

User's Manual

Compressible Limb and Circulation Therapy System

Model : POWER-Q2100 / POWER-Q2200



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1. Product Name, Model, Descriptions

Technical Requirement of product	
Product Name	Compressible Limb and Circulation Therapy System
Model Name	POWER-Q2100 / POWER-Q2200
Dimensions	290(L) X 260(W) X 172(H) (mm)
Rated Voltage	220V~240V~, 50/60Hz
Power Consumption	60VA
Time (Selectable)	15 min, 30 minutes (Maximum)
Maximum Pressure	200mmHg \pm 20%
Weight(Main Body)	3.1 kg

2. Indications

This device is intended for use by medical professionals and patients at home, in treating many conditions, such as:

- ① Primary lymphedema
- ② Edema following trauma and sport injuries
- ③ Post-immobilization edema
- ④ Venous insufficiencies
- ⑤ Lymphedema

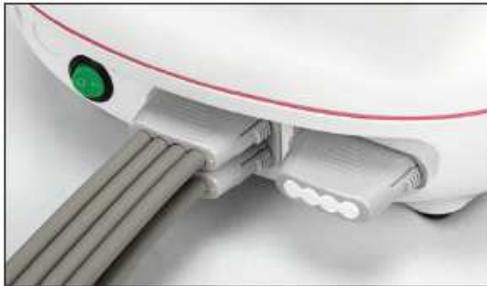
3. Intended Use

Compressible Limb and Circulation Therapy System is a pneumatic pressure treatment system that repeats expansion sleeves to help blood circulation and prevent blood clots or clogs.

Characteristics of this product

This machine has two air outlets (A & B) and two cuffs will be inserted and used into each air outlet at the same time.

If you can use only a cuff, you have to block the other air outlet with air blocked plug.

