

Babytherm® 8004/8010 Open Care Unit

Instructions for Use

P.Nr. 1.1.



Contents

For Your Safety and that of Your Patients	3	Operation	17
Safety instructions	3	Precautions	17
Intended Use	4	Switching on	19
Operating Concept	6	Manual operation	19
Preparation	7	15 minutes alarm	20
Shelf	7	Using baby control mode	21
Compact rail/rail brackets	7	ThermoMonitoring	26
Swivel tray	7	Using heated gel mattress	27
Ensuring stability	7	Using the bed canopy	31
X-ray tray	8	Recommended heater settings for heat therapy	33
Warming bed	9	Using phototherapy, optional	36
Fitting the panels	9	Switching lighting On/Off	38
Fitting the inner panels	9	Central alarm	38
Mattress	9	Configuration mode	39
Tilting the bed	10	Oxygen therapy	44
Bed canopy	10	Bronchial aspiration	44
Bronchial aspirator	11	Taking X-rays	45
Fastening the ejector on the compact rail	11	Shutting down	45
If the ejector is mounted on the bed	11	Care	46
Accessories for oxygen therapy	12	Dismantling	46
O2 flowmeter	12	Disinfecting/cleaning/sterilising	46
Nebuliser	12	Before next use	46
O2 distributor	12	Troubleshooting	47
O2 monitor	12	General system failures	47
O2 supply via injector	12	System faults – Babytherm 8010 (Mattress heating)	47
Fitting the hose bracket	13	System faults radiant warmer	48
Drainage canister hook	13	Maintenance Intervals	49
Compressed air distributor / socket strip	13	Disposing of the unit	49
Storage	13	What's what	50
In-hospital transport	13	Complete unit	50
Testing Readiness for Operation	14	Radiant warmer	51
Before using for the first time	14	Controller	52
Before each use	14	Controller, rear view	54
Checking height adjustment (optional)	14	Technical Data	55
Switching on and activating the self-test	15	Construction and Description	60
Checking LEDs, displays and audible alarm	15	Alarm description	61
Testing the power failure alarm	16	Order List	62
Testing the lights	16	Parts list	63
Testing phototherapy (optional)	16	Index	64

For Your Safety and that of Your Patients

Strictly follow the Instructions for Use

Any use of the apparatus requires full understanding and strict observation of these instructions.

The apparatus is only to be used for purposes specified here.

Maintenance

The apparatus must be inspected and serviced regularly by trained service personnel at yearly intervals.

Repair and general overhaul of the apparatus may only be carried out by trained service personnel.

We recommend that a service contract be obtained with DrägerService and that all repairs also be carried out by them. Only authentic Dräger spare parts may be used for maintenance. Observe chapter "Maintenance Intervals".

Accessories

Do not use accessory parts other than those in the attached accessory list.

Liability for proper function or damage

The liability for the proper function of the apparatus is irrevocably transferred to the owner or operator to the extent that the apparatus is serviced or repaired by personnel not employed or authorized by DrägerService or if the apparatus is used in a manner not conforming to its intended use.

Dräger cannot be held responsible for damage caused by non-compliance with the recommendations given above.

The warranty and liability provisions of the terms of sale and delivery of Dräger are likewise not modified by the recommendations given above.

Dräger Medical AG & Co. KGaA

Safety instructions

Not for use in areas of explosion hazard

This apparatus is neither approved nor certified for use in areas where combustible or explosive gas mixtures are likely to occur.

Safe connection with other electrical equipment

Electrical connections to equipment which are not listed in these Instructions for Use should only be made following consultations with the respective manufacturers or an expert.

General information regarding electromagnetic compatibility (EMC) in accordance with the international EMC standard IEC 60601-1-2: 2001

Electrical medical devices are subject to special precautionary measures with respect to electromagnetic compatibility (EMC) and must be installed and commissioned in accordance with the EMC information provided in the technical documentation available on request from DrägerService.

Portable and mobile HF communication devices can affect electrical medical devices.



Do not touch the pins on plugs carrying ESD warnings and do not establish connections between these plugs without taking protective measures against ESD. Such measures include wearing antistatic clothing and shoes, holding an earthing bolt before and during connection, or wearing electro-insulating or antistatic gloves. The staff concerned should receive training in respect of these ESD protective measures.

It is the responsibility of the doctor to draw conclusions from the skin temperature measurements taken.

Baby control mode must not be used with children who are in shock or who have fever.

Intended Use

Babytherm 8004/8010 is an open care unit for warming pre-mature babies, neonates and infants with a body weight of up to 8 kg.

The unit may be used in operating theatres, neonatal wards, children's wards, obstetric units and paediatric intensive care units. The unit may be operated by clinical staff or by nursing staff under the supervision of a doctor.

Therapy and nursing uses

- In intensive care and obstetric units for resuscitation, normal and intensive care
- For infant warming and compensation of heat loss
- Thermal stability with mattress heating
- Gentle heat therapy with a combination of radiant warmer and mattress heating
- Cooling patients with fever (temperature of mattress below core temperature)
- Adjustable bed angle for head-up or head-down position
- Weaning infants from incubators
- O2 and nebuliser therapy (with appropriate accessories)
- Lowering the bilirubin levels when using the phototherapy option.

Babytherm 8004 heating features

- Radiant warmer operation with a preset heat output: the radiant warmer output is set in manual mode, and therapy time at the higher heater output level is monitored.
- Radiant warmer operation with baby control mode: temperature is automatically monitored and controlled.

Babytherm 8010 heating features

- Radiant warmer operation with a preset heat output: the radiant warmer output is set in manual mode, and therapy time at the higher heater output levels is monitored.
- Radiant warmer operation with baby control mode: temperature is automatically monitored and controlled.
- Heated gel mattress, operating independently of the radiant warmer: the temperature of the heating pads is automatically monitored and adjusted to attain and maintain a preselected temperature at the contact surface between the infant and the mattress.

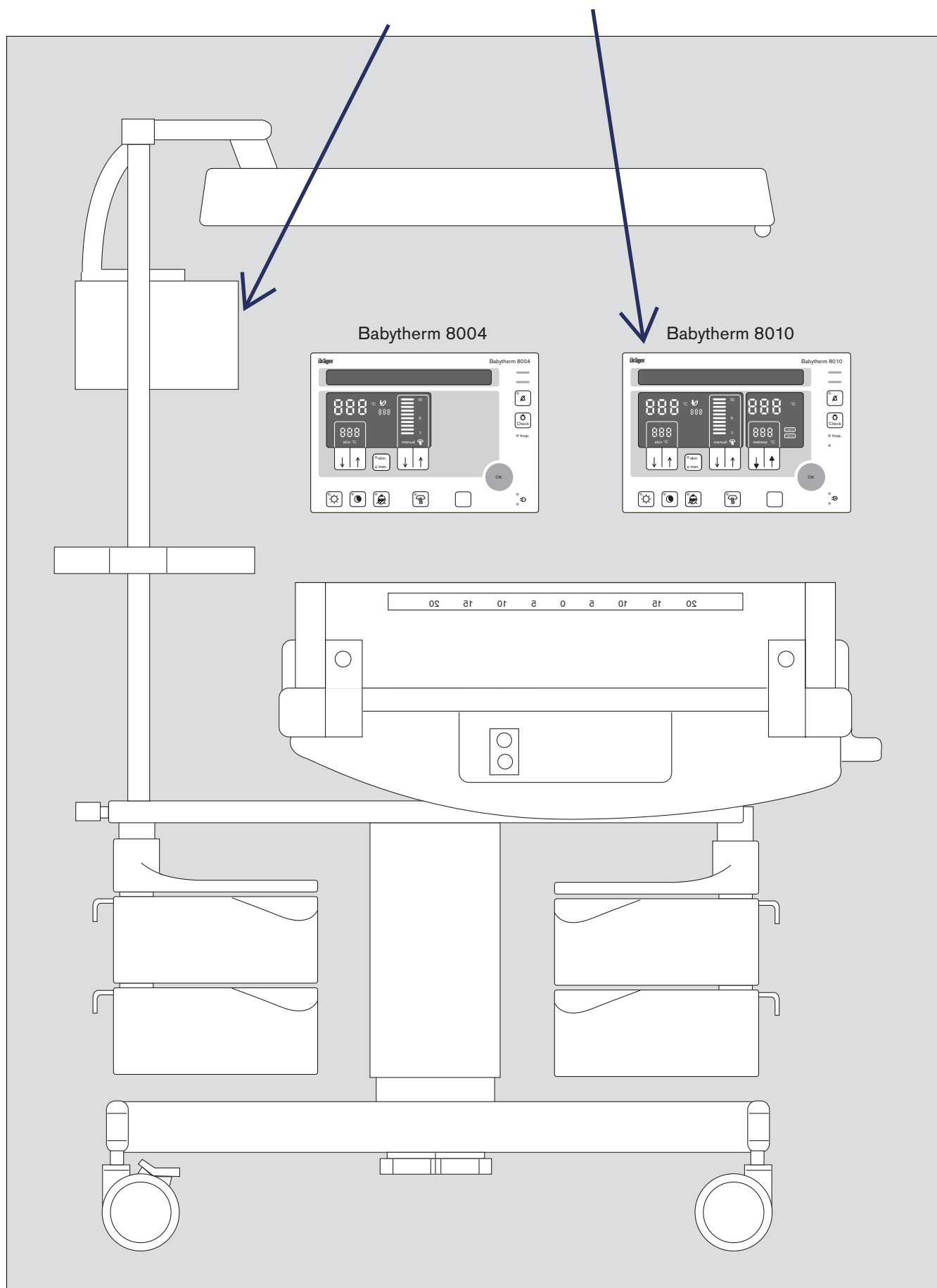
Options

- Height adjustment P.Nr. 1.3
- One or two swivel cabinets
- Side panels (150 mm or 230 mm)
- Infusion holder
- Swivel tray
- APGAR timer P.Nr. 1.5 APGAR laikmatis

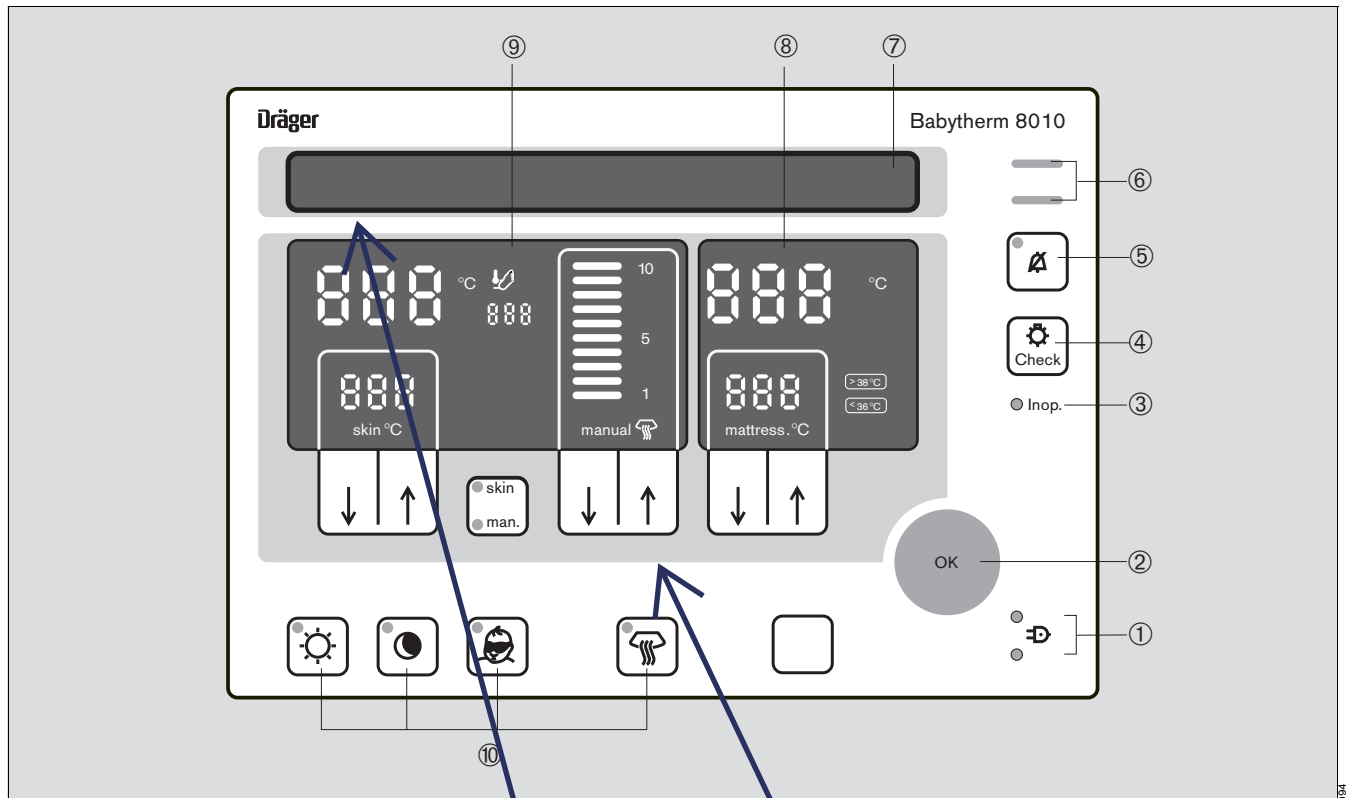
Optional therapy accessories

- Bronchial aspirator
- O2 flowmeter
- O2 distributor
- O2 distributor with cylinder connection
- O2 monitor
- O2 hood

P.Nr. 6.1



Operating Concept



- ① ON/OFF indicator:
The green LED is lit when the unit is ON.
The red LED is lit following a power failure.
- ② OK button for confirming advisory messages and settings.
If the OK button is not pressed within 10 seconds of entering a new setting, the previous settings remain active.
- ③ "Inop" alarm display
- ④ Pushbutton for checking the LEDs, displays, siren and audible alarm.
- ⑤ Pushbutton for switching off the audible alarm.
- ⑥ Visual display for alarms:
Warning = red LED. Caution = yellow LED.
- ⑦ **Text display: shows advisory messages for the user** P.Nr. 6.3
- ⑧ Babytherm 8010 only – display and keypad for the heated gel mattress:
top: display for the measured mattress temperature;
bottom: display for the set mattress temperature, with buttons for setting the desired temperature.
right: indicators for operation in extended setting range – high (>38 °C) or low (<36 °C). P.Nr. 7.3
- ⑨ **Display and keypad for the radiant warmer:** P.Nr. 6.2
top: display for the measured value of the core and peripheral skin temperature; P.Nr. 9.
bottom: display for the set skin temperature, with buttons for setting the desired value and a toggle button for selecting "man." (manual mode) or "skin" (baby control mode). The active mode is indicated by the relevant yellow LED;
right: display of heater levels 1 to 10, for manual operation of the radiant warmer; P.Nr. 7.1
Heater levels 1 to 3 = green LEDs
Heater levels 4 to 10 = yellow LEDs
complete with buttons for selecting the desired increment.
- ⑩ On/Off buttons for:
Procedure light
Night light
Phototherapy, optional
Radiant warmer.
Each of these buttons has a yellow LED that is lit when the relevant function is switched on.

Preparation

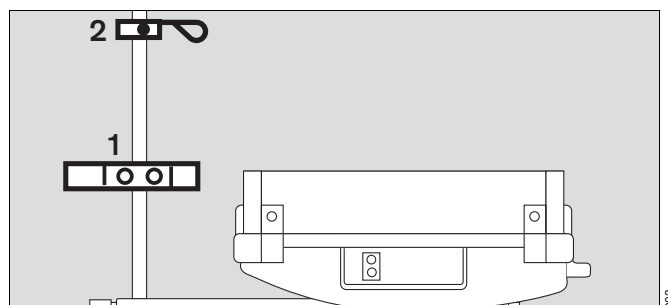
Shelf

The unit is fitted with one shelf.

Make sure that the shelf is firmly in position.

To fit rails to the shelf:

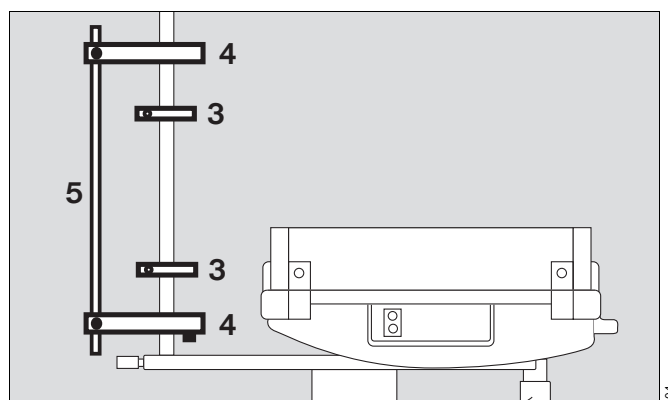
- 1 Screw rail to the left and/or right of the shelf.
- Place desired auxiliary equipment on the rails and shelf.
Max. 20 kg per shelf.
- 2 Fasten infusion holder to stand column at the required height.



Compact rail/rail brackets

This rail is designed to hold auxiliary equipment, e.g. O₂ flowmeter, O₂ monitor, infusion pumps.

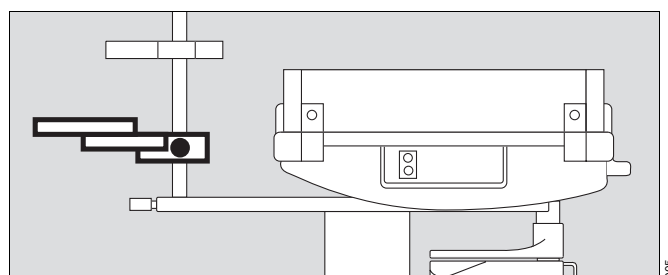
- 3 Fasten the compact rail(s) to one column of the stand at the required height.
- 4 Fasten rail brackets and
- 5 small equipment bar to one column of the stand at the required height.



Swivel tray

For small articles and parts. Max. load 3 kg.

- Position the swivel tray on one of the columns of the stand and tighten the hand screw.
Recommended height: level with the mattress.
- Make sure that the swivel path is kept clear of obstructions!



Ensuring stability

Stability is ensured when the unit is placed on a surface with a slope of not more than 10°.

The following restrictions apply when adding accessories:

- **Do not exceed the maximum load-bearing capacity of the stand = 30 kg.**
- If accessories are positioned on a column of the stand, e.g. on two swivel trays, the **maximum load** for this column is **5 kg**.

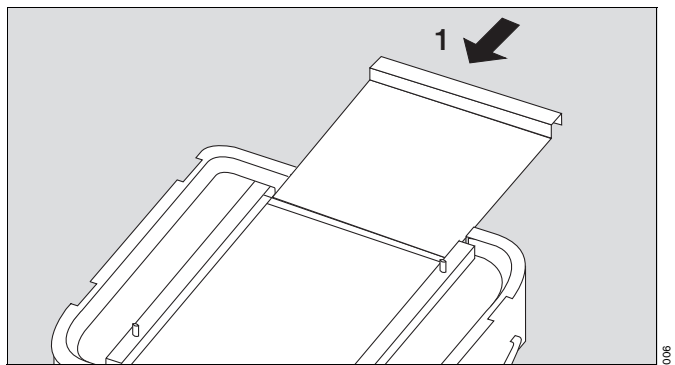
X-ray tray

Babytherm 8004 only

Do not use the X-ray tray in the extended position to write on. Do not place objects other than x-ray plate. Do not lean on the tray. Risk of damage.

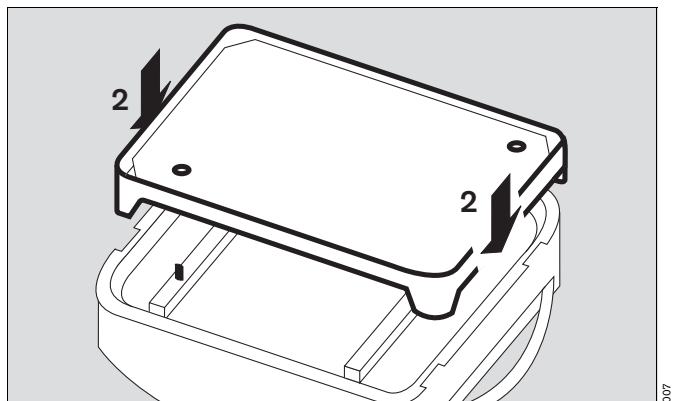
Preparation

- 1 Push X-ray tray fully home in the horizontal position.



- 2 Lower X-ray tank into the bed
– the pegs engage in the holes in the X-ray tank.

- Prepare the warming bed, see page 9.



Warming bed

The bed is enclosed by two side panels and two end panels that can be opened independently of one another.

The side panels are provided with holes for secretion and drainage hoses. The end panels have flexible grommets for hoses and cables.

P.Nr. 5.1

Fitting the panels

P.Nr. 5.2

- 1 Insert the lower mounting pins of the panel hinge-pieces into the guide slots on either side.

With the panels on the long side, ensure that the handle points outwards.

- Position the panel semi-upright,
- 2 press the panel down firmly until the pins lock into position at the bottom of the slots.
- Fold the panel up into the vertical position and allow it to drop into the locking position.
- Fit all four panels in this way.

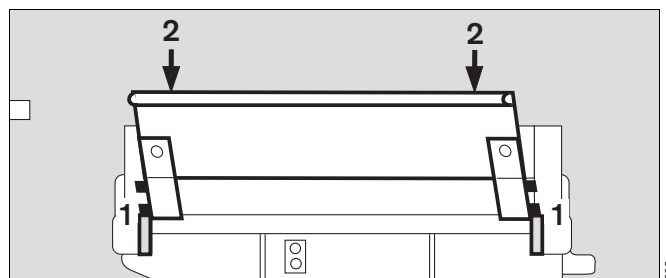
Make sure that the panels are seated correctly.

To open:

- Lift the panel all the way up until the upper pins come out of their slots, then fold the panel down.

With lively infants or older children:

- Use 230 mm high panels.

