MARSDEN

USER MANUAL

M-310 (MS-4400I)

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

Version 1.2 10/17

Contents

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 10kg which must not be exceeded.

Product Specification

Model	M-310 (MS-4400I)
Accuracy Class	Class III
Capacity/Division	10kg x 10g
Weight of Scale	Approximately 0.45kg
Units of Measure	Kg
Function Keys	ON/OFF, HOLD, TARE
Stabilisation Time	1-2 Seconds
Operating Temperature	5 to 35˚C
Power Supply	6 x AAA batteries

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 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 the scale is serviced on a 12-monthly basis. For information about Marsden Service Contracts call 01709 364296.
- If any inaccuracies occur, please contact Marsden, your local dealer or your service partner.

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"

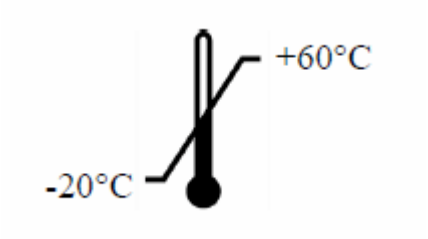
Identification of manufacturer of medical product including address.

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.

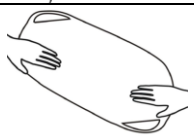
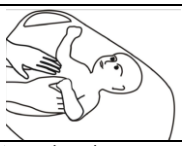
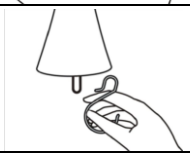
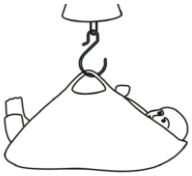
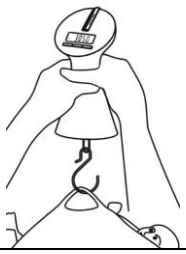
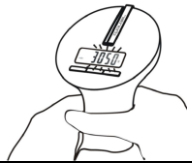


Transport and storage temperature limit indicating the upper and lower limit (transport and storage temperature on packaging).

Installing & Replacing the Battery Pack

1		Locate the battery cover at the bottom of the scale and open it.
2		Remove the battery case.
3		Insert 6x AAA batteries...
4		...making sure each battery is aligned properly in the case, with front edge of each battery corresponding with the + marking on the case.
5		Insert the battery case back into the scale and replace the cover.

Operation Instructions

1		The M-310 (MS-4400I) is designed to be held whilst a baby is being weighed, as shown in the picture on the left.
2		To begin, switch the scale on by pressing the ON/OFF/ZERO button. 0.00kg should show on the display.
3		Lay the sling out on a flat surface.
4		Gently place the baby in the sling.
5		Attach the S hook to the bottom of the scale and to the hoops on the sling.
6		Holding the M-310 (MS-4400I) as shown in 1), gently lift the baby off the flat surface. (Alternatively, if you need to remove the weight of the sling or any other item from the reading, hook the sling/item and sling to the scale and press TARE. You can then weigh the baby as normal.)
7		The weight reading will show clearly on the display.
8		You can also press HOLD to stabilise the weight reading on the display. Press ON/OFF/ZERO to switch the scale off.

EMC Guidance and Manufacturer's Declaration

Guidance and manufacturer's declaration – electromagnet emissions.

The M-310 (MS-4400I) 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 uses RF energy only for its internal function. Therefore, its RF emissions are very low and not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	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.
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-310 (MS-4400I) 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	±1kV 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% UT (>95% dip in UT) for	<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	Mains power quality should be that of a typical commercial or hospital environment. If the user of this scale requires continued operation during power mains interruptions, it is

	5s	5s	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 KHx to 80 MHz	3 Vrms	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. **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 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. Interference may occur in the vicinity of equipment marked

Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	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. If the measured field strength in the location in which the scale is used exceeds the application RF compliance level above, the scale should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the scale.

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 M-310 (MS-4400I).

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

Low Battery The scale's alkaline AA type batteries are flat; please replace the batteries.	
Overload This indicates that the scale's load sensor(s) have been overloaded. Reduce the loading and retry.	
Counting Error 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. 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.	 
High/Low Zero Count 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. 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.	 
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.	

Manufacturer's Declaration of Conformity

This product has been manufactured in accordance with the harmonized European standards, following the provisions of the below stated directives.

CE 2460	93/42/EEC as amended by 2007/47/EC Medical Device Directive
CE M year	2014/31/EU Non-automatic Weighing Instruments Directive

Please see separate document showing on sticker of device for above CE marking.

Authorized EU Representative:

EC REP **Wellkang Ltd**
Suite B, 29 Harley Street
LONDON, W1G 9QR, U.K.

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

Notes

Notes

charder®

EU Declaration of Conformity

The Non-Automatic Weighing Instrument (III)

Manufacturer	Charder Electronic Co., Ltd
Model	MS-4400I
EC Type Approval Certificate No.	T8887

The Metrological Aspects of Non-Automatic Weighing Instruments

EN45501:2015 (module D)	Notified Body Number – 0126
EN45501:1992 (module B)	Notified Body Number – 0122

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
93/42/EEC as amended by 2007/47/EC	Medical Device Directive

The applicable harmonized standards are:

EN45501:2015	The Metrological Aspects of Non-Automatic Weighing Machines
EN ISO14971:2012	Medical devices - Application of risk management to medical devices
EN ISO10993-1:2009	Biological evaluation of medical devices - Part 1: Evaluation and testing within a risk management process
EN60601-1:2006	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance
EN60601-1-2:2007	Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance – Collateral standard: Electromagnetic compatibility - Requirements and tests
EN60601-1-6:2010	Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral standard: Usability
EN62304:2006	Medical device software - Software life-cycle processes
EN980:2008	Symbols for use in the labelling of medical devices

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

Date: August 25, 2017 Signature: Angela Lu

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

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