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PROFESSIONAL ELETTRONIC MDD SCALE
MOD. RA RP cable

USER MANUAL



Read this manual carefully before using the instrument

INDEX

2.	GENERAL RULES.....	PAGE 2
3.	SAFETY.....	PAGE 3
4.	TECHNICAL SPECIFICATION.....	PAGE 3
5.	INDICATOR.....	PAGE 4
6.	INSTALLATION.....	PAGE 5
7.	INSTRUCTION FOR USE	PAGE 6
8.	PRINTER FUNCTIONS.....	PAGE 8
9.	SETTING SETUP.....	PAGE 9
10.	ERROR MESSAGE.....	PAGE 9
11.	MAINTENANCE AND ASSISTANCE.....	PAGE 10
12.	CONFORMITY.....	PAGE 10
13.	IDENTIFICATION LABELS.....	PAGE 10
14.	SCRAPPING AND WASTE DISPOSAL	PAGE 11
15.	WARRANTY.....	PAGE 11
16.	ASSEMBLY-USE MECHANICAL TELESCOPIC HEIGHT METER (OPTIONAL).....	PAGE 12
17.	THERMAL PRINTER (OPTIONAL).....	PAGE 14



By choosing the WUNDER mod. RA or RP cable professional electronic scale, you have purchased a high precision instrument.

Since over 40 years WUNDER has placed its experience at the service of health. This instrument is compliant with national standards in hospitals and clinics with medical class **I** with measurement function and is calibrated in conformity with accuracy class **III**.

The instrument is characterised by the possibility of fixing the electronic terminal to the weighing platform by means of a column or else installing the terminal autonomously.

The instrument is equipped with a dual LCD electronic terminal with triple reading to simultaneously view Weight, Height. and BMI

2. GENERAL RULES



Carefully read this manual before using the instrument as it supplies

important indications concerning **OPERATING SAFETY AND MAINTENANCE**.

The descriptions and illustrations supplied in this manual are not binding.

WUNDER reserves the right to modify its products as deemed convenient in order to approve them without being committed to update this publication.

Conventions:

The following symbols have been used in this manual:



0470 MEDICAL CERTIFICATION



METROLOGICAL CERTIFICATION AND APPROVAL FOR MEDICAL USE



ACCURACY CLASS



ASSISTANCE WARRANTY CERTIFICATE



ATTENTION!

PLACED BEFORE DETERMINING PROCEDURES. COMPLIANCE FAILURE CAN DAMAGE THE PRODUCT



WARNING!

PLACED BEFORE DETERMINING PROCEDURES. COMPLIANCE FAILURE CAN HARM THE OPERATOR OR PATIENT OR DAMAGE THE PRODUCT



WASTE DISPOSAL



TYPE B PARTS SUPPLIED



BATTERY POWER



INDICATION OF WEIGHT FUNCTIONALITY

INDICATION OF STABLE WEIGHT



INTERFERENCE COULD OCCUR NEAR THE APPLIANCES



DUAL INSULATION

3. SAFETY



WARNINGS!

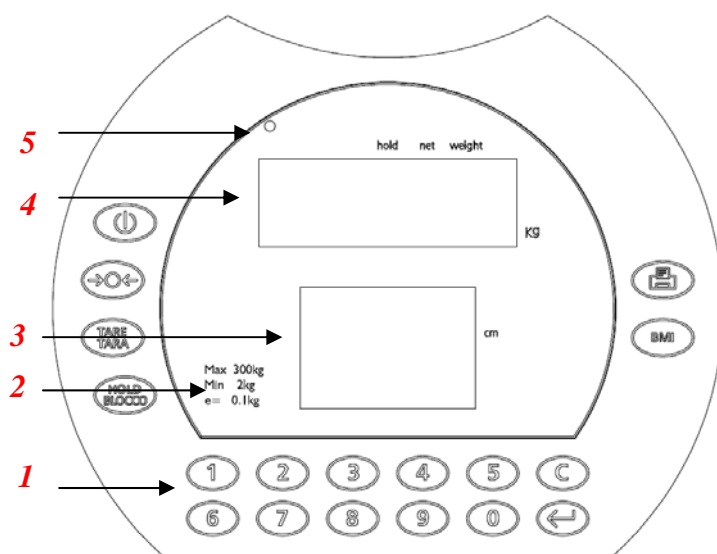
Operators must read this manual carefully, comply with the instructions it contains and become familiar with the correct use and maintenance procedures of the instrument.

