Data sheet

Emergency and Transport ventilator

www.device.airliquidehealthcare.com

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TECHNICAL SPECIFICATIONS

Emergency and Transport ventilator

Monnal T60 was designed for mobile medical treatment in any intensive-care environment, whether in a hospital or not.

Monnal T60 provides mobile medical teams with the highest possible standards of ventilation for critical-care patients: adults, children and enfant over 3 kg. With many modes and high performance NIV, Monnal T60 allows medical teams to adjust the treatment to suit different patients.

It guarantees quick, intuitive use via its large color touch-screen. Combined with complete and very accessible monitoring ($etCO_2$, plateau pressure, etc.), Monnal T60 provides safe ventilation throughout the patient transportation.

CPV mode is an innovative solution for cardiac arrest management that simplifies ventilation while avoiding deleterious effects. It is synchronized with chest compressions for optimal circulation and gives real-time feedback on massage quality in order to guide CPR.
CPV improves the effectiveness of CPR and simplifies CPR management for the care provider.

VENTILATION

Types	-Volume controlled -Pressure controlled -Pressure support -Spontaneous
Modes	(A)VCV, (A)VCV - NIV (A)PCV, (A)PCV - NIV SIMV, SIMV - NIV PSV, PSV/NIV, CPAP, Option: PS-Pro, Duo-Levels, PSIMV / PSIMV-VNI, PRVC
CPV	Cardio Pulmonary Ventilation: - startup parameters preset in line with international guidelines. - from mask ventilation to tracheal intubation.
“Emergency” modes	Automatic pre-selection of ventilation parameters with the setting of size / gender (PBW*) of the patient (infants and adults) Choice of ratio mL / Kg
Function	High flow oxygen therapy

SCREEN

Technology	LCD color resistive touch-screen. 262k colors (18 bits).
Dimensions	8.4 inches
Display resolution	640*480 pixels
Luminosity	800 cd/m^2 LED backlight Luminosity adjustment. Day / Night screen display

PHYSICAL SPECIFICATIONS

Dimensions	29x25x11 cm (L x W x H)
Weight	3.7 kg (4 kg with 2 batteries)

STANDARDS AND REGULATORY INFORMATIONS

	EN ISO 14971
	CEI 60601-1+A1 edition 4
	CEI 60601-1-2
	CEI 60601-1-6
	CEI 60601-1-8+A1
	EN ISO 80601-2-12
	ISO 80601-2-55
	EN 794-3+A2
Roadside ambulance	EN 1789+A1
Air ambulance (helicopter and airplane)	EN 13718-1
	EN 62304
	EN 62366
	Read carefully the user manual. Manufactured by Air Liquide Medical Systems S.A. Class IIb medical device. CE0459

ACCESSORIES

	Carrying bag
	Wall-mounted charging station
	Universal stand
	Roll stand: for - humidifier - oxygen cylinder - articulated arm - autoclavable basket

*PBW: Predicted Body Weight

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PARAMETERS SETTINGS

Patient categories	Adult / Children / Infant (from 3 kg)
Patient weight	Adjustable (PBW*)
Tidal volume	20 to 2000 mL
Frequency	1 to 80 Bpm
PEEP	0 to 20 cmH_2O
	Set up at 5 cmH_2O for all patient types and for all ventilation modes
FiO_2	21 to 100 %
I:E ratio	1/1 to 1/9
Inspiratory time	0.25 to 5 s
Inspiratory flow rate trigger	Deactivated between 0.5 to 10 l/min
Inspiratory pressure	5 to 60 cmH_2O
Pressure support	5 to 40 cmH_2O
Rise time	50 to 120 cmH_2O/s
Pwmax	70 cmH_2O
P.limit	90 cmH_2O
Expiratory trigger	10 to 90% of peak flow
Peak flow	2 to 150 l/min in volumandric mode
Inspiratory and expiratory pause	Inspiratory pause: 40s Expiratory pause: 60s

ALARMS

Adjustable by users (Non-exhaustive)	-Low/high pressure, -High plateau pressure, -Low/high VTi, -Low/high MVi, -Low/high MVe, -Low/high VTe -Low/high frequency, -Low/high FiO_2, -Low/high $etCO_2$
Specific alarms	-Patient disconnection, -Expiratory obstruction, -Flow sensor, -Power supply, batteries, -Gas inlet -Patient pre-oxygenation -Mains cable unplugged
Features	Adjustable volume, 5-levels of criticality

SPECIFIC FUNCTIONS

Apnea ventilation	Adjustable apnea ventilation can be volume, frequency and duration

MEASUREMENT PARAMETERS *(Non-exhaustive)*

MEASURED PARAMETERS	MEASUREMENT	TRENDED VALUE
Expired minute volume (MVe)	0 to 99 L/min	yes
Expired tidal volume (VTe)	20 to 3000 mL	yes
Insufflated minute volume (MVi)	0 to 99 L/min	yes
Insufflated tidal volume (V_Ti)	20 to 3000 mL	yes
Frequency (f)	1 to 120 c/min	yes
Peak airway pressure (Ppeak)	0 to 100 cmH_2O	yes
Positive expiratory pressure (PEEP)	0 to 100 cmH_2O	yes
Mean airways pressure (Pmean)	0 to 100 cmH_2O	yes
Plateau pressure (Pplat)	0 to 100 cmH_2O	yes
Leak index	0 to 100 %	yes
Ti/Ttot	1 to 50 %	yes
I:E ratio	1/1 to 1/9	yes
FiO_2	21 to 100 %	yes
$etCO_2$ (option)	0 to 100 mmHg	yes
CURVES		
	-Pressure, -Flow (inspiratory flow in all modes including CPV mode) -Volume, -CO_2 (optional)	
	Adjustable scales	
Loop curves (option)	P/V, P/F, F/V, V/CO2	
TRENDS		
	80 hours	

*PBW: Predicted Body Weight

TECHNICAL SPECIFICATIONS

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ELECTRICAL SPECIFICATIONS

Main power supply	
Input voltage	100 – 240 V AC (tolerance -25% ; +15%)
Electrical power consumption	120 VA max (0.12 kW)
Battery	
Type	Lithium-ion
Battery capacity	2.30 hours per battery: total of 5 hours (with the standard adult ventilation configuration)
Charging time per battery	2.20 hours (machine in stand-by) 5.30 hours (machine ventilating)
Replacement frequency	Every 2 years for internal and auxiliary batteries
CBAT	
	Addition of the calculation of internal battery real capacity
Alarm Internal battery defective	- CBAT < 60% of the internal battery nominal capacity - After 27 months

PNEUMATIC SPECIFICATIONS

Type of gas fitting (high pressure)	-NF -DISS -NIST
O_2 pneumatic supply	2.8 – 6 bar / 280 – 600 kPa / 40 – 86 psi (HP)
O_2 low pressure	0 – 1.5 bar / 0 – 150 kPa / 0 – 22 psi (LP)
Air supply	Integrated turbine

ENVIRONMENT

OPERATING CONDITIONS	
Temperature	-10°C to +40°C (14°F to 104°F)
Relative humidity	0 to 95% without condensation at 40°C max.
Atmospheric pressure	600 to 1150 hPa
STORAGE CONDITIONS	
Temperature	-30°C to +70°C (-22°F to +158°F)
Relative humidity	0 to 95% without condensation at 40°C max.
Atmospheric pressure	500 to 1150 hPa
PROTECTION	
Protection index	IP34
INTERFACE CONNECTION	
	-VGA -USB -RS-232 -CO_2 (optional)

Contact

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Air Liquide HEALTHCARE

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