

# MARSDEN

## USER MANUAL

### M-550

Please take time to read these instructions before starting to use the scale





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Thank you for purchasing a Marsden professional medical scale. This is a precision Class III Weighing Instrument and considerate use will result in many years of accurate weighing.

The scale has a maximum load capacity of 160kg which must not be exceeded.

## Product Specification

Model	M-550
Accuracy Class	Class III
Capacity/Division	160kg x 200g
Column	No
Units of Measure	Kg
Function Keys	ON/OFF, ZERO/TARE, HOLD/BMI
Stabilization Time	1-2 Seconds
Operating Temperature	5 to 35°C
Transportation / Storage Temperature	-20 to +60°C
Power Supply	4 x 1.5v AA size alkaline batteries and mains adaptor 12v / 1A
Indicator Display	2.5cm LCD display with 5 active digits
Dimensions (w x d x h)	347mm x 353mm x 60mm

# Safety Instructions

Before putting the device into use, please read with care the information given in this user manual, which contains important instructions for proper installation, use and maintenance of the device.

Marsden/the manufacturer shall not be liable for damages arising from failure to heed the following instructions:

- When using electrical components under increased safety requirements, always comply with appropriate regulations.
- Inappropriate installation/use will render the warranty null and void.
- Ensure the voltage marked on the power supply unit matches your mains supply.
- This device is designed for use indoors.
- Observe the permissible ambient temperatures for use.
- The device meets the requirements for electromagnetic capability. Do not exceed the maximum values specified in the applicable standards.
- Batteries should be kept away from small children. If swallowed, promptly seek medical assistance.

If you have any problems, contact Marsden/your local dealer/your service partner.

## Cleaning

- We recommend using alcohol-based wipes or similar when cleaning the scale.
- Please do not use large amounts of water when cleaning the scale as this will cause damage to the electronics. Please refrain from using corrosive liquids or high pressure washers.
- Always disconnect the scale from the mains power supply before cleaning.

## Maintenance

- The scale does not require any routine maintenance. However, we recommend checking the scale's accuracy at regular intervals. If any inaccuracies occur, please contact your local dealer or service partner.
- If you are in the UK, contact Marsden on 01709 364296 about service and calibration contracts.

## Disposing of the Scale

- This product is not to be treated as regular household waste, but should be handed in to an electrical/electronic equipment recycling centre.
- You can obtain further details from your local council, your municipal waste disposal company or from where you purchased the product.

# Explanation of Graphic Symbols

SN-21300100

Designation of the serial number of every device.

(Number as an example)

“Please note the accompanying documents” or “Observe operating instructions”



Identification of manufacturer of medical product including address.

Charder Electronic Co. Ltd  
No.103 Guozhong Rd, Dali Dist,  
Taichung City 412, Taiwan (R.O.C)



Type B Applied Part

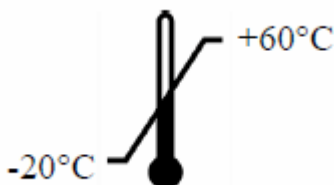


Dispose of old appliances separately from your household waste.

This product must be disposed of at a communal collection point.



Carefully read this operation manual before setup and commissioning, even if you are already familiar with Marsden weighing scales.



Transport and storage temperature limit indicating the upper and lower limit (transport and storage temperature on packaging).

## Power Supply & Low Battery

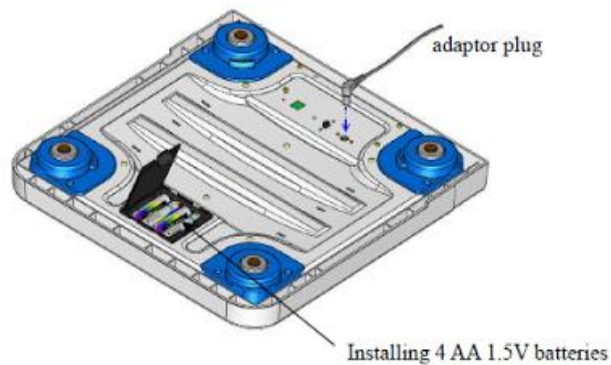
The M-550 runs on four 'AA' alkaline batteries.

When **LoBat** is shown on the scale's LCD display, battery power is not sufficient enough for the scale to be used and the batteries should be replaced.

## Power Supply

The four 'AA' size alkaline batteries are contained in a compartment inside the scale. Access is via a removable cover on the underside of the scale, as shown below:


## Installing The Battery & Connecting Your Adaptor



## ON/OFF

1. Press this key to switch on the scale. The display will show 0.0kg.
2. Pressing the ON/OFF key on the opposite side of the display will reverse the scale's display, therefore the display can be viewed by the patient.
3. If the scale shows a figure other than 0.0kg with no weight applied, press the ON/OFF key once to zero the display.
4. Press and hold the ON/OFF key to switch off the scale.
5. The ON/OFF key can also be used as the minus (-) key in BMI mode to reduce the height reading.