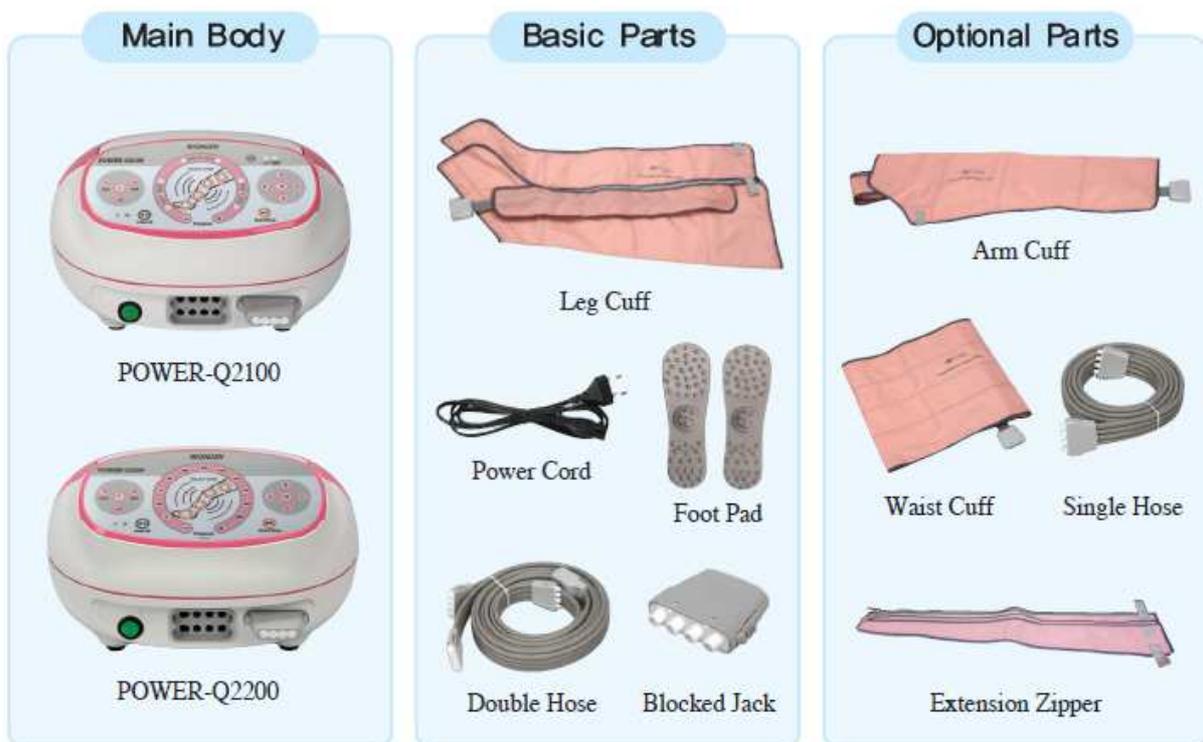


(Fig 1. Two hoses connection)



(Fig 2. One hose connection)

4. Name of Each Parts



* Remark

- ① It has 3 kinds of cuff.
 - Leg cuffs (Right, Left), Waist cuff (pad), Arm cuff
- ② These cuffs are consisted in a machine as an optional goods according to user's purchase order or as a whole set (all of them).
- ③ Extension zipper is necessary for bigger user
 - Applied part: Leg cuffs, Arm cuff, Waist cuff.



No.	Name	Description
1	Name plate, Control button	Function command word is shown on the name plate. Press the command word (Press, T (Time), Interval, Select care, M (Mode), Start/Stop) to be selected.
2	Power switch	Input power turns ON/OFF.
3	Air outlet	Compressed air is coming out from the main body and flowing into the cuff through the Hose.
4	INLET	Connected Input power cord
5	Plugged space for blocked jack	If you do not use blocked jack, plugged into the blocked jack here.

5. Precautions

- This is for user safety and prevention against the property damage.

Please read it carefully prior to using the product.



Warning

In case of not following the instructions, the user may suffer from injury or death.

-WARNING : No modification of this equipment is allowed.

-WARNING : Do not modify this equipment without authorization of the manufacturer.

-WARNING : If this equipment is modified, appropriate inspection and testing must be conducted to ensure continued safe use of the equipment.



Cautions

In case of not following the instructions, the user may suffer from injury or properly damage.

Indications

	Manufacturer		Serial Number		Caution
	Date of Manufacture		Temperature Limitation		Operating Instruction
	Pushing prohibited		Humidity Limit		Follow the instructions for use
	Sitting prohibited		General prohibition sign		Keep dry
	Stepping prohibited		This means not to take the device apart		Type BF applied part
	Authorized representative in the European community		This means to unplug the power cord		2 Level Insulation (Class II)
	Complied with MDD 93/42/EEC		General mandatory action sign		General warning sign
	Please do not throw any electrical equipment (including hose marked with this symbol in your bin)				
IP21	Protected from touch by fingers or objects greater than 12.5 mm Protected from vertically falling water drops				

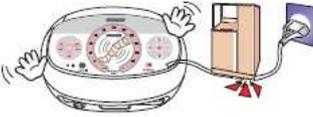
Side Effect

These people can cause side effects.

- Using medical electronic implant device (artificial heart)
- A person who is in pulmonary edema, heart disease, vein cancer, high blood pressure, and high fever.
- A person who have skin disease such as skin burn, dermatitis, bed sore, purulent disease, malignant tumor and etc.
- A person who took skin surgery (skin graft) on the part of use.
- A person who has blood vessel disease such as serious artery hardening or other angina, cardiac infarction and etc.
- Cases the suspected blood clot presence
- A person who has extreme malformation or a person who inserted pin on using part (artificial joint, beads, metal, silicon and so on)
- Right after the operation as varicose veins
- Recovering patients since after the surgery, pregnant woman, children
- In the case of increasing of pain after using this machine



