

# ProSim 8

## Vital Signs Simulator

### Technical Data



The 8-in-1 ProSim 8 Vital Signs Simulator offers fast and comprehensive preventative maintenance (PM) testing for your entire patient monitor fleet. Designed to get you in and out of most PM locations in minutes, this multifunction simulator tests ECG (including fetal ECG and arrhythmias), respiration, temperature, IBP, cardiac output, NIBP, SpO<sub>2</sub>, and is capable of testing Rainbow multi-wavelength waveforms. Featuring specialized stay-connected ECG posts for secure lead connections, physiologically-synchronized pulses across all parameters, and customizable patient pre-sets and autosequences, the ProSim 8 patient simulator provides unbeatably fast and easy complete monitor testing. Barcode-scanner compatibility and wireless PC interface, direct printing, data transfer and reporting, along with advanced, integrated technologies and works-every-time performance allow top confidence in patient monitor fleet performance and supports passing regulatory audits with ease.

### Key features

- All-in-one complete monitor testing 80% smaller and 17 lbs/7.7 kilos lighter than predecessor technology
- 8-in-1 multifunction simulator tests ECG (including fetal ECG and arrhythmias), respiration, temperature, IBP, cardiac output, NIBP, SpO<sub>2</sub>, and Rainbow multi-wavelength waveforms
- Stay-connected ECG posts for easy/secure ECG snap and lead connections
- Custom SpO<sub>2</sub> r-curve for accurate testing of the latest and future oximetry technologies
- Static pressure linearity testing
- Repeatable NIBP simulation (+/- 2 mmHg) for dynamic pressure repeatability testing
- Physiologically synchronized pulses across all parameters
- Barcode scanning and direct data capture and printing functionality
- Onboard, customizable patient pre-sets and autosequences for fast/easy testing
- Multi-language user interface offers choice of language selection
- Integrated, easily-replaceable long-life battery
- Optional PC-interface software offers customizable procedures/checklists to replace bulky service manuals and automated data capture/storage\*
- Wireless communication for remote PC control of test device, as well as data transfer and automated regulatory reporting\*

*\*You must have Ansur Test Executive version 2.9.6 or greater on your PC to communicate with the product*

## Specifications

General specifications		
<b>Temperature</b>	Operating	10 °C to 40 °C (50 °F to 104 °F)
	Storage	-20 °C to +60 °C (-4 °F to 140 °F)
<b>Humidity</b>	10 % to 90 % non-condensing	
<b>Altitude</b>	3,000 meters (9,843 ft)	
<b>Dimensions (L x W x H)</b>	14.5 cm x 30.2 cm x 8.6 cm (5.7 in x 11.9 in x 3.4 in)	
<b>Display</b>	LCD color display	
<b>Communication</b>	USB device upstream port	Mini-B connector for control by a computer
	USB host controller port	Type A, 5 V output, 0.5 A max load. Connector for keyboard, barcode reader, and printer
	Wireless	IEEE 82.15.4 for control by a computer
<b>Power</b>	Lithium-ion rechargeable battery	
<b>Battery charger</b>	100 V to 240 V input, 15 V/2.0 A output. For best performance, the battery charger should be connected to a properly-grounded ac receptacle	
<b>Battery life</b>	9 hours (minimum), 100 NIBP cycles typical	
<b>Weight</b>	1.87 kg (4.2 lb)	
<b>Safety standards</b>	IEC/EN 61010-1 3rd Edition; Pollution degree 2 CAT None	
<b>Certifications</b>	CE, CSA, C-TICK N10140 , RoHS	
<b>Electromagnetic compatibility (EMC)</b>	IEC 61326-1:2006	



