

Specification: AX 400

The word "COMEN" is rendered in large, 3D, metallic-style letters. The letters are set against a blue background that features a globe-like horizon line. Above the main "COMEN" text, there is a cloud-like formation of smaller, semi-transparent "COMEN" words in various orientations and sizes, creating a sense of global connectivity and digital presence.

COMEN Share with the world

The logo for Hichens, Harrison & co consists of a square grid of black and blue squares. The grid is 4 squares wide and 4 squares high. The top-left square is black, the top-right is blue, the bottom-left is black, and the bottom-right is blue. The text "Hichens, Harrison & co" is positioned to the right of the grid, and "Established 1803" is centered below it.

Hichens,
Harrison & co
Established 1803

Anesthesia Machine

AX 400



Technical Specification

Physical Characteristics

Size	773.5mm×1380mm×598mm
Weight	90kg
Entire Machine	
Maximum Bearing	
Weight	160kg
Screen Size:	8.4" TFT touch screen
Resolution	800 × 600
Handrail Length	412mm
Caster wheel	4 wheels 4" brakes;

Operation Environment

Working Temp	10~40°C
Humidity	≤93%
Power Supply	100-240V~, 50/60Hz±1Hz
Battery Type	Rechargeable Lithium-ion battery
Battery Capacity	4400mAh, 11.1VDC
Battery Recharging	
Time	Maximum 10 hours for charging
Battery backup	2 hours for continuous working
Trace	Waveforms: Pressure-time; Flow rate-time; Capacity-time; ET EtCO2 concentration; EEG Optional: Pressure-volume Loops; Flow-volume Loops; Pressure- flow Loops

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:

USB port
RJ45
Three auxiliary power output
AC power interface
Equal-potential grounding terminal
DB9 interface

Features

Drawers:	Size: 416mm×395mm×170mm Bearing Weight: 1Kg
Gas-bag Sway Brace:	Length: 320mm; Height: 240mm
Anesthesia process	Open, semi closed, closed circuit
Patients	Adult, pediatric
Mode	Manual, Mechanical, Standby
Compliance	Compliance Correction
Configuration	Possibility of configuration observation
Optional	Bypass; Heating; Oxygen sensor; ACGO; AG55; BIS; CPB; MASIMO EtCO2 (sidestream); MASIMO EtCO2 (mainstream); MASIMO AG (sidestream); Respiration EtCO2 (mainstream);

Ventilator Specification

Ventilation Modes

VCV/VC	Volume-Controlled Ventilation with tidal volume compensation
Others	Manual and automatic ventilation

Optional	PCV/VPC, SIMV-VC, PSV/ CPAP, SIMV-PC, PRVC, SIMV-PRVC, PSVPro
Ventilation principle	Chronometric, volumetric and barometric
Ventilation	Electronically controlled & pneumatically driven
Driven gas	O ₂ (air: optional)

Ventilator Setting ranges

Monitoring parameter	Tidal volume, Inspiratory, expiratory flow, minute volume, frequency, pressure (P _{mean} , P _{plat} , P _{peak} , PEEP), Oxygen, CO ₂ , N ₂ O and halogenated expiratory concentration, Pressure, oxygen, CO ₂ , N ₂ O and Halogen numerical values, compliance and patient resistance
Tidal volume range	15 ~1500 mL
Pressure range (limit)	10~100 cmH ₂ O
Pressure range (support)	3~60cmH ₂ O
Respiratory rate	4~100bpm
Inspiratory /Expiratory ratio (I: E) range	4:1~1:10
Apnea I: E	4:1~1:8
Apnea time	10~30s
Apnea pressure	3~60cmH ₂ O
Inspiratory pause	OFF, 5~16% of inspiratory time
Inspiratory time	0.2~5s
Inspiratory pressure	5~70cmH ₂ O
PEEP	OFF, 3~30cmH ₂ O
Trigger pressure	-20~-1cmH ₂ O
Trigger window	5~90%
Trigger flow	0.2~15 L/ min
Flush oxygen	25~75 L/ min
Inspiratory stop level	5~80%
Pressure slope	0~2.0s

Positive End Expiratory Pressure (PEEP)