Warning

<p>Please avoid same time with medical equipment for artificial life preservation, installation style medical equipment like electrocardiograph etc. Please avoid to user's the device to whom in too high blood pressure or obstacle in blood circulation.</p>  	<p>Do not use this product if you are experiencing inflammation, an infection, pain of unknown origin, or bleeding (internal or external) at near the site of application.</p>  
<p>Do not place the heavy things on the power cord. Also do not press if with a table or a chair. (It may cause an electric shock, and electric leakage, or fire.)</p>  	<p>Do not soak the device in the water because it is an electrical product.</p>  
<p>When plugging or unplugging the power cord from the wall outlet, please remove moisture from hands. (It may cause the electric shock, electric leakage or fire.)</p>  	<p>Check up the suitable voltage to be used and use the device. (The user may be burned, get shocked or be injured.)</p>  
<p>Please use after wearing underwear or sportswear not to touch directly in skin with the cuffs or pad.</p>  	<p>Do not use the device if you feel pain or make you feel uncomfortable. Stop the use immediately. Be careful when you zip up the cuff. Clothes, hair or skin may get stuck in the zipper.</p>  
<p>Try not to drop the device on the floor because it might be much vibration or shock on it. (The device may be damaged.)</p>  	<p>Do not use by purpose except massage. Keep infants and children away from this device sue to the risk of electric shock or other injuries.</p>  

- Since the detachable plug is used as the isolation means to safety, not to position the device so that it is difficult to operate disconnection device.



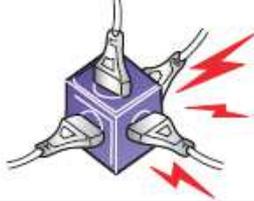
Cautions

<p>Do not use it in an environment with too much electromagnetic wave. It may cause damage to the device and/or cause malfunctioning.</p> 	<p>Do not store the garments near a stove, cigarette or other heat generating device as this is a fire hazard. Do not store the garments near needles, scissors or other sharp objects as they may damage the garments.</p> 
<p>Be careful that water or other substance cannot be inserted inside of the device.</p> 	<p>If this device should malfunction or fail to operate, do not attempt to open, repair, or disassemble the main unit or this device. (It may lead to a risk of fire, electric shock, or injury to the user.)</p> 
<p>While using this product, remain stationary and do not attempt to walk or move around.</p> 	<p>Use the device within 20 minutes when using it once. (At first, start from 5 minutes, and increase the time slowly considering your physical strength. "If you use it continuously for a long time, it may have a reverse effect on you.")</p> 
<p>If you have not used the device for a long time, or if you wish to use it in cold areas. The device may not operate normally. In this case, use the device after operating it three or four times at the strength of Low-Medium-High in regular sequence.</p> 	<p>Keep the product out of the direct rays of the sun or heating equipments including gas stove. It may cause the product modification or discoloration.</p> 
<p>When cleaning the product, wipe off with a dry cloth without any chemical substance or detergent. It may cause the product external damage such as discoloration and peeling off.</p> 	<p>Please dispose the product according to the waste procedure. It may cause the environmental pollution.</p> 

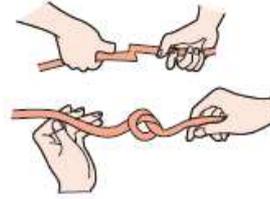


Cautions

Please use the exclusive power outlet and do not plug several cords at once. It may cause the fire, electric shock or other injuries.



Be careful about air hose not to be twisted or bent.



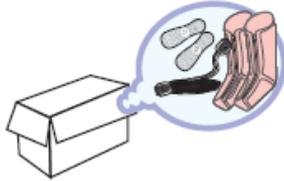
Do not keep the device at too low temperature in winter time. It may be hardened and damaged.



Do not machine wash the cuffs or submerge them in water. The cuffs may be gently wiped with a moistened towel or cloth. If necessary, a mild detergent may be used.



If you wish to keep the device for a long time, place it in its box.



