

MARSDEN

USER MANUAL

M-400

M-410

M-420

M-430

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.

Please note the maximum capacity of the scale you have purchased. This must not be exceeded.

This manual covers the M-400 and M-410 Baby Scales, and the M-420 and M-430 Adult Floor Scales.

Product Specification

Model	M-400	M-410	M-420	M-430
MDD Class	Im			
Capacity/Division	20kg x 5g<10kg>10g	50kg x 10g<20kg>20g	220kg x 50g<150kg>100g	220kg x 200g
Column	No			
Units of Measure	Kg			
Function Keys	ON/ZERO/OFF, HOLD, TARE		ON/ZERO/OFF, HOLD, TARE, BMI	
Stabilization Time	1-2 Seconds			
Operating Temperature	0 to 40°C			
Transportation/ Storage Temperature	-20 to +60°C			
Power Supply	6 x 1.5v AA size alkaline batteries and mains adaptor			
Indicator Display	2.5cm LCD display with 5 active digits			
Dimensions (w x d x h)	340mm x 330mm x 50mm Baby tray (M-400/M-410): 585mm x 280mm x 120mm			

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. Do not use 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.
- Marsden can provide service contracts to keep your medical scales accurate and reliable. Call 01709 364296 to find out more.

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)



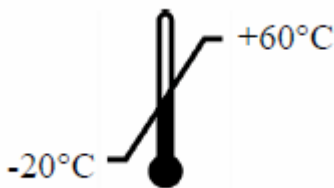
Type B applied part



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 scales.

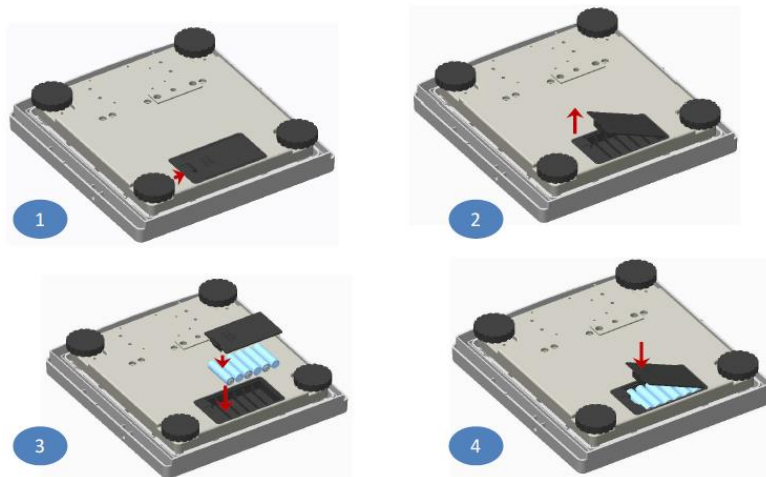


Transport and storage temperature limit indicating the upper and lower limit (transport and storage temperature on packaging).

Power Supply

M-4XX series scales run on six 'AA' alkaline batteries.

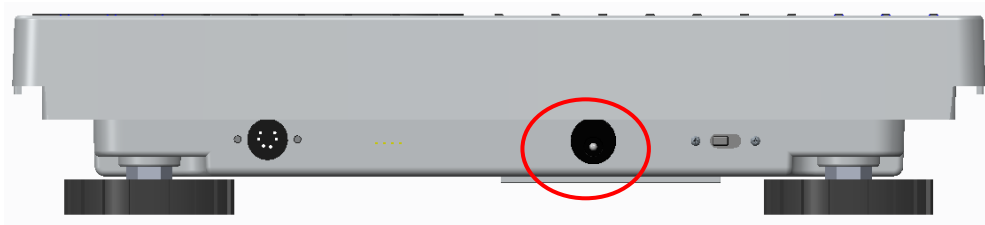
When **LoBat** is shown on the scale's LCD display, battery power is not sufficient enough for the scale to be used and the batteries should be replaced. The six 'AA' size alkaline batteries are contained in a compartment inside the scale. Access is via a removable cover on the underside of the scale, as shown below.



Remove the batteries if you do not intend to use the scale for a long period of time.