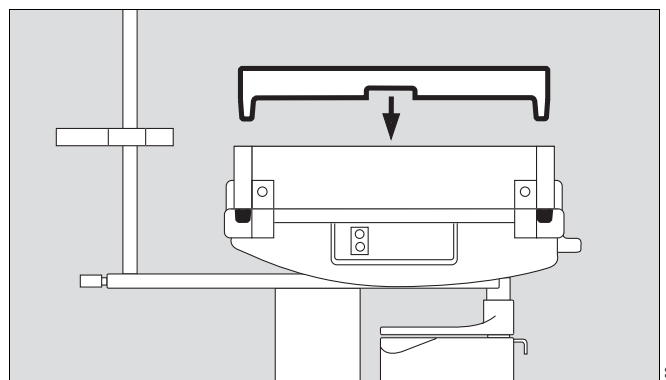


Fitting the inner panels

Inner panels must be used with all patients, regardless of whether the side panels are open or closed! Otherwise the patient can fall out!

- Insert the pins into the tapered holes in the corners of the housing and press down lightly until the inner panel is firmly in place.

Make sure the panels are seated correctly.



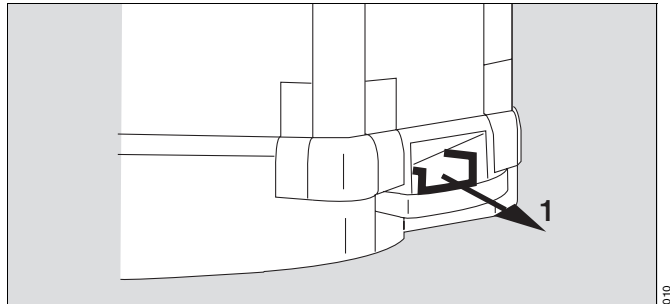
Mattress

- Lay the mattress flat in the cot and cover it with a cotton sheet.

Tilting the bed

- 1 Pull the handle of the locking mechanism out towards the front.
 - 2 Press handle down = head-up position
Pull handle up = head-down position
- Release the handle: the bed automatically locks into the selected position.

The bed can be tilted in finely graduated steps.

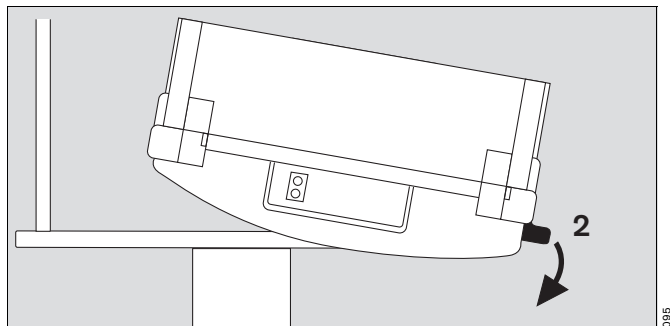


Maximum tilt angle:
Head-up position: 20°
Head-down position: 15°

Preferred positions:
Horizontal,
10° tilt head-up and
10° tilt head-down.

The mattress may slip at maximum tilt.

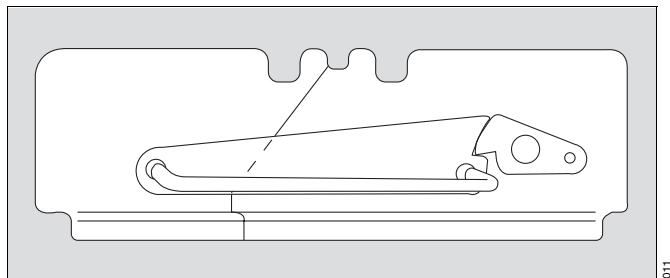
In this case do not place a sheet over the mattress.



Bed canopy

Optional
Higher side panels (230 mm) are recommended when using the canopy.

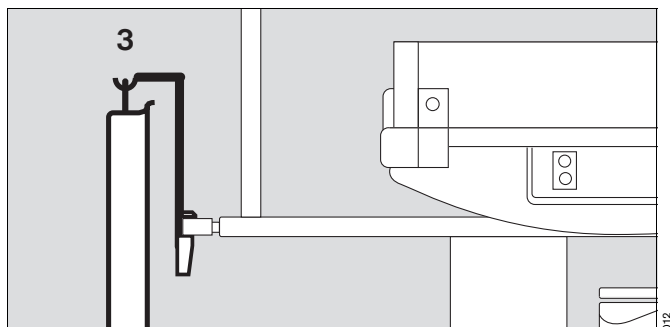
- Check that the bed canopy is closed.



When the bed canopy is not required:

- Attach bracket to standard rail.

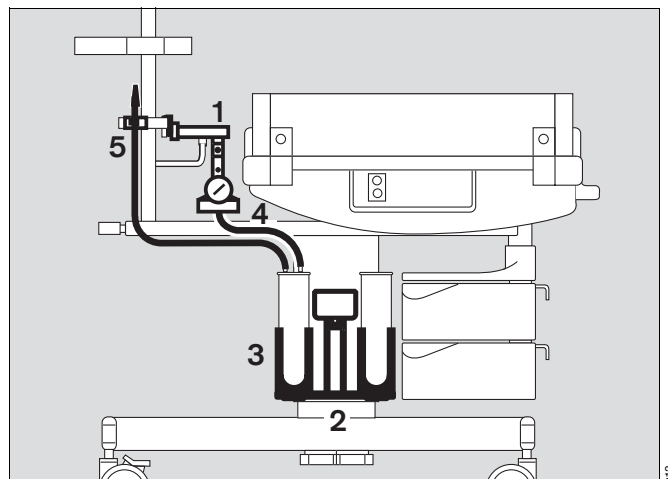
- 3 Hang bed canopy from bracket.



Bronchial aspirator

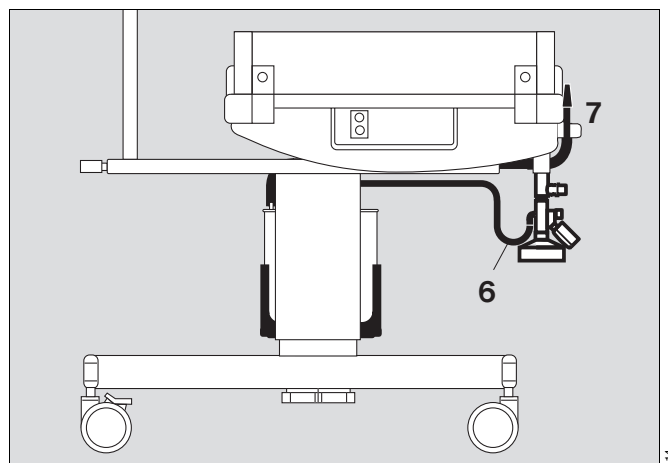
Fastening the ejector on the compact rail

- Fit the compact rail to the desired position on the stand, see page 7.
- 1 Clip the ejector to the compact rail.
 - 2 Mount bracket with projecting support to one of the positions provided on the column.
For units with height adjustment, place the bracket so that the bottle holder is outside the path of the swivel cabinet.
 - 3 Place the bottle holder on the projecting support.
 - 4 Connect hoses.
- Fit the hose clip (optional) to the compact rail.
 - 5 Clip aspiration hose into the hose clip.
 - Screw on the connecting hose and plug the connector into the socket of the central supply system (park position).



If the ejector is mounted on the bed

- Mount bracket with projecting support to one of the positions provided on the column.
For units with height adjustment, place the bracket so that the bottle holder is outside the path of the swivel cabinet.
 - Place the bottle holder on the projecting support.
 - Fasten hose clip to frame.
- 6 Connect hoses.
 - 7 Clip aspiration hose into the hose clip.
- Screw on the connecting hose and plug the connector into the socket of the central supply system (park position).



- Prepare the aspirator in accordance with its specific Instructions for Use.

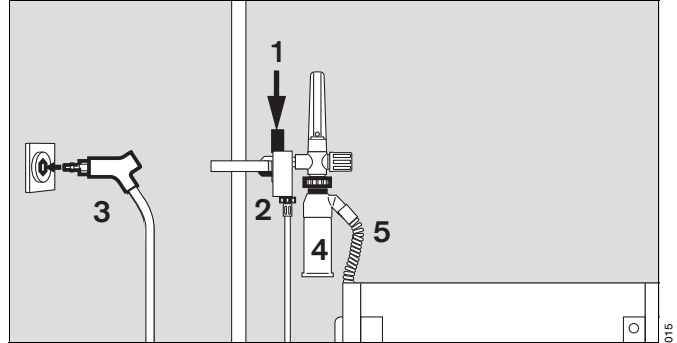
Accessories for oxygen therapy

O₂ flowmeter

- Prepare the flowmeter in accordance with its specific Instructions for Use.

To mount the flowmeter on the compact rail:

- 1 Press the slider all the way down; hook the flowmeter to the compact rail and release the slider.
- 2 Screw on the O₂ connecting hose.
- 3 Insert the connector of the connecting hose into the O₂ delivery socket and press it all the way in.



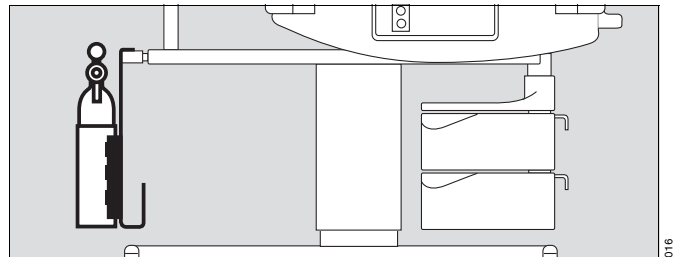
Nebuliser

- Prepare the nebuliser in conformity with its specific Instructions for Use.
- 4 Screw the nebuliser securely to the flowmeter.
- 5 Fit the spiral hose to the nebuliser port.

O₂ distributor

Different versions are available for connection either to a pipeline system or an oxygen cylinder.

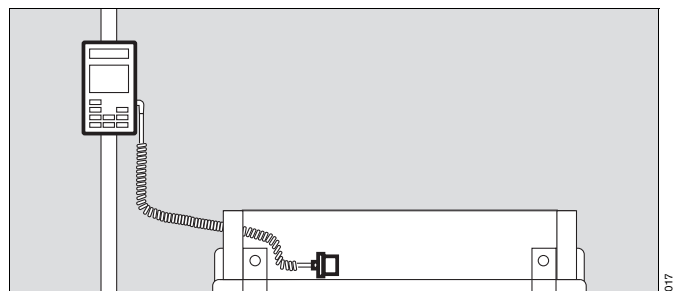
- Hang the O₂ distributor from the standard rail.
- Connect the O₂ supply.
- Connect the O₂ load.



O₂ monitor

e.g. MiniOx 3000

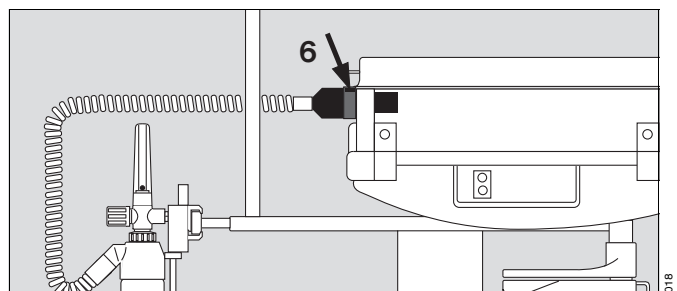
- Prepare the O₂ monitor in conformity with its specific Instructions for Use.
- Fasten O₂ monitor, complete with its holder, to the compact rail.
- Place the O₂ sensor on the bed and feed the cable through the hole on the front.
- Plug the connector of the sensor into the measuring unit.



O₂ supply via injector

When using the injector, the higher side panels (230 mm) and the bed canopy should be used (pages 9 onwards).

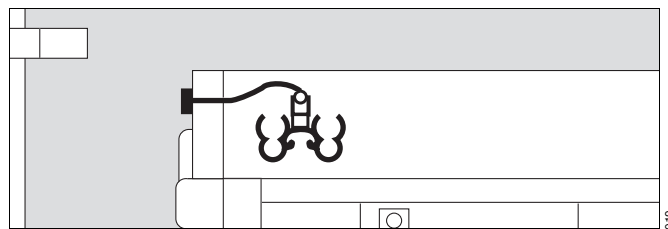
- 6 Press locking lever on mounting flange and push injector into flange.
- Allow locking lever on injector to engage. The injector is now locked.
 - Connect up hose.



O₂ supply should only be used with O₂ concentration monitoring, e.g. via MiniOx 3000.

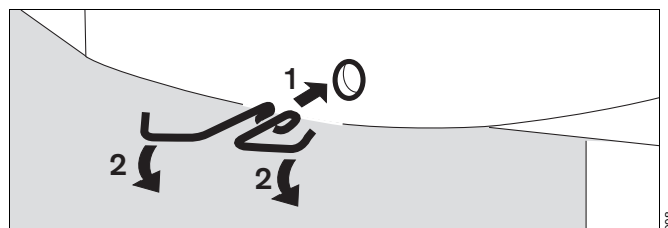
Fitting the hose bracket

- Insert the hose bracket into the hole in the left side of the head panel and tighten with knurled screw.



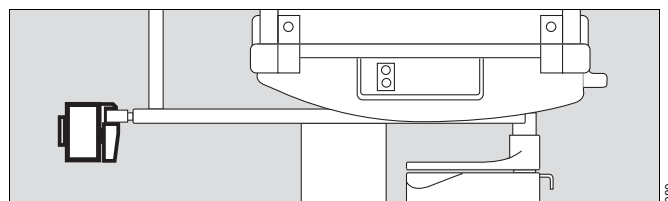
Drainage canister hook

- 1 Insert hook horizontally into hole in the Babytherm casing.
- 2 Pivot hook downwards.



Compressed air distributor / socket strip

- Secure the compressed air distributor to the standard rail.
- Secure the socket strip to the standard rail.



Storage

Units with height-adjustable column:

- One or two swivel cabinets each with 2 swivel compartments and 1 swivel tray (optional)

Units without height adjustment:

- Two open compartments in the column
- One swivel cabinet with two swivel compartments and one swivel tray, optional.

- For clearly organised storage of required equipment and accessories.

In-hospital transport

- Monitor the patient's core temperature.
- If optional height adjustment is fitted, lower the unit to its lowest position.
- Swivel the swivel cabinets inwards.
- Swivel the swivel tray inwards.
- Remove X-ray cartridge from X-ray tray (see page 45).
- Accessories projecting beyond either side of the unit must be removed or folded in.
- Switch off heating systems and disconnect the mains plug.
- Fit optional bed canopy to protect patient from draughts.

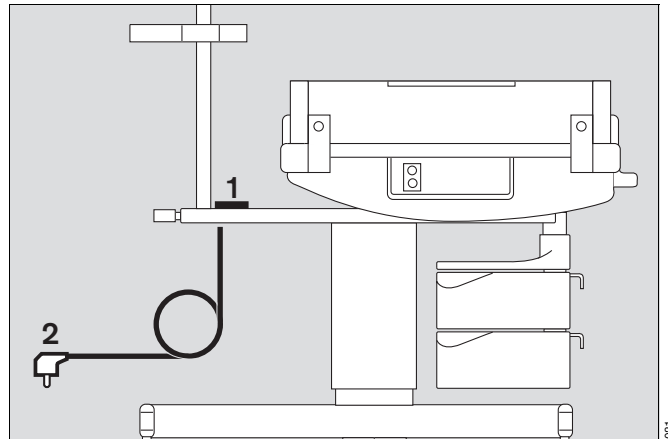
Immediately after transport:

- Plug in the mains plug and switch on the heating systems.

Testing Readiness for Operation

Before using for the first time

- 1 Check that the mains voltage matches the values indicated on the rating plate next to the power cable.
- 2 Plug into the mains.



Before each use

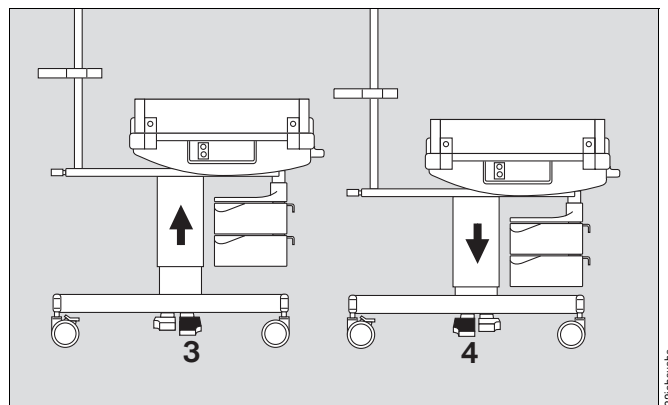
- Check that the unit has been disinfected.
- Check that the side panels are locked securely into place. The panel hardware must be visible above the bed surface.
- Check that the side panels are free from cracks and sharp edges.
- Check that the correct mattress is in the cot;
Operation with mattress heater: gel mattress
Operation without mattress heater: foam mattress.
- Check that the bed tilts properly and locks securely into position.
- Check that the required accessories and therapy equipment are available and in proper working order.
- Check that the gas supply is available and sufficient for the accessories and equipment to be used.
- Check that the cables and hoses are correctly and securely installed. Never route cables or hoses over the panels because they might be pinched or crushed when folding up the panels or fitting the bed canopy.
- Check whether both infrared radiators are providing warmth by placing your hand carefully at a safe distance from the radiant heater.

Checking height adjustment (optional)

Test height adjustment system if fitted:

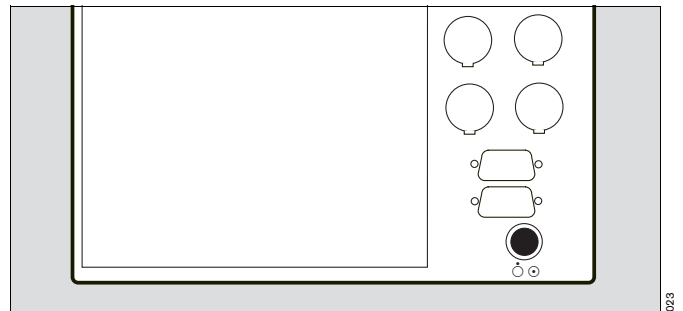
- 3 Press the right pedal briefly to raise the bed.
- 4 Press the left pedal briefly to lower the bed.

- Remember the maximum load for height adjustment is 50 kg.
- Hoses and cables should be long enough to ensure a secure connection even in the top or bottom height adjustment position.
- Do not place any objects in the raising/lowering path.
- Adjust to a comfortable working height.

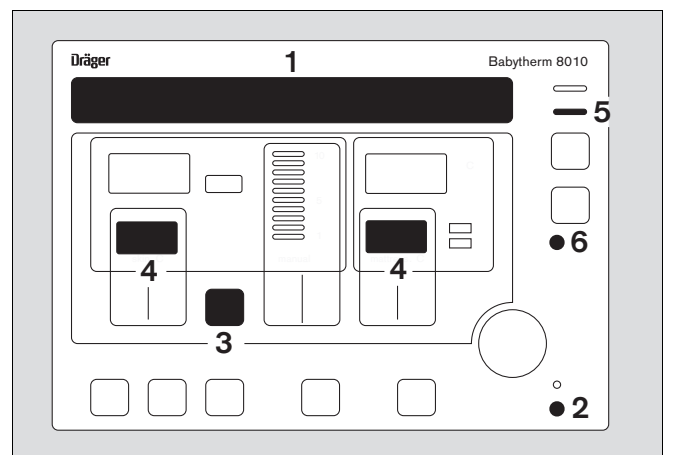


Switching on and activating the self-test


- Press the On/Off button until it engages = ON.
Babytherm now runs a self-test to check important functions.

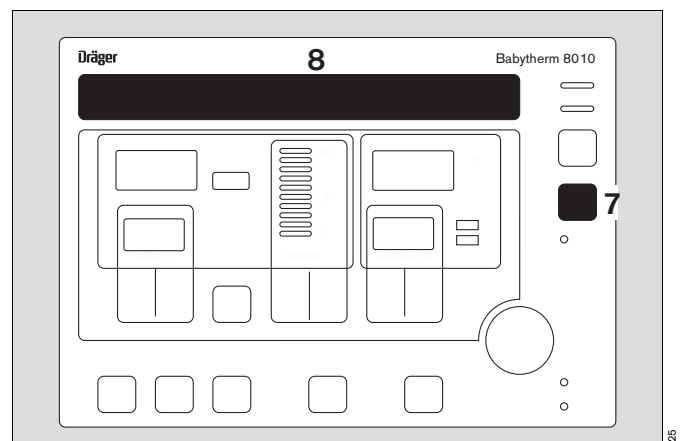


- The following message appears in the display:
»All displays on, horn on«.
All the displays are lit for about 2 seconds:
digital displays read **»88.8«** and a continuous tone sounds.
- The following message appears in the display:
»All displays off, soft alarm on«.
All displays are dark for about 2 seconds and the alarm sounds.
- The green LED is lit.
- After about 2 seconds, the unit displays the radiant warmer mode:
»man.« (manual mode) – no skin temperature sensor in place
or
»skin« (baby control mode) – yellow skin temperature sensor for core temperature in place.
The corresponding LED flashes.
- The preset desired values are displayed.
- If the text display reads **»Battery charge low«**
and the yellow LED is lit, the battery is being charged for the power failure alarm. It takes about 30 minutes to charge the battery.
- The yellow LED is extinguished.
- If the red LED **»inop. = operating fault«** is lit, see page 47.




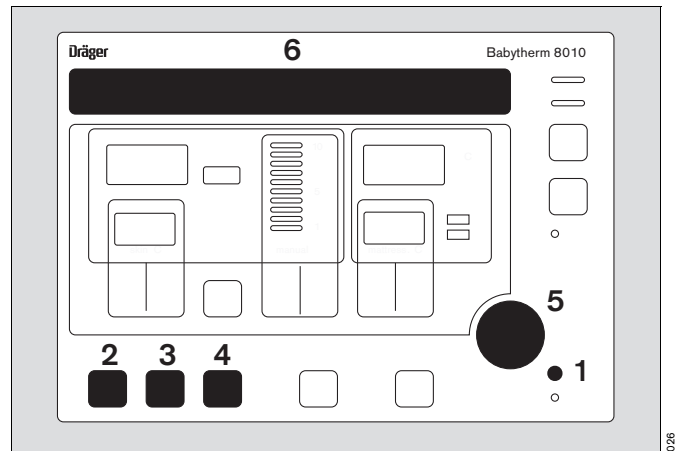
Checking LEDs, displays and audible alarm

- Press the  key.
 - The following message appears in the display:
»All displays on, horn on«.
All the displays are lit for about 2 seconds:
digital displays read **»88.8«** and a continuous tone sounds.
 - The following message appears in the display:
»All displays off, soft alarm on«.
All displays are dark for about 2 seconds and the alarm sounds.
A function check can also be carried out while the unit is in operation.
- Check at least once a day.



