VivoMetrics®
Government Services
MONITORING LIFE®

Base Station

Base Station USB RX

Table of Contents

Getting Started

To install USB Drivers and do the one-time set-up of the Base Station USB RX, please see the Set-Up Guide in this manual or the stand-alone version in your VivoResponder™ Kit.

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND

BASE STATION USB RX

DATA LOGGER

WARRANTY & DISCLAIMER

Base Station USB RX

The Base Station RX and the Sensor Module RX have a matching pair of radios inside of them: the Radiotronix Wi232.DTS

The Radiotronix Board

The Wi.232™ module combines a state-of-the art low power wireless transceiver with a powerful multipoint-to-multipoint protocol controller to form a transparent wireless communication solution capable of replacing wires in any RS-232/422/485 application. With a 120dB link budget and very low power operating modes, the Wi.232DTS™ module is excellent for AMR, RFID, Home Automation, and any other application requiring long range (<1500ft LOS) and long battery life.

More information and technical specs can be found at:

http://www.radiotronix.com/products/proddb.asp?ProdID=1

A PDF of the Wi232.DTS user manual can be found at:

http://www.radiotronix.com/datasheets/new/dts_um.pdf

Antennas: Specifications

Desired area of coverage determines the optimal antenna for your Base Station.

Antenna Range

All antenna are Line-of-Site (LOS) which means outdoors they are tested in optimal environments with no obstructions. Indoors there is a great deal of variation due to building characteristics:

A. Reflective surface such as glass, brick, concrete and linoleum will allow the radio signals to bounce and increase range.

B. Absorbing materials like wood, fabric, carpet and plaster will absorb the radio energy and decrease the range.

Antenna	Range
Plate Antenna	0-50 Yards
Whip Antenna	0-20 Yards

Antenna Descriptions

902-928 MHz 10.0dBi Plate Antenna

»   http://www.mars-antennas.com/ma_is91_t2c-sub.htm

916 MHz Whip Antenna

»   http://www.mouser.com/search/ProductDetail.
aspx?R=0600-00024virtualkey52610000virtualkey814-0600-
00024

Types of Antenna

VivoMetrics sells the following antennas for use with the LifeShirt300 System:

A. 12"x12" Plate Antenna with a 50-yard range LOS with no obstructions.

B. 7" Whip Antenna with a range of 20 yards LOS with no obstructions.
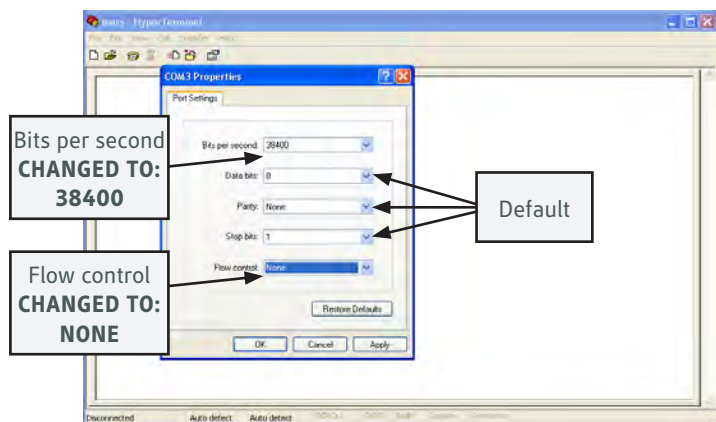

902-928 MHz 10.0dBi Plate Antenna

916 MHz 7" Whip Antenna

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND

BASE STATION
USB RX

DATA LOGGER

WARRANTY &
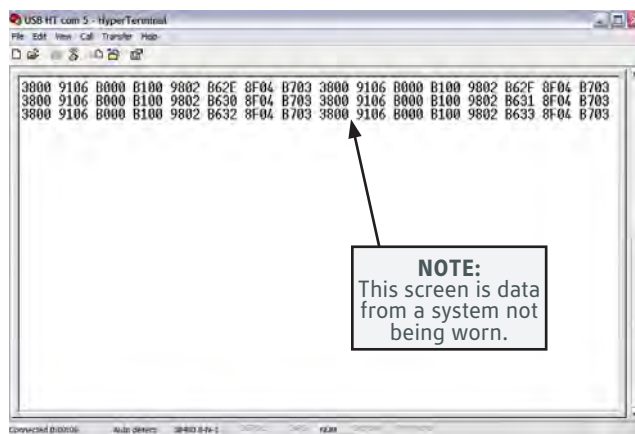DISCLAIMER

Troubleshooting

I Do Not See Any Vital Sign Data Streaming:

You can test your set-up using HyperTerminal.

