KANMED WARMINGCABINET

USER MANUAL AND TECHNICAL MANUAL

Kanmed Universal Warming Cabinets
Kanmed Blanket Warming Cabinets
Kanmed Combination Cabinet

GE-2300-070 / 4

2014-05-12

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:
KANMED AB
Gårdsfogdevägen 18B
SE-168 66 BROMMA Sweden

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

Note:
The preset maximum temperature in the **Universal Cabinets** is 42^0C.
The preset maximum temperature in the **Blanket Warming Cabinets** is 70^0C The preset maximum temperature in the Combination Cabinet is normally 42^0C in the Fluid compartment and 70^0C in the Blanket compartment. 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.

Large Cabinets on Feet: You must secure the Cabinet to the wall using the built in brackets at the top of the Cabinet.

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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.
Follow the unpacking instructions when installing the cabinet.

1. SAFETY INSTRUCTIONS

INTENDED USE

Kanmed Warning 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.
- ***Large Cabinet on Feet: You must secure the Cabinet to the wall using the built in brackets at the top of the Cabinet.***
  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.
  When moving the Cabinet make sure the wheels do not hit any obstacles. Roll the Cabinet with its front in the direction of where you want to go.
- 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 kg.
- 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.
- The wheels shall be mounted as per the picture below.

EXPLANATION OF SYMBOLS

Combination Cabinet only. The Blanket compartment may be very HOT:	
I ON O OFF	~ 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 hung using the holes in the side walls.

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.

The ON/OFF switch isolates the Cabinet electronics from mains power.
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(es) at the upper front panel. Check the set temperature and adjust if necessary according to 5.2

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 contaminated with for instance Hepatitis, HIV, MSRA, etc. then use stronger disinfectants as per your hospital protocol.

7. TECHNICAL SECTION

GENERAL INFORMATION
Power Cable: Check the integrity of the power cable and verify proper earth connection.
Fan compartment: Check the fan compartment for dust collection and clean if necessary.
Temperatures: Check temperatures annually as per sections below.
To be performed yearly by a qualified technician only.

7.1 TEMPERATURE CONTROL/CALIBRATION

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 7.1 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 ↑ and ↓ 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 ↓ within 15s until -19 is displayed.
4. Press set one time.
5. Press ↑ and ↓ exactly simultaneously until "SP" (Select Parameter) is displayed
6. To change a parameter press ↑ or ↓ button till parameter "CA1" is received.
7. Press SET once and within 2 sec on ↑ or ↓ 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 ↓ button 3 times. Store the new calibrated value by pressing ↑ and ↓ 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 hysteretic 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 ↑ or ↓ button till parameter "r2" 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 ↑ and ↓ 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.
- Red lamp lights up now and then. Check the capillary thermostat and the temperature regulating unit.

NOTE:
All checking that involves opening the heating compartment must be done by a qualified technician.
Ensure that the cables to the heating compartment do not get stuck when you close the heating compartment after service actions.

7.3 CHANGING THE MAXIMUM TEMPERATURE, UP OR DOWN.

Follow the procedure described in 7.1.2 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

