



SIARETRON 4000 ICU

Intensive care ventilator

code: 960400

rev. 3 - 20/06/2008



Main characteristics

The Siaretron 4000 ICU electronic lung ventilator is equipped with a TFT 15" colour monitor displaying the curves of pressure, flow, volume, the loops of breathing parameters, the trends and the ventilatory parameters.

The ventilator is suitable for adult, children and newborn patients; complete with flow trigger and pressure one. It is equipped with the most modern ventilatory methods: controlled volume ventilation (IPPV), controlled pressure ventilation (PCV), SIMV, assisted pressure ventilation (PSV), CPAP, non-invasive ventilation NIV and APRV, drug nebulizer, BILEVEL CPAP, SIGH and Manual.

Siaretron 4000 ICU is supplied with back up long lasting batteries and its software can be updated for new modes and last generation ventilatory strategies.

TECHNICAL DATA

Dimensions (portable version)	410 x 310 x 350 mm (W x H x D)
Dimensions (trolley version)	Not available
Weight (portable version)	About 10 Kgs
Weight (trolley version)	Not available
Relative Humidity (use)	30 – 95% RH
Working temperature	From 10 to 40 C°



OPERATION DATA

Use destination	High performance Intensive care ventilator, equipped with 15" TFT colour monitor for adults, children and newborns (weight > 3.5 kg)
Operation principle	<ul style="list-style-type: none">• Time Cycled at constant volume• Pressure cycled• Microprocessor controlled flow• Spontaneous breath with integrated valve
Ventilation modalities	IPPV, IPPV-AST , PCV-PRVC , SIMV+PS-SPONT, PSV , CPAP , BILEVEL CPAP, MANUAL , SIGH , NEB , APRV , Apnoea BACK-UP , NIV
Breathing rate	From 5 to 150 bpm
Inspiratory Time; Expiratory Time (maximum, minimum)	Ti min = 0.08 s (minimum inspiratory time) Ti max = 9.6 s (maximum inspiratory time) Te min = 0.08 s (minimum expiratory time) Te max = 9.6 s (maximum expiratory time)
SIMV Breathing rate	From 0 to 149 bpm
SIMV Inspiratory time	From 0.1 to 2.0 sec.
Tidal volume	Adult from 100 to 3000 ml Paediatric / Neonatal from 10 to 300 ml
I:E ratio	1:4 , 1:3 , 1:2 , 1:1 ; 2:1 ; 3:1 , 4:1
Inspiratory pause	From 0 to 50 % of the inspiratory time
Inspiratory pressure limit	From 0 to 80 mbar
PEEP	From 0 to 30 mbar
BILEVEL CPAP	Pressure, low level: 0 - 35 mbar Time, low level: from 1 to 100 seconds Pressure, high level: 5 - 40 mbar Time, high level: from 1 to 100 seconds



Minute volume with 1:2 ratio	Max. 40 l/min.
Accuracy on Tidal Volume measurement	+/- 20% of real reading above 100ml +/- 20ml of real reading below 100ml
O2 concentration	Adjustable from 21 to 100% with electronic integrated mixer
Trigger	Pressure trigger: adjustable from off; 1 to 9 mbar under PEEP level Flow trigger: adjustable from off; 1 to 15 l/min
Trigger detective method	Through sensor (pressure or flow)
Max. inspiratory flow	From 1 to 100 l/min
SIGH	Selectable rate Selectable volume adjustable in % of set Tidal Volume
Drug nebulizer	Selectable to 6 l/min with automatic compensation on forced ventilation modes and dedicated output
Supply pressure	O2 – Aria: pressure included between 280 kPa and 600 kPa (2,8 - 6 bar) Max flow requested from ventilator: 120 l/min
Patient circuit	Double-hose, non rebreathing
Other controls	Button 100% O2 x 5 min INSP Block and EXP Block (max. 20 seconds) Nebulizer
Expandability	Software upgradeable for future modalities
Dead space compensation	Automatic compensation of mechanical and patient circuit dead space

GAS CONSUMPTION

Control	Around 2 l/min
Minute volume	Same as set minute volume



MONITORING AND USER INTERFACE

15" TFT colour display

The display allows:

- setting and displaying of physiological breathing parameters
 - displaying of alarm signs and messages
 - displaying of operative modes, Trigger, time function, date and timer
 - setting of MENU function
 - setting of the language, trigger, clock setting
 - displaying of software version
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Display keyboard

Lateral keyboard for rapid access of functions

Encoder for:

- selection, set up and confirmation of physiological breathing parameters
 - selection and direct activation of function
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Settable parameters

Tidal Volume - Flow - Minute Volume - Insp. Time (SIMV) - Rate - I:E Ratio – Insp. Pause - PEEP - CPAP - PAW Limit - FiO₂ - TRIGGER – Width and interval, SIGH – Pressure and Time for BILEVEL CPAP

Measured parameters (BTPS)

