

Specification: AX 900



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Anesthesia Machine

AX 900

Technical Specification

Physical Characteristics

Size	689 mm × 800 mm × 1400 mm
Weight	128kg
Maximum Bearing	
Weight	210kg
Screen Size:	15" + 8" TFT touch screen
Resolution	1024 × 768
Handrail Length	750mm
Caster wheel	4 wheels, central baking; brakes optional; size 5"

Operation Environment

Working Temp	10~40°C
Humidity	≤93%
Power Supply	100-240V~, 50/60Hz±1Hz
Battery Type	Rechargeable Lithium-ion battery
Battery Capacity	7000 mAh, 11.1VDC
Battery Recharging	
Time	6 hours for charging;
Battery backup	3 hours for continuous working
Waveforms	Pressure-time; Flow rate-time;
Spirometry	Capacity-time; EtCO ₂ concentration Pressure-volume; Flow-volume; Pressure- flow

Top Plate

Maximum supporting capacity	20kg
Operational dimensions	508mm×313mm
Dimensions with Additional Accessory	508mm×313mm×380mm

Workbench

Maximum supporting capacity	20kg
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Operational dimensions	472mm×248mm
Dimensions with Additional Accessory	472mm×248mm×380mm

Interface:

2 USB interfaces
RJ45 network interface
4 auxiliary power output
AC power interface
Equal-potential grounding terminal
DB9 interface
VGA interface

Drawers

Top:	Size:462mm×287mm×141mm Bearing Weight: 1Kg
Bottom:	Size: 437mm×287mm×245mm Bearing Weight: 3Kg

Gas-bag Sway Brace

Length:	425mm
Height:	240mm

Features

Anesthesia process	Open, semi closed, closed circuit
Patients	Adult, pediatric
Working Mode	Manual, Mechanical, Standby
Compliance	Compliance Correction
Configuration	Possibility of configuration observation
Heating	Available
Bypass	Available
Oxygen sensor	Available

Optional	Negative pressure drainage; Isolation transformer; AGSS; BIS; MASIMO EtCO ₂ (sidestream); MASIMO EtCO ₂ (mainstream); MASIMO AG (sidestream); Respirationics EtCO ₂ (mainstream); Respirationics EtCO ₂ (Sidestream); MASIMO AG+O ₂ (sidestream); Artema AG; Artema AG+O ₂ ; Optimal flow indication; Anesthetic usage monitoring; CPB
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Tpause (Inspiratory pause)	OFF, 5~60% of inspiratory time
Tinsp (Inspiratory time)	0.2~5s
Pinsp (Inspiratory pressure)	5~70 cmH ₂ O
PEEP	OFF, 3~30 cmH ₂ O
Trigger pressure	-20~-1 cmH ₂ O
Trigger window	5~90%
Trigger flow rate	0.2~15 L/ min
Flush oxygen (Rapid Oxygenation)	25~75 L/ min
Inspiratory stop level	5~80%

Ventilator Specification

Ventilation Modes

VCV/VC	Volume-Controlled Ventilation with tidal volume compensation
PCV/VPC	Pressure Control Ventilation
SIMV-VC, SIMV-PC	Synchronized Intermittent Mandatory Ventilation
PRVC	Pressure Regulated Volume Control
PSV/ CPAP	Pressure Support Ventilation
Others	Manual and automatic ventilation
Optional	SIMV-PRVC, PSV Pro
Ventilation principle	Chronometric, volumetric and barometric
Ventilation	Electronically controlled& pneumatically driven
Driven gas	Electronic selective air or O ₂
Breathing circuit volume	1000 ml + bag

Ventilator Setting ranges

Tidal volume range	15 ~1500 mL
MV (Per-minute ventilation amount)	0~100 L/min
Plimit (pressure)	10~100 cmH ₂ O
RR	3~60 cmH ₂ O
f (Respiratory Rate)	4~100 bpm
I.E. (Inspiratory Expiratory ratio)	4:1~1:10
Apnea I.E.	4:1~1:8
Apnea time	10~30s
Apnea pressure	3~60 cmH ₂ O
Freq. Min. (Min. frequency for apnea-ventilation)	2-60 bpm