	Large Cabinets		**Small Cabinets**		**Combination**
	Universal	**Blanket**	**Universal**	**Blanket**	**Fluid and Blanket**
Outside measurements Height / Width / Depth	168cm /66cm/ 64cm Height without wheels or feet		95cm / 66cm / 64cm Height without wheels or feet		Same as Large Cabinet
Inner Volume	≈415 litres	≈415 litres	≈190 litres	≈190 litres	≈160 +≈160 litres
Inside measurements Height / Width / Dept	140 cm/56 cm/53 cm		65 cm/56 cm/53 cm		≈59 cm /56 cm/ 53 cm x 2
Height Feet. Height Wheels	Feet 13 -18 cm. Wheels 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 (1800W double Cabinet) / T6,10A 250V . 115VAC 60Hz is also available. Please contact Kanmed.				
Average power consumption	100 -200W	100 -250W	100 -200W	150-250W	150-250W
Possible number of Basket / Shelves	10	4	5	2	4 in fluid comp. 2 in blanket comp.
Shelf Width x Dept x Height / Weight (GE-41500)	52x50x2 cm / 4 kg	53x49x1,2 cm /2,2 kg	52x50x2 cm / 4kg	153x49x1,2 cm / 2,2 kg	52x50x1,2 cm / 4kg
Basket size Weight (GE-41600)	52 x 50 x 10 cm 6kg	Only shelves	52x50x10 cm 6 kg	Only shelves	52x50X10 cm / 6kg
Weight without shelves / baskets	≈130 kg	≈130 kg	≈100 kg	≈100 kg	≈140 kg
Doors with magnetic handle	Doors can be hung left or right. Factory standard is left hung. Please specify when ordering. Right hung will increase the delivery time with about 3 weeks.				
Load per shelf/basket	Maximum 20kg				
Warming Capacity	Warms 10 pieces Kanmed Gel GE-455015 from 22°C to 40°C in less than 3 hours.				
Temperature range	35°C to 50°C	35°C to 80°C	35°C to 50°C	35°C to 80°C	36°C to 50°C 36°C to 80°C
Accuracy	± 2°C	± 4°C	± 2°C	± 4°C	±2°C and ±4°C
Factory set maximum temperature	42°C	70°C	42°C	70°C	42°C and 70°C
Other features, information	Made of high quality stainless steel. Polyurethane foam insulation for minimal heat leakage and optimal 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. Hight between the shelves and baskets in the Universal Cabinet is ≈13cm. In the Blanket Warming Cabinets the shelves can be moved up or down in steps of 13 cm.				
Temperature regulation	Programmable electronic temperature regulator with display. Temperature can be blocked at a fixed value. A capillary thermostat ensures independent overtemperature prevention. A bimetal thermostat is integrated in the heating element.				
Other Kanmed warming products	For anasthesia. Kanmed Operatherm with Gel Pads and Kanmed WarmCloud. For neonatal use. Kanmed BabyWarmer and Kanmed BabyBed				
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				

