

Basic Features

- ◆ Biphasic Energy Measurement
- ◆ Simple to Operate
- ◆ Fully AED Compatible
- ◆ Graphics display w/simultaneous detailed status of parameters & scrolling control of options
- ◆ On-Screen viewing of Defibrillator Waveform
- ◆ Drop down choice screens list all options for parameters
- ◆ Monophasic & Biphasic compatible
- ◆ 5000 V, 1000 Joule Capacity
- ◆ High & Low Ranges
- ◆ Cardioversion delay measurement
- ◆ Charge time measurement
- ◆ Waveform storage & playback
- ◆ 10 Universal patient lead connectors
- ◆ 25 PIN Connector for Centronics Printer
- ◆ 9 Volt Battery Power (Optional Battery Eliminator)
- ◆ Low Battery Indicator
- ◆ Display Backlight
- ◆ Full Remote Operation via RS-232
- ◆ Flash Programmable for Upgrades

DA-2006P Features

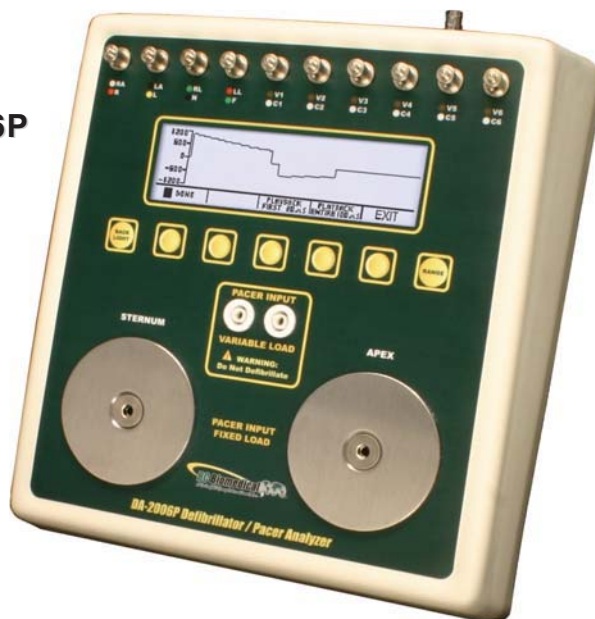
- ◆ 26 Selectable Internal Loads
- ◆ Full Pulse Analysis
- ◆ Demand Sensitivity Test
- ◆ Refractory Period Tests
- ◆ 50/60 Hz Interference Test Signals
- ◆ Pacer Input Defib Protection

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DEFIBRILLATOR ANALYZERS

BC Biomedical DA-2006 Series

DA-2006P



The DA-2006 is a microprocessor-based instrument that is used in the testing of defibrillators. It measures the energy output and provided information about the pulse. It is used on manual, semi-automatic and automatic defibrillators with monophasic or biphasic outputs.

The DA-2006P model additionally provides a Transcutaneous Pacemaker analysis function. It measures and displays pacer pulse information as well as performing Refractory Period, Sensitivity and Immunity testing.

All models have a built in 50 ohm human body simulation load as well as 12 lead ECG with arrhythmias and performance waveforms. Additionally, they have a centronics printer port, a serial port, oscilloscope output, high level ECG output, as well as provision for a battery eliminator.

The DA-2006 makes viewing and selecting the desired waveforms and test data quick and intuitive, with all operational information being available on the 240 by 64 pixel graphic display, allowing for easy maneuvering through parameters and scrolling through available options.

NOTE: The instrument is intended for use by trained service technicians.



BC BIOMEDICAL DA-2006 SERIES

SPECIFICATIONS

| ENERGY OUTPUT MEASUREMENT GENERAL | |
|-----------------------------------|---------------------------------------|
| METHOD | Biphasic |
| LOAD RESISTANCE | 50 Ohms +/- 1%, non-inductive (<1 µH) |
| DISPLAY RESOLUTION | 0.1 Joules |
| MEASUREMENT TIME WINDOW | 100 ms |
| ABSOLUTE MAX PEAK VOLTAGE | 6000 Volts |
| PULSE WIDTH | 100 ms |

