Appendix B  Specifications

Controls (*psv)

Mode
AC, Flow cycled AC*, SIMV/IMV, Flow Cycled SIMV*, SIMV/PSV*, PSV*, CPAP

Ventilator Rate
1.0 to 150 BPM

Inspiratory Time
0.1 to 3.0 sec

Inspiratory Flow
1.0 to 30 LPM

Base Flow
1.0 to 30 LPM

Volume Limit
5.0 to 300 ml

PEEP
0 to 30 cmH2O

Inspiratory Pressure
0 to 72 cmH2O

Manual Breath
x One

Assist Sensitivity
0.2 to 5.0 LPM; Minimum to Maximum bar*

Over Pressure Relief
15 to 75 cmH2O

% O2
21 to 100%

Alarm Loudness
Min. 60 to Max. 75 dBa

Audible Off Volume Limit*
LED On/Off

Alarms

High Breath Rate
3.0 to 255 BPM

Low PEEP/CPAP
-5.0 to 30 cmH2O

Low Inspiratory Pressure (vs)
1.0 to 65 cmH2O

Low Inspiratory Pressure (psv)
5 to 41 cmH2O (derived from High Pressure Limit and Low PEEP/CPAP Alarm settings

Patient Circuit
LED On/Off

Failed to Cycle
LED On/Off

Low Gas Supply
LED On/Off

Apnea Alarm
5, 10, 20, 30 sec

Settings Incompatible
LED On/Off

Pressure Settings Incompatible
LED On/Off

Prolonged Inspiratory Pressure
LED On/Off

Flow Sensor
LED On/Off

Low Battery
LED On/Off

Alarm Silence
60 sec
Visual Reset Push Button
High Pressure Limit 10 to 75 cmH2O
Low Minute Volume* Off to 99 lpm

**Monitors**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEEP*</td>
<td>0 to 30 cmH2O</td>
</tr>
<tr>
<td>Breath Rate</td>
<td>0 to 255 BPM</td>
</tr>
<tr>
<td>Breath Type (Patient Initiated)</td>
<td>LED</td>
</tr>
<tr>
<td>Minute Volume</td>
<td>0 to 30.0 LPM</td>
</tr>
<tr>
<td>Tidal Volume (Exhaled)</td>
<td>0 to 500 ml</td>
</tr>
<tr>
<td>% Tube Leak</td>
<td>0 to 100%</td>
</tr>
<tr>
<td>Inspiratory Time</td>
<td>0.1 to 3.10 sec</td>
</tr>
<tr>
<td>Expiratory Time</td>
<td>0 to 99.9 sec</td>
</tr>
<tr>
<td>I:E Ratio</td>
<td>9.9:1 to 1:9.9</td>
</tr>
<tr>
<td>Peak Inspiratory Pressure</td>
<td>0 to 99 cmH2O</td>
</tr>
<tr>
<td>Mean Airway Pressure</td>
<td>0 to 75 cmH2O</td>
</tr>
<tr>
<td>Air Pressure</td>
<td>0 to 100 psig; 0 to 99 psig*</td>
</tr>
<tr>
<td>O2 Pressure</td>
<td>0 to 100 psig; 0 to 99 psig*</td>
</tr>
<tr>
<td>Proximal Airway Pressure</td>
<td>-10 to 100 cmH2O</td>
</tr>
<tr>
<td>Hour meter</td>
<td>0 to 99,999 hours</td>
</tr>
<tr>
<td>Test</td>
<td>Push Button</td>
</tr>
<tr>
<td>Line Power</td>
<td>Green/Red LED</td>
</tr>
<tr>
<td>Battery</td>
<td>LED On/Off</td>
</tr>
<tr>
<td>Inspired Tidal Volume*</td>
<td>0 to 500 ml</td>
</tr>
</tbody>
</table>

**Limits to Ventilation (Fixed)**

- Minimum Expiratory Time: 0.15 seconds
- Maximum Inspiratory Time: 3.10 seconds
- Maximum settable I:E Ratio: 4:1

**Tolerances**

Monitors:
- Breath Rate: ± 1 BPM or ± 20 msec, whichever is greater
- Inspiratory Time: ± 0.02 sec
- Expiratory Time: ± 0.02 sec
- I:E Ratio: ± 0.1 or ± 20 msec (on the calculation based on the monitored inspiratory and expiratory times), whichever is greater
Airway Pressure  ± 1 cmH2O (-10 to 20 cmH2O)
(continuous) ± 2 cmH2O (20 to 65 cmH2O)
± 3 cmH2O (65 to 100 cmH2O)
Peak Inspiratory Pressure ± 2 cmH2O or ± 5%, whichever is greater
Mean Airway Pressure ± 2 cmH2O or ± 3%, whichever is greater
PEEP ± 2 cmH2O or ± 5%, whichever is greater
Air/O2 Pressure ± 5 psig
Minute Volume Accuracy is based on the Tidal Volume and Breath Rate monitors
Inspiratory Tidal Volume ± 1 ml or ± 10%, whichever is greater
Expiratory Tidal Volume ± 1 ml or ± 10%, whichever is greater
% Leak ± 1 ml or ± 2%, whichever is greater
(when compared to the Inspired and Expired Tidal Volume monitors)
Hour Meter ± 2% of reading
Alarms/Limits:
Low PEEP/CPAP ± 2 cmH2O
High Breath Rate ± 1 BPM
Low Minute Volume ± 10 ml/min (0 to 99 ml/min)
± 0.1 L/min (0.1 to 9.9 L/min)
High Pressure Limit ± 4 cmH2O
Prolonged Inspiratory Pressure ± 2 cmH2O
Volume Limit ± 2 ml or ± 10% of setting, whichever is greater
Apnea ± 1 sec
Maximum (Pop-off) Pressure ± 4 cmH2O
Controls:
Ventilator Rate ± 1 BPM or ± 20 msec (applied to the breath interval), whichever is greater
Inspiratory Time ± 0.020 sec (0.10 to 0.50 sec)
± 0.025 sec (0.50 to 3.00 sec)
Assist Sensitivity Not a calibrated scale
PEEP/CPAP and Inspiratory Pressure (Repeatability) ± 1 cmH2O or ± 5%, whichever is greater (breath to breath)
Base/Inspiratory Flow ± 0.5 LPM or ± 10% of setting, whichever is greater (0 to 60 cmH2O)
± 1 LPM or ±10/-15% of setting, whichever is greater (60 to 72 cmH2O)
Oxygen % ± 3%
Degree of Protection Electric Shock Type B
Method of Sterilization/Disinfection: None (Ordinary Equipment)
Degree of Safety of Application in Presence of Flammable Anesthetics: None
Mode of Operation: Continuous