-If you buy other manufacturer's power cord, double hose to change components, it can be malfunction of device. Use the appointed components to protect malfunction.

6. Preparation before use



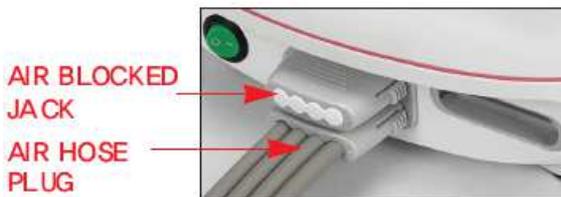
(Connection between main body and cuff)



(Air hose connection to main body)

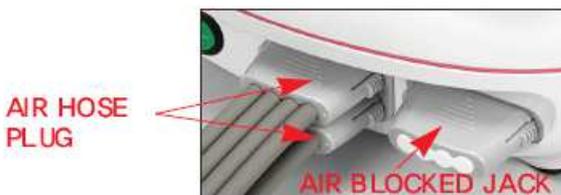
- ① Select proper cuff or pad to use. (Leg cuff, Waist pad, Arm cuff)
- ② Connect hose to the cuff or pad and insert an air plug into the air outlet.
- ③ Wear a cuff or a pad to use if hose and plug is connected properly.
 - Use leg cuffs in condition of unfolded leg.
 - The waist pad could be used through abdomen and hip.
 - Put the Arm cuff and stick a cuff using fixed band in a part of the shoulder and chest. You may feel a pain wrapping the region of chest.
- ④ Connect hose (plug) to the main body.

Connection method between Main body and Hose plug



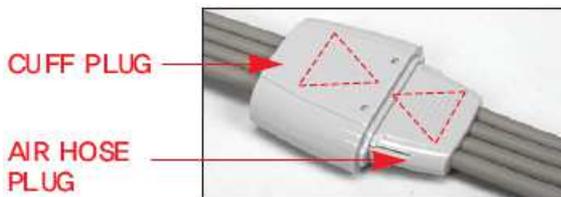
When user use an air hose,

Air hose plug will be inserted to the air outlet of the main body and the other is inserted using air blocked jack



When user use two air hose,

Two air hose plug will be inserted to the air outlet of the main body and air blocked jack will be inserted to the storage location.



When user connect air hose plug to main body or cuff,

User should check the mark on the plug case and connect them.

- Mark on plug case should be placed in the top side when user insert air plug to the main body.
- Mark on plug case should be placed in the same side when user insert air plug to the cuff.

※ A hose has two plugs.

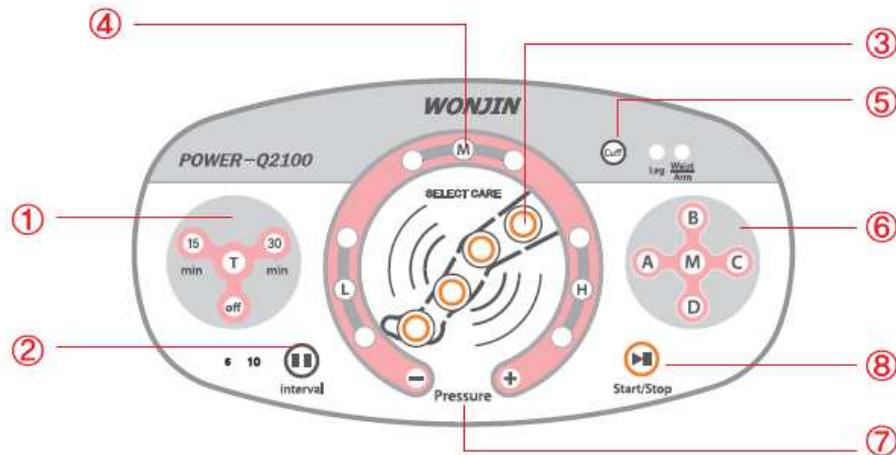
One side plug of the air hose will be inserted to the main body and the other side plug will be inserted to the cuff.

