CASE™

Cardiac Assessment System for Exercise Testing

Signal processing

ST measurements – Resting	ST amplitudes, slope
ST measurements – Stress	ST amplitudes, slope, integral, index, ST/HR slope, ST/HR loops, ST/HR
E, J and post-J point	Manual or computer selected
Signal processing technique	Incremental median updating using HEART Exercise program
Baseline Correction	ADS
Artifact/Baseline correction	ADS or Finite Residual Filter (FRF) algorithm
QRS detection and analysis	Based on automatic or manual lead selection
Arrhythmia detection	Automatic arrhythmia detection, documentation and annotation
Full disclosure ECG	Up to 60 minutes of full disclosure with event review both during and post acquisition
Reanalysis – Resting	Re-analyze after manual correction of median beats and measurements
Reanalysis – Stress	Post-test median measurements from E, J, post-J point selections
ECG analysis	Marquette™ 12SL ECG Analysis Program for Adult and Pediatric (optional)
Computerized Measurements	15-lead analysis includes measurements of user-selectable additional 3 leads
Additional ECG function	Vectorcardiography

Heart Rate Meter	30 to 300 BPM ±10% or 5 BPM, whichever is greater. Heart rates outside this range will not be displayed.

Communications/storage

ECG data formats	GE Hi-Fidelity ECG, XML
MUSE™	MUSE Cardiology Information System Compatible (v7 or later) with bi-directional orders and ADT support
MUSE Web	Compatible for retrieval view and printing of MUSE system data
CardioSoft Web	Compatible for report viewing
Data export	PDF export of final reports (auto export and custom file name); PDF export of Full Disclosure data; Microsoft® Word export of configured reports; XML or Microsoft Excel® export of specified data
EMR connectivity	Other EMRs through MUSE Cardiology Information System (v8 or later); or GDT/BDT Interface
DICOM	Bidirectional, DICOM modality worklist/orders

Data acquisition (via CAM Connect 14)

Technology	Type CF, Defibrillation-Proof Defibrillation protection: Per IEC 60601-2-25:2011
Lead system	15 lead
Dynamic Range	AC Differential ± 5mV, DC offset ±300 mV
Common Mode Rejection	>130 dB (>100 dB with AC filter disabled)

Input Impedance	>10MΩ @ 10 Hz, defibrillator protected	Sample Rate Recording	500
Patient Leakage	<10 µA	Lead OFF Detection	Yes
Analog to Digital conversion	Bandwidth: DC to 500 HZ; Sample rate: 2 ksps; Resolution: 0.1192 µV	Communication	Digital RF 2400 – 2483 MHz, 0.4mW, conform to FCC Part 15.249
Down Sampled ECG waveform	Bandwidth: 0.04 to 150 Hz; Sample rate: 2 ksps; Resolution: 1.22 µV	Battery	Size AA × 2, Alkaline or NiMH
		Operation Time	Up to 40 hours with Alkaline Batteries
Input to ECG Analysis	Bandwidth: 0.0., 0.56ZPD to 150Hz; Sample rate: 500sps; Resolution: 4.88 µV/LSB	Dimensions and weight	Weight [g]: 350 Size [mm]: 140 x 95 x 50
		Safety Standards	IEC 60601-1, 60601-1-2, 60601-2-25
Pacemaker waveform	Bandwidth: 23.5 Hz to 10.5 kHz; Sample rate: 75 ksps; Resolution: 11.85 µV/LSB	Classification	Type-CF, Internally powered
		Certification	CE
Pace Detection	Duration: 0.2 ms to 2.2 ms Amplitude: 2mV to 700 mV Separation: 1ms or greater	Pace Detection	Sampling rate: 500 sps
		Additional report filters	20, 40, 100, 150 Hz (selectable)
Quality Indicators	Real-time electrode placement support with LED lead quality indicators	Battery Indicator on HOST	0%–100% (at a gap of 20%)
Remote control	ECG acquisition button	**Receiver**	
Ingress Protection Level	IP×4	ECG Out	0.5 to 150 Hz (Bandwidth-3db)
		ECG Out Gain	1000
Noise	<15 µV (-3dB) bandwidth	ECG Out Sample Rate	500
High pass filter	0.04		
Additional report filters	20, 40, 100, 150 Hz (selectable)	TTL Trigger width	16-128ms
		TTL Trigger delay	<11ms (delay from R-wave)
Line filter	50.0 or 60.0 Hz notch filter (selectable)	Interface	USB 2.0 compliant
QRS trigger	TTL synchronization output	Communication	USB 2.0 Full Speed Digital RF, 2400-2483.5 MHz, 0.4 mW, conform to FCC part 15.249

