INSTRUCTION MANUAL

INFRARED THERAPEUTIC LAMPS

Chongiqng Xinfeng Medical Instruments Co.,Ltd.

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1. Introduction

1.1 The Infrared therapeutic lamp features a plate coated with a proprietary mineral formulation consisting of 33 elements. When activated by a built-in electric heating element, this mineral plate emits a special band of electro-magnetic waves ranging from 2 to 22 microns in wavelength and 25 mw/sq. mm in intensity.

Easy to use, the Infrared therapeutic lamp requires no gel, no electro-stim and may be used through clothing or directly on the skin.

It is effective when deep heating of body tissue is desired.

Beneficial effects include decreased joint stiffness, increased vasodilation, muscle spasm relief and reduced pain from ligamentous sprains and strains. It works by increasing the local circulation of blood, lymph and the activity of the nervous system.

1.2 Features:

*The Infrared therapeutic lamp built in with a mechanical or digital timer to allow user in selecting treatment time as decided.

*Mechanical timer is easy to operate by simply turn it clockwise to adjust the operation time.

*Digital timer has accumulative timing function to check up the accumulated working time to remind user to change new mineral coated plate, installed in the TDP headlamp.

*An open metal mesh type safety shield to protect and prevent accidental contact with the heating plate.

*With extension arm provides a wide range of lifting and extension distance of supporter and stability of headlamp in position.

*Five-leg with double caster base for higher stability to reduce the tip-over hazard.

Caution:

- This manual explains how to use the device, safety precautions and maintenance procedures. Only general information is provided. Should you have questions or if unusual problems arise, do not hesitate to contact your practitioner.

- Please read the instruction manual before use and use only according to this manual. As the installation and operation for this device are very simple,the intended operator only need to follow this Introduction Manual to operate,not necessary for professional training.
- Do not leave the device on when unattended. Unplug from outlet when not in use.
- To disconnect from the Power source outlet, must switch off the power switch to the "OFF" position of device and then remove the power plug from the power source outlet.
- When treating a patient on the facial area, the patient should wear a sunglasses or goggles, in order to protect the eyes from dryness.

1.3 Intended Operator

● Professional doctor or health care provider
●The device can not be used without approval.

1.4 The Infrared therapeutic lamp (the device) can be used at clinic and hospital under the environment of:

Temperature: 10°C - 40°C (50℉-104℉)
Humidity: 35-75 %RH, 800-1060hPa

2. Intended use

The device is an infrared lamp that emits energy in the infrared spectrum to provide topical heating for the purpose of elevating tissue temperature, to temporarily increase local blood circulation, and temporarily relief of pain and stiffness associated with minor muscle and joint.

Simply direct the heater probe of device toward but keep away the surface of the bare skin or over the afflicted part of the body, hands, legs, Knee, shoulder etc. for the following purpose:

● Decrease painful
● Reduces pain in joints, muscles
● Relaxes muscle spasms
● Improves microcirculation

There are, in fact, no hard and fast ways when using the device as different

people responds to the treatment in different ways. We recommend you experiment with the device to discover the best way in which it can help you. The treatments described are for guidance only. For more specific problems consult your doctor. Timings are approximate and are intended to be flexible to suit your own comfort.

3. Warnings

To prevent and avoid the risk of burns, fire, electric shock, or injury, the following warnings must be observed during all phases of operation, service and repair of this equipment.

3.1Warning against heat

- Operation personnel must not remove the system covers or safety shield of the device.
- Do not use the device directly on wet skin.
- The heater is prohibited to touch onto the bare skin when operation.
- Keep the heater away from the skin at an advisable distance (minimum 20 cm or 8”) and limit the treatment time to 30 minutes maximum for adults and 15 minutes for children to avoid skin burn.
- For protection against fire: Never operate this device with the protected heater opening blocked. Keep this opening free of lint, hair, etc. Never operate on or near a soft surface such as a pillow, blanket, or bed where this air opening may be blocked.
- Do not touch the heater or safety shield when it is switch ON, as the temperature of the heater is very hot.
- Keep out of reach from children and do not allow children to operate the device. Do not let children operate this apparatus or get access to the heater when it is being heated.

3.2Warning against risk of fire

- Unplug from outlet when not in use.
- Do not use the device in small space, or near anything flammable including bedmattresses, carpet, and curtain.
- This device shall not be used in conjunction with high concentration of

oxygen or with flammable anaesthetics.

