

Midmark Diagnostics

IQecg™ System Specifications

Features					
Intuitive user interface	Quick to learn, easy to use				
Preview and monitor	Real-time 12-lead ECG				
Acquire and store	10 seconds of 12-lead ECG with auto-interpretation and measurements with one mouse click				
Interpretation algorithm	Provided by Midmark 12-lead Resting Electrocardiogram Analysis Program for adult and pediatric patients				
Review and Edit	On screen with zoom, electronic calipers, free text and customizable quick edit statements				
Serial comparison	With overlay of up to 4 ECG tests				
Store	55,000 ECG in 1GB of hard-drive space				
EHR/EMR	Field proven seamless integration with more than 80 EHR/EMRs				
Warranty	12 months on ECG, 90 days on patient cable				
Patient Connection					
10-lead patient cable with RFI filter, defibrillator protection and patient isolation					
Safety Parameters					
Patient leakage current not to exceed 10uA					
Ground leakage current not to exceed 50uA					
Patient electrically isolated from main current supply					
Physical Characteristics					
USB Version	Weight	10.2 oz.	Serial Version	Weight	9.5 oz. (11.2 oz. with batteries)
	Dimensions	3.5 in. (88mm) x 5.7 in. (175mm) x 1.2 in. (30mm) (W x L x H)		Dimensions	3.5 in. (88mm) x 5.7 in. (175mm) x 1.2 in. (30mm) (W x L x H)
	Power	No batteries required		Power	Two (2) 1.5V AA alkaline batteries
ECG Acquisition					
Impedance		>100 megohms			
Frequency response		0.05-150Hz-3dB			
Filters		AC, drift, muscle			
Sensitivity		5, 10, 20mm/mV			
Dynamic range		± 10mV			
ADC resolution		13 bits at 2.44uV/bit			
Electrode offset		± 300mV per AAMI and EC11 specifications			
Acquisition rate		500 samples/sec			

For product inquiries, please contact Midmark Medical Customer Service at 1-800-MIDMARK, extension 88921.
 For more information or a demonstration, contact Midmark, 60 Vista Drive, P.O. Box 286, Versailles, Ohio 45380-0286.
 Call: 1-800-MIDMARK Fax: 1-800-365-8631 midmark.com



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IQflex™ System Specifications

Features	
Intuitive user interface	Quick to learn, easy to use
Preview and monitor	Preview up to 12 leads simultaneously before printing
Acquire	USB acquisition module or wireless acquisition module (WAM®). Lead wires are replaceable
Interpretation algorithm	VERITAS® resting ECG interpretation algorithm with age (adult & pediatric) and gender criteria
Waveform display	Backlit, 1/4 VGA 320 x 240 LCD color display 4+4 or 6+6 lead presentation
Data Entry	Remote control with "one-touch" buttons for ECG acquisition and rhythm printing
Reports	Thermal roll paper; 8.25" (210 mm) wide
Safety Parameters	
Meets or exceeds the requirements of ANSI/AAMI ES1	
Device Classification	
Class I, Type CF defibrillation-proof applied parts	
Physical Characteristics	
Weight	8 lbs. (3.63 kg) including battery (without paper)
Dimensions	11.25" x 8" x 3.75" (29.2 cm x 20.3 cm x 10.2 cm)
Power	Universal AC power supply (100-240 VAC at 50/60 HZ) 110 VA; internally rechargeable battery
ECG Acquisition	
Input Impedance	Meets or exceeds the requirements of ANSI/AAMI EC11
Standard leads acquired	I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6
Frequency response	0.05 to 300 Hz
Filters	High-performance baseline filter; AC interference filter 50/60 Hz; low-pass filters 40 Hz, 150 Hz, or 300 Hz
A/D conversion	20 bits
Digital sampling rate	40,000 samples/sec/channel used for pacemaker spike detection
Analysis Rate	1,000 samples/sec/channel used for recording and analysis
Thermal printer	Computer-controlled dot array; 8 dots/mm
Thermal printer speeds	5, 10, 25 or 50 mm/s
Gain settings	5, 10 or 20 mm/mV
Report print formats	Standard or Cabrera: 3+1 channel, 6-channel, 12-channel
Rhythm print formats	3-channel, 6-channel, or 12-channel with configurable lead groups

VERITAS® is a trademark of Mortara Instrument, Inc.