## HOLD

1. Press the HOLD/BMI key to enter into enable the Hold feature.
2. The arrow pointing at the hold symbol will start to flash and the LCD display will show . The word 'HoLd' is displayed in a stylized font with the 'd' in lowercase and a small arrow pointing to it from above.
3. The person being weighed can now stand on the scale. Their weight reading will hold and remain on the display.
4. To return the display back to zero, the HOLD/BMI button can either be pressed or the individual being weighed can step off the scale.

## TARE








1. The ZERO/TARE key can be used to remove any unwanted weight from the scale's display. For example, you may want to remove the weight of someone's shoes from the reading, to leave only the person's weight showing. To do this, place the shoes on the scale and press the ZERO/TARE key once. The weight of the shoes will then be zeroed off.
2. Weigh the individual as normal.
3. Remove the shoes and press ZERO/TARE again to cancel the Tare value and return the scale to zero.

## BMI

1. After the patient stands on the scale, press and hold the HOLD/BMI key for three seconds. The scale will enter BMI mode.
2. The display will show the last inputted height.
3. Press the HOLD/BMI button to decrease the height and ZERO/TARE to increase the height.
4. When the correct height is showing on the display, press the ON/OFF button.
5. BMI will automatically be calculated and the display will show weight and BMI in rotation.
6. Press ON/OFF to disable the BMI function.



# Error Messages

<p><b>Low Battery</b> The scale's alkaline AA type batteries are flat; please replace the batteries.</p>	
<p><b>Overload</b> This indicates that the scale's load sensor(s) have been overloaded. Reduce the loading and retry.</p>	
<p><b>Counting Error</b></p> <ol style="list-style-type: none"> <li>1. The signal from the load cells is too high. Please remove any weight from the scale and try to power on again. If the scale continues to show the error message, it indicates a fault with the electronics or wiring.</li> <li>2. The signal from the load cells is too low. Please remove any weight from the scale and try again. If the scale continues to show the error message, it indicates a fault with the electronics or wiring.</li> </ol>	 
<p><b>High/Low Zero Count</b></p> <ol style="list-style-type: none"> <li>1. The scale is above its zero range. Please remove any weight from the scale and power on again. If the scale continues to show the error message, it indicates a fault with the electronics.</li> <li>2. The scale is below its zero range. Check there is nothing jammed underneath the scale and power on again. If the scale continues to show the error message, it indicates a fault with the electronics.</li> </ol>	 
<p><b>EEPROM Error</b> This indicates there is a fault with the scale's software and is normally caused by a fault with the load cell or wiring. Contact your local service representative.</p>	

# Troubleshooting

The original purchaser can enjoy the benefits under the effective warranty against functional defects in material and workmanship, subject to the terms and conditions listed in the Warranty and Return Policy.

If the scale fault is due to mechanical or electronic defect then the scale will be repaired or replaced under warranty. The purchaser will need to return the scale to the original place of purchase (Marsden/your Authorised Dealer).

Before you contact your Authorised Dealer, please read through the following section carefully.

## Self-checking tips

Some functional defects can be identified and maintained by users as listed below:

### 1) Power Failure

- Check if the mains power adaptor has been correctly plugged into the scale.
- Check if the battery power is running low. Replace with new batteries if required.

### 2) Indicator showing "000" ZERO SPAN out of range

- Incorrect weighing result. Has the scale been dropped, or suffered impact? Is the scale damaged?
- Proper re-calibration procedure required to correct the weighing accuracy.
- Interference due to RF disturbance, ground vibration, etc.
- Unstable platform feet. These can be adjusted by turning; check the spirit level.
- The weighing scale is not on solid, level ground.

# EMC Guidance and Manufacturers Declaration

## Guidance and manufacturer’s declaration – electromagnet emissions.

The M-550 is intended for use in the electromagnetic environment specified below. The customer or user of the M-550 should ensure that it is used in such an environment.

Emission Test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	The M-550 uses RF energy only for its internal function. Therefore, its RF emissions are very low and not likely to cause interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The M-550 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Compliance	


## Guidance and manufacturer’s declaration – electromagnetic immunity.

The M-550 is intended for use in the electromagnetic environment specified below. The customer or user of the M-550 should ensure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment Guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6kV contact ± 8kV air	± 6kV contact ± 8kV air	Floors should be wood, cement or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2kV for power supply lines +1kV for input/output lines	± 2kV for power supply lines not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1kV line(s) to line(s) ± 2kV line(s) to earth	± 1kV differential mode not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Voltage Dips, short interruptions and voltage variations on power supply input lines IEC-6100-4- 11	<5% UT (>95% dip in UT) for 0.5 cycle 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5s	<5% UT (95% dip in UT) for 0.5 cycle 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the M-550 requires continued operation during power mains interruptions, it is recommended that the M-550 be powered from an uninterruptable power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	The M-550 power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Note UT is the A.C mains voltage prior to application of the test level.			

## Guidance and manufacturer's declaration – electromagnetic immunity.

The M-550 is intended for use in the electromagnetic environment specified below. The customer or user of the M-550 should ensure that it is used in such an environment.

