

# Mobile Medic Diagnostic Kit (M2DK)



The Mobile Medic Diagnostic Kit (M2DK) incorporates the EarthWalk RT-10MCA medical tablet, keyboard, and many other features that can be used in the field for various diagnostic purposes. All of the components seamlessly integrate medical data into almost all EMR systems and drastically reduce potential medical and data entry errors.

Data can be electronically sent in real time via wireless connection. This package is available in a soft and hard carrying case. This small and compact kit is ideal for tactical and traveling medical professionals. The M2DK packages together multiple diagnostic tools into a small convenient case and is a fraction of the price of individual diagnostic equipment sold separately --- saving medical providers space and money!

Some features with the M2DK are the following:

- 12 channel EKG
- Spirometer
- Blood pressure cuff
- Pulse oximeter (SpO2)
- Optional add-on Ultrasound Probe
- Etc. (other USB compatible medical equipment)

## BPCard Specifications

<b>Weight</b>	Less than 6 ounces (0.38 lb)
<b>Height WxDxH</b>	53mm x 140mm x 26mm (2.1" x 5.5" x 1.0"), extended housing.
<b>Cuff Size</b>	Adult: 27.0 to 35.0cm (10.6" to 13.8") arm cuff with bladder Small Adult: 20.0 to 28.0 cm (7.9" to 11.0") arm cuff with bladder. Large Adult: 34 to 42.0 cm (13.4" to 16.5") arm cuff with bladder.
<b>Housing</b>	PCMCIA Type II PC Card with extended housing.
<b>Program</b>	Reporting software is stored on the computer.
<b>Environmental Conditions</b>	<b>Storage Conditions:</b> Temperature: -20 to 55° C (-4 to 131° F) Humidity: < 90% (non-condensing) <b>Operating Conditions:</b> Temperature: 10 to 40°C (50 to 104° F) Humidity: 15% to 90%, (non-condensing) Barometric Pressure: 105kPa - 80Kpa (790mmHg - 600mmHg)
<b>Power Supply</b>	Internal: 5Vdc, less than 80 mA. Supplied by the PCMCIA slot.
<b>Measurement Method</b>	Ausculatory
<b>Inflation Method</b>	Manual bulb pump
<b>Deflation Method</b>	Automatic
<b>Deflation Rate</b>	User selectable, validated at 2-3 mmHg/sec.
<b>Rapid Exhaust</b>	Pressure reduction from 260 mmHg to 15mmHg in 10 seconds or less.
<b>Determination Time</b>	12-40 seconds
<b>Pulse Rate Display Range</b>	40-200 bpm
<b>Pulse Accuracy Range</b>	50-115 bpm $\pm$ 7 bpm
<b>Measurement Range</b>	0-260 mmHg.
<b>Measurement Accuracy</b>	Pressure $\pm$ 3 mmHg Measurement: For systolic and diastolic pressures, the mean difference of paired measurements of the BPCard and the standard auscultatory measurement method shall be $\pm$ 5 mmHg, with a standard deviation of 8 mmHg or less.
<b>Pressure Indicator Accuracy (for pressure changes up to 4 mmHg/second)</b>	For 0-260 mmHg $\pm$ 3 mmHg For >260 mmHg, the indicated pressure is >258 mmHg or indicates an over range error.
<b>Voltage Range</b>	The BPCard will perform properly when connected to a laptop or desktop using AC power in the range of 104 Vrms to 127Vrms.
<b>Pressure Detection</b>	Semi-conductor pressure sensor.
<b>Signal Inputs</b>	The BPCard receives sub sonic signals from a two channel microphone which is incorporated into the cuff. Only QRS approved microphones may be connected to the BPCard. Number of microphone input channels: 2 Microphone Preamplifier impedance: 8.2M. Maximum allowable voltage on preamplifier inputs: $\pm$ 16V
<b>Alarms</b>	None

