Specifications: X8



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Anesthesia Machine

X8



Physical Characteristics

Complete Machine

Dimension	900mm*700mm*1400mm (±30)
Weight	200kg
Noise	≤65dB

Top Plate

Dimension	5350mm*235mm (±10)
Maximum load bearing	20kg

Workbench

Dimension	485mm*460mm*850mm (±20)
Maximum load bearing	20kg

Drawers

Dimensions	360mm*300mm*130mm
Quantity	Three drawers

Caster Wheels

Size	5 inch
Brake	Central brake

LED Indication

AC indicator	Green LED
Battery indicator	Green LED
Alarm indicator	Yellow/Red LED

Interface

Power supply	1 AC power interface 4 auxiliary output power interfaces
Equal potential	1 equal-potential grounding terminal
Communication connectors	1 HDMI 1 RJ45 4 USB 1 Multifunctional interface

Display Screen

Size	18.5” TFT capacitive touch screen
Resolution	1920*1080 pixels
Rotation range	≤360°
Waveforms	Paw-Time Flow-Time Volume-Time CO2-Time EEG
Loops	Paw-Volume Loops Paw-Flow Loops Paw-CO2 Loops Volume-Flow Loops Volume-CO2 Loops

Operation Environment

Working Temp	10~40°C
Relative humidity	≤93%
Atmospheric pressure	70~106 kPa

Power Supply

External AC Power Supply

Input voltage	100~240V
Input frequency	50/60Hz
Input current	3.5A
Fuse	T10AH 250V

Auxiliary Output Supply

Output voltage	100~240V
Output frequency	50/60Hz
Output current	≤2.2A

Internal Battery

Type	Li-ion battery
Voltage	14.4VDC
Capacity	Single: 6700mAh Double: 13400mAh

Endurance time	Single: 155min Double: 310min

Gas Supply

Pipeline gasses	O2 (2), N2O, AIR
Backup gas-cylinder gasses	O2, N2O, AIR
Pipeline gas connection	NIST, DISS
Backup cylinder connection	YOKE-CGA
Inlet pressure range	280~600kPa
Driving gas	O2/AIR

Flowmeter

Full Electronic Flowmeter

Direct flow control	O2: 0.2~15L/min N2O: 0~15L/min AIR: 0~15L/min
Total flow control	Oxygen concentration: 21%~100% (Air balance gas), 25%~100% (N2O balance gas) Total flow: 0L/min, 0.2~20L/min

High Pressure O2 Supply

Pressure range	280~600kPa
Flow range	≥90L/min

Backup Flowmeter

Range	0~15L/min

Auxiliary O2/AIR Supply Flowmeter

Range	0~15L/min

O2-N20 Linked System

Type	Electronic proportional control
Range	O2 concentration: ≥25% When the O2 supply pressure is lower than 100kPa, N2O is off immediately

ACGO

Type	Mechanical or electric
Connector	Outside: 22 mm taper coaxial fitting Inside: 15 mm taper coaxial fitting
Back pressure	≤2kPa

Flush O2

Range	25~75L/min

Breathing Circuit

Performance

Driving pressure	280~600kPa
Inspiratory flow	180L/min (280kPa)
Flow valve	1~180L/min
Pressure limit control methods	Mechanical or electronic relief valve

Volume

Breathing circuit volume	≤2.5L

Leakage

Breathing system leakage	≤49.5ml/min (3kPa)
CO2 leakage for absorber	40ml/min (3kPa)
APL valve leakage	40ml/min (3kPa)

Compliance and resistance

Breathing system compliance	Manual ventilation: ≤4ml/100Pa Mechanical ventilation: automatic compliance compensation
Breathing system resistance	≤6cmH2O

Ports and Connectors

Expiratory end	22mm outer, 15mm inner tapered coaxial connector
Inspiratory end	22mm outer, 15mm inner tapered coaxial connector
Manual bag end	22mm outer, 15mm inner tapered coaxial connector

Airway Pressure Gauge

Range	-20~100cmH2O
Accuracy	± (4% of full scale reading + 4% of actual reading)

APL Valve

Range	2~75cmH2O
Minimum opening pressure	Dry: 0.2cmH2O Humid: 0.2cmH2O
Tactile knob indication	≥30cmH2O

Heater

Heater	Yes

CO2 Canister

Volume	2000ml
Bypass	Yes

AGSS (optional)