- Retain this manual for consultation and as a help in staff training
- Do not overload the instrument beyond its maximum capacity
- Do not apply loads abruptly.
- Do not press the keys with sharp or pointed objects
- Do not try to open the instrument.
- Do not remove seals from the instrument.
- Do not short-circuit the battery terminals
- Use only the power supply provided by Wunder. Before using it, make sure that the local mains voltage is compatible with the voltage of the adapter shown on the identification plate
- Regularly check the integrity of the instrument's power cord and make sure it does not come in contact with hot appliances
- Make sure that the power cord does not create obstruction hazards
- Unplug the instrument before cleaning it
- Do not place the instrument in water or other liquids
- Perform maintenance and subsequent metric verifications regularly

4. THECNICAL SPECIFICATION









Model	RA200- 300	RP CABLE	RP a cavo
Capacity	200- 300 kg	300kg	200kg
Division	50- 100 g	100g	50-100g
MDD OIML	Class III		
Unit weight	kg		
Display	LCD 1" con 5 digits attivi with 18 key pannel		
Function Key	ON / ZERO / OFF, HOLD / BMI, TARA, PRINT		
Power	Rechargeable Batteries Pack- Adapter 12 V - 2 A		
Operation temperature	da 5°C a 35°C		

5. INDICATOR



1. Key function
2. Weighing capacity and division
3. Second LCD automatically calculates BMI
4. Main LCD: Weight
5. Power display

Function Keys

Key	Description
	On/Off key. Pressed for 3 seconds it switches off the scale.
	Indication reset (within $\pm 2\%$ of the capacity)
	Lock of displayed weight/determination of the stable weight value.
	Determine the body mass index (BMI)
	Tare of unwanted weight.
	To delete the incorrect entry during the entering of the digits.
	To confirm the functions.
	Print of data.
0-9	Digits entering keys.

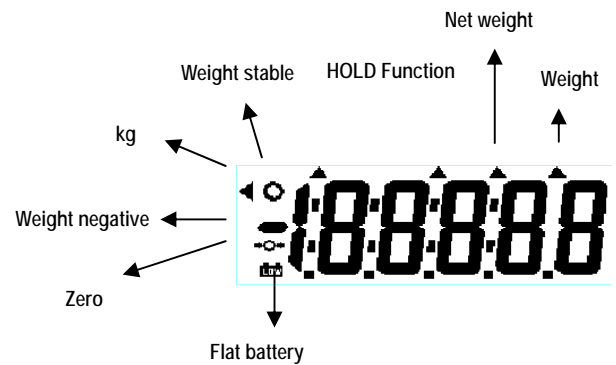
Display Functions

Weight stable: Indicates the weight is stable.

Weight negative: Indicates weight below zero.

Zero: Indicates zero weight.

Flat battery: Indicates the need to recharge or replace the battery.



6. INSTALLATION

ATTENTION!

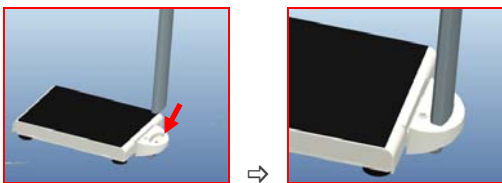
AFTER HAVING VERIFIED THE INTEGRITY OF THE EQUIPMENT AND OF ALL ITS COMPONENTS, CONNECT THE INSTRUMENT WITH THE SUPPLIED POWER SUPPLY TO CORRECTLY RECHARGE THE BATTERIES

Position the instrument on a level and stable surface

The instrument must be placed away from heat sources, in an environment without excessive vibrations and drafts.

Assembly (for column version only)

Figure A



Assembly is easy: fix scale's column to the weighing platform (See Figure A)

ATTENTION!

FOLLOW THE INDICATIONS BELOW BEFORE INSERTING THE COLUMN

Figure B

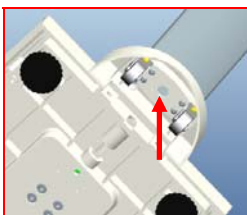
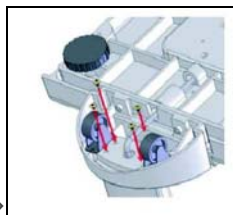


Figure C



- Overturn the weighing platform resting it onto a level surface.
- Remove the display connector from inside the column and connect it to the weighing platform connector, making it pass through the hole indicated by the red arrow (see Figure B).
- Fix the column to the weighing platform support using the 4 supplied screws. (see Figure C).
- Position the instrument on the floor and adjust the 5 feet to it.
- To use, connect the supplied external power supply to the current (see battery operation)

7. INSTRUCTION FOR USE7.1 Instruction for charging and connecting

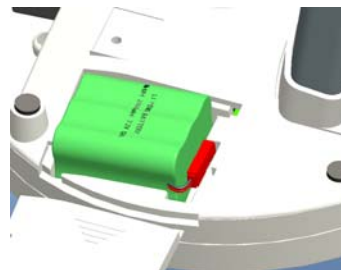
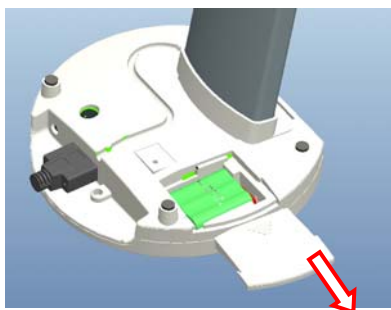
If **Lo** prompt displays on the LCD, please charge the scale with exclusive adaptor.

