

## SPECIFICATIONS

Dimensions: 140 mm x 173 mm x 135 mm (without chamber fitted)  
Weight: 2.8 kg (no chamber fitted), 3.1 kg (chamber fitted and filled with water)  
Supply Frequency: 50/60 Hz Supply Voltage: 230 V~ Supply Current: 1.0 A max at 230 V~  
Heater Plate: 150 W Heater Wire: 22 V~, 2.73 A, 60 W, 50/60 Hz  
Heater Plate Over-temperature Cutout: 118 ± 6 °C

### Temperature Control Settings

Invasive Mode: Chamber outlet: 35.5 - 42 °C, Airway 35 - 40 °C  
Noninvasive Mode: Chamber outlet: 31 - 36 °C, Airway 28 - 34 °C  
Display: Three digit 14 mm 7 segment LED  
Range: 10 - 70 °C, Accuracy: ± 0.3 °C (in 25 - 45 °C temperature range)

### Alarm Parameters

High Humidity Alarm: An immediate, audible alarm at a displayed temperature of 41 °C or if the airway temperature exceeds 43 °C  
Low Humidity Alarm: An audible alarm between 10 minutes @ 29.5 °C, and 60 minutes @ 34.5 °C (Invasive Mode only)  
Sound Pressure Level: Alarms exceed 50 dBA @ 1 m

### Performance

Recommended ambient temperature range: 18 - 26 °C

**CAUTION:** If operating in ambient temperatures outside the recommended range, consult your local Fisher & Paykel Healthcare representative or consult the technical manual (Revision F or later).

Recommended Flow Range: Invasive Mode: up to 60 L/min, Noninvasive Mode: up to 120 L/min  
Refer to breathing circuit specifications for minimum flow  
Humidity Performance: Invasive Mode: > 33 mg/L, Noninvasive Mode: > 10 mg/L

Maximum Operating Pressure: Refer to chamber and breathing circuit specifications  
Warm-up time: Less than 30 minutes

## Symbol Definitions



Type BF



ATTENTION Consult accompanying documents



Alternating Current



IPX 1  
Drip Proof



CAUTION Hot surfaces may exceed 85 °C

CE  
0123

CE Mark 93/42/EEC Class IIb

## WARNING

Ensure that invasive mode is set for patients that have bypassed airways.

The use of breathing circuits, chambers or other accessories which are not approved by Fisher & Paykel Healthcare may impair performance or compromise safety.

Ensure that both temperature probe sensors are correctly and securely fitted. Failure to do so may result in temperatures in excess of 41 °C being delivered to the patient.

Ensure maintenance of grounding integrity by connection to a "hospital grade" receptacle. Always disconnect supply before servicing.

When mounting a humidifier adjacent to a patient ensure that the humidifier is always positioned lower than the patient.

The operation of high frequency surgical apparatus, shortwave or microwave equipment in the vicinity of the humidifier may adversely affect its function. If this occurs, the humidifier should be removed from the vicinity of such devices.

Do not touch the glass tip of the chamber temperature probe during use. Keep black connectors dry at all times.

Visually inspect accessories for damage before use.

**CLEANING MR850 Heaterbase** Using a damp cloth, clean the humidifier with either of the following: Isopropyl Alcohol or normal dishwashing detergent.

**CAUTION: DO NOT** immerse the heaterbase or temperature probe electrical connections in any liquid. **DO NOT** autoclave probes.

**NOTE:** Follow the cleaning agent manufacturers' instructions carefully. It is the user's responsibility to qualify any deviations from these procedures, both for disinfecting efficacy and physical effect on the probe and the heaterbase. See the MR850 technical manual for more detailed instructions on cleaning.

