

A5™
ANESTHESIA SYSTEM



intuitive | effortless | precise

mindray™
NORTH AMERICA

mindray

Elapsed Time
02:36:15

ADULT

Current Mode
VCV

Spirometry

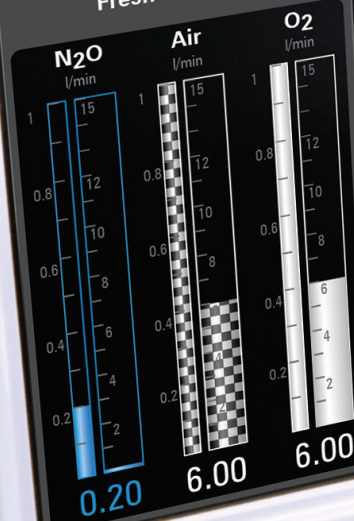
Demographics

9/19/2013
2:38 PM

Gas

	Insp	Exp
O ₂ %	50 20 18	45 100 22
N ₂ O %	50 36 0	45 100 38
Sev %	0.7 Off Off	1.0 Off Off
MAC	1.3	Age: 25

Fresh Gas Flow



Waveforms

CO₂ mmHg



Paw cmH₂O



Flow L/min



CO₂

Et mmHg 38 45 30

Fi mmHg 2 4

Pressure PEAK cmH₂O 18 50 10

PLAT cmH₂O 15

PEEP cmH₂O 0

I:E 1:2

Volume V_T ml 600

MV Liter 4.8 12 1

Rate bpm 8

Manual

VCV

SIMV-VC

PCV

V_T 700 ml

Rate 12 bpm

I:E 1:1

T pause 10 %

PEEP Off cmH₂O

Capture Event

History

Introducing the **A5** anesthesia system



A5 features:

- Volume Control Ventilation (VCV) and Pressure Control Ventilation (PCV) with volume guarantee
- Pressure Support (PS) ventilation
- Synchronized Intermittent Mandatory Ventilation in volume or pressure modes (SIMV-VC and SIMV-PC)
- Manual/spontaneous breathing mode with respiratory monitoring capability
- Optional integrated gas analysis provides dual agent auto identification, age-based MAC values and Capnography
- 15" touch-screen user interface
- Warmed to body temperature, Breathing System that virtually eliminates internal condensation
- Central brake and built in caster guard design clears away cables and hoses
- Single container absorber reduces compressible volume and accepts non-proprietary prepackaged and loose fill absorbent. Self sealing design accommodates canister replacement at any time
- High-pressure O₂ port supports jet ventilators
- Spirometry loops
- Integrated backup screen control touchpad
- Deck lighting with adjustable brightness
- Robust safety concept with 2 hour battery back up and the ability to deliver all fresh gas and vaporized agent to the patient, regardless of power state
- Unique Auxiliary O₂ /Air cannula allows the blending of air into the nasal cannula to potentially reduce the risk of surgical fire
- Gas monitoring available in automatic, manual and standby ventilation modes

Performance Specifications

Physical Specifications (Nominal)

Dimensions

Height/Width/Depth	140 cm/105 cm/80.5 cm
Weight (without vaporizers and gas cylinders)	160 kg

Top Shelf

Weight Limit	40 kg
Width/Depth	61.6 cm/36.2 cm

Work Surface

Width/Depth/Height	61.6 cm/38 cm/85 cm
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Drawers (3 same size)

Height/Width/Depth	13.5 cm/44 cm/38.5 cm
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Casters (Dual Wheel)

Diameter	15 cm
Cable/Hose Guards	Built-in
Central Brake	Controls all 4 casters

Mounting Rails

GCX Compatible	5 rails total
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Pneumatic Specifications

Pipeline Gas Supply Requirements

O ₂	280 – 600 kPa (40 psi – 87 psi)
N ₂ O	280 – 600 kPa (40 psi – 87 psi)
Air	280 – 600 kPa (40 psi – 87 psi)

Pipeline Gas Supply Connectors

Diameter indexed (DISS) threaded body as per CGA V-5	
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Cylinder Gas Supply Requirements

Compatibility E-Cylinder (O ₂ , N ₂ O, Air)	
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Cylinder Gas Supply Connectors

Pin indexed (PISS) per CGA V-1	
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Fresh Gas Delivery System

Virtual Fresh Gas Flow Tubes

Electronic Display Range (O ₂ , AIR, N ₂ O)	
High Scale	0 – 15 L/min
Low Scale	0 – 1 L/min

Hypoxic Guard System and O₂ Controls

Provides a minimum of 21% concentration of oxygen in fresh gas in any O₂/N₂O mixture

Automatic N₂O cutoff when O₂ pressure falls below approximately 200 kPa (32 psi)

O ₂ flush flow rate	35 – 50 L/min
Anesthetic Gas Scavenging System (AGSS)	
Flow Rate	25-50 L/min

Breathing System to AGSS connector	30mm OD
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Vaporizer Attachment

