

MARSDEN

USER MANUAL

M-650/M-651/ M-652/M-653

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.

Marsden's policy is one of continuous development and therefore we reserve the right to change product specification without notice.

Product Specification

Model	M-650/M-651/M-652/M-653
MDD Class	Im
Capacity/Division	300kg x 100g
Weight of Scale	Approximately 28.8kg (base only)
Units of Measure	Kg
Function Keys	ON/OFF, HOLD, TARE, BMI, UNIT, PRINT, 0-9
Stabilization Time	1-2 Seconds
Operating Temperature	0 to 40°C
Power Supply	6 x AA batteries* Rechargeable battery pack 12X 1A AC Adaptor
Indicator Display	1" LCD display with 5 active digits
Dimensions (w x d x h)	1150 x 800 x 66mm (base only)
Options	Indicator stand (M-651 only) 2 x handrails and cross bar (M-652 only) 1 x handrail (M-653 only)

*Cannot be powered by six AA batteries as standard. Please contact Marsden for further information.

If the device is under legal metrology control(self-verification)

Marsden will provide notified body no. 0122 on the device

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 inner electrics. 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. For information regarding Marsden service contracts call 01709 364296.
- If any inaccuracies occur, please contact your local dealer or 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



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



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.

“Electro-medical appliance” with attachment of type B.

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.

Power Supply & Low Battery

The indicator uses a rechargeable battery pack, or can be powered from the mains via the AC adaptor.

Make sure the battery pack is installed in the battery box of the indicator. Alternatively, plug the AC adaptor (12V 1A) into the port on the side of the scale.

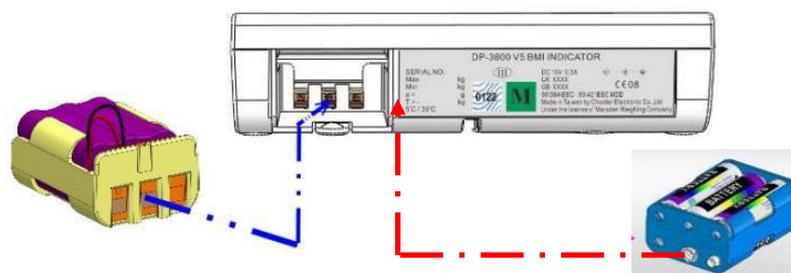


Installing & Replacing the Battery Pack

1. Take out the battery housing, and reset the rechargeable battery.
2. The rechargeable battery pack will slide into, or out of, the housing.