3.3 Warning against electric shock

- The Device supply must be in accordance with the rating on marking label of device.
- Do not substitute parts or modify or repair equipment yourself. Servicing should be performed by authorized personnel only.
- Do not modify equipment without authorization of the manufacturer.
- To avoid risk of electric shock, this equipment must only be connected to supply mains with protective earth.
- The operator must not touch the patient or any charged parts, such as the fuse holder at the same time, during operation of the device.

3.4Warning for other device using problem

- Explosion warning: Do not operate the equipment in an explosive atmosphere.
- Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
- Do not hold the device by the cord or pull the cord sharply.
- Do not touch the internal of the device during working.
- Do not storage in any location where there is excessive moisture, such as the bathroom.
- Let the device cool down for approx. 20 minutes before cleaning or storing it.
- The Device can easily be damaged by improper handling.
- To safely turn off the device, reset the timer to “OFF” position (for models CQ-12, CQ27 & CQ29) or press “PAUSE” on the panel of the timer (for models CQ-33, CQ-36). Switch off the power switch to the "OFF" position of device and then remove the power plug from the power source outlet.

3.5Warning for Maintenance

- When the mineral element plate becomes white,replace lamp head by professional in time to avoid possible risk of radiation.

●Daily maintenance needs to pay attention to the service life of element board and heating plate.

3.6Warning for possible exposure to hazardous optical radiations

●To avoid possible exposure to hazardous radiation,during the treatment,both eyes should be avoided direct exposure to the lamp.If it's necessary to irradiate tothe eyes,wear sunglasses or cover it with cotton fabric.

●Avoid irradiation to the area where metal materials are installed in the body.

●Patient in special case and condition patient please use the device under the guidance of your practitioner.

4. Contraindications

- IR Therapeutic Lamp should not be used where cardiac pacemakers are located or directly over area where a metal or plastic plate has been fitted. Adequate precaution should be taken in the case of persons with suspected heart problems.
- Do not use over insensitive skin areas or in the presence of poor circulation. Adequate precaution should be taken in the case of some persons may experience skin irritation or hypersensitivity due to the heat treatment.
- Do not use if patient has a high fever.
- Unattended use of heat by children or incapacitated persons may be dangerous.
- If pregnant, ill, or have suffered injury, consult your physician before use.
- Adequate precautions should be taken in the case of persons with suspected or diagnosed epilepsy.
- Electronic monitoring equipment such as electrocardiograms, EKG monitors and alarms may not operate properly when this device is in use.
- This device should not be used over swollen, infected, or inflamed areas or skin eruptions, e.g. phlebitis, varicose veins.

5. Package and assembling of device

Contentsof the “Model CQ-12, CQ-27, CQ-29, CQ-33, CQ-36” IR Therapeutic Lamps

Model:CQ-36

Model:CQ-12

Model:CQ-27

Model:CQ-29

Model:CQ-32

5.1 Package:

IR Therapeutic Lamps

Control Panel Box & Stand 1 pc

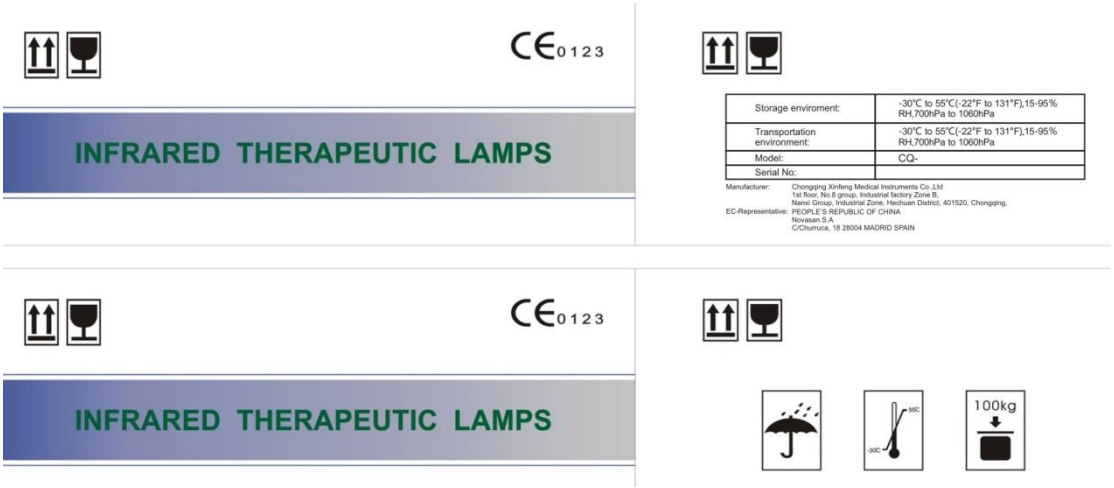
Headlamp 1 pc

Extension Rod 1 pc

Five Point Base with Castors 1 pc

Instruction Manual 1 pc

The device and its accessories are packed in a strong paper box.