※ If an air outlet of the main body will be connected to the air hose plug,

The other side air outlet should be blocked using air blocked jack to prevent air leakage.

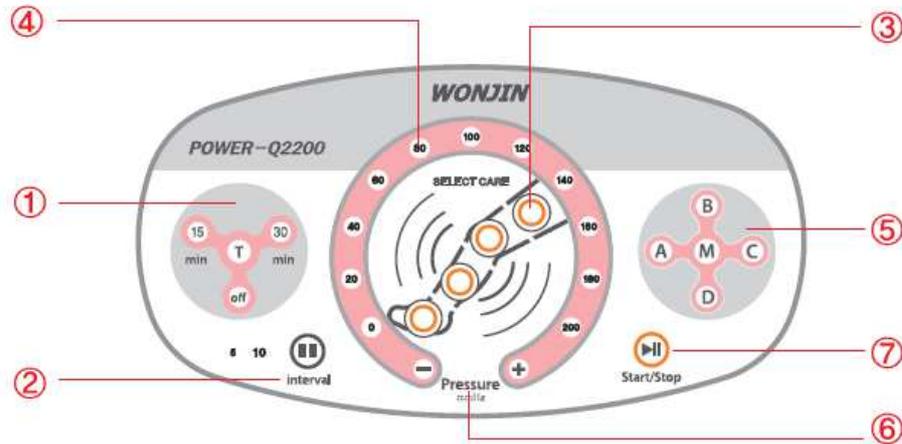
7. How to use

POWER-Q2100



No.	Name	Description
1	Time	Select a working time of device. (15 min , 30 min)
2	Interval time	Select a interval time for rest during each cycle. (A,B MODE: 5 sec, 10 sec, 30 sec , C,D mode: 30 sec fixed)
3	Pressure selectable for each room	Each room will be skipped if you turn off the LED of each room you don't want to use.
4	Pressure	Select a Pressure (Soft, Medium, Strong) (1) A, B MODE: (Strong : 200 mmHg, M : 130 mmHg ,Soft : 80 mmHg) (2) C MODE : (Strong : 130 mmHg, M : 100 mmHg , Soft : 60 mmHg) (3) D MODE : B + C (MIXED) (4) Tolerance : 20%
5	Cuff	Select a cuff to use
6	Mode	Select a working mode to use
7	Pressure select button	Pressure value will be selected to press select button (+ or -)
8	Start/Stop	Device is worked by Start/stop button