Testing the power failure alarm

- Disconnect the power plug.
- 1 The red LED  should light up and a continuous alarm tone should sound.
- Reconnect the power. The unit will continue to operate with the values set before the power failure alarm.



Testing the lights

- 2 Press the left-hand button. The bed should now be lit by the procedure light.
- 2 Press the button again. The procedure light will be switched off.
- 3 Press the middle button. The bed should now be lit by the night light.
- 3 Press the button again. The night light will be switched off.

Testing phototherapy (optional)

- 4 Press button. The yellow LED in the button will start to flash.
- 6 The following message appears in the text display:
»Phototherapy: Use eye protection
Press OK button to start XX:XX:XX«.
- 5 Press OK button = phototherapy lights switched on.
- 6 The following message appears in the text display for 5 seconds: :
»Duration of phototherapy XX:XX:XX«.
- 4 The yellow LED in the button is now continuously lit.
- 4 Press button
- 6 The following message appears in the text display:
»Phototherapy turned OFF
Press OK button to confirm XX:XX:XX«.
- 5 Press OK button = phototherapy switched off.
- 4 The yellow LED in the button will go out.

Operation

Precautions

Patient care

Never leave the patient unattended when the side panels are down. Risk of infant falling out of the cot.

When operating the side panels and bed canopy, take care not to pinch any parts of the patient's body or any hoses or other articles, e.g. bedding.

The side panels must be securely locked in position, and the panel hardware must be visible above the surface of the bed.

Inner panels must be used with all patients, regardless of whether the side panels are open or closed!

With lively infants and/or older children, the **230 mm high side panels** should be used.

Heat therapy/phototherapy

Monitor the patient's core temperature regularly using a separate thermometer!

Adjust the temperature settings to the needs of the patient.

Watch out for exposure to sunlight.

It is the responsibility of the doctor to draw conclusions from the skin temperature measurements taken.

At regular intervals, check whether both infrared radiators are providing warmth by placing your hand carefully at a safe distance from the radiant heater.

Increased heat is directed to the patient when the heated gel mattress, radiant warmer and phototherapy are operated in combined mode. This should be taken into account when setting the heating system. Following the instructions on pages 33 onwards for setting the two heating systems, separately and in combination. Changes in ambient conditions, e.g. draughts, can affect the patient's temperature balance.

Mattress heater

Do **not** use a gel mattress with Babytherm 8004.

Do **not** use a foam mattress with Babytherm 8010.

Keep clear of sharp objects – risk of damage to the gel mattress. Do not fold or kink the gel mattress. To transport the gel mattress, roll it up.

Always adhere to the warm-up time of the gel mattress.

Wait for about 1 hour before placing a patient in the Babytherm, to allow the gel mattress to warm up sufficiently.

Radiant warmer

The use of the radiant warmer can cause an unnoticed increase in the patient's water loss.

Do not place any objects on top of the radiant warmer.

Ventilation would be impeded, and both heater and object may be damaged.

Do not touch the top of the radiant warmer or the protective screen. Danger of burns.

When the bed is tilted, those parts of the patient's body that are closer to the radiant warmer will receive more heat.

The skin temperature of such body parts should be regularly monitored.

Do not use any flammable cleaning agents or medication while the heater is in operation – fire hazard.

Do not place medication or infusion solutions in the heated area.

Do not use the baby control mode for infants in a state of shock.

When in shock, skin temperature is much lower than normal.

Infants would be overheated by the baby control mode.

For infants in a state of shock, set the heater output to **»man.«** (manual mode) and measure the core temperature every 15 minutes.

Do not use the baby control mode for infants with fever.

In this case, skin temperature is much higher than normal.

Baby control mode in these cases would lead to hypothermia.

Oxygen therapy

The risks of the system are increased when oxygen is in use.

- Avoid naked flame and lit cigarettes.
- Textiles, plastics and oils are more easily ignited and burn with greater intensity in an oxygen-rich atmosphere.
- Keep oxygen fittings and seals free of oil and grease.
- Open the valves slowly.
- Do not use Babytherm in the presence of flammable anaesthetic gases or disinfectants.
- Do not use or store flammable liquids such as alcohol, ether or acetone in the Babytherm.
- Do not use electrical appliances underneath the Babytherm bed canopy, except for devices authorised and certified for operation in explosion-hazard areas.

Physiological dangers of oxygen

Only enrich the oxygen concentration under the instructions of a doctor and only in accordance with the arterially measured oxygen partial pressure in the patient's blood. Otherwise there is a danger of hyperoxaemia (damage to the eyes) or hypoxaemia (damage to the brain). During oxygen therapy, the oxygen concentration must be constantly monitored, e.g. with MiniOx 3000.

X-ray tray

Do not use the X-ray tray in the extended position to write on.
Do not place objects other than x-ray plate.
Do not lean on the tray.
Risk of damage.

Remove X-ray cartridge from the X-ray tray for transport.

Bed canopy

The infant's core temperature should be monitored when the bed canopy is in use.

The effect of the radiant warmer is reduced when the bed canopy is in use.

When the bed canopy is in place, the side panels can be folded down. **Do not leave the Babytherm unattended with the side panels open, as the infant can fall out.**

The bed canopy should **not** be used as a convenient place to lay objects, clothing, etc.

When using external phototherapy, remember the maximum load on the bed canopy is 11 kg.

Configuration mode

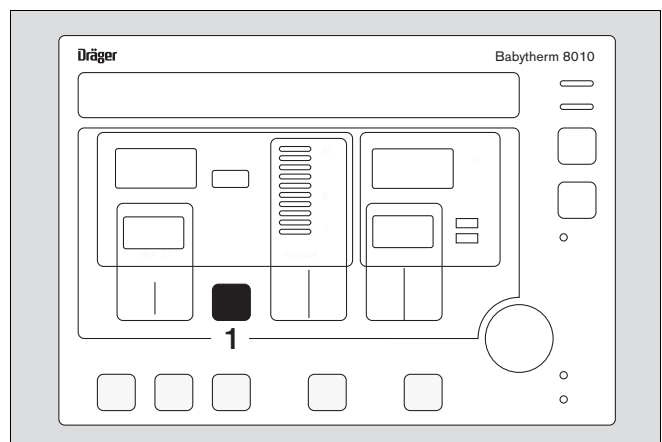
No care/therapy should be carried out during configuration of the system, because the normal equipment functions (e.g. temperature measurement, alarms) are switched off.

Switching on

After switching on, the system runs a self-test and then proposes the following default operating mode for the radiant warmer:

- if no skin temperature sensors connected = »**man.**« (manual)
- if yellow skin temperature sensor for core temperature is connected = »**skin**« (baby control mode)

- 1 The yellow LED for the mode selected will flash in the button.



Manual operation

The heater is controlled manually in the case of short-term treatment or for infants in shock and for whom baby control mode must not be used.

In manual mode, the radiant warmer delivers a preset heat output regardless of the infant's core temperature.



Do not leave this device operating unattended! Measure the patient's core temperature regularly using a separate thermometer!

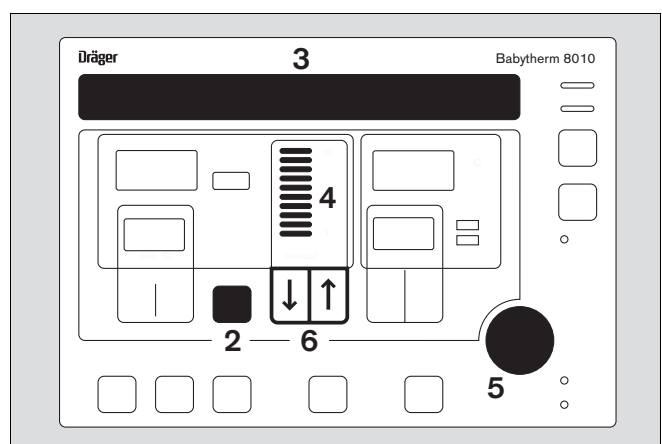
Check, whether both infrared radiators are providing warmth, by placing your hand carefully at a safe distance from the radiant heater.

If the system is still in »**skin**« mode:

- 2 Press button until the yellow »**man.**« LED starts to flash
- 3 The following message appears in the text display:
»Set radiant heater level
Press OK button to confirm.«
- 4 Babytherm will propose the most recently calculated heater output setting as the default. (After switching on, the default heater level is always 3.)
Each LED segment represents one heater output level:
1 to 3 = green LEDs, radiant warmer power $\leq 10 \text{ mW/cm}^2$
4 to 10 = yellow LEDs, radiant warmer power $> 10 \text{ mW/cm}^2$
- 5 Press OK button = confirm heater output at proposed default level.


Or

- 6 Press  or  button until the desired heater output setting is displayed.
- 5 Press OK button = confirm selected heater output level.
If the OK button is not pressed within 10 seconds, the message disappears and the previous setting will remain in effect.
- 4 Display of new selected heater output level.
- 2 Yellow LED in the button is lit continuously: »**man.**« mode is now active.

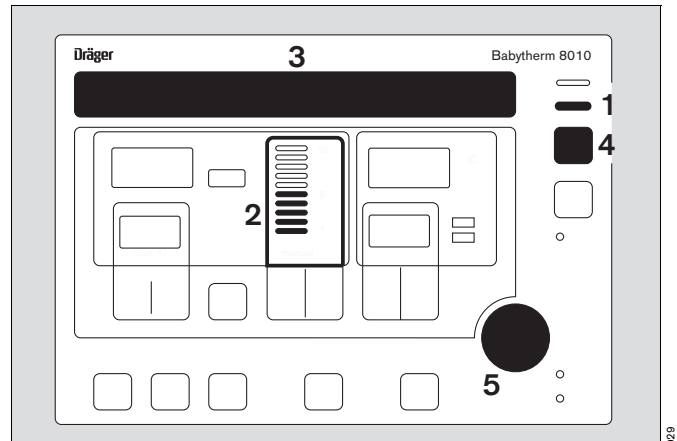


15 minutes alarm


To remind the user to monitor the core temperature constantly at higher heater output levels,

- an audible alarm is emitted every 15 minutes at heater level 4 and above. At the same time:
 - 1 the yellow LED flashes.
 - The red central alarm lamp on the radiant warmer starts to flash.
- 2 The heater level display flashes and
- 3 the following message appears in the text display:
**»15 min. patient temp check required
 Press OK button to acknowledge alarm«.**
- 4 Press  button
- or
- 5 Press OK button

The audible alarm will stop and the yellow LED and the central alarm lamp will go out. The heating will remain on. The heating level display will be continuously lit.



If there is no acknowledgement after 15 minutes the heating will switch off.

- The audible alarm remains on
- 1 Yellow LED flashes and
- The red central alarm lamp on the radiant warmer flashes.
- 2 The display of the heating level selected will disappear and
- 3 the following message will appear in the text display:
**»15 min. patient temp check required
 Press OK button to acknowledge alarm«.**
- 4 Press  button
- or
- 5 Press OK button

The heating will be switched on again.

The audible alarm will stop and the yellow LED and the central alarm lamp will go out. The heating level display will be lit again.

If a skin temperature sensor is connected or attached in manual mode, it will generate a skin temperature display but will not affect the heater output.

Using baby control mode

In this operating mode, the skin temperature of the infant is adjusted towards the set value. The sensor attached to the skin measures the skin temperature. The radiant warmer output is adjusted according to the temperature difference between the skin temperature and the desired value.

Therefore:

Do not use for infants in a state of shock. Their skin temperature will be much lower than normal. If automatic baby control mode is used, the infants will be overheated.

Set the heater level manually, see page 19.

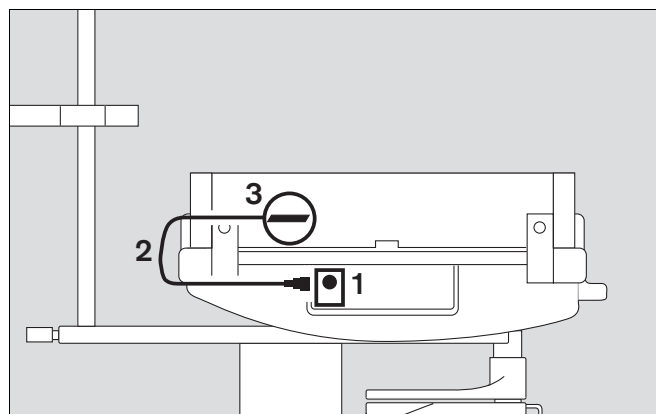
Do not use for infants with fever. Their skin temperature will be much higher than normal. If automatic baby control mode is used, it could induce hypothermia.

Check the set value or set the heater level manually, see page 19.

Connecting the skin temperature sensor

- 1 Plug the yellow sensor connector fully into the yellow connection socket.
- 2 Feed the cable through one of the flexible grommets in the cot.
- 3 Remove the protective film from the ThermoPad™ and place the skin temperature sensor on the pad.

- Attach the sensor probe to the appropriate area of the patient's skin with the adhesive pad.
- If the infant is lying on its back: attach the sensor to the abdomen in the liver region.
- If the infant is lying on its front: Attach the sensor to the back, preferably in the kidney region.



Do not attach the sensor underneath the infant; otherwise the measured value for the skin temperature would be distorted by the mattress.

- Secure the sensor cable with adhesive tape (plaster).
- Regularly check that the skin temperature sensor is in the correct position.
- Measure the patient's core temperature regularly using a separate thermometer!

Do not confuse the position of adhesion of the yellow skin temperature sensor with the white skin temperature sensor! Skin temperature is regulated via the yellow skin temperature sensor. An incorrectly positioned sensor can put the patient at risk of overheating!

If a skin temperature sensor becomes detached, it will measure the air temperature and so the infant may be at risk of overheating.

For single use:

- Only use approved Dräger skin temperature sensors.
- Only use Dräger ThermoPads™. Using adhesive pads of other types can result in incorrect temperature measurements and therefore can affect the safety and effectiveness of the skin temperature measurement.



Never use the skin temperature sensor to measure rectal temperature.

Allow at least 5 minutes for the skin temperature sensor to adjust to the temperature of the infant.

If a skin temperature sensor is connected when the apparatus is switched on:

- 1 Babytherm proposes »**Baby control mode**« as the default operating mode. The yellow »**skin**« LED in the toggle switch will be flashing.
- 2 The following prompt appears in the display:
»**Check skin temperature sensor position**
Press OK button to confirm«.
- 3 Press OK button
- 2 The following message appears in the text display:
»**Set skin temperature**
Press OK button to confirm«.
- 4 Babytherm proposes the default skin temperature setting of »**36.5 °C**« or the most recently used setting.
- 3 Press the OK button to accept the proposed setting.

Or

- 5 Press  or  until the desired setting is displayed.
The setting can be adjusted in increments of 0.1 °C.
- 3 Press the OK button = confirm setting.
- 4 The new set value is displayed.
- 1 The yellow »**skin**« LED lights up, indicating that the »**Baby control mode**« mode is active.
- 6 The measured skin temperature value is displayed.
- 7 The heater output level display changes according to the difference between the current measured skin temperature of the infant and the set skin temperature.

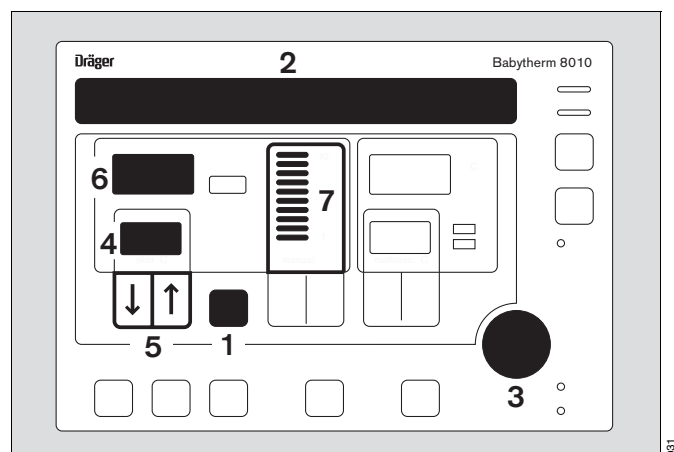
If the apparatus is in »**man.**« mode:

- 1 Press button. The yellow »**skin**« LED will start flashing.
The system will propose the mode »**Baby control mode**«.
The prompts in the display should be acknowledged as above.

Allow time for the system to reach steady state.

Deviations between the set and measured skin temperature are normally **corrected within 5 to 15 minutes**.

An infant's skin temperature changes frequently, for instance as a result of food intake or treatment. Deviations of a few tenths of a degree are normal.



Therefore:

Only change the set value for the skin temperature if the core temperature needs to be corrected.

Check, whether both infrared radiators are providing warmth, by placing your hand carefully at a safe distance from the radiant heater.

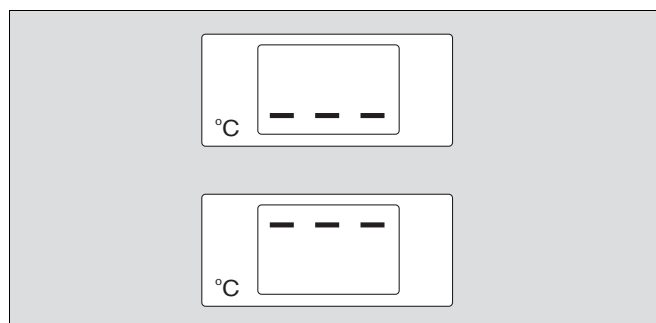
Outside measuring range

If the temperature is outside the measuring range of 15 °C to 42 °C:

- 3 dashes at the bottom of the display = temperature below 15 °C
- 3 dashes at the top of the display = temperature above 42 °C
- Refer to "Troubleshooting", see page 47.

If the temperature drops below 15 °C, the message **»Skin temp. below range«** appears on the display.

The message **»Skin temp. above range«** appears if the temperature rises above 42 °C.

**If the sensor probe is disconnected or the sensor is defective:**

- 1 Three dashes light up in the middle of the display.
After 10 seconds:
 - The audible alarm sounds,
 - 2 the red LED flashes and
 - the red central alarm lamp on the radiant warmer starts flashing.

- 1 The three dashes on the display flash.
- 3 The display shows the message:
**»Plug in skin temp. sensor
Press OK button to acknowledge«.**

Or

**»Skin temp. sensor fault
Press OK button to acknowledge«.**

- Immediately connect the sensor plug or change the skin temperature sensor. The audible alarm can be muted for 15 minutes:

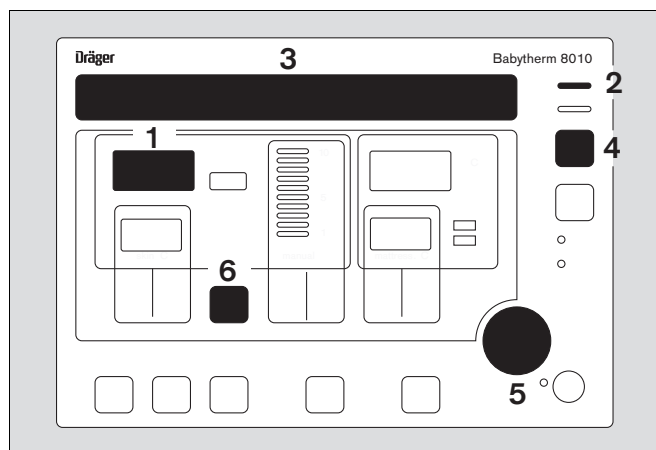
- 4 Press  button

or

- 5 Press OK button

- The audible alarm will be muted,
- 2 the red LED goes out and
- the red central alarm lamp on the radiant warmer goes out.

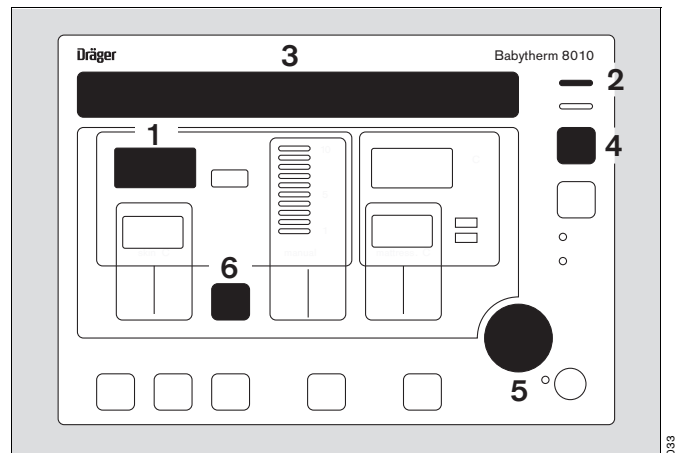
- 3 The display shows the message:
»Plug in skin temp. sensor«.



Immediately connect the sensor plug or change the skin temperature sensor.

If the error cannot be remedied immediately:

6 Switch to manual mode (»man.«), see page 19.




For deviations greater than ± 0.5 °C between the set and measured skin temperature:

- 1** The skin temperature display starts flashing.
- An audible alarm sounds,
- 2** the yellow LED starts flashing and
- the red central alarm lamp on the radiant warmer starts to flash.
- 3** The following message appears in the text display:
**»Skin temp. deviation above 0.5 °C
 Press OK button to acknowledge«.**

The permitted skin temperature deviation can be set in configuration mode see page 39.

A default skin temperature deviation of ± 0.5 °C is set by the manufacturer.

