

MAC 800

Connecting hearts and minds

The MAC 800 enables healthcare providers to connect the hearts of patients to the minds of physicians with accurate and reliable ECG information for a faster, more confident diagnosis.

The MAC 800 gives you the power of easy-to-use, advanced ECG technology, multiple ways to store and send data, and the proven GE Marquette 12SL ECG analysis program.

Connected – Portable – Advanced Technology



Instrument type

Microprocessor augmented automatic electrocardiograph; 10-leadwire, 12-lead simultaneous acquisition with programmable lead configuration

Processing

ECG interpretation	Marquette 12SL ECG Analysis Program for Adults and Pediatrics
Computerized measurements	12-lead analysis
ECG analysis frequency	500 and 1000 samples/second (sps)
Digital sampling rate	1,000 samples/second (sps)
Acquisition mode	Pre-acquisition or post-acquisition, provide 10 seconds of instantaneous ECG acquisition
Dynamic range	AC differential $\pm 10\text{mV}$, DC offset $\pm 300\text{ mV}$
Resolution	4.88 $\mu\text{V}/\text{LSB}$
Frequency response	0.04 to 150 Hz
Common mode rejection	>90 dB
Input impedance	>10MW @ 10 Hz, defibrillator protected
Patient leakage	<10 μA
Pace detection	Pulsed with amplitude between $\pm 5\text{mV}$ and $\pm 700\text{mV}$ and duration between 0.1ms and 2.2ms duration shall be detected
Special acquisition functions	Disconnected lead detection, electrode impedance, excessive AC noise, baseline wander and muscle tremor messages
Heart rate meter	30 to 300 BPM $\pm 10\%$ or 5 BPM, whichever is greater. Heart rates outside this range will not be displayed.
Operating system	Microsoft Windows CE OS
Start-up time	< 10 seconds

Display

Display type	7" color TFT
Display resolution	800 x 480 pixels
Display data	Heart rate, patient ID, clock, battery power indicator, waveforms, lead labels, speed, gain and filter settings, warning messages, prompts, and help messages
	6-lead standard display Optional 12-lead display



Writer

Writer technology	Thermal dot array
Writer speed	5, 25 and 50mm/s
Number of traces	Up to 6 ECG traces
Writer sensitivity/gain	2.5, 5, 10, 20 and 40mm/mV and automatic
Speed accuracy	5mm/s @ $\pm 10\%$ accuracy and 25, 50mm/s @ $\pm 5\%$ accuracy
Amplitude accuracy	$\pm 5\%$
Writer resolution	1000 dots/in at 25mm/sec horizontal, 200 dots/in vertical
Paper type	Thermal. Z-fold (140mmx110mm)

Keyboard

Type	T9 SMS-style keyboard integrated with sealed rubber membrane, withstands hospital-grade cleaning agents, dedicated quick-access function keys
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Software standard

Resting ECG Mode	Records and prints 12-lead resting ECGs with 10 seconds duration as a standard feature
Arrhythmia Mode	Continuously monitors ECG and prints report when arrhythmia events of the user-selected class occur
Hookup Advisor	Provides visual indication of signal quality
Multi-language support	Supports 19 languages

Software options

Measurement	Supports measurement with Marquette 12SL ECG Analysis Program
Interpretation and measurement	Supports measurement and interpretation with Marquette 12SL ECG Analysis Program
ACI-TIPI	Provides numeric score of probability of acute cardiac ischemia
RR analysis	Up to 5 minutes or 500 beats
Internal and external storage	Provides File Manager menu to support 100 or 300 ECGs storage in internal memory; 100 or 200 ECGs in Secure Digital card
PDF output	Supports exported ECG in PDF format
12-lead display	Supports 12-lead resting waveform display

Pharma options

Clinical Trials Data Guard	Supports clinical trials data object which is used in pharma
21 CFR	Supports 21 CFR Part 11 audit documentation for pharmaceutical drug trials