| ENERGY OUTPUT MEASUREMENT HIGH RANGE | |
|--------------------------------------|---|
| VOLTAGE | <5000 Volts |
| MAX CURRENT | 120 Amps |
| MAX ENERGY | 1000 Joules |
| ACCURACY | +/-2% of reading for >100 Joules +/-2 Joules for <100 Joules |
| TRIGGER LEVEL | 100 Volts |
| PLAYBACK AMPLITUDE | 1 mv / 1000 V Lead 1 |
| TEST PULSE | 125 Joules +/- 20% |

| ENERGY OUTPUT MEASUREMENT LOW RANGE | |
|-------------------------------------|--|
| VOLTAGE | <1000 Volts |
| MAX CURRENT | 24 Amps |
| MAX ENERGY | 50 Joules |
| ACCURACY | +/-2% of reading for >20 Joules +/- 0.4 Joules for <20 Joules |
| TRIGGER LEVEL | 20 Volts |
| PLAYBACK AMPLITUDE | 1 mv / 1000 V Lead 1 |
| TEST PULSE | 5 Joules +/-20% |

| ENERGY OUTPUT MEASUREMENT OTHER | |
|---------------------------------|--------------------------------------|
| OSCILLOSCOPE OUTPUT | |
| HIGH MEASURE RANGE | 1000:1 amplitude-attenuated |
| LOW MEASURE RANGE | 200:1 amplitude-attenuated |
| WAVEFORM PLAYBACK | |
| OUTPUT | LEAD I & PLATES |
| SCREEN | 200:1 Time Base Expansion |
| SYNC TIME MEASUREMENTS | |
| TIMING WINDOW | Starts 40 ms before each R-wave peak |
| TEST WAVEFORMS | All waveform simulations available |
| DELAY TIME ACCURACY | +/- 1 ms |
| CHARGE TIME MEASUREMENT | |
| From 0.1 to 99.9 sec | |

| CARDIOVERSION | |
|---------------|--------------|
| DELAY | 0 to 6000 ms |
| RESOLUTION | 0.1 ms |
| ACCURACY | +/-2 ms |

| ECG NSR | |
|--------------|------------------------------|
| RATE | 30 to 300 BPM |
| ACCURACY | +/- 1% |
| AMPLITUDE | 0.5,1.0,1.5,2.0 mv (Lead II) |
| ACCURACY | +/- 2% @ Lead II |
| HIGH LEVEL | 200 times Amplitude |
| ACCURACY | +/- 5% |
| QRS DURATION | 80ms |

| ECG PERFORMANCE | |
|--------------------|------------------------------|
| SINE WAVE | 0.1 to 100 Hz |
| SQUARE WAVE | 0.125, 2,000 Hz |
| TRIANGLE WAVE | 2,000, 2,500 Hz |
| PULSE WAVE | 30,60,120 BPM; 60 ms width |
| AMPLITUDE | 0.5,1.0,1.5,2.0 mv (Lead II) |
| RATE ACCURACY | +/- 1% |
| AMPLITUDE ACCURACY | +/- 2% @ Lead II |

| ECG GENERAL | |
|---|-----------|
| LEAD TO LEAD IMPEDENCE (RL, LL, RA, LA) | 1000 Ohms |
| LEAD TO LEAD IMPEDENCE (V1-V6) | 1000 Ohms |

| ECG ARRHYTHMIA SELECTIONS | |
|------------------------------|--|
| Ventricular Fibrillation | |
| Atrial Fibrillation | |
| Second Degree A-V Block | |
| Premature Atrial Contraction | |
| PVC Early | |
| PVC Standard | |
| PVC R on T | |
| Multifocal PVC | |
| Bigeminy | |
| Run of 5 PVCs | |
| Ventricular Tachycardia | |

| SHOCK ADVISORY ALGORITHM TEST ECG SIGNALS | |
|--|--|
| Asystole | |
| Coarse Ventricular Fibrillation | |
| Fine Ventricular Fibrillation | |
| Multifocal Ventricular Tachycardia @ 140 BPM | |
| Multifocal Ventricular Tachycardia @ 160 BPM | |
| Polyfocal Ventricular Tachycardia @ 140 BPM | |
| Polyfocal Ventricular Tachycardia @ 160 BPM | |
| Supra Ventricular Tachycardia @ 90 BPM | |

| DATA INPUT/OUTPUTS | |
|-------------------------------|--|
| Parallel Printer Port | |
| RS232C (for computer control) | |