Model	Long (cm)	Wide (cm)	High(cm)
CQ-12(2 In 1)	49	35	51
CQ-27	62	50	25
CQ-29			
CQ-33			
CQ-36			

A) Eachshipped device is individual packed into a 3-ply Carton Box.

B)EachCarton is strapped by machine tapes to lock in as safe as protective to prevent from damage during transportation.

C) The shipping marks to be printed at front side of the 3- ply carton.

D) The transportation & storage environment together with Model & Serial No. to be printed at side of the 3- ply Carton.

(Example as below)

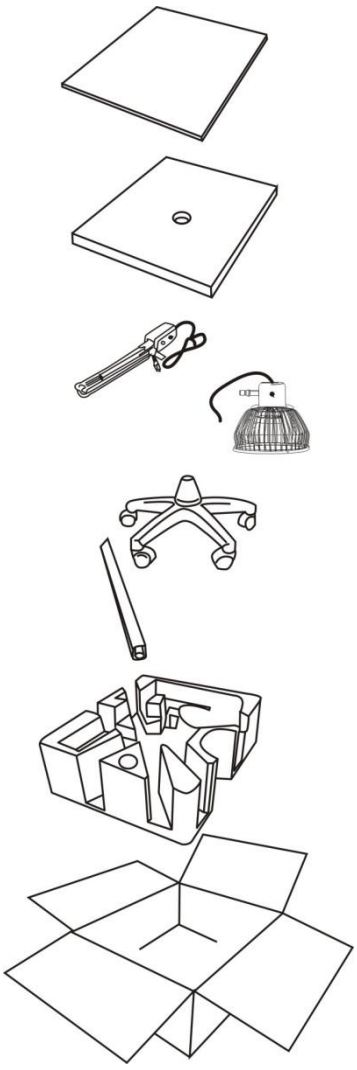
Storage environment	30° C to 55° C (-22℉ to 131℉), 15-95% RH,

	700hPa to 1060hPa
Transportation environment	-30° C to 55° C (-22℉ to 131℉), 15-95% RH, 700hPa to 1060hPa
Model	CQ-XXX
Serial No.	xxxxxxxx

Manufacturer: Chongqing Xinfeng Medical Instruments Co., Ltd.
1st floor, NO.8 group ,Industrial factory Zone B,
Nanxi Group ,Industrial Zone , Hechuan District,
401520,Chongqing, PEOPLE'S REPUBLIC OF CHINA

EC-Representative: Novasan.S.A.
C/Churruca,18 28004 MADRID SPAIN

5.2 Explode diagram of Packaging:



5.3 Assembling: (Floor Type)

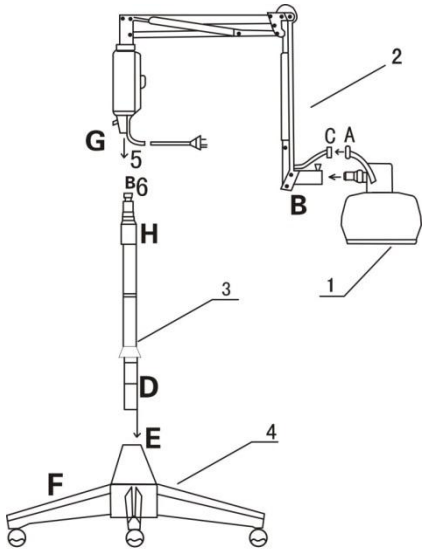
Open the packaging box with care and check the contents of the device. It should consist of:

-Device headlamp (installed with mineral coated plate), with spring loaded arm and control box.

-Extendable Stand Pole

-Five Point Base with Castors

Assemble the device according to Figure 1 (see right diagram). Insert A to B and tighten C. Insert D to E and tighten F. Insert 5 to 6 and tighten G.