Wireless data acquisition (via GEH ECG 1200)

	Power: USB 5V	100mA max at 5V input
Acquisition unit	

		Power: USB 5V	100mA max at 5V input
		Dimensions and weight	Weight [g]: 80 Size [mm]: 100 x 54 x 30
Lead system	Standard 12 Lead		
Patient Leads	Detachable 10 Lead wires conform to AAMI		

Physical specifications

Defibrillation protection	Protected against 360J discharge	Operating System	Microsoft Windows® 10, 64Bit IoT
		Height (approx)	147 cm (58 in) minimum to 167.6 cm (65.98 in) maximum, fully extended
Patient leakage current	< 10 uA		
Input impedance	> 10 MOhm	Width (approx)	62 cm (24 in) minimum to 83.8 cm (32.99 in) maximum, fully extended
CMMR	> 90dB		
Frequency range	0.05 – 150Hz	Depth (approx)	75 cm (30 in) minimum to 116.8 cm (45.98 in) maximum, fully extended
Dynamic range	+/- 2.4V		
Resolution	24 bits (0.286 uV/LSB)	Wire paper tray	31.75 cm x 23.50 cm (12.50 in x 9.25 in) Attaches to left side of CASE system
Sample Rate Internal	8000	Weight	68 kg (150 lb) without monitor

Acquisition module holder tray	6.60 cm x 23.50 cm (2.6 in x 9.25 in) Attaches to right side of CASE system
Interfaces included	Acquisition module – CAM 14
	Keyboard – alpha numeric
	- Key Switch: Membrane key switch with tactile feedback
	- Waterproof / Dustproof Ratings: IP 68, NEMA 4X
	Keypad – dedicated stress function keys
	Mouse
	Integrated Thermal Printer
	10 MB/100 MB/ 1 GB Ethernet – MUSE compatibile
	USB ports – 6
	PS2 ports – 2
	Serial ports – 6; COM 1-2, COM A-D, treadmill, BP, ergometer, SpO_2
	Analog port – 4; TTL (trigger) – 1; output (imaging sync) and analog device communication
	External DVD/CD-RW
	External SD

Environmental – power requirements

Power supply	AC operation only
Operating voltage range	100-120 VAC, 47-63 Hz, 2.8 A 200-240 VAC, 47-63 Hz, 1.4 A
Power consumption	350 W max (1200 BTU/h) <250 W normal (850 BTU/h) <30 W standby (100 BTU/h)

Environmental – operating requirements

Operating temp. range	10 to 40ºC
Storage temp. range	-20 to 60ºC
Relative Humidity	10 to 95% RH non-condensing
Temperature	10 to 40ºC (+50 to 104ºF)
Humidity	20 to 95% RH non-condensing
Pressure	700 to w1060 hPa

Display type

Monitored leads	12, 15 – Resting; 3, 6, 12, 15 – Stress
Displayed leads	Number on screen 3, 6, 12 or 15
Display format	4 × 2.5, 4 × 2.5 + 1 rhythm, 2 × 6, 6 rhythm, 3 rhythm - Resting 4 × 2.5 + 1 rhythm, 2 × 6, 6 rhythm, 3 rhythm, 3 rhythm + medians, 3 rhythm + trend - Stress
Display sensitivity/gain	2.5, 5, 10, 20, 40 mm/mV - Resting 2.5, 5, 10, 20 mm/mV - Stress

CASE monitor

Display type	LCD (flat panel display)
Display resolution	LCD – 1680 × 1050
Display size	56cm (22”) diagonal

CASE 7.0

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