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P/N:ENG-SV 300 datasheet-210285X6P-20191122

mindray
healthcare within reach

SV300
Ventilator

Technical Specifications

Physical Specification	
Dimensions	354 mm*315 mm*249 mm (Excluding the trolley)
Weight	Approximately 10 kg (Excluding the trolley)
Screen	
Display Size	12.1 Color active matrix TFT touch
Display Resolution (H) x (V)	1280*800 pixels
Brightness	Adjustable
Ventilation Specifications	
Patient Type	Adults, children, infants (body weight of at least 3 kg)
Ventilation Mode	V-A/C (Volume assist/control) P-A/C (Pressure assist/control) V-SIMV (Volume - Synchronized Intermittent Mandatory Ventilation) P-SIMV (Pressure - Synchronized Intermittent Mandatory Ventilation) DuoLevel (Duo Level Ventilation) CPAP (Continuous Positive Airway Pressure) PSV (Pressure Support Ventilation) APRV (Airway Pressure Release Ventilation) PRVC (Pressure Regulated Volume Control) PRVC-SIMV (Pressure Regulated Volume Control-Synchronized Intermittent Mandatory Ventilation) AMV (Adaptive Minute Ventilation) NIV (Non-invasive Ventilation) Apnea Ventilation
Controlled Parameters	
O_2%	21 - 100% (increments of 1 %)
TV(Tidal Volume)	Adult: 100 - 2000 mL (increments of 10 mL) Pediatric: 20 - 300 mL (increments of 1 mL)
MV%	25% to 350%
f (Ventilation frequency)	1 - 100 bpm (increments of 1 bpm)
fSIMV (Ventilation frequency in SIMV mode)	1 - 60 bpm (increments of 1 bpm)
I:E range	4:1 - 1:10 (increments of 0.5)
Tinsp (Inspiratory time)	0.20 - 10 s (increments of 0.05 s)
Tslope (Time of Pressure Rising)	0 - 2.00 s (increments of 0.05 s)
Thigh	0.2 - 30 s (increments of 0.1 s)
Tlow	0.2 - 30 s (increments of 0.1 s)
Tpause	5 % - 60 % (increments of 5 %), Off
ΔPinsp	5 - 80 cmH_2O (increments of 1 cmH_2O)
ΔPsupp	0 - 80 cmH_2O (increments of 1 cmH_2O)
Phigh	0 - 80 cmH_2O (increments of 1 cmH_2O)
Plow	0 - 45 cmH_2O (increments of 1 cmH_2O)
PEEP	1 - 45 cmH_2O (increments of 1 cmH_2O), Off
Flow trigger	0.5 -15 L/min (increments of 0.1 L/min), Off
Pressure trigger	-10 to - 0.5 cmH_2O (increments of 0.5 cmH_2O), Off
Exp % (Expiration termination level)	10 - 85% (increments of 5%), Auto
Apnea Ventila tion	
Tvapnea	Adult: 100 - 2000 mL (increments of 10 mL) Pediatric: 20 - 300 mL (increments of 1 mL)
ΔPapnea	5 - 80 cmH_2O (increments of 1 cmH_2O)
fapnea	1 - 80 bpm (increments of 1 bpm)
Apnea Tinsp	0.20 - 10 s (increments of 0.05 s)

