

# Specifications: V3

The logo features the word "COMEN" in large, bold, white, 3D-style capital letters. The letters are set against a blue background that has a subtle gradient and a faint, repeating pattern of the word "COMEN" in a lighter shade. The letters appear to be resting on a blue, curved surface that resembles a globe or a planet's horizon.

**COMEN** Share with the world

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## Ventilator

### V3



#### Physical Characteristics

Dimensions	1389mm*528mm*697mm (including trolley) 343.5mm*312.5mm*258mm (excluding trolley)
Weight	60kg (with all safe working load) 10kg (main unit)
Maximum load	Trolley: 23kg Retaining bracket of humidifier holder: 3kg Supporting Arm Fixing block: 2.5kg Support tray for the Ventilator: 25kg Cylinder holder: 25kg

#### Display

Size	12.1" TFT touch screen
Type	Capacitive screen
Resolution	1280*800
Brightness	Adjustable

#### Ventilation Mode

Ventilation mode	HFNC V-A/C, P-A/C, PRVC V-SIMV, P-SIMV, PRVC-SIMV CPAP/PSV, PSV-S/T DuoVent, APRV VS
Invasive Mode	V-A/C, P-A/C, PRVC V-SIMV, P-SIMV, PRVC-SIMV CPAP/PSV DuoVent, APRV VS
Non-invasive Mode	P-A/C P-SIMV CPAP/PSV, PSV-S/T DuoVent, APRV

#### Ventilator Specification

##### Controlled Parameter Range

O <sub>2</sub> %	21%~100%
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F-Trig	OFF, 0.5~15.0L/min
P-Trig	OFF, -10~-0.5cmH <sub>2</sub> O
f	1~100bpm
fsimv	1~60bpm
TV	Pediatric: 20~300ml Adult: 100~2200ml
ΔPinsp	5~80cmH <sub>2</sub> O
ΔPsupp	0~80cmH <sub>2</sub> O
Phigh	0~80cmH <sub>2</sub> O
Plow	0~50cmH <sub>2</sub> O
PEEP	OFF, 0~50cmH <sub>2</sub> O
I:E	4:1~1:10
Exp%	Auto, 10%~80%
Tinsp	0.10~10.00s
Timax	0.2~15.0s
Tpause	OFF, 5%~60%
Tslope	0~2.00s
Thigh	0.2~30.0s
Tlow	0.2~30.0s
Δint.PEEP	OFF, 1~45cmH <sub>2</sub> O
TV apnea	Adult: 100~2200ml Pediatric: 20~300ml
ΔPapnea	5~80cmH <sub>2</sub> O
fapnea	1~80bpm
Apnea Tinsp	0.20~10.00s
Tube I.D.	Adult: 5.0~12.0mm Pediatric: 2.5~8.0mm
Compensate	1~100%
Flow (O <sub>2</sub> therapy)	2~60L/min

##### Monitoring Parameter Range

Paw (Ppeak, Pplat, Pmean, PEEP)	-20~120cmH <sub>2</sub> O
TV (TVi, TVe, TVe spn)	0~4000ml