Locate adaptor plug on the rear side of indicator.

The battery should be recharged at least every 3 months regardless if it is used or not. After a long period in storage, e.g. over 3 months, the battery should run a full cycle (charge/discharge) to allow it to restore to full capacity.



Ac Jack connector

7.1a Rechargeable Batteries

1. Open the battery cover, and take the battery out.
2. Disconnect the rechargeable battery pack then replace it by a new one.
Put the battery back then arrange the connector in place well.

7.2 DATE AND TIME SETTING

Keep the HOLD key pressed for 3 seconds to access TIME SETTING programming.

Example: to program 25 December 2008, 8:00 a.m.






	Year programming: use the number keys to enter the correct value, press HOLD to access the next step once correctly set.
	Date programming: Use the number keys to enter the correct value, press HOLD to access the next step once correctly set.
	Time programming: Use the number keys to enter the correct value, press HOLD to confirm the entered date and time once correctly set.
	Display format: YYYY → MM.DD → HH:MM

7.3 HOLD FUNCTION

The Hold function is used to accurately determine the average weight, also with unstable value (small movements)


- switch-on the scale using the [ON/OFF] key. The display shows "0.0 kg" and the stable weight and zero indications, after the self-test.
- Ask the patient to climb onto the weighing platform.
- Press HOLD. The display shows "HOLD" with a flashing triangle and then, after a few seconds, the average weight value that remains permanently on.
- Press HOLD again to release the weight memorised on the display. The instrument goes back to normal weighing mode.
- The HOLD function may be activated before or after the patient has climbed onto the platform.

7.4 BMI FUNCTION

Press BMI in weighing mode. The secondary display shows the last set height, with the left digit flashing.	
Use the number keypad to enter the height (e.g.: 170 cm) Confirm with 	
Press HOLD to lock the value. Climb onto the weighing platform when the display shows "HOLD" and weigh yourself. The scale shows the weight, height and BMI index.	
Press BMI again to release the memorised weight and go back to normal operation mode.	

7.5 TARE FUNCTION

This function allows displaying two weights. Switch-on the instrument using the key .

When the display indicates  and a beep is emitted, position the objects (clothing) constituting the tare, onto the weighing platform.

With the weight stable and the appearance of the stable symbol (circle), press  and the display shows . Ask the patient to climb onto the platform. The indicated weight represents the tare's net value. Delete the memorised tare value by climbing down from the instrument and press

 again.

8. PRINTER FUNCTIONS

Weight can be printed for records using RS232 interface cable. After weighing simply press PRINT key to print out the results

The format presented below is the standard format of results print-out and cannot be changed.

More informations info@wunder.it or service@wunder.it

WUNDER	
Date/Month/Year	hour:minute
Peso/Weight	30.00kg
Altezza/ Height	100.0cm
Indice Massa Corporea BMI(Body Mass Index)	30.0
Sottopeso	
<u>Underweight</u>	<18
Normopeso	
<u>Normal weight</u>	18-24.9
Sovrappeso	
<u>Pre-obesity</u>	25-29.9
Obesità calaee I	
<u>Obesity class I</u>	30-34.9
Obesità calaee II	
<u>Obesity class II</u>	35-39.9
Obesità calaee III	
<u>Obesity class III</u>	>40

Set parameters of the scale interface on the connected device. It is not possible to change the scale parameters.

Baud rate: 9600 bps

Parity check: None

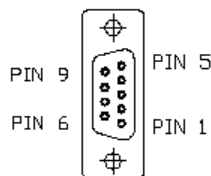
Data length: 8 bits

Stop bit: 1 bit

Handshake: RTS/CTS

Data code: ASCII

Serial RS232



Connector RS232

Piedino	Segnale
2	TXD
3	RXD
5	GND

Connecting with PC

- Start Hyper Terminal

Start Hyper Terminal program from clicking

Start Menu → Programs → Accessories → Communication → Hyper Terminal.

- New Connection Description

Give new connection a name then click OK.