<b>Detailed specifications</b>												
<b>Normal-sinus-rhythm waveform</b>												
<b>ECG reference</b>	The ECG amplitudes specified are for Lead II (calibration), from the baseline to the peak of the R wave. All other leads are proportional											
<b>Normal sinus rhythm</b>	12-lead configuration with independent outputs referenced to right leg (RL). Output to 10 universal ECG jacks, color-coded to AHA and IEC standards											
<b>High-level output</b>	0.5 V/mV $\pm$ 5 % of the ECG amplitude setting available on a BNC connector											
<b>Amplitude</b>	0.05 mV to 0.5 mV (0.05 mV steps); 0.5 mV to 5.0 mV (0.25 mV steps) Other leads are proportional to Lead II (reference lead) in percentage per: <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Lead I: 70</td> <td style="width: 50%;">Lead V3: 100</td> </tr> <tr> <td>Lead II: 100</td> <td>Lead V4: 120</td> </tr> <tr> <td>Lead III: 30</td> <td>Lead V5: 112</td> </tr> <tr> <td>Lead V1: 24</td> <td>Lead V6: 80</td> </tr> <tr> <td>Lead V2: 48</td> <td></td> </tr> </table>		Lead I: 70	Lead V3: 100	Lead II: 100	Lead V4: 120	Lead III: 30	Lead V5: 112	Lead V1: 24	Lead V6: 80	Lead V2: 48	
Lead I: 70	Lead V3: 100											
Lead II: 100	Lead V4: 120											
Lead III: 30	Lead V5: 112											
Lead V1: 24	Lead V6: 80											
Lead V2: 48												
<b>Amplitude accuracy</b>	$\pm$ (2 % of setting + 0.05 mV)											
<b>ECG rate</b>	10 BPM to 360 BPM in 1 BPM steps											
<b>Rate accuracy</b>	$\pm$ 1 % of setting											
<b>ECG waveform selection</b>	Adult (80 ms) or pediatric (40 ms) QRS duration											
<b>ST-segment elevation</b>	Adult mode only. -0.8 mV to +0.8 mV (0.1 mV steps). Additional steps: + 0.05 mV and - 0.05 mV											
<b>Power-on default</b>	60 BPM, 1.0 mV, adult QRS and ST-segment elevation of 0 mV											
<b>Pacemaker waveform</b>												
<b>Pacer pulse</b>	<b>Amplitude</b>	0 (off), $\pm$ 2, $\pm$ 4, $\pm$ 6, $\pm$ 8, $\pm$ 10, $\pm$ 12, $\pm$ 14, $\pm$ 16, $\pm$ 18, $\pm$ 20, $\pm$ 50, $\pm$ 100, $\pm$ 200, $\pm$ 500, and $\pm$ 700 mV for lead II (reference lead)										
	<b>Accuracy</b>	Reference lead II: $\pm$ (5 % setting + 0.2 mV)										
		All other leads: $\pm$ (10 % setting + 0.4 mV)										
<b>Pacer pulse width</b>	0.1 ms, 0.2 ms, 0.5 ms, 1 ms, and 2 ms $\pm$ 5 %											
<b>Paced arrhythmias</b>	Atrial 80 BPM											
	Asynchronous 75 BPM											
	Demand with frequent sinus beats											
	Demand with occasional sinus beats											
	Atrio-ventricular sequential											
	Noncapture (one time)											
	Nonfunction											
<b>Power-on default</b>	Amplitude 5 mV, width 1 ms, atrial waveform											

