

MAC 5500 HD ECG System



Built on GE's innovation in ECG acquisition and analysis, the MAC* 5500 HD is GE's premier ECG system, delivering advanced disease management capabilities through one of the industry-leading collections of algorithms and advanced networking.

The MAC 5500 HD system offers the sophistication required for advanced ECG applications, while its ease of use extends this level of performance to a broad range of possible users. And, it's part of the complete GE suite of networked, non-invasive testing solutions designed to maximize patient throughput and department productivity.

- Advanced algorithms in ECG analysis and interpretation.
- Easy-to-use applications and features streamline productivity and workflow.
- Enhanced connectivity when combined with MUSE* Cardiology Information System to speed data storage and ECG retrieval.

Clinical validity and ECG analysis.

GE Healthcare has steadily expanded its electrocardiograph-based suite of ECG analysis programs and capabilities through diligent research and development.

- **Regular clinical input from the world's top consulting cardiologists and physicians** helps our own research and development engineers enhance our programs.
- **Ongoing acquisition of clinically correlated databases** allows us to continually evaluate and verify our algorithm performance. Use of the same patient assessment tests employed by practicing physicians helps ensure clinically accurate values.
- **Rapid assessments and improvements on very large databases**, using sophisticated analysis techniques developed by our own engineers, enable us to quickly evaluate the accuracy of our ECG analysis programs.

A comprehensive suite of analysis algorithms for advanced ECG applications.

GE Marquette* ECG analysis programs are a preferred choice in a variety of care settings and industries, including hospitals, clinics, physician offices, and clinical research organizations (CROs).

- **Marquette 12SL* ECG analysis program for adults and pediatrics** – one of the industry's most thoroughly documented, simultaneous 12-lead ECG acquisition analysis programs.



- **Marquette Hookup Advisor* signal quality analysis program** makes our world-renowned ECG analysis program even better. This software reviews and measures ECG waveforms for signs of artifact and interference, advising clinicians of poor waveform quality during ECG recordings.
- **Marquette 12SL with Gender-Specific interpretation** features criteria that help you more easily detect acute myocardial infarction (MI) in female patients, enhancing diagnostic confidence.
- **ACS (Acute Coronary Syndrome)** analysis option assists the physician in the ECG assessment of a patient suspected of having ACS and provides additional diagnostic statements, which identify specific lead sets where signs of ACS may be present.
- **Critical Values** feature enables onscreen and printed notification of critical ECG results to enable easy identification and accelerated reporting of critical values. User-defined critical values and customized notification text add flexibility needed to support the differences in notification policies from one facility to another.
- **Marquette 12SL with ACI-TIPI (Acute Cardiac Ischemia Time-Insensitive Predictive Instrument)** considers a patient's age, gender, and chief complaint, as well as ECG measurements, to generate a numerical score that helps predict the probability of acute cardiac ischemia. This optional program provides important additional triage information for patients with chest pain.
- **Simultaneous 15-lead acquisition, storage, and assessment** provides additional ST measurements for the detection of changes that occur in some non-diagnostic 12-lead cases to facilitate the prompt detection of right ventricular and posterior MI.
- **P-Wave Signal Averaging** option for atrial arrhythmia assessment features a patented templating algorithm that enhances P-wave measurement accuracy.
- **Hi-Res Late Potential Analysis** option supports ventricular arrhythmia assessment, with an intuitive design that creates a practical, non-invasive alternative to involved invasive testing.

- **High Definition Pacemaker-Detection Software** improves the ability to accurately detect the presence of pacemaker spikes along with adding the capability to detect and report the underlying rhythm.
- **Serial ECG Comparisons**, through the MUSE cardiology information system, leverage the Marquette 12SL ECG analysis program and analyze both short and long-term changes in patients' ECGs.

Improving access with workflow and connectivity.

Full connectivity allows you to tap into the power of GE's MUSE cardiology information system – a top cardiology management system – for streamlined workflow and higher functionality. Networked access helps deliver improved efficiency and decision support.

- Optional Ethernet and MobileLink* wireless capabilities permit bi-directional communication with the MUSE system so you can quickly retrieve, manage, and archive patient data while reducing the potential for errors. Also helps meet ACC/AHA guidelines for time-to-cardiologist overread and time-to-treatment goals.
- Quickly access procedure requests and download patient demographic data from the MUSE system and Order Manager. This functionality reduces time-consuming patient data entry and minimizes delays in procedure billing.
- Review results or access the computer ECG patient record remotely, any time of day or night, using the Remote Query option for more responsive patient care.
- Access results from the clinic, office, or other remote facilities using a standard modem for maximum decision-making efficiency.
- Secure digital memory card facilitates external archive capabilities.
- Export and archive data in XML format for flexible, open communications.
- Barcoding option assists in fulfilling safety goals for accurate patient identification.

Quality design and innovation expands your capabilities.

Specifically designed to enhance your entire staff's efficiency, the MAC 5500 HD system combines technological advances with ease-of-use features in one system.

- Digital CAM-HD acquisition module helps reduce noise and artifact for clearer ECG tracings and improved accuracy in detecting the presence of pacemaker spikes.
- Large field-of-view display provides a clear view of the screen from any angle.
- Analog ECG output facilitates easy integration with other cardiac-diagnostic devices, such as echocardiography and nuclear medicine systems.
- Extensive customization – including display and final-report formatting – accommodates individual user preferences.
- Stress option incorporates GE's proven exercise-testing technologies. Signal-acquisition advances help reduce baseline wander and ST-segment distortion to generate clearer, more defined ECGs.
- Barcode and magnetic card reader options help reduce errors by automating the input of patient data.
- Security protocols and user-configurable password protection help address data security and HIPAA concerns.
- Trolley design features a convenient holder for the acquisition module, ample writing surface area, wide bins, and a covered storage compartment.
- Compact system design offers easy mobility.