MV (MV, MVspn, MVleak)	0.0~100.0L/min	$\Delta$ int.PEEP	1~2cmH2O: $\pm$ 1cmH2O 2-45cmH2O: $\pm$ (2cmH2O + 5% of the set value)
f (ftotal, fspn, fmand)	0~200bpm	fapnea	$\pm$ 1bpm
FiO2	15%~100%	$\Delta$ Papnea	$\pm$ (2cmH2O + 5% of the set value)
Flow (BTPS)	0~100L/min	TVapnea	$\pm$ (10ml + 10% of the set value)
R (Ri, Re)	0~600cmH2O/L/s	Apnea Tinsp	$\pm$ 0.1s or $\pm$ 10% of the set value, whichever is larger
C (Cstat, Cdyn)	0~300ml/cmH2O	Flow (O2 therapy)	$\pm$ (1.5 L/min + 10% of the set value)
RSBI	0~999/(min·L)	<b>Monitoring Parameter Accuracy</b>	
PO.1	-20.0~0.0cmH2O	Paw (Ppeak, Pplat, Pmean, PEEP)	$\pm$ (2cmH2O + 4% of the actual reading)
NIF	-45.0~0.0cmH2O	TV (TVi, TVe, TVe spn)	0~100ml: $\pm$ (10ml + 3% of the actual reading); 100~4000ml: $\pm$ (3ml + 10% of the actual reading)
RCexp (Expiratory Time Constant)	0.0~10.0s	MV (MV, MVspn, MVleak)	$\pm$ (0.2L/min + 10% of the actual reading)
WOB	0~100.0 J/min	f (ftotal, fmand, fspn)	$\pm$ 1bpm or $\pm$ 5% of the actual reading, whichever is larger
Waveforms	Airway pressure - time Flow - time Volume - time	FiO2	$\pm$ (2.5% + 2.5% of the actual reading)
<b>Controlled Parameter Accuracy</b>		R (Ri, Re)	0~5 cmH2O/(L/s): not defined 5~20cmH2O/(L/s), $\pm$ 10 cmH2O/(L/s) 20~500 cmH2O/(L/s): $\pm$ 50% of the actual reading
FiO2	$\pm$ (3% +1 % of the set value)	C (Cstat, Cdyn)	$\pm$ (2ml/cmH2O + 20% of the actual reading)
P-Trig	$\pm$ (1 cmH2O + $\pm$ 10% of the set value)	RSBI	$\pm$ (3/(min·L) +15% of the actual reading)
F-Trig	$\pm$ (1 L/min + 10% of the set value)	NIF	$\pm$ (2cmH2O + 4% of the actual reading)
f	$\pm$ 1bpm	PO.1	$\pm$ (2cmH2O + 4% of the actual reading)
fsimv	$\pm$ 1bpm	WOB	Within the range of 0.0 J/min~100.0 J/min, $\pm$ (1 J/min + 15% of the actual reading)
TV	$\pm$ (10ml + 10% of the set value)	RCexp	$\pm$ (0.2s + 20 % of the actual reading)
$\Delta$ Pinsp	$\pm$ (2cmH2O + 5% of the set value)	Flow (O2 therapy)	$\pm$ (1.5L/min +10% of the actual reading)
$\Delta$ Psupp	$\pm$ (2cmH2O + 5% of the set value)	<b>Alarm Parameter</b>	
Phigh	$\pm$ (2cmH2O + 5% of the set value)	TV	<b>High limit:</b> Pediatric: 25~600ml, OFF Adult: 110~4000ml, OFF <b>Low limit:</b> Pediatric: 10~595ml, OFF Adult: 50~3995ml, OFF
Plow	1~2cmH2O: $\pm$ 1 cmH2O 2~0cmH2O: $\pm$ (2cmH2O + 5% of the set value)	MV	<b>High limit:</b> Pediatric: 0.2~60.0L/min Adult: 0.2~100.0L/min <b>Low limit:</b> Pediatric: 0.1~30.0L/min Adult: 0.1~50.0L/min High limit: 20%~100% Low limit: 18%~98%
PEEP	1~2cmH2O: $\pm$ 1cmH2O 2~0cmH2O (exclude 2cmH2O) : $\pm$ (2 cmH2O + 5% of the set value)	FiO2 (LPO)	
I: E	1:4~2:1: $\pm$ 10% of the set value; Other range: $\pm$ 15% of the set value.		
Exp %	$\pm$ 10% (absolute error)		
Thigh	$\pm$ 0.2s or $\pm$ 10% of the set value, whichever is larger		
Tlow	$\pm$ 0.2s or $\pm$ 10% of the set value, whichever is larger		
Tslope (Rising Time)	$\pm$ (0.2s + 20% of the set value)		
Plow	$\pm$ (2 cmH2O + 5% of the set value)		
Thigh	$\pm$ 0.2s or $\pm$ 10% of the set value, whichever is larger		
Tlow	$\pm$ 0.2s or $\pm$ 10% of the set value, whichever is larger		

