



Critical Care Ventilation

Comprehensive Specifications

AVEA Comprehensive has integrated Bicore® technology for advanced pulmonary monitoring. Front panel connection ports are provided for esophageal balloon catheters, tracheal catheters and proximal flow sensors. Heliox administration and the unique scroll pump compressor come as standard features.

Setup	
Endotracheal Tube	
Diameter	2.0 to 10.0 mm
Length	2.0 to 30 cm
Automatic Tube Compensation	ON,OFF
Leak Compensation	ON,OFF
Circuit Compliance	0.0 to 7.5 ml/cmH ₂ O ¹
Humidifier Compensation	Active, Passive
Patient Setup	
Patient Weight	0.1 to 300 kg
Patient ID	Alphanumeric 24 characters

Mode	
Mode Type	A/C, SIMV, CPAP/PSV, NPPV, nCPAP
Breath Type	APRV/BiPhasic ¹ , Volume, Pressure, TCPL ² , PRVC ¹
Apnea Backup	Volume, Pressure, TCPL ²



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Primary Settings	
Rate	1 to 150 bpm (neonatal), 1 to 120 bpm (adult) ³
Tidal Volume	2.0 mL to 2.5 L
Inspiratory Pressure	0 to 80 cmH ₂ O Neo, 0 to 90 cmH ₂ O, Adult Ped
Peak Flow	0.4 to 150 L/min
Inspiratory Time	0.15 to 5.0 sec
Pressure Support Ventilation (PSV)	0 to 80 cmH ₂ O Neo, 0 to 90 cmH ₂ O, Adult Ped
PEEP	0 to 50 cmH ₂ O
Flow Trigger	0.1 to 20 L/min
%O ₂	21 to 100%
Pressure High ¹	0 to 90 cmH ₂ O
Time High ¹	0.2 to 30 sec
Time Low ¹	0.2 to 30 sec
Pressure Low ¹	0 to 45 cmH ₂ O

Manual Controls	
Manual Breath	One Breath
Expiratory Hold	Maximum 20 sec (3 sec) ²
Inspiratory Hold	Maximum 3 sec
Increase O ₂	Set % O ₂ + 0% to 79% O ₂
Synchronized Nebulizer	Peak Flow . 15 L/min
Disconnect for Suction	Active

Advanced Settings	
Bias Flow	0.4 to 5 L/min
Volume Limit	2.0 mL to 2.5 L
Inspiratory Rise	1 to 9
Flow Cycle	off to 45%
PSV Rise	1 to 9
PSV Cycle	5 to 45%
PSV TMAX	0.15 to 5.0 sec
Waveform	Square, Decelerating
Sigh	ON, OFF ¹
Pressure Trigger	0.1 to 20 cmH ₂ O
Demand Flow	ON, OFF
Volumetric Capnography ⁴	EtCO ₂ Averaging 1 or 8 breaths VCO ₂ Averaging 3, 6, 9, or 12 minutes

Electrical / Pneumatic / Input / Output	
Gas Composition FiO ₂	21 to 100%
Pneumatic Input	
Air / Heliox	20 to 80 psig (1.38 to 5.52 bar)
Compressor (internal)	3 to 10 psig (0.21 to 0.69 bar)
Oxygen	20 to 80 psig (1.38 to 5.52 bar)

Electrical / Pneumatic / Input / Output (cont.)	
Electrical	
A/C	100, 120, 230, 240 VAC, 47 to 65 Hz
D/C (Internal/External Battery)	20 to 29 VDC
Data I/O	
Analog Inputs (x2)	0 to 1, 5 VDC
Video Output	SVGA
Nurse Call	N.O. or N.C.