POWER-Q2200

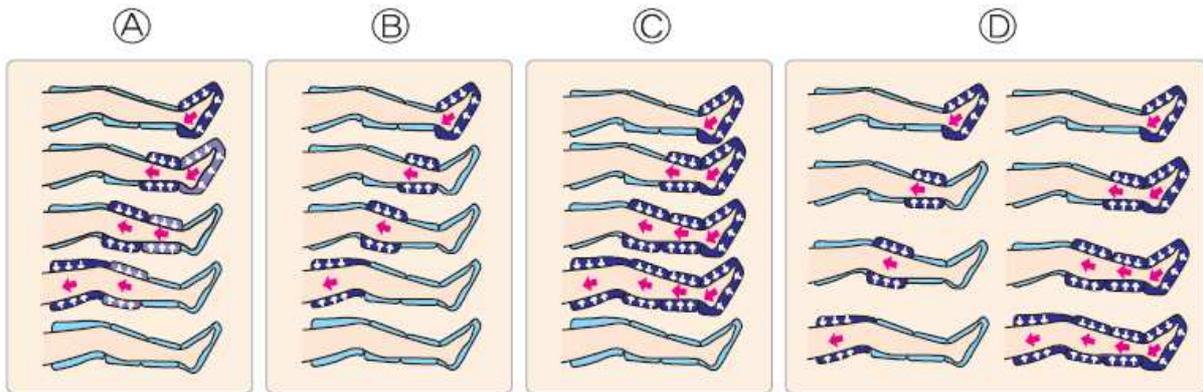


No.	Name	Description
1	Time	Select a working time of device. (15 min, 30 min)
2	Interval time	Select a interval time for rest during each cycle. (A,B MODE: 5 sec, 10 sec, C,D mode: 30 sec fixed)
3	Pressure selectable for each room	Each room will be skipped if you turn off the LED of each room you don't want to use.
4	Pressure	Applied pressure will be shown on the name plate and adjusted select button (+ or -). - Pressure : 20 ~ 200 mmHg - Tolerance : 20%
5	Mode	Select a working mode to use
6	Pressure select button	Pressure value will be selected to press select button (+ or -)
7	Start/Stop	Device is worked by Start/stop button

Explanation of Operation mode

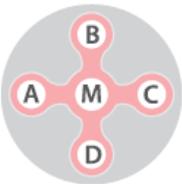
Working mode

- This device has 4 types compression mode program (A, B, C, D).
- User can select proper mode according to patient's condition.
- AC input is connected to main body and power is turns on, initial working mode is A mode



- Mode A: Compressed air in cuff is moving from foot to Thigh in sequential.
After pressure time is finished, extra 3 seconds hold the compressed air in each room.
(Hold time of 3 seconds will gives a overlap effect.)
- Mode B: Compressed air in cuff is moving from foot to Thigh in sequential.
- Mode C: Compressed air in cuff is moving from foot to Thigh in sequential.
But Compressed air doesn't leak in each room until working of 4th room will be terminated.
- Mode D: This mode is mixed mode B and mode C.

Set the MODE



- When power of this device is ON, initial mode (A) is set automatically;
- To select the mode
 - Press Mode Button
 - Stop the button at the mode you want to use.
 - LED light will be shown

Set the INTERVAL (5, 10, 30 seconds)

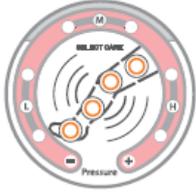
5 10



interval

- ① Press Interval Button
- ② Stop the button at the time you want to use.
 - A, B MODE : 5 sec, 10 sec, 30 sec selectable
 - C, D MODE : 30 seconds (fixed)
- ③ LED light will be shown
 - LED light on the Interval button is 30 seconds.

Set the PRESSURE

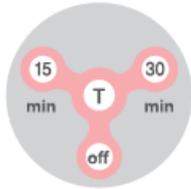
**POWER-Q2100**

- ① Press Pressure Button (+ or -)
- ② Stop the button at the place you want to use. (Strong, Medium, Soft)
- ③ LED light will be shown

**POWER-Q2200**

- ① Press Pressure Button (+ or -)
- ② Stop the button at pressure value you want to use.
- ③ LED light will be shown

Set the TIME (15 min, 30 min)



- ① Press Menu Button
- ② Stop the button at time you want to use.
- ③ LED light will be shown

Set the PRESSURE of Each chamber



If user want to skip any part(chamber), press the button on the each room to turn on/off.

Then, compression does not work at setting chamber.

- ① Look at the Leg drawing
 - ② Button at each chamber will be shown.
 - ③ If you don't want to use any chamber, you just press the button and find a LED light.
- LED ON : working
- LED OFF : No working

Set the number of cuff (Only this function is applied to POWER-Q2100)

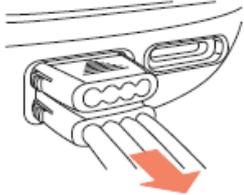
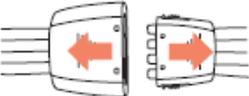


- ① Press the Cuff button
- ② Check the LED light
LEG : 2 cuffs, - ARM : 1 cuff , - BOTH : 3 cuffs
- ④ LED light will be shown