1. Connect the VivoResponder™ Chest Strap to the Sensor Module. You do not have to wear the Chest Strap to complete the test.

2. Start HyperTerminal

    »   In Windows XP, click on Start / All Programs / Accessories / Communications / HyperTerminal

3. Create a new connection named Vivo300test

4. Using the Connect using drop down box, select the COM# used by the CP210x USB driver and click the **<OK>** button.

5. A pop-up window will appear. On the Port Settings tab, do the following:

    »   Change the Bits per second drop down box to 38400

    »   Data bits remains at default setting of 8

    »   Parity remains at default setting of None

    »   Stop bits remains at default setting of 1

    »   Change Flow control to None

    »   Click the **<OK>** button

6. You should see bursts of data every second within the HyperTerminal window as shown below:

NOTE:
This screen is data from a system not being worn.

7. Save the HyperTerminal connection to the Desktop.

8. If you do not see Data Burst call Customer Service.

9. If you do see Data Burst, then data is streaming into your COM port. Double check the port setting in VivoCommand. It this doesn't work, call Customer Service.

Customer Support:

Telephone: 800-631-4445 (inside U.S.A.)

                805-667-2225 (outside U.S.A.)

Fax: 805-667-6646

Email: help@vivometrics.com

Service

Your LifeShirt Base Station RX requires warranty or non-warranty service, please contact VivoMetrics Customer Support for a return authorization and shipping address. Disconnect all cables and pack all components carefully, using the original packing materials and the original shipping carton so they will not be damaged.

If you fax or email Customer Support, be sure to include your name and a contact phone number or email, and a complete description of the problem you encountered, including what you were doing and the piece of equipment that is not working properly.

Customer Support:

Telephone:	800-631-4445 (inside U.S.A.)
	805-667-2225 (outside U.S.A.)
Fax:	805-667-6646
Email:	help@vivometrics.com

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND

BASE STATION USB RX

DATA LOGGER

WARRANTY & DISCLAIMER

Data Logger

VivoMetrics Data Logger

The VivoMetrics Data Logger records the physiologic data collected during VivoResponder™ monitoring sessions. The data is displayed, saved, and exported using VivoCommand Software.

Data Logger

USB Cable to connect to PC

VivoMetrics Data Logger—Table of Contents

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND
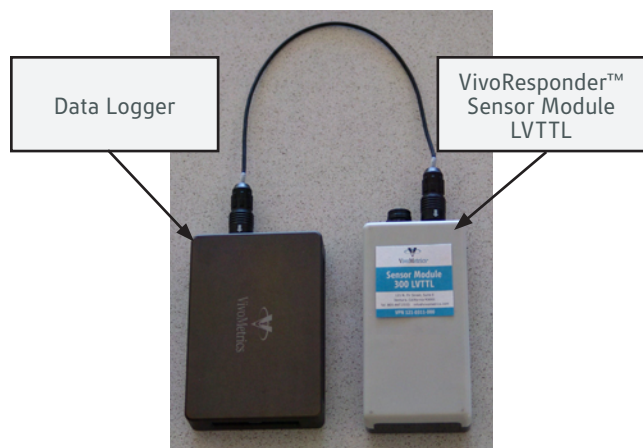
BASE STATION USB RX

