

Spirometer *Product Bulletin*

The Lytec MD Spirometer by the Midmark Diagnostics Group gives you all the measurements that you require to provide an objective measurement of lung function in a paperless setting. The Lytec MD Spirometer allows you to measure obstruction and restriction within the lungs by measuring the volume of air that can be exhaled and inhaled from a resting position. You can use the data collected from the spirometry reading to show your patients the current physical condition of their lungs. Spirometry results are helpful in identifying most lung disorders such as asthma and COPD (Emphysema).

Since the Lytec MD Spirometer is PC based you can store and retrieve spirometry readings at the point of care, eliminating the need to store paper copies. The Digital Spirometer also provides a low cost of ownership because there are no moving parts that can break. It also eliminates the need for purchasing expensive thermal paper. Should you need a paper print out of the spirometry test, you can do so using ordinary printer paper.

Summary of Key Features and Benefits:

- **Integrated:** All Spirometer system features and functions are fully integrated with Lytec MD.
- **Paperless:** Spirometry readings are displayed and stored via the computer, reducing the need for printouts, filing, or scanning.
- **Improved Access & Quality of Care:** Historical spirometry readings can be viewed from any networked PC.
- **Trending:** View historical spirometry readings for a visual output of how a patient's pulmonary system is progressing.
- **Plain Paper:** When spirometry reports need to be printed, they can be printed on plain paper. With fax server software they can also be faxed directly from a PC.
- **Safe:** The Lytec MD Spirometer utilizes a Disposable Pneumotach Mouthpiece that minimizes the chance of patient cross-contamination.
- **Accurate:** Meets or exceeds the American Thoracic Society's Standardizations of Spirometry.
- **Reimbursable:** A basic spirometry test is reimbursable for about \$30. A pre-post spirometry test can be reimbursed for about \$60. Please note reimbursement will vary by region.

Questions about the Lytec MD Spirometer:

How does the Lytec MD Spirometer work?

Since the Lytec MD Spirometer is software based, it eliminates the traditional spirometry machine by essentially converting each Lytec MD PC into a Spirometer. To perform a spirometry test you simply open the spirometry icon on your workstation PC, prepare the patient for the spirometry test, and then take the readings.

Historical spirometry readings are stored on the main server and can be accessed at any workstation replacing the need for paper storage or scanning. In the event that a paper printout is required, one can simply use a networked printer and standard office paper.

How are the results saved?

Spirometry results are saved on the network server and can be accessed by any connected PC.

How much storage space do the stored spirometry tests require?

The spirometry files are extremely compact. The Digital Spirometer can store over 200,000 tests on 1 Gigabyte. This is equivalent to 10 tests a day, every day, for 50 years.

How does printing work?

Because the Digital Spirometer is a PC-based application, you can use your standard network printers.

What are the analysis parameters on a standard test?

The Digital Spirometer provides over 20 parameters including: FVC, FEV1, FVC/FEV1, PEF, FEV6 and FEF25-75.

Can I perform a full loop test?

Yes. The Spirometer mouthpiece is bi-directional and allows the user to inhale at the end of the expiration. This inhalation at the end creates the “loop” portion of the flow volume loop. No additional hardware or software is required to perform this test.

Does the Lytec MD Spirometer require calibration?

Yes. According to the American Thoracic Society, all spirometers must be calibrated daily. The Lytec MD Spirometer is quickly and easily calibrated using a 3-Liter Syringe.

What is included with the Lytec MD Spirometer?

The Lytec MD Spirometer can be purchased as a deluxe or standard package. The deluxe package includes:

- 1 IQmark™ Digital Spirometer
- 1 IQmark™ Digital Spirometer Software Package with Trending
- 1 IQmark™ Diagnostic Workstation - Patient Management Software
- 1 IQmark™ 3-Liter Calibration Syringe
- 1 10-pack Disposable Pneumotach Mouthpieces
- 1 10-pack Disposable Nose Clips
- 1 USB to Serial Port Adapter
- 1 4-pack AAA Batteries
- 1 Mouse Pad
- 1 Operation Manual
- 1 Quick Reference Guide

The standard version includes the same contents as the deluxe package minus the 3-Liter Calibration Syringe.