Advanced Patient Monitoring	
Proximal Hot Wire Flow Sensor ²	
Proximal Variable Orifice Flow Sensor (Infant, Pediatric, Adult)	
Proximal Airway Pressure Monitoring	
Tracheal pressure Monitoring ¹	
Esophageal pressure Monitoring ¹	
Volumetric Capnography ⁴	

Maneuvers	
AutoPEEP Airway	(Automated) 0 to 50 cmH ₂ O
MIP/P100	(Automated) -60 to 120 cmH ₂ O
Slow Flow (Pflex)	Automated

Advanced Gas Blending System	
Air/Oxygen Blending	21 to 100%
Internal Heliox Blending System	All concentrations up to 80/20

Battery Power	
1 Hour of Ventilator Use on Internal Battery (Standard) or 30 minutes Ventilator and Compressor	
4 Hours of Ventilator Use on External Battery ⁴ or 2 hours Ventilator and Compressor	

Physical / Environmental	
Environmental	
Temperature	
Storage	-20° to 60° C (-4° to 140° F)
Operating	5° to 40° C (41° to 104° F)
Barometric Pressure	760 to 545 mmHg
Physical	
Weight	
Ventilator (includes User Interface Module)	83 lb or 37,6 kg
Ventilator and Compressor (internal)	90 lb or 40,8 kg

Specifications subject to change without notice.

¹ Not Available in Neonatal Range

² Available in Neonatal/Pediatric Range Only

³ Available in Adult Range Only

⁴ Available Option

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Physical / Environmental (cont.)	
Size	
Pneumatic Module	17" w x 10.5" h x 16" d or 43,2 cm x 26,7 cm x 40,6 cm
User Interface Module	16.25" w x 13.75" h x 2.5" d or 41,3 cm x 35 cm x 6,4 cm
Viewable Size	12.1 in. (diagonal)
Resolution	800 x 600

Internal Compressor
Internal Scroll Pump (7 lbs or 3,2 kg)

Alarms	
Vent Inop	Ventilator Inoperative
Loss of Gas	All Gas Sources Lost
Circuit Disconnect	Patient Circuit Disconnected
Ext. High Ppeak	High Ppeak longer than 5 sec
Safety Valve	Safety Valve Open
Circuit Occlusion	Circuit Occlusion
High Ppeak	High Peak Pressure
Apnea Interval	Apnea Interval Exceeded
Loss of O ₂	Oxygen Supply Lost
Loss of Air	Air Supply Lost
Loss of Heliox	Heliox Supply Lost
Low Battery	Internal/External Batteries Low
Loss of A/C	Main AC Power Lost
Low PEEP	Low PEEP... cmH ₂ O
Low Ppeak	Low PIP... cmH ₂ O
Low Vte	Low Tidal Volume
Low Ve	Low Minute Volume
Low %O ₂	Low FiO ₂ Reading
High %O ₂	High FiO ₂ Reading
ILV Disconnect	Independent Lung Vent. Lost
Alarm Test	Test Alarm/Set Loudness
Invalid Gas ID	Gas Type ID Bad or Missing
High Ve	High Minute Volume
High Rate	High Breath Rate
Max Insp Time	Inspiratory Time Limit Exceeded
I:E Limit	I:E Ratio Limit Exceeded
Fan failure	Cooling Fan Failure
High Vt	High Tidal Volume
Vol Limit	Volume Limit Exceeded
Low EtCO ₂ ⁴	Low end tidal CO ₂
High EtCO ₂ ⁴	High end tidal CO ₂
nCPAP Pressure Limit	nCPAP Pressure Limit Exceeded

Alarms (cont.)	
Low nCPAP Pressure	Low nCPAP... cmH ₂ O
High nCPAP Pressure	High nCPAP... cmH ₂ O

Waveforms	
Paw	Airway Pressure... cmH ₂ O
Pinsp	Inspiratory (machine) ... cmH ₂ O
Flow	Airway Flow... l/m or ml/m
Vt	Airway Volume... Liters or ml's
Flow Insp	Inspiratory Flow... L/min
Flow Exp	Expiratory Flow... L/min
Analog 0	Analog input Channel 0... Volts
Analog 1	Analog input Channel 1... Volts
PCO ₂ Wave	Capnogram

Loops	
Flow-Volume	Airway Flow / Airway Volume
Paw-Volume	Airway Pressure / Airway Volume
Pinsp-Volume	Inspiratory (machine) / Airway Volume
Pes-Volume ¹	Esophageal Pressure / Airway Volume
Ptr-Volume ¹	Tracheal Pressure / Airway Volume
Ptp-Volume ¹	Transpulmonary Pressure / Airway Volume
PCO ₂ -Vte ⁴	Exhaled CO ₂ /Exhaled VT