8. General information

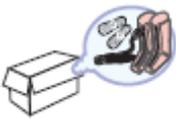
<p>① Insert the power plug into the power outlet. - Check up the suitable voltage to be used and use the device.</p>	
<p>② Turn on the Power. - Press the ON button</p>	
<p>③ If you want to use a setting value, you just press (start) button. If you want to change the setting value, You can select a setting value by using each functional button. After setting the value of function, you just press start button.</p>	 <p>Start/Stop</p>
<p>④ Regulate the Mode to be used. A mode is a initial setting mode from the factory.</p>	
<p>⑤ Press the start/stop button to stop the device. - If operating time is terminated, the operation is stopped automatically.</p>	 <p>Start/Stop</p>

When closing the Use

<p>After operation is terminated, ① turn off the power switch ② pull out the power plug from the power outlet.</p>	
<p>Remove the connector from the main body. [Caution] When you pull off the power plug or connector, pull off it holding the plug, not the cord</p>	
<p>Disconnect the hose connector from the cuffs [pad].</p>	
<p>If you wish to keep the device for a long time, place it in its box</p>	

9. Custody and management

All the cuffs are not to be repaired as consumption goods. Be always careful.

Do not place the cuff near the sharp things such as furnaces, needles, scissors, etc.	
Keep it in the dry place where there is no water or humidity	
Do not machine wash the cuffs or submerge them in water. The cuffs may be gently wiped with a moistened towel or cloth. If necessary, a mild detergent may be used.	
Do not keep the device at too low temperature in winter time. [It may be hardened and damaged.]	
If you wish to keep the device for a long time, place it in its box.	
<p>When the ME equipment was used by many patients, it should be cleaned by moistened towel or cloth on each part. Actually, it does not require regular cleaning, disinfection and sterilization. Also the patient is an intended OPERATOR.</p>	

Environments for its operation and storage

① Operation

- a temperature range of +5°C to +40°C;
- a relative humidity range of 15% to 90%, non-condensing, but not requiring a water vapour partial pressure greater than 50hPa; and
- an atmospheric pressure range of 700hPa to 1060hPa.
- Do not use it outdoors.

② Transport/Storage

- -25 °C to + 5 °C , and
- +5 °C to + 35°C at a relative humidity up to 90%, non-condensing;
- >35°C to 70°C at a water vapour pressure up to 50hPa

10. Temporary action taken during usage

Contents	Check-up
<p>When it doesn't work</p>	<p>Check up if you have plugged it in. Turn on the power switch. Check up if there is any problem in the power Cord (Check up the voltage). Check up if you have set the timer select.</p>
<p>When there is a strange sound like air leakage</p>	<p>Check up if there is any damage in the connecting hose and connector. Check up if you have connected the connector with the device. Check up if the connecting hose is pressed or bent.</p>
<p>When the air does not go into the cuffs and waist pad or when there is no pressure</p>	<p>Check up if you have connected the connector with the device. Check up if any heavy stuffs are placed on. The connecting hose or it is bent. Check up if the connecting hose is properly connected with the pad groove with a rhythmical sound.</p>
<p>When the wind continues to go into the cuffs and when the wind leakage sound is made</p>	<p>Check up where the wind leakage is there in the cuffs. If there is no wind leakage, turn off the power, and then, turn on the power again and check up if it does work properly. (cuffs and each pad are consumption goods.)</p>

12. Electromagnetic Compatibility

Guidance and manufacturer' declaration –electromagnetic emissions		
This equipment is intended for use in the electromagnetic environment specified below. The customer or the user of this equipment should assure that is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	The equipment 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.
RF emissions CISPR 11	Class B	The equipment 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	Complies	

Guidance and manufacturer' declaration –electromagnetic immunity			
This equipment is intended for use in the electromagnetic environment specified below. The customer or the user of this equipment should assure that is used in such an environment.			
Immunity test	IEC60601 test level	Compliance level	Electromagnetic environment-guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact ±15 kV air	±8 kV contact ±15 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	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC61000-4-5	±1 kV line(s) to lines ±2 kV line(s) to earth	±1 kV line(s) to lines ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Power frequency (50/60Hz) Magnetic field IEC61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical hospital or home environment.
Voltage dips, short interruptions and voltage variations on power supply lines IEC6100-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 sec	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the equipment requires continued operation during power mains interruptions, it is recommended that the equipment be powered from an uninterruptible power supplied or a battery.

