

Specification: A7



SUNRAYS
Recreating the possibilities

SUNRAYS IMAGE TECHNOLOGY PV LTD.

A-1, Krishna Vihar, VKI Road No 19,

Akhepura, Jaipur ,

Rajasthan -302013

India

Tel: +91-141-2950021

Email: info@sunraysmedical.com

Web: sunraysmedical.com

Anesthesia Machine

A7



Physical Characteristics	
Size	780mm*676mm*1390mm
Weight	90kg(without vaporiser and cylinder)
Screen Size	8.4" TFT touchscreen
Resolution	800*600
Handrail Length	412mm
Caster wheel	4 wheels, Size: 4", Footbrakes (optional)
Brightness	Adjustable
Operation Environment	
Working Temp	10~40°C
Humidity	≤93%
Power Supply	100~240V, 50/60±1Hz
Battery Type	Rechargeable Lithium-ion battery
Battery Capacity	Standard: 2200mAh Optional: 4400mAh
Battery Recharging Time	6 hours for charging
Battery backup	Standard: 60 min for continuous working, Optional: 6 hours for continuous working
Waveforms Spirometry	Pressure-time, Flow rate-time, Volume-time, EtCO ₂ , EEG, Pressure-volume Loops (optional), Flow-volume Loops (optional), Pressure-flow Loops (optional)
Top Plate	
Maximum supporting capacity	20kg
Operational dimensions	535mm×235mm

Dimensions with Additional Accessory	508mm×313mm×380mm
Workbench	
Maximum supporting capacity	20kg
Operational dimensions	850mm*480mm*230mm
Interface	
USB interfaces	1
RJ45 network interface	1
Auxiliary power output	3
AC power interface	1
Equal-potential grounding terminal	1
DB9 interface	1
Drawers	
Single Quantity	Standard: three drawers Optional: single drawer
Size	392mm*333mm*150mm
Bearing Weight	1kg
Features	
Patients	Adult, Pediatric
Working Mode	Manual, Mechanical, Standby
Compliance	Compliance Correction
Standard Configuration	8.4" TFT touch screen, Lithium-ion battery of 60min, 2 tube flowmeters (single oxygen pipeline), Three drawers, Single vaporiser slot, Flush Oxygen,

	Footbrake, 3auxiliarypoweroutput, Breathcircuitsystem
Standardventilation	VCV, PCV
OptionalConfiguration	MASIMO EtCO ₂ (mainstream), RespironicsEtCO ₂ (mainstream), RespironicsEtCO ₂ (sidestream), MASIMO AG (sidestream), MASIMO AG+O ₂ (sidestream), Artema AG, ArtemaAG+O ₂ , Optimalflowindication, Anestheticusagemonitoring, CPB
VentilationModes	
VCV/VC	Volume-ControlledVentilation
PCV/VPC	PressureControlVentilation
SIMV-VC,SIMV-PC	SynchronizedIntermittentMandatoryVentilation
PRVC	PressureRegulatedVolumeControl
PSV/CPAP	PressureSupportVentilation
PSV Pro	Pressuresupportventilationforapneabackup
SIMV-PRVC	Synchronized Intermittent Mandatory Pressure Regulated Volume Control Ventilation
Others	Manualand automatic ventilation
Ventilationprinciple	Chronometric, Volumetric, Barometric
Ventilation	Electronicallycontrolled&pneumaticallydriven
Drivengas	O ₂ , Air (optional)
Breathingcircuit volume	1000ml+bag
VentilatorSettingRanges	
Tidalvolumerange	15~1500mL
MV (Per-minuteventilationamount)	0~100L/min
Plimit(pressure)	10~100cmH ₂ O
f (RespiratoryRate)	4~100bpm
I.E.(Inspiratory Expiratoryratio)	4:1~1:10