(en)

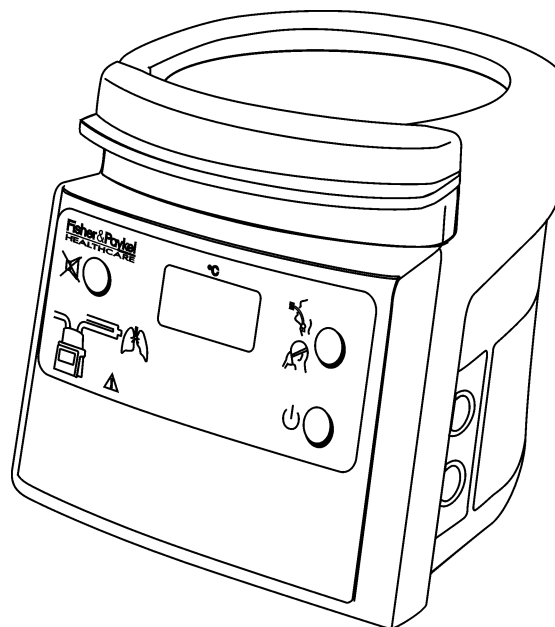


Patents Pending in Principal Countries of the World

INSTRUCTION SHEET  
DO NOT DISCARD

REF 185042301  
Rev D 2004-05

# MR850 RESPIRATORY HUMIDIFIER



The MR850 respiratory humidifier is used to warm and humidify gases delivered to patients requiring mechanical ventilation, positive pressure breathing assistance, or other medical gases.

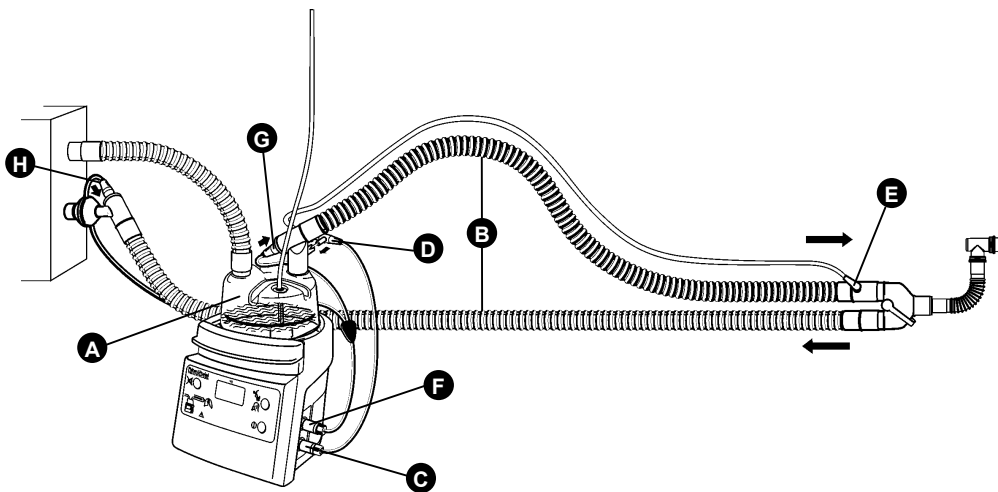
**Fisher & Paykel**  
HEALTHCARE

INTERNATIONAL P O Box 14 348, Panmure, Auckland 1134, New Zealand Tel:+64 9 574 0100 Fax:+64 9 574 0158 Email: info@fphcare.com Web Site: www.fphcare.com  
USA Tel: 1800 446 3908 or +1 949 470 3900 Fax:+1 949 470 3933 AUSTRALIA Tel:+61 3 9879 5022 Fax:+61 3 9879 5232 AUSTRIA Tel: 0800 29 31 23 Fax: 0800 29 31 22  
BENELUX Tel:+31 78 644 0924 Fax:+31 78 644 0914 CHINA Tel:+86 20 8363 4286 Fax:+86 20 8363 3595 FRANCE Tel:+33 1 6446 5201 Fax:+33 1 6446 5221  
GERMANY Tel: +49 7182 93777 0 Fax: +49 7182 93777 99 IRISH REPUBLIC Tel: 1800 409 011 ITALY Tel:+39 06 7839 2939 Fax:+39 06 7814 7709  
SPAIN Tel:+34 902 013 346 Fax:+34 902 013 379 UK (EU Authorised Representative) Tel:+44 1628 626 136 Fax:+44 1628 626 146 Nthn Ireland Tel: 0800 132 189

## SET UP

1. Slide humidification chamber (A) onto humidifier base and connect breathing circuit (B) (refer to humidification chamber and breathing circuit operating instructions for further details).
2. Connect the temperature probe plug (C) (REF 900MR86X) to the blue socket on the humidifier base until an audible click is heard.
3. Push the chamber probe (D) and airway probe (E) into the breathing circuit. Make sure the chamber probe is correctly located in its key-way and that both probes are pushed home. The probe lead can be restrained using breathing circuit clips.
4. Connect the heater wire adaptor plug (F) (REF 900MR8XX) to the yellow socket on the humidifier base until an audible click is heard.
5. Connect the other end(s) of the heater wire adaptor to the breathing circuit socket(s) (G) and (H).
6. The humidification system is now set up and ready for use. After power on, the humidifier will default to invasive mode.