Guidance and manufacturer' declaration –electromagnetic immunity			
The equipment is intended for use in the electromagnetic environment specified below. The customer or the user of this equipment should assure that it is used in such an environment			
Immunity test	IEC60601 test level	Compliance level	Electromagnetic environment-guidance
Conductive RF IEC61000-4-6	3Vrms 150kHz to 80MHz	3Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the equipment Including cables, than the recommended separation distances calculated from the equation applicable to the frequency of the transmitter Recommended separation distance: $d=1.2\sqrt{P}$ $d=1.2\sqrt{P}$ 80 MHz to 800 MHz $d=2.3\sqrt{P}$ 800 MHz to 2.5 GHz
Radiated RF IEC61000-4-3	3V/m 80MHz to 2,5GHz	3V/m	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). 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 . Interference may occur in the vicinity of equipment marked with the following symbol: 
Note 1 At 80MHz and 800MHz the higher frequency range applies. Note 2 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 transmitted, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment in the location due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which this equipment is used exceeds the applicable RF compliance level above, this equipment should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating this equipment.			
^b : Over the frequency range 150kHz to 80MHz, field strengths should be less than 3V/m.			

Recommended separation distances between portable and mobile communication equipment and this equipment

This equipment is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of this equipment can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communication equipment (transmitters) and this equipment 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
1.0	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitter 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 power of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1. At 80MHz and 800MHz the higher frequency range applies.

Note 2. These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

WARRANTY

Name of Products	Compressible Limb and Circulation Therapy System	Applicable Model	POWER-Q2100 POWER-Q2200
Date of Purchase		Serial No.	
Agent of Purchase		Warranty Period	Body : 1 Year Cuffs (Consumption Goods) : 3 Months (Work Place)
The life cycle of the device is 6 YEARS based on the motor pump which are the shortest life cycle part of the device.			

About Our Service

This is a product that we, Wonjin Mulsan Co., Ltd. manufactured through its own strict quality management and inspections process after obtaining the permission and approval of the Korean Food and Drug Administration and the Safety Authentication System for Electrical Good.

Paid Services

Please be careful about the fact that the service fee will be charged even within the warranty period if the consumer requests the service due to his/her carelessness or if no defects are found in it.

In case of faults due to the consumer's mistake (When the faults occur due to consumer's carelessness or wrong repair)

- ※ When the fault occurs due to the wrong use for the electrical capacity.
- ※ When the fault occurs because the consumer has fallen down the device during the transfer after installation.
- ※ When the fault occur because the consumer has used the consumption and optional goods that we did not designated.
- ※ When the fault occurs because other companies' repairman has repaired the product concerned.
- ※ When the fault occurs because the consumer has used the product in the prohibited area(outdoors) or beyond the original use, because the consumer has disassembled, alternated and repaired at his/her discretion.
- ※ When the consumer has not Abide by the matters that require attention in this instruction manual (Please red the matters that require attention carefully.)

Other cases

- ※ In case of natural disasters(fire, damage from sea wind, flood damage, thunder, lightening, earthquake, etc.)
- ※ Where the consumption goods are used up or their warranty period has already lapsed.
 - Unprofessional operators or untrained operators need information service such as installation, maintain of the device
 - Report unexpected operation or event.
 - Circuit diagrams, component part lists, etc. are needed for service personal.

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