- PAW: peak, mean, plateau, PEEP (range -20 -- 80 cmH₂O)
 - T_{insp.}, T_{exp}, T_{pause} (range 0.08 -- 9.6 s)
 - I:E ratio (range 1:4 -- 4:1)
 - Compliance (range: 10 -- 150 ml/cmH₂O)
 - Resistance (range: 0 -- 400 cmH₂O/l/s)
 - % of FiO₂ (range: <18% -- 100%)
 - Rate (range: 0 -- 150 bpm)
 - Tidal Volume: V_{Te}, V_{ti} (range: 10 -- 3000 ml)
 - Minute Volume (range: 0 -- 40 l/min)
 - Flow peak: Exp. – Insp. (range: 1 -- 100 l/min insp.; 1 -- 150 l/min exp.)
 - FiCO₂, FeCO₂: with optional CO₂ module (range: 0 -- 10%)
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MENU function (function for set up)	<ul style="list-style-type: none">• operative modes• alarms (manual or automatic)• graphical display• parameter trend (trend)• functioning set up• system information
Displayed graphics	CURVES: Pressure - Flow - Volume LOOPS : Pressure / Volume - Flow / Volume (max. flow range: -150 – 150 l/min; max. volume range: 0 – 2500 ml; max. pressure range: -20 – 80 cmH ₂ O)
Graphical set up	Time, PAW Range – FLOW – VOLUME
Trend	Parameter trends: PAW (peak, mean) - PEEP - Tidal Volume – Minute Volume - FiO ₂ - Rate
Trend duration	Up to 340 h. with minimal resolution of 5 min.
Flow sensor	Magnetic perturbation, multi-usage, stérilisable Flow sensor calibration
Oximeter	Electronic with automatic calibration at the start up.
Capnometria (optional)	CO2 module code: A57.049201

ALARMS

Selecting system	Automatic (+/- 20 %) Manual (with limit set up)
Alarm types	With limits set by the operator By default: the operator cannot set them up
Alarm silencing	Possible on some of the parameters (Low gas pressure – Power off - O2 Sensor - 1000 hours maintenance)
Alarm priority	High - Mean - Low - Standby - Memo



Alarms with limits set up by the operator

FiO ₂	High – Low
Paw	High – Low
Expired Minute Volume	High – Low
Expired Tidal Volume	High – Low
Breathing rate	High – Low
FiCO ₂	High – Low (with optional CO ₂ module)
FeCO ₂	High – Low (with optional CO ₂ module)

System alarms

Apnoea	Low Rate (function of Apnoea BACK-UP) Activation time 30 seconds
Gas feeding: O ₂	Low (< 2,7 bar)
Gas feeding: Air	Low (< 2,7 bar)
Electric power supply	Alarm occurs in case of failure of external power supply
Low Battery	Alarm occurs in case the battery power is lower than 11 Vdc
O ₂ Sensor	Connection status and/or sensor status
Maintenance	1000 ore
FiO ₂ concentration	< 18%
Fan	Not working fan
PAW	High – Low

POWER SUPPLY

Electric power supply	100-230 Vac 50-60Hz 12 V dc with external auxiliary battery
Power	80 Watt
Internal power supply	From 1 to 3 battery packs: 12 Vdc / 3,4 Ah (each battery pack)
Internal battery operation	3 hours max. (1 battery pack in perfect working conditions)
Re-charging time	About 4 hours



External connections	<ul style="list-style-type: none">• RS232• Optional: Serial connection to PC (transfer patient data, events, graphics and trends)
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CAPNOMETRIA (optional)



Capnometry connection	Available: O ₂ , CO ₂ ,
Description	Ultra small infrared main stream multi-gas probe comprising a multi channel IR-bench, barometric pressure sensor, power regulator, signal processor and a RS-232 interface.
Measuring mode	Mainstream
Dimensions and weight	37 x 27 x 25 mm < 30 g (cable not included)
General specifications	See on relative Multigas Analyzer Modules for ICU technical data sheet

CONFORMITY TO NORMS

ISO 5369, EN 1281-1, IEC 601-1, IEC 601-1-2, Directive 93/42 EEC, EN 4135, IEC 601-1-4, NF S 90-118, EN 794-1, UNI CEI ISO 14971, UNI EN 475, UNI EN ISO 9703-3.

Class and type according to IEC 601-1	Class 1 Type B
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Class according to 93/42 EEC Directive	Class IIb
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ACCESSORIES

Supplied Accessories

- O2 supply hose (code G60005100)
- AIR supply hose (code G60007100)
- O2 cell (code E75000004)
- Flow transducer (code G80300000)
- Nebulizer set (code 600100)
- Silicone patient circuit for adults (code 001562/SLR)
- Antibacterial filter (cod. A36.049011)
- Power cable, SHUKO-VDE (cod. G30105100)
- Air filter (cod. G00212000)
- User's Manual

Optional Accessories

See on Export Price List



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