- Select Your COM Port

Click Connect to select your COM port. Usually there's only one option for select. Then click OK.

- Port Settings

Click Bits per second to set up rate at 9600, Data bits at 8, Parity at None, Stop bits at 1 and Flow control at Hardware. Then click OK to complete your setting.

- Output Data

When press the PRINT key to output data from scale to PC or an Optional Printer.

9. SETTING SETUP

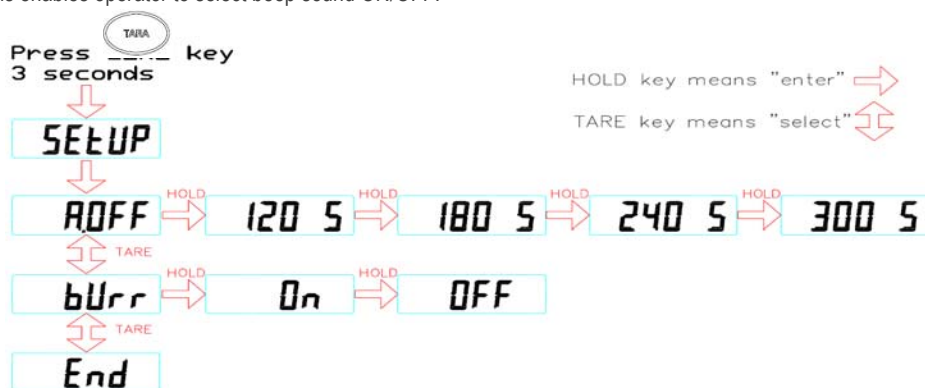
Switch ON the scale and long press  key for 3 seconds, first "SETUP" and then "A.OFF" will display successively.

AUTO-OFF TIME SETUP

This enables operator to select the auto turn OFF time of the device.


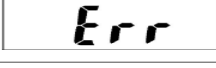





BUZZER ON/OFF SETUP

This enables operator to select beep sound ON/OFF.



Note: To confirm the settings, please press  when **End** displays on the display.

10.ERROR MESSAGE

ERROR MESSAGE	REASON	ACTION
	Low Battery: This warning shows that the voltage of battery is too low to use	Please replace a new battery or plug the AC adaptor for operation.
	Overload: The total load exceeds the maximum capacity of scale	Please reduce the loading and try again.
	Counting error (too high): Indicates that the signal from the load cell/s is too height	This error is normally caused by a serious fault on the scales such as a faulty load cell or wiring. Please contact the local service representative.
	Counting error (too low): Indicates that the signal from the load cell/s is too low	This error is normally caused by a serious fault on the scales such as a faulty load cell or wiring. Please contact the local service representative.
	Zero count over calibration zero range +10% while power on	Please re-calibrate the instrument.
	Zero count under calibration zero range -10% while power on	Please re-calibrate the instrument.
	EEPROM Error: Indicates that there is a fault with the scales software	This error is normally caused by a serious fault on the scales such as a faulty load cell or wiring. Please contact the local service representative.

11. MAINTENANCE AND ASSISTANCE

For better and longer duration of the product it should receive thorough general cleaning periodically.

The instrument must be cleaned with a soft cloth moistened with water or neutral detergent, without using solvents or abrasive substances. If the instrument remains idle for a long period, remove the batteries from the terminal.

During shipping, make sure not to subject the instrument to blows or excessive mechanical stress.

In case of repairs or assistance, contact your dealer or an authorised service centre contacting service2@wunder.it or sales@wunder.it.

12. CONFORMITY

WUNDER MODEL RA or RP CABLE ELECTRONIC SCALE SERIAL N°

We hereby certify that this instrument has been inspected and has successfully passed the functional test.
It complies with the following standards and directives:

EN 45501 / EN60601-1-2 / EN60601-1
93/42/EEC – Medical Devices Directive

13. IDENTIFICATION LABELS

<p>WUNDER SA.BI. srl DK 0199.336</p> <p>M</p> <p>RA (WU 150) Matr. 0021</p> <p>CE 13 0291</p> <p>Max 300 kg e= 100 g T= -300 kg 5°C / 35°C</p>	<p>RA VANO BATTERIE</p> <p>Per la sostituzione della batteria (modello ricaricabile tipo :RETC 7,2 V 2000 mAh vedere il manuale di istruzioni)</p> <p>To replace the battery (rechargeable sealed type :RETC 7,2 V 2000 mAh see the manual)</p>
<p>Temperatura di stoccaggio: 0-60°C</p> <p>Storage Conditions Temperature :0-60°C</p> <p>RA- RP stoccaggio</p>	<p>RA VANO BATTERIE</p> <p>Per la sostituzione della batteria (modello ricaricabile tipo :RETC 7,2 V 2000 mAh vedere il manuale di istruzioni)</p> <p>To replace the battery (rechargeable sealed type :RETC 7,2 V 2000 mAh see the manual)</p>
<p>CONFORME ALLA DIRETTIVA 93/42 CEE</p> <p>CE 0470</p>	