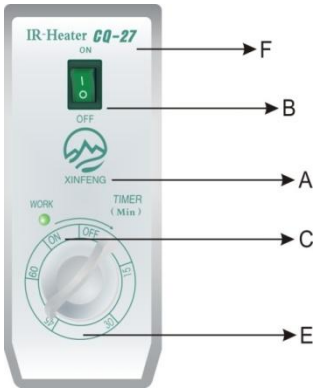
（Figure 1）

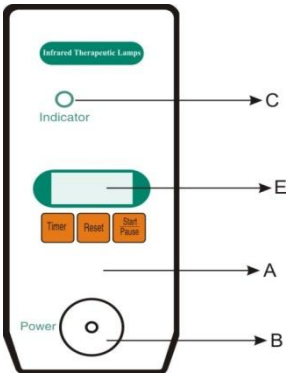
6. Operation Instruction:

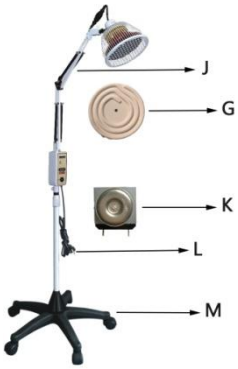
6.1 Illustrations of parts :

Description of Parts

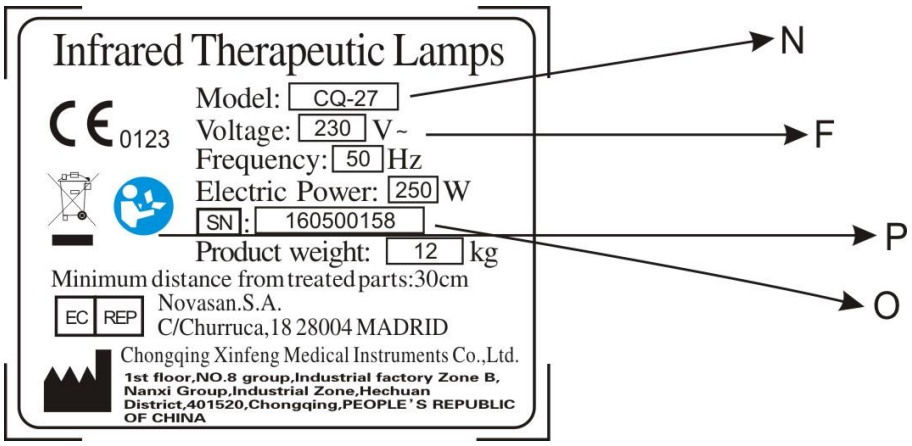
Part No.	Description
1	Headlamp (with mineral coated plate)
2	Safety Shield
3	Extension Arm
4	Control Panel Box
5	Power Cord
6	Extension Rod
7	Power Plug
8	Five Point Base with Castors







Item	Description	Illustration
A	Top panel	On-Off power switch, Power on indicator(white), timer switch Timer ON indicator(green) are installed in this panel
B	On-Off power switch	Press the On-Off switch to turn On thedevice
C	Power on Indicator	White Power indicator pilot is lighting while the power is switchedOn.
E	Timer	Choose the time for treatment by adjusting the timer. Mechanical timer iseasy to operate by simply turn it clockwise to adjust the operation timeDigital timer by pressing buttons on thepanel, see instruction 6.4
F	Model name	The Model Name of the device is printed here.
G	Heater	The headlamp must be plugged into the socket of the Control Panel box.
J	Stand	To support the lamp.
K	Beeper/Buzzer	When the set time is completed, the beeper or buzzer will sound and the heater stops working.
L	DC Power Socket	To plug in AC wall socket
M	5-Point Base	Base with 5 wheels to move around thelamp to suitable area for treatment.
N	Rating Label	Device name, model, specifications, manufacture date, manufacturer's andER address, CE 0123, symbols, "Seeinstruction for use" detail to be marked on.
O	Serial No. Label	To identify the device for warranty
P	See Instruction Label	"See instruction for use"



Caution:

- Before the device is ready for use, the heater will warm up after 5 minutes after switching ON.
- Do not use the device directly on wet skin.

6.2 Turning Unit On: For Mechanical Timer, model CQ-12

a) Insert the plug into a grounded 230±10 volt AC output (wall) socket and the “white” POWER indicator lit, indicates the power is connected. At this time, the “green” (WORK) indicator is not lit.

b) Turn the timer clockwise to “ON” position or select treatment time, for example 45 minutes. The “green” (WORK) indicator lit, indicates the unit is warming up and countdown for operation is started.

c) After pre-heating for 10 to 15 minutes, the unit will be ready for use. Do not leave unit on when unattended.

6.3 Turning Unit On: For Mechanical Timer, models CQ-27，CQ-29

a) Insert the plug into a grounded 230±10 volt AC output (wall) socket and turn unit on by depressing the POWER switch to “|” position. The “green” POWER indicator lit means the power is ON and connected. At this time, the “green” (WORK) indicator is not lit.

b) Turn the timer clockwise to “ON” position or select treatment time, for example 45 minutes. The “green” (WORK) indicator lit, indicates the unit is warming up and countdown for operation is started.

c) After pre-heating for 10 to 15 minutes, the unit will be ready for use. Do not leave unit on when unattended.