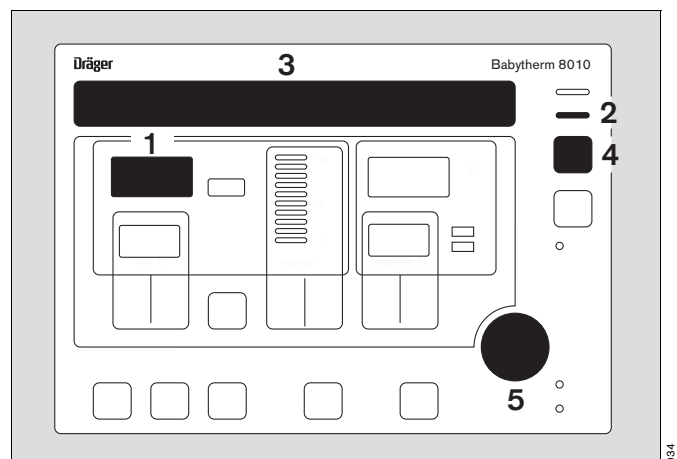
The audible alarm can be muted for 15 minutes:

- 4** Press  button
- or
- 5** Press OK button
- The audible alarm is cancelled,
- 2** the yellow LED lights up,
- the red central alarm lamp on the radiant warmer goes out.

- 1** Skin temperature display starts to flash.
- 3** The following message appears in the text display:
»Skin temp. deviation above 0.5 °C «.

After the measured skin temperature has returned to a value within ± 0.5 °C of the set temperature, the yellow LED goes out, the audible alarm is cancelled and the message in the display disappears.


Before temporarily removing the skin temperature sensor from the skin, switch to manual mode (»man.«), see page 19.



Skin temperature above 39 °C

- 1 The skin temperature display starts flashing.
 - The audible alarm sounds.
- 2 the red LED starts flashing.
 - The red central alarm lamp on the radiant warmer starts to flash.
- 3 The following message appears in the text display:
**»Skin temperature above 39 °C alarm
 Press the OK button to acknowledge«.**
- 2 The red LED lights.

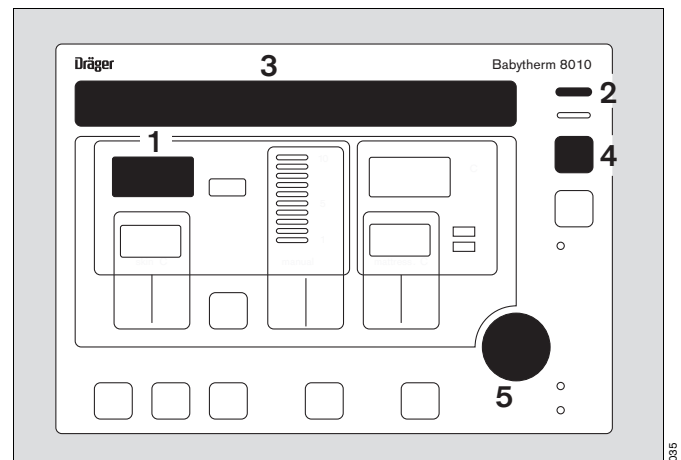
The alarm can be muted for 2 minutes:

- 4 Press  button
or
- 5 Press the OK button.
 - The audible alarm is cancelled,
- 2 The red LED is lit continuously,
- The red central alarm lamp on the radiant warmer goes out.
- 3 The following message appears in the text display:
»Skin temperature above 39 °C alarm«.

The radiant warmer should be switched off in manual (»man.«) mode:

- 1 Skin temperature display is lit.
- 2 Red LED starts flashing.

The alarm is cancelled automatically when the measured skin temperature drops below 38.5 °C again.

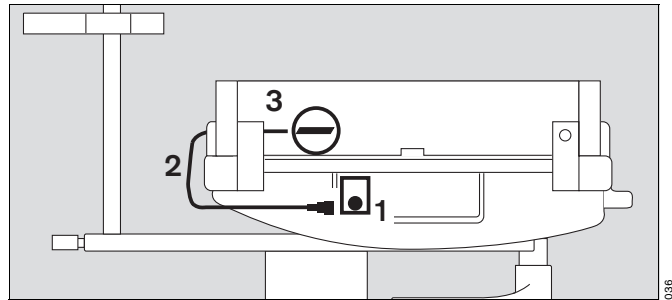


ThermoMonitoring

For improved feedback on the thermal condition of the patient, we recommend that both the core and the **peripheral temperature** should be measured.

Connecting the peripheral skin temperature sensor

- 1 Plug the white sensor fully into the white socket.
 - 2 Route the sensor cable through one of the flexible grommets in the bed.
 - 3 Remove the protective film from the adhesive pad and place the skin temperature sensor on the pad.
- Attach the sensor with the ThermoPad™ to the patient's extremities, preferably the foot.
 - Secure the sensor with a plaster.

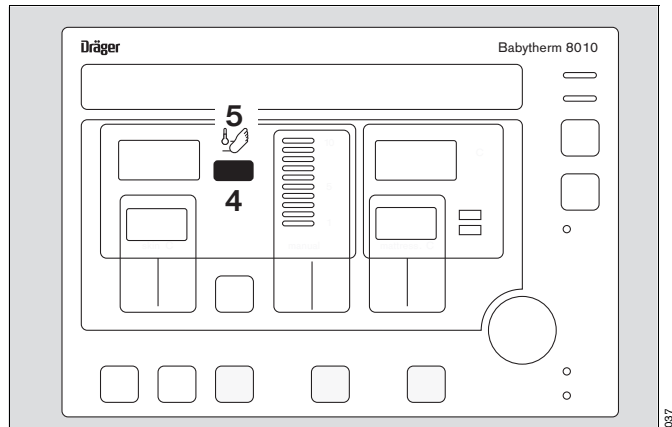


Display the peripheral skin temperature

- 4 The peripheral temperature is displayed as soon as the peripheral skin temperature sensor is attached.
- 5 The symbol for the peripheral skin temperature lights up.

If 3 dashes appear in the display, see "System faults radiant warmer" on page 48.

The measured value of the peripheral temperature has no effect on the radiant warmer control. Both skin temperatures can be displayed when the radiant warmer is operating in »man.« mode.



Data output via interface, optional

The core and peripheral temperature can be displayed in graphic form.

Prerequisites:

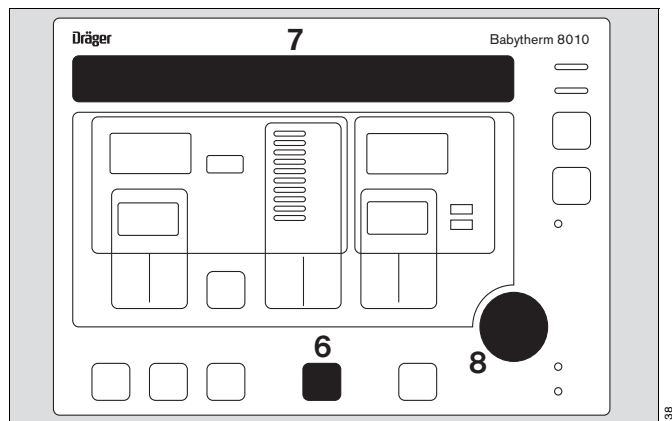
- Interface option
- MediCable connecting lead
- Monitor compatible with the MEDIBUS protocol and complying with the requirements of EN 60601-1 and EN 60601-1-2.
- Following the associated Instructions for Use.

Switching off the radiant warmer

- 6 Press button
- 7 The following message appears in the text display:
»Radiant heater OFF
Press OK button to confirm«.
- 8 Press the OK button.

The radiant warmer will be switched off.

- 7 The following message appears in the text display:
»Radiant heater turned off«.
- 6 Press button again = radiant warmer can be switched on again, see pages 19 onwards.



Using heated gel mattress



Observe the warm-up time of the gel mattress.

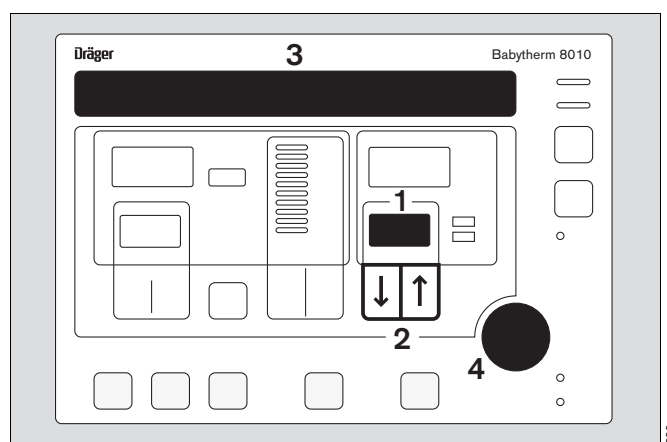
Wait until the desired mattress heating value is reached before placing the infant in the Babytherm 8010.

Do not switch off the mattress heater while an infant is lying on the gel mattress. Risk of hypothermia.



Setting the mattress temperature

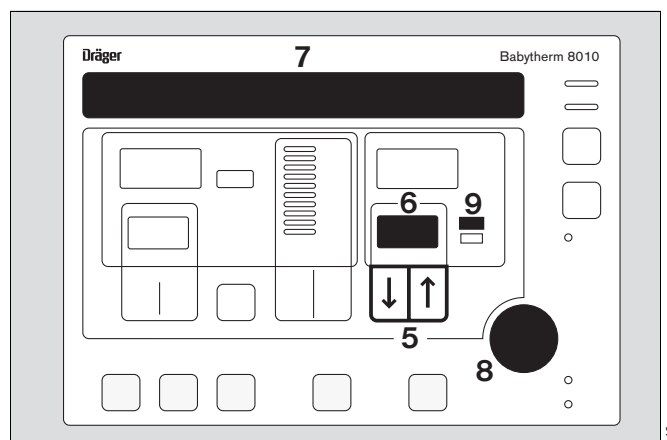
The set temperature can be adjusted in increments of 0.1 °C. To set a temperature within the normal range of 36 °C to 38 °C:

- 1 The display shows the current set value for the mattress temperature.
- 2 Press  or  button until the desired setting is displayed.
- 3 The following message appears on the display:
»Set mattress temperature
Press OK button to confirm«.
 If the setting is not confirmed within the next 10 seconds, the message will disappear and the previous setting will remain in effect.
- 4 Press the OK button = confirm new setting.
- 1 The new set value for the mattress temperature is displayed.



Extending upper limit of setting range 38 °C to 38.5 °C:



- 5 Press  button until
- 6 the set value **»38 °C«** is displayed.
- 7 The following message appears in the text display:
»Mattress temperature
Confirm temp. above 38 °C with OK«
- 8 Press OK button = confirm extended range.
- 9 The yellow LED **»>38 °C«** starts flashing.
- 5 Press  button until the desired setting appears in the display.
- 7 The following message appears in the text display:
»Set mattress temperature
Press OK button to confirm«
- 8 Press OK button = confirm new setting.
- 6 The new mattress temperature setting is displayed.
- 9 The yellow LED **»>38 °C«** is lit continuously.

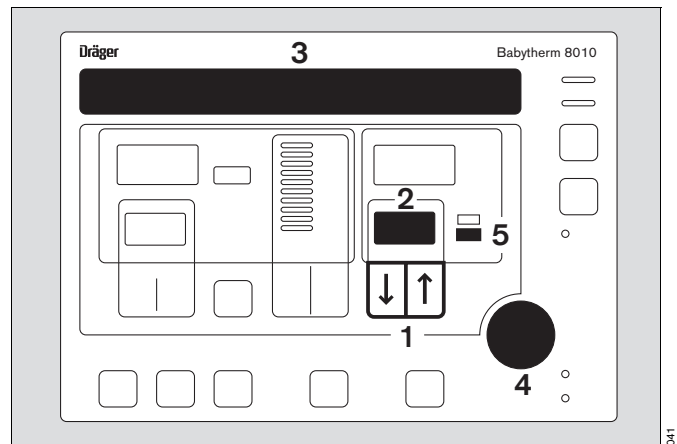


Extending lower limit of the setting range 36 °C to 30 °C

Only use low temperatures if prescribed by doctor.

Monitor patient very closely.

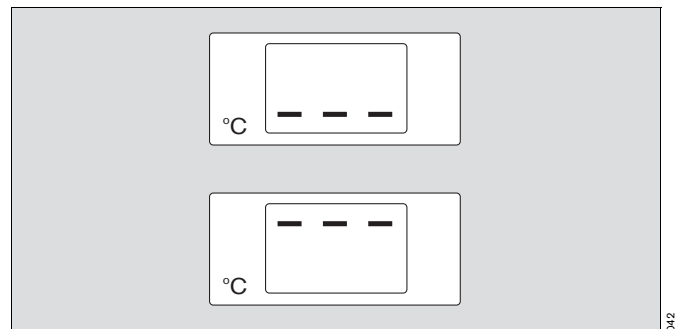
- 1 Press  button until
 - 2 the set value »36 °C« is displayed.
 - 3 The following message appears in the text display:
**»Mattress temperature
Confirm temp. below 36 °C with OK«**
 - 4 Press OK button = confirm extended range.
 - 5 The yellow LED »<36 °C« will be lit continuously.
-
- 1 Press  button until the desired setting appears in the display.
 - 3 The following message appears in the text display:
**»Set mattress temperature
Press OK button to confirm«.**
 - 4 Press the OK button = confirm new setting.
 - 2 The new mattress temperature setting is displayed.
 - 5 The yellow LED »<36 °C« is lit continuously.



Outside measuring range

If the temperature is outside the display range of 5 °C to 45 °C:

- 3 dashes at the **bottom** of the display = temperature below 5 °C.
The following message appears in the text display:
»Mattress temperature below 5 °C«.
- Wait until the mattress temperature exceeds 5 °C.
- 3 dashes at the **top** of the display = temperature above 45 °C.
- Wait until the mattress temperature falls below 45 °C.




Deviation from set temperature

If the deviation between the set and measured mattress temperature is greater than ± 1 °C:

- The audible alarm sounds,
 - 1 the yellow LED starts flashing and
 - the red central alarm lamp on the radiant warmer flashes.
- 2 Measured mattress temperature value flashes,
 3 The following message appears in the text display:
**»Mattress temp. deviation above 1 °C
 Press OK button to acknowledge«.**

The audible alarm can be muted for 15 minutes:

- 4 Press  button
 or
 5 Press the OK button

- The audible alarm is cancelled,
- 1 the yellow LED is lit continuously and
- the red central alarm lamp on the radiant warmer goes out.

- 3 The following message appears in the text display:
»Mattress temp. deviation above 1 °C«
 2 Measured mattress temperature value flashes

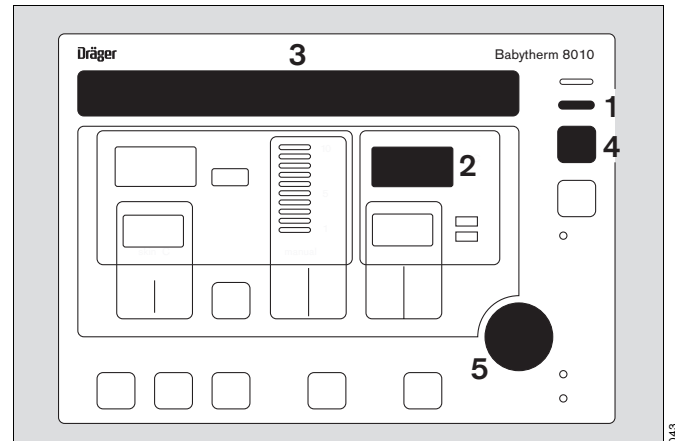
When the measured mattress temperature returns to within ± 1 °C of the set value:

- 1 The yellow LED goes out and
- the audible alarm is switched off.

After initially switching on the system:

- the audible alarm is suppressed during the warm-up phase:


- 1 The yellow LED is lit.



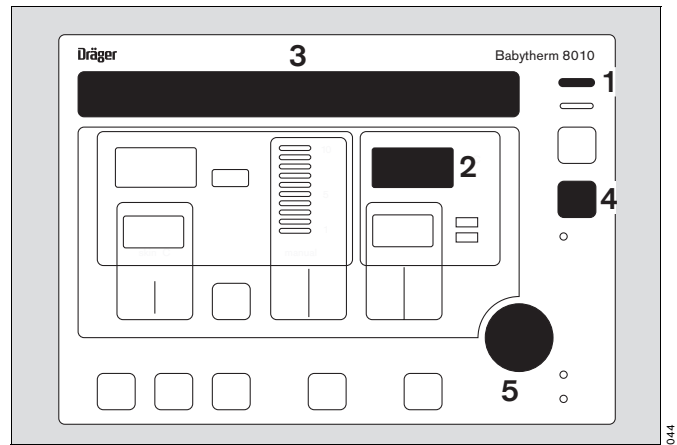
Mattress temperature above 40 °C

- 1 Red LED flashes.
 - The red central alarm lamp on the radiant warmer starts to flash.
- 2 Display flashes.
- 3 The following message appears in the text display:
»Mattress temperature above 40 °C
Press OK button to acknowledge«.

The alarm can be suppressed for 10 minutes:

- 4 Press  button.
or
 - 5 Press the OK button.
- 1 Red LED flashes.
 - The red central alarm lamp on the radiant warmer goes out.
 - 3 The following message appears in the text display:
»Mattress temperature above 40 °C«.

The alarm stops automatically as soon as the mattress heater temperature drops below 39 °C.



Using the bed canopy

When the bed canopy is in place, the side panels can be folded down. **Do not leave the Babytherm unattended with the side panels open, as the infant can fall out.**

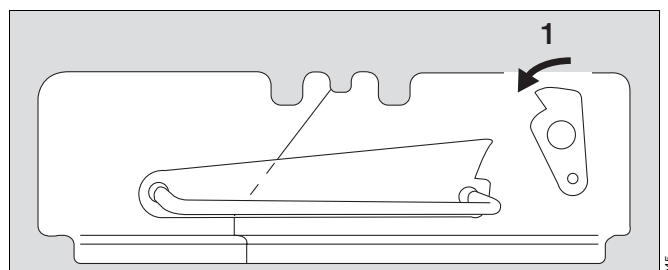
When using external phototherapy, remember the maximum load on the bed canopy is 11 kg.

The bed canopy should **not** be used as a convenient place to lay objects, clothing, etc.

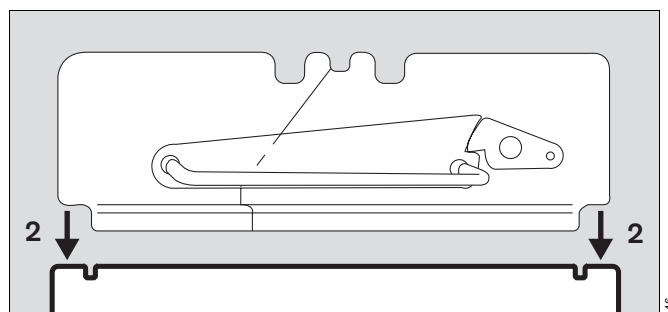
Installing the bed canopy

Check whether the bed canopy is in the closed position; otherwise:

- 1 Close bed canopy = turn lock until it engages.



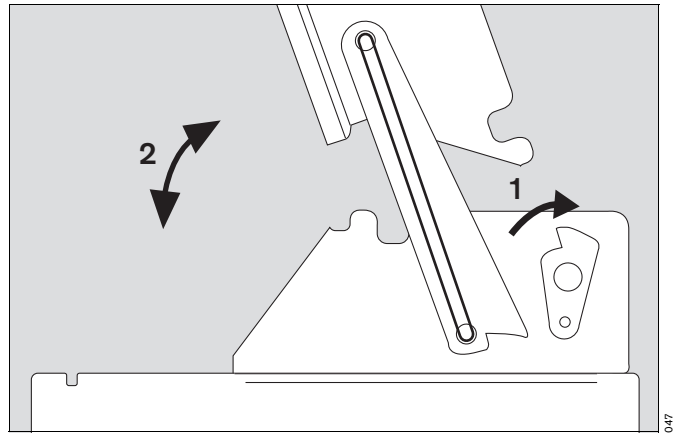
- 2 Hold bed canopy handles with both hands and place over the side panels.



It is advisable to use the higher side panels (230 mm) when using the bed canopy.

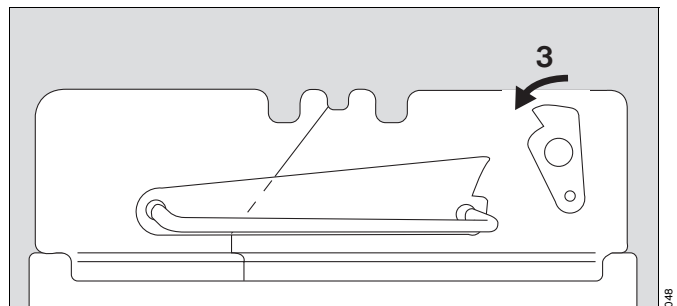
Opening / closing the bed canopy

- 1 Unlock bed canopy = turn lock
- 2 Open bed canopy = swivel handles upwards until they engage. The infant is now accessible for care/medical treatment.
- 2 Close bed canopy = swivel handles forwards.

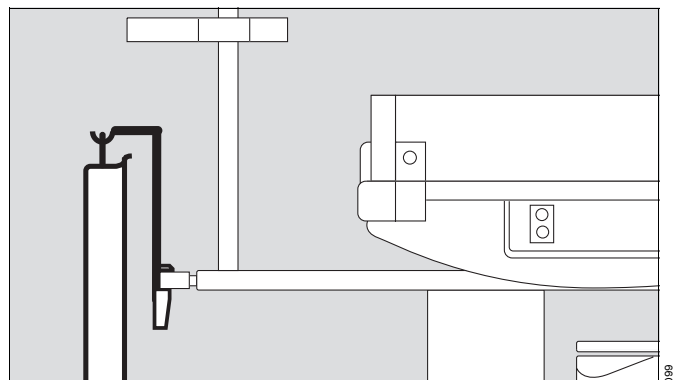


Removing the bed canopy

- 3 Put bed canopy in closed position = turn lock until it engages.
- Remove bed canopy by holding the handles with both hands (follow instructions on the bed canopy).



- Hang bed canopy from the bracket.