14. SCRAPPING AND WASTE DISPOSAL

If set aside for a long period, protect those parts which could be damaged due to dust build-up

Scrapping

When you decide to no longer use this item, we recommend making it unusable. We also recommend making those parts which could be sources of danger harmless

Waste disposal  EU 2002/96/EC

This product complies with the EU Directive 2002/96/EC. The symbol of the crossed-out waste bin on the appliance indicates that the product, needing to be treated separately from household waste, at the end of its useful life must be completed in a separate collection facility for electric and electronic appliances or returned to the dealer upon purchase of a new equivalent appliance. The user is responsible for bringing the appliance to an appropriate collection structure at the end of its life. Appropriate separate collection and sending the appliance for recycling, treatment and environmentally compatible waste disposal contributes to avoid possible negative effects on the environment and health and favours the recycling of the materials the product is made of.

For more detailed information regarding available collection systems, contact your local waste disposal service or the shop where the product was purchased.

As consumers, you are obliged by law to return used or dead batteries. You may deposit old batteries at public collection spots in your town or else with any battery dealer who has placed specific collectors for this purpose. Even when scrapping electric and electronic appliances, they must be removed and deposited in specific collectors.

NOTE: The following symbols indicate the presence of harmful substances

Pb Pb = batteries containing Lead

Cd Cd = batteries containing Cadmium

Hg Hg = Batteries containing Mercury



ATTENTION!

Do not throw electric parts and used batteries away with household waste. Dispose of the batteries by means of your closest collection centres.

15. WARRANTY

This certificate must be kept until the warranty has expired.

It must be presented together with the invoice, tax receipt or delivery note providing the name of the dealer and date of purchase whenever a technical intervention is required. Otherwise the user will lose any warranty rights.

The warranty takes effect from the date of purchase and is valid during the entire period foreseen by the current catalogue/pricelist.

By warranty we mean the replacement or repair free of charge of parts making up the appliance which, at the discretion of the manufacturer, are deemed faulty from the origin; Wunder therefore has the faculty of repairing or replacing the item.

The warranty does not cover:

- shipping faults, damage caused by falls, carelessness or tampering
- damage caused by incapability of using the appliance and of its improper use
- damage caused by an insufficient or inadequate electrical system or alterations resulting from environmental, climatic or other types of conditions
- damage due to incorrect installation of the appliance and repairs carried out by unauthorised personnel
- Interventions at home for convenience controls or presumed defects
- Routine maintenance and that which can be considered normal wear from use
- consumables such as: power supplies, batteries, keyboards, plates, wheels, heads, rolls, load cells faulty due to blows or overloads

Service can also be refused when the appliance has been changed or transformed in any way.

In case of interventions at one's home, the customer must pay the fixed fee; if however the appliance is repaired at an authorised Wunder Service Centre, expenses and relative travel risk are borne by the user.

Wunder will not be held liable for damage of any nature caused directly or indirectly to persons, animals or objects resulting from failure to comply with all the instructions indicated in this manual or anyway resulting from improper use.

The Court of Bergamo has jurisdiction in case of any dispute











16. ASSEMBLY-USE MECHANICAL TELESCOPIC HEIGHT METER (OPTIONAL)



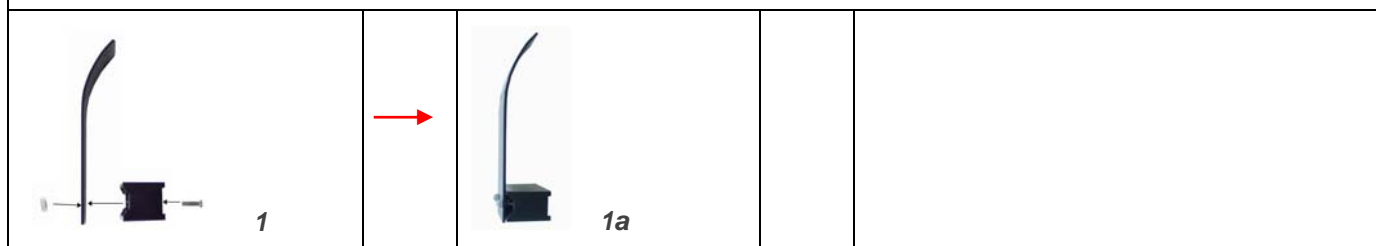
ATTENTION!