WAM® is a trademark of Mortara Instrument, Inc.

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Midmark Diagnostics

IQclassic™ System Specifications

Features	
Intuitive user interface	Quick to learn, easy to use
Preview and monitor	Real-time preview of 12-lead ECG and post-acquisition review of acquired ECG
Acquire and store	Internal storage for up to 60 digital ECG records
Interpretation algorithm	VERITAS® resting ECG interpretation algorithm uses age (adult and pediatric) and gender specific criteria
Waveform display	Backlit 1/4 VGA LCD; 3-lead groups, 8 or 12-lead presentation
Data entry	Full keyboard with "one-touch" buttons for ECG acquisition, rhythm printing, and ECG transmission
Reports	Full-size, (8.5" x 11" or A4) Z-fold paper output for multiple standard or Cabrera print options including 3+1, 3+3, 6-channel, and 12-channel outputs (tray holds 250 sheets)
Connectivity options	Communication via serial port, internal modem, LAN, or WLAN
FAA capable	FAA/modem optional
Safety Parameters	
Meets or exceeds the requirements of ANSI/AAMI ES1	
Device Classification	
Class I, Type CF defibrillation-proof applied parts	
Physical Characteristics	
Weight	11.25 lbs. (5.1 kg) including battery (without paper)
Dimensions	15.5" x 17" x 4" (39.4 cm x 43.2 cm x 10.2 cm)
Power	Universal AC power supply (100-240 VAC at 50/60 Hz) 50 VA; internally rechargeable battery
ECG Acquisition	
Input Impedance	Meets or exceeds the requirements of ANSI/AAMI EC11
Standard leads acquired	I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6
Frequency response	0.05 to 300 Hz
Filters	High-performance baseline filter; AC interference filter 50/60 Hz; low-pass filters 40 Hz, 150 Hz, or 300 Hz
A/D conversion	20 bits
Digital sampling rate	10,000 samples/sec/channel used for pacemaker spike detection;
Analysis rate	1,000 samples/sec/channel used for recording and analysis
Thermal printer	Computer-controlled dot array; 8 dots/mm
Thermal printer speeds	5, 10, 25 or 50 mm/s
Gain settings	5, 10 or 20 mm/mV
Report print formats	Standard or Cabrera: 3+1, 3+3 channel, 6-channel, 12-channel
Rhythm print formats	3-channel, 6-channel or 12-channel with configurable lead groups

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Midmark Diagnostics

IQspiro™ System Specifications

Features	
Usage	Easy to use, digital diagnostic spirometer
Graphics	Real time graphics – Flow-Volume, Volume-Time
Reports	Full size 8.5 x 11 inches, customizable and preprogrammed
Predicted equations	Adult: Crapo (Crapo/Knudson compilation, aka ITS, ATS), Knudson (1976 & 1983 compilation), European Community For Coal And Steel (ECCS) (1993), NHANES III (aka NLHEP, Hankinson), Morris, Roca Pediatric: Wang (1993), Knudson (1976 & 1983 compilation), Polgar (1971), Hsu, NHANES III, Zapletal, Eigen
Interpretation	NHANES III (NLHEP); ATS
Patient incentive screens	Candles, Thermometer, Tree & leaves, Tree, Leaves & monkeys, Tree, Leaves & pinwheel
Disposable Mouthpiece (DM)	Minimizes the chance of cross-contamination
EHR/EMR	Field proven seamless integration with more than 80 EHR/EMRs
Spirometry measurement principle	Fleisch Pneumotach – differential pressure reading of flow with a DM Volume determined by flow integration
Measuring Ranges	<ul style="list-style-type: none"> +/- 14 L/s – Flow +/- 8 L – Volume
Operating Conditions	<ul style="list-style-type: none"> 15°C to 40°C 10% to 90% Humidity, non-condensing
Analysis & Measurement	<ul style="list-style-type: none"> Automatic Back Extrapolation calculation Automatic Spirometry parameter calculation Automatic comparison to published Spirometry Predicted Equations (Reference Values) Automatic interpretation of test results
Parameters Measured	FVC, FEV.5, FEV1, FEV3, FEV6, FEV1/FVC, FEV3/FVC, FEV1/FEV6, FEV25%, FEV50%, FEV75%, FEV25-75%, FEV75-85%, FEV200-1200, FEV0.5/FIV0.5, PEF, FIVC, FIV0.5, FIF50%, PIF, Exp Time, V ext, MVV, MTV, RR, AT, AT%, VC, ERV, IRV, TV
Patient Contact	Single-use, disposable mouthpiece (Pneumotach)
Physical Characteristics	
Dimensions	7.75" x 2.5" x 1.75", 191 x 64 x 44 mm
Weight	9 oz. USB version, 9.5 oz serial version w/ batteries
Calibration	3-liter syringe
Serial version	Two (2) 1.5V AAA alkaline batteries
USB	Does not require batteries