<b>Arrhythmia</b>		
<b>Baseline NSR</b>	80 BPM	
<b>PVC focus</b>	Left focus, standard timing (except where specified)	
<b>Supraventricular arrhythmia</b>	Atrial fibrillation (coarse or fine); atrial flutter; sinus arrhythmia; missed beat (one time); atrial tachycardia; paroxysmal atrial tachycardia; nodal rhythm; and supraventricular tachycardia	
<b>Premature arrhythmia</b>	Premature atrial contraction (PAC); premature nodal contraction (PNC); PVC1 left ventricular; PVC1 left ventricular, early; PVC1 left ventricular, R on T; PVC2 right ventricular; PVC2 right ventricular, early; PVC2 right ventricular, R on T; and multifocal PVCs	
<b>Ventricular arrhythmia</b>	PVCs 6, 12, or 24 per minute; frequent multifocal PVCs; bigeminy; trigeminy; multiple PVCs (one-time run of 2, 5, or 11 PVCs); monoventricular tachycardia (120 to 300 BPM in 5 BPM steps); polyventricular tachycardia (5 types); ventricular fibrillation (coarse or fine); and asystole	
<b>Conduction defect</b>	First-, second-, or third-degree heart block; and right- or left-bundle-branch block	
<b>Advanced cardiac life support</b>	Shockable pulseless arrest rhythms	Ventricular fibrillation (coarse), ventricular fibrillation (fine), unstable polymorphic ventricular tachycardia
	Non-shockable pulseless arrest rhythms	Asystole
	Symptomatic bradycardia	Sinus bradycardia (< 60 BPM)
		2nd degree AV block, mobitz type I
		2nd degree AV block, mobitz type II
		Complete/3rd degree AV block
		Right bundle branch block
Left bundle branch block		
<b>Advanced cardiac life support cont.</b>	Symptomatic tachycardia: regular narrow-complex tachycardia (QRS < 0.12 seconds)	Sinus tachycardia > 150 BPM
		Supraventricular Tachycardia
	Symptomatic tachycardia: regular wide-complex tachycardias (QRS ≥ 0.12 seconds)	Sinus tachycardia > 150 BPM
		Supraventricular tachycardia SVT with aberrancy
	Irregular tachycardia	Atrial fibrillation (coarse and fine), atrial flutter, unstable monomorphic ventricular tachycardia (120 BPM to 300 BPM), torsade de pointes/polymorphic ventricular tachycardia (long QT interval)



<b>Fetal/Maternal ECG</b>		
<b>Fetal heart rate (fixed)</b>	60 BPM to 240 BPM in 1 BPM steps	
<b>Fetal heart rate (IUP)</b>	140 BPM at beginning, then varies with pressure	
<b>Intrauterine-pressure waveforms</b>	Early deceleration, late deceleration, and acceleration	
<b>Wave duration</b>	90 seconds, bell-shaped pressure curve, from 0 mmHg to 90 mmHg and returning to 0	
<b>IUP period</b>	2 min, 3 min, or 5 minutes; and manual	
<b>Default settings</b>	FHR 140 BPM, early deceleration wave, manual	
<b>Invasive blood pressure</b>		
<b>Channels</b>	2, each independently settable with identical parameters and are individually electrically isolated from all other signals	
<b>Input/output impedance</b>	300 $\Omega$ $\pm$ 10 %	
<b>Exciter input range</b>	2 to 16 V peak	
<b>Exciter-input frequency range</b>	DC to 5000 Hz	
<b>Transducer sensitivity</b>	5 (default) or 40 $\mu$ V/V/mmHg	
<b>Pressure accuracy</b>	$\pm$ (1 % of setting + 1 mmHg) accuracy guaranteed for dc excitation only	
<b>Static pressure</b>	- 10 to + 300 mmHg in 1 mmHg steps	
<b>Pressure units</b>	mmHg or Kpa	
<b>Dynamic waveforms</b>	Types (default pressures	Arterial (120/80)
		Radial artery (120/80)
		Left ventricle (120/00)
		Right ventricle (25/00)
		Pulmonary artery (25/10)
		Pulmonary-artery wedge (10/2)
	Right atrium (central venous or CVP) (15/10)	
Pressure variability	Systolic and diastolic pressures are independently variable in 1 mmHg steps	
<b>Swan-Ganz sequence</b>	Right atrium, right ventricle (RV), pulmonary artery (PA), pulmonary artery wedge (PAW)	
<b>Cardiac catheterization</b>	Chambers	Aortic, pulmonary valve, and mitral valve
	<b>Respiration artifact</b>	Arterial, radial artery, and left ventricle
	Other	5 mmHg or 10 mmHg
<b>BP output</b>	Circular DIN 5-Pin	
<b>Power-on default</b>	0 mmHg	