Dimension	535mm*120mm*155mm
Weight	2.2kg

Pressure relief device	Pressure compensation port to atmosphere
Filter	Stainless steel mesh, with pore size of 60~100μm
Suction flow	AGSS-L: 25~50L/min AGSS-H: 50~80L/min,

Vacuum Suction (optional)

Collection bottle	≤14mm
Suction tube	≥1m
Maximum negative pressure	75kPa
Maximum flow attraction	30L/min

HFNC

Oxygen concentration	21%~100%
flow	2~80L/min

Vaporizer (optional)

Slot	Two
Interface type	Selectatec compatible
Compensation technology	Pressure compensation Flow compensation Temperature compensation

Penlon Sigma Delta

Size	120mm*190mm*242mm
Range	Sevoflurane: 0%~8% Isoflurane: 0%~5% Enflurane: 0%~5%
Dosing method	Pour Fill, Quik-Fil, Dräger Fill

Dräger Vapor 2000/D-Vapor

Size	Vapor 2000: 108mm*197mm*246mm D-Vapor: 110m*250mm*250mm
Range	**Vapor 2000:** Sevoflurane: 0%~8% Isoflurane: 0%~6% Enflurane: 0%~8% **D-Vapor:** Desflurane: 0%~18%
Operation temperature	Vapor 2000: 10~40°C D-Vapor: 18~30°C
Volume	Vapor 2000: 360ml D-Vapor: 300ml

Comen A2000

Size	120mm*210mm*237mm
Range	Halothane: 0.2%~5% Enflurane: 0.2%~5% Isoflurane: 0.2%~5% Sevoflurane: 0.2~8%
Operation temperature	15~35°C
Volume	300ml

Ventilation Modes

Standard	Manual/Spont (optional:CPB) VCV, PCV, PRVC SIMV-VC, SIMV-PC CPAP/PSV
Optional	SIMV-PRVC PSVPro AMV

Controlled Parameters Range

Ventilation

VT	10~1500ml (VCV, SIMV-VC) 5~1500ml (PRVC, SIMV-PRVC)
RR	2~100bpm
I:E	4:1~1:10
Tpause	OFF, 5%~60%
Pinsp	5~90cmH2O
Plimit	10~100cmH2O
Psupp	OFF, 3~60cmH2O
PEEP	OFF, 3~50cmH2O
Δint.PEEP	OFF, 3~40cmH2O
Tinsp	0.2~10s
Tslope	0~2s
SIMV rate	2~60bpm
MinRate	2~60bpm
Apnea pressure	3~60cmH2O
Apnea.I:E	4:1~1:8
Apnea time	10~30s
Trigger window	5%~90%
Pressure trigger	-20~-1cmH2O
Flow trigger	0.2~15L/min
Exp%	5%~80%
Backup exist	OFF, 1~5
High pressure level	3~90cmH2O
Low pressure level	OFF, 3~50cmH2O
High pressure time	0.2~10s
Low pressure time	0.2~10s