Ventilator Monitoring Ranges

TV (Inspiratory tidal volume)	0~3000 mL
TV (expiratory tidal volume)	0~3000 mL
MV (Per-minute ventilation amount)	0~100 L/min
FiO ₂ (Oxygen concentration)	18~100%
Paw (Airway pressure)	-20~120 cmH ₂ O
PEEP	0~70 cmH ₂ O
Ppeak (Airway pressure)	-20~120 cmH ₂ O
Pmean (Mean pressure)	-20~120 cmH ₂ O
Pplat (Platform pressure)	0~120 cmH ₂ O
I.E. (Inspiratory-expiratory ratio)	4:1~1:12
RR	0~120 bpm
Compliance	0~300 mL/cmH ₂ O
Resistance	0~600 cmH ₂ O/(s/L)
NMT	
stimulus output	Pulse Width: 200us; accuracy: $\pm 10\%$; Stimulate current range: 0mA~80mA; Step size 5mA; Accuracy: $\pm 5\%$ or $\pm 2mA$ (whichever is greater)

	Maximum skin impedance: 5KΩ		Accuracy:
ST mode	ST-Ratio: 0%~200%; Measurement interval: manual, 1s, 10s, 20s, 30s		SEV: 0~1%: ± 0.15%; 1~5%: ±0.2%; 5~8%: ±0.4%; DES: 0~1%: ± 0.15%; 1~5%: ±0.2%; 5~10%: ±0.4%;10~15%: ± 0.6%; 15~18%: ±1%; ISO, ENF, HAL: 0~1%: ±0.15%; 1~5vol %: ±0.2%; N2O: ± (2% + 2% of the reading) O2: 0~25%: ±1%; 25~80%: ±2%; 80~100%: ±3%; CO2: 0~15%: ± (0.2% + 2% of the reading); 15~25%: unspecified
TOF mode	TOF-Count:0~4 TOF-Ratio: 0%~200% TOF-T1%:0%~150% Measurement interval: Manual, 12s, 15s, 20s, 30s, 1min, 2min, 5min, 10min, 15min, 30min, 60min		
PTC mode	PTC-Count: 0~20; Measurement interval: Manual;		
DBS mode		Artema AG	SEV: 0~8% DES: 0~18% HAL/ ISO/ ENF: 0~5% N2O: 0~100% O2: 0~100% CO2: 0~10%
	DBS-Count: 0~2; DBS-Ratio: 0~200%; Measurement interval: Manual, 15s, 20s, 30s, 1min, 2min, 5min, 10min, 15min, 30min, 60min		
TET mode	Physiological rigidity mode, provides 50Hz and 0.2ms pulse stimulation	Anesthesia depth	
Block recovery	Off、 1、 2、 3、 4、 5%、 10%、 20%、 30%、 40%、 50%、 60%、 70%、 80%、 90%、 100%	BIS	0.0~100.0
		SQI	0.0~100.0%
		EMG	0~100dB
		ESR	0.0~100.0%
EtCO2		Ventilator Performance	
MASIMO EtCO2 (sidestream);	0~190mmHg, 0~25% (at 760mmHg) Accuracy: ± (0.3%+4% of reading).	Inlet Pressure range	0.28~0.6 MPa
MASIMO EtCO2 (mainstream)	0~190mmHg, 0~25% (at 760mmHg) Accuracy: ± (0.3%+4% of reading).	Peak gas flow	>100 L/min
Respironics EtCO2 (sidestream);	0~150mmHg, 0~19.7% (at 760mmHg) Accuracy: 0~5.3%: ±0.3%; 5.4~9.2%: ±5% of reading; 9.3~13.2%: ±8% of reading; 13.3~19.7%: ±10% of reading;	Flow range	1~100 L/min
Respironics EtCO2 (mainstream)	0~150mmHg, 0~19.7% (at 760mmHg) Accuracy: 0~5.3%: ±0.3%; 5.4~9.2%: ±5% of reading; 9.3~13.2%: ±8% of reading; 13.3~19.7%: ±10% of reading;	Flow compensation rage	200 mL/min to 18 L/min
		Inspiratory flow	Maximum inspiratory flow shall not be smaller than 100L/min when gas supply pressure is 280KPa.
		Pressure limitation	Controlled by the electronic relief valve fitted inside the ventilator;
		Controlling means for ventilator	Controlled by the mechanical relief valve fitted inside the ventilator.
AG			Ventilator accuracy
MASIMO AG	SEV: 0~25% DES: 0~25% HAL/ ISO/ ENF: 0~25% N2O: 0~100% O2: 0~100% CO2: 0~25% (0~190mmHg)	Control accuracy	
		TV	15~60 ml: ±10ml; 60~210 ml: ±15ml; 210~1500 ml: ±7% of set value.
		PCV	Inspiratory pressure: ±2.5cmH2O or