Type	integrated, electronically controlled
Range	0~70 cmH ₂ O

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%
Airway pressure	-20~120cmH ₂ O
PEEP	0~70cmH ₂ O
P _{peak} (Airway pressure)	-20~120 cmH ₂ O
P _{mean} (Mean pressure)	-20~120cmH ₂ O
P _{plat} (Platform pressure)	0~120cmH ₂ O
I: E (Inspiratory-expiratory ratio)	4:1~1:12
Freq (Respiratory rate)	0~120 bpm
Compl (Compliance)	0~300 mL/cmH ₂ O
Resistance	0~600 cmH ₂ O/(s/L)

EtCO₂

MASIMO EtCO ₂ (sidestream);	0~190mmHg, 0~25% (at 760mmHg) Accuracy: ± (0.3%+4% of reading).
MASIMO EtCO ₂ (mainstream)	0~190mmHg, 0~25% (at 760mmHg) Accuracy: ± (0.3%+4% of reading).
Respironics EtCO ₂ (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;

AG

MASIMO AG	SEV: 0~25% DES: 0~25% HAL/ ISO/ ENF: 0~25% N ₂ O: 0~100% O ₂ : 0~100% CO ₂ : 0~25% (0~190mmHg) Accuracy: 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%; N ₂ O: ± (2% + 2% of the reading) O ₂ : 0~25%: ±1%; 25~80%: ±2%; 80~100%: ±3%;
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	CO ₂ : 0~15%: ± (0.2% + 2% of the reading); 15~25%: unspecified		Other ranges: ±25% of set value.
Anesthesia depth		Tip: Ti	20%~60%: ±15% of set value; Other ranges: undefined.
BIS	0.0~100.0	Inspiratory time	±0.2s
SQJ	0.0~100.0%	Inspiratory pause	20%~60%: ±15% of set value; Other ranges: undefined.
EMG	0~100dB	Trigger window	±10%
ESR	0.0~100.0%	Trigger flow rate	±1 L/ min
Ventilator Performance		Inspiratory stop level	±10%
Pressure range at inlet	0.28~0.6 MPa	O ₂ / N ₂ O/ Air flow control	10~100% of the full scale: ±10% of the reading value. Other ranges: undefined.
Peak gas flow	100 L/min plus fresh gas	Total flow control	Air balance gas: ±3% N ₂ O balance gas: ±3%
Flow valve range	1~100 L/min	Backup flow control	Pure Oxygen flow rate is 0~10 L/min: ±3%; Others: undefined.
Flow compensation range	200 mL/min to 15 L/min	Auxiliary flow control	10~100% of the full scale: ±10% of the reading value. Other ranges: undefined.
Inspiratory flow	Maximum inspiratory flow shall not be smaller than 120L/min when gas supply pressure is 280KPa.	Monitoring accuracy	
Range of flow valve	3~100 L/min	TV (expiratory)	0~60ml: ±10 ml; 60ml ~ 3000ml: ±20ml or ± 7% of reading value, whichever is greater; Others: undefined.
Pressure limitation	Controlled by the electronic relief valve fitted inside the ventilator;	TV (inspiratory)	60ml ~ 3000ml: ± 20ml or ± 7% of reading value, whichever is greater; Others: undefined.
Controlling means for ventilator	Controlled by the mechanical relief valve fitted inside the ventilator.	Paw	-20 cmH ₂ O~120 cmH ₂ O: ±2.0 cmH ₂ O or ± 4% of set value, whichever is greater; Others: undefined.
Ventilator accuracy		PEEP	0 cmH ₂ O~70 cmH ₂ O: ±2.0 cmH ₂ O or ± 4% of set value, whichever is greater; Others: undefined.
Control accuracy		Pmean	-20 cmH ₂ O~120 cmH ₂ O: ±2.0 cmH ₂ O or ± 4% of setting value, whichever is greater; Others: undefined.
TV	15~60 ml: ±10ml; 60~210 ml: ±15ml; 210~1500 ml: ±7% of set value.	Pplat	0 cmH ₂ O~120 cmH ₂ O: ±2.0 cmH ₂ O or ± 4% of set value, whichever is greater; Others: undefined.
PCV	Inspiratory pressure: ±2.5cmH ₂ O or ±7% of set value, whichever the greater. Limiting pressure: ±2.5cmH ₂ O or ±7% of set value, whichever the greater. PEEP: OFF: undefined; 3~30cmH ₂ O: ±2.0cmH ₂ O, or ±8% of set value, whichever is the greater. Supporting pressure: ±2.5cmH ₂ O or ±7% of set value, whichever the greater. Apnea pressure: ±2.5cmH ₂ O or ±7% of set value, whichever the greater. Trigger pressure: ±2.0cmH ₂ O.	Freq	±1 bpm or ±5% of set value, whichever is the greater.
Freq	±1 bpm or ±5% of set value, whichever is the 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.
I: E	2: 1~1: 4: ±10% of reading value; Other ranges: ±25% of reading value.		
Apnea I: E	2: 1~1: 4: ±10% of set value;		