ONLY FOR COLUMN SCALE

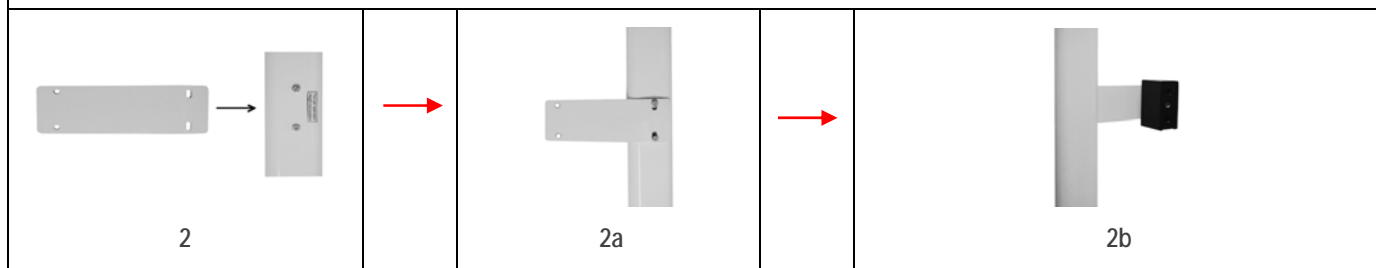
HEIGHT ROD KIT

1.Metal support for telescopic height meter			 side view metal support		
2. Black abs support height meter					
3.Screws	A) 	B) 	C) 	D) 	E) 
	N°02 screws T.E. (M5x16)	N°02 slotted screws (M5x25)	N°01 Allen Screws (M6x12)	N°02 nuets ø 5	N° 02 washers ø 5
4.Tools					
	Tools		Allen tools		

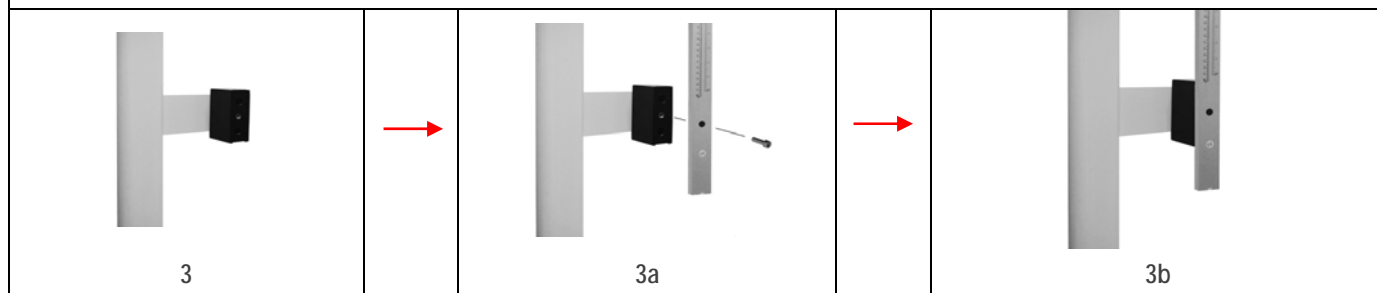
Picture 1: Assemble white metal support with abs black part with the screws (B+E). Lock all with the screws (D)

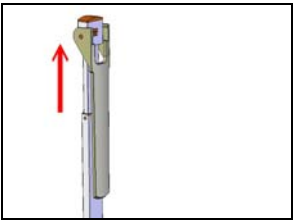
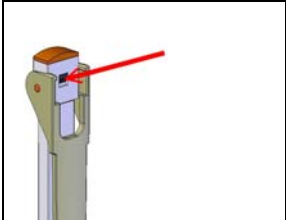
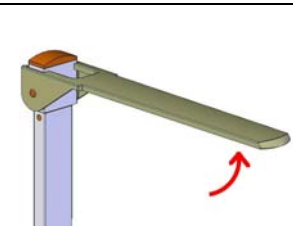
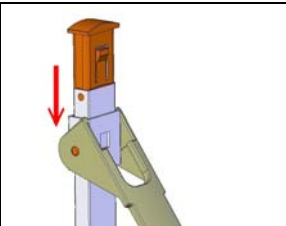
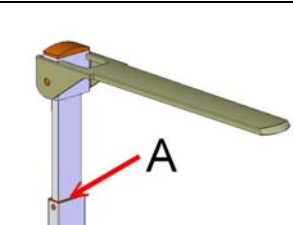
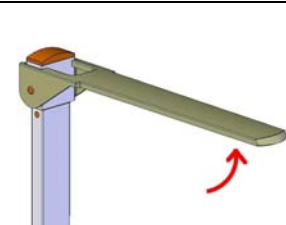
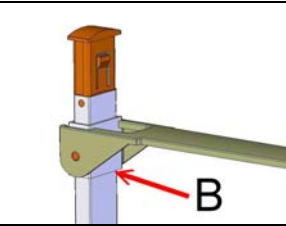


Picture 2-2a: behind the pole (column) assemble the white metal support with screws (B). Picture 2b: the position is on the right



Picture 3-3a: assemble the height rod on black abs support with screws (C) and allen tools kit Picture 3b: The height rod is ready for use.