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Midmark Diagnostics

IQholter™, EX, EP System Specifications

Features		
Data	3-channel non-compression data	
Easy set-up	Intuitive menu with conventional 5-way navigation control	
Lighted Display	Verify live ECG tracing quality during hookup. Real time clock for patient diary.	
Storage Media	Removable 2 GB Secure Digital (SD) media card (2 GB SD card standard with recorder)	
Recording Time	24 hour (48 and 72 hour recording upgrade optional)	
Review and Edit	On screen review or edit analysis result, narrative and tabular summary, selected sample strips, full disclosure, heart rate trend, ST trend, etc.	
Patient event button	Large concave design prevents accidental activation but easy for patient to locate	
EHR/EMR	Field proven seamless integration with more than 80 EHR/EMRs	
Warranty	12 months on recorder, 90 days on SD card, 90 days on patient cable	
Patient Connection		
Compatible with 5-lead or 7-lead patient hookup kits (5-lead patient lead wire standard with recorder)		
Physical Characteristics		
Weight	2.8 oz. (3.7 oz. with battery and memory card)	
Dimensions	3.7 in (H) x 2.6 in. (W) x 1.06 in. (D) (with belt clip depth is 1.25 in.)	
Power	For 24 and 48 hour recording: One (1) 1.5V AA (IEC-LR6) Alkaline battery. For 72 hour recording: One (1) 1.5V AA (L91-FR6) Lithium battery. Recommend Energizer® Ultimate Lithium brand	
IQholter		
Isolated premature ventricular ectopy (VE)	Longest/fastest/slowest VE runs	Asystole (Pause)
Ventricular couplet (VE pair)	Isolated premature supraventricular ectopy (SVE)	R on T
Ventricular run (VE run)	Premature supraventricular pair (SVE pair)	ST level / ST slope
Ventricular bigeminy (Bigeminy)	Premature supraventricular runs (SVE run)	Tachycardia
Ventricular trigeminy (Trigeminy)	Total SVE	Bradycardia
Total VE	Longest/fastest SVE runs	Average/minimum/maximum heart rate
User defined auto-reports		
IQholter recorder EX (includes features listed above plus)		IQholter EP (Includes features listed for IQholter recorder EX plus)
ECG preview		Single and dual-chamber paced beats detection for non-captures and sensing failures
Atrial fibrillation analysis		
HRV and QT analysis		
Template editing		
Smart Page Scan		

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IQstress™ System Specifications

