PatSim 400

A cost effective, easy to use Patient Simulator

The PatSim 400 from Rigel was designed to make every patient simulation quicker.

Unlike other Patient Simulators, the PatSim uses a home and recall function to easily move between tests and store your most used sequences, no more clicking and scrolling through 'tree style' hierarchy to perform each test.

Why buy the PatSim 400?

> The PatSim 400 saves and recalls 5 of your most used simulations at the touch of just 3 buttons

> An instant low-cost replacement for old patient simulators - the PatSim 400 is compatible with legacy IBP and temperature cables.

> Rechargeable Li-Ion battery offering 8 hours of operation between charging

Key Features:

> Simple, fast navigation

> High contrast and low luminance colour display

> Recall most used simulations

> Foetal / maternal monitoring

> Over 40 selectable arrythmias

> Cardiac output simulation

Passionate about patient safety.

T: +44 (0) 191 587 8730 E: sales@rigelmedical.com

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GMC-INSTRUMENTS GROUP

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DESIGNED & BUILT IN GREAT BRITAIN

KEEPING PEOPLE SAFE SINCE 1982

What's in the box?

> Quick start guide

> Universal USB power supply

> 10 x applied part adaptors

> Calibration certificate

> PatSim 400 simulator

> PatSim 400 carry case

Optional Accessories:

> Replacement battery (404A954)

> Temperature cable - unterminated (404A955)

> IBP cable - unterminated (404A956)

> Replacement carry case (404A950)

> Applied part adaptors (404A951)

> Universal USB power supply (404A952)

> Cardiac Output Module (404A953)

Technical Specification:

General ECG	
Simulation	Full 12 lead ECG with independent outputs for each signal lead
Lead I	70%
Lead II	100%
Lead III	30%
Lead V1	24%
Lead V2	48%
Lead V3	100%
Lead V4	120%
Lead V5	112%
Lead V6	80%
ECG Normal Sinus Rhythm	
Simulation	Full 12 lead ECG with independent outputs for each signal lead
Heart Rate	18 selectable values 30-300 bpm
Accuracy	±1BPM or 1%
Amplitude (lead II)	0.05 mV to 0.45 mV (0.05 mV steps) 0.5 mV to 5.5 mV (0.5 mV steps)
Amplitude Accuracy	± 2%
ST Segments	18 selectable values, 8 elevated & 8 depressed
Neonatal Mode	ECG R wave width is reduced to 40ms
Arrhythmia Waveforms (Atrial)	
Amplitude (lead II)	0.05 mV to 0.45 mV (0.05 mV steps) 0.5 mV to 5.5 mV (0.5 mV steps)
Amplitude Accuracy	± 2%
Ventricular Waveforms	Asystole Bigeminy Trigeminy Ventricular Fibrillation (coarse) Ventricular Fibrillation (fine) Ventricular Tachycardia
Supraventricular Waveforms	Atrial Fibrillation (coarse) Atrial Fibrillation (fine) Atrial Flutter Atrial Tachycardia Missing beat Nodal rhythm Paroxysmal Atrial Tachycardia Sinus Arrhythmia Supraventricular Tachycardia

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Service and Warranty

The PatSim 400 comes with a free upgraded 5-year warranty, subject to terms and conditions, available at

rigelmedical.com/register

Technical Specification (Continued):

Arrhythmia Waveforms (Atrial) (Continued)	
Atrial Conduction Waveforms	First Degree AV Block Left Bundle Branch Block Right Bundle Branch Block Second Degree AV Block - Mobitz I Second Degree AV Block - Mobitz II Third Degree AV Block
Premature Waveforms	Premature Atrial Contraction Premature Nodal Contraction Premature Left Ventricle Contraction Premature Left Ventricle Contraction - early Premature Right Ventricle Contraction - R on T Premature Ventricular Contraction - 6 / min Premature Ventricular Contraction - 12 / min Premature Ventricular Contraction - 24 / min Premature Ventricular Contraction - frequent multifocal
Performance Waveforms	
Square Waves	2 Hz, 0.125 Hz
Triangle Wave	2 Hz
Pulse	60bpm or 240bpm
Sine Waves	0.05, 0.5, 1, 10, 25, 30, 40, 50, 60, and 100 Hz
R-Wave Detector Test	60 BPM haver-triangle wave with selectable width and amplitude
Haver-triangle Width	12 selectable values between 8 and 200 ms
Performance amplitude	0.5 to 5.0 mV in 0.5 mV steps
Pacer Waveforms	
Simulated Rhythms	Asynchronous at 75 bpm Demand with frequent sinus beat Demand with occasional sinus beat A-V sequential Non-capture Non-function
Pulse Amplitude	1.0, 2.0, 5.0, 10.0 mV
Accuracy	±10%
Width	5 selectable values 0.1-2.0 ms
Accuracy	± 5%

