

USER MANUAL

MHS-2500I

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 300kg which must not be exceeded.

Product Specification

Model	MHS-2500I
Accuracy Class	Class III
Capacity/Division	300kg x 100g
Units of Measure	Kg
Function Keys	ON/ZERO/TARE/OFF, HOLD/BMI
Stabilization Time	1-2 Seconds
Operating Temperature	0 to 40°C
Power Supply	6x AAA batteries
Indicator Display	2.5 cm LCD display with 5½ active digits
Dimensions of Scale	120mm x 50mm x 160mm

Safety Instructions: Please read before using this device

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:

- 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.
- Use only a correctly wired (100-240V AC) outlet. Do not use a multiple outlet extension cable.
- Physically disabled persons should not attempt to take measurements alone, but instead should be assisted in using the device.
- ⚠ Do not exceed the maximum capacity of the scale. The safety requirements and notes on appropriate use from the hoist manufacturer must also be observed.
- ⚠ The device must not be modified in any way. Any modification will invalidate the warranty.
- ⚠ After assembly the scale must not be rotated horizontally. Rotation is only allowed in connection with 360 degree swivel bearings installed in the hoist.

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

Cleaning

- We recommend using alcohol-based wipes or similar when cleaning the scale.
- Please do not use corrosive liquids, large amounts of water 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 its accuracy at regular intervals. If any inaccuracies occur, contact your local dealer/service partner.
- For information about Marsden service contracts in the UK call 01709 364296.

Disposing of the Scale

- This product should not 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.

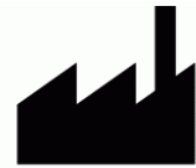
Explanation of Graphic Symbols

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)



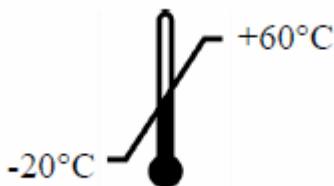
Type B Applied Part.



Dispose of old appliances separately from your household waste.
This product must be disposed of at a communal collection point.



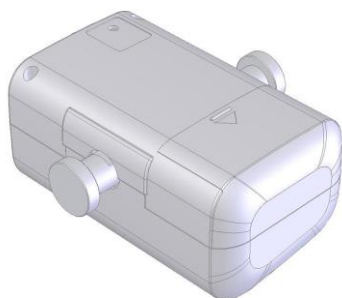
Carefully read this operation manual before setup and commissioning, even if you are already familiar with Marsden scales.



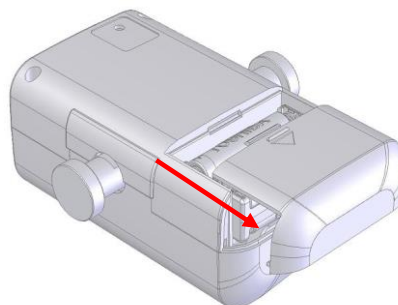
Transport and storage temperature limit indicating the upper and lower limit (transport and storage temperature on packaging).

Installing the Batteries

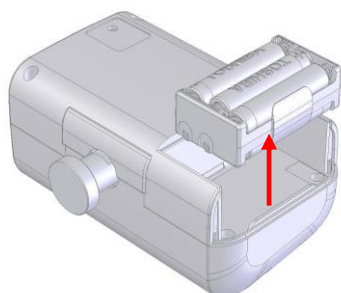
The MHS-2500I requires 6x AAA batteries for operation. Please follow these instructions for installing the batteries.



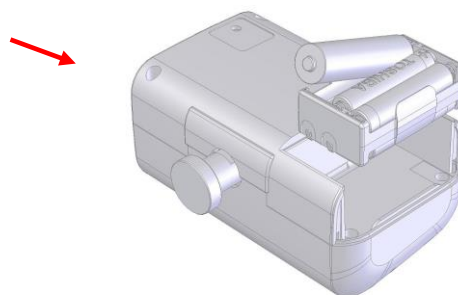
1. Locate the battery cover on the back of the scale.



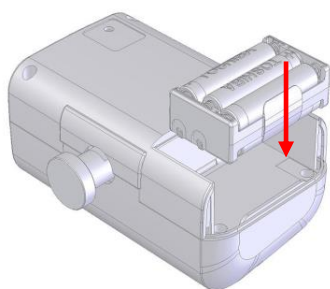
2. Slide the battery cover off.



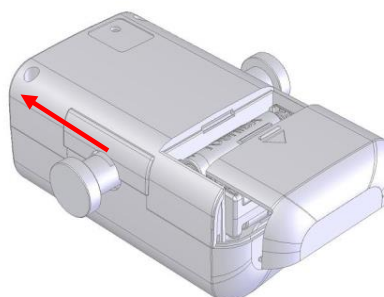
3. Remove the battery housing.



4. Install 6x AAA size batteries.



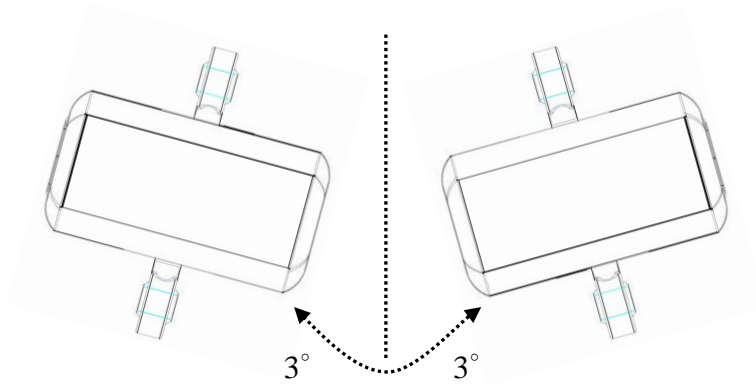
5. Replace the battery housing.