Communication	
MAC 800 to MUSE Cardiology Information System (optional)	
Internal modem	Inbound and outbound
RS232 port	Outbound
RJ45 port	Outbound
Secure Digital card (256/512MB, FAT 16)	Outbound
MAC 800 to CardioSoft (optional)	
Modem	Outbound
RS232 port	Outbound
RJ45 port	Outbound
Secure Digital card (256/512MB, FAT 16)	Outbound
Accessories	
IEC/AHA lead-wire and electrode adaptor sets (user selectable)	
10-lead patient cable (user selectable replaceable leads or fixed leads cables)	
NEHB patient cable (user selectable)	
10-lead KISS patient cable (user selectable replaceable or fixed leads cables). To be powered by external KISS pump (purchased separately)	
Electrodes (disposable or reusable, user selectable)	
Country-specific power cords	
Z-fold paper	
Electrode cream 250ml/tube	
External peripherals USB	
Keyboard	Standard USB English keyboard
Barcode reader	IT4600G
Magnetic card reader	ISO 7810, 7811-1, -2, -3, -4, -5
Laser printer	Supports HP laser printers that support HP PCL 5e or above version
Report format	
Thermal printer (Z-fold)	
4x2.5x3_25	4x2.5x3_25_R1
4x2.5x3_50	4x2.5x3_50_R1
4x5x3_25	4x5x3_50
4x10x3_25	4x10x3_50
2x5x6_25	2x5x6_50
2x10x6_25	2x10x6_50
Median_25	4x2.5x3_25_R2_P (with pharma object)
Median_50	4x2.5x3_25_R3_P (with pharma object)
Laser printer (A4/Standard letter)	
4x2.5x3_25	4x2.5x3_25_R1
4x2.5x3_25_R3	MUSE1 (with pharma object)
1x10x12_25	MUSE2 (with pharma object)
Safety & regulatory	
IEC 60601-1: 1988 +Amd-1: 1991, +Amd-2: 1995 General Requirements for Safety	

IEC 60601-1-2: 2004 General Requirements for Safety Electromagnetic Compatibility	
IEC 60601-1-1: 2000 Medical Electrical Equipment: General Requirements for Safety	
IEC 60601-1-4: 2000 General Requirements for Safety – Collateral Standard: Programmable electrical medical systems	
IEC 60601-1-6: 2006 General Requirements for Safety – Usability	
IEC 60601-2-25: 1993 +Amd-1: 1999 Safety of Electrocardiographs	
IEC 60601-2-51: 2003 Safety and performance of ECG recorders	
EN 55011:2007/A2: 2007 Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics – Limits and methods of measurement	
ANSI/AAMI EC11: 1991/(R) 2001/(R) 2007 Diagnostic Electrocardiographic Devices	
ANSI/AAMI EC13: 2002 Cardiac Monitors, Heart Rate Meters, and Alarms (On screen heart rate meter, clause 4.2.7 only)	
ANSI/AAMI EC57: 1998/(R) 2003 Testing and Reporting Performance Results of Cardiac Rhythm and ST-segment Measurement Algorithms (All clauses except 4.3.3.2, 4.3.3.3 and 4.6)	
UL 60601-1:2003 Medical Electrical Equipment, part 1: General Requirements for Safety	
CAN/USA C22.2 No.601.1	
GB 9706.1-1995 Medical Electrical Equipment – part 1: General Requirements for Safety.	
GB10793-2000 Medical Electrical Equipment – part 2: Particular Requirements for the Safety of Electrocardiographs.	
YY1139-2000 Single and multichannel electrocardiograph	

Electrical

Power supply	Internal AC/DC or battery operation
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AC/DC operation specifications

Input voltage	100 to 240 VAC ±10 %
Input current	1.8A @ 115V AC, 1A @ 230V AC max
Input frequency	50 to 60 Hz, +5%, -6%

Battery specifications

Battery type	Replaceable and rechargeable, 7.2V@ 4.5 AH ±10%, rechargeable Lithium-Ion
Battery capacity	250 patient reports (4-page report) or 2 hours continuous operation without printing at a minimum
Battery charge time	Approximately 4 hours from total discharge (standby mode)

Physical specification

Dimensions	120 x 330 x 280 mm (H x W x D)
Weight	3.0 kg including battery, without paper

Environmental specification

Temperature

Operating	+5°C to +40°C
Transport/storage	-30°C to +60°C

Humidity

Operating	25% to 95% (non-condensing)
Transport/storage	10% to 95% (non-condensing)

Pressure

Operating	700 to 1060 hPA
Transport/storage	500 to 1060 hPA

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GE imagination at work

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