SECULIFE PS300

Universal Patient Simulator

3-349-769-03
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- Efficient and simple testing of patient monitors
  - Drop down choice screens which list all options for parameters
  - No codes to remember or enter
- 49 Arrhythmias
- Respiration and temperature simulation
- Auto sequences for BPM, static-pressure levels, and performance
- SpO2 function (with SECULIFE SP BASE)
- Fetal/maternal function (with software option)
- Cardio output function (with software option and cardiac output module)
- Training mode
- Mini-DIN connectors for BP cables
- 2 BP channels
- Dual display with backlight
- Battery and mains power supply mode



Application

The SECULIFE PS300 is an easy-to-use and simple to operate patient simulator for testing patient monitors. All parameters can be selected through a graphic display. Autosequences for BPM rates, static-pressure levels, and performance are also available. 10 patient connections can be made. Two channels for blood pressure and 49 arrhythmias come with the device.

ECG Waveforms

The microprocessor has stored in its memory all of the digitalized waveforms. It sends the individual lead wave-forms to D/A converters, which generate accurate analog representations. The waveforms are then sent through resistor networks, developing the appropriate signals on the output terminals.

Optional Features

SpO2

In combination with the optionally availably SECULIFE SP BASE SpO2 can be tested. The SECULIFE SP BASE is a digital SpO2 simulator with numerous functions.

Fetal/Maternal

The fetal/maternal feature is available as a software add-on. With it fetal and maternal ECG waveforms (with and without contractions) can be simulated. Additionally, it provides an Intrauterine-Pressure (IUP) waveform.

Cardiac Output

The cardiac output option consists of an optional software add-on and a hardware cardiac output module. With it, the SECULIFE PS300 has the ability to simulate thermodilution cardiac output measurements. Thermodilution allows the calculation of heart volume output by measuring the temperature change of the blood after a specific volume of solution, which is room temperature or cooler (typically 0 °C / 32 °F or 24 °C / 75,2 °F), is injected into the heart. The blood temperature is measured by a thermistor on the catheter.

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General Specifications

Power Supply	2 batteries	9 V PP3
	External power supply	9 V_{DC}, 200 mA (without SECULIFE SP BASE)
Ambient Conditions	Operating temperature	+15 °C … +40 °C (+59 °F … +104 °F)
	Storage temperature	–20 °C … +65 °C (–4 °F … +149 °F)
	Relative atmospheric humidity	20 % … 80 %, no condensation allowed
	Elevation	Max. 2000 m
Electromagnetic Compatibility (EMC)	Interference emission	EN 61326- 1 class A
	Interference immunity	DIN EN 61326-1 / IEC 61326-1 DIN EN 61326-2-1 / IEC 61326-2-1
Mechanical Design	Housing (W × H × D)	approx. 22,7 cm × 15,3 cm × 4,3 cm (8,9” × 6” × 1,7”)
	Weight	approx. 191 g / <2 lbs
	Display	2 × LCD, 128 × 64 pixel, white LED backlight

ECG Simulation

Rate	NSR		BPM	30, 40, 45, 60, 80, 90, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, 300
	Performance waveforms	Sine	Hz	0.1, 0.5, 5, 10, 40, 50, 60, 100
		Square		0.125, 2.000
		Triangle		2.000, 2.500
		Pulse	BPM	30, 60, 120
		R-Wave		30, 60, 80, 120, 200, 250
	Accuracy		%	±1
Width	Pulse		ms	60
	R-wave (haver triangle)		ms	8, 10, 12, 20, 30, 40, 50, 60, 70, 80, 90, 100, 120, 130, 140, 150, 160, 170, 180, 190, 200
Amplitude			mV	0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0
	Accuracy	@ lead II	%	±2
		except for R-wave ≤20 ms @ lead II		±5
High Level	200 time amplitude			
	Accuracy		%	±5
QRS Interval		Adult	ms	80
		Pediatric		40
ST Segment (Elevation)			mV	±0, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8
Lead to Lead Impedance	RL, LL, RA, LA		Ω	500, 1000, 1500, 2000
	V1 … V6			1000

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Pacemaker Waveforms

Rate		BPM	75
	Accuracy	%	±1
Width		ms	0.1, 0.5, 1.0, 1.5, 2.0
	Accuracy	%	±5
Amplitude		mV	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
	Accuracy	%	±10

IBP Simulation

Channels	2		
Static Pressure		mmHg	–10, –5, 0, 20, 40, 50, 60, 80, 100, 150, 160, 200, 240, 250, 300, 320, 400
	Accuracy	mmHg	± (2 % of reading + 2 mmHg)
Impedance		Ω	300
	Accuracy	%	±10
Excitation Range		V RMS	2 … 16
Excitation Frequency	DC to 5 kHz		
Sensitivity	5 or 40 µV / V / mmHg		
Respiration Artifact		mmHg	0 … 16

Respiration Simulation

Rate		Apnea	BrPM	75
	Accuracy		%	±1
Impedance Delta			Ω	0.1, 0.2, 0.5, 1.0, 2.0, 3.0
	Accuracy		%	±10 +0.05 Ω
Baseline			Ω	500, 1000, 1500, 2000
	Accuracy		%	±5
Lead	LA or LL			

Temperature Simulation

Selection	°C (°F)	0, 24, 30, 37, 40 (32.0, 75.2, 86.0, 98.6, 104.0)
Accuracy	°C	±0.1
Type	YSI series 400 and 700 (temperature cables not included)	

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Fetal / Maternal Simulation (Optional Feature)

Fetal Heart Rate	BPM	60, 90, 120, 140, 150, 210, 240
Inter Uterine Pressure Response Types	Uniform deceleration, early deceleration, late deceleration, uniform acceleration	
IUP Wave	Bell curve with 90 mmHg peak and 90 s width	
IUP Trigger	manual, auto: 2 m, 3 m, 5 m	

Cardiac Output (Optional Feature)

Injectate Volume		cc	10
Injectate Temperature		°C	0 or 24
	Accuracy	%	±2
Injectate Calibration Coefficient	0 °C		0.542
	20 °c		0.595
Blood Temperature		°C (°F)	37 (98.6)
	Accuracy	%	±2
Cardiac Output		l/min	2.5, 5.0, 10.0
	Accuracy	%	±2
Simulations	Normal flow, faulty injectate, left-to-right shunt, temperature calibration pulse		
Temperature Calibration Pulse	1.5 °C down for 1 s		
	Accuracy	%	±1
Catheter Type	Baxter Edwards, 93a-131-7f		

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Scope of Delivery

- 1 × SECULIFE PS300 instrument
- 1 × Power supply with interchangeable adapters (US, UK, AUS and European)
- 1 × Carrying case
- 1 × Quick Start Guide
- 1 × Calibration certificate

Order Information

Type	Description	Article Number
SECULIFE PS300	Patient simulator with standard accessories	M695N
SECULIFE SP BASE	Digital SpO2 simulator	M696B
FETAL/ MATERNAL	Fetal/maternal option software addon	Z695P
CARDIAC OUTPUT	Software addon and hardware cardiac output module	Z695O
Cable	BP Criticare, Critikon-Dinamap Plus, Invivo Research, Ivy Biomedical, North American Drager, Ohmeda, Physio-Control, Protocol Systems, SpaceLabs TK-1, 1050, 1700, PCMS, Tektronix-Squip, Vitatek-Squib TK-1 (6M)	BC20-41301
Cable	BP Data Scope -DS-1, Datascope (all) Colin (BP-308, BP-408), SMEC (6F)	BC20-41308

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