

FLUKE

Biomedical

Specifications

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| Power | | Two 9 V alkaline batteries (eight hours min continuous power). | |
| | | Optional battery eliminator | |
| Normal-Sinus-Rhythm Waveform | ECG Reference: | ECG amplitudes specified for Lead II (calibration), from the baseline to the peak of the R-Wave; other leads proportional | |
| | Normal Sinus Rhythm: | 12-lead configuration with independent outputs referenced to right leg (RL); output to ten Universal ECG Jacks, color-coded to AHA and IEC Standards | |
| | Low-Level Amplitude: | 0.05 to 0.50 mV (0.05-mV steps); 0.5 to 5.5 mV (0.5-mV steps) (Power-on default: 1 mV) | |
| | Amplitude Accuracy: | $\pm 2\%$ of setting Lead II | |
| | High-Level Output: | (available on the BP3 connector) 0.2 V/mV $\pm 5\%$ of the ECG-amplitude setting | |
| | ECG Rate: | 30, 40, 45, 60, 80, 90, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, and 300 BPM (Power-on default: 80 BPM) | |
| | Rate Accuracy: | $\pm 1\%$ of setting | |
| | ECG-Waveform Selection: | Adult (80 ms) or pediatric (40 ms) QRS duration (Power-on default: adult QR/P-R interval of 0.16 seconds) | |
| | Superimposed Artifact: | 50 and 60 Hz, muscle, baseline wander, respiration | |
| | ST-Segment Elevation/Depression: | Adult mode only, -0.8 mV to +0.8 mV, in 0.1-mV steps; and additional steps, +0.05 mV and -0.05 mV (Power-on default: elevation 0 mV) | |
| Pacemaker Waveform | Pacer-Pulse Amplitude: | 1, 2, 5, 10 mV, $\pm 10\%$ (Power-on default: 5 mV) | |
| | Pacer-Pulse Width: | 0.1, 0.5, 1.0, 1.5, 2.0 ms, $\pm 5\%$ (Power-on default: 1.0 ms) | |
| | Pacing Rate: | 75 BPM | |
| | Waveforms: | | (Power-on default: atrial waveform) |
| | | | - Atrial |
| | | | - Asynchronous 75 BPM |
| | | | - Demand with frequent sinus beats |
| | - Demand with occasional sinus beats | | |

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| | | - AV sequential |
| | | - Noncapture (one time) |
| | | - Nonfunction |
| Arrhythmias | Baseline NSR: | 80 BPM |
| | PVC Focus: | Left focus, standard timing (except where specified) |
| | Supraventricular Arrhythmias: | (Power-on default: atrial fibrillation, coarse) |
| | | - Atrial fibrillation, coarse |
| | | - Atrial fibrillation, fine |
| | | - Atrial flutter |
| | | - Sinus arrhythmia |
| | | - Missed beat (one time) |
| | | - Atrial tachycardia |
| | | - Paroxysmal atrial tachycardia (PAT) |
| | | - Nodal rhythm |
| | | - Supraventricular tachycardia |
| | Premature Arrhythmias (all one-time events): | (Power-on default: premature atrial contraction) |
| | | - Premature atrial contraction (PAC) |
| | | - Premature nodal contraction (PNC) |
| | | - PVC1 left ventricular |
| | | - PVC1 left ventricular, R on T |
| | | - PVC2 right ventricular |
| | | - PVC2 right ventricular, early |
| | | - PVC2 right ventricular, R on T |
| | | - Multifocal PVCs |
| | | Ventricular Arrhythmias: |
| | - PVCs 6/min (Power-on default) | |
| | - PVCs 12/min | |
| | - PVCs 24/min | |
| | - Frequent multifocal PVCs | |
| | - Bigeminy | |
| | - Trigeminy | |
| | - Multiple PVCs (one-time run of 2PVCs) | |
| | - Multiple PVCs (one-time run of 5 PVCs) | |
| | - Multiple PVCs (one-time run of 11 PVCs) | |
| | - Ventricular tachycardia | |
| | - Ventricular fibrillation, coarse | |
| - Ventricular fibrillation, fine | | |
| - Asystole | | |
| Conduction Defects: | (Power-on default: first-degree heart block) | |
| | - First-degree heart block | |
| | - Second-degree heart block | |
| | - Third-degree heart block | |
| | - Right-bundle-branch block | |
| - Left-bundle-branch block | | |