Sigh	
Sigh Switch	ON, Off
Interval	20 s - 180 min (increments of 1 s from 20 to 59 s, increments of 1 min from 1 to 180 min)
Cycles Sigh	1 - 20 (increments of 1)
ΔPEEP	1 - 45 cmH_2O (increments of 1 cmH_2O), Off
Automatic Tube Resistance Compensation	
Tube Type	ET Tube, Trach Tube, Disable ATRC
Tube I.D.	Adult: 5.0 - 12.0 mm (increments of 0.5 mm) Pediatric: 2.5 - 8.0 mm (increments of 0.5 mm)
Compensate	0 -100 % (increments of 1 %)
Expiration Compensation Switch	ON, Off
Monitored parameters	
Airway pressure range	Ppeak, Pplat, Pmean, PEEP (Range 0 - 120 cmH_2O)
Tidal volume range	TVi, TVe, TVe spn (Range 0 - 4000 mL)
Frequency range	ftotal, fmand, fspn (Range 0 - 200 bpm)
Minute volume range	MV, MVspn, MVleak (Range 0 - 100 L/min)
Resistance	Rinsp, Rexp (0 - 600 cmH_2O/L/s)
Compliance	Cstat, Cdyn (0 - 300 mL/cmH_2O)
Inspired Oxygen(FiO_2)	15 - 100 %
RSBI	0 - 999 1/(L•min)
WOB	0 - 100 J/min
P0.1	-20 - 0 cmH_2O
NIF	-45 - 0 cmH_2O
PEEPi	0 - 80 cmH_2O
RCexp	0 - 10 s
TVe/IBW	0 - 50 ml/kg
I:E	100:1 -1:150
Tinsp	0.00 - 60.00s
Waveforms	Airway pressure - time, Flow - time, Volume - time
Loops	Paw - Volume, Flow - Volume, Paw - Flow
Ventilator Accuracy	
Control Accuracy	
O_2 %	± (3 vol.% +1 % of setting)
TV	± (10 mL + 10 % of setting) (BTPS)
Tinsp	± 0.1 s or ± 10 % of setting, whichever is greater
I: E	2: 1 to 1: 4: ± 10 % of setting, other range: ± 15% of setting
f	± 1 bpm
fSIMV	± 1 bpm
Tslope	± (0.2 s + 20 % of setting)
PEEP	± (2.0 cmH_2O + 5 % of setting)
ΔPinsp	± (2.0 cmH_2O + 5 % of setting)
ΔPsupp	± (2.0 cmH_2O + 5 % of setting)
Phigh	± (2.0 cmH_2O + 5 % of setting)
Plow	± (2.0 cmH_2O + 5 % of setting)
Thigh	± 0.2 s or ± 10 % of setting, whichever is greater
Tlow	± 0.2 s or ± 10 % of setting, whichever is greater
Pressure Trigger	± (1.0 cmH_2O + 10 % of setting)
Flow Trigger	± (1.0 L/min + 10 % of setting)
ΔPEEP	± (2.0 cmH_2O + 5% of setting)
Exp %	± 10 %
fapnea	± 1 bpm
ΔPapnea	± (2.0 cmH_2O + 5 % of setting)
TVapnea	± (10 mL + 10 % of setting) (BTPS)
Apnea Tinsp	± 0.1 s or ± 10% of setting, whichever is greater