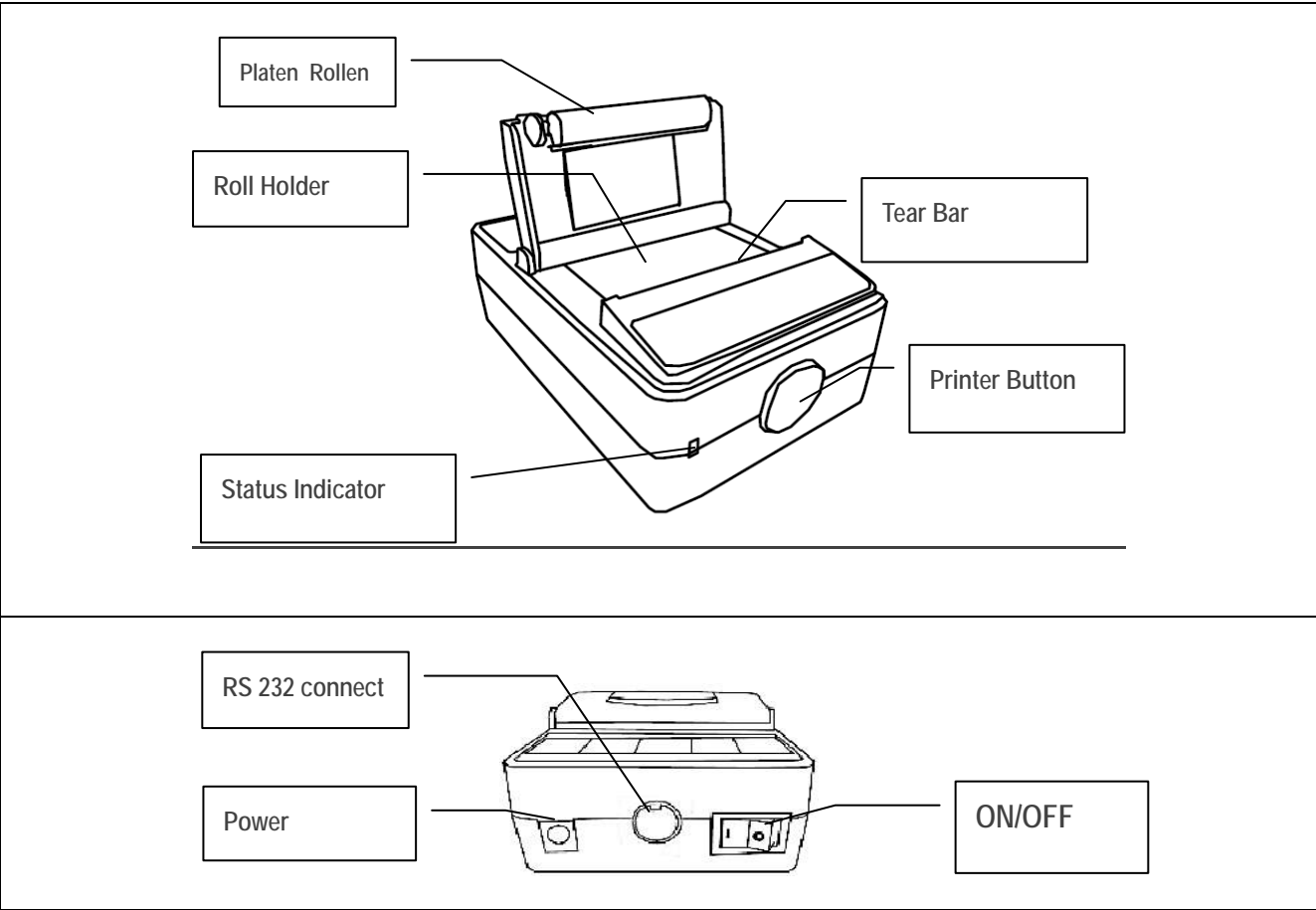


MEASURING OVER 131 cm		MEASURING UNDER 130 cm	
1 	Pull up the height meter rod	1 	Press the black button and measuring height and push down
2 	Position it horizontally	2 	
3 	Lower the rod up to the point where the lever rests head touches the patient's head. The height can be read at the point 'A'	3 	Position it horizontally
		4 	Lower the rod up to the point in which the blade rests head touches the patient's head. The height can be read at point 'B'.