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| ECG- Performance Testing | Amplitude: | 0.05 to 0.50 mV (0.05-mV steps); 0.5 to 5.5 mV (0.5-mV steps) (Power-on default: 1 mV) |
| | Pulse Wave: | 30, 60 BPM, with 60 ms pulse width |
| | Square Wave: | 2, 0.125 Hz (Power-on default: 2 Hz) |
| | Triangle Wave: | 2, 2.5 Hz |
| | Sine Wave: | 0.5, 5, 10, 40, 50, 60, 100 Hz |
| | R-Wave-Detection Waveform: | Haver-Triangle |
| | R-Wave Rate: | 30, 60, 80, 120, 200, and 250 BPM (Power-on default: 60 BPM) |
| | R-Wave Width: | 20 to 200 ms (10-ms steps); additional steps, 8, 10, and 12 ms (Power-on default: 10 ms) |
| | Rate Accuracy: | ± 1 % |
| | Amplitude Accuracy: | ± 2 %, Lead II (exception, ± 5 % for R-Waves ≤ 20 ms) |
| Respiration | Rate: | 0 (OFF), 15, 20, 30, 40, 60, 80, 100, 120 BrPM (Power-on default: 20 BrPM) |
| | Impedance Variations ($\Delta\Omega$): | 0.2, 0.5, 1, or 3 Ω (Power-on default: Δ 1 Ω) |
| | Accuracy Delta: | ± 10 % |
| | Baseline: | 500, 1000, 1500, 2000 Ω , Leads I, II, III (Power-on default: 1000 Ω) |
| | Accuracy Baseline: | ± 5 % |
| | Respiration Lead: | LA or LL (Power-on default: LA) |
| | Apnea Selection: | 12, 22, or 32 s (one-time events), or continuous (Apnea ON = respiration OFF) (Power-on default: 12 s apnea) |
| Blood Pressure | Input/Output Impedance: | 300 Ω ± 10 % |
| | Exciter-Input Range: | 2 to 16 V RMS |
| | Exciter-Input-Frequency Range: | DC to 5000 Hz |
| | Transducer Sensitivity: | 5 or 40 μ V/V/mmHg (Power-on default: 5 μ V/V/mmHg) |
| | Pressure Accuracy: | ± (2 % of setting + 2 mmHg) |
| | Static Levels, P1: - | 10, 0, 80, 160, 240, 320, 400 mmHg (Power-on default: 0 mmHg) |
| | Static Levels, P2: - | 10, 0, 50, 100, 150, 200, 240 mmHg (Power-on default: 0 mmHg) |
| | Static Levels, P3: - | 5, 0, 20, 40, 60, 80, 100 mmHg (Power-on default: 0 mmHg) |
| | Static Levels, P4: - | 5, 0, 20, 40, 60, 80, 100 mmHg (Power-on default: 0 mmHg) |
| | Dynamic Waveforms, P1: | |
| | - Arterial: | 120/80 |
| | - Radial artery: | 120/80 |
| | - Left ventricle: | 120/00 |
| | - Right ventricle: | 25/00 |
| | Dynamic Waveforms, P2: | |
| | - Arterial: | 120/80 |
| | - Radial artery: | 120/80 |
| | - Left ventricle: | 120/00 |

