Gaymar
Your patients. Our commitment.

T/PUMP®

TP702 Localized Temperature Therapy System

Operator's Manual [EN]

CE
0086

P/N 101516000 Rev A 7/11

CONTENTS

SYMBOLS USED WITHIN THIS MANUAL AND ON THE PRODUCT

	Warm Water Fill Line
	Cold Water Fill Line
	Attention, consult Operator's Manual.
	Water Levels
	Water Flow
	Dangerous Voltage
	Type BF Applied Part
	Do not penetrate with sharp object.
	Length of cycle time
	Continuous
	Year of manufacture

BEFORE YOU BEGIN . . .

Read and understand this T/PUMP OPERATOR'S MANUAL and all SAFETY PRECAUTIONS (see page 1) prior to using the T/Pump.

Only qualified medical service personnel should repair or perform function tests on the T/Pump. Contact your dealer or Gaymar's Technical Service Department for assistance:

Telephone: 716 662-2551

RECEIVING INSPECTION

Check the shipping carton for damage immediately upon receipt. If package damage is discovered, the device should be unpacked with the carrier's agent present. Any claims for shortage or damage must be filed with the delivering carrier by the purchaser. Do not return pumps that were damaged in shipment to Gaymar without contacting our Technical Service Department for advice (see phone numbers below). If damaged goods are returned to Gaymar without notifying the carrier, Gaymar will assume the repairs will be made at the customer's expense.

TO RETURN PUMPS TO FACTORY FOR REPAIR OR EXCHANGE

Merchandise returned to Gaymar must be accompanied by a Return Goods Number (RG#), issued by Gaymar, authorizing goods to be returned. Contact your local dealer or Gaymar's International Department at:

International: +1 716-662-8636

Fax: +1 716-662-0730

Provide the model, serial number, and detailed nature of the problem. You will be given a Return Goods Number (RG#).

The serial number can be found on the bottom of the T/Pump.

The date of manufacture of the T/Pump is encoded to the serial number. To determine the date of manufacter, the serial number can be broken down as follows.

A	0	I	0	0	I
Month	Year	Decade	These numbers are not significant to the date of manufacture		

A	January
B	February
C	March
D	April
E	May
F	June

G	July
H	August
I	September
J	October
K	November
L	December

SAFETY PRECAUTIONS

⚠ DANGER

- *Risk of explosion.* Do not use in the presence of flammable anesthetics.
- *Risk of electric shock.* Disconnect power before servicing the T/Pump.
- Do not attach the power cord to any moving parts of the bed frame or any location that may be a pinch point or cause power cord damage. If routed improperly, the power cord may become pinched and could cause electrical shock.

⚠ WARNING

- This device pumps temperature controlled water through a pad. Set the pad temperature only as directed by and under the guidance of the prescriber.
- Check the skin integrity of the body surface to which therapy is applied. Evaluate patient response to temperature application.
- Check patient's skin for adverse reactions every 30 minutes or as directed by the prescriber.
- Failure to adhere to these warnings could result in patient injury.
- The following Groups/Conditions require additional surveillance:

Group/Condition at risk	Potential Injury
Pediatric patients: The portion of an infant's skin surface in contact with a pad, in relationship to their body mass, can potentially affect their body temperature.	Hyperthermia/ Hypothermia
Patients with impaired circulation	Ischemia
Areas of application under pressure	Ischemia

- Only qualified medical service personnel should repair the T/Pump. *Improper repair may result in death or serious injury, equipment damage, or malfunction.*
- Use T/Pump TP702 controls with Mul•T•Pads. For catalog numbers and descriptions, see page 3.
- Do not place additional heat sources between the patient and pad. Skin damage may result.

⚠ CAUTION

- Federal law restricts this device to sale by or on the order of a physician.
- Do not cover the control unit with blankets, pillows or other insulating materials. Air flow is required to maintain system performance.

INTRODUCTION

Heat therapy is effective in the dilation of blood vessels, thereby increasing the blood flow to the heated area. Heat therapy has a variety of uses, the most common being treatment of aches and pains in joints and muscles.

Cooling therapy assists in vasoconstriction, decreasing blood flow and decreasing the metabolism in the affected area. Cooling therapy is applied in the acute phase of injury minimizing blood loss, inflammation of the tissue, and can be effective in pain management.