**ATTENTION:** Refer to operating instructions which accompany each accessory.



### THE FOLLOWING ACCESSORIES ARE REQUIRED:

- Humidification Chamber (e.g: MR290)
- Breathing Circuit (e.g: RT100)
- Temperature Probe (e.g: 900MR869)
- Heater Wire Adaptor (e.g: 900MR800)
- Mounting Bracket (to suit ventilator)

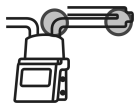
Choice will depend upon application. Please contact your local Fisher & Paykel Healthcare representative for recommendations.

## OPERATION

### MUTE

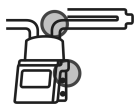
The mute button silences the humidifier's audible alarm for at least two minutes. The muted time depends on the alarm condition and the severity of its cause.

### SET-UP INDICATORS



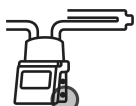
#### Chamber & Airway Probes

Lights if either the chamber probe or the airway probe is not inserted into the breathing circuit correctly.



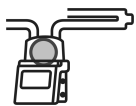
#### Heater Wire

Lights if the heater wire adaptor or breathing circuit has not been connected, or is damaged.



#### Temperature Probe

Lights if the temperature probe is not correctly plugged into the MR850, or the probe is faulty.



#### Water Out

Lights when there is insufficient water in the chamber. Check water supply. Maximum time to alarm of 20 minutes.



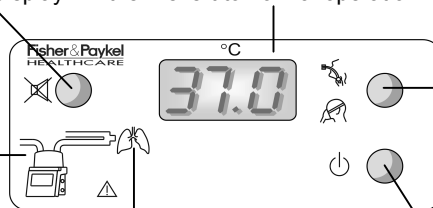
#### See Manual

The humidifier and all accessories should be immediately replaced and sent for servicing.

### TEMPERATURE DISPLAY

Displays the saturated gas temperature (the lower of the airway and chamber temperatures in °C) delivered to the patient. This display will normally show the chamber temperature (around  $37 \pm 0.5$  °C for invasive mode, and  $31 \pm 0.5$  °C for noninvasive mode).

By pushing and holding the mute button for one second, the chamber outlet temperature then the airway temperature is displayed. The display will then revert to normal operation.



### LOW HUMIDITY ALARM

An audible alarm and flashing temperature display showing **35.5 °C or lower** (in invasive mode only). Caused by cold/draughty conditions or very high or low gas flows.

If the circumstances causing the low humidity alarm cannot be changed then the audible alarm acts as a reminder that the patient is receiving inadequate humidity and may require further intervention to maintain airway clearance.

### HIGH HUMIDITY ALARM

A flashing temperature display showing **41 °C or higher**. The humidifier will discontinue heating of the chamber and circuit until the temperature decreases to within normal limits.

### MODE BUTTON

This button switches between invasive and noninvasive mode.



#### Invasive Mode

This mode is for patients with bypassed airways. The humidifier delivers gas as close to body temperature saturated ( $37$  °C,  $44$  mg/L) as possible.

Under cold or draughty conditions the chamber temperature may drop as low as  $35.5$  °C in order to maintain a dry breathing circuit.

**WARNING:** Ensure that invasive mode is set for patients that have bypassed airways



#### Noninvasive Mode

This mode is for patients receiving face mask or headbox therapy, and delivers a comfortable level of humidity.

### ON/OFF BUTTON

The humidifier will power ON if this button is held down briefly, but must be held down for one second to turn the humidifier off. The humidifier will always default to invasive mode when it is turned on.

### ROUTINE MAINTENANCE

Refer maintenance to qualified service personnel. A full technical description including routine maintenance and service data is contained in the Technical Manual which is available from your supplier or Fisher & Paykel Healthcare (REF 185041340)