Recommended heater settings for heat therapy

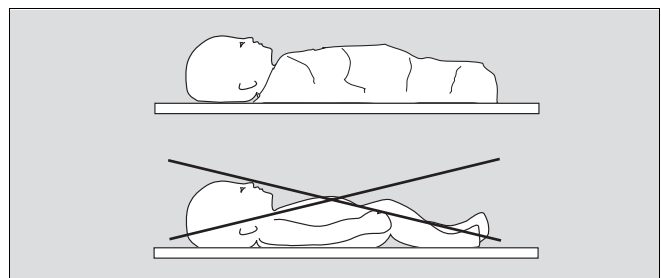
Instructions for setting the mattress heater and radiant warmer, alone or in combination.

Using the mattress heater with a gel mattress without using the radiant warmer (Babytherm 8010 only)

Normal setting:

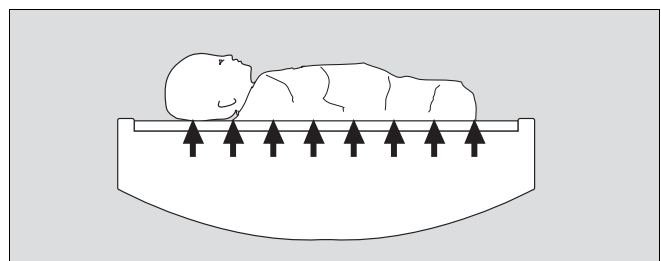
The core temperature of the patient adapts to the mattress temperature over a relatively long period. The mattress heater should therefore be set to the appropriate core temperature for the patient, e.g. between 38.0 °C and 38.3 °C for a premature baby and 37.0 °C for a neonate born after a normal term. Monitor the core temperature of the patient and adjust the mattress temperature setting to the needs of the patient.

- Always cover and/or clothe the patient. Do not place blankets or other insulating material under the patient, since they obstruct heat transfer to and from the bed (warming/cooling).



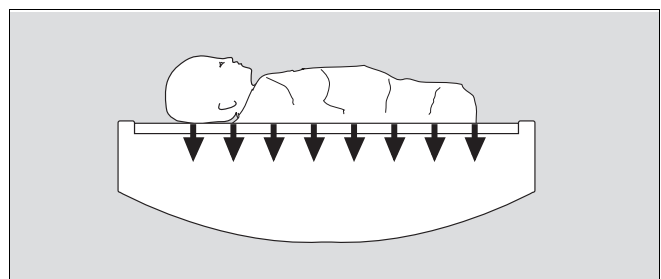
049

- Warm up the patient:
Set the mattress temperature setting to the desired core temperature or, if necessary, slightly higher in order to reduce the warming period.



051

- Cool the patient:
Set the mattress temperature to a value lower than the current core temperature, e.g. to 36.0 °C.

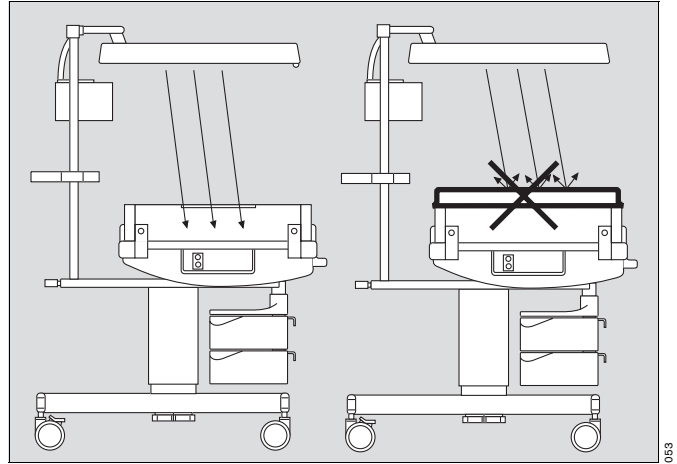


052

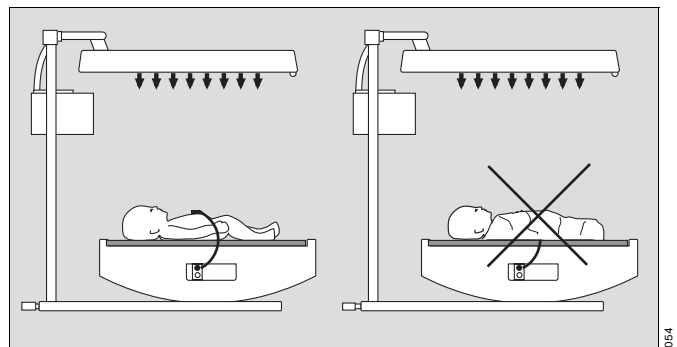
Using radiant warmer only

Monitor the core temperature and adjust the temperature setting to the needs of the patient.

- **The radiant warmer is less effective when the bed canopy is used.**
(The acrylic glass bed canopy provides only limited permeability to the infrared radiation of the radiant warmer).



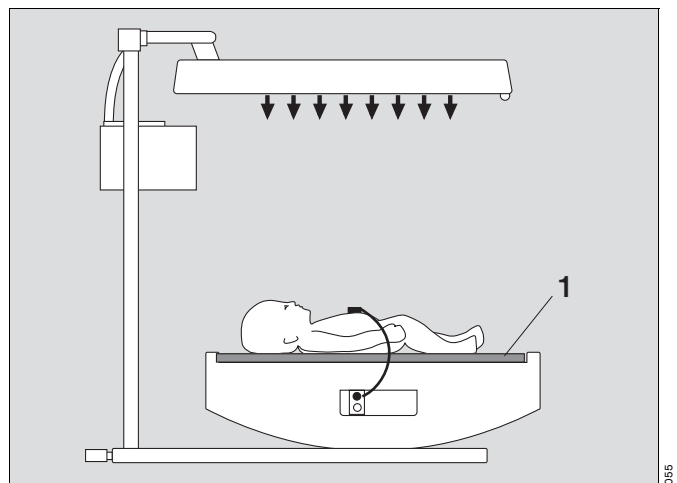
- Do not cover or dress the patient. Otherwise, the effect of the radiant warmer is uncontrollably reduced.



Radiant warmer without mattress heater Babytherm 8004

- 1 Use foam mattress. Do not use a gel mattress with Babytherm 8004.

The unheated gel mattress would cool the patient.



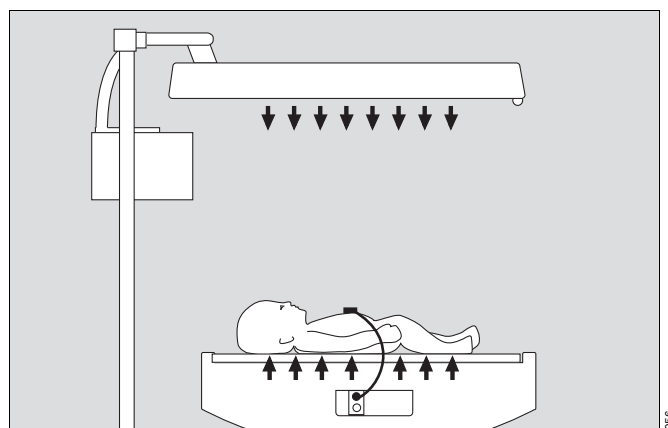
Using radiant warmer in combination with mattress heater and gel mattress (Babytherm 8010 only)

Normal setting:

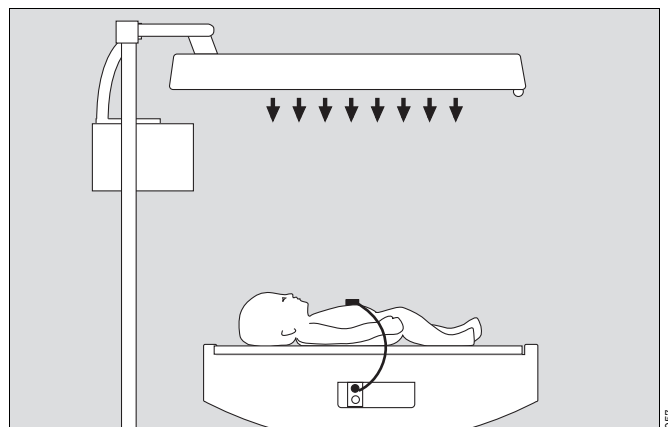
Set the mattress temperature to the **core temperature** appropriate for the patient, e.g. between 38.0 °C and 38.3 °C for a premature baby and 37.0 °C for a neonate born after the normal term.

Set the skin temperature setting to the **skin temperature** appropriate for the patient, e.g. 37.0 °C for a premature baby and 36.5 °C for a neonate born after the normal term.

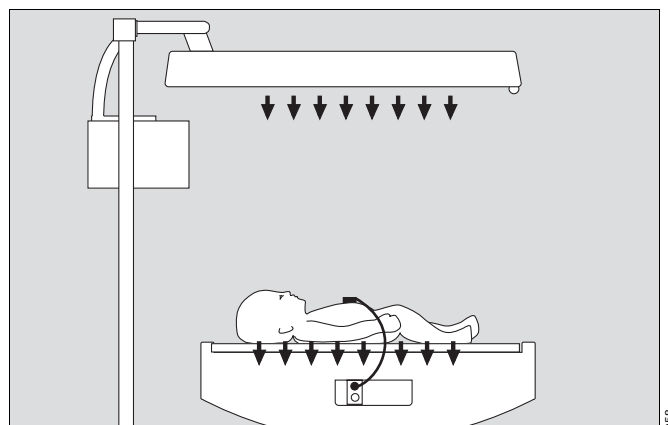
- To increase patient temperature:
Set mattress temperature to desired core temperature.
If necessary, set skin temperature to a slightly higher value.
For a very hypothermic patient: set mattress temperature and skin control temperature to achieve a patient temperature increase rate of approximately 1 °C per hour.



- To stabilize or maintain patient temperature:
Set the mattress temperature and skin temperature to the current core and skin temperature, respectively.



- To decrease patient temperature:
Set mattress temperature to the desired core temperature.
If necessary, set skin control temperature to a slightly lower value.



Using phototherapy, optional

Only use the phototherapy lights indicated, see "Technical Data", page 56. Using lights of other types can affect the safety and effectiveness of the phototherapy.

Always use patient eye protection when using phototherapy.

Keep a constant check that the eye protection is correctly positioned.

Always monitor the differential diagnosis for the neonate to ensure that no life-saving measure is delayed.

The patient's bilirubin levels must be measured regularly. Beware of possible toxic effects due to bilirubin photoisomers.

Phototherapy can upset the patient's water balance.

Dangerous body temperatures can occur when using reflective foil.

Direct eye contact with the radiation source for an extended period when in use should be avoided.

Protect patients in the immediate vicinity of the phototherapy device from the radiation emitted, e.g. by using goggles and shields.

Due to the risk of sunburn, users should avoid remaining for an extended time in the area of the radiation.

In manual mode, reduce the heat output of the radiant warmer. The phototherapy light directs additional warmth to the patient. **Monitor the patient's core temperature regularly using a separate thermometer.**

- Swing the radiant warmer over the patient. Position the phototherapy lights vertically above the patient, as otherwise the effect of the phototherapy will be diminished.

Switching on

- 1 Press button. The yellow LED in the button will start to flash.
- 2 The following message appears in the text display:
»Phototherapy: Use eye protection
Press OK button to start XX:XX:XX«.
- 3 Press OK button = phototherapy lights switched on.
- 2 The following message appears in the text display for 5 seconds: :
»Duration of phototherapy XX:XX:XX«.
- 1 The yellow LED in the button is now continuously lit.

Resetting the duration of therapy for phototherapy

- 1 Press button for 3 seconds.
- 2 The following message appears in the text display:
»Duration of phototherapy XX:XX:XX
Press OK to confirm reset«.
- 3 Press OK button = counter reset.
- 2 The display now reads:
»Duration of phototherapy 00:00:00«.

The counter is reset automatically when the unit is switched off.

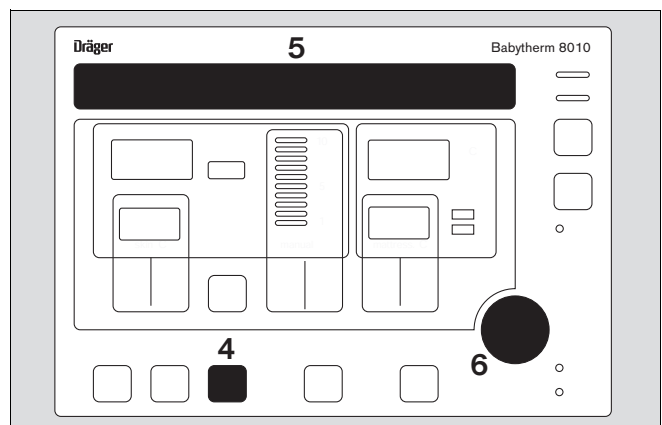
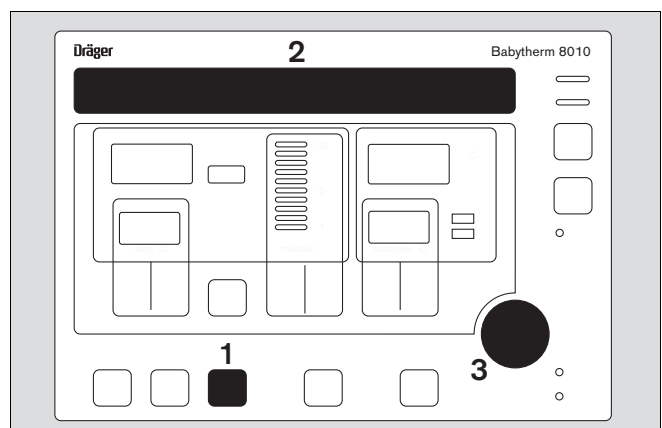
When using the radiant warmer in the **»man.«** (manual mode):

- Reduce the radiant warmer output level by about 3 increments compared to operation without phototherapy.

When using the radiant warmer in the **»skin«** (baby control mode), the radiant warmer output is automatically adjusted to the patient's heat requirements.

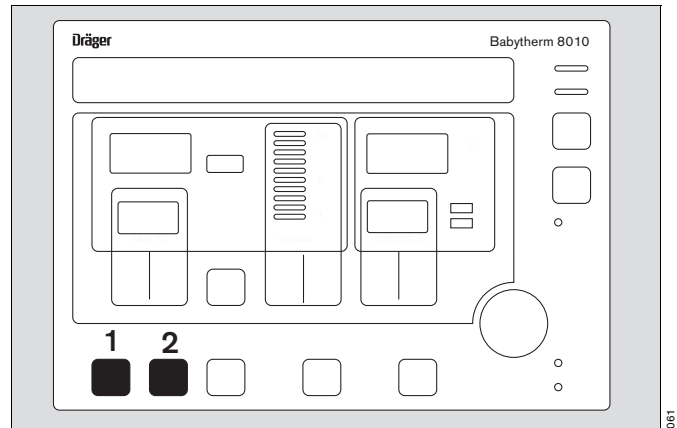
Switching off

- 1 Press button
- 2 The following message appears in the text display:
»Phototherapy turned OFF
Press OK button to confirm XX:XX:XX«.
- 3 Press OK button = phototherapy switched off.
- 1 The yellow LED in the button will go out.



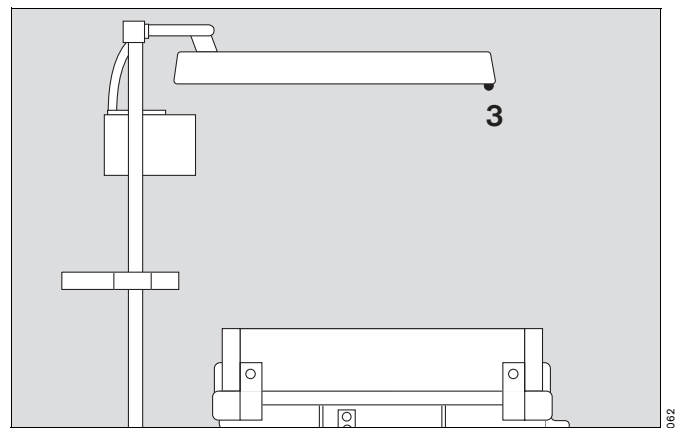
Switching lighting On/Off

- 1 Press button. The bed surface will be illuminated by procedure light.
- 1 Press button again. The procedure light is switched off.
- 2 Press button. The bed surface will be illuminated by night light.
- 2 Press button again. The night light is switched off.



Central alarm

- 3 The red lamp on the radiant warmer flashes when an audible alarm is emitted.
As soon as the alarm is acknowledged, the lamp goes out.



Configuration mode

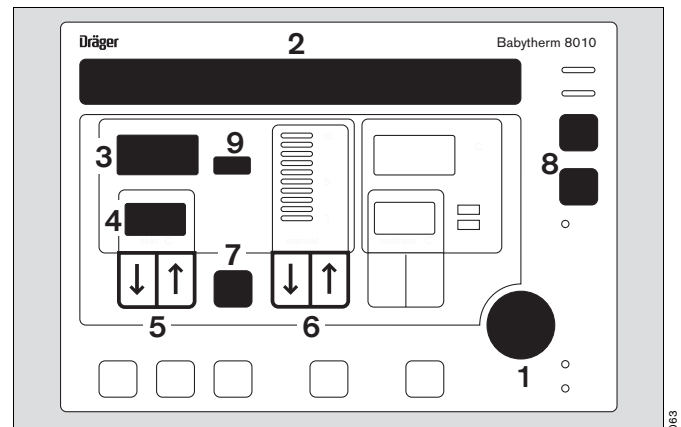
No care/therapy should be carried out during configuration of the system, because the normal equipment functions (e.g. temperature measurement, alarms) are switched off.

Capabilities available in configuration mode

Code	Activity
c01	Show current software version
c02	Set skin temperature deviation
c03	Set volume of soft alarm
c04	Operating hours of phototherapy
c05	Test control panel buttons
c06	Test Nurse call
c07	Set language
c08	Set display contrast
Err	Error mode

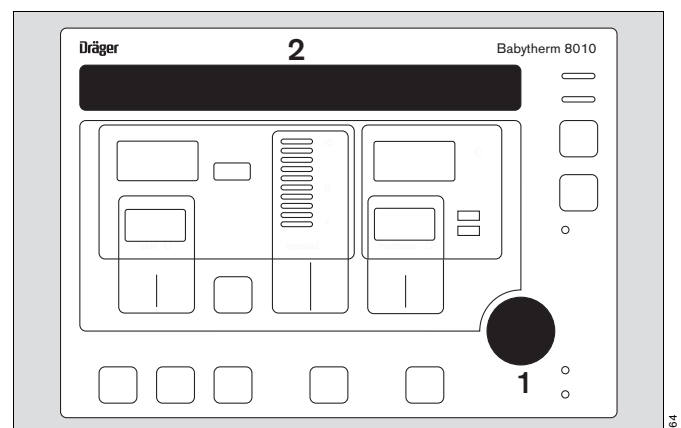
The significance of the keys and displays on the control panel is different from that applicable when working with the radiant warmer!

- 1 Activate/deactivate configuration mode
- 2 Information on the activated mode
- 3 Abbreviation for the activated mode
- 4 Code for the activated mode
- 5 Set next/previous mode
- 6 Increase/decrease values for the activated mode
- 7 Activate/deactivate error mode
- 8 Change states for the activated mode
- 9 Show setting in current mode



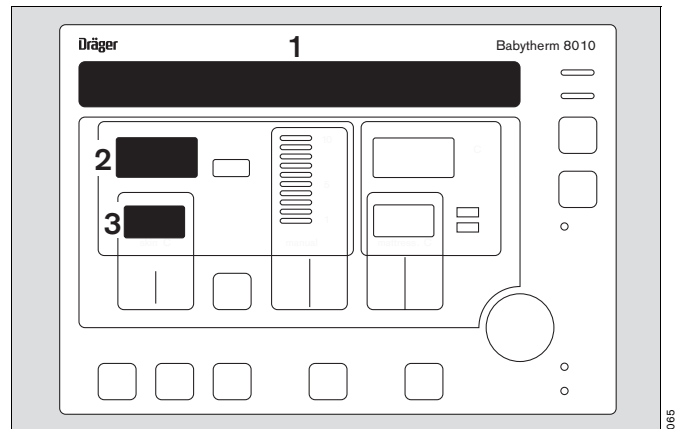
Activate configuration mode

- 1 Press OK button for 3 seconds. A brief acoustic signal sounds.
- 2 The following message appears in the text display:
**»Configuration Mode
 Press OK button to start«.**
 - 1 Press OK button again. A brief acoustic signal sounds. Configuration mode is now active. The equipment is in mode »c01« and shows the current software version.



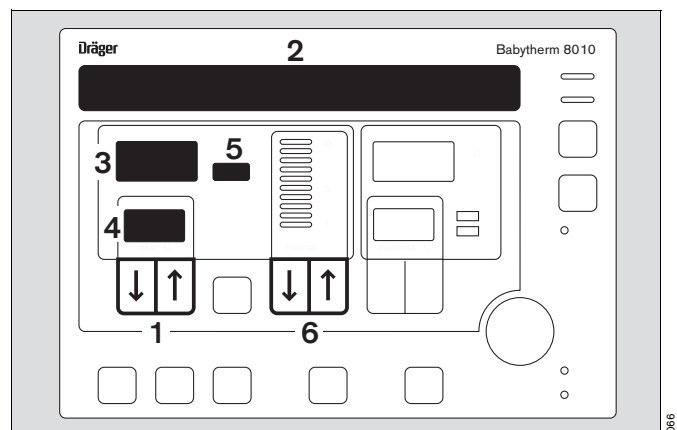
Show software version

- 1 The following message appears in the text display:
»Configuration Mode
Mode c01: Software version«.
- 2 The current software version is indicated: e.g. »1.n«.
- 3 The code for the current mode is displayed: »c01«



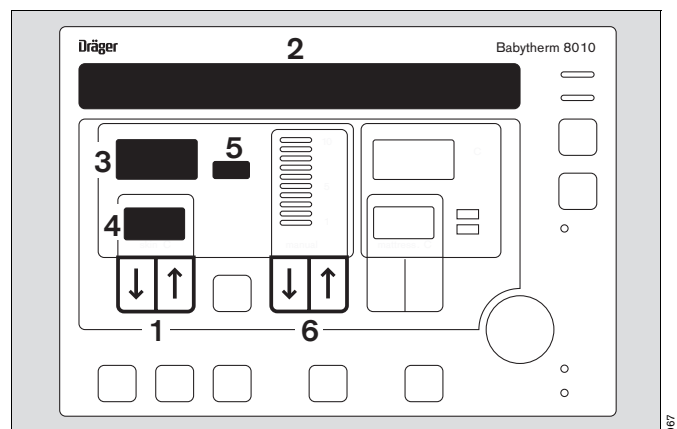
Set permissible skin temperature deviation

- 1 Briefly press button.
- 2 The following message appears in the text display:
»Configuration Mode
Mode c02: Max. skin temperature fault«.
- 3 the abbreviation for this mode appears: »SdE«.
- 4 The code for the current mode appears: »c02«.
- 5 Indication of the set permissible skin temperature deviation at which an alarm is not yet generated.
Default setting: »0.5«.
- 6 Press or button until the required value appears on the display. Values can be set from 0.3 to 1.0 °C in increments of 0.1.