3. Check that the housing pin is connected to the right point inside the indicator.

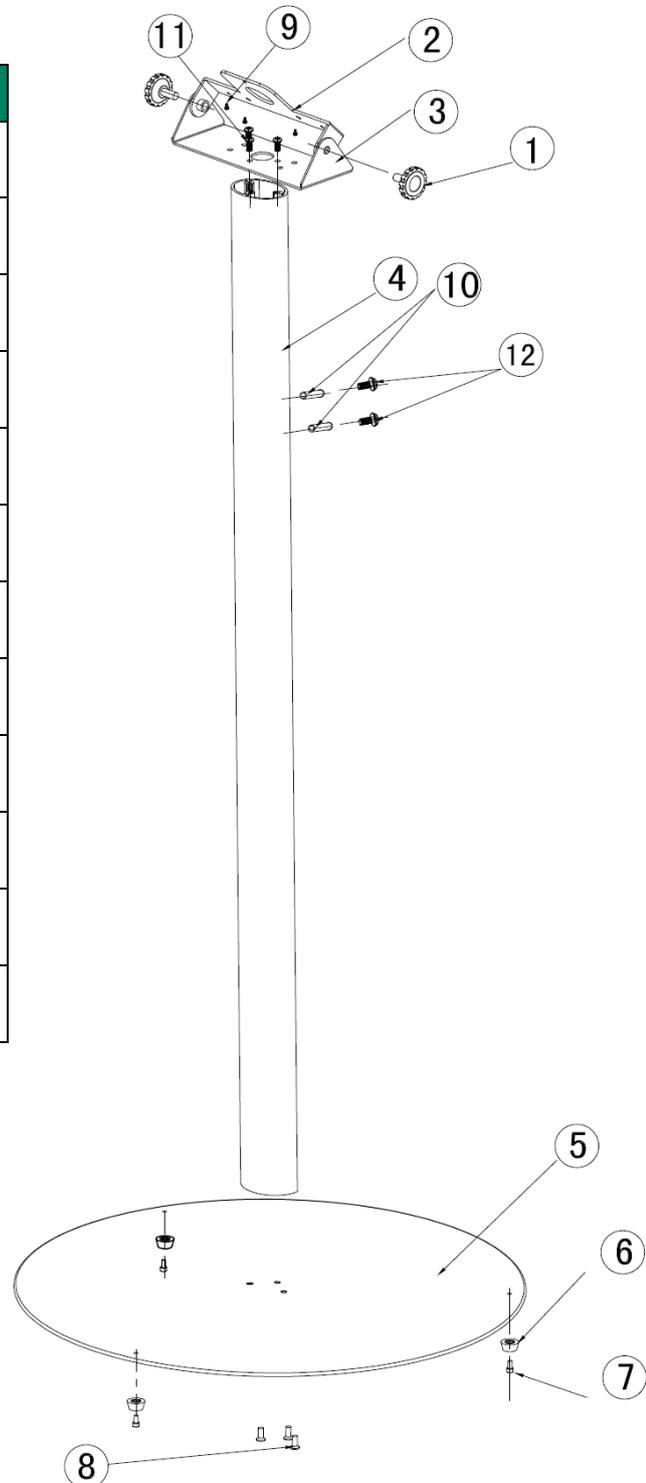


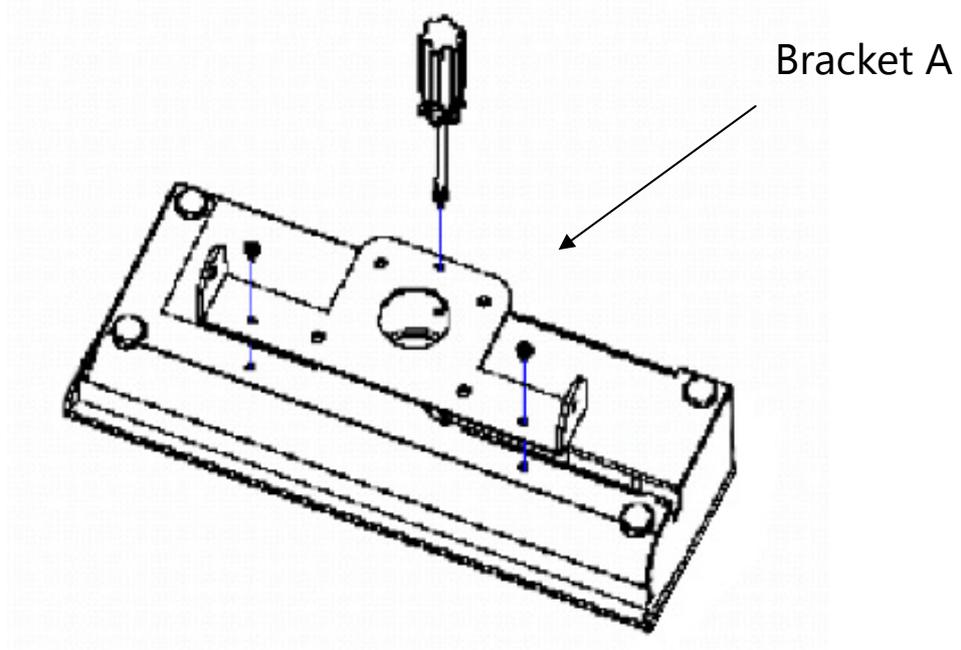
Optional battery holder (to fit AA batteries – contact Marsden or your dealer)

4. Place the housing back inside the indicator, and close the battery housing cover.

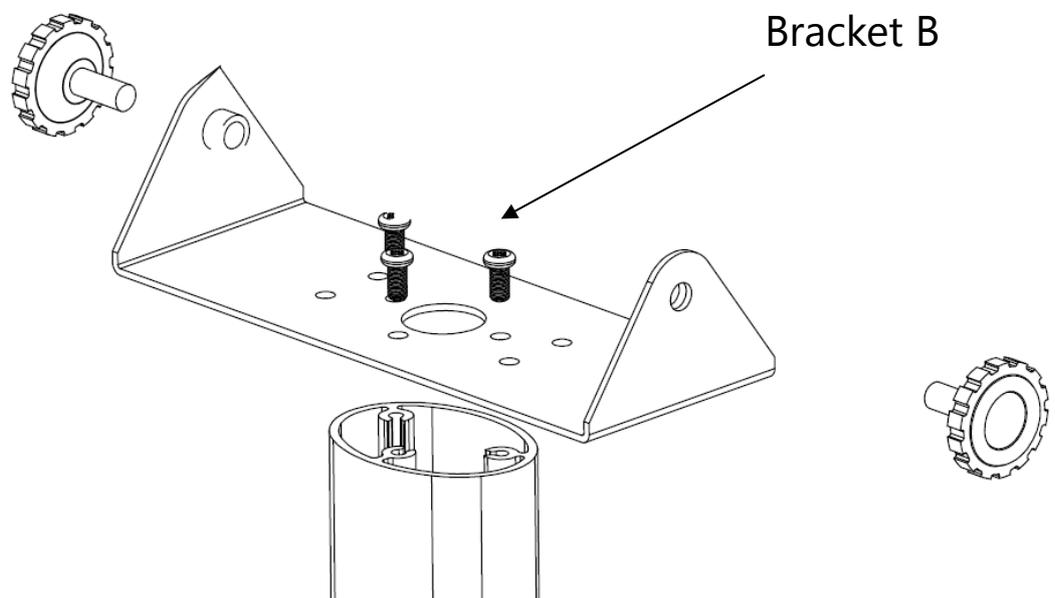
Assembling the indicator column (M-651 only)

No.	ITEM	SPEC.	QTY
1	Scew for Indicator	SW-8060	2
2	Bracket A	SS-4961	1
3	Bracket B	SS-4971	1
4	Column	SS-3751A	1
5	Round plate	SS-8063	1
6	Nut	NF-016ST	3
7	Hexagon screw	M3*6	3
8	Countersunk Hexagon	M4*0.7*12	3
9	Self tapping screw	3*8	3
10	Rivet nut	M5	2
11	Phillips head screw	M4*0.7*8	3
12	Washer head screws	M5*0.8*11	2

