

KANMED^o WARMINGCABINET

USER MANUAL AND TECHNICAL MANUAL

Kanmed Universal Warming Cabinets
Kanmed Blanket Warming Cabinets

GE-2300-070 VER 2.0



NOTE:

This manual contains important information concerning safety and daily use as well as maintenance and service instructions and should be kept for future use.



Manufactured by:
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This manual is valid for all Warming Cabinets with Art No GE-23xx



Note:

The preset maximum temperature in the **Universal Cabinets** is normally 42⁰C.
 The preset maximum temperature in the **Blanket Warming Cabinets** is normally 70⁰C
 However the Cabinet may have been ordered with another maximum temperature or may have been changed by your own technician.
 Press SET and ▲ to see the maximum selectable temperature.
 Make sure that the contents in the Cabinet can withstand this temperature.

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UNPACKING AND PACKING LIST

When the cabinet is shipped from Kanmed it is carefully packed. Check for damages and report them immediately to your supplier. Damages reported after the cabinet has been used will not be accepted.

1. SAFETY INSTRUCTIONS








INTENDED USE

Kanmed Warming Cabinet, models GE-23xxx, are primarily intended for warming of Gel Pads, blankets, fluids, surgical instruments, etc. Kanmed Warming Cabinet should be used by trained hospital staff according to this user manual and in accordance with normal hospital protocols. Kanmed Warming Cabinets are NOT intended for warming of Blood Products and Nutritional Products.

IMPORTANT SAFETY ADVICE

- Adjust the cabinet so that it is correctly positioned, vertically and horizontally.
- *Cabinet on Feet: You must secure the cabinet to the wall using the built in brackets at the top.*
 Note! If the cabinet, **at your own risk**, is not secured to a wall, don't pull out more than one shelf/basket at a time.
- Cabinets on wheels are not intended for transport of hospital products. The intention of the wheels is to facilitate moving the Cabinet for easy cleaning under and behind the Cabinet.
- Cabinets on wheels must be rolled slowly and with great care.
- Never pull out all shelves/baskets at the same time. The cabinet can tilt forward if it is not properly secured to the wall.
- Do not overload the shelves/baskets.
- Maximum load on a shelf is 20 kilos.
- Maximum load in a basket is 20kg.
- Do not overfill the top shelf - there must be at least 5 cm free space to ensure air circulation.
- Avoid blocking the ventilation holes inside of the cabinet.
- Ensure that the contents can withstand the temperature you have selected otherwise you may risk destroying the contents and burn the patients.
- Risk of burning patient. If your Cabinet temperature is set higher than 42°C you must check that the contents are not too warm when they reach the patient.
- Risk of burning yourself. If your Cabinet is set higher than 42°C you must be careful when you touch contents and the inner surfaces of the Cabinet.
- Do not warm Blood Products and Nutritional Products in the Cabinet at all.

EXPLANATION OF SYMBOLS

	Consult Users Manual		OFF
	ON		AC current
	UP button, rises temperature		DOWN button, decreases temperature
	SET button, for displaying and changing desired temperature		

2. GENERAL DESCRIPTION

THE CABINET

The cabinet is made of stainless steel and is very well insulated in order to reduce heat loss to environment and to reduce noise. For the same reason the door is double glassed with safety glass (breaks into thousands of small pieces if broken).

THE HEATING COMPARTMENT

The heating element, fan, thermostat T2 and temperature sensor are all mounted on a "pull out shelf" inside the top of the cabinet. The heating compartment is kept in place by a small screw that, when loosened, allows the whole heating compartment to be pulled completely out. This makes service quick and easy.

THE ELECTRONICS COMPARTMENT

The electronics compartment is located on the top of the cabinet. The power cable is connected at the back of the electronic compartment.

THE SHELVES-BASKETS

The shelves/baskets run on wheels and can be pulled fully out until they automatically stop. To completely remove the shelves/basket for cleaning or repositioning, lift the front upwards and remove it.

EXTRA SHELVES- EXTRA BASKETS

Extra shelves/baskets and rails are available.

Mount the rails with the screws supplied using the prepared mounting holes and then push the shelf/basket in place by holding the front higher than the rear.

Shelves In the Blanket warming cabinet are mounted with Screws in the pre drilled holes.

