

MediHeat

MH1200/MH1800

Fluid Warming Cabinet

Information

&

Instructions for use

Incorporating information for maintenance technicians



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1. MediHeat Helpline Details

This manual contains relevant information concerning the use of the MediHeat MH1200 & MH1800 range of warming cabinets. Please read before use.

Please read all instructions carefully. If you have any problems with the device, which you wish further advice on, please contact the Peco Services MediHeat engineer at:

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Brough
Kirkby Stephen
Cumbria
CA17 4BG
UK

Tel: +44 (0)17683 41111
email: info@pecoservices.co.uk

Please have the units' serial number available, which can be found on the side of the cabinet near the cable entry point.

2. General Information

The MediHeat range of cabinets have been designed to keep the IV fluid bags, bottles and sachets commonly used in many hospital departments at a constant temperature of $38^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

An electronic thermostat controls the cabinet, which is pre-set at the factory during assembly. One of the main criteria when designing the cabinet was to produce a simple unit, which was easy to use in the often hectic environment of an A & E Dept.

To this end, there are no adjustments or controls on the unit, simply an On/Off Switch, Start/Reset Button, Test Button, Heater Light, a clear LCD Digital internal air temperature display, and a Warning Light to indicate possible malfunctions in the unit.

The shelf life of fluids may be affected by being stored at body temperature, and we would recommend that your supplier is consulted for advice.

3. Wiring Instructions (UK use)

The device comes completely ready to use and has a moulded UK 13a plug fitted with a BS1362 3a fuse. If the unit is to be connected to a fused switch, or the plug has to be removed for any other reason proceed as follows:-

Cut the moulded plug off the cable as close to the plug as possible, and dispose of it so that it cannot be used on any other appliance.

The wires in the power lead are coloured in accordance with the following code:

Blue – Neutral Brown – Live

As these colours may not correspond with the coloured markings sometimes used to identify connection terminals, connect as follows:-

The wire coloured blue must be connected to the terminal marked N or coloured BLACK.

The wire coloured Brown must be connected to the terminal marked L or coloured RED.

Neither wire should be connected to the terminal marked E or coloured GREEN or GREEN & YELLOW.

The unit is fitted with a BS4265 3a fuse holder in the side of the casing, but if replacing the moulded plug, or connecting the unit to a fused switch, a 3a fuse should also be incorporated into this circuit.

4. Siting Criteria

The device should be located on a solid flat work surface capable of taking the weight of a full unit.

MH1200 – 12kg

MH1800 – 24kg

A wall mounting bracket is available for the MH1200. Please contact your supplier or Peco Services direct for further information. Due to the fully loaded weight of the MH1800 model, it is not suitable for wall mounting.

When choosing the location for the device, it is important that the following points are adhered to, as the over temperature/fault circuit sensor is necessarily activated at quite a low temperature: -

- I. The unit must not be positioned in direct sunlight
- II. The unit must not be located directly above or below a heater or hot air outlet.
- III. The unit must not be placed against a wall that is heated in any way, ie. Has hot water pipes running just below the surface.

Consideration should be given to the height of the unit, to enable users to safely access it.

5. Operating Instructions

Remove any packaging material from the cabinet and position in the required location.

The device comes with three shelves to enable the user to accommodate a range of different sized bags and sachets. These shelves can be fitted and removed simply by sliding them into the cabinet at an angle, and then pushing them flat. Note that the shelves are tapered slightly to fit the shape of the casing and will only fit one way. The front of the shelf should curve downwards.

! Important – The unit must not be operated without the bottom shelf in place. This shelf should only be removed for cleaning and transportation. Overheating of fluid bags can occur if they are placed directly onto the base of the unit.

Place the required bags into the unit, bearing in mind the following points when doing so:

1. The vent in the back of the cabinet should be 50% visible at all times to allow the air inside to be circulated effectively. Failure to comply with this will cause the fault circuit to operate.
2. It is recommended that larger bags are placed on the higher shelves. This allows them to warm more quickly, and helps prevent the airflow from the vent from being impaired.
3. The maximum capacity of the devices are as follows:

MH1200 – 8 one-litre bags. Three on the lower shelf, three on the middle shelf, and two on the top shelf.

MH1800 – 15 one-litre bags. Five on each shelf.