17. THERMAL PRINTER (OPTIONAL)

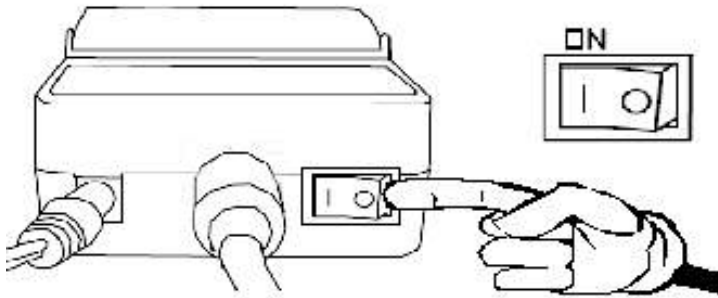


Read this manual carefully before using the instrument



17.1. HOW TO USE YOUR PRINTER

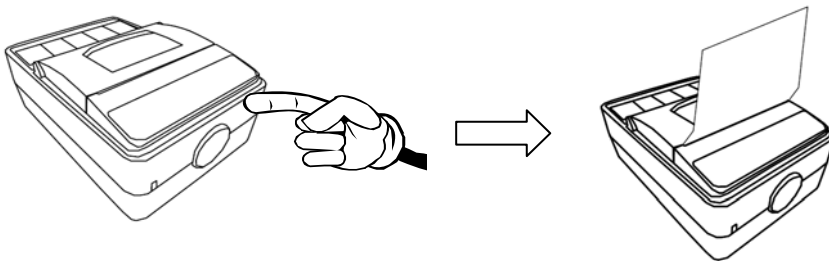
Connect the AC Adaptor and RS232 interface cable. Press the I/O button to power on the printer.



The PRINTER XL printer can be connected via the RS232 port and cable with the RA200 XL.

Press the PRINT key.

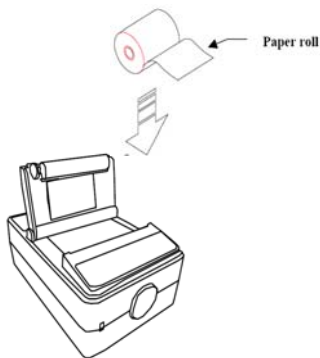
Print double language



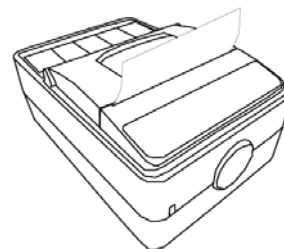
CHANGING THE PAPER ROLL

The paper print roll on a PRINTER XL printer is changed as follows:

1. Open the upper cover and position the paper roll so that it feeds in the right direction.



2. Feed the end of the paper roll through the printer cover and close the cover. The printer is ready to print.



17.2. PRINTER SPECIFICATION

ITEM	SPECIFICATION
Printing method	Thermal dot line printing
Number of dots	384 dot/line
Resolution (dots/mm)	8 dot/mm
Printing width (mm)	48 mm
Max. paper thickness (µm)	80µm
Paper	57.5±0.5 mm (W) x ψ30mm max
Paper loading	Easy loading
Printing speed (mm/s)	75 mm/s
Dimensions (L x W x H)	120 x 80 x 50mm
Operating temperature (°)	0° to 50°
Operating humidity (%)	20% to 85% (no condensation)
Interface	Conform to RS232
Voltage range (adaptor only)	12V 2A

SHOCK HAZARD WARNING

The printer and power supply should never be operated in a location where either one can get wet. Personal injury could result.

MEDIA WARNING

Always use high quality approved paper print roll. The approved product can be ordered from your dealer.

RELOADING HINT

If printer runs out of paper roll while printing, switch the power off and reload paper roll. Power on and print again.

17.3. ERROR MESSAGES

Problem	Solution or Reason
Status Indicator does not light when power switch is turned to ON (I) position.	Check the power connections from AC outlet to the printer power supply.
Status indicator illuminated (green light), but the printer will not print.	Check interface cable connections from the scale to printer. Make sure the top cover is closed and locked.
Printer paper jammed.	Reset the paper roll. Please refer to "CHANGING THE PAPER ROLL".
Status Indicator is flashing green.	Paper roll is out. Reload a new source of paper roll so the printer can continue printing. Please refer to "CHANGING THE PAPER ROLL".