The Gaymar T/Pump® Localized Temperature Therapy System provides therapy by warming or cooling the enclosed water, and circulating it through the Gaymar Mul•T•Pad. The pad is connected to the Gaymar T/Pump with easy-to-use Clik-Tite® connectors.

The Mul•T•Pad provides the interface for delivering the temperature therapy. The unique button design allows water to flow and provides trouble-free operation when the pad is folded to form a customized fit. This reduces the number of pads your facility must keep in inventory. The pads are applied to the part of the body requiring therapy, and the circulating water maintains the pad at the setpoint temperature. The setpoint temperature can be locked to prevent tampering.

Connecting the Pads

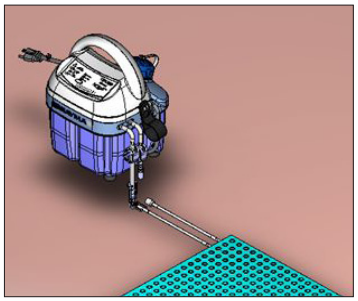

Figure 1A: Localized Temperature Therapy System with Single Pad with the TP702.

The Mul•T•Pads can be interconnected using Clik-Tite® connectors to provide therapy to more than one body site at a time.

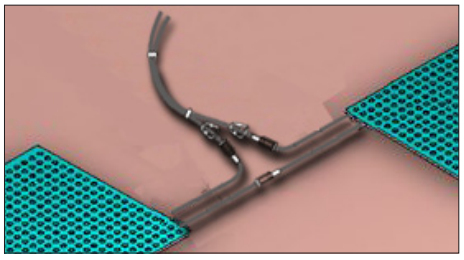

Figure 1B: Localized Temperature Therapy System with Multiple Pads.

Catalog Descriptions

Catalog #	Product Name
TP702	Professional Control Unit
TP12E	Mul•T•Pad: 13"w x 18"l (33cm x 45cm) Nonwoven fabric on one side, pliable polymer on the other side. 20 per carton
TP22E	Mul•T•Pad: 15"w x 22"l (38cm x 55cm) Nonwoven fabric on one side, pliable polymer on the other side. 20 per carton
TP22G	Mul•T•Pad: 15"w x 22"l (38cm x 55cm) Heavy Polymer, Reuseable. 10 per carton
TP26E	Mul•T•Pad: 18"w x 26"l (45cm x 66cm) Nonwoven fabric on one side, pliable polymer on the other side. 10 per carton

To order any of these products contact your dealer or Gaymar's International Department at:

International: +1 716-662-8636

Fax: +1 716-662-0730

Or, visit our website at www.gaymar.com

INDICATIONS FOR USE

Localized temperature therapy is recommended in treating the following applications:

Orthopedic Conditions such as:
acute injuries, chronic pain, lower back pain, muscle spasm and strains

Skin Trauma such as:
abscesses, boils, bruises, burns and contusions

Cold Indications
muscle spasm
contusions
tendonitis
pain management

Other conditions such as:
chronic arthritis, neuritis, phlebitis, tendonitis and I.V. infiltration, infection and localized pain.

Other applications only as prescribed.

OK for Use With:

- Non-acute traumatized tissue.
- Impaired mental status.
- Insensate body surface.
- O_2 therapy. However, if oxygen tent is in use, do not use pump inside tent.

CLINICAL CONTRAINDICATIONS

Heating contraindications are:

- Application to a body surface with compromised blood flow (Ischemia, area under pressure, arterial insufficiency).
- Application to a patient with an increased tendency to bleeding (aggravates potential for hemorrhage).
- Application to a body surface with possibility of malignancy (tissue metabolism is increased and therefore, the growth potential of the malignant tissues).
- Treatment of hematoma within first 24-48 hours (potential for re-bleeding and hemorrhage).
- Recent sprain or fracture (acute inflammatory response).
- In combination with topical solutions whose toxicity may be affected by the application of heat.
- In combination with other heat sources.

Cooling contraindications are:

- Application to a body surface with compromised blood flow or hypersensitivity to cold. (Ischemia, Reynauds Syndrome).