MV	0 L/min~30 L/min: ± 1 L/min or $\pm 15\%$ of set value, whichever is greater; Others: undefined.
Compliance	0 ml/cmH ₂ O~250 ml/cmH ₂ O: ± 0.5 ml/cmH ₂ O or $\pm 15\%$ of reading value, whichever is greater; Other ranges: undefined.
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): $\pm 50\%$ of reading value; Other ranges: undefined.
Oxygen sensor	$\pm 3\%$
O ₂ / N ₂ O/ Air flow control	10~100% of the full scale: $\pm 10\%$ of the reading value. Other ranges: undefined.
Total flow control	Air balance gas: $\pm 3\%$ N ₂ O balance gas: $\pm 3\%$
Backup flow control	Pure Oxygen flow rate is 0~10 L/min: $\pm 3\%$; Others: undefined.
Auxiliary flow control	10~100% of the full scale: $\pm 10\%$ of the reading value. Other ranges: undefined.

Alarm Settings

Tidal volume (expiratory)	High: 5~1600 ml Low: 0 ~1595 ml
MV	High: 2~100L/ml Low: 0 ~98L/ml
Inspired oxygen	High: 20~105% Low: 18 ~ 103%
Ppeak	High: 2 ~100cmH ₂ O Low: 0 ~98cmH ₂ O
Apnea alarm	30s
Alarm	Audible and visual alarm;
Alarm access	Easy access by shortcut

Flow meters

Type	Mechanical flow meter
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Gas Supply

Pipeline gasses	O ₂
Optional	O ₂ , Air; O ₂ , N ₂ O; O ₂ , N ₂ O, Air
Standby gas-cylinder gasses	O ₂ , N ₂ O, Air
Pipeline gas connection	NIST
Standby cylinder connection	PISS

Pressure range at inlet	280~600 kPa
Filter	60-80um
Features	Switch easily to the other gas without interrupting the ventilation
Auxiliary gas supply	O ₂ (optional)

Breathing Circuit Specification

System Pressure Gauge

Range	-20~100 cmH ₂ O
Accuracy	\pm (4% of full scales reading + 4% of reading)

Adjustable Pressure Limiting (APL) valve

Range	1~75 cmH ₂ O
Tactile knob indication at	>30 cmH ₂ O
Accuracy:	± 1.0 cmH ₂ O
Minimum opening pressure	0.3 cmH ₂ O (dry), 0.5 cmH ₂ O (humid)

Breathing Circuit Parameters

Compliance	≤ 4 mL/100Pa Automatically compensates for compression loss with in the breathing circuit in mechanical mode
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Volume of CO ₂ canister	1500ml
Water Trap	7mL, easy to be disassembled
Feature	Heated at 134 degree, removable, easy to dismantle and sterilize

Gas Monitoring

Carbon Dioxide (CO₂) Modules

Type	Mainstream ETCO ₂ , Sidestream ETCO ₂
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	± 10 ml/min or $\pm 10\%$, whichever is greater
Monitored parameters	CO ₂ , N ₂ O, AA, MAC, Paramagnetic O ₂ and BIS

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	ISO9170-2 or B56834 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)
Back pressure generated at the rear end of anesthesia vaporizer and the front-end of ACGO during quick oxygen charging	≤2kPa

Flush O2

100% fast oxygen

Vaporizer

Brand	Drager and Penlon available
Locking	Vaporizer with interlocking system (Optional: Two vaporizers)
Automatic recognition	Anesthesia machine able to automatic recognize halogenated gases

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

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