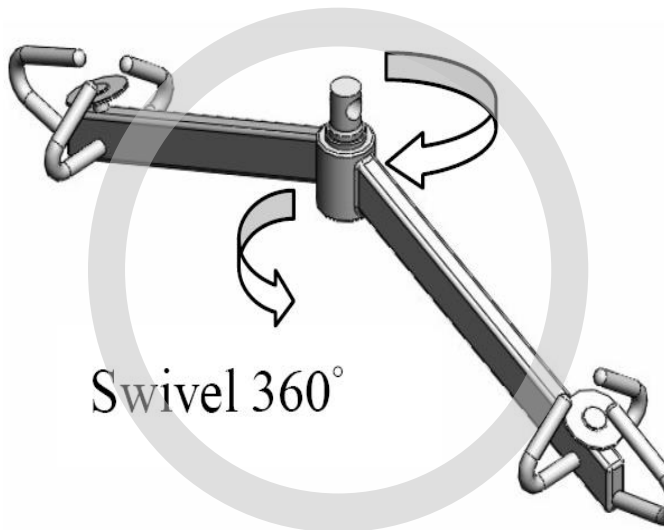
6. Refit the battery cover.

Before Using the Scale

Please ensure the MHS-2500I is fitted to the hoist correctly and hangs straight. A tilt of more than 3° during operation will cause the scale to display incorrect readings.



We do not recommend using the scale with a hoist hanger bar that does not swivel 360 degrees.




Operation: Basic Functions

ON/OFF/ZERO/TARE

- ◆ Press once to switch on. Press and hold for three seconds to switch off.
- ◆ Press once to return to zero.
- ◆ Press once to tare the weight. Make sure the item you wish to tare off is on the scale before pressing this button. The scale will show zero, and a minus reading when the item is removed.

HOLD/BMI


- ◆ During weighing, press this button once to lock and hold the weight reading on the scale.
- ◆ To disable the Hold function, press once again.
- ◆ With the patient on the scale, press and hold for three seconds to enable BMI mode.
- ◆ In BMI mode, enter the patient's height by pressing the **ON/OFF/ZERO/TARE** button and the  button. Press **HOLD/BMI** again to confirm.
- ◆ The display will now show the patient's BMI.

Operation: Advanced Functions

Auto Power-off Time Adjustment

This feature affects the period of non-operation. If the scale, when switched on, is not used for a pre-set period of time, it will shut off automatically.

This function can be set to 120 sec/ 180 sec/ 240 sec/ 300 sec.

- ◆ Press  for three seconds to enter Setup mode. SEt will show on the display.
- ◆ Press the **ON/OFF/ZERO/TARE** button to enter ROFF mode.
- ◆ Press **HOLD/BMI** to select the required delay time, for example 180 5 In this case, the auto power-off time is 180 seconds.
- ◆ Press the **ON/OFF/ZERO/TARE** to confirm.

EMC Guidance and Manufacturer's Declaration

Guidance and manufacturer's declaration – electromagnetic emissions.

The MHS-2500I is intended for use in the electromagnetic environment specified below. The customer or user of this scale should ensure that it is used in such environment.

Emission Test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	This scale 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.
RF emissions CISPR 11	Class B	
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 MHS-2500I is intended for use in the electromagnetic environment specified below. The customer or the user of this scale 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	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV 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	± 2 kV for power supply lines +1 kV for input/output lines	± 2 kV for power supply lines not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV 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 61000-4-11	<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%	<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%	Mains power quality should be that of a typical commercial or hospital environment. If the user of this scale requires continued operation during

	UT (>95% dip in UT) for 5s	UT (>95% dip in UT) for 5s	power mains interruptions, it is recommended that this scale is 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 scale's 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.

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

Immunity Test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 KHz to 80 MHz	3 Vrms	<p>Portable and mobile RF communications equipment should be used no closer to any part of the scale including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance: $d = 1,2 \sqrt{P}$ $d = 1,2 \sqrt{P}$ 80MHz to 800 MHz $d = 2,3 \sqrt{P}$ 800MHz to 2,5 GHz</p> <p>Where P is the maximum output power rating of the transmitter in watts (w) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). 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> <p>Interference may occur in the</p>

Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	vicinity of equipment marked with the following symbol: 
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.			
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. B) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.			

Recommended separation distance between portable and mobile RF communications equipment and the MHS-2500I.







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

Rated maximum output power of transmitter	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2,5 GHz
W	$d = 1,2\sqrt{P}$	$d = 1,2\sqrt{P}$	$d = 2,3\sqrt{P}$
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 meters (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.

Error Messages

<p>Low Battery Battery power is insufficient for the scale to operate. Please replace the 6x AAA batteries.</p>	
<p>Out of Tolerance – Over Zero The scale cannot find zero. Check that nothing is on the scale and retry.</p>	
<p>Out of Tolerance – Under Zero The scale is below zero range. Check that nothing is on or catching the scale and retry.</p>	
<p>Scale overload The scale's maximum capacity has been exceeded. Please reduce the loading and try again.</p>	
<p>Scale Underloaded The weight on the scale is below the minimum weight reading. Please increase the loading.</p>	
<p>EEPROM Error 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>	

Manufacturer's Declaration of Conformity

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



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