MV%	25%~350%
Sigh	
Switch	ON, OFF
Interval of sighing	20s~180min
Number of sigh	1~20
⍙int.PEEP	OFF, 3~40cmH_2O
One-Step Recruitment	
Psupp	20~60cmH_2O
Holding time	10~40s
Exit PEEP	OFF, 3~50cmH2O
Multi-Step Recruitment	
Step setting	OFF
PEEP	OFF, 3~50 cmH_2O
Psupp	OFF, 3~60 cmH_2O
Ventilation cycles	3~10
Rate	2~100bpm
I:E	4:1~1:10
Exit PEEP	OFF, 3~50cmH_2O
P-V Tool	
Flow	4~15L/min
Pstart	3~50cmH_2O
Pmax	5~90cmH_2O
Vlimit	100~1500ml
Monitoring Parameters Range	
Ppeak	-20~120cmH2O
PEEP	0~70cmH2O
Pplat	-20~120cmH2O
Pmean	-20~120cmH2O
Paux	-20~120cmH2O
ACGO Pressure	-20~120cmH2O
VTexp	0~3000ml
VTinsp	0~3000ml
MV	0~100L/min
RR	0~120bpm
I:E	4:1~1:12
Tinsp	0.2~10s
Texp constant	0~5s
Compliance	0~300ml/cmH2O
Resistances	0~600cmH2O/(L/s)
Stress index (SI)	0.5~1.5
C20/C	0~2.5
FiO2 (Oxygen concentration)	18%~100%
Controlled Parameters Accuracy	
VT	5~10ml: ± (set value - 1 ml) 10~60ml: ±10 ml 60~210ml: ±15ml 210~1500ml: ±7% of the setting value
RR	±1 bpm or ±5% of setting, whichever is greater
I:E	2:1~1:4 is ±10% of the set value Other ranges: ±25% of the set value
Tpause	5%~8%: ± (set value - 0.1%) 8%~60%: ±8%
Pinsp	±2cmH2O or ±7% of the set value, whichever is greater
Plimit	±2cmH2O or ±7% of the set value, whichever is greater
Psupp	±2cmH2O or ±7% of the set value, whichever is greater
PEEP	3~50cmH2O: ±2cmH2O, or ±7% of the set value, whichever is greater.
⍙int.PEEP	± (2cmH2O + 4% of setting), whichever is greater
Tinsp	±0.19s
Tslope	0.1~0.2s: ± (set value - 0.01s) 0.2~2s (excluding 0.2s): ± 0.2s or ± 20% of the set value, whichever is greater
SIMV rate	±1bpm or ±10% of set value, whichever is greater
MinRate	±1 bpm or ±5% of set value, whichever is greater
Apnea pressure	±2cmH_2O or ±7% of the set value, whichever is greater
Apnea.I:E	2:1~1:4: ±10% of the set value Other ranges: ±25% of the set value
Apnea time	±3s or ±20% of set value, whichever is greater
Trigger window	5%~10%: ± (setting value - 0.1%) 10%~90%:±10%
Pressure trigger	-2~-1cmH_2O: ± (setting value +0.1cmH_2O) -20~-2cmH_2O: ±2cmH_2O
Flow trigger	0.2~1L/min: ± (set -0.01L/min) 1~15L/min: ±1L/min
Exp%	5%~10%: ± (setting value - 0.1%) 10%~80%: ± 10%

High pressure level	±2cmH_2O or ±7% of the set value, whichever is greater
Low pressure level	±2cmH_2O or ±7% of the set value, whichever is greater
High pressure time	±0.19s or ±10% of set value, whichever is greater
Low pressure time	±0.19s or ±10% of set value, whichever is greater
MV%	±10% or ±10% of the set value, whichever is greater

Monitoring Parameters Accuracy

Ppeak	±2cmH_2O or ±4% of the actual reading, whichever is greater Other ranges: not defined
PEEP	±2cmH_2O or ±4% of the actual reading, whichever is greater Other ranges: not defined
Pplat	±2cmH_2O or ±4% of the actual reading, whichever is greater Other ranges: not defined
Pmean	±2cmH_2O or ±4% of the actual reading, whichever is greater Other ranges: not defined
Paux	±2cmH_2O or ±4% of the actual reading, whichever is greater Other ranges: not defined
ACGO Pressure	±2cmH_2O or ±4% of the actual reading, whichever is greater Other ranges: not defined
VTexp	0~60ml: ±10ml 60~210ml: ±15ml 210~3000ml: ±7% of the actual reading Other ranges: not defined
VTinsp	0~60ml: ±10ml 60~210ml: ±15ml 210~3000ml: ±7% of the actual reading Other ranges: not defined
MV	0~100L/min : ±0.1L/min or ±8% of the actual reading, whichever is greater
RR	±1bpm or ±5 % of actual reading, whichever is greater Other ranges: not defined
I:E	2:1~1:4: ±10% of the actual reading 4:1~2:1: ±25% of the actual reading 1:4~1:12: ±25% of the actual reading Other ranges: not defined
Tinsp	±0.2s, or ± 25 % of the actual reading, whichever is greater Other ranges: not defined
Texp constant	± (0.20s + 20 % of actual reading) Other ranges: not defined
Compliance	0~300ml/cmH_2O: ± (10ml/cmH_2O ±20% of actual reading)
Resistances	0~20cmH_2O/(L/s): ±10 cmH_2O/(L/s) 20~600cmH_2O/(L/s): ±50% of the actual reading
Stress index (SI)	±0.10 Other ranges: not defined
C20/C	±0.20 or ±10%, whichever is greater Other ranges: not defined
FiO2 (Oxygen concentration)	±3% Other ranges: not defined