PUMP FEATURES

Easy to Use Keypad	See KEYPAD FEATURES on page 6.
Attached hose	10 ft (305 cm) dual hose. Connectors allow pads to be connected to the pump (Figures 1A and 1B, page 2).
Flow indicator	Indicates no flow. Turns off heater if pump is tipped.
Warm/Cool Delivery	Four temperature setpoints on the TP702.
Therapy Cycles	Choose from 20-minute, 30-minute, or Continuous cycles.
On/Standby Button	Indicates power is supplied to the unit.
Over Temp Safety Thermostat	Limit thermostat shuts off heater if the high temperature limit is exceeded.
Self Check	Automatic system check at startup.
Hose/cord Management	Convenient and easy storage areas for hose and cord.
Comfortable Handle Design	Designed for a more comfortable grip when moving the pump.
Dual Micro Processor	Two electronic circuits, one over temperature sensing circuit.
Tethered Easy-Open Cap	Prevents misplacing the cap. Only 1/4 of a turn is needed to remove or secure the cap.
Handle Vents	The vents in the handle allow air flow to keep the motor and heater inside the unit cool.

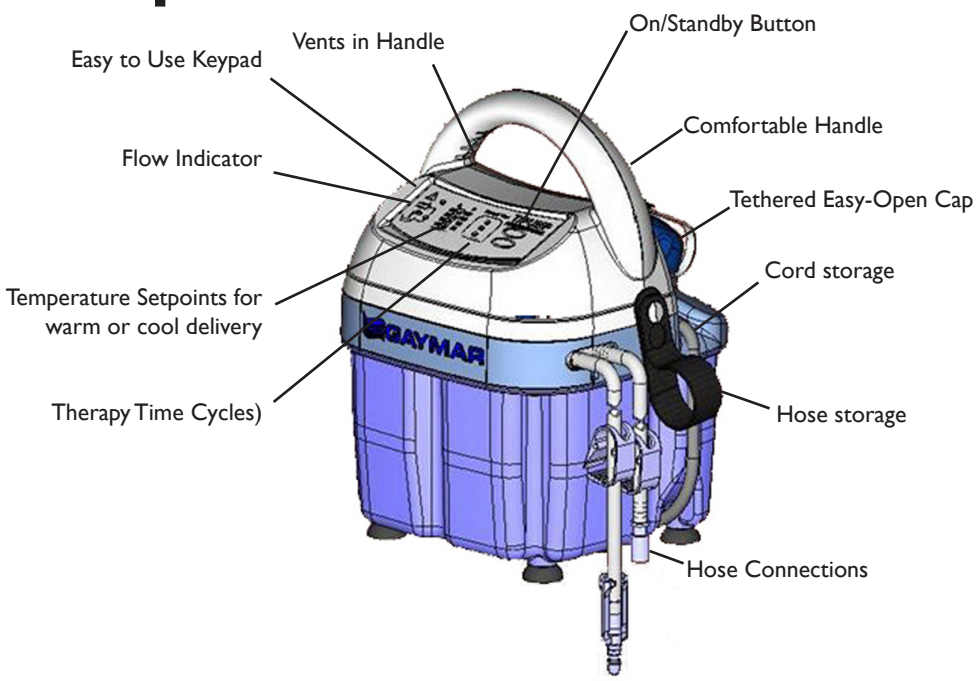

Figure 2: T/Pump Features

KEYPAD FEATURES
TP702

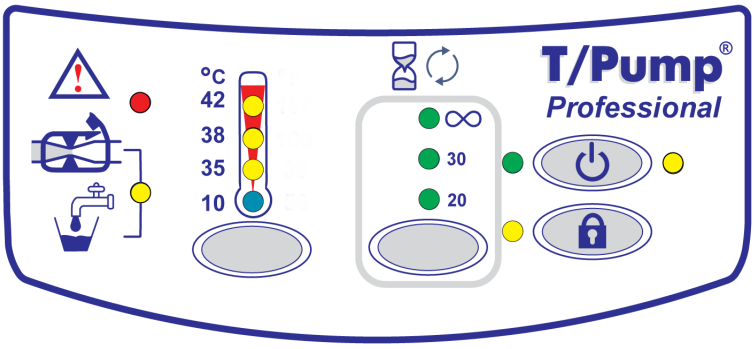

Figure 3: TP702 Keypad

Indicator/ Warning Light	See the *Troubleshooting* section on page 11.
	Water Flow Check hoses or clamps for kinks or occlusions.
	Water Level Check water level.
Setpoints	Press the button at the bottom of the setpoint indicator to toggle through the four setpoints. Temperatures are identified in °C.
Setpoint Lock	Prevents tampering. Press and hold for 2 seconds to lock or unlock the setpoint.
Therapy Cycles	Continuous cycle, 30-minute cycle 20-minute cycle.
	Green indicates the unit is on. Yellow indicates power is supplied to the unit but the unit is not on.