Immunity Test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Conducted RF IEC61000-4-6	3 Vrms 150KHz to 80MHz	3 Vrms	<p>Portable and mobile RF communications equipment should be used no closer to any part of the M-550 including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p><b>Recommended separation distance:</b>  <math>d = 1,2 \sqrt{P}</math>  <math>d = 1,2 \sqrt{P}</math> 80MHz to 800MHz  <math>d = 2,3 \sqrt{P}</math> 800MHz to 2,5GHz</p> <p>Where <math>P</math> is the maximum output power rating of the transmitter in watts (w) according to the transmitter manufacturer and <math>d</math> is the recommended separation distance in metres (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.</p>
Radiated RF IEC 61000-4-3	3 V/m 80MHz to 2,5GHz	3 V/m	<p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
<p>NOTE1 At 80 MHz and 800 MHz, the higher frequency range applies.            NOTE2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			
<p>A) Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the M-550 is used exceeds the application RF compliance level above, the M-550 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the M-550.</p> <p>B) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.</p>			

## Recommended separation distance between portable and mobile RF communications equipment and the M-550 Digital Floor Scale

The M-550 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the M-550 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the M-550 as recommended below, according to the maximum output power of the communications equipment.

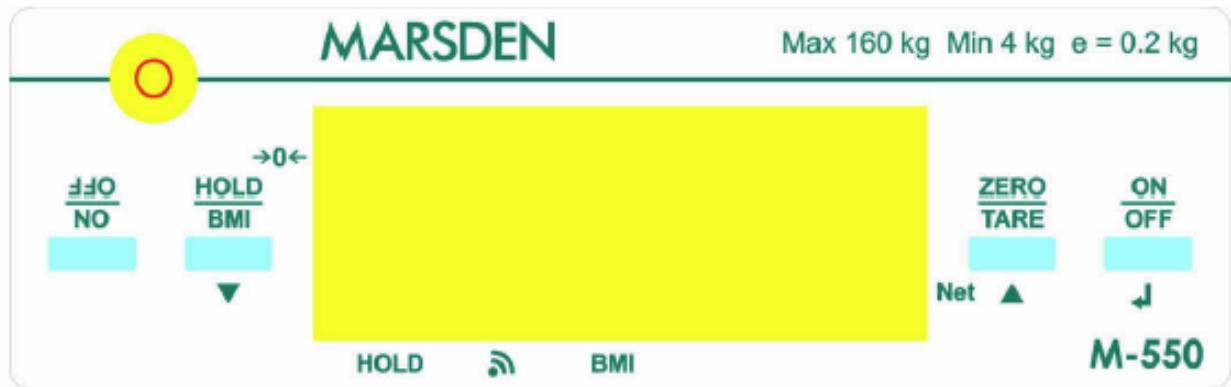
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150kHz to 80MHz $d = 1,2\sqrt{P}$	80MHz to 800MHz $d = 1,2\sqrt{P}$	800MHz to 2,5GHz $d = 2,3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance  $d$  in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where  $p$  is the maximum output rating of the transmitter in watts (w) according to the transmitter manufacturer.




NOTE1) At 80 MHz and 800 MHz, the separation distance for the high frequency range applies.

NOTE2) These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.


## Panel and LCD Display



### LCD Display

1.  : Stable Symbol
2.  : Minor weight value
3.  : Zero

## Manufacturer's Declaration of Conformity

	2014/31/EU Non-automatic Weighing Instruments Directive
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Manufactured by:



Charder Electronic Co., Ltd.  
No.103, Guozhong Rd., Dali Dist.,  
Taichung City 412, Taiwan (R.O.C.)

## EU Declaration of Conformity

The Non-Automatic Weighing Instrument

III

Manufacturer	Charder Electronic Co., Ltd
Model	M-550
EC Type Approval Certificate No.	UK3038

The Metrological Aspects of Non-Automatic Weighing Instruments

EN45501:2015 (module D)	Notified Body Number - 0126
EN45501:1992 (module B)	Notified Body Number - 0126

The non-automatic weighing instrument corresponds to the production model described in the EC Type Approval Certificate and requirements of the following EC Directives:

2014/31/EU	Non-Automatic Weighing Instruments Directive
2014/30/EU	Electromagnetic Compatibility Directive
2014/35/EU	Low Voltage Directive
2014/53/EU	R&TTE Directive

The applicable harmonized standards are:

EN45501:2015	The Metrological Aspects of Non-Automatic Weighing Machines
EN 61000-3-2:2014	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current $\leq$ 16 A per phase)
EN 61000-3-3:2013	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current $\leq$ 16 A per phase and not subject to conditional connection
EN 60950-1:2006	Information technology equipment - Safety - Part 1: General requirements
EN 301 489-1 V1.9.2	Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
EN 301 489-1-17 V2.2.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment; Part 17: Specific conditions for Broadband Data Transmission Systems
EN 300 328 V1.9.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Date: August 25, 2017

Signature: 

Name: Angela Lu  
Position: Measuring Management Rep.  
Place: Taichung, Taiwan

Manufacturer: Charder Electronic Co., Ltd.

Address: NO.103, Guozhong Rd., Dali Dist., Taichung City 412, Taiwan (R.O.C.)



Accuracy Assured

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