Connecting the Mains Adaptor

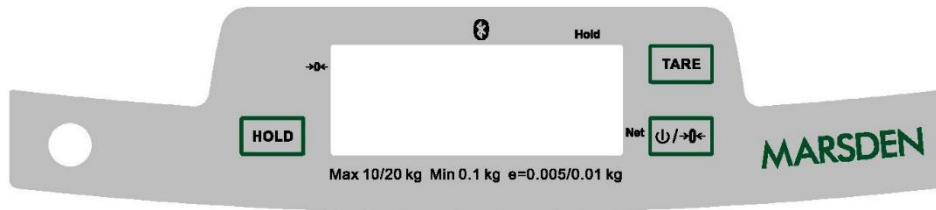
Connect the adaptor to the scale using the port highlighted below.



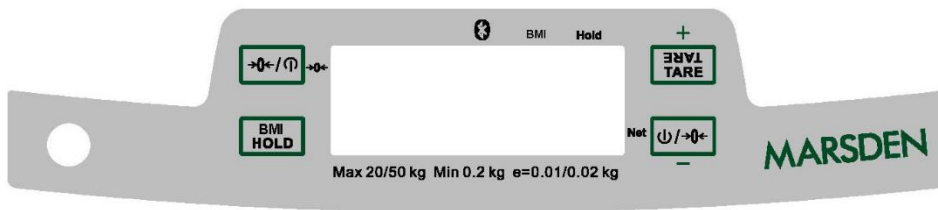
Only use the mains adaptor supplied by Marsden for this unit.

Function Keys

Please note: some features are model-dependent.



M-400



M-410/M-420/M-430

ON/ZERO/OFF/-

1. Press this key to switch on the scale. The display will show 0.00kg. Pressing the ON/ZERO/OFF/- key on the opposite side of the display (M-410/M-420/M-430 only) will reverse the scale's display; therefore the display can be viewed by the patient. (The M-420 & M-430 also have a TAP ON function; refer to page 9)
2. If the scale shows a figure other than 0.00kg with no weight applied, press the ON/ZERO/OFF/- key once to zero the display.
3. Press and hold the ON//ZERO/OFF/- key to switch off the scale.
4. The ON/OFF/- key is also the minus key for reducing the height in BMI mode.

Note: The scale has a built-in battery-save function that will switch off the scale after a period of inactivity, usually around 60 seconds.

BMI/HOLD

1. Press the BMI/HOLD key to enter into enable the Hold feature.
2. Press the BMI/HOLD key once, and when the patient steps on the scale, it will 'lock' onto their weight and hold it on the display.
3. Press the BMI/HOLD key again to release the display.
4. This is also the key to use for BMI readings (M-410/M-420/M-430 only) - see below.

TARE/+

1. The TARE/+ key can be used to remove the weight of any unwanted item. For example, when weighing a baby it is normal for a blanket to be placed onto the scale. Press the TARE/+ key once and the weight of the blanket will be removed from the weight reading when the baby is weighed.
2. After weighing the baby, remove the blanket and press TARE/+ again to cancel the tare value and return to 0.00kg.
3. The TARE/+ key is also the plus key for increasing the height reading in BMI mode.

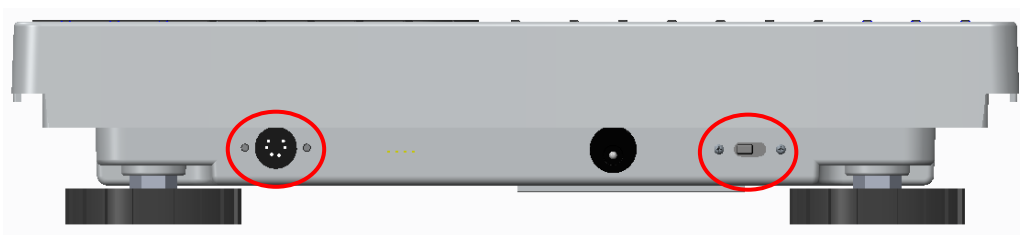
BMI (M-410/M-420/M-430 only)

1. After the patient stands on the scale, press and hold the BMI/HOLD key for three seconds. The scale will enter Height Entry mode.
2. Use the TARE/+ and ON/ZERO/OFF/- keys to adjust the display to the patient's height in centimeters.
3. Press the BMI/HOLD key and the patient's BMI result will be shown on the display.
4. Press the BMI/HOLD key once again to return to normal weighing mode.

Remote Display (M-425 only)

The M-425 is supplied with a remote display.