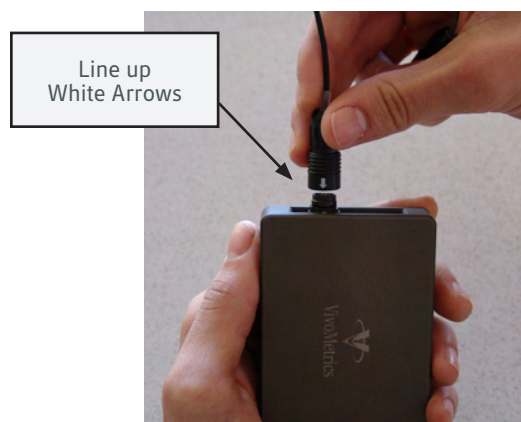DATA LOGGER

WARRANTY & DISCLAIMER

VivoMetrics Data Logger

Set-Up the Data Logger

Getting Started

1. The VivoMetrics Data Logger is used with a *VivoResponder*™ and a *VivoResponder*™ *Sensor Module LVTTL*.

2. Put on the VivoResponder™ strap, making sure it is properly worn and calibrated as described in the VivoResponder™ System Manual.

3. Plug the *LifeShirt* into the *Sensor Module* using the provided jumper cable.

4. Connect the *Data Logger* to the *Sensor Module* by lining up the white arrows on the connector cable as show.
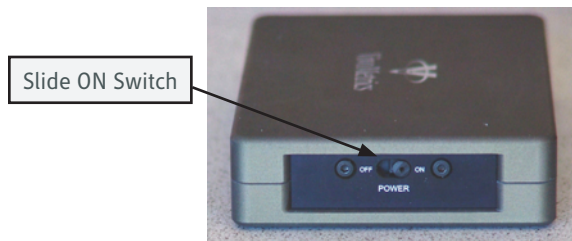

Connect the Data Logger to the Sensor Module.
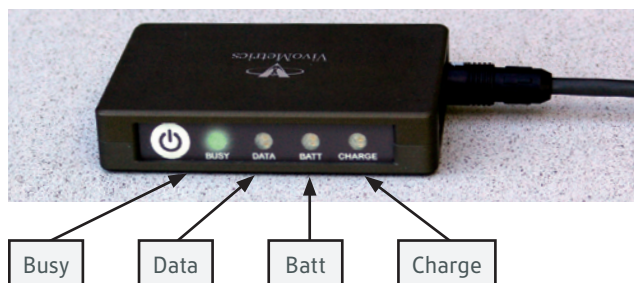

Line up the white arrows to connect the cable.

Record Data

Begin Recording

To start recording data, slide the *Data Logger* switch to the *ON* position.

All four LED lights—*BUSY, DATA, BATT,* and *CHARGE* will flash for one second while the Data Logger self-tests. The *Data Logger* will then beep once and the *BUSY* light will turn solid green.

During Recording

While the *Data Logger* is receiving and recording data, the *BUSY, DATA*, and *BATT* lights will flash green once every 16 seconds.

NOTE: If the VivoResponder™ is unplugged during the monitoring session, leave the Data Logger ON until the session is finished. The data will show these periods as flat trend lines.

Stop Recording

To stop recording, disconnect the Data Logger from the Sensor Module. The *BUSY* light will flash yellow every 5 seconds until the data has been copied onto a computer.

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND

BASE STATION USB RX

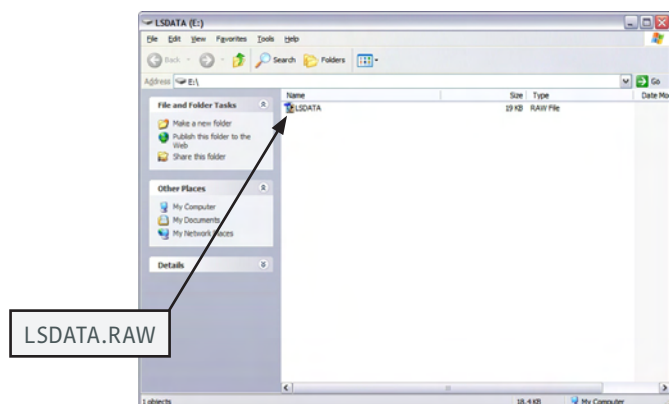DATA LOGGER

WARRANTY & DISCLAIMER

VivoMetrics Data Logger

Copy Data to Computer

Copy the recorded data from the *Data Logger* onto a PC:

1. On the computer, *create* a folder for the data file from the monitoring session (for example: Subject 001).

2. Using the USB cable provided, *connect* the Data Logger to a USB port on the PC.

3. On the computer desktop, the Data Logger will open a window just like a USB Thumb Drive.

NOTE: This may take up to two minutes the first time.