3. Description of function

The warming cabinet and its contents are warmed by circulating warm air which is heated by a 1000 Watt warming element. The hot air is circulated by a fan and distributed evenly through the outlets. The temperature is regulated, by the temperature regulator T1 to the set temperature.

Thermostat T2 functions as over temperature protection and will take over the temperature control in case the air temperature exceeds set maximum temperature by 5°C. At the same time the red lamp on the front panel will be lit to indicate that there is a malfunction. Inside the heating element itself, there is an additional over temperature protection that is self-resetting. It will be activated in case the fan stops or goes too slow.

NOTE: If the red over temperature lamp is lit there is an error that requires a technician.

4. INSTALLATION

Adjust the feet so that the cabinet is levelled. Connect the cabinet to a earthed power outlet.

NOTE: Always secure a cabinet with feet to a wall by using the built in top brackets to avoid the risk of tipping forward.

5. USING THE CABINET

5.1 GENERAL ADVICE

Switch on the Cabinet with the green power switch at the upper right side. Check the set temperature and adjust if necessary according to 7.2

5.2 TEMPERATURE ADJUSTMENT AND INDICATION

The display shows the actual working temperature in the cabinet in °C as long as the ON/OFF switch is on and the door is closed.

The set temperature is indicated when the set button is pressed.

The last set temperature is stored in the controller. The working temperature can be selected in steps of 1°C within the range preset at the factory or by your technician.
The Universal cabinet is normally set to 42°C. The Blanket Warming Cabinet is usually set to 70°C

Regulator (Part No: 700-0821)



- SET** Press set button to show the set (selected) temperature.
The set value is shown and the OUT lamp blinks for 2 sec.
- UP** Press SET. Press UP arrow within 2 sec. to increase the temperature until the desired value is shown in the display.
- Down** Press SET. Press DOWN arrow within 2sec. for a temperature decrease until desired value is shown in the display.

6. MAINTENANCE

6.1 CLEANING

Clean and disinfect with normal surface detergents. If hepatitis or HIV is suspected then use stronger disinfectants as per your hospital protocol.

7. TECHNICAL SECTION

7.1 TEMPERATURE CONTROL/CALIBRATION

To be performed yearly by a qualified technician only.

GENERAL INFORMATION

Power Cable: Check the integrity of the power cable and verify proper earth connection.

The working temperature is regulated by the temperature regulator T1 and the over temperature protection by capillary thermostat T2. When checking the calibration of T1 and T2, their value shall be compared to the value of precision thermometer with an air sensor. The sensor T2 can be adjusted through a hole in the bottom of the heating compartment.
Place the sensor of the precision thermometer in the middle of the cabinet. Allow at least 1 hour for proper warming up.

7.1.1 TEMPERATURE REGULATION

INFORMATION ABOUT TEMPERATURE MEASUREMENT AND CALIBRATION

T1 is a powered microprocessor temperature regulator/indicator that has resolution of 1°C. Corrections can be done through a series of pushing's on the regulator buttons according to the description below.

PROCEDURE

Place the external control sensor as described under GENERAL INFORMATION above.
Start the warming and wait until the temperature is stable (at least 1 hour). Compare the external control thermometer with the set temperature and if the deviation is bigger than +/-1°C adjust as follows.

Regulator type No 700-0821

1. Press \uparrow and \downarrow exactly simultaneously (only one beep may be heard, if you don't succeed- .repeat) and keep buttons pressed for 5 sec until the indicator display shows "PA".
2. Press set one time.
3. Press \downarrow within 15s until -19 is displayed.
4. Press set one time.
5. Press \uparrow and \downarrow exactly simultaneously until "SP" is displayed
6. To change a parameter press \uparrow or \downarrow button till parameter "CA1" is received.
7. Press SET once and within 2 sec on \uparrow or \downarrow button to enter the noted temperature difference. Press SET again
For example: The display shows 50°C but the external control temperature shows 47°C. The difference is -3°C. To compensate this difference press \downarrow button 3 times. Store the new calibrated value by pressing \uparrow and \downarrow simultaneously (only one beep may be heard, if you don't succeed- repeat) and keep pressed for 5 sec until the indicator display shows the actual temperature.
8. Make a new measurement of the temperature and control that T1 shown value compares to that of the external thermometer.

