

Rigel 322 – Technical Specification

SpO₂ Simulator

Oxygen Saturation (SpO₂)

Range:	0-100 SpO ₂ %
Resolution:	1 SpO ₂ %
Accuracy:	±0.5 SpO ₂ %, 70-100 SpO ₂ % ±1 SpO ₂ %, 50-69 SpO ₂ %

Pulse Rate

Range:	20-255 bpm
Resolution:	1 bpm
Accuracy:	±1 bpm, 20-199 bpm ±2 bpm, 200-255 bpm

R-Curves (Red/IR Ratio)

and the SpO₂ value **displayed**. R-curves are obtained by each pulse oximeter manufacturer during clinical trials. **Preset Manufacturer's R-Curves (13):** BCI, Criticare, CSI-Spot, Datascope, Datex, Hewlett-Packard, Masimo, Nellcor, Nihon Kohden, Nonin, Novametrix, Ohmeda & SensorMedics
Please contact the factory for the availability of other R-Curves

Plethysmographic Amplitude

Simulates the effect of tissue perfusion

Range:	0-200% of nominal amplitude
Resolution:	1%
Accuracy:	±1

Ambient Light

Simulates the ambient light level "seen" by the oximeter probe

Range:	DC Level & AC
Level:	0-255%
Resolution:	1%
Accuracy:	±1%

Flicker Frequency Presets (6):	60 Hz
	120 Hz
	121 Hz
	50 Hz
	100 Hz
	101 Hz

Motion Artifact

Amplitude Range:	0-100
-------------------------	-------

Frequency: 4 Hz, Contact factory for availability of other frequencies.

Arrhythmias

Simulates cardiac arrhythmias by altering the plethysmographic pulse amplitude and pulse rate.

Arrhythmias (5): Asystolic Pause
PVC
Atrial Fibrillation
Tachycardia
Bradycardia

Auto Sequences

Preset Auto Sequences automate pulse oximeter testing.

Standard Presets (5):

CalDown - decreasing SpO2 and increasing Pulse Rate at 20 second intervals

CalUp - increasing SpO2 and decreasing Pulse Rate at 20 second intervals

CalLong - decreasing SpO2 and increasing Pulse Rate at 30 second intervals

FullSwp - tests every SpO2 point between 60 and 100 at 21 second intervals

Trend - Sleep Apnea pattern over 60 minutes.

Automatic Data-Logging & Printing

Closed-loop testing of pulse oximeters can be achieved by connecting a cable between the "SERIAL COMM" port of the oximeter and the "RS-232" port of the Rigel 322. Oximeter test results are automatically retrieved and displayed on the Rigel 322 screen; the test results can be printed immediately or stored for future printing.

Serial data protocols supported: BCI, Criticare, Datascope, Datex, Hewlett-Packard, Nellcor, Nihon Kohden, Nonin, Novamatrix & Ohmeda Please contact the factory for the availability of other serial data protocols.

Stored Printing

Stored Printing allows the user to save test results for printing at a later time or up-loading into popular equipment management programs such as Otis™/Profile™ and medTester/Sentinel.

Remote Control

The **Rigel 322** can be operated via remote control through its RS-232 port. In addition to duplicating all front panel operations, remote control commands include status query commands, a keypad lock command and a "warm-boot" command.

Probe Analyzer

Probe Continuity Test

Simultaneous Channels:

2 for Nellcor-style probes: LED & PhotoDiode circuits

3 for Ohmeda-style probes: Red LED, IR LED & PhotoDiode circuits

Test Mode: Constant Current Stimulus, Voltage Output

Constant Current Stimulus: 500 uA

Intermittent "Glitch" Detection: Detects open circuits and short circuits, 1 msec or longer

Probe Connection: Connectors for Nellcor & Ohmeda probes are built into Rigel 322; other probes are connected via adapter cables

General

Display

Type : Backlit graphic LCD

Resolution : 320 h x 240 v, 0.30mm dot pitch

Controls : Contrast, Backlight Timeout

Serial Interface

Type : RS-232C, 9 pin "PC-AT" style

Baud Rates : 300-9600 bps

Modes : Remote Control, Data-Logging & Equipment Management Up-Loading

Printer Interface

Type : Centronics, 25 pin "IBM-PC" style

Battery & AC Adapter

Battery

Type : 19.2V, Nickel Metal Hydride (NimH)

Capacity : 2.1A-Hr (About 4.5 Hours usage)

Charge Time: 17 Hours (charges even if Rigel 322in use)

External AC Adapter

Type : Wallmount Linear

Input : 120VAC, 60Hz or 230VAC, 50Hz

Output : 24VDC, 500mA

Safety Agency Approvals: UL, CSA, TUV

Physical

Case : Aluminum with non-skid feet & handle

Dimensions : 203 x 203 x 127 (WxDxH in mm)

Weight : <2 Kg including battery

Rigel 322Cables

User's choice of 2 sets included in purchase price

Additional sets available at extra charge

SpO2 Simulator Adapter Cables: BCI, Criticare, CSI-Spot, Datascope, Datex, Hewlett-Packard, Masimo, Nellcor, Nihon Kohden, Nonin, Novamatrix, Ohmeda & Sensormedics

Probe Analyzer Adapter Cables: Criticare, Datascope, Datex, Hewlett-Packard, Masimo, Nihon Kohden, Novamatrix & Sensormedics

Note: BCI, Nellcor, Nonin & Ohmeda probes connect directly.