## SpirOxCard Specifications

<b>Weight</b>	85 grams (0.19 lb)
<b>Height WxDxH</b>	53mm x 140mm x 26mm (2.1" x 5.5" x 1.0"), extended housing
<b>Housing</b>	PCMCIA Type II PC Card with extended housing
<b>Program</b>	Reporting software is stored on the computer
<b>Environmental Conditions</b>	Storage Conditions: Ambient Temperature: -15 to 50° C (5 to 122° F) Relative Humidity: < 90% (non-condensing) Atmospheric Pressure: 700 to 1060 hPa
<b>Power Supply</b>	Internal: 5Vdc, less than 80mA. Supplied by the PCMCIA slot
<b>Operating Conditions</b>	Ambient Temperature: 15 to 40° C (59 to 104° F) Relative Humidity: 10 to 90% (non-condensing). Atmospheric pressure: 700 to 1060 hPa
<b>Measurement Method</b>	<b>Spirometry:</b> FLOW: Mouthpiece (US Patent #4,905,709). VOLUME: flow integration
<b>Range (BTPS)</b>	<b>Spirometry:</b> FLOW: ±14 liters/second. VOLUME: 0.5-8 liters <b>Oximetry:</b> % Saturation: 0-100%. Pulse Rate: 18 to 300 pulses per minute
<b>Accuracy (BTPS)</b>	<b>Spirometry:</b> FLOW: ±5% of indication or ±200 ml/sec, whichever is greater for FEF 25-75 and ±10% of indication or ±300 ml/s whichever is greater for PEF VOLUME: ±3% of indication or ±50 ml, whichever is greater for FVC and FEV1 ±10% of indication or ±15 L/min, whichever is greater for MVV <b>Oximetry:</b> SpO2: 70-100% ±2% of full scale (±1 S.D.)* Pulse Rate: ±3% (± 1 digit)
<b>Precision (BTPS)</b>	<b>Spirometry:</b> FLOW: 5% of indication or 150 ml/sec, whichever is greater for PEF. VOLUME: 3% of indication or 50 ml, whichever is greater for FVC and FEV1
<b>Calibration</b>	<b>Spirometry:</b> ATS 3-speed or standard calibration check
<b>Predicted Normals</b>	<b>Spirometry:</b> Crapo (1981), Cherniack (1972), Morris (1971/73), Knudson (1983), Polgar (1971), HSU (1979), Roberts (1991), Warwick (1977), ECCS/ERS/Quanjer (1993), NHANES III (1999), Zapletal (1987), Wang (1993), Quanjer (1995)
<b>Tests Performed</b>	<b>Spirometry:</b> FVC, Pre/Post Testing, Flow Volume Loop, MVV, SVC
<b>Measuring Time</b>	<b>Spirometry:</b> Up to 30 seconds
<b>Printed Scale</b>	<b>Spirometry:</b> Flow Volume: (vertical) .5cm/1L/S, (horizontal) 1cm/1L Volume Time: (vertical) 1cm/1L, (horizontal) 1cm/second
<b>Sample Rate</b>	<b>Spirometry:</b> 100 samples/sec
<b>Resolution</b>	<b>Spirometry:</b> Flow Rate: 2ml/sec. Volume: 1ml
<b>Limits of Detection</b>	<b>Spirometry:</b> Flow Rate: 2ml/sec. Volume: 1ml
<b>Parameters Measured</b>	<b>Spirometry:</b> FVC, FEV0.5, FEV1, FEV6, FEV1/FEV6, FEV3, FEV1/FVC, FEV3/FVC, PEFR, PEFT, FEF25%, FEF50%, FEF75%, FEF25-75%, FIVC, FIV0.5, FIV1, FIV3, FIV1/FIVC, FIV3/FIVC, PIFR, FIF50%, FIF 25-75%, FIF.2-1.2, FVC/FIVC, Extrapolated Volume (Ext. Vol., BEV), EOTV, FET, MVV, RR, MTV, SVC

## Universal ECG Specifications

<b>Hub Weight</b>	280 - 300 grams (0.62 – 0.66 lb) depending on cable options
<b>Hub Dimensions</b>	85mm x 91mm x 20mm (3.3" x 3.6" x 0.8")
<b>Patient Leads Length</b>	1 meter (3.3 ft)
<b>PC Connection Length</b>	1-3 meter (3.3 – 9.8 ft), DB9 female connector
<b>Patient Leads</b>	6 Lead Cable (4 patient leads) 12 Lead Cable (10 patient leads)
<b>Case Material</b>	ABS Plastic
<b>Electrode Connections</b>	4 mm Banana plug with "tab" or "snap" connectors
<b>Electrode Labeling</b>	Abbreviations and colors to comply with either IEC or AAMI standards
<b>Display and Operating Console</b>	Dependent on PC (supplied by user)
<b>Gain/Sensitivity</b>	5, 10, 20 mm/mV
<b>Input Range</b>	±6mV
<b>Acquisition sample rate</b>	1000 samples per second (compressed to 500Hz with peak picking and averaging algorithm)
<b>Heart Rate Range</b>	20 bpm - 170 bpm
<b>Frequency Response</b>	0.05 to 175Hz ±3dB
<b>Defibrillator Protection</b>	Patient leads are isolated from system and operator, with 4kV protection
<b>Common Mode Rejection</b>	-60dB (minimum)
<b>Safety Standards</b>	Complies with AAMI EC11, EN60601-1, EN60601-1-2, and EN60601-2-25
<b>Leads Off Indicators</b>	Connection status for each lead is shown on Acquisition screen
<b>Power Source</b>	Can be powered by the PC Serial port control lines in most cases, depending on the PC being used. Can draw extra power if necessary from a PC PS/2 port
<b>Supply Voltage</b>	4 – 16V DC
<b>Supply Current</b>	<17mA DC
<b>Permanent Filters</b>	High Pass: 0.05Hz 1st order Low Pass: 170Hz 1st order Baseline Wander: Baseline reset by adaptive zeroing algorithm
<b>Notch filter (Mains Noise Rejection)</b>	50Hz 4th order Butterworth, 49.1Hz - 50.9Hz, 60Hz 4th order Butterworth, 59.1Hz - 60.9Hz
<b>Low pass (Muscle Artifact Filter)</b>	35Hz 4th order
<b>Report Capabilities</b>	User selectable Report formats
<b>Environmental Conditions</b>	Operating Temperature: 0 to 40° C (32 to 104° F) Storage Temperature: -20 to 70° C (-4 to 158° F) Humidity < 85% (non-condensing)