CLIK-TITE® CONNECTORS

Note: Refer to Figure 1B on page 2 when connecting multiple pads.

The TP702 T/Pump is supplied with Clik-Tite® connectors.

To connect and disconnect Clik-Tite® connectors from hose to pad:

1. Insert male fittings into female fittings with a twisting motion (Figures 4A and 4B).
2. When fittings are fully inserted, snap locking ring into place (Figures 4C and 4D).
3. To disconnect, reverse the procedure.
4. To open or close the hose pinch clamps:
   - Open the clamp by pushing the serrated end (Figure 5B).
   - Close the clamp by pressing the clamp together (Figure 5C).

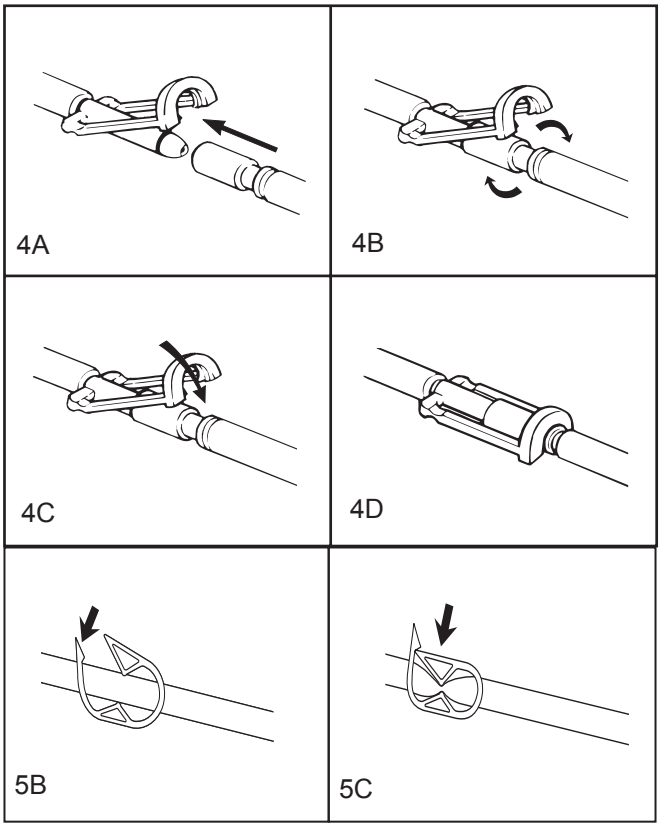

Figure 4: Clik-Tite® Connectors

START-UP PROCEDURE

⚠ WARNING

- *Pump must be filled with water prior to operation.*

1. Before filling the pump, attach a pad to the connector hose. Make sure that there are no kinks in the hose or pad. Open the hose clamps.
2. Open the fill cap on top of the pump.
3. To fill for cooling:
   a. Fill with cold water to the **Cooling** water line.
   b. Fill with ice to the full capacity of the reservoir.
4. To fill for heating, fill with room temperature water to the **Heating** water line.
5. Plug the T/Pump into a properly grounded Hospital Grade receptacle.
6. Press the **On/Standby** button.
   The light next to the selected temperature begins to flash.
7. Use the keypad to set the temperature as directed by the prescriber. After setting the temperature, press and hold the lock **Temperature Setpoint** button for 2 seconds to lock the setpoint.
   Note: If you toggle past the desired setpoint, keep toggling to start at the beginning of the setpoint column.
   The selected water temperature will be reached in approximately 15 minutes and the light next to the selected temperature becomes steady.
8. Check the water level. If it drops below the operating level, add water.
9. Apply the Mul•T•Pad to the patient as prescribed. Follow the Mul•T•Pad instructions.
10. Position the pump at or above the level of the pad.
    Note: If the pump is placed below the pad(s), water will drain into the pump when it is shut off. If the pump has been overfilled or if multiple pads are connected, excess water can leak.
11. When using for cooling, the ice will eventually melt and the setpoint will start flashing. Press on/standby button so the standby light is lit. Unplug pump from power receptacle. Open fill cap and invert pump over sink to drain water. Refer back to step #3 and follow through procedure.