Connect the unit to a suitable power supply and switch on using the rocker switch on the front control panel. Correct operation is indicated by the illumination of the Switch Light (Green) and the Warning Light (Red).

At this time the digital temperature display on the control panel should be showing approximately the same temperature as the surrounding ambient temperature.

Depress the Reset Button. The Warning Light should extinguish and the Heater Light (Amber) illuminate. The Reset Button may need to be pressed twice to achieve correct start up.

As the air inside the unit warms up, the reading on the Digital Display will rise quite rapidly, but it should be remembered that the fluid contained in the bags will be much slower to react to the temperature increase. Experience will show how long different types of bag take to warm up, but the table below can be used as a guide:

Bag starting temperature 15°C

BAG TYPE	WARM UP TIME To 35°C (minutes)
25ml	15
500ml	60
1000ml	85

Due to the warm up time required by some bags, it is suggested that the cabinet is 'stocked' up at the quietest period each day, so that during busy periods only bags that are thoroughly warmed through are available.

During normal operation, once the internal air temperature has reached its correct level, the amber heater light will be observed to go on and off from time to time as the thermostat switches the elements on and off.

6. Control details

The device includes the following controls:

- | | |
|---------------------------------|--|
| I. On/Off switch | Controls the power supply to the unit illuminates (Green) when the unit is switched on. |
| II. Reset switch | Used to reset the Warning Circuit, and to start the unit when first switched on. |
| III. Heater Light – Amber | Switches on and off with the Electronic thermostat, indicating correct operation of the unit. This light will stay on continuously until the unit reaches operating temperature. |
| IV. Warning Light – Red | Warns of a possible fault with the unit. This light also illuminates when the unit is first switched on, and if there has been an interruption to the power supply. Please consult section 8, faults. |
| V. Test Button | Used to test the Warning Light and fault circuits. |
| VI. Digital Temperature Display | Displays the internal air temperature of the cabinet, as sensed by the thermostat sensor. It should be noted that the temperature displayed will not necessarily correspond with the internal temperature of the fluid bags. The display is battery powered, so will remain visible at all times. Please see section 9.1 for battery replacement instructions. |

7. Testing

Once positioned, the unit can be plugged into a 220/240v ac supply, and switched on. Correct operation will be indicated by the illumination of the warning light. The fan will also be heard to operate.

Depress the Reset Button. The Warning Light should extinguish and the Heater Light illuminate. If this does not occur, the Reset Button may be depressed a second time. At this time the temperature display will read approximately the same as the surrounding ambient temperature.

The Warning/fault circuit should be tested immediately by depressing the Test Button. Correct operation of this circuit will be indicated by the Heater Light extinguishing whilst the Warning Light illuminates.

7.1 Testing whilst in use

It is recommended that the unit is tested daily. The warning circuit should be tested by use of the test button, but as the unit may already be at operating temperature the absence of the Heater Light does not indicate a fault. Illumination of the Warning Light indicates correct function of this circuit.

The Heater Light should be checked by observing if the temperature display is reading between 36° and 40°C. If it is, then the thermostat could well be in the off position. Open the unit door to allow the internal temperature to drop. The thermostat should then switch on illuminating the Heater Light.

The air circulation system should be checked. The fan should run continuously whilst the unit is connected to a power supply and switched on. Check this by opening the door and placing your hand over the fan filter unit located in the upper surface of the internal casing. A flow of air should be felt.

In the event of the fan failing, the unit will not overheat as the thermostat sensor will still control the temperature to a safe level, however the bags will not be heated evenly so the unit should be removed from service and returned to the manufacturer for repair.

8. Faults

The device incorporates several safety features to prevent the air temperature, and hence the bags inside the unit, from going above 41°C.

Failure of the thermostat or any of the controls will result in one of two scenarios;

1. The On/Off switch light fails to illuminate.

Check the power supply is connected and switched on.

Check that the fuse in the plug is serviceable.

Check that the fuse in the unit casing fuse holder is serviceable.

If the above checks have been completed and the unit still fails to function, it should be returned to Peco Services for inspection. A note of the fault symptoms should be attached to the unit.

2. The Warning Light illuminates.

There are two reasons why the warning light could illuminate;

- I. When the power supply has been interrupted. If this has happened, simply depress the Rest Button to restart the unit.
- II. If the internal air temperature of the unit has reached 41°C

The operation of the Warning Light due to overheating does not necessarily indicate that the unit has malfunctioned, as temporary overheating can occur in a number of ways.