| PHYSICAL | |
|-----------------|---|
| DISPLAY | LCD Graphical 256 X 64 Pixels, Backlight |
| ENCLOSURE | 3.4 x 9.8 x 10.7 Inches (86.4 x 249 x 271.8 mm) ABS Plastic???? |
| WEIGHT | < 5Lbs (< 2.3 Kg) |
| FACE PLATE | Lexan, Back printed |
| OPERATING RANGE | 15 to 40 C |
| STORAGE RANGE | -20 to 65 C |

| ELECTRICAL | |
|-------------------------------|--|
| POWER | Battery, 9 VDC (2 required) (NE 1604) Alkaline |
| BATTERY ELIMINATOR (Optional) | BE2006PU (120 VAC) – US BE2006PE (220 VAC) – Euro 10V, 300 mA DC |



DA-2006 Protective Plates & Internal Paddle Adapters

| TRANSCUTANEOUS PACEMAKER ANALYZER TEST LOAD | |
|---|---|
| RANGE | 50, 100, 150, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2100, 2200, 2300 Ohms |
| ACCURACY | 50 to 1300 Ohm +/-1% 1400 to 2300 Ohm +/-1.5% |

| TRANSCUTANEOUS PACEMAKER ANALYZER OSCILLOSCOPE OUTPUT | |
|---|-------------------------------|
| 0 – 150 V | 10.24:1 amplitude attenuation |
| 15 – 60 V | +/-5% or +/-0.5 mA |
| > 60 V | 164:1 amplitude attenuation |
| MAX OUTPUT | 200 V |

| TRANSCUTANEOUS PACEMAKER ANALYZER PULSE MEASUREMENTS | |
|--|--|
| AMPLITUDE | 4 to 300 mA (100 Ohm load) |
| ACCURACY | +/-5% or +/-0.5 mA |
| RATE | 30 to 800 ppm |
| ACCURACY | +/-1% or 2 ppm |
| PULSE WIDTH | 0.6 to 80 ms |
| ACCURACY | +/-1% or +/-0.3 ms |
| MAX VOLTAGE | 200 V (Variable Load Input Jacks) 15 V (Fixed Load Input Jacks) |

| TRANSCUTANEOUS PACEMAKER ANALYZER DEMAND SENSITIVITY | |
|--|---------------------------|
| WAVEFORMS | |
| SELECTIONS | Square Triangle Haversine |
| WIDTH | 10,25,40,100,200 ms |
| ECG OUTPUT | |
| AMPLITUDE – OUT | 0 to 4 mv |
| RESOLUTION – OUT | 40 µv |
| ACCURACY – OUT | +/-2% |
| PACER INPUT (50 TO 400 OHMS) | |
| AMPLITUDE – OUT | 0 to 10 mv / 50 Ohms |
| RESOLUTION – OUT | 40 µv |
| ACCURACY – OUT | +/-2% |
| RATE – IN | 30 to 120 ppm |
| PACER INPUT (500 TO 2300 OHMS & OPEN) | |
| AMPLITUDE – OUT | 0 to 100 mv |
| RESOLUTION – OUT | 1mv |
| ACCURACY – OUT | +/-2% |
| RATE – IN | 30 to 120 ppm |
| DEFIBRILLATOR PLATES | |
| AMPLITUDE – OUT | 0 to 10 mv |
| RESOLUTION – OUT | 0.1 mv |
| ACCURACY – OUT | +/-2% |
| RATE – IN | 30 to 120 ppm |

| TRANSCUTANEOUS PACEMAKER ANALYZER 50/60 HZ INTERFERENCE TEST SIGNAL | |
|---|---|
| ECG OUTPUT | 0,0.4,0.8,1.2,1.6,2.0,2.4,2.8, 3.2,3.6,4.0 mv |
| PACER INPUT ≥ 500 OHMS | 0,10,20,30,40,50,60,70,80,90,100 mv |
| DEFIBRILLATOR PLATES | 0,1,2,3,4,5,6,7,8,9,10 mv |

| TRANSCUTANEOUS PACEMAKER ANALYZER REFRACTORY PERIOD | |
|---|--------------|
| PACING | 20 to 500 ms |
| SENSING | 20 to 500 ms |
| ACCURACY | +/-2 ms |

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