SHUTDOWN PROCEDURE

1. Press the **On/Standby** button so that the **Standby** light is lit.
2. Unplug the T/Pump.
3. Close all hose clamps.
4. Disconnect pad(s) from pump.
   To prevent water spillage, always disconnect pad from pump with connectors raised above the level of the pad and pump.
5. Coil the hose, and attach the Clik-Tite® connectors together on the hose (See Figure 4, Page 7), where applicable.
6. Secure the hose to the T/Pump using the tube set strap.
7. Wrap the power cord around the unit.

THERAPY CYCLES

1. Turn the unit on, set the temperature setpoint. The unit will start to heat up. Select warming period for 20 (or 30) minute cycle, LED should be solid, and the selected temperature LED is flashing.
2. Once the T/Pump reaches the desired temperature, the Warming LED (Red) flashes with a short audible beep. This is to let the operator/user know the unit is at temperature and the timed therapy is starting.
3. Once the 20 (or 30) minute period is up, the heater and pump shuts off. This stops any flow to the pad. The Setpoint and Therapy time LED's will be blinking during the off Time period.
4. Once the Off Time period is up, the pump and heater will restart. Time Therapy LED goes solid, and the Setpoint LED is flashing. Once the Setpoint is reached the Red LED flashes with a short audible beep to let the operator/user know the next therapy cycle has started.

TROUBLESHOOTING

Problem	Possible Cause	Remedy
T/Pump will not turn on.	The electrical cord is not plugged into a properly grounded Hospital Grade receptacle.	Insert the plug fully into the properly grounded Hospital Grade receptacle.
T/Pump will not pump.	Water level is low or reservoir is empty.	Refill with room temperature water to proper level.
Flow indicator light is on.	Water flow to pad or hose is restricted. Clamp is closed. Water level is low or reservoir is empty. T/Pump is filled with water that is too hot.	Straighten the hose. Open the clamp. Refill with room temperature water to proper level. Refill with room temperature water to proper level.
Warning indicator & Audible alarm (Flash / Beep).	A High Heat (42°C) or Cooling Setpoint was selected (10°C). Loss of power while unit was in a Therapy mode. **(Possible Power Fail.)** Unit is running after a 20- or 30-minute "Off "therapy cycle period, has reached the desired Setpoint, and is now timing the 20- or 30- minute On cycle period. The unit just went into, or came out of Lock mode.	Indication only: A Setpoint outside body temperature range is selected. Insert the plug fully into the receptacle, place the unit into Standby mode, then unplug the T/Pump. If power is removed while unit is in On-Mode, the Power Fail alarm will beep for approximately 10 minutes. Indication only to indicate an "On" Therapy cycle period is timing. Indication only.

Problem	Possible Cause	Remedy
Warning indicator on with unit in Standby mode.	Unit shut down in an over temperature condition.	Empty the reservoir and refill with room temperature water. Make sure all clamps are open. Press the **On/Standby** button. Verify flow through the pad. The **Warning** light will turn off within 5 minutes.
Flow indicator and Standby indicator are on with T/Pump not pumping.	Unit detected a Flow warning for more than 5 minutes, thus goes to standby.	Reference "Flow indicator light is on" above. Correct the problem, and press the **On/Standby** to put the unit back into Run mode.
Temperature Setpoint light blinking.	Unit is warming up to the selected setpoint. Unit is in Cooling mode, for longer than 40 minutes.	Indication only. Follow the shutdown procedure. Drain the water in reservoir to ice fill level, and refill with ice. Follow the start-up procedure.