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Technical Specification (Continued):

R Wave Detection	
Heart Rate	6 selectable values 30-250 BPM
Amplitude	0.05 mV to 0.50 mV (0.05 mV steps)
R wave width	13 selectable values 8-200ms
Cardiac Output	
Catheter Type	Baxter Edwards, 93a-131-7f
Calibration coefficient	0.542 (0 °C injectate), 0.595 (24 °C injectate)
Blood Temperature	37 °C (98.6 °F) ± 2 %
Injectate Volume	10 cc
Injectate Temperature	0 °C or 24 °C ± 2 % value
Cardiac Output	2.5 l/min, 5 l/min, 10 l/min ± 5 %
Connector	mini DIN style
Respiration Simulation	
Rates	0, 5, 10, 15, 30, 40, 60, 80, 120, 180 brpm
Resistance Variations	0.2, 0.5, 1.0, 3.0 Ω
Accuracy	±10%
Base resistances	500, 1000, 1500 and 2000 Ω
Accuracy	±5%
Lead selection	1 (LA), 2(LL) user selectable
Apnoea Simulation	Manual on/off
Temperature Simulation	
Simulation	YSI 400 / 700A / 700B Static
Temperature unit	°C or °F, user selectable
Range	pre-set 4 values at 0.0, 24.0, 37.0, and 40.0°C pre-set 4 values at 32.0, 75.2, 98.6, 104.0°F
Accuracy	± 0.1 °C / °F
Connector	mini-DIN style
Invasive Blood Pressure Simulation	
Channels	4 Channels
Static Pressure Channel 1	-10, 0, 80, 160, 240, 320, 400 mmHg
Static Pressure Channel 2	-10, 0, 50, 100, 150, 200, 240 mmHg
Static Pressure Channel 3&4	-5, 0, 20, 40, 60, 80, 100 mmHg
Dynamic Simulation	Arterial [ART] 120/80 Radial Artery [RA] 120/80 Left Ventricle [LV] 120/00 Right Ventricle [RV] 25/00 Right Atrium (central venous) [CVP] 15/10 Pulmonary Artery [PA] 25/10 Pulmonary Artery Wedge [PAW] 10/2 Left Atrium [LA] 14/4

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Technical Specification (Continued):

Invasive Blood Pressure Simulation (Continued)	
Auto sequence (C1 only)	Cycle through simulations with 15 second step duration: Arterial [ART] 120/80 Radial Artery [RA] 120/80 Left Ventricle [LV] 120/00 Right Ventricle [RV] 25/00 Pulmonary Artery Wedge [PAW] 10/2 Pulmonary Artery [PA] 25/10 Right Atrium (central venous) [CVP] 15/10
Accuracy	± 1mmHg
Excitation voltage	2V to 16V
Impedance	350Ω Nominal
Simulated sensitivity	5µV/V/mmHg or 40µV/V/mmHg (user selectable)
Connector	mini-DIN style

General Specification:

Mains power/Battery info	3.7V 3900mAh 14.4WH Li-Ion battery 5V 1A USB micro-B power supply 100-240V ~ 50/60Hz 0.18A max.
Charge time (new battery)	Up to 6 hours
Battery life	Up to 8 hours (depending on simulation and screen brightness)
Weight	0.70 Kg / 1.5 lbs
Dimensions	180 x 150 x 55 mm, 7.1 x 5.9 x 2.2 inch
Serviceability	
Warranty:	5 years [terms and conditions apply]
Calibration:	1 year
Environmental	
Operating conditions	10 - 40°C (50 - 104°F) 0-90% RH – NC
Storage environment	-15 - 60°C (5 - 140°F) 0-90% RH – NC
Environmental protection	IP40
Impact Rating	IK08
Electrical Interfaces	
ECG (& respiration)	10 x 4 mm sockets
BP 1 – 2	6 pin mini DIN
Temperature	8 pin mini-DIN
USB Port	micro

Rev 1

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