6.4 Turning Unit On: For Digital Timer, models CQ-33, CQ-36

a) Insert the plug into a grounded 230±10 volt AC output (wall) socket and turn unit on by depressing the POWER switch to“|” position. The “green” POWER indicator lit means the power is ON and connected. At this time, the “green” (WORK) indicator is not lit. The display shown on the screen is the accumulated working time. Unit: hour.

b) Setting the treatment time:

i)For Continuous treatment - Push “Start/Pause” button. The screen shall display “CONT” which means “continue” and the “green” (WORK)

indicator lit.

ii)For preset time of treatment - Push “Reset”, the screen will display “00:00”. Then push “Timer” to set working time. (The increments of each pushing of Button is 5 mins)

c) Now Push “Start/Pause” and “green” (WORK) indicator lit, indicates the unit is warming up and countdown for operation is started. By pressing the “RESET” and “TIMER” button, the treatment time can be reset.

d) After pre-heating for 10 to 15 minutes, the unit will be ready for use. Do not leave unit on when unattended.

e) Aim the device head directly towards the body area to be treated. The heating shuts off once the timing reaches “00:00”.

f) The heating can be canceled any time by pushing “Reset”.

The appropriate distance from the device headlamp to the area to be treated is 30 cm. The best result is obtained when the body surface temperature is heated to and kept at 40°C-42°C after preheating for 15 minutes.

When skin temperature is below 40°C, it is only for comfort warming.The following table shows the appropriate skin temperatures at different distances from the head lamp to skin surface after preheating for 15 minutes:

Distance from the headlamp	25 cm	30 cm	35 cm
Skin temperature	42°C	40°C	38°C

Treatment time period: Limit the treatment time to 30 minutes maximum for adults and 15 minutes for children.

Once or twice treatments per day.

Note: if the indicator light (green) is not on and the lamp fails to heat, check the fuse on the back of the controller. Replace if necessary.

7. Position for Treatment

As a general guideline, adjust the distance between the treatment surface and the headlamp at an advisable distance (minimum 20 cm or 8”) to produce a warm and comfortable feeling. Actual placement must be dictated by patient comfort.

Note that an advisable distance will provide therapeutic heating of 40°C - 45°C at room temperature. For reference, 40°C to 45°C (104˚F to 113˚F) is the temperature range for therapeutic heating at room temperature. The skin may become pink during treatment, this is normal.

If heater distance is too far away from treatment surface will only provide warmth and comfort.

Do not place the headlamp directly onto the body or treatment surface, otherwise a possible burn may result.

8.Treatment Time

The treatment time for a given session may vary depending on the condition being treated.
As a general guideline, treatment times of 30 minutes may be used. Limit the treatment time to 30 minutes maximum for adults and 15 minutes for children.

It is also recommended to limit treatment sessions to no more than 2 times per day.
Depending on the condition being treated, shorter times and frequencies of treatment may also be used.

9.Protection of Skin

Application should be pleasant and comfortable. Be aware of the comfort and how the patient is feeling. If pain or discomfort is felt, move

the headlamp further away or discontinue treatment. If the headlamp touches onto the body during treatment, the temperature may become too high and the skin may overheat and cause a skin burn.

To minimize the impact of dry skin after treatment, apply moisturizing lotion to the treatment area after each session.

10.Safety Shield

This device features with a safety shield to protect and prevent accidental contact with the bare skin. This shield is prohibited to remove when the device is in operation. Do not touch the headlamp after operation - the headlamp will remain hot for a period of time after it is turned off.

11.Cleaning

Caution: Let the device cool down for approx. 20 minutes before cleaning or storing it.

Do not immerse the device in any cleaning solution or water.

IR Therapeutic Lamp should be periodically wiped clean using a damp cloth and a solution of mild soap and water. Use of any other cleaning solution may damage the device.

Wipe the cable & plug clean with a cloth dampened in a mild soap solution, then wipe them dry. (Do not use thinner, benzene of similar solvents to clean the equipment. Do not use alcohol or Freon to clean the cable)

It should be stored in a location free from dampness and extreme cold.

