

Electrocardiographs

MAC® 5000 Product Specifications



The MAC 5000 delivers the advanced disease management capabilities that only the industry's most extensive collection of proven algorithms can offer. And it's part of our complete suite of networked, non-invasive testing solutions designed to maximize throughput and staff productivity.

The system uniquely delivers seamless connectivity to the Catalyst™ MUSE® Information System for data storage and retrieval of ECGs.

Combine this connectivity with the inherent performance of the MAC 5000 system and you've got the ultimate resting system ECG system.

Feature Highlights

- 12SL™ with adult and pediatric interpretive ECG analysis remains your most clinically valuable second opinion
- QRS signal averaging program (Hi-Res™)
- The P-wave signal averaging program (Phi-Res™) features a patented templating algorithm which enhances measurement accuracy by maximizing signal fidelity
- 15-lead acquisition, storage and analysis
- Digital Compact Acquisition Module helps eliminate non-cardiac electrical noise
- Optional Remote Query software facilitates immediate access to the complete ECG patient record
- Optional ACI-TIPI (Acute Cardiac Ischemia Time-Insentive Predictive Instrument) generates a numerical score representing the probability that the patient has Acute Cardiac Ischemia

Performance Specifications

Instrument type: Microprocessor augmented automatic electrocardiograph; 14-leadwire acquisition with programmable lead configurations

PROCESSING

ECG interpretation: 12SL™ Adult and Pediatric ECG Analysis Program

Computerized measurements: 15-lead analysis includes measurements of user-selectable additional 3 leads

Optional: PHI-RES™ & HI-RES™ Late Potential Analysis

Additional ECG function: Vectorcardiography

ECG analysis frequency: 500 samples/second (sps)

ECG storage: 150 typical, 200 ECGs maximum on removable media (1.44 MB, 3.5diskette)

Digital sampling rate: 4000 samples/second/channel

Pre-acquisition: Provides 10 seconds of instantaneous ECG acquisition

Dynamic range:

AC differential: ±10 mV DC offset: ±320 mV

Resolution: 4.88 µV/LSB @ 500 sps

Frequency response: -3 dB @ 0.01 to 150 Hz

Common mode rejection: >140 dB (123 dB with AC filter disabled)

Input impedance: >10M@ 10 Hz, defibrillator protected

Patient leakage: <10 µA

Pace detect: Orthogonal LA, LL and V6; 750 µV @ 50 µs

Special acquisition functions: Disconnected lead detection, electrode impedance, excessive AC noise, baseline wander and muscle tremor messages

Heart rate meter: 30 to 300 BPM ± 10% or 5 BPM whichever is greater. Heart rates outside this range will

not be displayed.

COMMUNICATIONS

MAC® and Catalyst™ MUSE® System compatible

Optional: Modem and Fax transmission, Remote Retrieval (Remote Query)

DISPLAY

Display type: 264 mm (10.4 in) diagonal graphics backlit AM LCD

Display resolution: 640 x 480 pixels with waveform enhancement

Display data: Heart rate, patient name, ID, clock, waveforms, lead labels, speed, gain and filter settings, warning messages, prompts and help messages

WRITER

Writer technology: Thermal dot array

Writer speeds: 5, 12.5, 25 & 50 mm/s (same as displayed)

Number of traces 3, 6, 12 or 15, user selectable (same as displayed)

Writer sensitivity/gain: 2.5, 5, 10, 20, 10/5 (split calibration) mm/mV (same as displayed)

Writer speed accuracy: ±2%

Writer amplitude accuracy: ±5%

Writer resolution: Horizontal 1000 dpi @ 25 mm/s, 200 dpi vertical

Paper type: Thermal, Z-fold, perforated, fan fold, 300 sheets/pack

Paper size:

A size: 214.63 mm x 280 mm (8.45 in x 11 in)

A4 size: 210 mm x 297.5 mm (8.27 in x 11.7 in)

KEYBOARD

Type: Sealed elastomer with soft function keys, alphanumeric keys, writer controls and TrimPad cursor controls

ELECTRICAL

Power supply: AC or battery operation

Voltage: 100 to 240 VAC +10, -15%

Current: 0.5A @ 115 VAC, 0.3 A @ 240 VAC, typical

Frequency: 50 to 60 Hz±10%

Battery type: User replaceable, 18V @ 3.5 AH ± 15%, rechargeable NiMH

Battery capacity: 100 single page reports (typical) or 6 hours continuous display (without printing)

Battery charge time: Approximately 4.5 hours from total discharge (with display off)

VECTORCARDIOGRAPHY

Report formats: Vector loops of component vectors (P, QRS, ST-T) Sensitivity: 20, 40, 80 or 160 mm/mV

Time resolution: 2 ms

HI-RES™ AND PHI-RES™ SIGNAL-AVERAGED ELECTROCARDIOGRAPHY

Frequency response/input: -3 dB @ 0.01 and 250 Hz

Frequency response/output: Upper limit: 250 Hz

Lower limit: 0.01, 25, 40 or 80 Hz

Sensitivities:

Raw data and template: 20 mm/mV

Average beat: 20 mm/mV and 50 mm/mV

Filtered signals and vector magnitude: 1 mm/μV

Analysis sampling rate: 1000 samples/second/channel

Digital sampling rate: 4000 samples/second/channel

High/low pass filters: Special filter using Fast Fourier Transform (FFT)

ADC resolution: 1.22 μV/LSB

Analysis resolution: 0.1525 μV/LSB

Physical Specifications

Height: 9.4 cm (3.7 in)* with display closed

Width: 38.1 cm (15.0 in)*

Depth: 35.1 cm (13.8 in)*

Weight: Approximately 6.8 kg (15 lb)* including battery without paper

*without cart

Environmental Specifications

Temperature:

Operating: 10 to 40°C (50 to 104°F)**

Transport/storage: -40 to 70°C (-40 to 158°F)**

**paper discoloration may occur at higher temperatures

Humidity:

Operating: 20 to 95% RH non-condensing

Transport/storage: 15 to 95% RH non-condensing

Pressure:

Operating: 700 to 1060 hPA

Transport/storage: 500 to 1060 hPA

Certification

UL classification, CSA certification, CE marking, CB certificate.

Warranty

Standard warranty is one year.

Ordering Information

Available in: Dutch, English, French, German, Italian, Spanish, and Swedish.



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