<b>Respiration</b>		
<b>Rate</b>	0 (OFF), 10 BrPM to 150 BrPM in 1 BrPM steps	
<b>Waves</b>	Normal or ventilated	
<b>Ratio (inspiration:expiration)</b>	Normal	1:1, 1:2, 1:3, 1:4, 1:5
	Ventilated	1:1
<b>Impedance variations (<math>\Delta \Omega</math>)</b>	0.00 $\Omega$ to 1.00 $\Omega$ in 0.05 $\Omega$ steps and 1 $\Omega$ to 5 $\Omega$ in 0.25 $\Omega$ steps	
<b>Accuracy delta</b>	$\pm$ (5 % of setting + 0.1 $\Omega$ )	
<b>Baseline</b>	500 $\Omega$ , 1000 $\Omega$ (default), 1500 $\Omega$ , 2000 $\Omega$ , Leads I, II, III	
<b>Accuracy baseline</b>	$\pm$ 5 %	
<b>Respiration lead</b>	LA or LL (default)	
<b>Apnea selection</b>	12 sec, 22 sec, or 32 seconds (one-time events), or continuous (Apnea ON = respiration OFF)	
<b>Power-on default</b>	20 BrPM, delta 1.0 $\Omega$	
<b>Temperature</b>		
<b>Temperature</b>	30 °C to 42.0 °C in 0.5 °C steps	
<b>Accuracy</b>	$\pm$ 0.4 °C	
<b>Compatibility</b>	Yellow Springs, Inc. (YSI) Series 400 and 700	
<b>Output</b>	Circular DIN 4-Pin	
<b>Cardiac output</b>		
<b>Catheter type</b>	Baxter Edwards, 93a-131-7f	
<b>Calibration coefficient</b>	0.542 (0 °C injectate), 0.595 (24 °C injectate)	
<b>Blood temperature</b>	36 °C (98.6 °F) to 38 °C (100.4 °F) $\pm$ 0.2 °C in 1 °C steps	
<b>Injectate volume</b>	10 cc	
<b>Injectate temperature</b>	0 °C or 24 °C	
<b>Cardiac output</b>	2.5, 5, 10 liters per minute $\pm$ 7.5 %	
<b>Faulty-injectate curve</b>	Waveform for simulation available	
<b>Left-to-right-shunt curve</b>	Waveform for simulation available	
<b>Calibrated pulse</b>	1.5 ° for 1 second	
<b>Connector</b>	Circular DIN 7 pin	
<b>Power-on default</b>	5 liters per minute, 0 °C injectate, 37 °C blood temperature	



<b>Non-invasive blood pressure</b>		
<b>Pressure units</b>	mmHg or kPa	
<b>Manometer (pressure meter)</b>	Range	10 mmHg to 400 mmHg
	Resolution	0.1 mmHg
	Accuracy	± (0.5 % reading + 0.5 mmHg)
<b>Pressure source</b>	Target pressure range	20 mmHg to 400 mmHg
	Resolution	1 mmHg
<b>NIBP simulations</b>	Pulse	2 mmHg max into 500 ml NIBP system
	Volume of air moved	1.25 ml max
	Simulations (systolic/diastolic [MAP])	Adult: 60/30 (40), 80/50 (60); 100/65 (77); 120/80 (93); 150/100 (117); and 200/150 (167) and 255/195 (215)
		Neonatal: 35/15 (22); 60/30 (40); 80/50 (60); 100/65 (77); 120/80 (93) and 150/100
	Pressure variability: systolic and diastolic pressures are variable by 1 mmHg	
<b>NIBP simulations cont.</b>	Repeatability	Within ± 2 mmHg (at maximum pulse size independent of device under test)
	Synchronization: normal Sinus heart rates: 30 BPM to 240 BPM	Maximum rate at 1 ml: 240 BPM achievable with pulses up to 1 ml
		Maximum rate at 1.25 ml: 180 BPM
Synchronization: arrhythmias	Premature atrial contraction (PAC), premature ventricular contraction (PVC), atrial fibrillation, and missed beat	
<b>Leak test</b>	Target pressure	20 mmHg to 400 mmHg
	Elapse time	0:30 min to 5:00 minutes: seconds in 30 second steps
	Leakage rate	0 mmHg/minute to 200 mmHg/minute
<b>Pressure relief test range</b>	100 to 400 mmHg	