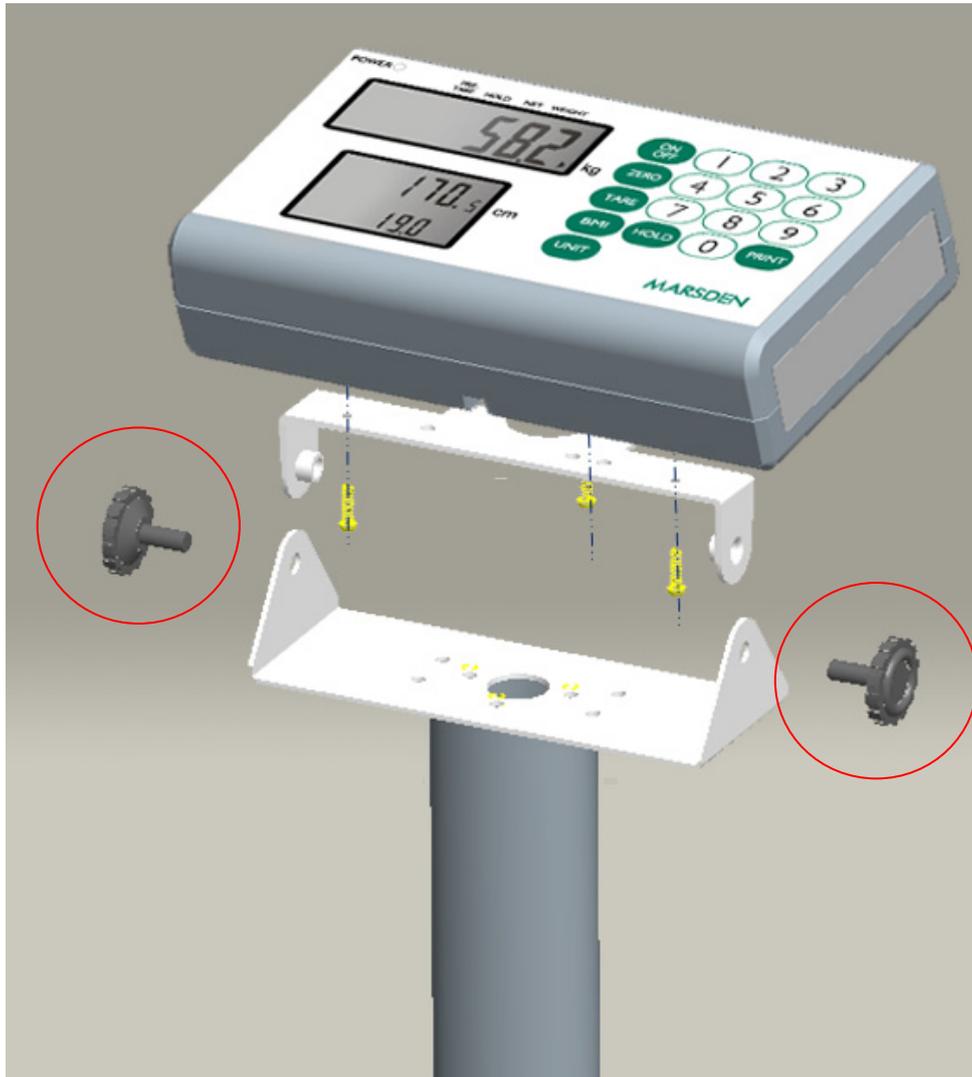




- 1) Place Bracket A on the back of the indicator with three screws as shown in the image above.



- 2) Place Bracket B on the top of the column using three screws (item 8).