Problem	Possible Cause	Remedy
Both the Temperature and Therapy Cycle Setpoint lights are blinking.	Unit is in "Off" Therapy cycle time.	Indication only.
T/Pump will not heat.	Reservoir is empty.	Refill with room temperature water to proper level.
	Flow is blocked.	Reference "Flow indicator light is on" above.
T/Pump will not cool.	Reservoir is empty.	Refill with room temperature water to proper level.
	Flow is blocked.	Reference "Flow indicator light is on" above.
	Ice is depleted.	Drain excess water to **Cooling** water line and fill remainder of reservoir with ice.
Temperature or Therapy Time buttons do not work.	The buttons have been locked.	Press and hold the lock button for two seconds.
Water leaks from hose connectors.	Damaged O-ring.	Replace Clik–Tite® connector.
	Locking ring on Clik–Tite® connector is not snapped into place (See Figure 4 on page 7.)	Snap Clik–Tite® connector shut.

STORAGE / CLEANING

Storage (Short term) Less than 1 day

1. Close the hose clamps.
2. Disconnect the pad.
3. Connect ends of the connector hoses together, where applicable.
4. Open the hose clamps.
5. Leave water in the reservoir.
6. Coil and fasten the hose using the tube set strap and wrap the power cord around the unit.

Storage (Long term)

1. Drain the pump. (See instructions below.)
2. Coil the hose, rather than folding it, to prevent hose kinks.
3. Fasten the hose using the tube set strap and wrap the power cord around the unit.

Draining

1. Disconnect the T/Pump from AC power.
2. Clamp the hose clamps.
3. Disconnect the pad or hoses from one another, keeping hoses at or above the level of the T/Pump.
4. Open the hose clamps.
5. Remove the fill cap and invert the T/Pump over a sink.
6. When all fluid has drained from the hoses and reservoir, replace the fill cap.
7. Connect the hoses together, where applicable.

Institutional (Hospital) Cleaning Instructions

Note: Change the water monthly or more often depending on use.

Clean the outer surfaces of the T/Pump with one of the following:

- A damp cloth and soapy water.
- A spray cleaner such as Fantastic®, 3M Phenolic Disinfectant® or 10% bleach solution.

Note: If water is contaminated or not changed for a month, please follow the internal cleaning procedure below.

1. Prepare a germicidal solution according to the manufacturer's instructions. Use Incidin Extra, available from Ecolabs, Inc.
2. Drain the pump.
3. Connect hose set together.
4. Fill the reservoir to the **Heating** water line on the back of the reservoir.
5. Select the **(35°C)** temperature setpoint on the keypad.
6. Start the T/Pump, and circulate the solution for one hour.
7. Drain the solution and refill the pump with clean water.

NOTE: In a home environment, perform only step 2 and the refill instructions in step 7.

Pads / Accessories

Only use Mul•T•Pads®. The unique button design allows optimal water flow and provides trouble-free operation when the pad is folded. This reduces the number of different sizes of pads your facility must keep in inventory.

The Mul•T•Pads with Clik-Tite® connectors can be interconnected to provide therapy to more than one body site at a time (Figure 1B, page 2). Refer to Catalog Descriptions on page 3 for a list of various pads and ordering information.

PREVENTIVE MAINTENANCE / SERVICE

⚠ DANGER

Risk of electric shock. Disconnect power before servicing.

⚠ WARNING

Only qualified medical service personnel should repair the T/Pump in accordance with the Service Manual. *Improper repair may result in death or serious injury, equipment damage, or malfunction.*

To obtain a copy of the Service Manual, contact your local dealer or Gaymar's International Department or visit our web site www.gaymar.com.

SPECIFICATIONS

	TP702
Classification	Class I equipment with Type BF applied part suitable for continuous operation. Not classified for protection against ingress of liquid. Not classified for use in the presence of flammable anesthetics.
Size (approx.)	11.5" x 8" x 8" 29.2cm x 20.3cm x 20.3cm
Weight	6.5 lbs (2.9 kg) when empty 9 lbs (4.0 kg) with unit filled with water to heating level
Reservoir capacity	93 oz (2.75 l) maximum
Flow rate	9 gph (34 lph) minimum with pad attached
Ambient operating temperature	15.6°C to 32.2°C
Environmental conditions for transport and storage	-28°C to 48°C At uncontrolled RH
Temperature setpoints	TP702 Professional 42°C 38°C 35°C 10°C
Average temperature accuracy	±1°C at 42°C
Maximum Contact Surface Temperature	42°C
High Limit Safety Temperature	43.3°C to 49°C
Power cord	Modular: adaptable to Country of use
Current leakage	100 microamperes maximum
Ground resistance	0.5 ohm max
Electrical requirements Voltage (VAC) Frequency (Hz) Current (amps)	 230±10% 50 Hz 2.0 amperes
Certifications	MEDICAL ELECTRICAL EQUIPMENT WITH RESPECT TO ELECTRICAL SHOCK, FIRE, AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL 60601-1 AND ASTM F 2196-2002 CLASSIFIED UL 8C08 IEC 60601-1-2

