

The RAPHAEL Color ventilator is intended for use at the bedside and for transport within a hospital or hospital-type facility.

- Biphasic ventilation concept
- Compact design
- Noninvasive ventilation (NIV)
- Unique user interface
- Proximal flow/pressure measurement
- Bidirectional apnea backup
- Comprehensive monitoring
- Individual presetting
- Easy last startup
- Adaptive Support Ventilation mode (ASV)
- Tube resistance compensation (TRC)
- Loops and trends

Controls	
Bodyweight	5 - 200 kg
Ventilation modes	(S)CMV+, SIMV+, PCV+, PSIMV+, SPONT
Special modes	NIV, ASV, DuoPAP, APRV
Mode additions	Tube resistance compensation (TRC) 0 - 100% compensation, ET tube, trach tube
Special functions	Manual breath, inspiratory hold, disconnection suppression, nebulizer, 100% O ₂ , stand-by, sigh, bidirectional apnea backup, leak compensation, last setup
(S)CMV+ rate	8 - 80 b/min
PCV+ rate	4 - 80 b/min
SIMV+, PSIMV+, DuoPAP rate	1 - 80 b/min
Tidal volume	50 - 2000 ml
PEEP/CPAP and P low	0 - 35 cmH ₂ O
Oxygen	21 - 100%
I:E ratio	1:9 - 4:1 (I:E, TE, and TI are always visible)
Inspiratory time	0.1 - 9.6 s (PSIMV+, SIMV+)
T low (APRV)	0.2 - 30 s
T high (DuoPAP and APRV)	0.1 - 30 s
Trigger (flow)	Off, 1 - 10 l/min
Baseflow	0 - 10
ETS	5 - 70% of inspiratory peak flow
Pramp	50 - 200 ms
Pressure control	5 - 50 cmH ₂ O above PEEP/CPAP
Pressure support	0 - 50 cmH ₂ O above PEEP/CPAP
P high (DuoPAP and APRV)	0 - 75 cmH ₂ O
Pasvlimit	5 - 70 cmH ₂ O
% minute volume (ASV)	25 - 350%
Apnea time	15 - 60 s
Flow (automatic)	0 - 120 l/min typical, 180 l/min maximum
Patient monitoring	
Pressures	PEEP/CPAP, Ppeak, P _{insp} , P _{mean}
Volume	Spontaneous and total expiratory minute volume, VTE, leak in %
Flow	Inspiratory peak flow, expiratory peak flow
Time	I:E ratio, TI, TE, total and spontaneous frequency
Others	Resistance, compliance, AutoPEEP, trigger, O ₂ , RCexp

Real-time curves	Volume, flow, pressure
Loops	Pressure-volume, volume-flow, pressure-flow
Trends	1 h, 12 h, 24 h, of 19 monitored parameters
ASV graphics	Target and actual values for minute ventilation, tidal volume, and rate
Alarms	
Low/high ExpMinVol	0.1 - 50 l/min
Pmax	15 - 80 cmH ₂ O
Low/high fTotal	0 - 99 b/min
O ₂ %	± 5% of setting, 18% minimum, 105% maximum
Apnea	15 - 60 s
Other	Disconnection, pressure limitation, Flow Sensor, gas supply, electrical supply, battery low, exhalation obstructed, user messages, technical alarms
Event log	Storage and display of up to 1000 events with time stamp
Electrical and gas supplies	
Input voltage	100 to 125 and 200 to 240 V~, 50/60 Hz
Power consumption	40 VA typical
Backup battery time	Typically 60 minutes
O ₂ and air supply	200 to 600 kPa (29 to 86 psi), 120 l/min
Physical dimensions	
W x D x H	23 x 53 x 35 cm (9.1 x 20.9 x 13.8 in.) 46 x 66 x 140 cm (18.1 x 28.0 x 55.1 in.) on trolley with compressor
Weight	17 kg (37 lb) ventilator only 46 kg (101 lb) ventilator on trolley 77 kg (170 lb) ventilator on trolley with compressor
Display	5.7 in., backlit, TFT color
Standards	IEC 601-1/EN 60601-1, IEC 601-1-2/ EN 60601-1-2, EN 794-1, SN EN 12598, EN 60601-2-12
Hardware options	Communications interface (RS-232, nurse call, I:E ratio)
Note	1 hPa = 1 mbar ≈ 1 cmH ₂ O



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