Features			
Preprogrammed protocols	Include Bruce, Modified Bruce, Balke-Ware, Ellestad, Naughton, Ramp and Dobutamine		
Customized Protocols	Unlimited customized protocols for procedures, including: treadmill, echo, nuclear or pharmacological stress tests		
Customized test profiles	Incorporates user preferences like measurement parameters, display format and report settings with testing protocol		
Integrated interpretive resting ECG	Provided by Midmark 12-lead Resting Electrocardiogram Analysis Program for adult and pediatric patients		
Instant review	Freeze previous 60 seconds of all leads for instant review while monitoring live ECG		
Rhythm strips	Save/print rhythm strips automatically at predetermined intervals or manually throughout the test		
Immediate reports	Review full report online immediately after completing the test		
Reanalyze	Reanalyzes and updates test results when patient or test data is changed		
Warranty	12 months; 90 days for patient cables; computer and treadmill covered by manufacturer's warranty		
Patient Connection			
10-lead patient cable with RFI filter, defibrillator protection and patient isolation			
Safety Parameters			
IQstress meets or exceeds the performance and safety requirements of ANSI/AAMI EC-11, ANSI/AAMI ES-1 and IEC-60601 Class CF			
Physical Characteristics			
USB Version	Weight	10.2 oz.	
	Dimensions	3.5 in. (88mm) x 5.7 in. (175mm) x 1.2 in. (30mm) (W x L x H)	
	Power	No batteries required	
Medical-grade Exercise Treadmill			
Power	208-240V, 50/60Hz, dedicated 15A	Running space	22" x 63" cushioned, lubricated, low profile
Wall receptacle type	NEMA 6-15R	Weight capacity	500 lb
Speed	0.5 – 12 MPH, zero start	Stop button	Moveable emergency stop button
Elevation	0 – 25%	Warranty	Covered by treadmill manufacturer
Monitoring		Filters	
ST level	ST slope	Muscle artifact (20Hz, 40Hz)	
Average resting beats	Average current beats over resting	AC line	
Heart rate, Maximum predicted heart rate, % MPRH	METS	Baseline drift	
Blood Pressure	Ventricular events per minute		
Speed	Grade		

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Midmark Diagnostics

IQvitals™ System Specifications

Features			
Usage	Non-invasive, multi-parameter vital signs device		
Data	Quick, easy entry and viewing of all vital signs data in one location		
Windows® based platform	Flexible, easy to upgrade software for the life of the product		
Display	High resolution for optimal viewing and control. 7" VGA TFT LCD display with LED backlight and resistive touch screen		
Long Battery Life	Vital signs can be captured continuously and quickly without plugging in		
100-reading memory	Easy for recall, printing or download of patient data		
Multiple mounting options	Flexibility to meet different workflow needs; mobile cart, wall mount, table top mount, IV pole mount		
Connection	USB or serial connections standard		
Digital scale	Connects directly to the Fairbanks® TeleWeigh digital scale or select digital scales via IQmanager™ to capture weight automatically or manual entry		
Warranty	Two (2) Years for IQvitals™		
Safety Parameters			
Type of Protection (Electrical)	Class II		
Degree of Protection (Electrical)	Type BF		
Degree of Protection (Water)	IPX1. Protection against dripping water.		
Degree of Safety (Flammable Anesthetic Mixture)	Not suitable for use in the presence of a Flammable Anesthetic Mixture		
Disinfecting Method	Per the instructions in the Cleaning section of the Operation Manual		
Environmental Specifications			
Operating Temperature	32 to 104 °F (0 to 40 °C) (For Patient Temperature Measurement: 16 to 33 °C)	Storage Temperature	-4 to 140 °F (-20 to 60 °C)
Operating Altitude	0 to 15,000 feet	Storage Altitude	0 to 40,000 feet
Operating Humidity	15 to 95% non-condensing	Storage Humidity	15 to 95% non-condensing
EMC Standard	Per IEC 60601-1-2 and FCC Part 15 (Emissions Class B)		
Physical Characteristics			
Weight	3.9 lbs (1.77 kg)	Dimensions	4 in. (W) x 10.5 in. (L) x 7 in. (H), 10.16 cm x 17.78 cm x 26.67 cm
Power (unit)	Simultaneously operates and charges device when AC power is plugged in; low power indicator; automatic shutdown on low power	Power (battery)	Battery: rechargeable 10.8 V lithium ion battery; 4 hours to fully charge, 3 hours for 95% charge; operates 8 hours on full charge
Non-Invasive Blood Pressure		Temperature	Pulse Oximetry (SpO ₂) Specifications
Method	Oscillometric	Probe Type	Alaris® Turbo Temp®
Cuff	Infant, Child, Small Adult, Adult, Adult Long, Large Adult, Large Adult Long, and Thigh	Measurement Scale	Fahrenheit(F), Celsius(C)
		Measurement Type	Oral and Axillary
Derived Parameters	Systolic, Diastolic, and Mean Arterial Pressure (MAP)	Measurement Range	SpO₂ / PR Resolution
Measurement Range	Systolic: 30 to 250 mmHg, Mean: 20 to 230 mmHg, Diastolic: 10 to 210 mmHg		1 O ₂ % / 1 BPM
Measurement Accuracy	Systolic: ±5mmHg, Mean: ±5mmHg, Diastolic: ±5mmHg	Measurement Accuracy	Report Interval
Pulse Rate Accuracy	±5% or ±2 BPM, whichever is greater	Measurement Accuracy	1 second
Pulse Rate Range	30 to 240 BPM	Measurement Time (seconds)	Measurement Range
Initial Cuff Pressure	User-selectable	Predictive Oral: 8-10 Axillary: 13-20	SpO ₂ : 20 to 100% PR: 30 to 240 BPM
			Measurement Accuracy
			SpO ₂ : 70 to 100%: ±2%, PR: ±5%