12. Specification

1	Model	CQ-12, CQ-27, CQ-29, CQ-33, CQ-36
2	Optimum skin temperature	40°C-45°C at room temperature (an advisable distance from the heater to surface of bare Skin)
3	Power Source	Voltage: 230V~ Frequency: 50 Hz
4	Electrical Power	250 Watts
5	Timer	Continuous, and 60 minutes
6	Buzzer	Will be sound and stopped to work automatically when the set time is up.
7	“OFF-ON” switch	“OFF” to turn off the device “ON” to turn on the device
8	Current Fuse	2 pcs. type F3. 15AH 250V
9	Transportation and storage environment	-30° C to 55° C(-22℉ to 131℉),15% RH to 95% RH,700hPa to 1060hPa
10	Operation environment	10° C -40° C(50℉ - 104℉),RH: 35-75% , 800hPa to 1060hPa
11	Device Classification	Class IIa (Rule 6 of Directive 93/42/EEC, Annex IX)
12	Pollution Degrees	Degrees 2
13	Overvoltage Category	Category II
14	High Altitudes (m)	≤2000m
15	Spectral irradiance	0W.m^{-2}
16	Spectral radiant	0W.m^{-2}
17	Maximum output of optical radiation	〈0.001 W.m^{-2}
18	Emission apertures location	Head lamp
19	Service life	3 Years

Specifications are nominal and subject to variation from the listed values due to production tolerances (+/-10％).

Mechanical Speciation of different models of IR Therapeutic Lamp

Models	CQ-12	CQ-27	CQ-29	CQ-33	CQ-36
Style	desk model	floor model with five-point base and casters	Same as left model	Same as left model	Same as left model
Diameter of mineral plate	124 mm	124 mm	166 mm	124 mm	166 mm
Extendible range	16" (40 cm) vertical, 10" (25 cm) horizon -tal adjustment with 2 sections, spring loaded arms	24" (60 cm) vertic -al, 24" (60 cm) ho -rizontal adjustme -nt with 2 sections, spring loaded arms	Same as left model	Same as left model	Same as left model
Emission headlamp direction	Any direction within a half sphere may be tilted up to 90 degrees. Device headlamp may be rotated 50 degrees	Any direction within a half sphere may be tilted up to 90 de -grees. Device hea -dlamp may be rota -ted 360 degrees	Same as left model	Same as left model	Same as left model
Telescoping main post	fixed	allows 12" (30 cm) vertical adjustme -nt	Same as left model	Same as left model	Same as left model
Distances to floor	6" (15 cm) minimum to 18" (45cm) maximum	12" (30 cm) minim -um to 60" (152 c m) maximum	Same as left model	Same as left model	Same as left model
Treatment distance	8" to 12" (20 cm to 30 cm)	8" to 12" (20 cm to 30 cm)	Same as left model	Same as left model	Same as left model
Weight	12 lbs (5.5 kgs.)	25 lbs (11 kgs.)	Same as left model	Same as left model	Same as left model

13. Explanation of Symbols

The following symbols are used in this device.

Symbols	Meaning
	Manufacturer
EC REP	Authorized Representative in the European Community
	Symbol for the marking of electrical and electronics devices according to Directive 2002/96/EC.The device, accessories and the packaging have to be disposed of waste correctly at the end of the usage. Please follow Local Ordinances or Regulations for disposal.
CE 0123	CE 0123 mark of conformity The device is complied with the Essential Requirements for Medical Devices according to EC Directive 93/42/EEC
SN	Serial number
	Refer to instruction manual
	Warning: Hot surface
	Protective earth (ground)
	Year of Manufacture
	ON (Power)
	OFF (Power)

14. Disposal

There is generally no restricted “shelf-life” of the device. The device contains substances that can be harmful to the environment. When you discard the device, do not throw it away with the normal household waste but hand it in at an official collection point.

Attention: When dispose the device, please follow the local environment requirement to minimize contamination risk.

15. CE Compliance

Model CQ-12/CQ-27/CQ-29/CQ-33/CQ-36 Infrared Therapeutic Lamp conforms to the requirements of Medical Device MDD 93/42/EEC. It is in compliance with the standards IEC 60601-1:2012 reprint and IEC 60601-1-2:2014.

16. Trouble shooting

If your device does not seem to be operating properly, please check as:

- Check the plugging method to be sure it is properly placed.
- Replace 2 pieces new fuses of 3.15A

When replacing the fuse, please pay attention to the following steps:

a) Power OFF and unplug the device from the mains.

b) There are two fuse holders at the back side of the Control Panel Box, unscrew one of the fuse holder caps (in counter clockwise direction).

c) Take away the faulty fuse and change a new one (fuse of 3.15A).

d) Put back the fuse holder cap in position by screw it in clockwise direction.

e) Replace the other fuse in the second fuse holder as mentioned in the above steps b),c) and d).

f) The fuses are now properly replaced and operation of the device can be proceeded again.

If none of these steps improve operation, do not operate this device, return the device to your professional or call your nearest authorized service center who will return it to the manufacturer.