Alarm Parameters

VT	High limit: 5~1600ml Low limit: 0~(High limit-5)ml
MV	High limit: 2~100L/min Low limit: 0~(High limit-2)L/min
RR	High limit: 2~100bpm Low limit: 0~(High limit-2)bpm
FiO2	High limit: 20~105% Low limit: 18~(High limit-2)%
Paw	High limit: 2~100cmH2O Low limit: 0~(High limit-2)cmH2O
EtCO2	High limit: (Low limit+2)~190mmHg Low limit: 0~(High limit-2)mmHg
FiCO2	High limit: (Low limit+2)~99mmHg Low limit: 0~(High limit-2)mmHg
EtN2O	High limit: (Low limit+2)~100% Low limit: 0~(High limit-2)%
FiN2O	High limit: (Low limit+2)~100mmHg Low limit: 0~(High limit - 2)%
EtHAL/EtENF/EtISO/EtSEV/EtDES	High limit: (low limit + 0.2)~25% Low limit: 0~(High limit - 0.2)%
FiHAL/FiENF/FilSO/FiSEV/FIDES	High limit: (low limit + 0.2)~25% Low limit: 0~(High limit - 0.2)%
BIS	High limit: 2~100 Low limit: 0~98
Alarm pause	120s

Data Review

Screenshot	50
Loops	10
Graphic trend	168h
Trend table	168h
Event log	10000 logs

Oxygen Sensors

Type	Chemical, paramagnetic
Chemical oxygen sensors	Typical <5% after more than 1 year
Paramagnetic oxygen sensors	First 24 hours: <±0.4% Next week (additional): <±0.2% Monthly thereafter (additional): <±0.2%

CO2 Module (optional)

Masimo (Mainstream and Sidestream)

Range	0~190mmHg 0~25% (at 760mmHg)
Resolution	1mmHg or 0.1kPa or 0.1%
Accuracy	± (0.3% +4% of reading)
Sampling rate	50ml/min (±10ml/min)
Total system response time	Mainstream: <1s Sidestream: <3s
Preheating time	<10s

Respironics (Mainstream and Sidestream)

Range	0~150mmHg 0%~19.7% 0~20kPa (at 760mmHg)
Resolution	1mmHg or 0.1kPa or 0.1%
Accuracy	0~40mmHg: ±2mmHg 41~70mmHg: ±5% of the actual reading 71~100mmHg: ±8% of the actual reading 101~150 mmHg: ±10 % of the actual reading
Sampling rate	50ml/min (±10ml/min)
Total system response time	Mainstream: <1s Sidestream: <4s
Preheating time	<10s

Comen (Mainstream and Sidestream)

Range	0~150mmHg 0%~19.7% 0~20kPa (at 760mmHg)
Resolution	1mmHg or 0.1kPa or 0.1%
Accuracy	0~40mmHg: ±2mmHg 41~70mmHg: ±5% of the actual reading 71~100mmHg: ±8% of the actual reading 101~150 mmHg: ±10 % of the actual reading
Sampling rate	50ml/min (±10ml/min)
Total system response time	Mainstream: <1s Sidestream: <4s
Preheating time	<10s

AG & AG+O2 Module (optional)

Module	Masimo/Comen AG (Mainstream) Masimo/Comen AG (Sidestream) Masimo/comen AG+O_2 (Sidestream)
AG warm-up time	<20s
Sampling flow	50ml/min
CO2	0~15%: ± (0.2% +2% of reading) 15~25%: Not specified
N2O	0~100%: ± (2% +2% of reading)
HAL, ENF, ISO	0~8%: ± (0.15% +5% of reading) 8~25%: Not specified
SEV	0~10%: ± (0.15% +5% of reading) 10~25%: Not specified
DES	0~22%: ± (0.15% +5% of reading) 22~25%: Not specified
O2	0~100%: ± (1% +2% of reading)

BIS Module (optional)

BIS	0~100 (±1%)
SQI	0~100% (±1%)
EMG	0~100dB (±1%)
ESR	0~100% (±1%)

NMT Module (optional)

Pulse width	100us, 200us, 300us
Stimulation current	0~60mA
Mode	ST mode TOF mode DBS mode PTC model
Block Recovery Threshold	Off, 1, 2, 3, 4, 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%

*Specifications subject to changes without prior notice.

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