Instrument type

Microprocessor-augmented automatic electrocardiograph;
14-leadwire acquisition with programmable lead configuration

Feature	Specification
Processing	
ECG Interpretation	Marquette* 12SL* ECG Analysis Program for Adults and Pediatrics
Computerized Measurements	15-lead analysis includes measurements of user-selectable additional 3 leads
Optional	Hi-Res Late Potential Analysis and P-Wave Signal – Averaged ECG
Additional ECG Function	Vectorcardiography
ECG Analysis Frequency	500 samples/second (sps)
ECG Storage	200 ECGs in internal memory
External Archiving	Secure Digital card
Digital Sampling Rate	16,000 samples/second/channel
Pre-Acquisition	Provides 10 seconds of instantaneous ECG acquisition
Dynamic Range	AC Differential ± 5 mV, DC offset ± 300 mV
Resolution	4.88 μ V/LSB @ 250 sps, 4.88 μ V/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 Ω @ 10 Hz, defibrillator protected
Patient Leakage	<10 μ A
Pace Detection	Meets or exceeds ANSI/AAMI EC11-1991 standards
Pace Digital Sampling Rate	75,000 samples/second/channel
Pace Pulse Width	as low as 0.2 ms in duration
Pace Pulse Amplitude	as low as 0.5 mV in amplitude
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
Communications	
MUSE Cardiology Information System compatible	
CardioSoft compatible EMR connectivity via MUSE Cardiology Information System or CardioSoft	
Serial Cable	
Internal modem/fax	
Optional	Remote Retrieval (Remote Query), MobileLink wireless (requires additional MUSE communications software and installation): - Enhanced Security WPA and WPA2 (personal and enterprise modes). PAP, MS-CHAPv2, 802.1x/EAP with TLS/TTLS/LEAP/PEAP/FAST, WEP (PEAP requires network evaluation/approval prior to purchase) - Ultra-High Security MobileLink (FIPS 140-2) LAN (requires additional MUSE communications software and installation) - Communication with MUSE over LAN thru internal RJ-45 jack

Feature	Specification
Display	
Display Type	10.4 in (264 mm) diagonal graphics backlit color 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, and 50 mm/s
Number of Traces	3, 6, 12, or 15 user selectable
Writer Sensitivity/Gain	2.5, 5, 10, 20, 10/5 (split calibration) mm/mV
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: 8.5 in x 11 in, (214.6 mm x 280 mm) A4 Size: 8.27 in x 11.7 in (210 mm x 297.5 mm)
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
Current	0.5A @ 115 VAC, 0.3A @ 240 VAC, typical, 0.85A max
Frequency	50 to 60 Hz
Battery Type	User replaceable, 18V @ 3.5 AH ±10% rechargeable NiMH
Battery Capacity	100 single page reports, (typical) or six 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 Late Potential Analysis and P-Wave Signal- Averaged ECG	
Sensitivities	
Raw Data Template	20 mm/mV
Average Beat	20 mm/mV and 50 mm/mV
Filtered Signals and Vector Magnitude	1 mm/μV
Analysis Sampling Rate	1,000 samples/second/channel
Digital Sampling Rate	16,000 samples/second/channel
High/Low Pass Filters	Special filter using Fast Fourier Transform (FFT)

Feature	Specification
Physical Specifications	
Height	3.7 in (9.4 cm) [†] with display closed
Width	15 in (38.1 cm) [†]
Depth	13.8 in (35.1 cm) [†]
Weight	Approximately 6.8 kg (15 lbs) [†] including battery, without paper
Environmental Specifications	
Temperature	
Operating	50° to 104° F (10° to 40° C)
Transport/Storage	-40° to 158° F (-40° to 70° C)
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
Magnetic Card Reader Specifications	
Character Set	ANSI/ISO ALPHA alphanumeric characters and ANSI/ISO BCD (subset of ASCII [ISO 646 IRV:1991])
Bar Code Scanner Specifications	
Symbologies	Code 39 (extended), PDF-417, Code 128, Data Matrix, Interleaved 2 of 5
Modular MAC Trolley Dimensions	
Height	37 in (94 cm)
Width	19 in (47 cm)
Depth	27 in (69 cm)
Height with Acquisition module holder	59 in (150 cm)
Weight	66 lbs. (30 kg) ^{††}
Options	Barcode scanner holder

[†] Without trolley

^{††} Without resting ECG system

Certification

UL certified, CSA certified

Warranty

Standard warranty is one year for MAC 5500 HD and Modular MAC Trolley

Ordering Information

Available in: Simplified Chinese, Czech, Danish, Dutch, English, Finnish, French, German, Hungarian, Italian, Japanese, Norwegian, Polish, Spanish, and Swedish.

Visit gehealthcare.com or contact your local GE Healthcare representative.

Accessories available from www.gehealthcare.com

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GE Medical Systems Information Technologies, Inc., a General Electric Company, doing business as GE Healthcare.

About GE Healthcare

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement, and performance solutions services helps our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.

Our “healthymagination” vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access, and improving quality around the world. Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries. For more information about GE Healthcare, visit our website at www.gehealthcare.com.

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GE imagination at work