The device should be serviced or checked once a year by authorized dealer, service center or manufacturer to ensure continued safe use of the equipment.

A double pole switch is installed in the control panel of the device to ensure Mains Isolation, this isolates the circuits electrically from the supply mains on all poles simultaneously.

It complies with the protection against electrical Hazards according to IEC 60601-1: 2006 standards.

NOTE: MANUFACTURER will provide circuit diagrams, component parts list, descriptions and calibration instructions to assist to SERVICE PERSONNEL in parts repair.

Attention:

Detachable part to be replaced is limited to the power supply cord and headlamp.

When replacing a new power supply cord, ensure this is done by a qualified Service Personnel, and pay attention to the following steps:

a) Power OFF and unplug the device from the mains.

b) Open the back cover of the Control Panel Box by unscrew the 4 screws (in counter clockwise direction) located at the 4 corners.

c) Disconnect the faulty power supply cord and replace a new one.

d) Put back the cover in position and fix it with the 4 screws in clockwise direction.

e) The power supply cord is now properly replaced and operation of the device can be proceeded again.

The device mineral coated plate must be changed if it becomes cracked or chipped, or begins to change color. Under normal use, the mineral coated plate will last approximately two years (or 1,200 to 1,500 hours usage) before requiring replacement.

In case a new mineral coated plate requires replacement, power OFF and unplug the device. Detach the headlamp (installed with the mineral coated plate) from the device and replace it with a new one. The headlamp is built in with an UL approved connector for easy detachment and safety.

Minimum qualification of SERVICE PERSONNEL should be a licensed electrical technician.

17. EMC Information

Statement

The MEDICAL ELECTRICAL EQUIPMENT needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the ACCOMPANYING DOCUMENTS (this instruction).

Portable and mobile RF communications equipment can affect MEDICAL ELECTRICAL EQUIPMENT.

Warning:

Use of this equipment adjecent to or stacked with other equipment should be avoided because it could result in improper operation.If such use is necessary,this equipment and the other equipment should be observed to verify that they are operating normally.

Warning:

Use of accessories,transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emmisions or decreased electromagnetic immunity of this equipment and result in improper operation.

Warning:

Portable RF communications equipment(including peripherals such as atenna cables and external atennas) should be used no closer than 30 cm(12 inches) to any part of Model CQ-12/CQ-27/CQ-29/CQ-33/CQ-36,including cables specified by the manufacturer.Otherwise,degradation of the performance of this equipment could result.

Guidance and manufacturer's declaration - electromagnetic immunity- for all EQUIPMENT and SYSTEMS

Guidance and manufacturer's declaration - electromagnetic immunity			
The CQ-12 is intended for use in the electromagnetic environment specified below.The customer or the user of CQ-12 should assure that it is used in such an environment.			
Immunity test	**IEC60601 test level**	**Compliance level**	**Electromagnetic environment-guidance**
Electrostatic discharge(ESD) IEC 61000-4-2	±6 KV contact ±8 KV air	±6 KV contact ±8 KV air	Floors should be wood, concrete or ceramic tile.If floor are covered with synthetic material.the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 KV for power supply lines	±2KV for power supply lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 KV differential mode ±2 KV common mode	±1 KV differential mode ±2 KV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips,short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% 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 CQ-12 requires continued operation during power mains interruptions,it is recommended that the CQ-12 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	3A/m	3A/m	Mains power quality should be that of a typical commercial or hospital environment.
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration – electromagnetic immunity- for EQUIPMENT and SYSTEMS that are not LIFE-SUPPORTING

Guidance and manufacturer's declaration – electromagnetic immunity			
The CQ-12 is intended for use in the electromagnetic environment specified below.The customer or the user of CQ-12 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment-guidance**
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	$3V_{rms}$ 150kHz to 80 MHz 3V/m 80 MHz to 2.5 GHz	$3V_{rms}$ 3V/m	Portable and mobile RF communications equipment should be used no closer to any part of the CQ-12 including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d = \left[\frac{3.5}{V_1}\right]\sqrt{P}$ $d = \left[\frac{3.5}{E_1}\right]\sqrt{P}$ 80 MHz to 800 MHz $d = \left[\frac{7}{E_1}\right]\sqrt{P}$ 800 MHz to 2.5 GHz Where P is the maximum output power rating of the transmitter in watts(W) according to the transmitter manufacturer and d is the recommended separation distance in 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 80 MHz and 800 MHz, 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 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 CQ−12 is used exceeds the applicable RF compliance level above, the CQ−12 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the CQ−12.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the EQUIPMENT or SYSTEM-

for EQUIPMENT or SYSTEM that are not LIFE-SUPPORTING

Rated maximum output pwer of transmitter (W)	Separation distance according to frequency of transmitter(m)		
	150 kHz to 80 MHz $d=\left[\frac{3.5}{V_1}\right]\sqrt{p}$	80 MHz to 800 MHz $d=\left[\frac{3.5}{E_1}\right]\sqrt{p}$	800 MHz to 2.5 GHz $d=\left[\frac{7}{E_1}\right]\sqrt{p}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.69	3.69	7.38
100	11.67	11.67	23.33

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.