## Breathing Circuit Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspiratory Resistance</td>
<td>0.42 cmH2O/l/min</td>
</tr>
<tr>
<td>Expiratory Resistance</td>
<td>0.08 cmH2O/l/min</td>
</tr>
<tr>
<td>Compliance</td>
<td>1.34 ml/cmH2O</td>
</tr>
<tr>
<td>Internal Volume</td>
<td>1370 ml</td>
</tr>
</tbody>
</table>

## Outputs

<table>
<thead>
<tr>
<th>Type</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital</td>
<td>RS-232 Bi-Directional</td>
</tr>
<tr>
<td>Analog: (see page 5-29)</td>
<td></td>
</tr>
<tr>
<td>Proximal Pressure</td>
<td>-10 to 100 cmH2O, 1 cmH2O/25 mV</td>
</tr>
<tr>
<td>Proximal Inspiratory/Expiratory Flow</td>
<td>-40 (expiratory) to 40 (inspiratory) LPM, 1 LPM/50 mV</td>
</tr>
<tr>
<td>Machine Delivered Flow</td>
<td>0 to 30 lpm, 1 LPM/50 mV</td>
</tr>
<tr>
<td>Breath Phase</td>
<td>0, 5V Logic signal</td>
</tr>
<tr>
<td>Remote Nurse Call</td>
<td>0.5 amps max at 24 vdc</td>
</tr>
<tr>
<td>Auxiliary Blended Gas Outlet</td>
<td>7 to 17 psig, 0 to 8 LPM</td>
</tr>
</tbody>
</table>

## Inputs

**Electrical:**

<table>
<thead>
<tr>
<th>Supply Ratings</th>
<th>Voltage:</th>
<th>100V 80 to 110 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120V</td>
<td>96 to 132 VAC</td>
</tr>
<tr>
<td></td>
<td>220V**</td>
<td>176 to 242 VAC</td>
</tr>
<tr>
<td></td>
<td>240V</td>
<td>192 to 264 VAC</td>
</tr>
<tr>
<td>Current:</td>
<td>100V</td>
<td>1.0 A maximum</td>
</tr>
<tr>
<td></td>
<td>120V</td>
<td>1.0 A maximum</td>
</tr>
<tr>
<td></td>
<td>220V</td>
<td>0.5 A maximum</td>
</tr>
<tr>
<td></td>
<td>240V</td>
<td>0.5 A maximum</td>
</tr>
<tr>
<td>Frequency:</td>
<td>100V</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td></td>
<td>120V</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td></td>
<td>220V</td>
<td>50/60 Hz</td>
</tr>
</tbody>
</table>
240V  50/60 Hz

Fuses:
100/120V  T 0.5 A, 5 x 20 mm
230/240V  T 0.25 A, 5 x 20 mm

** For 220V operation, set the power entry module selector switch to 230V setting.

Pneumatic:

Oxygen and Air  30 to 80 psig, 50 LPM Supply Ratings
                  KPa (206 to 551)

Physical Dimension and Shipping information

Ventilator Weight  12 kg; 13.6 kg *
Graphics Display Weight  2.5 kg
Pedestal Stand Weight  4.1 kg
Compressor Weight  50 kg

Ventilator Dimensions  13.5" W x 10" D x 11" H
Graphics Display Dimensions  13" W x 2.5" D x 9.5" H
Pedestal Stand Dimensions  24" x 40.5" H
Compressor Dimensions  22"W x 21.5"D x 36" H

Shipping Weight Including Ventilator  17 kg; 18.2 kg *
Graphics Display  5 kg
Pedestal Stand  5.1 kg
Compressor  9.1 kg

Shipping Dimensions
Ventilator  18" W x 18" D x 19" H
Graphics Display  16" W x 13" D x 11" H
Pedestal Stand  25" W x 5" D x 45" H
Compressor  26" W x 22" D x 40" H

Environmental Specifications

Temperature:
Storage and Shipping  - 40 to 70 C
Checkout and Operating  10 to 40 C
Altitude:
Checkout, Operating, Transport and Storage 0 to 3,000 meters (14.7 to 10.5 PSIA/760 to 543 mm Hg)

Humidity:
Storage and Shipping 0 to 99% Relative Humidity — Non-condensing
Checkout and Operating 0 to 95% Relative Humidity — Non-condensing