FiO2 (HPO)	High limit: Min (Oxygen concentration setting value + max (7%, oxygen concentration setting value x 10%), 100%) (rounded) Low limit: Max (18, oxygen concentration setting value-max (7%, oxygen concentration setting value x 10%)) (rounded)	Sampling rate and accuracy	<b>Comen sideStream:</b> Sampling rate: 50 ml/min Sampling rate control accuracy: ±10ml/min <b>Respironics Capno sideStream:</b> Sampling rate: 50ml/min Sampling rate control accuracy: ±10 ml/min <b>Masimo ISA Capno sideStream:</b> Sampling rate: 50mlmin Sampling rate control accuracy: ±10 ml/min.
Paw	High limit: 10~90cmH2O Low limit: OFF, 5~(upper -5)cmH2O	Total system response time	<3s
ftotal	High limit: 2~160bpm, OFF Lower alarm limit: 1~159bpm, OFF	Rise time (10% to 90%)	Comen SideStream: <410ms Respironics Capno SideStream: <410ms Masimo ISA Capno SideStream: <200ms
Tapnea	5~60s	EtCO <sub>2</sub> alarm	<b>High limits:</b> Comen sidestream: 2~150mmHg Respironics Capno sidestream: 2~99 mmHg Masimo ISA Capno sidestream: 2~190 mmHg <b>Low limits:</b> Comen sidestream: 0~148mmHg Respironics Capno sidestream: 0~97mmHg Masimo ISA Capno sidestream: 0~188mmHg
<b>Data Review</b>			
Trends data	The graphic/tabular trends data of the latest 72-hours working parameter for a single patient can be saved.		
Event logs	Up to 8000 event logs can be saved, including alarm logs and operation logs. The alarm log includes parameter alarm events, parameter waveforms related to the alarm time and alarm inactivation action.		
Freeze the waveform review	Freeze the waveform of the interface at the current time, and use the knob to review the data. When freezing, 30 most recent historical waveforms can be reviewed by sliding the screen or rotating the knob.		
Freeze the loop review	Up to 5 reference loops can be saved.		
<b>CO2 Module</b>		<b>MainStream CO<sub>2</sub> Module</b>	
<b>Sidestream CO<sub>2</sub> Module</b>		Displayed numerics	EtCO <sub>2</sub>
Measurement range	Comen sideStream: 0~150mmHg, 0%~9.7%, 0~20kPa (at 760mmHg) Respironics Capno sideStream: 0~99 mmHg, 0.0%~13.0%, 0~13.2kPa (at 760mmHg) Masimo ISA Capno sideStream: 0~190 mmHg, 0~25vol% (at 760mmHg)	EtCO <sub>2</sub> Measurement range	Comen mainstream: 0~150mmHg, 0%~19.7%, 0~20kPa (at 760mmHg) Respironics CAPNOSTAT 5 mainstream: 0~150mmHg, 0%~19.7%, 0~20kPa (at 760mmHg) Masimo IRMATM mainstream: 0~190mmHg, 0~25% (at 760mmHg)
Measurement accuracy	<b>Comen sideStream:</b> 0~40mmHg: ±2mmHg 41~70mmHg: ±5% of the reading 71~100mmHg, ±8% of the reading 101~150mmHg, ±10% of the reading <b>Respironics Capno sideStream:</b> 0~38mmHg: ±2mmHg 39~99mmHg: ±10% of the actual reading <b>Masimo ISA Capno sideStream:</b> 0~114mmHg: ± (1.52mmHg + 2% of the reading). 115~190mmHg: not defined.	EtCO <sub>2</sub> Measurement Accuracy	<b>Comen mainstream:</b> 0~40mmHg: ±2mmHg 41~70mmHg: ±5% of the reading 71~100mmHg: ±8% of the reading 101~150mmHg: ±10% of the reading <b>Respironics CAPNOSTAT 5 mainstream:</b> 0~40mmHg: ±2mmHg 41~70mmHg: ±5% of the reading 71~100mmHg: ±8% of the reading 101~150mmHg: ±10% of the reading <b>Masimo IRMATM mainstream:</b> 0~114mmHg: ± (1.52 mmHg + 2% of the reading) 114~190mmHg: not defined

Total system response time  
EtCO<sub>2</sub> Alarm

Comen mainstream: 100Hz  
Respironics CAPNOSTAT 5 mainstream: 100Hz  
Masimo IRMA mainstream: 20Hz/channel  
<1s

EtCO<sub>2</sub> Alarm

**High limits:**  
Comen mainstream: 2~150mmHg  
Respironics CAPNOSTAT 5 mainstream: 2~150mmHg  
Masimo IRMATM mainstream: 2~190mmHg  
**Low limits:**  
Comen mainstream: 0~148mmHg  
Respironics CAPNOSTAT 5 mainstream: 0~148mmHg  
Masimo IRMATM mainstream: 0~188mmHg

## SpO<sub>2</sub> Module

Display  
SpO<sub>2</sub> measurement range  
SpO<sub>2</sub> accuracy

PR (waveform/parameter), SpO<sub>2</sub>  
Comen SpO<sub>2</sub>: 0%~100%  
Nellcor SpO<sub>2</sub>: 0%~100%  
Masimo SpO<sub>2</sub>: 1%~100%

**Comen SpO<sub>2</sub>:**  
70%~100%, ±2% (Adult/Pediatric) (during non-motion state)  
0%~69%: not defined  
**Nellcor SpO<sub>2</sub>:**  
70%~100%, ±2% (Adult/Pediatric) (during non-motion state)  
0%~69%: not defined  
**Masimo SpO<sub>2</sub>:**  
70%~100%, ±2% (Adult/Pediatric) (during non-motion state)  
1%~69%: not defined

PR measurement range  
PR measurement accuracy (during non-motion state)

Comen SpO<sub>2</sub>: 20~300bpm  
Nellcor SpO<sub>2</sub>: 20~300bpm  
Masimo SpO<sub>2</sub>: 25~240bpm  
Comen SpO<sub>2</sub>: ±2bpm  
Nellcor SpO<sub>2</sub>: 20~250bpm: ±3bpm; 251~300bpm: not defined  
Masimo SpO<sub>2</sub>: ±3bpm

Perfusion index (PI)  
Data update period

Masimo SpO<sub>2</sub> and Standard SpO<sub>2</sub> are configured with PI.