The following should be checked before the Reset Button is depressed;

Is the vent in the rear in the internal casing obstructed?

Has an external heat source influenced the device; for example a radiator or warm air system?

Is the unit in direct sunlight?

Is the fan working?

If all of the above have been eliminated, reset the unit. If the Warning Light illuminates for a second time the device should be returned to Peco Services for examination.

Return address details can be found in Section 1.

9. Maintenance & Cleaning

The casing of the device is constructed from ABS plastic, with a Perspex door. As with all plastics, care should be taken when cleaning the cabinet not to use any solvent based cleaners or abrasives, as these will cause damage.

For safety, the unit should be switched off before cleaning.

The whole unit can be wiped clean with proprietary disinfectants and sterilising fluids, but the unit should not be immersed at any time.

The fan in the roof of the internal casing has a filter unit. This can be removed for cleaning by carefully prising the filter frame off and removing the foam filter medium. This can be cleaned by rinsing in soapy water. Allow the filter to thoroughly dry before refitting.

If a fluid bag should leak inside the device, it is strongly recommended that the unit is disconnected from the power supply immediately and returned to Peco Services Ltd for examination even if no faults are immediately apparent.

9.1 Digital Display Battery

Disconnect the device from the power supply.

The digital temperature display is battery powered. To change the battery, carefully prise the display module out of the casing using a flat bladed screwdriver. Once removed, the battery compartment can be accessed from the rear of the module. Remove the battery cover and replace the battery with an LR44 button cell or equivalent.

10. Storage & Transportation

The device should be kept dry and should not be stored in temperatures exceeding 50°C.

To prevent damage to the internal casing and door, remove the shelves when transporting the cabinet.

11. Technical Data

11.1 Electrical safety – Classification in accordance with IEC 60601

Type of protection against electric shock:	Safety Class II
Degree of protection against electric shock:	Type BF
Degree of protection against ingress of fluids:	Drip-proof. Symbol: IPX1

The MediHeat MH1200 & MH1800 comply with IEC 60601-1-2, but this does not guarantee that other equipment will not be effected by electromagnetic emissions from the MediHeat. Similarly, other equipment in the vicinity may effect the operation of the device. It is recommended that all equipment used near the MediHeat comply with the relevant electromagnetic compatibility requirements for that equipment and to check before use that no interference is evident or disruptive. Increasing the distance from offending devices will reduce the effect.

11.2 Power supply

Input voltage:	220-240v ~ 50/60 Hz	
Input Current:	MH1200 - 0.5A	MH1800 - 0.75A

11.3 Fuses

External:	BS1362 3a
Internal:	BS4265 3a

11.4 Ratings

Thermal safety cutout:	41°C	
Unit power rating:	MH1200 - 120 watts	MH1800 - 180 watts

11.5 Temperature Display Module

Temperature range:	-20 to 70°C
Resolution:	0.1°C 10 second display update
Accuracy:	±1°C between 0-40°C

12. Data Sheet

Component	Specification
Casing	3mm ABS Plastic Flame Retardant UL94/ V-0
Heating elements	Carbon Coated Glass fibre cloth with stitched copper electrodes. 100 micron polyester insulation.
Fan	12v axial fan in plastic housing Operating voltage: 10.2 – 18.8v Rated voltage: 12v dc Current: 180mA Noise level: 31dBA Airflow: 900ltr/minute Continuous life: 60,000 hrs @ 25°C Operating temp: -10 to 70°C
Fan Guard & Filter unit	Polyurethane foam filter in a high impact plastic retainer
Heater & Warning Lights	Neon indicator
Switch	Illuminated fluorescent indicator Maximum Current: 10A @ 250v AC Mechanical Life: 1,000,000 operations
Digital Display	LCD display Resolution: 0.1°C 10 second display update Accuracy: ±1°C between 0-40°C
Test & Reset Buttons	Maximum current: 1A @250v AC

13. **Warranty**

Liability with respect to safety, reliability and performance of the device will only be assumed if assembly of the device, extensions, adjustments or repairs have been performed by persons or service technicians authorised to do so and if the device has been operated in the manner prescribed in the Operating Instructions.

Defective components will be replaced or repaired at no charge within the warranty period, which is 12 months from initial delivery by Peco Services Ltd to the original purchaser or distributor.