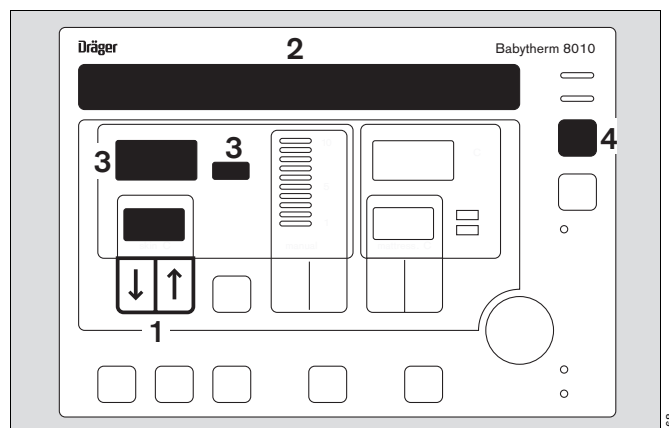
Set start volume for alarm tone sequence (soft alarm)

- 1 Briefly press button.
- 2 The following message appears in the text display:
»Configuration Mode
Mode c03: Soft alarm start volume«.
- 3 The abbreviation for this mode appears: »SSL«.
- 4 The code for the current mode appears: »c03«.
- 5 Indication of the set volume.
Default setting »2«.
The alarm tone sounds briefly.
- 6 Press or button until the required value appears on the display.
Settings from 1 to 8 are possible.
The alarm tone sequence sounds briefly at the set volume.






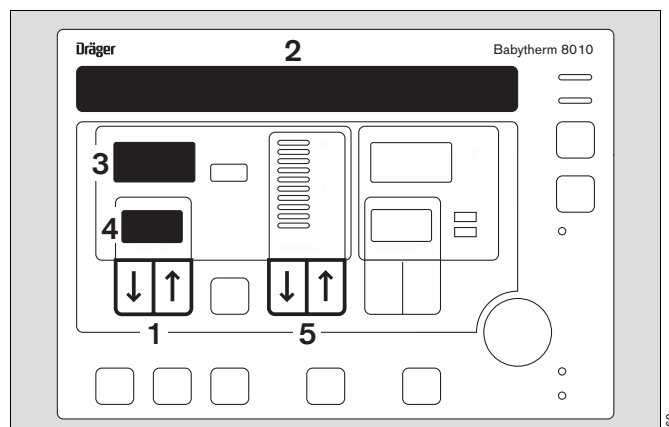
Show operating hours for phototherapy


- 1 Briefly press  button.
- 2 The following message appears in the text display:
**»Configuration Mode
Mode c04: Time counter photo therapy«.**
- 3 Indication of the operating hours up to 1000 hours.
- 4 Press  button for 3 seconds. The counter is reset to **»0«**. This must be done when changing the phototherapy lights.

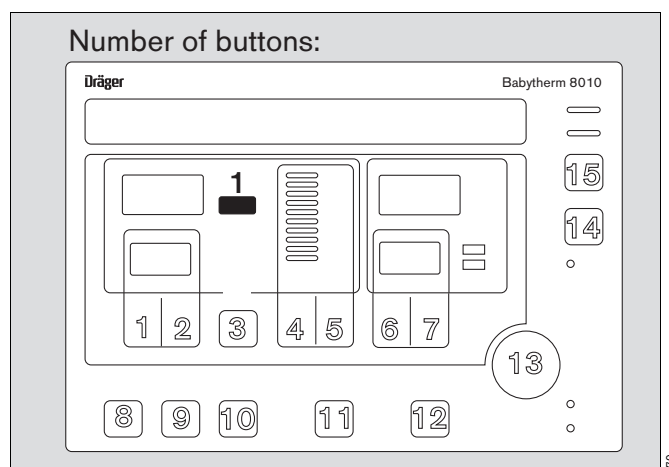


Test buttons on control panel




- 1 Briefly press  button.
- 2 The following message appears in the text display:
**»Configuration Mode
Mode c05: Keyboardtest (inactive)«.**
- 3 The abbreviation for this mode appears: **»but«**
- 4 The code for the current mode appears: **»c05«**
- 5 Press  or  key and the test is activated.
- 2 The following message appears in the text display:
**»Configuration Mode
Mode c05: Keyboardtest (active)«.**

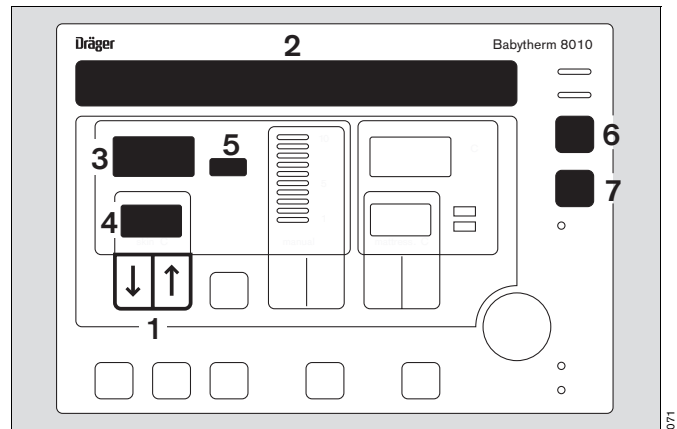


- Press the buttons to be tested,
- 1 A string of digits appears on the display:
1st digit = number of buttons momentarily pressed
2nd and 3rd digit = number of last button pressed
- Press  button for 2 seconds. The test is ended.






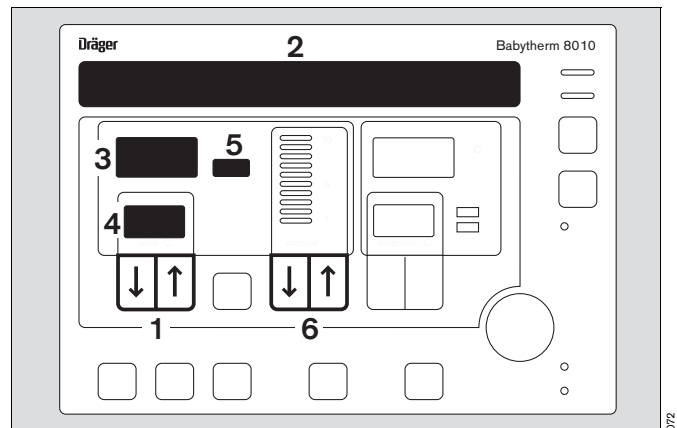
Test Nurse call

- 1 Briefly press  button.
- 2 The following message appears in the text display:
»Configuration Mode
Mode c06: Nurse Call Relay«.
- 3 The abbreviation for this mode appears: »Nuc«.
- 4 The code for the current mode appears: »c06«.
- 5 Display »0« = Nurse call relay open.
Display »1« = Nurse call relay closed.
- 6 Press  button until the relay switches.
- 7 Press  button for 4 seconds.
The relay is activated.
The "Inop" alarm is triggered: the red LED »Inop.« lights up and the continuous alarm sounds.






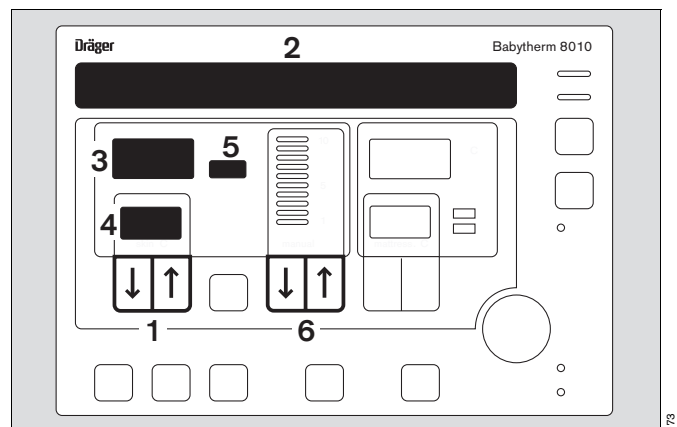
Select language

- 1 Briefly press  button.
- 2 The following message appears in the text display:
»Konfigurations-Mode
Mode c07: Sprachauswahl -> Deutsch«.
- 3 The abbreviation for this mode appears: »LAN«.
- 4 The code for the current mode appears: »c07«.
- 5 Indication of the language number: setting »1« = German.
- 6 Press  or  button until the number of the required language appears on the display.
Possible settings: from 1 to 11.







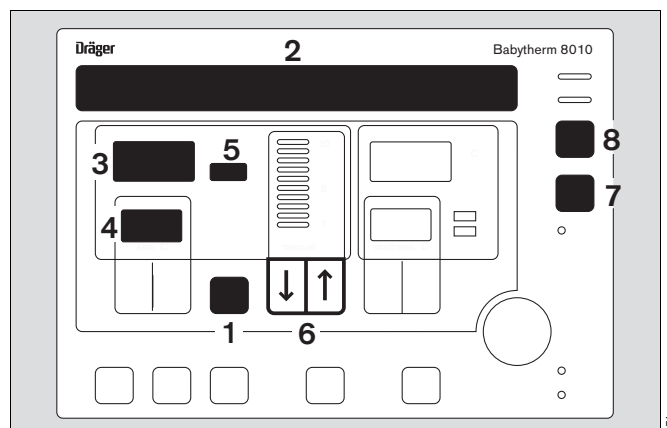
Set display contrast

- 1 Briefly press  button.
- 2 The following message appears in the text display:
»Configuration Mode
Mode c08: Display contrast«.
- 3 The abbreviation for this mode appears: »CON«.
- 4 The code for the current mode appears: »c08«.
- 5 Indication of the set contrast. Default setting.
The code for the actual mode appears »128«.
- 6 Press  or  button until the required contrast has been set.
Possible settings: 1 to 255 in increments of 1.



Read error memory

- 1 Press button until error mode is active.
- 2 The following message appears in the text display:
**»Configuration Mode
Error memory«.**
- 3 The error number appears: **»FXX«.**
- 4 Indication **»Err«.**
- 5 The frequency of the error is indicated.
- 6 Press  or  button and the next error is displayed.
- 7 Press  button. The equipment runs a self-test.
- 8 Press  button for 3 seconds. The error memory is erased.



Return to radiant warmer mode

- Press OK button.

Oxygen therapy

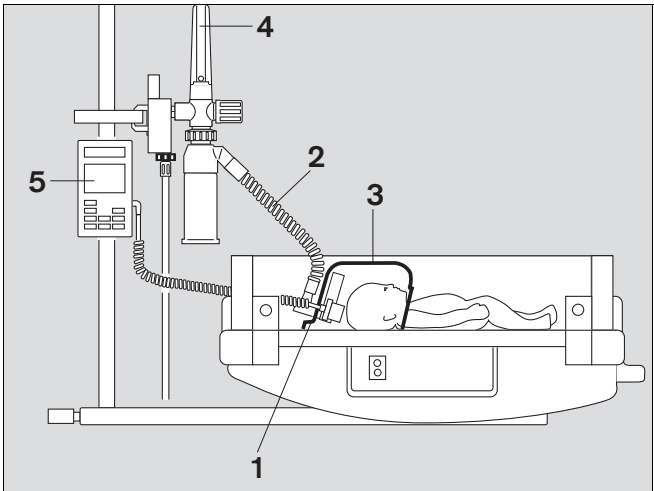
Only enrich the oxygen concentration under the instructions of a doctor and only in accordance with the arterially measured oxygen partial pressure in the patient's blood. Otherwise there is a danger of hyperoxaemia (eye damage) or hypoxaemia (brain damage). During oxygen therapy, monitor the oxygen concentration, e.g. with MiniOx 3000.

O2 hood

- 1 Place the O2 monitor sensor with the adapter ring in the star-shaped cuff cut-out. Plug the connector into the measuring device.
- 2 Connect the hose to the hood.
- Lay the patient on his/her back.
- 3 Place the hood over the patient's head: the hood must rest on the mattress. Do not seal the collar area.
- 4 Set the O2 supply at the metering valve: 0.5 to 4 L/min.
- 5 Monitor the O2 concentration.

After use

- Remove the hood from the patient.
- Close the valve on the O2 flowmeter = turn clockwise.
- Dismantle and service the oxygen therapy equipment, see page 46.



Injector and closed bed canopy

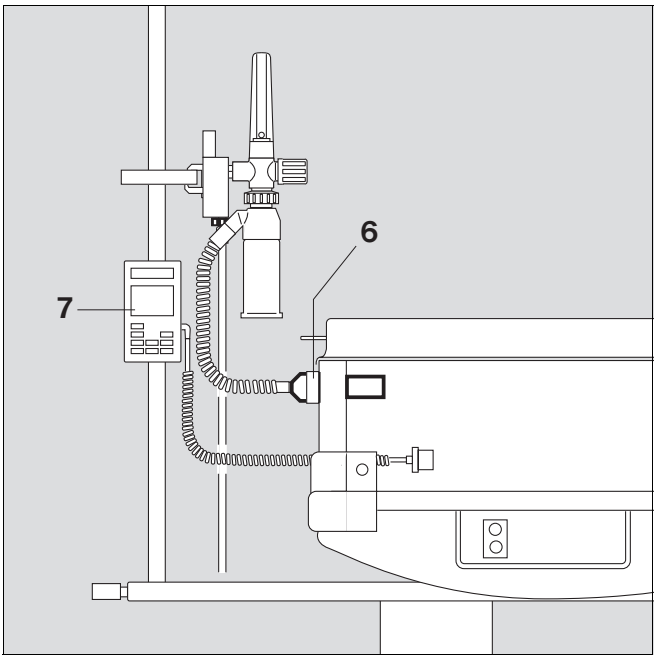
- Place canopy in position (see page 31).
- 6 Set O2 concentration on the injector: 30, 40, 50 vol.% O2.
- Set O2 supply on flowmeter.

Injector setting	Vol.% O2	28	35	40
O2 supply	L/min	5	10	15

- 7 Monitor the O2 concentration.

After use

- Open the bed canopy.
- Close the valve on the O2 flowmeter = turn clockwise.
- Dismantle and service the oxygen therapy equipment, see page 46.



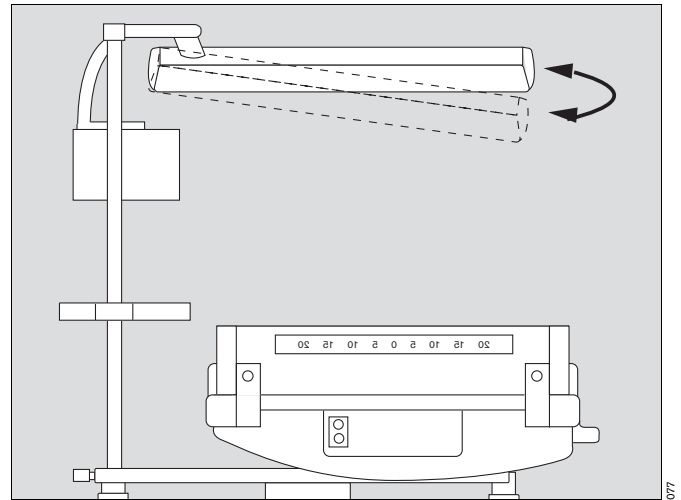
Bronchial aspiration

- Use bronchial aspirator in accordance with its specific Instructions for Use.

Taking X-rays

**Babytherm 8010,
Babytherm 8004 without X-ray tray**

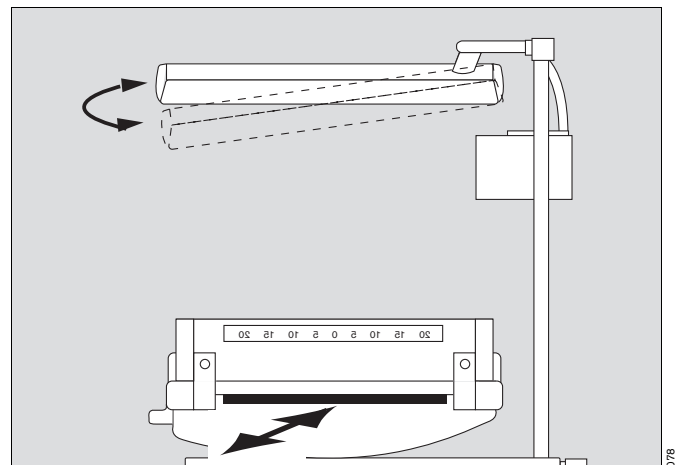
- Swivel radiant warmer to one side. The infant will continue to be warmed.
- Place the X-ray film cartridge directly underneath the patient.
- Position the X-ray machine above the bed surface.



Babytherm 8004 with X-ray tray

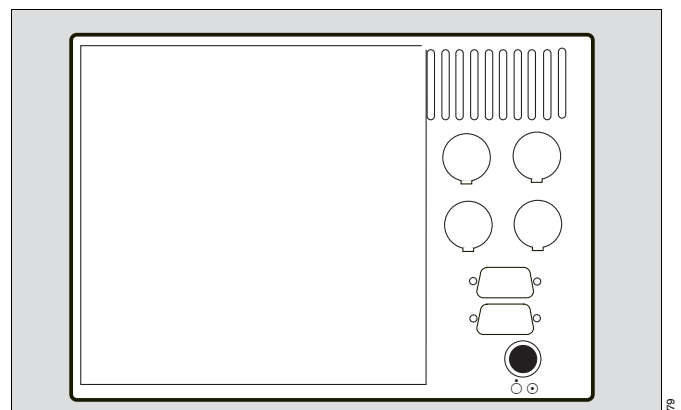
The X-ray tray has no lock and can be completely removed from the Babytherm.

- Pull out X-ray tray and insert X-ray cartridge, placing it according to the position of the infant. Use the scale on the side panels and X-ray tray as a guide.
- Push X-ray tray in.
- Swivel radiant warmer to one side and position X-ray machine.
- After taking X-ray, remove X-ray cartridge from tray and push tray in again.
- After removing the X-ray machine, swivel the radiant warmer back into position.



Shutting down

- Press the On/Off button. The green "On" LED will go out.



Care

The Babytherm 8004/8010 infant warmer system must be thoroughly cleaned and disinfected

- after each change of patient
- at least once a week.

Clean and disinfect all accessories, e.g. bronchial aspirator, in accordance with their specific Instructions for Use.

Dismantling

- Switch off the device(s). Disconnect the power plug(s) from the mains and switch off all compressed gas supplies used.
- Remove any ancillary equipment installed.
- Remove the mattress from the bed.
Always store the gel mattress flat.
- Remove the ventilation hose clips.
- Remove the silicone grommets.
- Swivel the drainage canister bracket upwards and remove from the hole horizontally.

Disinfecting/cleaning/sterilising

- Before disinfecting/cleaning the radiant warmer, allow it to cool down for about 30 minutes.
- Do not allow any liquids to penetrate inside the device and/or the radiant warmer.

Bed frame, inside and outside;

Side panels, inside and outside;

Inside walls, inside and outside;

Bed surface;

Mattress;

X-ray tray and X-ray tank;

Bed canopy;

Stand, including all attachments:

- Wipe off visible soiling with a disposable cloth wrung out in a detergent.
- Disinfect surfaces by wiping with disinfectant.
- After waiting the prescribed time for the disinfectant to act, wipe with a clean damp cloth and dry.
- **Do not wash the mattress in a washing machine. Do not autoclave.**
- **Do not clean the reflectors on the infrared radiator with a damp cloth or brush!**

Silicone grommets:

- Disinfect components in disinfectant bath. After immersing for the prescribed time, rinse with clean water and dry.
- Then wash with a detergent and rinse with clean water; or
- Sterilise at 120 °C (glove programme).

Gel mattress:

- Wipe gel mattress with disinfectant.

Phototherapy lenses:

- The lenses should only be cleaned and disinfected with products with a pH value between 7 and 9.

Do not expose device to UV radiation as a means of disinfecting/cleaning. Cracks may be caused in the acrylic glass components.

Only use the recommended cleaning agents and disinfectants. Otherwise, there is a danger of causing cracks in the acrylic glass and macrolon, e.g. when using alcohol. Use only preparations classified as "surface disinfectants" for disinfecting.

For material compatibility, we recommend preparations based on

- aldehydes,
- quaternary ammonium compounds.

Due to their chemical composition and the risk of damage to materials, the following preparations are unsuitable:

- halogen-releasing compounds,
- strong organic acids,
- oxygen-releasing compounds.

The manufacturer's recommendation should always be followed when choosing the product. The manufacturer is liable for the data concerning suitable applications for the products and any damage to property.

Do not use disinfectants or cleaning products that contain alcohol.

For users in the Federal Republic of Germany, we recommend the use of disinfectants listed in the current DGHM list (DGHM = German Society for Hygiene and Microbiology). The DGHM list (published by mhp-Verlag GmbH, Wiesbaden) also specifies the active basis of each disinfectant. For countries where the DGHM list is unavailable, the above recommendations apply. For example, the following wipe-disinfectants may be used:

Dismozon [®] powder	Bode Chemie GmbH & Co, Hamburg
pur Incidur [®]	Henkel Hygiene GmbH, Düsseldorf
Sekusept [®]	Henkel Hygiene GmbH, Düsseldorf

Follow the Instructions for Use provided by the disinfectant manufacturer.