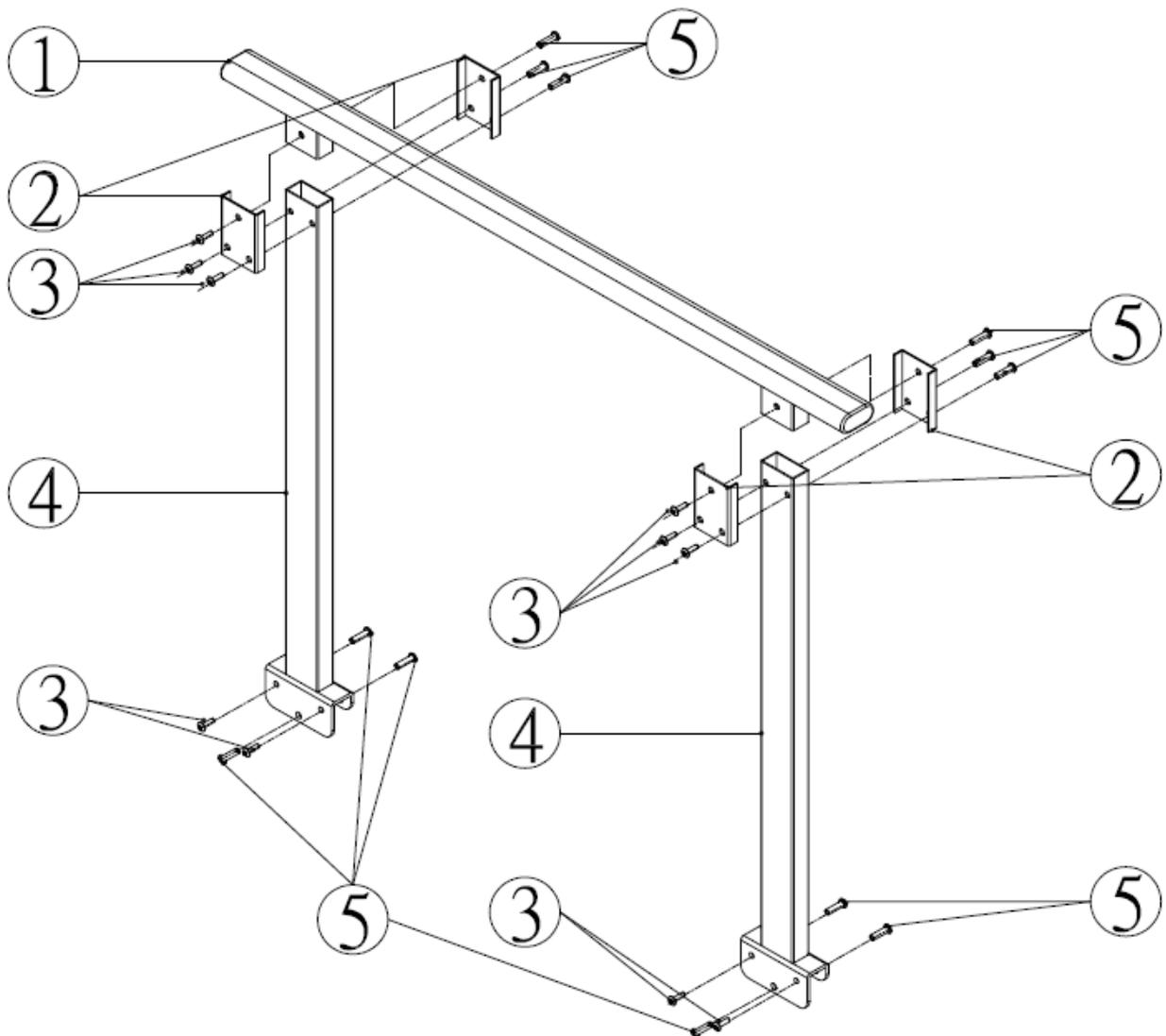


3) Slot Bracket A onto the top of Bracket B and secure the two together using the black screws circled in the image above.

Assembly: Handrails (M-652/M-653 Only)

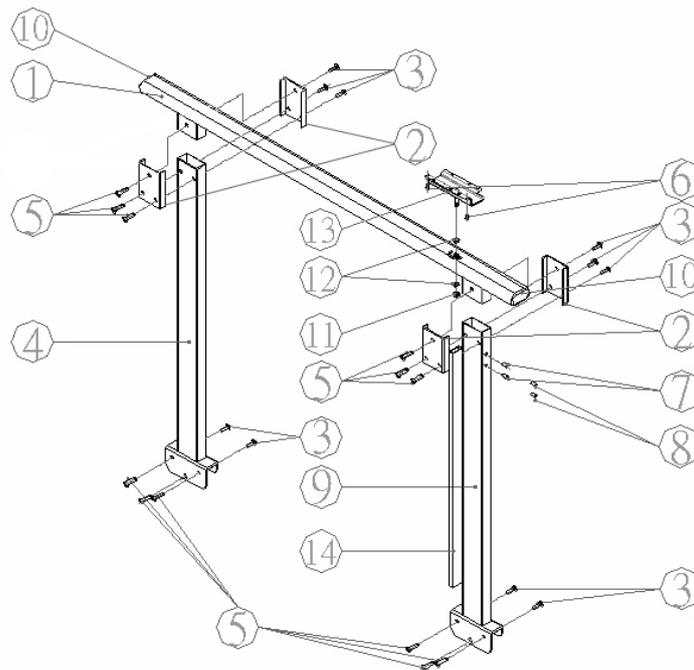
Left Handrail

NO.	Item	Drawing	Qty.
1.	Handrail bar without screw hole	SS-8300A	1
2.	Fixing plate	SS-8311	4
3.	Socket button head cap screw	M6-21	10
4.	Pole	AM-8173	2
5.	Socket button head cap screw nut	ø8-M6*33	12
6.	Socket key		2



Right Handrail

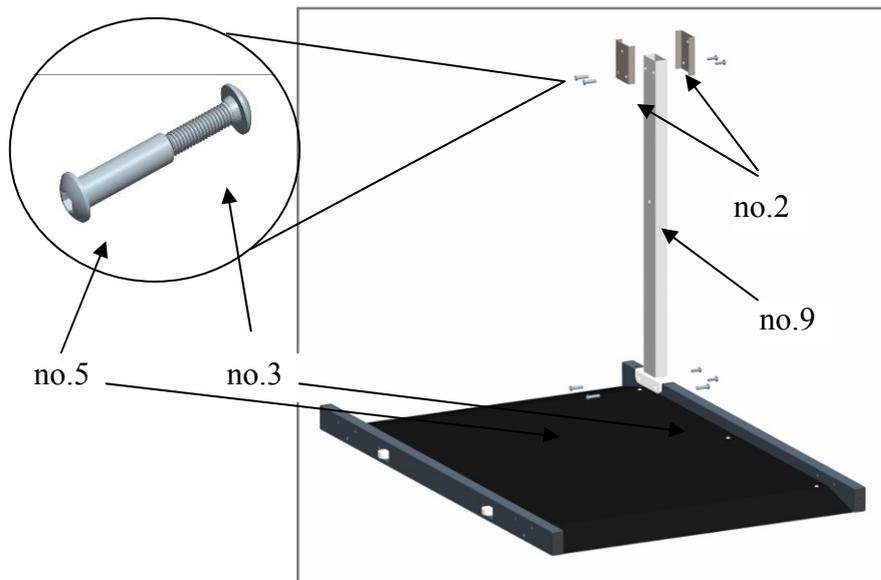
NO.	Item	Drawing	Qty.
1.	Handrail bar	SS-8300B	1
2.	Fixing plate	SS-8311	4
3.	Socket button head cap screw	M6-21	10
4.	Pole	AM-8173	1
5.	Socket button head cap screw nut	ø8-M6*33	12
6.	Screw for display set	M4*6	2
7.	Screw nut for printer bracket	M5-0.8-JB	2
8.	Plastic screw	M5-0.8*8	2
9.	Pole with wiring duct	AM-8173A	1
10	End cap	SW-8068	2
11	Screw Nut	M8*1.25*8	1
12	Bearing	SF-1F-08075	2
13	Bracket	SS-8303A	1
14	Cable organiser	TC-2WE 100CM	
15	Socket key		2