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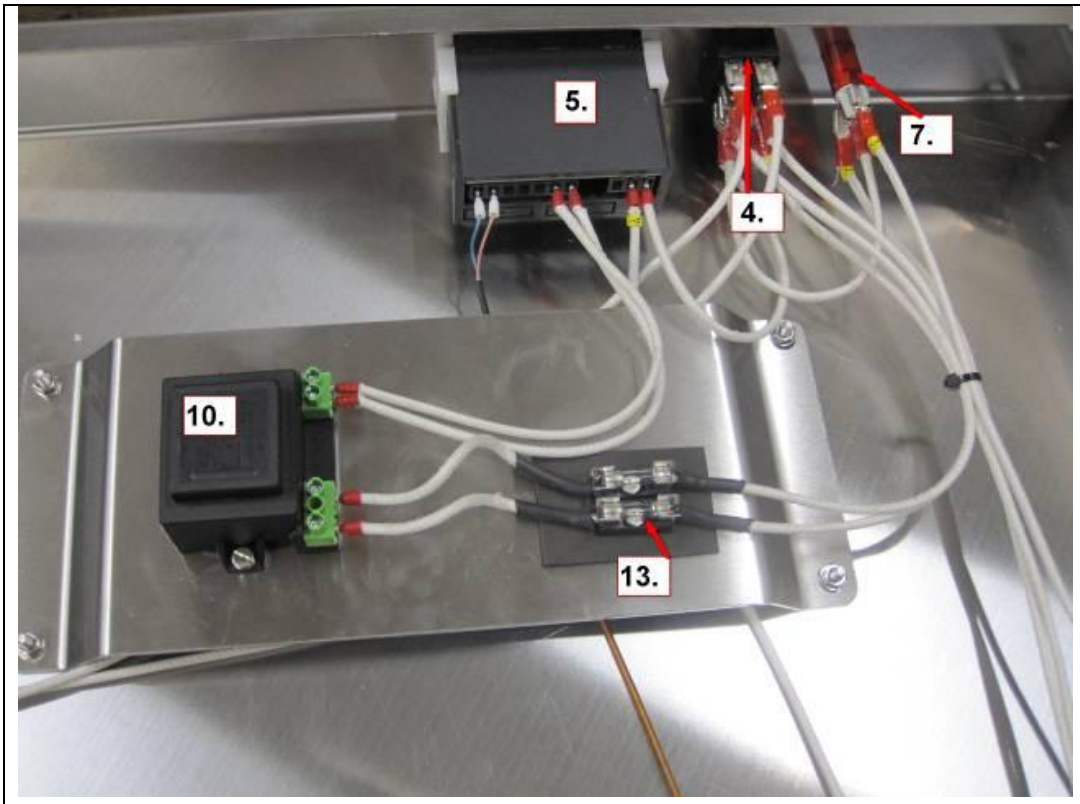
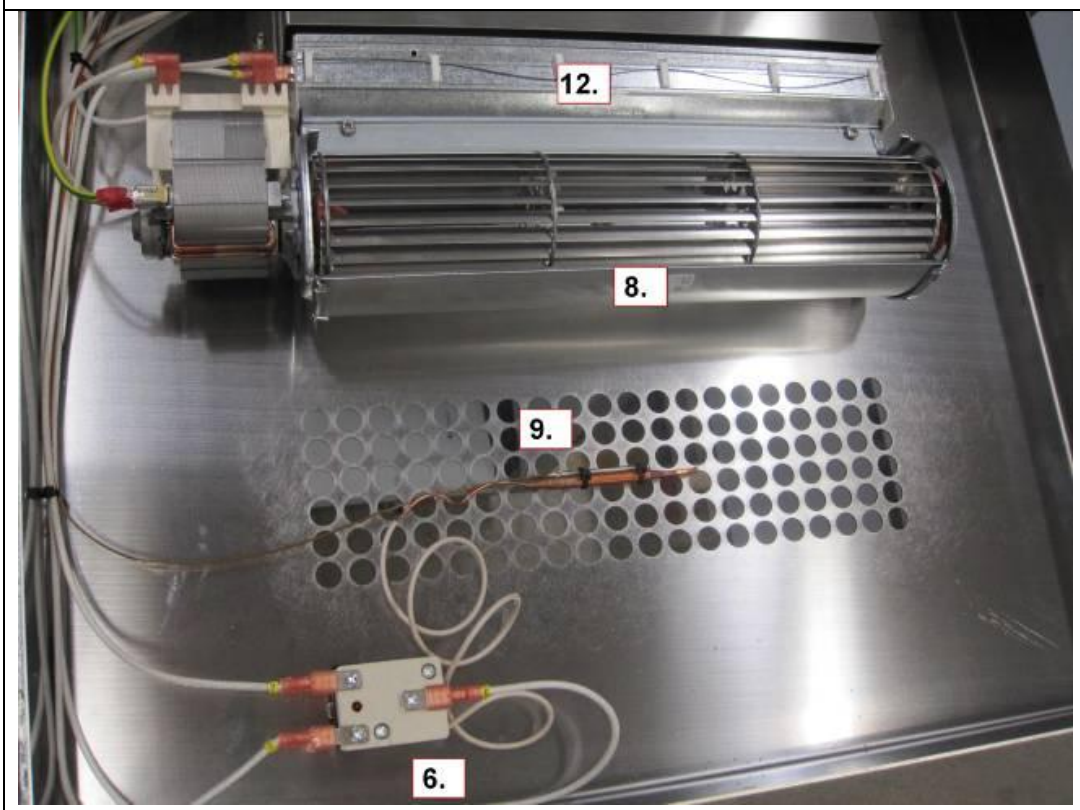
9. ACCESSORIES AND SPARE PARTS