The remote display has its own ON/OFF button. It takes power from the scale so no additional batteries are required. The remote display can be wall mounted or placed on a desk, providing a discreet display of weight for the person carrying out the weighing procedure. Plug the remote display into the port (circled below left) and then move the ON/OFF button (circled below right) to the ON position.



Milk Intake Function (M-400/M-410 only)

1. Place the baby on the scale.
2. Allow the weight of the baby to stabilize on the display and then press TARE. The scale will now show 0.00 and flash for 5 seconds.
3. When 0.00 displays solid on the screen, remove the baby from the scale and the scale will now display a minus weight reading.
4. Feed the baby as normal.
5. Once feeding is complete, place the baby on the scale and the weight shown on the display will be the amount of milk that the baby has consumed.

Tap-on Function

The M-420 and M-430 can also be switched on by using the Tap-on function, to avoid having to bend down to switch the scale on.

A short firm press of the platform will turn on the scale and the display will show 0.00kg.

The direction of display can be reversed by pressing the ON/ZERO/OFF button when the scale is showing 0.00kg on the display.



Setting the time

Re-setting the time is highly recommended if the time zone is different to that of the supplier.

1. Press and hold the TARE/+ key for three seconds. The display will show 'set.'
2. Press the BMI/HOLD key until the display shows 'date.'
3. Press the TARE/+ key to change the year, and then use the BMI/HOLD button to move right along the row of digits, and the TARE/+ key to adjust the selected number up or down.
4. Press the ON/OFF/- key to confirm and move to the date. Use BMI/HOLD and TARE/+ to change the date reading.
5. Press the ON/OFF/- key to confirm and move to the time. Use BMI/HOLD and TARE/+ to change the date reading.
6. Press the ON/OFF/- key to confirm, and then the BMI/HOLD to exit the menu.

Installing the Baby Tray (M-400/M-410 only)

1. The baby tray can be slid on or off. To slide the tray on, locate the edges of the base where the tray will slide on.



2. Once the tray has slid onto the base, tighten the screws on both sides.



3. Your M-400/M-410 is now ready for weighing babies!







Setting the Bluetooth Function (M-420/M-430 only)

The M-420 and M-430 can be purchased with a Bluetooth module fitted.

1. Press the TARE key for three seconds. The display will show 'set.'
2. Press the BMI/HOLD key until the display shows 'bluet.'
3. Press the TARE/+ key to enter Bluetooth setting mode.
4. Press the BMI/HOLD key to toggle between 'on' (enable) and 'off' (disable).
5. Press TARE/+ to confirm the setting.
6. Press the BMI/HOLD key twice, and then TARE/+ to return to normal weighing mode.

Error Messages

<p>Low Battery The scale's alkaline AA type batteries are flat; please replace the batteries.</p>	
<p>Overload This indicates that the scale's load sensor(s) have been overloaded. Reduce the loading and retry.</p>	
<p>High/Low Zero Count</p> <ol style="list-style-type: none">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.	 

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 Manufacturer's Declaration

Guidance and manufacturer's declaration – electromagnetic emissions.

The M-400/M-410/M-420/M-430 is intended for use in the electromagnetic environment specified below. The customer or user of the scale 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-400/M-410/M-420/M-430 is intended for use in the electromagnetic environment specified below. The customer or 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
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 uninterruptible 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-400/M-410/M-420/M-430 is intended for use in the electromagnetic environment specified below. The customer or 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 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>Recommended separation distance: $d = 1,2 \sqrt{P}$ $d = 1,2 \sqrt{P}$ 80MHz to 800MHz $d = 2,3 \sqrt{P}$ 800MHz to 2,5GHz</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 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.</p> <p>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-400/M-410/M-420/M-430.

The M-400/M-410/M-420/M-430 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 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.

Manufacturer's Declaration of Conformity

Medical Devices Directive 93/42/ECC Class Im

Manufactured by:



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

Manufactured for:

Marsden Weighing Machine Group Ltd.
Unit 1, Genesis Business Park
Sheffield Road, Rotherham
England S60 1DX

EU Declaration of Conformity

The Non-Automatic Weighing Instrument

III

Manufacturer	Charder Electronic Co., Ltd
Model	M-400, M-410, M-420, M-430
EC Type Approval Certificate No.	UK2964

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
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, 2017Signature: 

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.)

T-152D



Accuracy Assured

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