Before next use


- Reassemble components, pages 7 onwards.
- After wipe-disinfecting, operate the fully assembled unit for a few hours without a patient to eliminate any disinfectant residues:
- Set the mattress temperature to 37 °C
- Set the radiant warmer to heat level 3 in »man.« mode.

Before a patient is next placed in the unit:

- Fit all therapy accessories required.
- Check that the unit is ready for operation, pages 14 onwards.

Troubleshooting

General system failures

Message	Cause	Remedy
Red LED  is lit, Audible alarm on.	Power failure.	Check that unit is plugged into mains. Check that the mains is switched on. Inform internal technical department. Call DrägerService.
Red »Inop.« LED lit, Audible alarm on.	Malfunction.	Call DrägerService.
The following message appears in the text display: »Battery charge low«.	Unit has been switched off for a relatively long time.	Battery will be charged automatically when the unit is switched on. Display disappears after 15 minutes.

System faults – Babytherm 8010 (Mattress heating)

Message	Cause	Remedy
Yellow LED flashing, measured value display flashing, message in text display: »Mattress temp. deviation above 1 °C«, Audible alarm.	Measured mattress temperature deviates from set value by more than ± 1 °C.	If used in combination with radiant warmer: Reduce the output level of the radiant warmer.
Red LED flashing, Measured value display flashing, message in text display: »Mattress temp. above 40 °C«, Audible alarm.	Mattress temperature above 40 °C.	If used in combination with radiant warmer: Reduce the output level of the radiant warmer.
Red LED flashing, the three middle segments of the measured value display are flashing, message in text display: »Mattress temp. sensor fault«, Audible alarm.	Temperature sensors in heating surface defective.	Call DrägerService.
Three dashes at top of measured value display.	Mattress temperature >45 °C.	Wait until mattress temperature under 45 °C.
Three dashes at bottom of measured value display, message in text display: »Mattress temp. below 5 °C«.	Mattress temperature <5 °C.	Wait until mattress temperature above 5 °C.

System faults radiant warmer

Message	Cause	Remedy
Yellow LED flashing, measured value display flashing, message in text display: »Skin temp. deviation above X °C« , Audible alarm. or The »Skin temp. deviation below X °C« , alarm will sound.	The measured skin temperature deviates from the set value by more than the permissible skin temperature deviation (0.3 to 1.0 °C).	If the measured value is higher than the set value: Measure the core temperature! Check the plug connection. Ensure plug is fully inserted. If necessary, contact DrägerService. If the measured value is lower than the set value: Check whether both infrared radiators are providing warmth by placing your hand carefully at a safe distance from the radiant heater. Check that the skin temperature sensor is correctly attached. If necessary, contact DrägerService.
Red LED flashing, the three middle segments of the measured value display are flashing, message in text display: »Plug in skin temp. sensor« , Audible alarm.	Skin temperature sensor not connected or sensor defective.	Check connection. Switch to »man.« mode; replace sensor and then switch back to »skin« mode.
Red LED flashing, the three middle segments of the measured value display are flashing, message in text display: »Skin temp. sensor fault« , Audible alarm.	Sensor defective.	Switch to »man.« mode; replace sensor and then switch back to »skin« mode.
Red LED flashes, measured value display flashes and the message »Skin temperature above 39 °C« , appears on the display, acoustic alarm sounds.	Skin temperature >39 °C.	Check that the peripheral skin temperature sensor has been secured correctly. Check that the child is not being heated by additional heat sources, e.g. phototherapy or the sun.
Three dashes at top of measured value display. Message in text display: »Skin temp. above range« .	Skin temperature >42 °C.	Check that the skin temperature sensor is correctly attached.
Three dashes at bottom of measured value display. Message in text display: »Skin temp. below range« .	Skin temperature <15 °C.	
Three dashes at top of measured value display. Message in text display: »Peripheral temp. above range« .	Peripheral temperature >42 °C.	Check that the peripheral skin temperature sensor is correctly attached.
Three dashes at bottom of measured value display. Message in text display: »Peripheral temp. below range« .	Peripheral temperature <15 °C.	
Red LED flashes, the three middle segments of the measured value display are flashing, the message »Peripheral temp. sensor fault« appears on the display and the acoustic alarm sounds.	Sensor defective.	Replace sensor.

Maintenance Intervals

Always disinfect and clean the unit and accessories before any maintenance* – even when returning the unit to the supplier for repair.

Always disconnect power supply before any maintenance!

Use only Dräger original parts for maintenance.

Gel mattress	Patch over small cuts or other damage in the covering film with adhesive tape. Replace if the material becomes brittle or large cracks appear; after about 2 years.
Silicone grommets	Replace as soon as the material becomes brittle and/or sticky.
Lamps for procedure and night light	To be replaced if defective by trained service personnel.
Infrared lights	Defective lights to be replaced by trained service personnel. It is recommended that the lights be replaced after 10,000 operating hours.
Phototherapy lights	To maintain the specified therapeutic effect, all 6 lights must be replaced if a single light fails or after 1,000 hours of operation (by trained service personnel). Only the type of lights indicated should be used – see Technical Data on page 56. Using lights of other types can affect the safety and effectiveness of phototherapy.
Inspection and maintenance	Yearly by trained service personnel.

Disposing of the unit

At the end of its service life:

- Dispose of the unit in accordance with national waste disposal regulations
- or
- Ask a suitable disposal contractor to dispose of the unit.

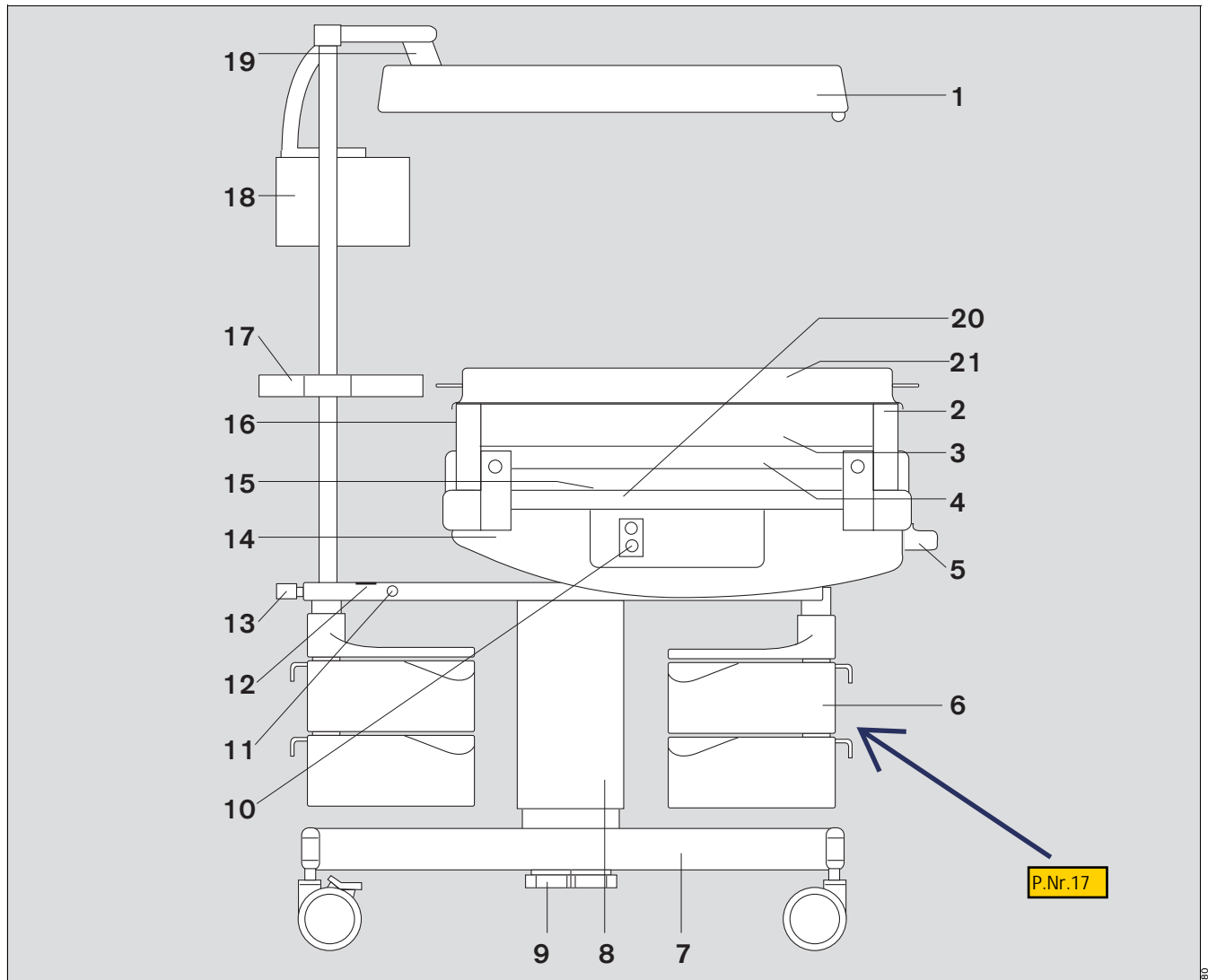
The local environmental agency can supply further details.

* Definitions according to DIN 31 051:

Inspection	= examination of actual condition
Service	= measures to maintain specified condition
Repair	= measures to restore specified condition
Maintenance	= inspection, service, repair

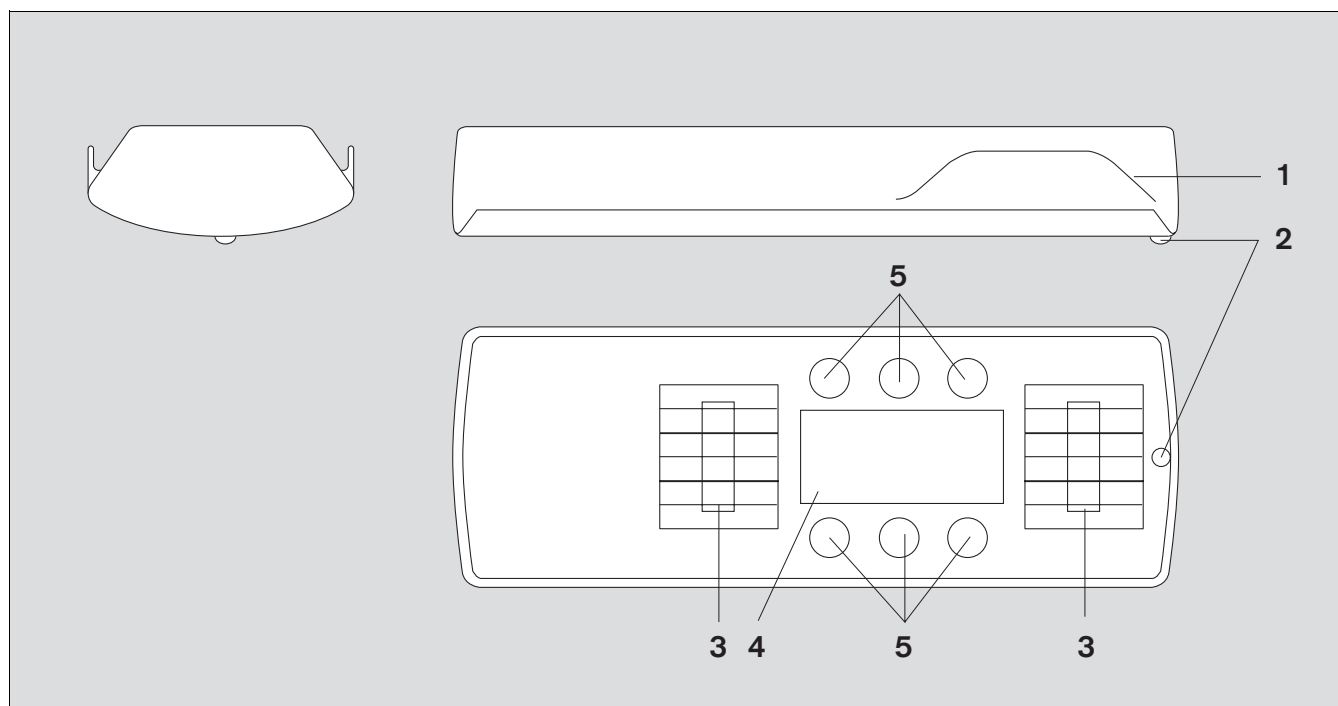
What's what

Complete unit



- | | |
|---|---|
| 1 Radiant warmer | 11 Connection for equipotential bonding |
| 2 End panel | 12 Identification and rating plate |
| 3 Side panel | 13 Accessory mounting rail |
| 4 Inner panel | 14 Bed assembly |
| 5 Handle with inner release bar for tilting the bed | 15 Gel mattress for use with mattress heater; foam mattress for use without mattress heater |
| 6 Swivel cabinet, optional (left and/or right) | 16 Silicone grommets |
| 7 Chassis with 4 castors, 2 of which are lockable | 17 Stand, with shelf and 2 side rails |
| 8 Height-adjustable column, optional | 18 Control unit with operating panel |
| 9 Foot controls for height-adjustable column (8) | 19 Swivel joint for radiant warmer, $\pm 90^\circ$ |
| 10 Skin temperature sensor connector:
top socket, yellow – for measuring skin temperature
lower socket, white – for measuring peripheral skin temperature | 20 X-ray tray at rear – Babytherm 8004 only |
| | 21 Bed canopy |

Radiant warmer



1 Handle

2 Red central alarm lamp

3 Heater elements

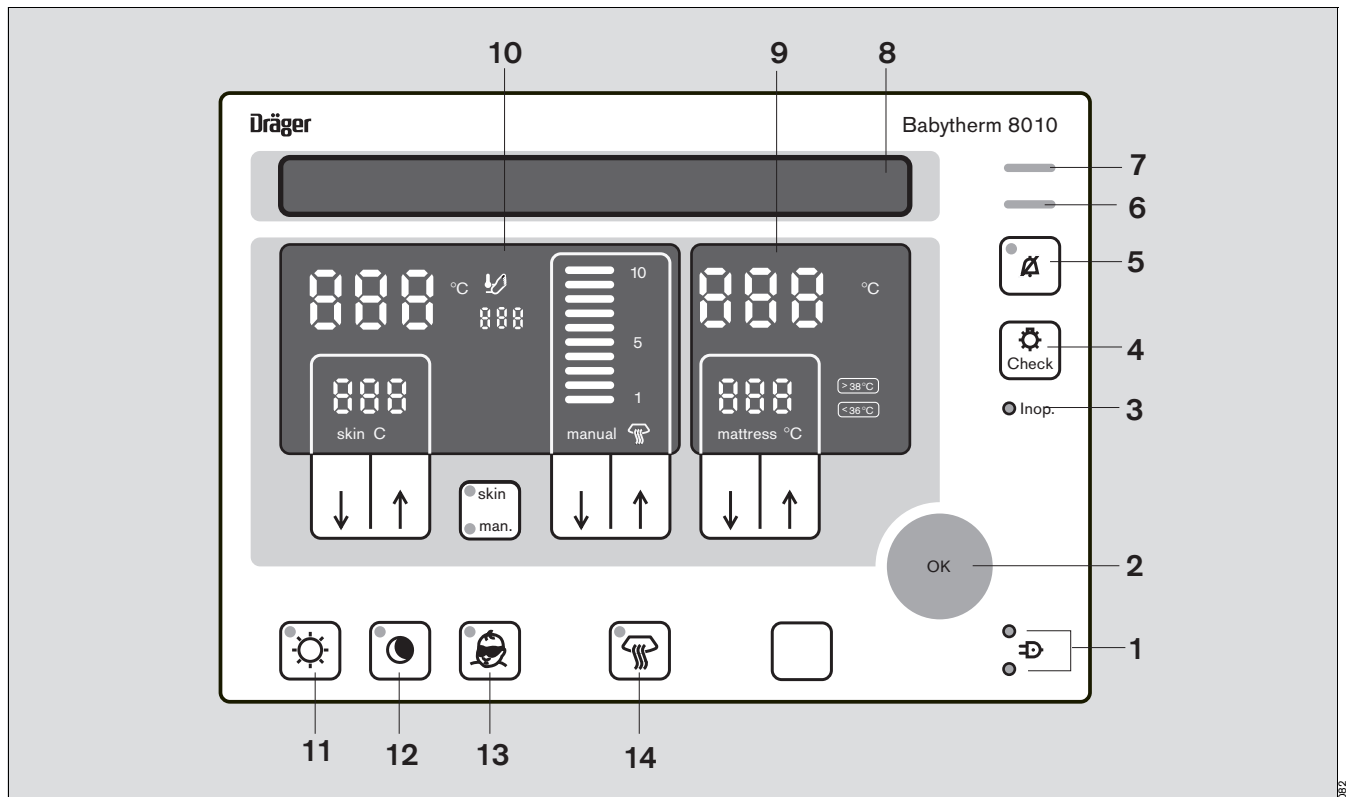
4 Procedure light/night light

P.Nr. 1.4

P.Nr.
15.1 ir
15.2

5 Phototherapy lights (optional), set of 6

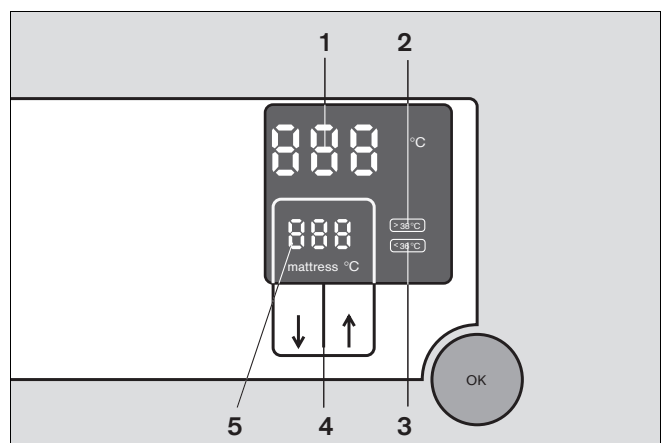
Controller



- 1 ON/OFF indicator:
The green LED is lit when the unit is ON.
The red LED is lit following a power failure.
- 2 OK button for confirming settings and acknowledging alarms.
- 3 Red LED Inop.:
indicates device malfunction.
- 4 Pushbutton for checking LEDs, displays and audible alarm.
- 5 Pushbutton for muting the audible alarm.
- 6 Yellow alarm LED:
lit for Caution alarm level.
- 7 Red alarm LED:
flashes for Warning alarm level.
- 8 Text display: provides advisory messages for the user and prompts the user to confirm/acknowledge.
- 9 Display and keypad for operating the mattress heater.
- 10 Display and keypad for operating the radiant warmer.
- 11 On/Off buttons for procedure light;
yellow LED in button is lit when procedure light is on.
- 12 On/Off button for night light;
yellow LED in button is lit when night light is on.
- 13 On/Off button for phototherapy;
yellow LED in button is lit when phototherapy lights are on
(blue background).
- 14 On/Off button for radiant warmer;
yellow LED in button is lit when radiant warmer is on.