Monitoring Accuracy		
Airway pressure (Ppeak, Pplat, Pmean, PEEP)		± (2 cmH_2O + 4 % of the actual reading)
Tidal Volume (TVi, TVe, TVe/IBW, TVe spn)		0 ml - 100 ml: ± (10 ml + 3 % of the actual reading) (BTPS); 100 ml - 4000 ml: ± (3 ml + 10 % of the actual reading) (BTPS)
Minute Volume (MV, MVspn, MVleak)		± (0.2 L/min + 10 % of the actual reading) (BTPS)
Frequency (ftotal, fmand, fspn)		± 5% of reading or ± 1bpm, whichever is greater
Inspired Oxygen (FiO_2)		± (2.5 vol.% + 2.5 % of the actual reading)
Resistance		0 to 20: ± 10 cmH_2O/L/s Other range: 50 % of actual reading
Compliance		± (2 ml/cmH_2O + 20 % of the actual reading)
RSBI		± (3 1/(L•min)+15 % of the actual reading)
WOB		± (1 J/min+15 % of the actual reading)
NIF		± (2 cmH_2O + 4 % of the actual reading)
P0.1		± (2 cmH_2O + 4 % of the actual reading)
PEEPi		No declaration
RCexp		± (0.2 s + 20 % of the actual reading)
Alarm settings		
Tidal Volume	High	Adult: 110 - 4000 mL, Off Pediatric: 25 - 600 mL, Off
	Low	Adult: 50 - 4000 ml, Off Pediatric: 10 - 600 mL, Off
Minute Volume	High	Adult: 0.2 - 100.0 L/min Pediatric: 0.2 - 60.0 L/min
	Low	Adult: 0.1 - 50.0 L/min Pediatric: 0.1 - 30.0 L/min
Air pressure	High	10 - 85 cmH_2O
Frequency	High	1 - 150 bpm, Off
Inspired oxygen (FiO_2)	High	Auto, FiO_2 exceeds the alarm limit for at least 30 s, internal alarm limit: min (set value+max (7 % or set value*10 %), 100 %)
	Low	Auto, FiO_2 lower than the alarm limit for at least 30 s, internal alarm limit: max (set value-max (7 % or set value*10 %),18 %), Absolute FiO_2 low limit: 18 %
Apnea alarm time		5 - 60 s
SideStream CO_2 Module (optional)		
Displayed numerics		$EtCO_2$
Measurement Range		0 - 99 mmHg
Measurement accuracy		0 to 40 mmHg ± 2 mmHg 41 to 76 mmHg ± 5% of reading 77 to 99 mmHg ± 10% of reading
Waveforms		$EtCO_2$ - time
Resolution		1 mmHg
Sampling rate		Adult: 70 ml/min, 100 ml/min, 120 ml/min, 150 ml/min Pediatric: 70 ml/min, 100 ml/min
Sampling rate Accuracy		± 15% of the set value or ± 15 mL/min, whichever is greater
System response time		Using Adult water trap, Adult sampling line: < 7.5 s @ 150 ml/min < 8.0 s @ 120 ml/min < 8.5 s @ 100 ml/min < 9.5 s @ 70 ml/min Using Pediatric water trap, Pediatric sampling line: < 7.5 s @ 100 ml/min < 8.0 s @ 70 ml/min
Rise time		Adult water trap: < 400 ms @70 ml/min < 330 ms @100 ml/min < 300 ms @120 ml/min < 240 ms @150 ml/min Pediatric water trap: < 400 ms @70 ml/min < 330 ms @100 ml/min
Water trap cleaning time		Adult water trap: ≥24 h @150 ml/min ≥48 h @70 ml/min Pediatric water trap: ≥24 h @100 ml/min ≥48 h @70 ml/min

