The PS320 simulates fetal and maternal ECG as well as uterine activity to test and troubleshoot fetal electronic monitors and to train clinical staff.

The unit is battery operated and small enough to fit in a pocket so mobile technicians and clinical instructors can take it anywhere.

The PS320 simulates several fetal parameters, including twins, as well as a wide range of clinical scenarios for training labor-and-delivery staff in how to recognize normal and abnormal responses. An optional mechanical heart creates fetal heart sounds for testing fetal monitor ultrasound cables and transducers.

PS320 offers an easy user interface, providing a 2 x 16-character LCD display with adjustable contrast. The unit operates on a 9 V battery with low-battery monitoring or functions with the supplied battery eliminator.

**Key features**

- Mechanical heart for ultrasound simulation
- TOCO simulation (External or IUP)
- Ultrasound simulation (including twins)
- Maternal ECG simulation
- Fetal ECG (tracks ultrasound #1)
- Internal (DECG) and external fetal ECG
- Uterine-activity selections
- Fetal beat-to-beat variability

- Periodic and non-periodic fetal ECG changes
- Arrhythmia selections
- Compact, lightweight, and pocket-size plastic housing
- Battery operated with status indications
- Special kits available with all required accessories and cables to test fetal monitors for specified manufacturers
Technical specifications

Fetal ECG
Static rates
30 BPM, 60 BPM, 90 BPM, 120 BPM, 150 BPM, 180 BPM, 210 BPM, and 240 BPM
ECG sensitivity
50 µV, 100 µV, 200 µV, 0.5 mV, 1 mV, and 2 mV
US-1 tracks primary fetal ECG rates. US-2 tracks secondary fetal activity for either independent “normal” or “twins” simulation, US-2 rate is fixed at 140 BPM

Fetal patterns
Note: US-1 and fetal ECG track these selections. US-2 is in normal pattern, except during TREND #1 selection.

Trend #1: Twin fetal patterns
Normal: Normal pattern
Tachycardia: Tachycardia pattern
Bradycardia: Bradycardia pattern
Arrhythmias: Arrhythmia pattern
Late deceleration: Late deceleration
Early deceleration: Early deceleration
Moderate deceleration: Moderate variable deceleration
Acceleration #1: Acceleration wave #1
Acceleration #2: Acceleration wave #2
Sinusoidal (high): Sinusoidal pattern, large change
Sinusoidal (low): Sinusoidal pattern, small change
Severe variable deceleration #1: Severe deceleration wave #2
Severe variable deceleration #2: Severe variable deceleration
Prolonged deceleration: Prolonged deceleration
Biphasic deceleration: Biphasic deceleration
Exaggerated deceleration: Exaggerated deceleration
Non-uniform deceleration: Non-uniform deceleration
Variable deceleration (u): Variable deceleration “U” shaped
Variable deceleration tach: Variable deceleration with high-rate BPM
Variable deceleration (v): Variable deceleration “V” shaped
Variable deceleration (post): Variable deceleration post exaggerated
Variable deceleration: Variable deceleration
Deceleration (position): Variable deceleration with position changes
Long deceleration: Long deceleration
Compensatory acceleration: Compensatory accelerator.

Variability selections (added to fetal ECG)
Absent variability, low variability, mild variability, high variability, severe variability, and long-term variability
Note: These patterns repeat and toco channel will perform toco wave selected.

Optional mechanical fetal heart
Provides a mechanical interface to the ultrasound transducer; can be connected to either ultrasound channels. This option, due to its power consumption, requires an ac power adapter to be connected

Maternal ECG
ECG static rates
60 BPM, 80 BPM, 100 BPM, 120 BPM, 140 BPM, and 160 BPM
ECG sensitivity
0.5 mV, 1 mV, and 2 mV
Pattern selected during Trend #1 selection

Uterine activity
Note: Toco waveform selection not available during Trend #1.

Execute waveform: Start toco waveform
Uterine wave off: Stop toco waveform
Analog 0 V to 1 V: Analog range
Uterine wave 0 to 25: Range of toco waveform
Uterine wave 0 to 50: Range of toco waveform
Uterine wave 0 to 100: Range of toco waveform
Short duration: Toco waveform of short duration
Normal duration: Normal duration of toco waveform
Increased duration: Long duration of toco waveform
Uterine level = zero: Zero toco channel (automatic on power up)
Uterine static + 20: Increase toco static level by 20 mmHg (0 mmHg to 100 mmHg)
Increase resting tone: Resting tone increases
Coupling: 2 close toco waves
Tripling: 3 close toco waves
Uterine pressure sensitivity: 5 µV or 40 µV on power up

Important notes: US-1 tracks the fetal ECG rates. US-2 is the second ultrasound channel with a normal fetal ECG pattern. On the fetal and maternal ECG, the fetal ECG is 1/4 the size of the maternal ECG.
The PS320 turns on in the following state:

- Fetal ECG static rate @ 150 BPM
- US-1 tracks @ 150 BPM
- US-2 normal pattern
- Pressure sensitivity @ 5 µV/mmHg
- Pressure/Toco set to zero
- Maternal ECG rate @ 80 BPM
- ECG sensitivity @ 1 mV
- Toco wave is normal duration @ 0 to 50 divisions (i.e. 0 mmHg to 50 mmHg)

Controls

Display
2-line x 16-character LCD with keypad

RS-232
Bidirectional interface, 9600 Baud

Power
9 V battery/battery eliminator; low battery indication set at 6 V

Housing
Plastic case

Dimensions (LxWxH)
15.6 cm x 9.4 cm x 3.4 cm (6.1 in x 3.7 in x 1.3 in)

Weight
0.4 kg (0.9 lb)

Temperature
Operating
15 °C to 35 °C (59 °F to 95 °F),
Storage
0 °C to 50 °C (32 °F to 122 °F)
### Ordering information continued

#### Standard accessories
- 2631693 Printed-Version Users Manual
- 2647372 Battery Eliminator Universal 90 V to 240 V
- N/A 9 V Battery

#### Optional accessories
- 2647372 Battery Eliminator 100 V ac to 240 V ac
- 2462177 Carrying Case, double pocket
- 2462478 HP/Ag/Philips 50 Series - Ultrasound Cable
- 2462491 HP/Ag/Philips 50 Series TOCO - External Cable
- 2462528 HP/Ag/Philips 50 & 8040 Series - IUP Cable
- 2462469 Corometrics - IUP Cable
- 2462484 Corometrics - Ultrasound Cable
- 4021537 Corometrics 120 Ultrasound Cable
- 2462519 Corometrics TOCO - IUP Cable
- 2462537 HP (8040 Series) Ultrasound Simulation Cable
- 2462543 HP (8040 Series) ext TOCO Simulation Cable
- 2462555 Oxford Ultrasound Simulation Cable 1.5 MHz (yellow)
- 2462562 Oxford Ultrasound Simulation Cable 2.0 MHz (blue)
- 2462570 Oxford IUP Simulation Cable
- 2462217 RS-232 Cable
- 2651757 Mechanical Fetal Heart Probe
- 2670221 PS320 Service and Calibration Manual

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**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

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**Fluke Biomedical**

*Better products. More choices. One company.*

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