<b>Oximeter SpO<sub>2</sub> optical emitter and detector (optional)</b>		
% O <sub>2</sub>	Range	30 % to 100 %
	Resolution	1 %
% O <sub>2</sub> accuracy	With oximeter manufacturer's R-curve	Saturation within UUT specific range: ± (1 count + specified accuracy of the UUT)
		Saturation outside UUT specific range: monotonic with unspecified accuracy
	With Fluke Biomedical R-curves	91 % to 100 % ± (3 counts + specified accuracy of the UUT)
		81 % to 90 % ± (5 counts + specified accuracy of the UUT)
		71 % to 80 % ± (7 counts + specified accuracy of the UUT)
Below 71 % monotonic with unspecified accuracy		
<b>Heart rate</b>	30 BPM to 300 BPM in 1 BPM steps. Oximeter SpO <sub>2</sub> optical emitter and detector is synchronized with ECG rate delayed by 150 ms.	
<b>Transmission: ratio of detector current to LED current, expressed in parts per million (ppm)</b>	Range	0 ppm to 300.00 ppm
	Resolution	0.01 ppm
	Accuracy	+ 50 %/- 30 % for compatible monitors, unspecified for others. Selected by finger size and color: dark, thick finger, medium finger, light, thin finger, neonatal foot.
<b>Pulse amplitude</b>	Range	0 % to 20.00 %
	Resolution	0.01 %
<b>Artifact</b>	Respiration	Range: 0 % to 5 % of transmission
		Resolution: 1 %
		Rate: all ProSim respiration simulation settings
	Ambient light	Range: 0 to 5X transmitted light
		Resolution: 1X
Frequency: DC, 50 Hz, 60 Hz, and 1 kHz to 10 kHz in 1 kHz steps		
<b>Masimo Rainbow technology</b>	Masimo Rainbow technology with an optional adapter cable supplied by Masimo that allows the ProSim two wavelength to test the Rainbow multiple wavelength system	
<b>Compatible manufacturer products</b>	With manufacturer R-curve	Nellcor, Masimo, Nonin, and Nihon Kohden
	With Fluke R-curve	Mindray, GE-Ohmeda, Philips/HP, and BCI

<b>Pre-Defined Simulations</b>
Normal
Hypertensive
Hypotensive
Tachycardic
Bradycardic
Ventricular fibrillation
Asystole
<b>Autosequences (default)</b>
Monitor testing sequence
Medical training sequence
Oximeter testing sequence
Cardiac failure sequence
Arrhythmia sequence
Exercise sequence
Respiration sequence
Performance wave test
IBP testing sequence
Temperature sequence

## Ordering information

### Models/descriptions

- 3979409 ProSim 8 Vital Signs Simulator
- 3985658 ProSim SpO<sub>2</sub> Test Module
- 4034609 ProSim Rainbow Test Cable

### Standard accessories

- 3980671 ProSim 6/8 Users Manual
- 3980667 ProSim 6/8 Getting start manual
- 4021085 ProSim 6/8 Battery Pack
- 4034393 USB Cable
- 2392173 IBP Cable, unterminated
- 4034597 ProSim 6/8 Carrying Case
- 4308086 ProSim NIBP Mandrel Set
- 2391882 Set of NIBP Cuff Adapters
- 2184298 AC/DC Power Supply  
Power cord (country-specific)