Sidestream CO_2 alarm limits			
$EtCO_2$	High	2 - 99 mmHg	
	Low	0 - 97 mmHg	
MainStream CO_2 Module(optional)			
Displayed numerics		$EtCO_2$	
$EtCO_2$ Measurement range		0 -150 mmHg	
$EtCO_2$ Measurement Accuracy		0 to 40 mmHg ± 2 mmHg of reading 41 to 70 mmHg ± 5% of reading 71 to 100 mmHg ± 8% of reading 101 to 150 mmHg ± 10% of reading	
Resolution		1 mmHg	
Waveforms		$EtCO_2$ - time, Volume - $EtCO_2$	
Other Parameters			
$SlopeCO_2$ (slope of the alveolar plateau)		Range: 0 - 9.99 %/L	Resolution: 0.01 %/L
Vtalv (Alveolar tidal ventilation)		Range: 0 - 9999 ml	Resolution: 1 ml
V'alv (Alveolar minute ventilation)		Range: 0 - 20 L/min	Resolution: 0.01 L/min for < 1 L/min, 0.1 L/min for ≥ 1 L/min
$V'CO_2$ (CO_2 elimination)		Range: 0 - 9999 mL/min	Resolution: 1 ml/min
VDaw (Airway death space)		Range: 0 - 999 mL	Resolution: 1 ml
VDaw/TVe (Physiological dead space fraction at the airway opening)		Range: 0 - 100 %	Resolution: 1 %
$VeCO_2$ (exhaled CO_2 volume)		Range: 0 - 999 mL	Resolution: 1 ml
$ViCO_2$ (inspired CO_2 volume)		Range: 0 - 999 mL	Resolution: 1 ml
System response time		< 2.0 s	
CO_2 alarm limits			
$EtCO_2$	High	2 - 150 mmHg	
	Low	0 - 148 mmHg	
SpO_2 module(optional)			
Measurement Range and Resolution			
SpO_2		Range: 0 - 100 %	Resolution: 1 %
PR		Range: 20 - 254 1/min	Resolution: 1 1/min
PI		Range: 0.05 - 20 %	
Measurement Accuracy			
SpO_2		70 to 100 %: ±2 % 0 % to 69 %: Not specified.	
PR		± 3 1/min	
SpO_2 alarm limits			
SpO_2	High	2 -100 %	
	Low	0 - 98 %	
	Desat	0 - 98 %	
PR	High	17 - 300 1/min	
	Low	15 - 298 1/min	
Trend			
Type		Tabular, Graphic	
Length		72 hours	
Content		Monitor Parameters, Setting Parameters (Setting Ventilation mode and Parameters)	
O_2 Therapy			
Controlled Parameters			
O_2 %		21 - 100 % (increments of 1 %)	
Flow		2 - 60 L/min	
Controlled Accuracy			
O_2 %		± (3 vol.% +1 % of setting)	
Flow		± (2 L/min +10 % of setting) (BTPS)	
Monitor Accuracy			
FiO_2		± (2.5 vol. % + 2.5 % of the actual reading)	

Flow	± (2 L/min + 10 % of the actual reading) (BTPS)
Log	
Type	Alarm, Operation
Max number	5000
O_2 Sensor	
Type	Galvanic fuel cell
Response time	< 15 s
Communication interface	
Communication interface	Rs232, Ethernet, VGA, USB port, Nurse call
Gas supply	
Gas type	O_2
Pipe Connector	NIST or DISS
Gas supply pressure	280 - 600 kPa
Peak flow in case of single supply gas(air)	≥ 210 L/min (BTPS)*[1]
Operation Data	
Environmental specifications	
Temperature	5 - 40 °C (operating); -20 to 60 °C (storage and transport, O_2 sensor: -20 to 50°C)
Relative Humidity	10 - 95 % (operating); 10 - 95 % (storage and transport)
Barometric Pressure	62 - 106 kPa (operating); 50 -106 kPa (storage and transport)
Power and Battery Backup	
External AC power supply	
Input voltage	100 - 240 V
Input frequency	50/60 Hz
Input current	2.7 - 1.1 A
Fuse	T3.15 AH/250 V
External DC power supply	
Input voltage	12 V
Input current	15 A
Internal battery	
Number of batteries	One or Two
Battery type	Build-in Lithium-ion battery, 14.8 VDC, 5800 mAh
Battery run time	180 min (Powered by one new fully - charged battery in standard working condition)*[2] 360 min (Powered by two new fully - charged battery in standard working condition)
Trolley	
Dimensions	1039 mm*528 mm*544 mm
Weight	Approximately 20 kg
Special Functions and procedures	
Sigh	
100% O_2	
Suction	
Manual breath	
Expiratory hold	
Inspiratory hold	
P0.1	
NIF	
PV - Tool	
PEEPi	
Nebulizer	
O_2 Therapy	

*[1] *BTPS =Body Temperature and Pressure Saturated*
*[2] *The standard work condition is:Ventilation mode:P-A/C ; ΔPinsp:10 cmH_2O; f:10 bpm; Tinsp:2 s ; Tslope:0.2 s ; O_2%:21 Vol.%; PEEP:5 cmH_2O ; R:20 cmH_2O/L/s ; C:20 ml/cmH_2O ; Gas supply nominal work pressure:400±100 kPa.*