7.1.2 OVER TEMPERATURE T2 CALIBRATION AND CHECK

The temperature sensor T2 is a capillary thermostat in series with the heating element. In the Kanmed Cabinet its hysteric is 4°C max. When delivered T2 is set to 5°C above the maximum value of T1. The activation of T2 is identified by a clear click sound as well as when the red over temperature lamp is lit

The procedure described below is a simplified method to check and if necessary adjust T2

PROCEDURE

1. Follow the procedure above, step 1-5.
2. To change a parameter press \uparrow or \downarrow button till parameter "r1" is received. Normally set to 42°C or 70°C. Press "set" and change it to 47 and press set again.
3. Exit the program by pressing the up and down buttons \uparrow and \downarrow until normal view is present.
4. Press Set again and set the temp to 47°C and let the cabinet temperature stabilise.
5. When the temperature is stable adjust the over temperature by turning T2's adjustment screw with a screwdriver (you find it through the hole on the underneath of the shelf). Turn the adjustment screw fully clockwise (+). Now Turn counter clockwise back to activation (one click sounds), turn again clockwise past the activation point in tiny steps (a new click sounds). You have now set the over temperature to about 47°C.
6. Repeat the procedure 1-3 and set back the maximal selectable temperature to 42°C.
7. Check that you don't activate the over temperature indication when running the cabinet in normal operation (with T1 prepared on 42°C) If this should happen you have to repeat the procedure and set T2:s activation point a bit higher.

7.2 TROUBLE SHOOTING

If the warming is not starting, check as follows:

- Power in the wall socket?
- Power Switch on (If power is OK it will show a green light)
- Power cable connected (UK only - plug fuse OK)?
- Cabinet fuses OK?
- Is the fan rotating? It shall start as soon as the power switch is on. If it is not rotating, making a strange noise or rotates slowly it must be changed.
- Check the fan and that the air intake under the heating compartment is not blocked.

NOTE: All checking that involves opening the heating compartment must be done by a qualified technician.

7.3 CHANGING THE MAXIMUM TEMPERATURE, UP OR DOWN.

Follow the procedure described in 6.2.2 and re-adjust T2 so that it is 4-5°C higher than T1.

NOTE: Think carefully about the risks and consequences of setting the max temp limit **higher** than the factory set temperature and about how to make the staff aware that a higher temperature might have been set by someone not authorised to change the temperature.

7.4 ACOUSTIC HIGH TEMP ALARM AND TEMPERATURE LOCK

Please contact Kanmed if you want to activate an acoustic over temperature alarm or lock the possibility to change temperature at all..

8. TECHNICAL DATA

TECHNICAL DATA: Kanmed WARMING CABINETS				
Article Numbers:	Large Cabinet		Small Cabinet	
	Universal	Blanket Warming	Universal	Blanket Warming
Cabinet with adjustable feet	GE-2350L	GE-2380L	GE-2350S	GE-2380S
Shelf Universal Cabinet	GE-41500		GE-41500	
Basket Universal Cabinet	GE-41600		GE-41600	
Shelf Blanket Cabinet		GE-41580		GE-41580
Wheel Kit Large Cabinet	GE-41700	GE-41700		
Wheel Kit Small Cabinet			GE-41900	GE-41900
Additional information:				
Outside measurements Height / Width / Depth	168cm / 66cm / 64cm Height without wheels or feet		95cm / 66cm / 64cm Height without wheels or feet	
Inner Volume	≈415 litres	≈415 litres	≈190 litres	≈190 litres
Inside measurements Height / Width / Dept	140cm/56cm/53cm		65cm/56cm/53	
Height feet / Height wheels	13 -18 cm / 16cm. On the large Cabinets the front wheels stick out 10 cm and add 2 x 13 cm to the total width.			
Voltages /Power max / Fuses	230VAC ± 10%/ ≈900W / T6,3A 250V			
Average power consumption	150 -250W	100 -200W	150 -250W	100-200W
Possible number of basket/shelves	10	4	5	2
Shelf Height/width/ Dept Weight	52x50x2cm 4kg	1,2x53x49 cm2,2 kg	52x50x2cm4 kg	0,2x53x49 cm 2,2 kg
Basket size Weight	52x50X10 cm 6kg	Only shelves	52x50x10 cm 6 kg	Only shelves
Weight without shelves/baskets	About 130 kg	About 130 kg	About 100 kg	About 100 kg
Doors	Doors can be hung left or right. Factory standard is left hung. Can be changed after delivery.			
Maximum load per shelf/basket	20kg			
Warming Capacity	Warms 10 pieces GE-455015 from 22°C to 40°C in less than 3 hours.			
Temperature range	30°C to 50°C	30°C to 80°C	30°C to 50°C	30°C to 80°C
Accuracy	± 2°C	± 4°C	± 2°C	± 4°C
Factory set temperature	42°C	70°C	42°C	70°C
Other features /information	Made of high quality stainless steel. Polyurethane foam insulation for minimal heat leakage and sound insulation. The Door has double energy saving safety glass. Large and Small Universal Cabinets are equipped with rails for 10/5 shelves or baskets. Height between the shelves and baskets in the Universal Cabinet is ≈13cm. In the Blanket Warming Cabinets the shelves can be moved (mounted with screws) up or down in steps of 13 cm.			
Temperature regulation	Programmable electronic temperature regulator with display. Capillary thermostat for extra independent over temperature prevention. Bimetal thermostat integrated in the heating element.			