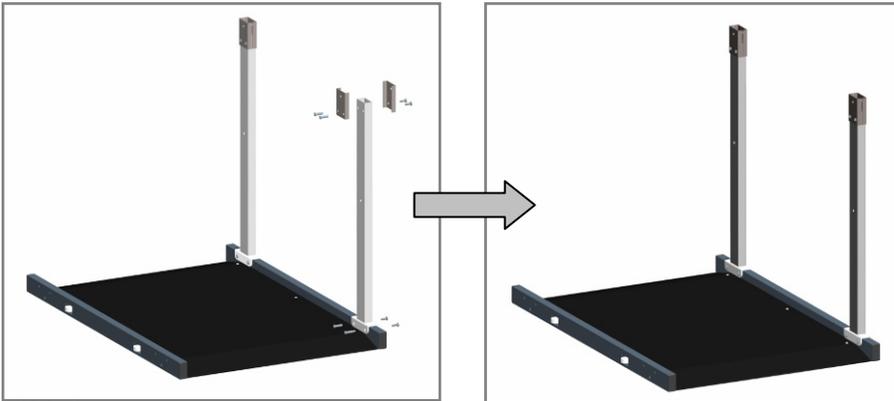
Step 1.

Fix no.2 (fixing plate) on no.9 (pole with wiring duct) with no.3 (socket screw) and no.5 (screw nut).

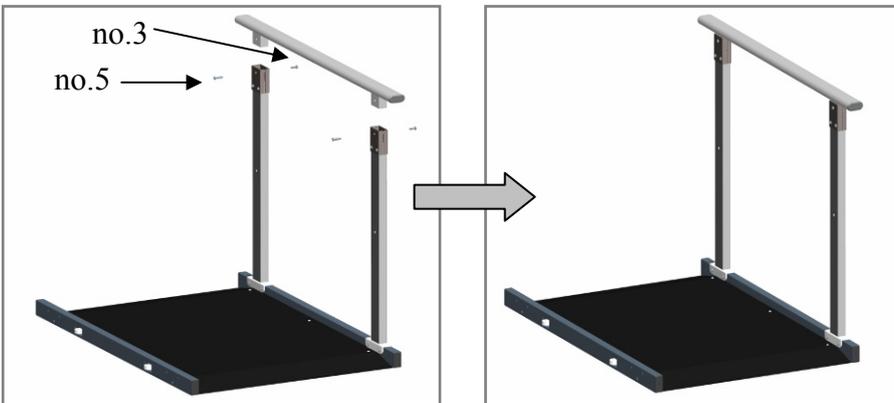
Fix no.9 (pole with wiring duct) on platform by using no.3 and no.5.



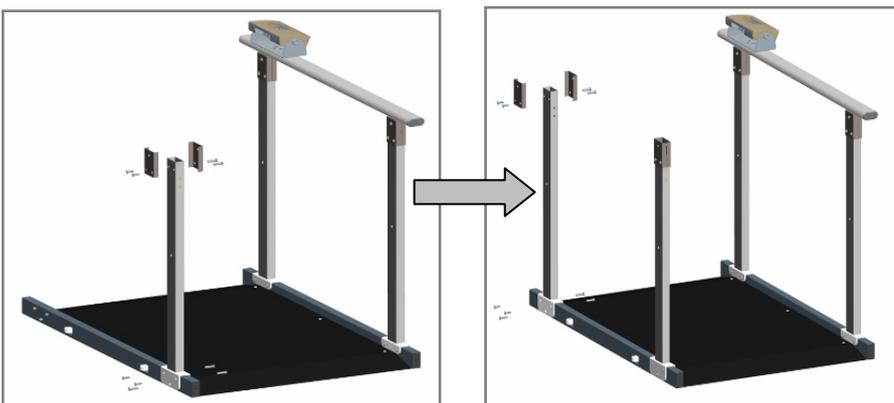
Step 2.
Assemble pole on platform, as per Step 1.



Step 3.
Attach no.1 (handrail bar) to poles, using no.3 (socket screw) and no.5 (screw nut).

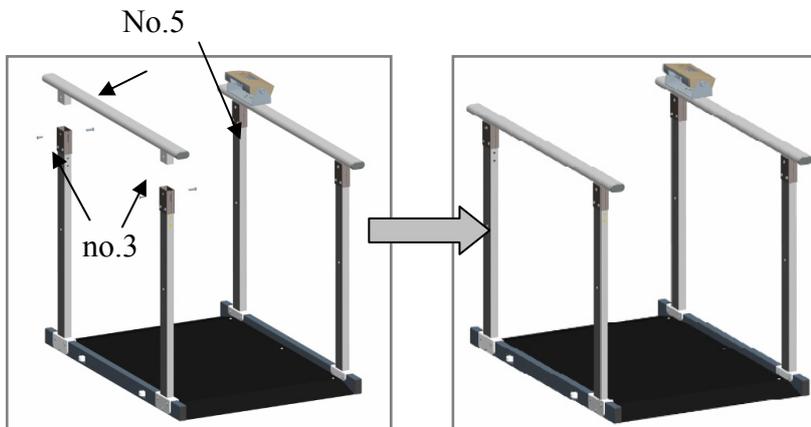


Step 4.
For M-652, repeat Steps 1-3.