### AC Power cords

- 2201437 ProSim 8 AC power cord Schuko
- 2201455 ProSim 8 AC power cord USA
- 2201428 ProSim 8 AC power cord UK
- 2201419 ProSim 8 AC power cord Japan
- 2201443 ProSim 8 AC power cord Australia
- 3930831 ProSim 8 AC power cord Brazil

### Optional accessories

- 2392199 CI-3 Cardiac Output Box
- 3408564 Mini-DIN to DIN IBP Adapter
- 4034611 NIBP Rigid Test Chamber 500ML
- 4034627 Ansur Test Software ProSim 8 Plug-In
- 3341333 USB Wireless Dongle

### Cable kits

- 3984910 ProSim 8 Accessory Kit (includes DIN to minDin adapter, HP/Philips Intellivue IBP cable, GE Marquette Eagle/Dash/Solar IBP cable, Welch Allyn Propaq/SpaceLabs Ultraview IBP cable, USB wireless dongle, YSI400 series temperature cable, YSI700 series temperature cable, CI-3 Cardiac Output Box, spare battery pack)
- 3984922 HP/Phillips intellivue Cable Set (includes: HP-3 BP Cable (2198902) two, HPT-2 Tamp/C.O. Injct Cable Assembly (2199257), COA-1 Cable Assembly (2199240), UT-4, Low profile 1/4 inch phone plug, YSI 400 Series Compatible 2 conductor (2523334))
- 3984968 GE Marquette Eagle/Dash/Solar Cable Set (Includes: MQ-3 BP Cable (2199627) two, UT-4 Low profile 1/4 inch phone plug, YSI 400 series Compatible 2 conductor (2523334), UT-2 Tamp Cable 700 series YSI (2199019), PROSIM8-4402GECO, Din cardiac Output Marq Eagle (4022300))
- 3984946 ProSim 8 SpaceLabs Ultraview Cable Set (Includes: TK-1 BP Cable (2198879) two, UT-4 Low profile 1/4 inch phone plug, YSI 400 series compatible 2 conductor (2523334), UT-2 Tamp Cable 700 Series YSI (2199019))
- 3984979 Welch Allyn/Propaq Cable Set (Includes: TK-1 BP Cable (2198879) two, UT-4 Low profile 1/4 inch phone plug, YSI 400 Series Compatible 2 conductor (2523334), UT-2 Tamp cable 700 series YSI (2199019))
- 3984993 Drager Infinity Cable Set (Includes: SM-1 BP Cable (2198925) two, UT-4, Low profile 1/4 inch phone plug, YSI 400 series compatible 2 conductor (2523334))
- 3985009 ProSim 8 Nihon Kohden Cable Set (Includes: Nihon Kohden-NK-1, BP Cable (5M) (2462263) two, DIN to mindin adapter (3408564), UT-4, Low profile 1/4 inch phone plug, YSI 400 Series Compatible 2 conductor (2523334))

### Blood pressure cables

- 2198879 BCI International TK-1 (6M)
- 2198879 Criticare Systems Inc. (1100) TK-1 (6M)
- 2198879 Critikon (Dinamap Plus) TK-1 (6M)
- 2198887 Datascope DS-1 (6F)
- 2200955 Datex (AS/3, CS/3, Compact, Cardio Cap II, Critical Care, Light) DX-1 (10F)
- 2199387 Fakuda Denshi (DS3300 series) FD-2 (12M)
- 2199682 GE Marquette Medical Corametrics (115, 116, 142, 145, 556) CM-3 (Nicolet round – 12M)
- 2198893 GE Marquette Medical (PPG/E for M DR) EM-1 (6F)
- 2198978 GE Marquette Medical (7000 and TRAM-AR series only) MQ-2 (8M round)