WARRANTIES

Gaymar equipment and products are warranted against defects in material and workmanship under normal use, and operation from the date of purchase, for the time periods listed below for the respective equipment and products. Except for such warranty, Gaymr disclaims all other expressed and/or implied warranties including, but not limited to, the implied warranties of merchantability and of fitness for a particular purpose.

PUMP

All labor performed and parts provided free of charge for a period of one (1) full year from the date of purchase, provided the equipment is returned with prior authorization prepaid to Gaymar Industries.

PAD, SINGLE PATIENT USE

Free replacement of product where defects in materials and/or workmanship are evident at time of delivery, provided the product is returned with prior authorization prepaid to Gaymar Industries.

PAD, REUSABLE

Free replacement of product where defects in materials and/or workmanship occur within 90 days from date of delivery, provided the product is returned with prior authorization prepaid to Gaymar Industries.

PARTS

Defective parts will be exchanged free of charge where defects in materials and/or workmanship occur within 90 days from date of delivery, provided the parts are returned with prior authorization prepaid to Gaymar Industries.

ENGLISH

The TP702 complies with EN60601-1-2: 2001 Second Edition

(CISPR Classified as Class B, Group 1 ISM equipment)

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 following pages.

Portable and mobile RF communications equipment can effect Medical Electrical Equipment.

CAUTION !

The TP702 should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the TP702 should be observed to verify normal operation in the configuration in which it will be used.

EMC INFORMATION

Guidance and manufacturer's declaration – electromagnetic immunity

The TP702 is suitable for use in the electromagnetic environment specified below.

The customer or the user of the TP702 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 floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast Transient/burst IEC61000-4-4	±2 kV for power supply lines ±1 kV 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 IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality is that of a typical commercial and/or hospital environment
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5%Ut(95% dipUt) for 0,5 cycle 40%Ut (60% dop in Ut) for 5 cycles 70% Ut (30% dip in Ut) for 25 cycles <5% Ut (>95% dip in Ut) for 5 sec.	<5%Ut(95% dipUt) for 0,5 cycle 40%Ut (60% dop in Ut)for 5 cycles 70% Ut (30% dip in Ut) for 25 cycles <5% Ut (>95% dip in Ut) for 5 sec.	Mains power quality should be that of a typical commercial or hospital environment. If the user of the TP702 requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial and/or hospital environment.
Note: U_T is the a.c. mains voltage prior to application of the test level.			

Recommended separation distances between portable and mobile RF communications equipment and the TP702.

The TP702 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the TP702 can help prevent electromagnetic interferences by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the TP702 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		
	150 kHz to 80 MHz $d = 1,2 \sqrt{P}$	80 MHz to 800 MHz $d = 1,2 \sqrt{P}$	800 MHz to 2,5 GHz $d = 2,3 \sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (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.			

TP702 EMC Information

The TP702 is suitable for use in the electromagnetic environment specified below.

The customer or the user of the TP702 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	3 Vrms 150 kHz to 80 MHz	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the TP702 including cables, than the recommended separation distance calculated from the equation appropriate for 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 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 meters (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: 
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	

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 radiobroadcast, 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 TP702 is used exceeds the applicable RF compliance level above, the TP702 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the TP702.

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

Guidance and manufacturer's declaration – electromagnetic emissions

The TP702 is intended for use in the electromagnetic environment specified below.

The customer or the user of the TP702 should assure that it is used in such an environment

Emissions Test	Compliance	Electromagnetic Environment
RF emissions CISPR 11	Group 1	The TP702 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 TP702 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	

GAYMAR INDUSTRIES, INC.

10 Centre Drive
Orchard Park, NY
14127-2295

Phone:
716-662-8636

Fax:
716-662-0730

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