Apneal.E.	4:1~1:8
Apneatime	10~30s
Apneapressure	3~60cmH ₂ O
Freq. Min. (Min.frequencyforapnea- ventilation)	2~60bpm
Tpause(Inspiratorypause)	OFF, 5%~60%ofinspiratorytime,
Tinsp(Inspiratorytime)	0.2~5s
Pinsp(Inspiratorypressure)	5~70cmH ₂ O
PEEP	OFF, 3~30cmH ₂ O
Triggerpressure	-20~-1cmH ₂ O
Triggerwindow	5%~90%
Triggerflowrate	0.2~15L/min
Flushoxygen(RapidOxygenation)	25~75L/min
Inspiratorystoplevel	5%~80%
Tslope(Pressureslope)	0~2.0s
Monitoringparameter	
TV(Inspiratorytidalvolume)	0~3000 mL
TV(Expiratorytidalvolume)	0~3000 mL
MV(Per-minuteventilationamount)	0~100L/min
FiO ₂ (Oxygenconcentration)	18~100%
Paw(Airwaypressure)	-20~120cmH ₂ O
PEEP	0~70cmH ₂ O
Ppeak(Airwaypressure)	-20~120cmH ₂ O
Pmean(Meanpressure)	-20~120cmH ₂ O
Pplat(Platformpressure)	0~100cmH ₂ O
I.E.(Inspiratory-expirator yratio)	4:1~1:12
RR	0~120bpm
Compliance	0~300mL/cmH ₂ O
Resistance	0~600cmH ₂ O/(s/L)
EtCO₂	
MASIMOEtCO ₂ (sidestream)	0~190 mmHg, 0~25% (at 760mmHg), Accuracy: ± (0.3%+4% of reading)
MASIMOEtCO ₂ (mainstream)	0~190mmHg,0~25%(at760mmHg), Accuracy:±(0.3%+4%ofreading)
Respironics	0~150 mmHg, 0~19.7% (at 760

EtCO ₂ (sidestream/ mainstream)	mmHg, Accuracy: 0~5.3%: ±0.3% of reading, 5.4~9.2%: ±5% of reading, 9.3~13.2%: ±8% of reading, 13.3~19.7%: ±10% of reading
AG	
MASIMOAG	SEV: 0~25%, DES: 0~25%, HAL, ISO, ENF: 0~25%, N ₂ O: 0~100%, O ₂ : 0~100%, CO ₂ : 0~25% (0~190 mmHg) Accuracy: SEV: ± (0.15% + 5% of reading), DES: ± (0.15% + 5% of reading), ISO/ENF/HAL: ± (0.15% + 5% of reading), N ₂ O: ± (2% + 2% of reading), O ₂ : ± (1% + 2% of reading), CO ₂ : ± (0.2% + 2% of reading)
Anesthesia depth	
BIS	0~100
SQI	0~100%
EMG	0~100dB
ESR	0~100%
Ventilator Performance	
Inlet Pressure range	280~600kPa
Peak MV	100L/min
Minute Volume	1~100L/min
Inspiratory flow	Standard: Maximum inspiratory flow shall not be smaller than 80L/min when gas supply pressure is 280 kPa, Optional: Maximum inspiratory flow shall not be smaller than 120L/min when gas supply pressure is 280 kPa
Pressure limitation Controlling means for ventilator	Controlled by the electronic relief valve fitted inside the ventilator, Controlled by the mechanical relief valve fitted inside the ventilator

Control accuracy	
TV	15~60ml: ±15ml, 60~1500 ml: ±20ml or ±10% of setting value
PCV	Inspiratory pressure: ±3cmH ₂ O or ±8% of setting value, Limiting pressure: ±4cmH ₂ O or ±10% of setting value, PEEP: ±2.0cmH ₂ O or ±10% of setting value (3~30cmH ₂ O), Supporting pressure: ±3.0 cmH ₂ O or ±8% of setting value (3~60 cmH ₂ O), Apnea pressure: ±3cmH ₂ O or ±8% of setting value, Trigger pressure: ±1%
RR	±1bpm: ±0.5%
I.E.	2:1~1:4: ±10%, Other range: ±25% of the setting value
Apnea I.E.	2:1~1:4: ±10%, Other range: ±25% of the setting value
Tpause	±15% of the setting value or ±0.1s in the range of 20% to 60%
Inspiratory time	±0.2s
Trigger window	±1%
Trigger flow rate	±1L/min
Inspiratory stop level	±1%
Pressure slope	±0.1s
Inspiratory trigger	Trigger pressure: -5cmH ₂ O, Trigger flow: 0.1L/min
SIMV Rate	1bpm
Monitoring accuracy	
TV (expiratory)	0~60ml: ±15 ml, 60~3000ml: ±20ml or ±10% of setting value, whichever is greater
TV (inspiratory)	±20ml or ±10% of setting value, whichever is greater
Paw	±3 cmH ₂ O or ±8% of set value, whichever is greater
PEEP	±2.0cmH ₂ O or ±10% of set value, whichever is greater
RR	±1bpm or ±5% of set value, whichever is greater
I.E.	2:1~1:4: ±10% of reading value, 4:1~2:1 and 1:4~1:12:

	±25% of setting value, Others: undefined
MV	0~30 L/min: ±1 L/min or ±15% of set value, whichever is greater, >30L/min: undefined, Others: undefined
Compliance	0~250ml/cmH2O
Resistance	0~500cmH2O/(L/s)
Alarm Settings	
Tidal volume	High: 5~1600ml Low: 0~1595ml
MV	High: 2~100L/min Low: 0~98L/min
FiO2	High: 20~105% Low: 18~103%
Air pressure	High: 2~100cmH2O Low: 0~98cmH2O
Apnea alarm	Two triggering conditions are satisfied simultaneously: 1. Airway pressure is continuously lower than (PEEP +3)cmH2O for more than 30 seconds 2. Expiratory tidal volume is continuously lower than 10ml for more than 30 seconds Increase the set values of tidal volume and respiratory frequency, or set it to Manual/spontaneous mode
Alarm	Audible and visual alarm, 120s
Alarm access	Easy access by shortcut
Flowmeters	
Type	Mechanical flowmeter
N2O range	0~10L/min, the flow can be adjusted to 50ml/min
Air range	0~15L/min, the flow can be adjusted to 50ml/min
O2 range	0~15L/min, the flow can be adjusted to 50ml/min
Total flow control	Air balance gas: 21~100% N2O balance gas: 25~100%
Total flow range	0~15L/min
Backup flow control	0~15L/min
O2-N2O Link system	Equipped with a safety system to ensure an O2 concentration of at least

	ast 25%
Gas Supply	
Pipeline gasses	O2, N2O, Air
Backup gas-cylinder gasses	O2, N2O, Air
Pipeline gas connection	NIST/DISS
Backup cylinder connection	YOKE-CGA
Inlet pressure range	280~600kPa
Filter	60~100µm, Stainless steel mesh
Features	Switch easily to the other gas without interrupting the ventilation
Auxiliary gas supply (Float flowmeter)	Standard: O2 supply, Optional: Air supply, auxiliary air + O2 supply
Carbon Dioxide (CO2) Modules	
Type	Mainstream ET CO2, sidestream ET CO2
Method	Infrared absorption
Display	Numeric and curved displayed in screen
BIS Modules	
Smoothing rate	10/15/30s
Waveform Sweep	6.25/12.5/25/50mm/s
Wave gear	50/100/200/400/625/1000/2000 µv
Anesthetic Agent (AG) Module	
Maximum sound pressure for low alarm	79dB
Measurement type	Sidestream
Accuracy	±10ml/min or ±10%, whichever is greater
Monitored parameters	CO2, N2O, AG + O2, MAC, AG and Paramagnetic O2
Active AGSS	
Feature	High flow, low vacuum
Size	535mm × 120mm × 155mm
Weight	2.2kg
Applies	ISO 80601-2-13 and YY 0635-2
Pressure relief device	Atmospheric pressure compensation port
Connector	ISO 9170-2 or BS 6834 standard connector
Flow of suction	AGSS-H: 50~80L/min, AGSS-L: 25~50L/min
Filter	Stainless steel mesh, with pore size of 6

	0~100μm
ACGO	
Connector	Tapercoaxialfittingof22mm (outside)and15 mm(inside)
Back pressuregenerated at therear end ofanesthesiavaporizer and thefront-end of ACGOduring rapidoxygenvariation	≤2kPa
FlushO2	
	25~75L/min
	100%fastoxygen
Vaporizer	
Brand	Comen/Drager/Penlonavailable
Singlevaporizer	Standard
Doublevaporizer	Optional

Locking	Twovaporizerswithinterlockingsystem
Automatic recognition	Anesthesiamachineabletoautomatic recognizehalogenatedgases
ExternalAC powersupply	
Inputvoltage	100~240V
Inputcurrent	7.0~3.5A
Inputfrequency	50/60 Hz
Leakagecurrent	<500μA
Lengthofwire	5m
Auxiliaryoutputsupply	
Outputvoltage	100~240V
Outputfrequency	50/60 Hz
Outputcurrent	1.0A

***Notice: Specifications subject to changes without prior notice. All rights reserved by Comen**