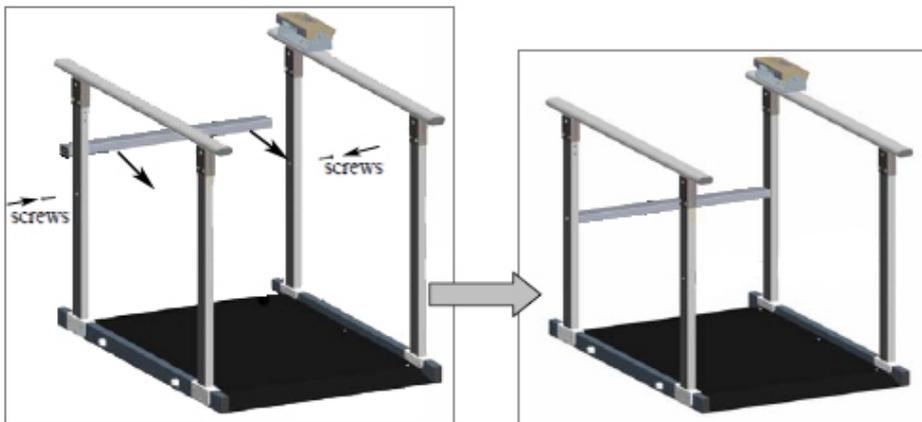
Step 5.

With handrails assembled, attach no.13 (bracket for indicator) using no.6 (screw)



Step 6.

For M-652, assemble cross bar (SS-8444) with two screws (M8-1.25P*45).



Moving the Scale (M-653 only)

The M-653 is supplied with a folding handrail. This allows the scale to be transported much more easily.

To fold the handrail down, release the locking hook and carefully fold down the handrail until it abuts completely.

The hinge will lock in place ready for transportation.

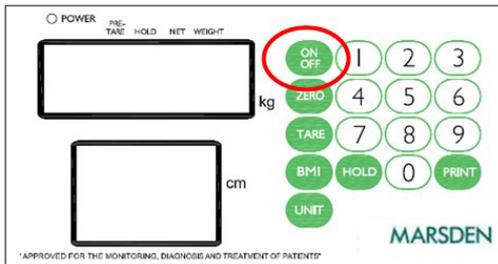
To set the scale back up, place it on a solid, level surface.

Press the hinge on the handrail to release it, holding up the handrail at the same time.

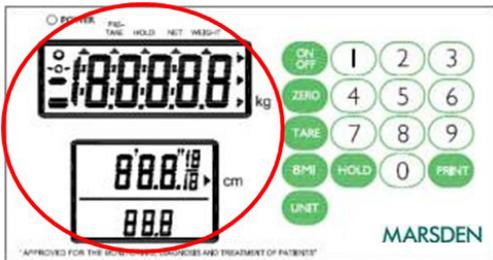
Raise the handrail until it is in an upright position. Fix the locking hooks on the hinge back in place, and ensure the handrail is firmly in place.

Operation: Basic Functions

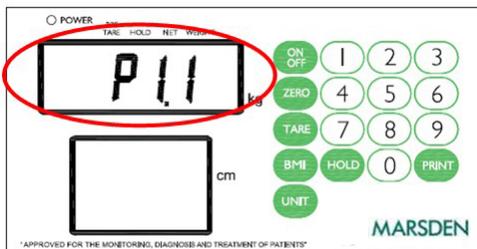
Switching on the Scale



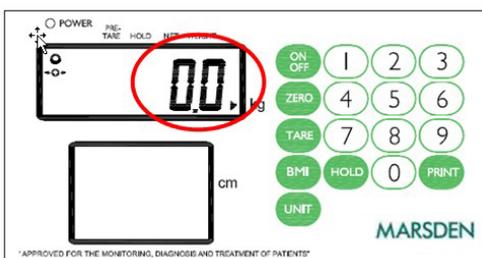
Press the ON/OFF button firmly.



The scale will first test all of the display segments.

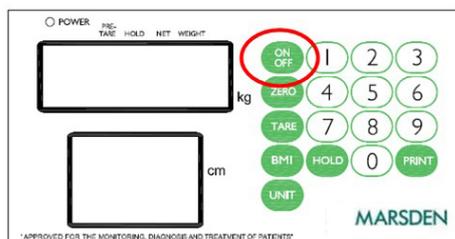


The scale will now show its current software version number.



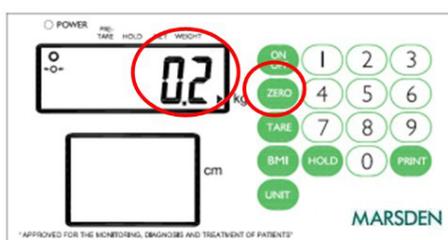
The scale will now go into weighing mode and should show 0.0 on the display.

Switching off the Scale



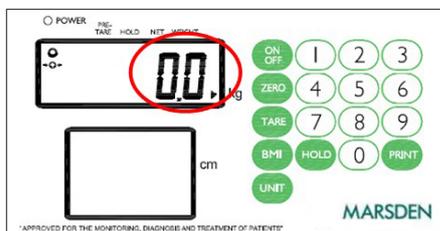
Press the ON/OFF button when the scale is turned on. The scale will now power down.

Setting the Scale to Zero



If for any reason the scale shows a reading other than 0.0 it can be reset to zero.

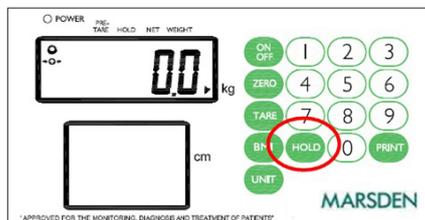
Press the ZERO key once.



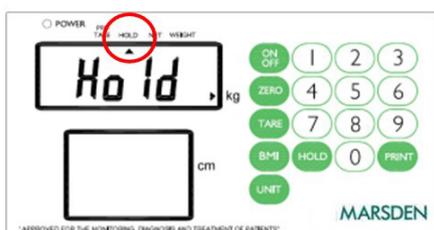
The scale will return to 0.0.