Ordering Information					
Article /Ordering Numbers:	Large Cabinet		Small Cabinet		Combination Cabinet
	Universal	Blanket Warming	Universal	Blanket Warming	Fluid and blanket warming
Cabinet with adjustable feet	GE-2350L	GE-2380L	GE-2350S	GE-2380S	GE-2350D
Shelf	GE-41500	-	GE-41500	-	GE-41500
Basket	GE-41600	-	GE-41600	-	GE-41600
Shelf Blanket Cabinet	-	GE-41580	-	GE-41580	GE-41580
Wheel Kit Large Cabinet	GE-41700	GE-41700	-	-	GE-41700
Wheel Kit Small Cabinet	-	-	GE-41900	GE-41900	-

SPARE PARTS

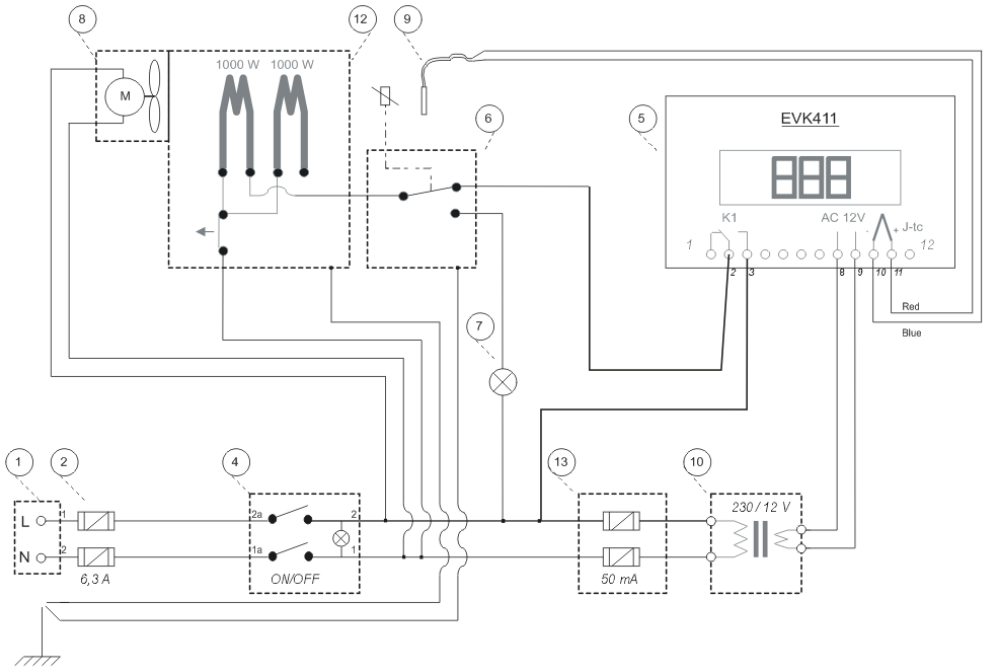
Part no	Position, picture		Description	Quantity
700-0180	4	S2	Mains power switch	1
700-0848	8	M1	Fan	1
700-0862	8	M1	Fan, Only for GE-2350**D** (2pcs per Cabinet)	1
700-0849	12	HE	Heating Element	1
700-0457	9	G1	Temperature sensor	1
700-0864	9	G1	Temperature sensor in lower compartment GE-2350**D**	1
700-0456	10	TR	Transformer (Not valid in GE-2350**D**)	1
700-0821	5	T1	Temperature regulator	1
700-0863	5	T1	Temp. regulator GE-2350D Only (2pcs per Cabinet)	1
700-0458	6	T2	Thermostat	1
700-0187	7	L1	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	2m
700-0206			Foot for Cabinet	1
	4		Fuse T6,3AL 250V	
	13		Fuse T50mA 250V	
	4		Fuse T10AL 250V Cabinet 2350**D**	
GE-E4055			Pair of rails for Cabinets with serial number 4xxx up to 4070	1