Monitored Parameters	
Vte	Tidal Volume, Expired
Vte/Kg	" Normalized to patient weight
Vti	Tidal Volume, Inspired
Vti/Kg	" Normalized to patient weight
Spon Vt	Tidal Volume, Spontaneous
Spon Vt/Kg	" Normalized to patient weight
Mand Vt	Tidal Volume, Mandatory
Mand Vt/Kg	" Normalized to patient weight
Vdel	Machine Volume delivered
Leak	Difference, Vi & Vt, %
Ve	Minute Volume
Ve/Kg	" Normalized to patient weight

Monitored Parameters continued on following page.

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Continued on back

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Monitored Parameters (cont.)	
Spon Ve	Minute Volume, Spontaneous
Spon Ve/Kg	" Normalized to patient weight
Rate	Breath Rate, total
Spon Rate	Rate, Spontaneous
Mand Rate	Rate, Mandatory
Ti	Time, Inspiratory
Te	Time, Expiratory
I:E	Ratio, Ti/Te
f/Vt	Rapid Shallow Breathing Index
Ppeak	Peak Inspiratory Pressure
Pmean	Mean Airway Pressure
Pplat	Plateau Pressure
PEEP	Positive End Expiratory Pressure
Air Inlet	Pressure, Air Supply
O ₂ Inlet	Pressure, Oxygen Supply
FiO ₂	%Oxygen Content Delivered
Cdyn	Dynamic Compliance
Cdyn/Kg	Dynamic Compliance, Normalized
Cstat	Static Compliance
Cstat/Kg	Static Compliance, Normalized
C20/C	Compliance Ratio
Rrs	Respiratory System Resistance
Rpeak	Peak Expiratory Airway Resistance
Rimp ¹	Imposed Resistance
Rlung ¹	Lung Resistance
PIFR	Peak Inspiratory Flow
PEFR	Peak Expiratory Flow
dPaw ¹	Delta Airway Pressure
DPes ¹	Delta Esophageal Pressure
Pbaro	Barometric Pressure
nCPAP	MAP while in nCPAP mode
CPAP Flow	Mean Inspiratory Flow while in CPAP mode
WOBp ¹	Work of Breathing, Patient

Monitored Parameters (cont.)	
WOBi ¹	Work of Breathing, Imposed
WOBv ¹	Work of Breathing, Ventilator
AutoPEEP	AutoPEEP Airway
dAutoPEEP	Delta AutoPEEP Airway
AutoPEEPes ¹	AutoPEEP Esophageal
Ccw ¹	Chest Wall Compliance
Clung ¹	Lung Compliance
MIP	Maximum Inspiratory Pressure
P100	Respiratory Drive
EtCO ₂ ⁴	End Tidal CO ₂
VCO ₂ ⁴	CO ₂ Elimination
VtCO ₂ ⁴	Amount of CO ₂ exhaled per breath
Vd ana ⁴	Anatomical Dead Space
Vd/Vt ana ⁴	Anatomical Dead Space/Tidal Volume Ratio
VA ⁴	Alveolar Ventilation
Vd phy ⁴	Physiological Dead Space
Vd/Vt phy ⁴	Physiological Dead Space/Tidal Volume Ratio
Vd alv ⁴	Alveolar Dead Space
OI ⁴	Oxygenation Index
P/F ⁴	PaO ₂ /FiO ₂ Ratio

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WARNING

U.S. Federal Law restricts this device to sale by or on the order of a physician.



Cardinal Health
22745 Savi Ranch Parkway
Yorba Linda, California 92887-4645
Telephone: +1 800 231-2466 or +1 714 283-2228, Fax: +1 714 283-8471



Cardinal Health 234 GmbH
Leibnizstrasse 7
97204 Hoehberg, Germany
Telephone: +49 931 4972-0, Fax: +49 931 4972-423



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Cardinal Health
Critical Care Ventilation
22745 Savi Ranch Parkway
Yorba Linda, California 92887

cardinalhealth.com