

# RIGEL 311C

## Non-Invasive Blood Pressure Simulator



The Rigel 311c is an advanced technology battery powered NIBP simulator, which now incorporates innovative calibration tables for all the major monitor manufacturers.

The comprehensive CalTables have been developed and certified by the NIBP monitor manufacturers enabling test results to be immediately and automatically corrected and verified.

In addition, the CalTables can be upgraded quarterly in line with individual manufacturers' recommendations to ensure that the Rigel 311c is continually capable of testing within specifications.

The Rigel 311c is a lightweight and compact NIBP simulator that has been designed specifically for highly portable applications in biomedical engineering departments in hospitals, health centres and similar medical facilities.

The tester incorporates an internal pump for static calibration, leak tests and over-pressure tests. Built-in adult and neonate mandrels also eliminate the need for blocks to be used to test blood pressure monitors.

## Key Features

### ■ Preset Manufacturer's Calibration Tables

For accurate calibration of NIBP monitors using manufacturer's oscillometric waveforms

### ■ User-Defined CalTables

Rigel 311C allows users to create their own CalTables

### ■ Digital Voice-Coil Simulation Engine

Motion artefact ready, Natural waveforms for realistic simulation and Low-friction for no-maintenance operation

### ■ Lightweight and compact

For maximum efficiency during field testing

### ■ Internal pump

For static calibration, leak tests and over-pressure tests – for one-stop test solution.

### ■ Built-in adult and neonate mandrels

No more worries about supporting the cuff during testing

### ■ Battery or AC operation

Complete flexibility during in-service testing without depending on mains supply

### ■ Independent systolic and diastolic pressures

For maximum accuracy

### ■ High-resolution cuff and pulse pressure waveform display

To enable graphic representation of the inflation and deflation process

### ■ 0.5 mmHg NIBP accuracy

The most accurate available

### ■ Digital Manometer with $\pm 0.1$ mmHg resolution

Provides an easy and accurate means of testing static pressures

## Applications

- Calibration
- Production line testing
- Type Test Approvals
- Routine Testing of NIBP monitors / modules
- System Leakage Tests on NIBP systems / cuffs
- Static Calibration using internal manometer



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# RIGEL 311C SPECIFICATIONS

## Rigel 311C NIBP CalTables

Datascope Accutorr Plus  
GE Medical Dash 4000  
GE Medical Dinamop Pro  
Philips Medical M3  
Welch-Allyn Propaq Encore  
Philips Medical VS1  
Spacelabs  
Colin Medical  
Criticare  
CAS Medical  
SunTech

## BP Presents Systolic/Diastolic

Adult	Neonatal
250/190 (212)	150/120 (129)
200/150 (169)	120/90 (99)
150/100 (119)	100/70 (79)
120/80 (95)	80/50 (59)
100/70 (82)	60/30 (39)
80/50 (62)	35/15 (21)
60/30 (42)	

Exact Diastolic, Systolic and MAP values are a function of the specific CalTables. The BP Presets above are taken from the Welch-Allyn Propaq Encore CalTable.

## Accuracy

<± 0.5% of selected target value

## Oscillometric Pulse

Pulse Amplitude @ MAP	2.0mmHg
Pulse Volume Range	0 to 4.4ml
Pulse Rise Time	80 msec (minimum)

## Pulse Rate

Pulse Rate Range	15-330 bpm
Pulse Rate Accuracy	± 1bpm, 15-200 bpm ± 2 bpm 201-330 bpm

## Displayed/ Measured Parameters

Dynamic NIMP Cuff Pressure Waveform	
Measurement Time	0.0 to 180.0 seconds
Maximum Inflation Pressure	0 to 400 mmHg (400.0 mmHg typical)
Inflation Time	0.0 to 180.0 sec
Inflation Rate	0 to 999.9 mmHg/sec
Minimum Pressure	0 to 400 mmHg (400.0 mmHg typical)
Deflation Time	0.0 to 180.0 sec
Deflation Rate	-0.0 to -999.9 mmHg/sec

## Digital Manometer

Pressure Range	0.0 to 400.0 mmHg
Accuracy	± 0.5 mmHg, traceable to NIST
Resolution	± 0.1 mmHg

## Leak Test

Start Pressure	200 mmHg nominal, 10 to 370 mmHg via Remote Control
Pressure Drop	0 to 400 mmHg (400.0 mmHg typical)
Elapsed Time	60 seconds
High Resolution Manometer	0.0 to 400.0 mmHg (400.0 mmHg typical)

## Self Test Accessories:

- Pressure Bulb Assembly (tees into any Cuff Adaptor)
- Self system leak test hose (plugged at distal end)

## Standard Accessories:

- External Power Supply and Cord
- Adult and Neonate Cuff Supports
- Five Adaptor Hoses
- Inflation Bulb with "T" fitting
- Self System Leak Test Hose
- Operation Manual
- Internal Pump
- Internal Battery

## Optional Extras:

- Carry Case



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#### Over-Pressure

Automatically test operation of the monitor's relief valve  
Pop-Off Pressure 0 to 400 mmHg (400.0 mmHg typical)  
Instantaneous Pressure 0 to 400 mmHg (400.0 mmHg typical)

#### Cuff Supports

Plastic and Aluminium Cylinders  
Adult – appr. 90 mm OD, 185 mm width  
Neonate – appr. 30 mm OD, 60 mm width

#### Adaptor Hoses

Male/Female Luer  
Male/female Clipboard (GE Medical Draeger/Siemens)  
Colder/CPC (GE Medical, Protocol Systems)  
OABC Quick Release (Philips Medical)  
Universal 5/32" I.D. Hose

#### Communication Ports

2 RS-232 (second part available Q2 2006)  
1 USB Port

#### Display

Non-Glare Graphic LCD  
CCFL Backlight  
Resolution: 240 x 320 (1/4 VGA)  
Thumbwheel contrast control

#### Power

100-240 VAC, 50 watts, 50-60 Hz, Desktop Switcher  
Output: 24VDC @ 2.1A, 6 foot cable  
Internal Battery: nickel metal hydride (NiMH)  
Voltage: 19.2V  
Capacity: 2.5A-Hr, 150 NIBP Simulations  
Charge Time: 16 hours

#### Weight

3.5 Kg

#### Dimensions

200 mm wide x 125 mm High x 300 mm Long

#### Also Available from Rigel Medical:

- Rigel 266 Plus Manual Safety Analyser
- Rigel 277 Plus Automatic Safety Analyser
- Rigel 288 Electrical Safety Analyser
- Rigel 322 SPO2 Simulator
- Rigel 333 Patient Simulator
- Rigel 344 Defibrillator Tester
- Rigel 355 Ventilator Tester
- Rigel 601 Plus
- MediGuard – Software Application

#### Also Available From the Seaward Group:

- Portable Appliance Testers
- IEC Lead Tester
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- RCD Testers
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- Installation Testers
- Multimeters
- Current Clamps
- Hipot Testers
- Earthbond Testers
- Micro Ohmmeters

To find out more about these products, please;

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