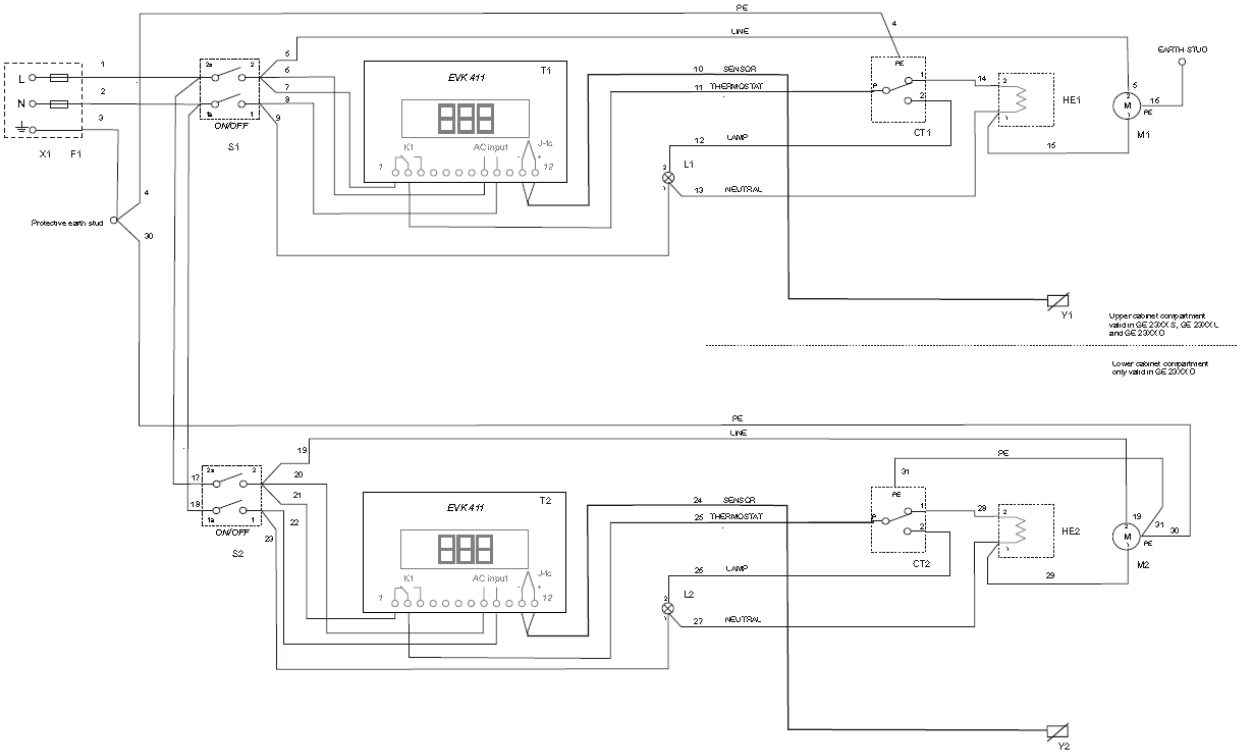


Note: Parts and location may vary depending of type of Cabinet.

10. CIRCUIT DIAGRAM for Cabinets with Art. no. GE-23xx



GE-2350D COMBINATION CABINET:



11. WARRANTY

Kanmed warrants the purchaser that the Warming Cabinet is free from defects in material and workmanship for a period of 24 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.

When the product have reached end of life, it should be returned to the distributor for recycling in accordance with the EU 2002/96/EC (WEEE) directive if applicable.

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	• ±6 kV contact • ±8 kV air
Electrical fast transient/burst IEC 61000-4-4	• ± 2 kV for power supply lines
Surge IEC 61000-4-5	• ± 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	• <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	• 3 A/m
Conducted RF IEC 61000-4-6	• 3 Vrms, 150 kHz to 80 MHz
Radiated RF IEC 61000-4-3	• 3 V/m, 80 MHz to 2,5 GHz

Blanket Warming Cabinet large.

KANMED° WARMINGCABINET

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