Guidance and manufacturer's declaration – electromagnetic emissions- for all EQUIPMENT and SYSTEMS

Guidance and manufacturer's declaration -electromagnetic emission		
The CQ-27/29/33/36 is intended for use in the electromagnetic environment specified below.The customer of the user of the CQ-27/29/33/36 should assure that it is used in such and environment.		
Emission test	**Compliance**	**Electromagnetic environment -guidance**
RF emissions CISPR 11	Group 1	The CQ-27/29/33/36 use 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 emission CISPR 11	Class B	The CQ-27/29/33/36 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's declaration-electromagnetic immunity- for all EQUIPMENT and SYSTEMS

Guidance and manufacturer's declaration-electromagnetic immunity			
The CQ-27/29/33/36 is intended for use in the electromagnetic environment specified below.The customer or the user of CQ-27/29/33/36 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment-guidance**
Electrostatic discharge(ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood,concrete or ceramic tile.If floor are covered with synthetic material,the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines	±2 kV for power supply lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 KV differential mode ±2KV common mode	±1 KV differential mode ±2KV common mode	Mains power quality should be that f a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<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 CQ-27/29/33/36 requires continued operation during power mains interruptions, it is recommended that the CQ-27/29/33/36 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	3A/m	3A/m	Mains power quality should be that of a typical commercial or hospital environment
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration – electromagnetic immunity – for EQUIPMENT and SYSTEMS that are not LIFE-SUPPORTING

Guidance and manufacturer's declaration – electromagnetic immunity			
The CQ-27/29/33/36 is intended for use in the electromagnetic environment specified below. The customer or the user of CQ-27/29/33/36 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment-guidance**
			Portable and mobile RF communications equipment should be used no closer to any part of the CQ-27/29/33/36,including cables,than the recommended separation distance calculated from the equation applicable
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	$3V_{rms}$ 150 kHz to 80 MHz 3V/m 80 MHz to 2.5 GHz	$3V_{rms}$ 3V/m	to the frequency of the transmitter. **Recommended separation distance** $d=\left[\frac{3.5}{V_1}\right]\sqrt{p}$ $d=\left[\frac{3.5}{E_1}\right]\sqrt{p}$ 80 MHz to 800 MHz $d=\left[\frac{7}{E_1}\right]\sqrt{p}$ 800 MHz to 2.5 GHz Where P is the maximum output power rating of the transmitter in watts(W) according to the transmitter manufacturer and d is the recommended separation distance in 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 80 MHz and 800 MHz, 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 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 CQ−27/29/33/36 is used exceeds the applicable RF compliance level above, the CQ−27/29/33/36 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the CQ−27/29/33/36.

[b] Over the frequency range 150 kHz to 80 MHz,field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile

RF communications equipment and the EQUIPMENT or SYSTEM for EQUIPMENT or SYSTEM that are not LIFE-SUPPORTING

Recommended separation distances between portable and mobile RF communications equipment and the CQ-27/29/33/36

The CQ-27-29/33/36 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled,The customer or the user of the CQ-27/29/33/36 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters)and the CQ-27-/29/33/36 as recommended below, according to the maximum output power of the comunications equiment.

Rated maximum output power of transmitter (W)	Separation distance according to frequency of transmitter(m)		
	150 kHz to 80 MHz $d=\left[\frac{3.5}{V_1}\right]\sqrt{p}$	80 MHz to 800 MHz $d=\left[\frac{3.5}{E_1}\right]\sqrt{p}$	800 MHz to 2.5 GHz $d=\left[\frac{7}{E_1}\right]\sqrt{p}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.69	3.69	7.38
100	11.67	11.67	23.33

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.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for 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.

18. Limited Warranty

- 90 days parts and labor.
- One (1) year parts.
- The customer is responsible for any transportation of shipping relative to the return of product during the warranty period.
- Copy of invoice must be provided as proof of purchase.
- Products disassembled, repaired, or altered in any manner will void warranty.
- Should a product require repair after the limited warranty period, please contact us for information regarding return procedures and repair charges. For Service in or out of guarantee, please contact the distributors.