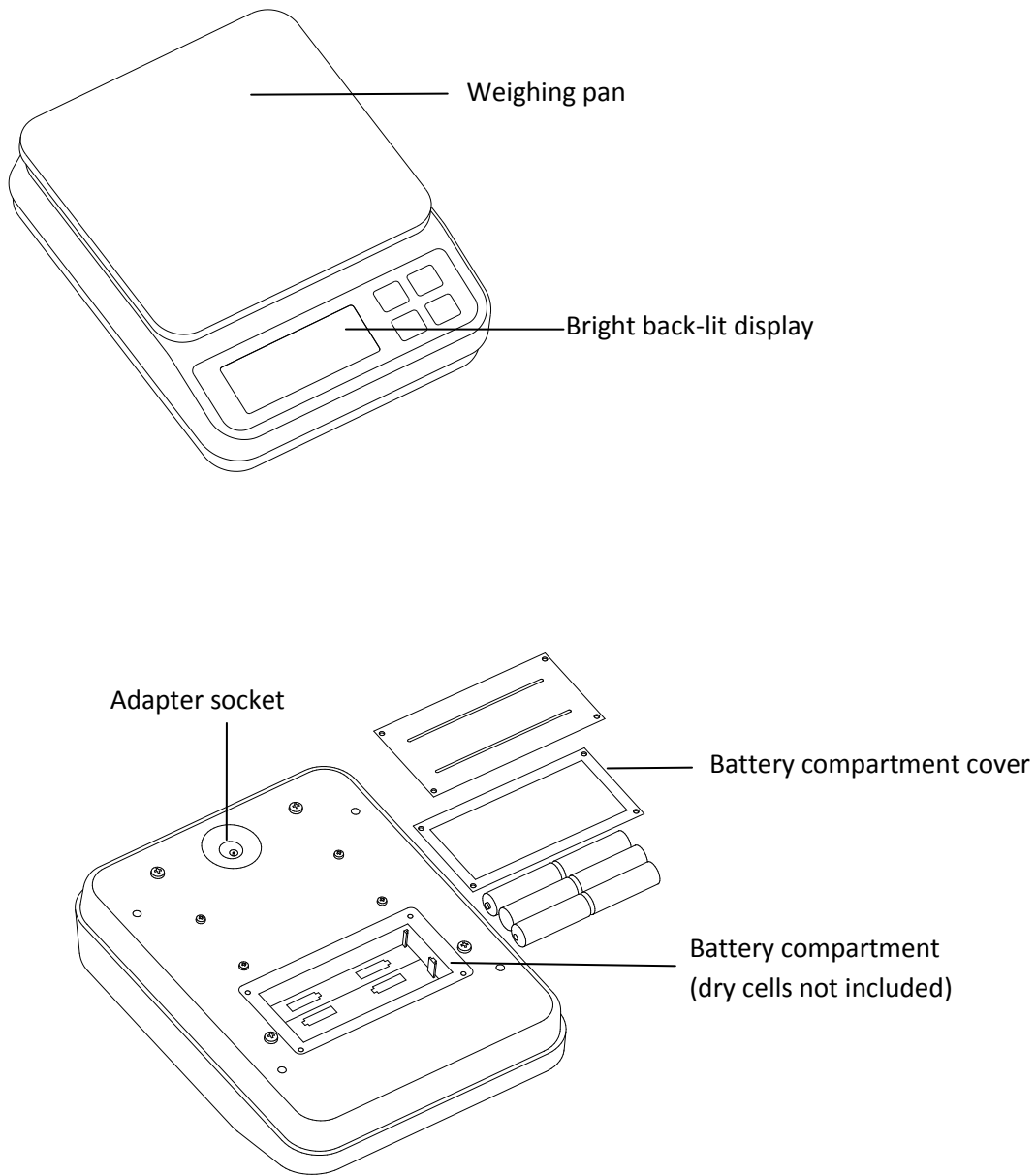
Model number	Capacity	Division	Weighing pan Size
MRW-1500	1500 g	0.05 g	165 x 175mm
MRW-3000	3000 g	0.1 g	165 x 175mm
MRW-7500	7500 g	0.2 g	165 x 175mm
MRW-15k	15 kg	0.0005 kg	165 x 175mm
Package (Standard carton)	30.5x24x14.5(cm ³)		
Package (Master carton)	4 Units in one box: 48.5 x 33 x 31(cm ³)		
Operating Temperature	0-40°C(32-104°F)		
Power source	6 x AA dry cells or AC/DC Adapter 9V DC /100mA		

The built-in versatile weighing programs allow the user to use the MRW-Series weighing machines not only for accurate weighing but also for the counting of components.

FEATURES

- Auto zero tracking
- Intelligent applications: weight unit conversion, parts counting
- Low battery indication
- Large bright backlit LCD
- Large heavy gauge stainless steel square pan
- Stability indication
- Auto calibration
- Selectable auto back light
- Selectable auto shut off
- Unit switching kg ,g, lb, oz, lb:oz
- Variable kg or lb reference weight calibration software
- Washdown model

Figure 2.2 Details of your weighing machine



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 of liquids filled into secure containers.