	±7% of set value, whichever is greater.				greater; Others: undefined.
	Limiting pressure: ±2.5cmH ₂ O or ±7% of set value, whichever is greater.	PEEP			0 cmH ₂ O~70 cmH ₂ O: ±2.0 cmH ₂ O or ± 4% of set value, whichever is greater; Others: undefined.
	PEEP: OFF: undefined; 3~30cmH ₂ O: ±2.0cmH ₂ O, or ±8% of set value, whichever is the greater.	Pmean			-20 cmH ₂ O~120 cmH ₂ O: ±2.0 cmH ₂ O or ± 4% of setting value, whichever is greater; Others: undefined.
	Supporting pressure: ±2.5cmH ₂ O or ±7% of set value, whichever is greater.	Pplat			0 cmH ₂ O~120 cmH ₂ O: ±2.0 cmH ₂ O or ± 4% of set value, whichever is greater; Others: undefined.
	Apnea pressure: ±2.5cmH ₂ O or ±7% of set value, whichever is greater.	RR			±1 bpm or ±5% of set value, whichever is greater.
RR	Trigger pressure: ±2.0cmH ₂ O.	I.E.			2: 1~1: 4: ±10% of reading value;
	±1 bpm or ±5% of set value, whichever is the greater.				4: 1~2: 1 and 1: 4~1: 12: ±25% of setting value; Others: undefined.
I.E.	2: 1~1: 4: ±10% of reading value;	MV			0 L/min~30 L/min: ±1 L/min or ±15% of set value, whichever is greater; >30 L/min: undefined.
	Other ranges: ±25% of reading value.				
Apnea I.E.	2: 1~1: 4: ±10% of set value;				
	Other ranges: ±25% of set value.				
Tpause	In the range of 20%~60%: ±15% of set value;	Compliance			0 ml/cmH ₂ O~250 ml/cmH ₂ O: ±0.5 ml/cmH ₂ O or ± 15% of reading value, whichever is greater.
	Other ranges: undefined.				Other ranges: undefined.
Inspiratory time	±0.2s	Resistance			0 cmH ₂ O/(L/s) ~20 cmH ₂ O/(L/s): ± 10 cmH ₂ O/(L/s); 20 cmH ₂ O/(L/s)~500 cmH ₂ O/(L/s): ± 50% of reading value; Other ranges: undefined.
Inspiratory pause	±15% of set value;				
Trigger window	±10%	Oxygen sensor			±3%
Trigger flow rate	±1 L/ min	O ₂ / N ₂ O/ Air flow control			10~100% of the full scale: ±10% of the reading value. Other ranges: undefined.
Inspiratory stop level	±10%	Total flow control			Air balance gas: ≤±3%
O ₂ / N ₂ O/ Air flow control	10~100% of the full scale: ±10% of the reading value.	Backup flow control			N ₂ O balance gas: ≤±3%
Total flow control	Air balance gas: ≤±3%				Pure Oxygen flow rate is 0~10 L/min: ≤±3%; Others: undefined.
	N ₂ O balance gas: ≤±3%	Auxiliary flow control			10~100% of the full scale: ±10% of the reading value. Other ranges: undefined.
Backup flow control	Pure Oxygen flow rate is 0~10 L/min: ≤±10%; Others: undefined.				
Auxiliary flow control	10~100% of the full scale: ±10% of the reading value. Other ranges: undefined.				
Monitoring accuracy					
TV (expiratory)	0~60ml: ±10 ml; 60ml ~ 3000ml: ± 20ml or ± 7% of reading value, whichever is greater; Others: undefined.	Alarm Settings			
TV (Inspiratory)	60ml ~ 3000ml: ± 20ml or ± 7% of reading value, whichever is greater; Others: undefined.	Tidal volume			High: 5~1600 ml
Paw	-20 cmH ₂ O~120 cmH ₂ O: ±2.0 cmH ₂ O or ± 4% of set value, whichever is	MV			Low: 0 ~1595 ml
		FiO ₂			High: 2~100L/min
					Low: 0 ~98L/min
					High: 20~105%
					Low: 18 ~ 103%