Connection Style	Selectatec®
Number (max)	2

Auxiliary O₂/Air Mixer

Total Flow Rate (max)	30 L/min at 60% O ₂
O ₂ Concentration Range	21% – 100%

Breathing System

Temperature Maintained to	31 – 40°C (88°F – 104°F)
CO ₂ Absorbent	1 loose fill or 1 Pre-Pak (1500mL±100mL)
APL Valve	330° rotation, 5 – 75 cmH ₂ O

Ventilator Operating Specifications

Ventilator Function

Ventilation and manual assist	
Adult, Child, Small Child Patient Setting Modes	
VCV, SIMV-VC, PCV (+VG), SIMV-PC, PS	

Automatic Compensation

Fresh Gas Compensation	Automatic after start up sequence
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Compliance

Compensation	Automatic after start up sequence
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Ventilator Display

Screen Type	Color LCD with touch screen
Screen Size	15 in diagonal (4:3 ratio)
Sweep Speed	15 seconds
Graphic Waveforms	Airway Pressure and Flow
Numeric Data	Tidal Volume, Minute Volume, Peak airway pressure, PEEP, Mean or Plateau pressure, Breath Rate, FiO ₂
	Pressure vs Volume, Flow vs Volume

Spirometry Loops

Tidal Volume

Deliverable Range	20 – 1500 mL (VCV)
Accuracy	<60mL: ±10mL ≥60mL and ≤210mL: ±15mL >210mL: ±7% of the set Value

Incremental Setting

Measurable Range	0 – 3000 mL
Resolution	1 mL

Pressure Range

Manual Mode	0 – 75 cmH ₂ O
Pressure Control Ventilation	5 – 70 cmH ₂ O
Pressure Accuracy (PCV, PS, SIMV-PC)	Max. of ±2.5 cmH ₂ O or 7% of setting

Minute Volume

Display Range	0 – 100 L
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Breath Rate Range (per minute)

Deliverable Range	4 – 100 bpm
Display Range	0 – 120 bpm
I:E Ratio	4:1 – 1:8

End Inspiratory Plateau Range

OFF, 5 – 60% (of inspiratory time)	
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Positive End Expiratory Pressure (PEEP)

Type	Electronically controlled
Range	3 – 30 cmH ₂ O
Accuracy	±2 cmH ₂ O or ±10%

FiO₂

Sensor Type	Galvanic Fuel Cell
Display Range	18 – 100%
Resolution	1 vol/vol%

Alarms

Minute Volume

Low Limit Range	0 – 20 L/min
High Limit Range	0.2 – 25 L/min

Airway Pressure

Low Limit Range	0 – 70 cmH ₂ O
High Limit Range	10 – 100 cmH ₂ O

FiO₂

Low Limit Range	18 – 98 vol/vol%
High Limit Range	21 – 100 vol/vol%, Off

Breath Rate

Apnea – Manual Mode	> 120 seconds
Apnea – Automatic Mode, when Paw	< (PEEP + 3 cmH ₂ O) and V _T < 10 mL for more than 30 seconds
Alarm Silence	120 seconds

Electrical Specifications

Power and Battery Back-up

Mains Power Supply	100 – 120 VAC 50/60 Hz
Current Input	12A total max
Power Consumption	Approx. 200 VA
Power Cord	Line cord
Backup Battery Run Time	Approx. 150 minutes
Backup Battery Charge Time	8 hours max

Auxiliary Outlets

Number and Type of Outlets	Four circuit breaker (3A each)
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Environmental Specifications

Operating Temperature	+10 – +40°C (50 – 104°F)
Storage Temperature	-20 – +60°C (-4 – 140°F)
Humidity	15 – 90% RH, non-condensing (operating and storage)

Materials

All materials in contact with patient gas are free of natural latex rubber

Specifications

Conditions defined at Ambient Temperature Pressure Dry

Anesthesia Gases

Sampling Rate

High volume AG watertrap	120, 150, 200ml/min (user-selectable) (default: 120ml/min)
Low volume AG watertrap	70, 90, 120ml/min (user-selectable) (default: 70ml/min)
Sampling Delay Time	<4sec
Refresh Rate	1sec
Warm-up Time	45sec to warm-up status 10min to ready-to-measure status

Normal Operating Conditions After Warm-up

Ambient Temperature	10 to 55°C (50 to 131°F)
Ambient Pressure	700–1200hPa
Ambient Humidity	10–95% RH, non-condensing

Measurement Range

CO ₂ /Des/Sev/Enf/Iso/Hal	0-30%
O ₂ /N ₂ O	0-100%
AwRR	2-100bpm

Resolution

CO ₂	1mmHg
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Measurement Rise Time

Sampling flow 120ml/min, using the DRYLINE™ water trap and neonatal DRYLINE™ 2.5m sampling line

CO ₂ /N ₂ O	≤250ms
O ₂	≤600ms
Hal/Iso/Sev/Des	≤300ms
Enf	≤350ms

Sampling flow 200ml/min, using the DRYLINE™ water trap and adult DRYLINE™ 2.5m sampling line

CO ₂ /N ₂ O	≤250ms
O ₂ /N ₂ O:	≤500ms
Hal/Iso/Sev/Des	≤300ms
Enf	≤350ms



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