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| | - Right atrium (central venous or CVP): | 15/10 |
| | - Right ventricle: | 25/00 |
| | - Pulmonary artery: | 25/10 |
| | - Pulmonary-artery wedge: | 10/2 |
| | - Left atrium: | 14/4 |
| | Dynamic Waveforms, P3: | |
| | - Arterial: | 120/80 |
| | - Radial artery: | 120/80 |
| | - Left ventricle: | 120/00 |
| | - Right atrium (central venous or CVP): | 15/10 |
| | - Right ventricle: | 25/00 |
| | - Pulmonary artery: | 25/10 |
| | - Pulmonary-artery wedge: | 10/2 |
| | - Left atrium: | 14/4 |
| | Dynamic Waveforms, P4 (Swan-Ganz Sequence): | Right atrium (CVP); right ventricle (RV); pulmonary artery (PA); pulmonary-artery wedge (PAW) |
| | Respiration Artifact: | BP delta change from 3 to 16 mmHg |
| | BP Output: | Mini DIN 7-Pin |
| Temperature | Temperature: | 0 °C (32 °F), 24 °C (75.2 °F), 37 °C (98.6 °F), and 40 °C (104 °F) (Power-on default: 0 °C / 32 °F) |
| | Accuracy: | ± 0.1 °C |
| | Compatibility: | Yellow Springs, Inc. (YSI) Series 400 and 700 |
| | Output: | mini DIN 7-pin |
| Cardiac Output (optional) | Catheter Type: | Baxter Edwards, 93a-131-7f |
| | Calibration Coefficient: | 0.542 (0 °C injectate), 0.595 (24 °C injectate) |
| | Blood Temperature: | 37 °C (98.6 °F) ± 2 % |
| | Injectate Volume: | 10 cc |
| | Injectate Temperature: | 0 °C or 24 °C ± 2 % value (Power-on default: 0 °C injectate) |
| | Cardiac Output: | 2.5, 5, 10 lpm ± 5 % (Power-on default: 2.5 lpm) |
| | Faulty-Injection Curve: | (Waveform for simulation available) |
| | Left-to-Right-Shunt Curve: | (Waveform for simulation available) |
| | Calibrated Pulse: | 1.5 ° for 1 second (37 ° * 35.5 °) (Waveform for simulation available) |
| Repeatability: | ± 1 % | |
| Fetal/Maternal ECG (optional) | Maternal Heart Rate (Fixed): | 80 BPM |
| | Fetal Heart Rate (Selectable): | 60, 90, 120, 140, 150, 210, and 240 BPM (Power-on default: 120 BPM) |
| | Fetal Heart Rate (IUP): | 140 BPM at beginning, then varying with pressure |
| | Intrauterine-Pressure Waveforms: | - Uniform acceleration (140-175-140 BPM; rate change lagging IUP contraction by 30 s) |
| | | - Uniform deceleration (140-100-140 BPM; rate change lagging IUP contraction by 30 s) (Power-on default) |

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| | | - Early deceleration (140-100-140 BPM; no IUP lag time) |
| | | - Late deceleration (140-100-140 BPM, starting at IUP peak) |
| | Wave Duration: | 90 seconds, bell-shaped pressure curve, from 0 to 90 mmHg and returning to 0, ± 4 mmHg (max) |
| | IUP Period: | 2, 3, or 5 minutes; and manual (Power-on default: manual) |
| Computer Setup | Port: | Bidirectional (Data Communications Equipment) RS232 |
| | Baud Rate: | 9600 |
| | Parity: | None |
| | Stop Bits: | 1 |
| | Data Bits: | 8 |
| Battery Replacement | | Warning for low-battery condition (batteries to be replaced at this time) |
| Temperature | Storage: | -25 to 50 °C |
| | Operation: | 10 to 40 °C |
| Humidity | | 80 % max relative humidity |
| Dimensions | | 7.5" L x 7.25" W x 2" H |
| | | (19 cm L x 18.415 cm W x 5 cm H) |
| Weight | | 1.35 lb |
| | | (.612 kg) |