CE - marking

According to 89/366/EEC and 93/68/EEC
(EN 60601-1-2, EN55011 (1991))

Expected Lifetime

Kanmed warrants a safe lifetime of 10 years from first day of use. This is under the condition that the Cabinet has been serviced according to the user and or service manual and that the unit has not been modified or changed in any way or for any reason.

9. ACCESSORIES AND SPARE PARTS

ACCESSORIES; please see technical data.

SPARE PARTS

Part no	Description	Quantity
700-0180	Mains power switch	1
700-0848	Fan	1
700-0849	Heating Element	1
700-0457	Temperature sensor	1
700-0456	Transformer	1
700-0821	New Temperature regulator	
700-0185	Thermostat	1
700-0187	Red lamp	1
700-0202	Glass for door to cabinet 175 cm high	1
700-0212	Glass for door to cabinet 90 cm high	1
700-0850	Magnetic Handle for door	1
700-0203	Wall mounting bracket	2
700-0669	Door gasket	2 m
700-0206	Foot for cabinet	1
700-0453	Front panel label WC 1002, adhesive	1
700-0208	Fuse holder	1
700-0209	Fuse T6,3A	10
700-0460	Fuse T50mA	10

10. WARRANTY

Kanmed warrants the purchaser that the Warming Cabinet is free from defects in material and workmanship for a period of 12 month from the date of delivery.

The sole obligation of Kanmed with respect to any such defect is limited to the repair with new or re-manufactured parts or, at the discretion of Kanmed, replacement of the equipment or refunding of the purchase price.

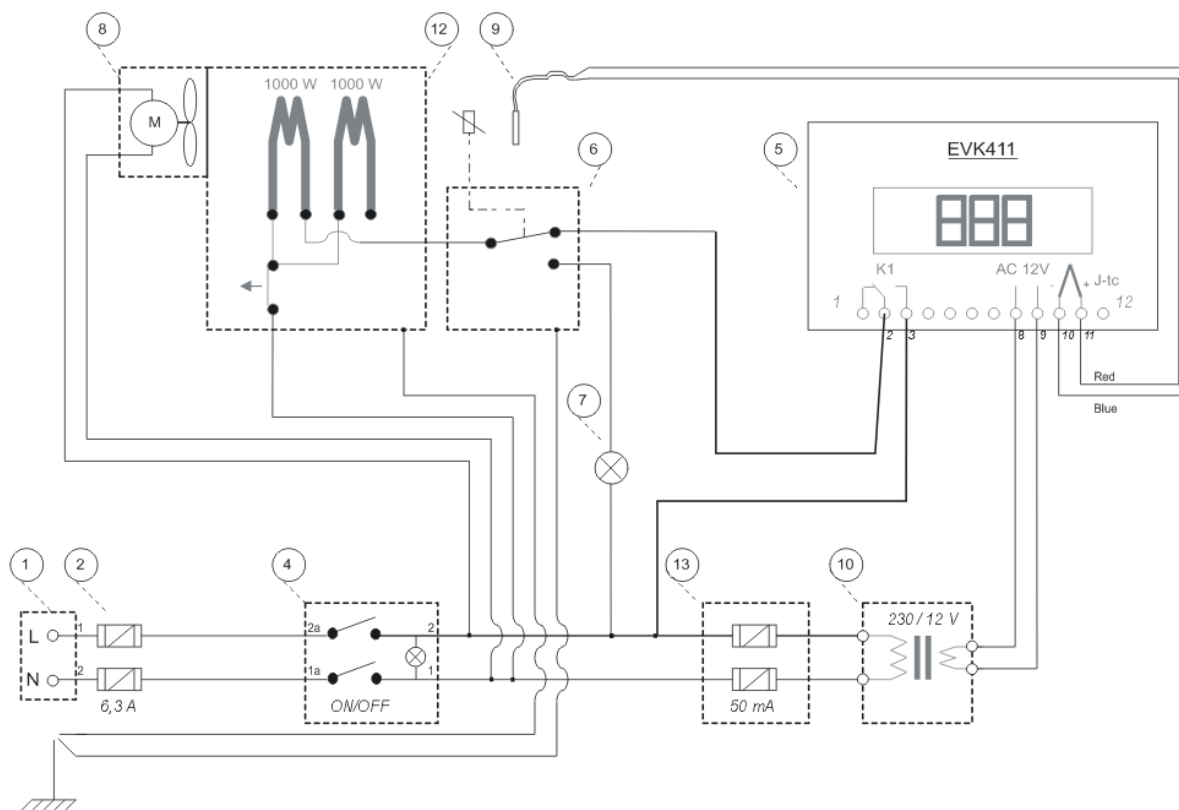
This warranty shall not apply if the product has been modified, adjusted or repaired other than by Kanmed or by organisations authorised by Kanmed or modified, adjusted or repaired not in accordance with written instructions provided by Kanmed or if the equipment has been subject to misuse, negligence or accident.