Operation: Advanced Functions

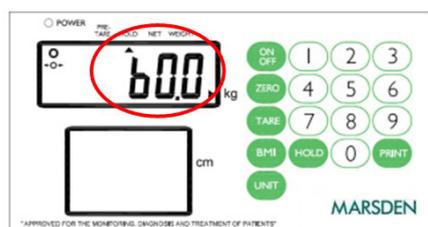
Hold Function



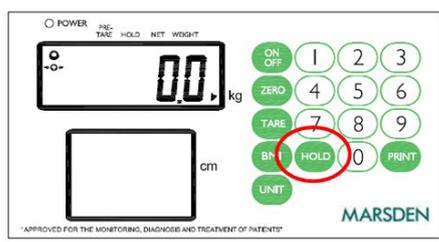
Press the HOLD button once.



Allow the patient to stand on/be wheeled onto the scale.

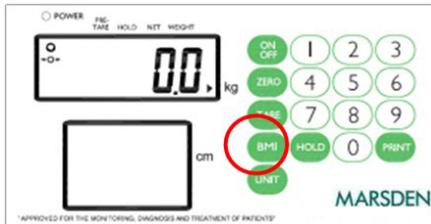


After a few seconds the scale will lock on the person's weight. When the patient leaves the scale, the weight will remain on the display.

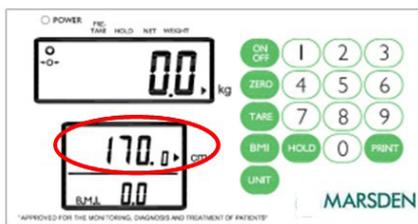


Press HOLD again to disable the Hold function and return the scale to 0.0.

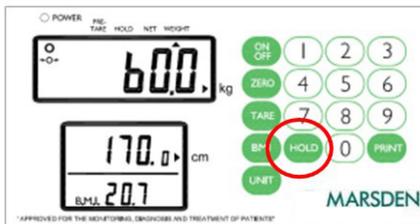
Body Mass Index (BMI) Function



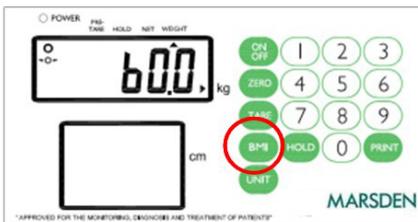
In normal mode, press the BMI key to enter BMI mode.



The display will show the last height entered and the extreme left digit will flash. Enter the height by using the numeric keys. Press the ZERO key to confirm the height. (NB: There will always be an active flashing digit in the height display, unless HOLD is pressed).

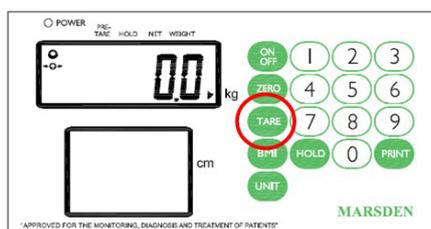


Weigh the patient as normal. The display will show the weight, height and BMI value. At this time, the weight and height can be freely changed, and the BMI value will be automatically calculated according to the changed weight and height.

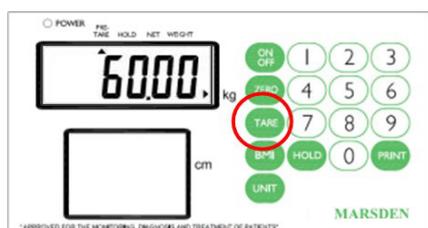


Press the BMI key to return to normal weighing mode.

Tare and Pre-set Tare Functions



Press the TARE key for three seconds to enter Pre-set Tare setting mode.

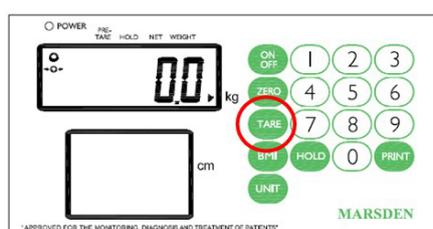


The display will show the last pre-set tare entered and the extreme left digit will flash.

Enter the pre-set tare value by using the numeric keys, then press the TARE key again to confirm the value.



Press the ZERO key to return to the normal mode.



To use the Tare function, add the item you wish to tare off to the scale, and press the TARE key. The display will show zero, and then a minus number when the item is removed from the scale.

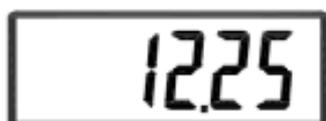
Setting the Date

Press the HOLD key for three seconds to access the time setting mode. The time period digit that is flashing can be changed by entering the appropriate number from the numeric key pad. The time period to be edited is selected by pressing the HOLD key.

E.g. To input 25 December 2008, 8:00 a.m.:



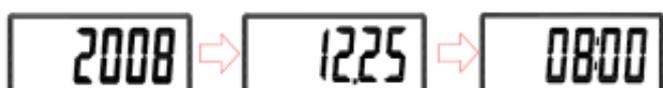
Enter the year. Press HOLD to confirm and access the date editing field.



Enter the date. E.g. "12.25" for December 25th. Press HOLD to confirm and access the time clock editing field.



Enter the time (24 hour clock only).



Press HOLD and the display shows:
YYYY→MM.DD→HH:SS



Press HOLD to return to normal weighing mode.

Using the Scale with a Printer

An optional Marsden external printer (model TP-2100) is available for all models. When the printer is fitted, the patient's weight, height, and BMI result can be printed.