- Extremely portable and easy to carry around from one patient's room to another
- Drop-resistant from up to 3 feet
- Large, integrated touch-screen that doesn't promote eye strain
- Allows for battery replacement without turning of computer
- Reduces medical staff administrative workload and potential medical errors

## Increase Clinical Productivity

A slim, lightweight Tablet PC with revolutionary Intel® Health technology and exceptional mobile performance just right for healthcare environment.

## RT10 Tablet PC Mobile Clinical Assistant (MCA)

The RT10 is a slim, lightweight Tablet PC is the perfect medical mobile solution that lets doctors and nurses stay current with up to the minute patient records and documents – resulting in improved patient care and reducing the potential medical errors.

- Intel® Pineview-M CPU N450 1.66GHz, FSB 667 MHz
- 10.4" XGA (1024x768 pixels) LED Backlight TFT LCD with touch screen panel
- Fanless, sealed and Water-Resistant (IP-54 standard)
- Standard 2 Mega-Pixel Camera
- Standard Wireless LAN 802.11a/b/g/n
- Integrated RFID reader, Integrated Barcode Scanner, 3G Wireless (factory options)
- Dual hot-swappable battery (up to 4.5 hours of operation time)
- Drop-resistant up to 3 feet
- Light-weight design (starting at only 3.3 lbs)



# RT10

EarthWalk recommends Windows XP Tablet OS

## Tough Features

Drop Resistance	26 drops of 48 inches to 2"plywood over concrete with unit off and using SSD as data storage.2 units to pass. Mil Std 810G-516.6, Procedure IV
Spill Resistance	Mil Std 810G-506.5, Procedure II. (Unit is not operating IPX5)
Shock Resistance	Non-Operating SINE WAVE Vibration: 6Hz~500Hz 2.62Grms, 30mins/axis, 3axes, 30 minutes per axis Operating Random Vibration:Power Spectral Density ranges = 0.00001 to 0.01 G <sup>2</sup> /Hz, Frequency ranges = 1 to 200Hz. Overall GRMS = 0.52. 90 minutes in all three axes, 270 minutes total. Unit is operating, and disk accessing.
Dust Resistance	International Standard IEC 60529, IP5X

## System Specifications

Processor	Intel® Pineview-M CPU N450 1.66 GHz, FSB 667MHz
System Memory	SO-DIMM Socket for 2GB DDR -800 FSB (1200-4200 rpm) RAM Module
Storage	1.8" SATA HDD (5mm thickness)Optional SATA SSD
Display	10.4" XGA (1024x768) LED backlight TFT LCD with touch screen panel (Optional Sunlight readable solution)
Chipset	ICH8-M
Audio	• HD Audio • Mic. Array for VOIP • One sealed speaker nominal power: 2W
Webcam	2 mega pixels resolution webcam
I/O Ports	• DC-in with rubber plug • USB/smart card reader • docking connector(contact pin type) • Optional Smart card reader + one USB port.
Wireless/Communications	One Express mini card for WLAN support CCX function (roaming) WLAN card support IEEE 802.11 a/b/g/n with 1x2 MIMO Internal Bluetooth module and Internal 3G module(option)
Power Supply	• AC power input:100V-240V,50Hz-60Hz, 65W, Output: 19V • Battery pack: Hot Swappable twin battery packs(total 53.28Watt)
Security	• Administrator password • TPM1.2 • Boot password • Finger Print Scanner(factory option)
Integrated options	RFID reader support ISO 14443A/B and 15693 1D/2D Barcode scanner with red ray scanning
Dimensions & Weight	260mm(W) x 263mm(D) x30~33.2mm(H) / 10.23"(W) x 10"(D) x 1.18"(H) Approximately 1.32Kg / 2.9lbs with one 3cell battery
Certification	CUL,FCC,CEI,CB,FCC ID,IC,TUV-GS(TBD)
Optional Docking Station	Host slot x1, USB 2.0 x 4, Power cord connector x 1, Battery charging bay x 2 RJ-45 jack for 10/100M Ethernet LAN x 1



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### Standard 3 year warranty

- The specification and pictures are subject to change without notice.
- All brand names are registered trademarks of their respective owners.
- Battery life may vary based on settings and usage.