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 all MRW series weighing machines

Power supply:

- . Input: 110 or 230V AC (+/-15-20%); 50 to 60Hz
- . Output: 9V DC 100mA

Allowable ambient conditions

Temperature: 0°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.

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 unit body	
Weighing pan	
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 and add the weighing pan
- 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:



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.

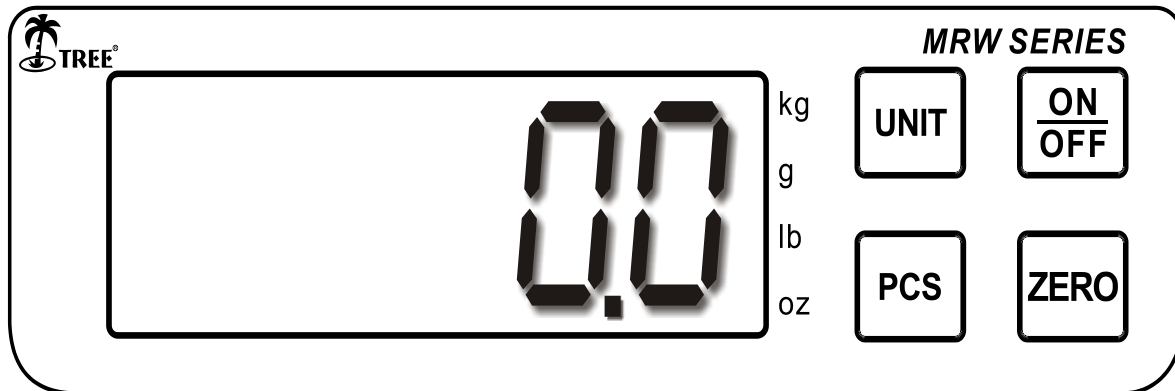
If the operating voltage is not the same as the mains voltage, the power adapter must on no account be connected to the mains supply. Contact customer service.

3.6 Calibration of 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

1. The STABLE icon indicates when the readings stabled.
2. The ZERO icon indicates when the weights tared to zero.
3. The LO-BAT icon indicates when running out of battery.

4.1.2 key functions

1. ON/OFF key turns the weighing machine on or off
2. UNIT key changes the weight units, kg, g, lb, oz, lb:oz
3. ZERO key sets display to zero or subtract the container weight
4. PCS key for pieces counting function

4.2 Program options

Besides performing accurate simple weighing, your versatile weighing machine can also perform pieces counting.

4.2.1 Pieces counting

- Press ON/OFF key to turn on the scale
- Wait for "0" to appear on the display.
- If necessary, press ZERO key to set the display to "0"
- Press PCS key to enter PCS mode, the display will show P=X X
- Press UNIT key to select XX value (10, 20, 50, or 100)
- Place a given number of samples on the pan (Samples should be 10, 20, 50 or 100 pieces)
- Wait for stable indicator showed on display
- Press PCS key to confirm, display will show "PASS" and then the confirmed sample value.
- Start counting by adding more samples on the scale
- Press UNIT key to return to the weighing mode.

4.2.2 Selectable auto shut off

Press and hold PCS key, and then press ON/OFF key to turn on the scale, the display will show A_ON or A_OFF. Press ZERO key to select A_ON (activate the auto shut off function) or A_OFF (inactivate the auto shut off function). Turn off the scale to confirm and quit setting.

4.2.3 Selectable auto backlight

Press and hold PCS key, and then press ON/OFF key to turn on the scale, the display will show A_ON or A_OFF. Press PCS key, the display will show L_ON, L_OFF or L_Au, press ZERO key to select L_ON, L_OFF or L_AU (auto). Turn off the scale to confirm and quit setting.

5 Calibration - Using an External Calibration Weight:

Calibration is required when the weighing machine is initially installed or if the scale is moved to a substantial distance from the original location. 10 minutes warm up of scale is always needed before calibration.

- Turn the scale on and then turn it off
- Press and hold ZERO key, and then press ON/OFF key to turn on the scale, the display will show CAP_u=
- Press PCS key, display will show CAP. Press PCS key again, display will show CAL_u=, press UNIT key to choose the calibration unit kg or lb
- Press PCS key to confirm and display will show CAL_u= again
- Press PCS key, display will show CAL, press UNIT key to set the calibration weight, display will show xx.x with a flashing digit
- Press UNIT key to move flashing digit to right, press ZERO key to increase the digit number. (We suggest the calibration weight to be at least 50% or more within the scale capacity to get an accurate weighing)
- Press PCS to confirm the setting, display will show CAL
- Press ZERO key to start calibration, the display will show the AD value, and wait for stable indicator displayed, then press UNIT key, display will show -----, and then the flashing calibration weight
- Place the test weight onto the center of the weighing pan, and wait for stable indicator displayed, press UNIT key, after stable indicator displayed again, it will show ----- and then the AD value, and now the calibration is completed
- Remove the test weight and press ON/OFF key to turn off the scale. Turn it on again to see if the weighing is accurate, if not, repeat above steps .

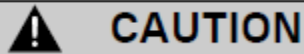
6 Maintenance and service

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



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.



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.