Once the person has been weighed and their BMI calculated, simply press the PRINT key to produce the following ticket:

GROSS WEIGHT	60.00kg
TARE WEIGHT	30.00kg
NET WEIGHT	30.00kg
PATIENT HEIGHT	100.0cm
PATIENT B.M.I	37.5
29/12/2008 17:00	

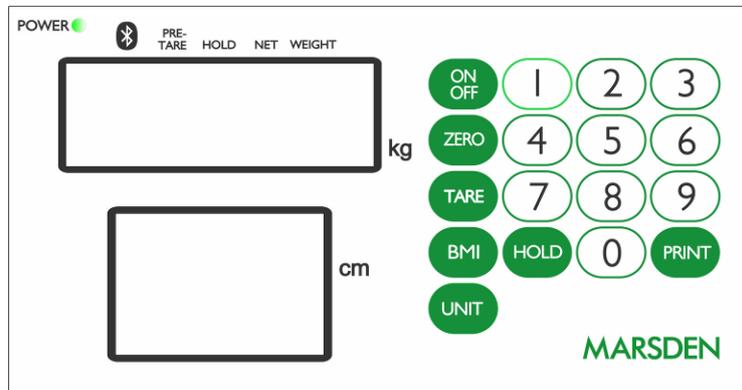
Assembling: TP-2100 Thermal Printer



Plug the cable to the printer, and then connect its 9D connector to the indicator.

Using the Scale with Bluetooth

If your scale has Bluetooth connectivity, the universal Bluetooth symbol will be on the main indicator display.



Bluetooth Connection

A OFF

Long press the ZERO key for three seconds to enter the Setting mode and then display the A-OFF menu.

bluEt

Press the TARE key twice, and then press HOLD once to enter the Bluetooth setting mode.

On ← → OFF

Using the HOLD key, select "ON" (enable) or "OFF" (disable). Press the TARE key to confirm the setting.

Note: Disabling the Bluetooth function when not in use will reduce battery power consumption.

bluEt

Display the "bluEt" menu. Press the TARE key once.

End

Press the HOLD key to return to normal mode.

Search for the scale in your computer or device's Bluetooth settings (procedure may vary depending on device or system)

The scale will appear on the Bluetooth device list as "MARSDEN BT".

Connect your device to "MARSDEN BT", and the scale is ready to transmit data wirelessly via Bluetooth.

EMC Guidance and Manufacturer's Declaration

Guidance and manufacturer's declaration-electromagnetic emissions		
<p>The M-650/M-651/M-652/M-653 is intended for use in the electromagnetic environment specified below.</p> <p>The customer or the user of the M-650/M-651/M-652/M-653 should assure that it is used in such an environment.</p>		
Emission test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	<p>The M-650/M-651/M-652/M-653 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.</p> <p>The M-650/M-651/M-652/M-653 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.</p>
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			
<p>The M-650/M-651/M-652/M-653 is intended for use in the electromagnetic environment specified below.</p> <p>The customer or the user of the M-650/M-651/M-652/M-653 should assure that it is used in such an environment.</p>			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Electrostatic discharge(ESD) IEC 61000-4-2	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete 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 61000-4-11	0% UT for 0,5 cycle 0% UT for 1 cycle 70% UT(30% dip in UT) for 25 cycles 0% UT for 5 s	<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 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the M-650/M-651/M-652/M-653 requires continued operation during power mains interruptions, it is recommended that the M-650/M-651/M-652/M-653 be powered from an uninterruptible power supply or a battery.
Power frequency(50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	3 A/m	The M-650/M-651/M-652/M-653 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-650/M-651/M-652/M-653 is intended for use in the electromagnetic environment specified below. The customer or the user of the M-650/M-651/M-652/M-653 should assure that is used in such and 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 6 V in ISM bands between 0,15 MHz and 80 MHz 80 % AM at 1 kHz	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the M-650/M-651/M-652/M-653 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 2,7 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

Radiated RF IEC 61000-4-3	3 V/m 80MHz to 2,7 GHz	3 V/m	<p>distance in metres (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey^a, should be less than the compliance level in each frequency range^b.</p> <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-650/M-651/M-652/M-653 is used exceeds the applicable RF compliance level above, the M-650/M-651/M-652/M-653 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-650/M-651/M-652/M-653.</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

The M-650/M-651/M-652/M-653 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the M-650/M-651/M-652/M-653 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the M-650/M-651/M-652/M-653 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		
	150 kHz to 80 MHz $d = 1,2\sqrt{P}$	80 MHz to 800 MHz $d = 1,2\sqrt{P}$	800 MHz to 2,7 GHz $d = 2,3\sqrt{P}$
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 power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE1 At 80 MHz and 800 MHz, the separation distance for 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.

EU Declaration of Conformity

The Non-Automatic Weighing Instrument

III

Manufacturer	Charder Electronic Co., Ltd
Model	M-650
EC Type Approval Certificate No.	T7616

The Metrological Aspects of Non-Automatic Weighing Instruments

EN45501:2015 (module D)	Notified Body Number – 0122
EN45501:2015 (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
2014/53/EU	Radio Equipment Directive

The applicable harmonized standards are:

EN 45501:2015	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
EN 60601-1:2006/A1:2013	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance
EN 60601-1-2:2015	Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance – Collateral standard: Electromagnetic compatibility - Requirements and tests
EN 60601-1-6:2010	Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral standard: Usability
EN 62304:2006	Medical device software - Software life-cycle processes
EN15223-1:2016	Medical devices - Symbols to be used with medical device labels, labelling and information to be supplied -- 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 301 489-17 V3.1.1	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 V2.1.1	Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

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

Date: Apr. 20, 2020

Signature: Victor Lai

Name: Victor Lai
Position: Measuring Management Rep.
Place: Taichung, Taiwan

Manufacturer: Charder Electronic Co., Ltd.
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CD-QR00139

Manufacturer's Declaration of Conformity

	2014/31/EU Non-automatic Weighing Instruments Directive
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Please see separate document showing on sticker of device for above CE marking.

Manufactured by:



Charder Electronic Co., Ltd.
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Manufactured for:

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