The Gold Standard in Oximetry Testing

• Built-In Probe Analyzer
SmartSat also includes a built-in probe analyzer. Quickly test a probe for opens and shorts - even intermittent ones. Since most failures are ultimately traced to the probe, SmartSat's Probe Analyzer can save you hours of troubleshooting time.

• The Most Accurate Pulse Oximetry Tester
Perform pulse oximetry testing with confidence. Using our patented electrical simulation technology, SmartSat delivers the most accurate and widest pulse oximetry simulation parameters available. No optical simulator can match SmartSat's performance.

• Manufacturer-Certified SpO2 Simulation
SmartSat was developed with, and certified by, leading pulse oximetry manufacturers. SmartSat is used and endorsed by manufacturers for testing in engineering, production, service and support.

• Efficient and Easy To Use
Test a pulse oximeter and probe in less than 2 minutes! Other simulators require you to scroll through endless menus. With SmartSat's large display, you can view the simulation and probe testing windows simultaneously.
### SmartSat™ Pulse Oximetry Analyzer

#### Technical Specifications

**SpO2 Simulator**

**Oxygen Saturation (SpO2)**
- Range: 0-100 SpO2%
- Resolution: ±1 SpO2%
- Accuracy: ±0.5 SpO2%, 70-100 SpO2%
- ±1 SpO2%, 50-69 SpO2%

**Pulse Rate**
- Range: 20-300 BPM
- Resolution: 1 BPM
- Accuracy: ±1 BPM, 20-199 BPM
- ±2 BPM, 200-300 BPM

**R-Curves (Red/IR Ratio)**

R-Curves specify the relationship between the Red/IR ratio measured by pulse oximeters and the SpO2 value displayed. R-curves are obtained by each pulse oximeter manufacturer during clinical trials.

**Preset Manufacturer’s R-Curves (14):** BCI, Criticare, CSI-Spot, Datascoppe, Datex, Masimo, Nellcor, Nellcor OxiMax, Nihon Kohden, Nonin, Novametrix, Ohmeda, Philips Medical & Sensormedics

Please contact the factory for the availability of other R-Curves.

**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 (18):**
  - All autosequences are user configurable
  - User configurations are saved, replacing factory samples

**Factory Samples**

- 100-58 - preset for 13 manufacturers
- 50-81 - preset for Nellcor and Ohmeda

**Trend Loop**
- 4 Points
- Pulse Rate: 40-200

**Remote Control**

The SmartSat can be operated via remote control through its RS-232 port and duplicate all front panel operations.

**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 SmartSat; 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

**Serial Interface**

**Remote Control Mode**
- *Type:* RS-232C, 9 pin “PC-AT” style
- *Baud Rates:* 1200 bps

**Battery & AC Adapter**

**Battery**
- *Type:* Nickel Metal Hydride (NiMH)
- *Voltage:* 19.2V

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

**Charge Time:** 17 Hours (charges even if SmartSat in use)

**External AC Adapter:** 100-240 VAC, 50 watts, 50-60 Hz, Desktop Switcher

**Physical**
- *Case:* Aluminum with non-skid feet & handle
- *Dimensions:* 8” Wide x 8” Deep x 5” High
- *Weight:* 4 pounds including battery

**SmartSat Cables**

The following Simulator and Probe Analyzer cables are available for purchase. Please contact Clinical Dynamics for details.

**SpO2 Simulator Adapter Cables:** BCI, Criticare, CSI-Spot, Datascoppe, Datex, Datex-Ommeda, Hewlett-Packard, Masimo, Nellcor/OxiMax, Nihon Kohden, Nonin, Novametrix, Sensormedics & Tuffsat

**Probe Analyzer Adapter Cables:** Criticare, Datascoppe, Datex, Hewlett-Packard, Masimo, Nihon Kohden, Novametrix & Sensormedics

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

#### Optional Accessories

- SmartSat Carry Case

---

**Clinical Dynamics**

clinicaldynamics.com