Signal Quality Index (SIQ) indication function

Masimo SpO<sub>2</sub> and Comen SpO<sub>2</sub> should be configured with SIQ.

SpO<sub>2</sub> alarm

**High limit:**  
Comen SpO<sub>2</sub>: 1%~100%  
Nellcor SpO<sub>2</sub>: 1%~100%  
Masimo SpO<sub>2</sub>: 1%~100%

PR alarm

**Low limit:**  
Comen SpO<sub>2</sub>: 0%~100%  
Nellcor SpO<sub>2</sub>: 0%~100%  
Masimo SpO<sub>2</sub>: 1%~100%  
**High limit:**  
Comen SpO<sub>2</sub>: 21~254bpm  
Nellcor SpO<sub>2</sub>: 21~300bpm  
Masimo SpO<sub>2</sub>: 26~240bpm  
**Low limit:**  
Comen SpO<sub>2</sub>: 21~253bpm  
Nellcor SpO<sub>2</sub>: 20~299bpm  
Masimo SpO<sub>2</sub>: 25~239bpm

## O<sub>2</sub> Sensor

Expected operation life  
Thermal compensation  
Barometric pressure compensation  
Pressure range  
Total system response time of O<sub>2</sub> sensor

1.5 x 106% measurement time at 20°C  
0.8 x 106% measurement time at 40°C  
Fluctuation of ±2% within the range 0~40°C  
Automatic barometric pressure compensation configured  
50~200kPa  
<15s

## Gas Circuit Specification

### High-pressure O<sub>2</sub> Source

Gas source pressure range  
Flow  
Input connector  
Compliance standard

280~600 kPa  
120L/min (STPD)  
NIST or DISS  
EN ISO5359

### Low-pressure O<sub>2</sub> Source

Input pressure range  
Maximum flow rate  
Input connector

<100kPa  
15L/min  
CPC quick coupling

### Inspiratory Module

Peak flow rate  
Nebulizer connector flow rate

≥210L/min  
5~8L/min

Safety pressure of respiration

≤12.5kPa

Inspiratory-side external connector

Coaxial 22mm/15mm conical connector

Removable and sterilizable

Detachable for clean and sterile and be installed

Compliance standard

EN ISO 5356-1

### Expiratory Module

Expiratory-side external connector

Coaxial 22mm/15mm conical connector

Removable and sterilizable	Detachable for clean and sterile and be installed
Compliance standard	EN ISO5356-1

### System Compliance and Resistance

Compliance	Adult disposable circuit: $\leq 4\text{ml/cmH}_2\text{O}$ Adult reusable circuit: $\leq 2\text{ml/cmH}_2\text{O}$ Pediatric disposable circuit: $\leq 2\text{ml/cmH}_2\text{O}$ Pediatric reusable circuit: $\leq 2\text{ml/cmH}_2\text{O}$ Infant reusable circuit: $\leq 1\text{ml/cmH}_2\text{O}$
Resistance	Adult: $\leq 6\text{cmH}_2\text{O}$ at the flow rate of 60L/min Pediatric: $\leq 6\text{cmH}_2\text{O}$ at the flow rate of 30L/min Infant: $\leq 6\text{cmH}_2\text{O}$ at the flow rate of 5L/min

### LED lights

External power supply indicator	Green
Power switch indicator	Green
Battery status indicator	Green
Alarm indicator	Yellow or red

### Interface

VGA	1
HDMI	1
USB	2
Nurse call	Yes

### Power Specification

#### External AC Power Supply

Input voltage	100-240V~
Input frequency	50/60Hz
Input current	0.5~1.2A
Fuse	T3AL/250 V

#### External DC Power Supply

Input voltage	12V
Input current	10A

#### Internal Battery

Number of batteries	One or two
Battery type	Lithium-ion battery
Rated battery voltage	14.4VDC
Battery capacity	Single: 6700mAh Double: 13400mAh
Voltage supply time	140 min (when a new fully charged battery is used in standard operating mode) 280 min (when two new fully charged batteries are used in standard operating mode)

### Operation Environment

Temperature	5~40°C
Relative humidity	5%~95% (non-condensing)
Atmospheric pressure	62.0~106kPa

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