Are there any specific hardware or software requirements that I should be aware of?

Yes. For full integration, the Lytec MD Spirometer requires Lytec MD.

What is the price?

The Lytec MD Spirometer interface fee is \$500 per user.

Addendum

Acquiring ECG/Spirometry over Thin Client Environments:

The ECG and Spirometer are inherently real-time applications. They need to acquire real-time diagnostic data from ECG modules or Spirometer handles through the computer's serial ports or USB ports. Running ECG or Spirometer on thin clients requires serial port mapping. USB ECG or USB Spirometer currently does not work on thin clients because there is no USB redirection available.

What are the hardware and software requirements to acquire ECG/Spiro readings via thin client?

To acquire an ECG/Spirometer via a thin client connection you must be using Lytec MD and have one of the following hardware combinations:

1. Using Terminal Server
 - Windows Server 2003
 - Windows XP workstation with Microsoft Remote Desktop Protocol (RDP). Please note that you can use Windows 95/98/ME/2000 workstations, however you will have to download the appropriate RDP client from the Microsoft website at www.microsoft.com/windowsxp/downloads/tools/rdclientdl.mspx. The difference is that Windows XP comes with the RDP client already installed whereas Windows 95/98/ME/2000 workstations require that the RDP client be downloaded and installed. The client software is called Remote Desktop Connection.
 - A serial version of the Midmark device

If you are using Windows 2000 or NT server you cannot acquire an ECG via terminal services. This is because neither Windows 2000 nor NT server allows serial port mapping. Currently only Windows Server 2003 allows for serial port mapping.

2. Using Citrix
 - Citrix server on a Windows 2003/2000/NT Server
 - Citrix client on a Windows XP/2000/98/ME workstation
 - A serial version of the Midmark device

Do I have to acquire ECG or spirometry readings through a thin client environment?

No. You do not have to set up a thin client connection to acquire ECGs or spirometry readings from Lytec MD. As with most practices, you can use a fat-client connection to acquire ECGs or spirometry readings. The thin client connection model is simply another option for Lytec MD users.

I use Terminal Services (Windows NT/2000 server), but I want to start acquiring ECG and spirometry readings via thin client. How can I do that?

If you are currently using terminal services with Windows NT/2000 server and would like to use the thin client option to acquire ECG and spirometry readings, you have one of two options:

1. You can upgrade the server to Windows Server 2003. This will give you the ability to map a serial port for your Midmark devices. Please note that if you upgrade from Windows 2000 server to Windows 2003 server, you may have to purchase additional Terminal Services licenses. Previously Windows 2000 server would use the client access license of Windows 2000 or Windows XP professional. However, Windows 2003 server requires the purchase of client access licenses even when using Windows 2000 or XP Professional.
2. The second option is to use Citrix Server "on-top" of your current terminal services. You can do so using Windows NT/2000 without having to upgrade to Windows server 2003. Please note that this option will require the purchase of Citrix, which can be expensive for some smaller clinics.

My ECG/Spirometer has a USB Connection, but I want to start acquiring ECG and spirometry readings via thin client. What options do I have?

If you are using a Midmark device with a USB connection you cannot use the thin client option, even if you purchased a USB to serial adaptor. You can only acquire an ECG/Spirometry through a Midmark device with a serial connector.

Who do I contact to set-up my system to run Midmark devices through my thin client connection?

You can contact McKesson technical support for the appropriate documentation and assistance.

What else do I need to know about acquiring an ECG/Spirometry over a thin client connection?

Not all hardware devices (laptop/desktop/server) have a serial port connection, so it is important that the hardware you are connecting the ECG/Spirometer to has a serial port.