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Midmark Diagnostics

IQvitals™ PC System Specifications

Features					
Usage	PC based non-invasive, multi-parameter vital signs device				
Data	Quick, easy entry and viewing of all vital signs data via IQmanager				
Long Battery Life	Vital signs can be captured continuously and quickly without plugging in				
Multiple mounting options	Flexibility to meet different workflow needs; mobile cart, wall mount, table top mount, IV pole mount				
Device Connectivity	USB or serial connections standard				
Digital scale	Connects to digital scale(s) and captures weight automatically or via manual entry				
Warranty	Two (2) Years for IQvitals™ PC				
Safety Parameters					
Type of Protection (Electrical)	Class II				
Degree of Protection (Electrical)	Type BF				
Degree of Protection (Water)	IPX1. Protection against dripping water.				
Degree of Safety (Flammable Anesthetic Mixture)	Not suitable for use in the presence of a Flammable Anesthetic Mixture				
Disinfecting Method	Per the instructions in the Cleaning section of the Operation Manual				
Environmental Specifications					
Operating Temperature	32 to 104 °F (0 to 40 °C) (For Patient Temperature Measurement: 16 to 33 °C)		Storage Temperature	-4 to 140 °F (-20 to 60 °C)	
Operating Altitude	0 to 15,000 feet		Storage Altitude	0 to 40,000 feet	
Operating Humidity	15 to 95% non-condensing		Storage Humidity	15 to 95% non-condensing	
EMC Standard	Per IEC 60601-1-2 and FCC Part 15 (Emissions Class B)				
Physical Characteristics					
Weight	3.2 lbs (1.45 kg)		Dimensions	4 in. (W) x 10.5 in. (L) x 7 in (H), 10.16 cm x 17.78 cm x 26.67 cm	
Power (unit)	Simultaneously operates and charges device when AC power is plugged in; low power indicator; automatic shutdown on low power		Power (battery)	Battery: rechargeable 10.8 V lithium ion battery; 4 hours to fully charge, 3 hours for 95% charge; operates 8 hours on full charge	
Non-Invasive Blood Pressure			Temperature	Pulse Oximetry (SpO ₂) Specifications	
Method	Oscillometric		Probe Type	Alaris® Turbo Temp®	
Cuff	Infant, Child, Small Adult, Adult, Adult Long, Large Adult, Large Adult Long, and Thigh		Measurement Scale	Fahrenheit(F), Celsius(C)	
			Measurement Type	Oral and Axillary	
Derived Parameters	Systolic, Diastolic, and Mean Arterial Pressure (MAP)		Measurement Range	Oral: 95 to 106°F Axillary: 95 to 106°F	
Measurement Range	Systolic: 30 to 250 mmHg, Diastolic: 10 to 210 mmHg			Measurement Accuracy	±0.1°C (±0.2°F) (probe)
Measurement Accuracy	Systolic: ±5mmHg, Diastolic: ±5mmHg		Measurement Time (seconds)		Predictive Oral: 8-10 Axillary: 13-20
Pulse Rate Accuracy	±5% or ±2 BPM, whichever is greater			Measurement Accuracy	SpO ₂ : 70 to 100%: ±2%, PR: ±5%
Pulse Rate Range	30 to 240 BPM	Initial Cuff Pressure	User-selectable		

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