Ppeak	High: 2 ~100cmH2O Low: 0 ~98cmH2O
Apnea alarm	Two (2) 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;
Alarm access	Easy access by shortcut

Flow meters

Type	Electronic flow meter
N2O range	0 ~15 L/min
Air range	0 ~15 L/min
O2 range	0.2 ~15 L/min
Total flow control	Air balance gas: 21~100% N2O balance gas: 25~100%
Total flow range	0.2 ~18 L/min
Backup flow control	0 ~15 L/min
Proportional device	Equipped with a safety system to ensure an O2 concentration of at least 25%

Gas Supply

Pipeline gasses	O2, N2O, Air
Backup gas-cylinder gasses	O2, N2O, Air
Pipeline gas connection	NIST
Backup cylinder connection	YOKE-CGA
Inlet pressure range	280~600 kPa
Filter	60-80µm
Features	Switch easily to the other gas without interrupting the ventilation
Auxiliary gas supply	O2& O2, Air mixture gas

Breathing System Specification

System Pressure Gauge

Range	-20~100 cmH2O
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Accuracy	± (4% of full scales reading + 4% of actual reading)
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Adjustable Pressure Limiting (APL)valve

Range	1~75 cmH2O
Touch indication	>30 cmH2O
Accuracy:	±1.0 cmH2O
Minimum opening pressure	0.3 cmH2O (dry), 0.5 cmH2O (humid)

Breathing Circuit Parameters

Compliance	≤4mL/100Pa Automatically compensates for compression loss within the breathing circuit in mechanical mode
Volume of CO2 canister	2000ml

Feature	Heated at 134 degree, removable, easy to dismantle and sterilize
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Gas Monitoring

Carbon Dioxide (CO2) Modules

Type	Mainstream ETCO2, Sidestream ETCO2
Method	Infrared absorption
Display	Numeric and curve displayed in screen
Alarm delay	1~10s (step size: 1s)
Sweep	6.25 mm/s, 12.5 mm/s

Anesthetic Agent (AG) Module

Maximum sound pressure for low alarm	79dB
Measurement type	Side stream
Module type	Phasin ISA AG module
Accuracy	±10ml/min or ±10%, whichever is greater
Monitored parameters	CO2, N2O, AA, MAC, Paramagnetic O2 and BIS

Active AGSS

Feature	High flow, low vacuum
Size	535 mm×120 mm×155 mm
Weight	2.2 kg
Applies	ISO 80601-2-13 and YY 0635-2
Pressure relief device	Atmospheric pressure compensation port

Connector	ISO9170-2 or BS6834 standard connector
Flow of suction	50-80L/min
Resistance	0.75KPa ,75L/min
Filter	Stainless steel mesh, with pore size of 60~100μm

ACGO

Connector	Taper coaxial fitting of 22mm (outside) and 15 (inside)
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Back pressure generated at the rear end of anesthesia vaporizer and the front-end of ACGO during rapid oxygen variation

≤2kPa

Flush O2

100% fast oxygen

Vaporizer

Brand	Drager and Penlon available
Locking	Two vaporizers with interlocking system

Automatic recognition	Anesthesia machine able to automatic recognize halogenated gases
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Power (No isolation transformer)

External AC power supply

Input voltage	100~240 V~/ 100~120V~
Input current	3.5~8.5 A/8.5 A
Input frequency	50/60 Hz
Leakage current	< 500μA

Auxiliary output supply

Output voltage	100~240 V~/ 100~120V~
Output frequency	50/60 Hz

Power (With isolation transformer)

External AC power supply

Input voltage	100~120 V~/ 220~240V~
Input current	3.5 A/8.5 A
Input frequency	50/60 Hz
Leakage current	< 500μA

Auxiliary output supply

Output voltage	100~120 V~/ 220~240V~
Output frequency	50/60 Hz

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