**2199627** GE Marquette Medical (Dash, Eagle, Solar, Tram, and MacLab) MQ-3 (rectangular – 11M)  
**2198902** Hewlett Packard/Philips (78-300, 78-500, 78-800, Merlin/Viridia/ Omnicare (HP/Philips M1006B iBP module has a sensitivity of 5 uV/V/ mmHg only. The HP-3 cable should be selected for this application.) HP-3 (12M 5 µV)  
**2198916** Hewlett Packard/Philips (78-300, 78-500, 78-800, Merlin/Viridia/Omnicare) HP-4 (12M 40 µV)  
**2199694** Hewlett Packard/Philips (8040A, M1350A) HP-8 (intrauterine pressure only – 12M 40 µV)  
**2198879** Invivo Research TK-1 (6M)  
**2198879** Ivy Biomedical (400 and 700 series) TK-1 (6M)  
**2198940** Medical Data Electronics (Escort series) PC-1 (6M)  
**2198933** Mennen Medical (Horizon series) MM-1 (6M)  
**2198879** North American Drager (Vitalert 2000) TK-1 (6M)  
**2198940** Physio Control (VSM series) PC-1(6M)  
**2198879** Protocol System (Propaq series) TK-1 (6M)  
**2190955** Puritan Bennett PB 240 DX-1 (10F)  
**2199176** Quinton (Q Cath series) QM-1 (6M)  
**2198925** Siemens (SIRECUST series) [SM-1 and Siemens Medical Transducer Adapter (3368-383-E530U) used to run a single invasive BP channel on the Siemens Medical SC6000 and SC9000 series monitors] SM-1 (10M)  
**2199666** Siemens (Micor/Mingo) SM-3 (15M)

**2198879** SpaceLabs (1050, 1700, PCMS series) (SpaceLabs adapters 700-0028-00 and 0120-0551-00 with TK-1 used when testing the new UltraView Command Module) TK-1 (6M)  
**2392173** Universal unterminated UU-1 (5-Pin DIN one end only)  
**2198893** Witt Biomedical EM-1 (6F)

**Temperature cables**

**2199019** UT-2 standard 1/4 in phone plug (compatible with YSI 700 series – 3 conductor)  
**2199291** UT-3 unterminated cable (DIN plug on one end only)  
**2523334** UT-4 Low profile, 1/4 in phone plug, YSI 400 series compatible, two conductor  
**2199257** HPT-2 temperature adapter (Hewlett Packard) (2 pin, used with UT-1 for HP monitors)

**Cardiac output bath/injectate adapters**

**2392199** CI-3 cable assembly  
**2392158** General purpose connector  
**2199240** COA-1 Cardiac output adapter (Hewlett Packard) (HPT-2 also required for cardiac output simulation on HP patient-monitoring systems)  
**2199257** HPT-2 Temperature adapter (Hewlett Packard) (2 pin) (COA-1 also required for cardiac output simulation on HP patient-monitoring systems)  
**4022300** DIN Cardiac Output MARQ EAGLE

The ProSim 8 does not provide simulation for all types of fetal heart rate tracings and contraction patterns, including the following:

- variable decelerations
- sinusoidal pattern
- reactive tracing
- variations in FHR variability
- tachysystole

**About Fluke Biomedical**

Fluke Biomedical is the world’s leading manufacturer of quality biomedical test and simulation products. In addition, Fluke Biomedical provides the latest medical imaging and oncology quality-assurance solutions for regulatory compliance. Highly credentialed and equipped with a NVLAP Lab Code 200566-0 accredited laboratory, Fluke Biomedical also offers the best in quality and customer service for all your equipment calibration needs.

Today, biomedical personnel must meet the increasing regulatory pressures, higher quality standards, and rapid technological growth, while performing their work faster and more efficiently than ever. Fluke Biomedical provides a diverse range of software and hardware tools to meet today’s challenges.

**Fluke Biomedical Regulatory Commitment**

As a medical test device manufacturer, we recognize and follow certain quality standards and certifications when developing our products. We are ISO 9001 and ISO 13485 medical device certified and our products are:

- CE Certified, where required
- NIST Traceable and Calibrated
- UL, CSA, ETL Certified, where required
- NRC Compliant, where required