These warranties are made on the condition that prompt notification of a defect is given to Kanmed or its authorised dealers within the warranty period.

Kanmed shall have the sole right to determine whether a defect exists.

Kanmed shall not in any case be liable for special or consequential damages arising from the breach of warranty, breach of contract, negligence or any other legal theory.

11. CIRCUIT DIAGRAM for cabinets with Art. no. GE-23xx



- 1. Connection socket
- 2. F1 Fuse, 6,3A
- 4. S2 Main switch
- 5. T1 Temperature regulator
- 6. T2 Over temperature protection
- 7. L1 Warning lamp red – over temperature warning
- 8. M1 Fan
- 9. G1 Temperature sensor
- 10. TR Transformer
- 12. HE Heating element
- 13. F2 Fuses 50mA

12. EMC COMPATIBILITY STATEMENT

Manufacturer's declaration – electromagnetic emissions	
The KanMed Warmingcabinet GE-2350/GE-2380 is intended for use in the electromagnetic environment specified below. The customer or the user of the KanMed Warmingcabinet GE-2350/GE-2380 should assure that it is used in such an environment.	
Emissions test	Compliance
RF emissions CISPR 11	Group 1
RF emissions CISPR 11	Class B
Harmonic emissions IEC 61000-3-2	Not applicable
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not applicable
Electromagnetic Environment	The KanMed Warmingcabinet GE-2350/GE-2380 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.

Manufacturer's declaration – electromagnetic immunity	
The KanMed Warmingcabinet GE-2350/GE-2380 is intended for use in the electromagnetic environment specified below. The customer or the user of the KanMed Warmingcabinet GE-2350/GE-2380 should assure that it is used in such an environment.	
IMMUNITY test	IEC 60601 and compliance test level
Electrostatic discharge (ESD) IEC 61000-4-2	<ul style="list-style-type: none"> • ± 6 kV contact • ± 8 kV air
Electrical fast transient/burst IEC 61000-4-4	<ul style="list-style-type: none"> • ± 2 kV for power supply lines
Surge IEC 61000-4-5	<ul style="list-style-type: none"> • ± 1 kV line to line • ± 2 kV line to earth (not applicable)
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<ul style="list-style-type: none"> • $< 5\%$ UT ($> 95\%$ dip in UT) for 0,5 cycle • 40% UT (60% dip in UT) for 5 cycles • 70% UT (30% dip in UT) for 25 cycles • $< 5\%$ UT ($> 95\%$ dip in UT) for 5 s
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	<ul style="list-style-type: none"> • 3 A/m
Conducted RF IEC 61000-4-6	<ul style="list-style-type: none"> • 3 Vrms, 150 kHz to 80 MHz
Radiated RF IEC 61000-4-3	<ul style="list-style-type: none"> • 3 V/m, 80 MHz to 2,5 GHz

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