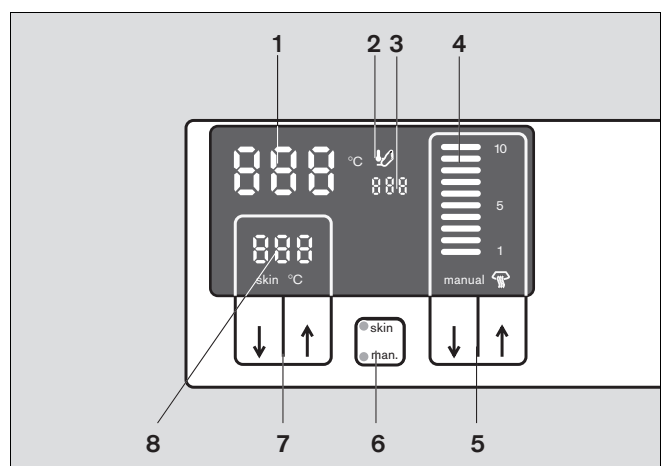
Display and keypad for mattress heater Babytherm 8010

- 1 Display of measured (actual) mattress temperature
- 2 Indicator for upper extended range $>38^{\circ}\text{C}$
- 3 Indicator for lower extended range $<36^{\circ}\text{C}$
- 4 Keys (buttons) for setting the desired mattress temperature
- 5 Display of set (desired) mattress temperature

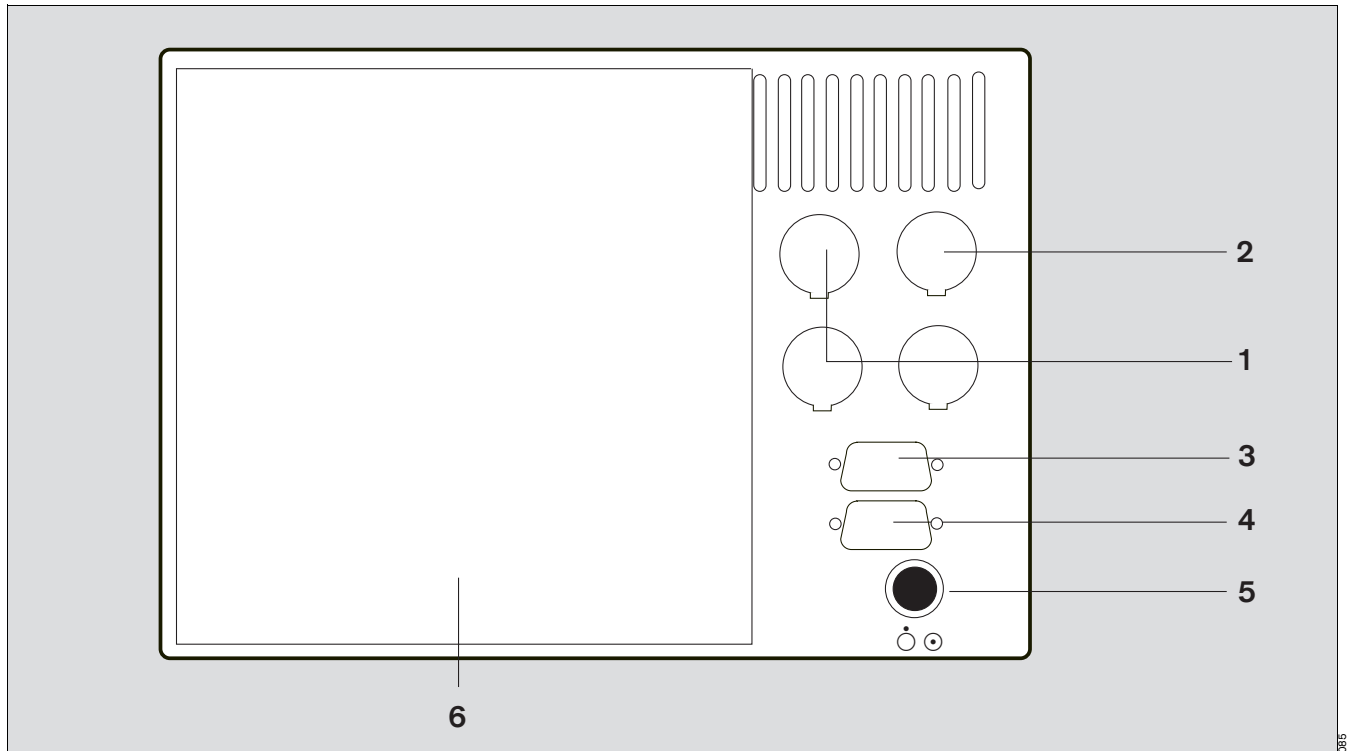


Display and keypad for the radiant warmer

- 1 Display of measured temperature for skin temperature
- 2 Foot symbol for peripheral temperature; lit when the peripheral skin temperature sensor is connected.
- 3 Display of the measured value for peripheral skin temperature; only possible when the peripheral skin temperature sensor is connected.
- 4 Display of radiant warmer output level; Levels 1 to 3: green
Levels 4 to 10: yellow
- 5 Keys (buttons) for setting the radiant warmer output level
- 6 Button for selecting between operating modes »man.« (manual) and »skin« (baby control mode); the yellow LED corresponding to the selected mode stays lit.
- 7 Keys (buttons) for setting the desired skin temperature
- 8 Display for the skin temperature setting



Controller, rear view



- 1 Inputs for connecting the Nurse call from up to three equipment units at the workstation (connections for central alarm)
- 2 Output for connection to internal paging systems, Nurse call (connection for central alarm)
- 3 RS 232 interface (BabyLink), optional
- 4 RS 232 interface (modem), optional
- 5 Controller ON/OFF switch;
 ○ = OFF, ⊙ = ON
- 6 Cover

Technical Data

Ambient conditions

For operation

Temperature	15 °C to 35 °C
Atmospheric pressure	900 hPa to 1060 hPa
rel. humidity	0 to 75 %, no condensation
Air velocity in air-conditioned rooms	max. 0.3 m/s

For storage/transport

Temperature	–20 °C to 60 °C
Atmospheric pressure	700 hPa to 1060 hPa
rel. humidity	0 to 90 %, no condensation

Radiant warmer

Radiant power at a distance of 80 cm
between the bed and the radiant warmer

Heat level 3

10 mW/cm²

14.2.a

Heat level 10

30 mW/cm²

14.2. b

Lamps

120 V / 230 V

Procedure light

23 W / 20 W

Night light

9 W / 7 W

Minimum clearance between top edge
of radiant warmer and ceiling

>50 cm

Skin temperature measurement

Sensor

use only original Dräger sensors, see page 63.

Measuring range/Display range

P.Nr. 10

15 °C to 42 °C

Accuracy (sensor)

P.Nr. 11

±0.1 °C

Accuracy of complete measuring system
(not including sensor)

±0.2 °C

Setting range

P.Nr. 8

35 °C to 37.5 °C

Mattress heater (Babytherm 8010 only)

Temperature measurement

5 °C to 45 °C

Measuring range/display range accuracy

±0.5 °C between 20 and 42 °C

±2 °C in all other parts of range

Setting range

30 °C to 38.5 °C

Height adjustment (optional)

Height adjustment range

P.Nr. 3

295 mm

Specified operation

Intermittent operation (1 min operation followed by 60 min cooling period)

Bed canopy

CO2 concentration with bed canopy fitted max. 0.5 %

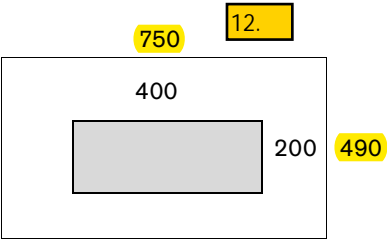
Phototherapy (optional)

Lights Philips Masterline Plus halogen lights, model 13674
12 V / 50 W (set of 6)
or
Philips Brilliantline Pro halogen lights, model 14619
12 V / 50 W (set of 6)

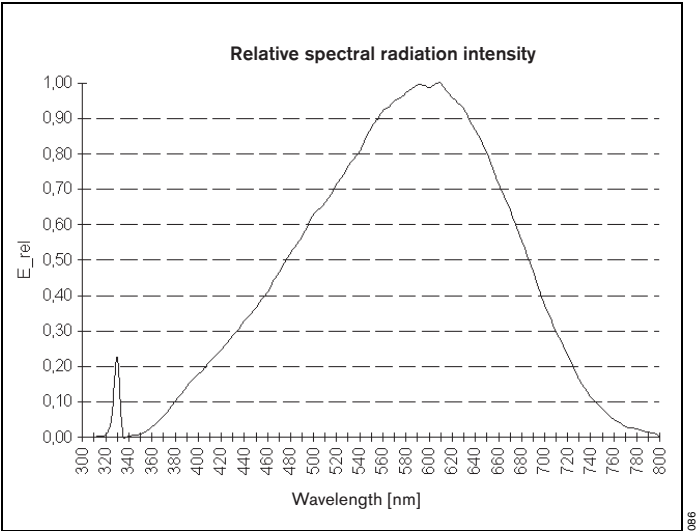
Opening angle 24°

Radiation intensity at a distance of 80 cm
(70 cm, Japan version 100 V)
and useful area of 400 x 200 mm 9.5 W/m²

Irradiated useful area on the bed (mm)



Relative spectral radiation intensity as a function of the wavelength



Operating data

Mains voltage P.Nr. 2 100/120/240 V (to be specified on order) 50/60 Hz

Current consumption (A)	Babytherm 8004			Babytherm 8010		
	100 V	110 to 127 V	220 to 240 V	100 V	110 to 127 V	220 to 240 V
without height adjustment without phototherapy	4.9	5.7	3.0	6.1	6.7	3.5
without height adjustment with phototherapy	—	9.3	4.9	—	10.3	5.4
with height adjustment without phototherapy	8.7	10.3	5.4	9.9	11.4	5.9
with height adjustment with phototherapy	—	13.9	7.3	—	15.0	7.8

Power consumption	
Radiant warmer	600 W
Mattress heater (Babytherm 8010)	160 W
Lighting	20 W
Height adjustment (optional)	560 W
Phototherapy (optional)	400 W
Fuses	
100 V / 120 V	F 15 A UL 248-14, 2 units
230 V	F 10 A UL 248-14, 2 units
Height adjustment (optional)	
100 V / 120 V	T 6,3 A L 250 V; IEC 127-2/III (2 units)
230 V	T 3,15 A L 250 V; IEC 127-2/III (2 units)

Standards

EN 60601-1
 EN 60601-2-35, for mattress heater
 EN 60601-2-21, for radiant warmer

Electrical protection class I

Skin temperature sensor Type BF 

Heating surface of mattress Type BF 

Classification

(according to EC Directive 93/42/EC
 Appendix IX)

Class IIb

UMDNS-Code

(Universal Medical Device Nomenclature System)

15-610

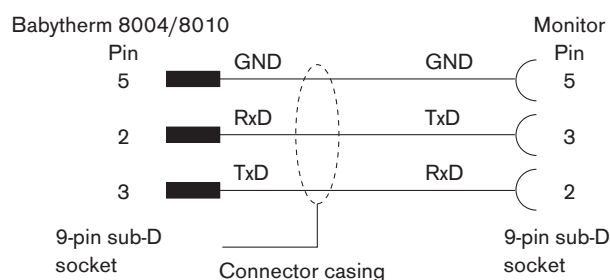
Electromagnetic compatibility (EMC)

according to EN 60601-1-2

Interface

Level measured according to DIN 66020
 Monitor cable (Part No. 83 06 488)
 Wiring layout diagram

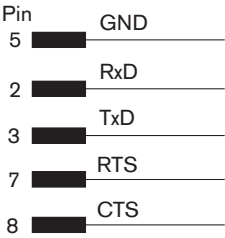
RS 232



Modem interface

Connection for external modem for service purposes
Wiring layout diagram

RS 232



088

The two RS 232 interfaces are electrically coupled to each other and with the central alarm input.

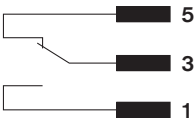
Central alarm

Operating voltage
Current
Power

Output for connecting internal paging systems (Nurse call)

max. 24 V
max. 250 mA
max. 3 W

Potential-free changeover contact



089

Input

Connection of the Nurse caller from up to 3 devices
(the red central alarm LED lights up for every alarm forwarded from these devices to the Babytherm 8004/8010).

Potential-free make contact



090

Interfaces, optional

All interface signals are electrically isolated from the patient sector.
Electric strength 1.5 kV.

Dimensions

Length x Width

1315 x 750 mm

Overall height

Unit without height adjustment
Unit with height adjustment

1960 mm (1860 mm, Japan version 100 V)
1896 to 2210 mm (1796 to 2110 mm, Japan version 100 V)

Working height of bed surface		
without height adjustment	1025 mm	
with height adjustment	885 to 1180 mm	
Bed dimensions	750 x 490 mm	
Bed tilting	adjustable in small increments	
Tilt	maximum of 20° front end down maximum of 15° front end up	P.Nr. 4
Height of side panels	150 mm or 230 mm	P.Nr. 5.3
Height of inner walls	70 mm	
Weight (with one cabinet)		
Unit without height adjustment		
with mattress heater	133 kg	
without mattress heater	120 kg	
Unit with height adjustment		
with mattress heater	120 kg	
without mattress heater	110 kg	

Construction and Description

Babytherm consists of:

- a chassis with infant bed and stand
- a control unit with operating panel
- a radiant warmer and
- a heated gel mattress (for Babytherm 8010).

Control unit

The control unit is positioned at the head end underneath the radiant warmer and between the columns of the stand. It has an operating panel and display, and an integral text display with 2 x 40 characters for easier user guidance.

Radiant warmer

The radiant warmer contains two infrared ceramic radiating elements and 2 lamps for illuminating the bed surface.

The bed surface lighting can be adjusted for working lighting and night lighting. The good colour reproduction of the lamps ensures easier detection of diagnostically important skin colour nuances.

The radiant warmer can be operated in "manual control mode" or "baby control mode". In manual mode, fixed heater levels of 1 to 10 are set.

In "baby control mode", the skin temperature is constantly adjusted towards a preselected optimum setting. In this mode, the output level of the radiant warmer is automatically adjusted to the needs of the patient.

In both modes, self-check routines and alarm systems provide appropriate system monitoring.

ThermoMonitoring

Thermal monitoring is possible with a second skin temperature sensor. Skin temperatures readings are displayed on the controller and can be graphically represented by means of the optional interface (RS 232) and a monitor. This facility improves the diagnostic possibilities of the system.

Phototherapy

Light from the halogen lights contributes to photochemical breakdown of the bilirubin in the skin.

Dräger halogen lights emit particularly effectively at wavelengths around 460 nm. Unlike the phototherapy units of the past, the colour of the light is not blue, and so the skin colour is accurately visible.

Phototherapy is switched on/off from the operating panel on the control unit.

Heated gel mattress

The heated gel mattress consists of the following components: gel mattress, aluminium heating plate and an electronic monitoring and control unit.

The gel mattress consists of a highly heat-conductive gel that does not run or dislocate even when the bed is tilted. The gel is surrounded by a film of soft material compatible with the skin.

The mattress moulds itself to the body contours of the patient lying on it, thereby providing a large contact surface that transfers warmth to the patient and avoids pressure points. When the gel mattress is cold, warmth is transferred from the patient to the mattress.

The gel has good heat storage properties. If the mains supply is interrupted, e.g. for in-hospital transport, the patient will be kept warm for about 15 minutes, provided the insulation is sufficient (blanket, bed canopy).

The heating system consists of a thick aluminium plate and a heater element below the plate. This system ensures that heat is distributed evenly over the entire bed surface.

The control and display panel for the heated gel mattress is located on the right-hand side of the control unit.

The mattress temperature is adjusted with reference to a set temperature entered by the user. The set temperature is only attained in the areas where the patient is in contact with the mattress.

System monitoring includes self-check routines and alarms.

Configuration mode

Configuration mode is a special operating mode of the control unit. Information on the current software version and on the error protocol can be called up in this mode.

The equipment can be configured to meet the user's specific needs: with maximum permissible skin temperature deviation, volume of soft alarm, language and display contrast. The buttons on the control panel and Nurse call can also be tested.

Alarm description

P.Nr.13

The Babytherm unit distinguishes three alarm levels:

Warning (high potential risk)

A continuous audible alarm that cannot be muted is emitted for:

- device malfunction
- power failure



091

A sequence of alarms tones that can be muted, combined with a flashing red LED, is triggered for:

- mattress heater sensor failure
- mattress heating exceeding the temperature limits
- skin temperature sensor not connected in baby control mode
- sensor failure of skin temperature sensor
- skin temperature above 39 °C



092

Caution (medium potential risk)

An alarm tone sequence that can be muted, combined with a flashing yellow LED, is triggered for:

- deviation between set and actual value of skin or mattress temperature too great
- 15-minutes alarm (reminder to check the core temperature every 15 minutes with heater levels higher than 4).



093

Message (low potential risk)

Display messages for:

- measured values outside the measuring range
- battery low.

Any alarm that has not been acknowledged is indicated by the central alarm lamp on the radiant warmer unit.

The text display shows a specific message for the active alarm.

If a second alarm is triggered while the audible alarm is muted, the audible alarm will be reactivated.

Order List

Name and Description	Part No.	Name and Description	Part No.
Babytherm 8010 with mattress heater and baby control mode, 100 V / 120 V / 230 V	FR 00 105	Compact rail	2M 85 337
Babytherm 8004 with baby control mode and optional X-ray tray, 100 V / 120 V / 230 V	2M 30 404	Cable clips (bag of 4)	G 13 171
Modular system, variants to be specified with order:		Shelf 18.	2M 21 158
— Set of side panels, height 230 mm or Set of side panels, height 150 mm		Shelf bracket Centre distance: 37 mm Centre distance: 170 / 240 mm	G 13 822 G 13 821
— Stand with electric height adjustment or stand with fixed column		Double clamp	G 13 147
— without swivel cabinet, with 1 swivel cabinet or with 2 swivel cabinets (only for stands with electric height adjustment)		Rod for small items dia. 25 mm, length 50 mm dia. 25 mm, length 110 mm	G 13 831 G 13 823
— Interfaces		Rails Length: 400 mm Length: 600 mm Length: 800 mm	G 13 851 G 13 829 G 14 449
— Integral phototherapy		Shelf rail	2M 21 161
Options (for retrofitting)		Basket 150	M 25 121
Set of side panels, height 230 mm	2M 21 034	Basket 300	M 26 145
Set of side panels, height 150 mm	2M 21 032	Basket 600	M 26 146
Inner panel	2M 20 936	Waste bag holder	M 24 695
Swivel cabinet	2M 20 638	Connecting hose clip	2M 85 446
Cabinet fixing	2M 20 868	Suction hose clip	2M 85 239
Interface option	2M 30 268	Bronchial aspiration	
Phototherapy kit	2M 30 450	Bronchial aspiration unit, complete, ejector up to 0.5 bar, with rail clamp	2M 21 189
MediCable	83 06 488	Bronchial aspiration unit, ejector up to 0.5 bar, with mounting kit for installation under the bed	2M 21 187
Accessories		Set of fixtures for extraction below the mattress (hook rail)	2M 21 338
Bed canopy	2M 30 392	NIST connecting hoses	
Bed canopy bracket	2M 21 342	O ₂ /air connecting hose 1.5 m	M 34 410
Infusion bottle holder 19.	2M 21 514	O ₂ /air connecting hose 3 m	M 34 411
Ventilation hose bracket	2M 21 191	O ₂ /air connecting hose 5 m	M 34 412
O ₂ distributor for central supply	2M 18 810		
O ₂ distributor, for oxygen cylinder	2M 18 828		
Compressed air distributor for central gas supplies	2M 19 090		
Socket strip (230 V)	G 14 294		
Swivel tray	2M 21 186		

Name and Description	Part No.
Oxygen therapy with hood	
O ₂ hood	2M 19 250
O ₂ flowmeter, 0 to 16 L/min	2M 86 551
Nebuliser	2M 85 834
Spiral hose, 1 m (set of 5)	2M 85 811
Oxygen therapy with canopy	
Injector for 230 mm side panels	2M 14 190
O ₂ flowmeter, 0 to 16 L/min	2M 86 551
Nebuliser	2M 85 835
Spiral hose, 1 m (set of 5)	2M 85 811
NIST connecting hoses	
O ₂ connecting hose 1.5 m	M 34 401
O ₂ connecting hose 3 m	M 34 402
O ₂ connecting hose 5 m	M 34 403
NIST adapter	M 32 493
O₂ measurement	
MiniOx 3000, O ₂ monitor	2M 22 464
O ₂ meter holder	2M 22 460
O ₂ sensor MiniOx 3000	2M 22 461
Consumables/accessories	
Foam mattress for unheated bed surface	2M 21 012
Gel mattress for use with mattress heater	2M 20 827
Repair kit for gel mattress	2M 21 324
Mattress cover sheet	2M 21 272
ThermoTrace™ Skin temperature sensor, yellow, box of 5 (for single use)	MX 11 000
ThermoTrace™ Skin temperature sensor, white, box of 5 (for single use)	MX 11 001
ThermoPad™, box of 50	MX 11 002
Halogen lights, set of 6 (Philips Masterline Plus, model 13674 or Philips Brilliantline Pro, model 14619)	2M 30 084
Lamps for bed lighting (procedure light)	2M 30 079

Name and Description	Part No.
Lamps for night light	2M 30 078
Silicone grommet	2M 20 434
Blue-nose kitten	2M 21 420
Drainage canister hook	2M 21 293
Waste bag	M 26 240
For bronchial aspiration	
Aspiration hose, 1.5 m	M 25 780
Secretion inspection window, set of 5	M 07 582
Bacterial filter CH 102, set of 5	67 23 976
Secretion canister	2M 85 594
Bottle cap with valve, plastic	2M 85 012
Service documentation on request	

Parts list

Instead of the part nos. shown in the Order List, the following parts or units no longer in the Dräger product range can be used:

Name and Description	Part No.
Canopy	2M 21 030
Oxydig, O ₂ measuring device	83 04 411
Oxydig measuring system holder	2M 17 770
O ₂ sensor capsule	68 50 645
Oxydig sensor housing	68 50 250
Skin temperature sensor, yellow, uncali- brated, box of 10	2M 21 916
Skin temperature sensor, white, uncali- brated, box of 10	2M 21 915
Replacement adhesive pads, box of 100	2M 21 734

Index

Activating the self-test	15	In-hospital transport	13
Alarm		Injector	12
Baby control mode	23	Inspection and maintenance	49
Mattress temperature	29	Intended Use	4
mattress temperature	30		
Radiant warmer	20	Lighting	
Ambient conditions	55	Switching On/Off	38
		Testing	16
Baby control mode	21		
Bed canopy		Maintenance intervals	49
Preparing	10	Mattress	9
Using	31	Mattress heater	
Before each use	14	Precautions	17
Before next use	46	Using	27
Before using for the first time	14	Maximum load	7
Bronchial aspiration	44		
		Nebuliser	12
Care	46		
Central alarm	38	O2 distributor	12
Compressed air distributor	13	O2 flowmeter	12
Configuration mode	39	O2 monitor	12
Construction and Description	60	Operating Concept	6
Contents	2	Operation	17
		Manual	19
Disinfecting/cleaning/sterilising	46	Shutting down	45
Dismantling	46	Oxygen therapie	44
Drainage canister hook	13	Accessories	12
		Injector und closed bed canopy	44
Ensuring stability	7	O2 hood	44
		Precautions	17
Fitting the inner panels	9		
For your safety and that of your patient	3	Panels	9
Gel mattress		Parts list	63
Maintenance	49	Phototherapy	
Precautions	17	Precautions	17
Warm-up time	27	Testing	16
		Using	36
Heat therapy		Power failure alarm	16
Precautions	17	Precautions	17
Recommended heater settings	33	Preparation	7
Heating features	4		
Height adjustment	13, 14	Radiant warmer	
Hook for Drainage canister	13	Precautions	17
Hose bracket	13	Using	34

Shelf	7
Skin temperature sensor	21
Socket strip	13
Storage	13
Switching on	19
Swivel tray	7
Technical data	55
Testing Readiness for Operation	14
Therapy and nursing uses	4
ThermoMonitoring	26
Tilting the bed	10
Troubleshooting	
General system failures	47
Mattress heating	47
Radiant warmer	48
Unit	
Disposing	49
Switching on	19
Warming bed	9
What's what	50
Controller	52
Radiant heater	51
X-ray tray	8
X-rays	
Precautions	18
Using	45

These Instructions for Use apply only to
Babytherm 8004/8010
with Serial number:

If no Serial number has been filled in by
Dräger these Instructions for Use are pro-
vided for general information only and are
not intended for use with any specific
machine or device.



Directive 93/42/EEC
concerning Medical Devices

Dräger Medical AG & Co. KGaA

Germany

🏠 Moislinger Allee 53 – 55
D-23542 Lübeck

☎ +49 451 8 82- 0

FAX +49 451 8 82- 20 80

💻 <http://www.draeger.com>

90 29 458 - GA 6132.303 en

© Dräger Medical AG & Co. KGaA

7. edition - May 2004

Subject to alteration