4. The Data Logger window will list one file named LSDATA.RAW as shown:

LSDATA.RAW

5. *Drag-and-drop* the LSDATA.RAW file into the folder you created. When the data file has been copied onto the computer, the Data Logger BUSY light will change from flashing yellow to flashing green.

NOTE: The data file will remain in the Data Logger and may be copied more than one time.

⚠ **CAUTION**: Do not save or drag any files into the Data Logger window as this may cause the Data Logger to malfunction and can corrupt the data.

⚠ **CAUTION**: The next time the Data Logger is used, the files will be overwritten. If they have not been copied, the data light will flash yellow.

6. To overwrite a non-saved file, hold on the button for three seconds.

Display Trends & Save Data

View The Data

1. *Launch* VivoCommand Software

2. Click **<Session>** and select *Load File*

3. Browse to the folder you created, select the LSDATA.RAW file, and click **<Open>**.

4. A pop-up window will open that says that the file is not in VivoCommand format. Click **<OK>**.

5. The data will then display graphically as a standard VivoCommand trend file and will be saved in a standard VivoCommand format and file name. (See the VivoCommand section in this manual)

Load Files

To learn how to load saved files, go to the VivoCommand Software section in this manual to: *Loading a Saved .URB or Data Logger File*

⚠ **CAUTION**: All Data Logger files are named LSDATA. RAW. To archive the original raw file, rename each file with a unique name or just use the saved .URB file.

Export .CSV File

To learn how to export data as a .CSV file, go to the VivoCommand Software section in this manual to: Exporting

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND

BASE STATION USB RX

DATA LOGGER

WARRANTY & DISCLAIMER

VivoMetrics Data Logger

Appendix A: Charging The Battery

When the Data Logger is connected to the computer via the USB cable, the Data Logger battery will charge automatically. While connected, the CHARGE light will be solid green. The BATT light will indicate the status of the battery charge:

» When the BATT light is yellow, the charge is incomplete.

» When the BATT light flashes green, the battery is 95% charged. The Data Logger is now ready for a new session.

» When the BATT light is solid green, the battery is 100% charged. This takes about 4 hours.

» When the BATT light is solid green, the battery is fully charged.

Data Logger fully charged

Appendix B: Led Lights

The Data Logger has four LED lights: **BUSY, DATA, BATT** and **CHARGE**.

Busy

The **BUSY** light indicates the Data Logger's status:

» Solid green: Data Logger has started up properly and is ready to record data.

» Flash green every 16 seconds: Data is being recorded.

» Flash green every 5 seconds: Data from the previous session has been copied onto a computer, and the Data Logger is ready for new data.

» Solid yellow: Data Logger is full; data must be copied onto a computer or overwritten before new data can be recorded.

» Flash yellow every 5 seconds: Session has ended but data has not yet been copied onto a computer.

» Rapid flash yellow: Data Logger contains data from a previous session that is ready to copy onto a computer. This light will continue to flash while the Data Logger is off.

Data

The DATA light indicates whether data is being received from the Sensor Module:

» Flash green every 16 seconds: Data Logger is receiving data from Sensor Module.

» Solid yellow: Data Logger is not receiving data from Sensor Module.

Batt

The BATTERY light indicates the status of the Data Logger internal battery.

While *recording data*:

» Flash green every 16 seconds: Battery is OK.
» Flash yellow every 16 seconds: Battery is getting low.
» Rapid flash yellow: Battery is almost empty.

While *charging*:

» Solid green: Charge is complete.
» Flash green: Charge is 95% complete.
» Solid yellow: Battery is not charged.

While Data Logger is *OFF*:

» Flash yellow every 100 seconds: Battery needs to be charged.

Charge

The CHARGE light indicates whether the battery is receiving voltage.

» Solid green: Battery is being charged.

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND

BASE STATION
USB RX

DATA LOGGER

WARRANTY &
DISCLAIMER

VivoMetrics Data Logger

Troubleshooting & FAQ's

If Data Logger beeps and BUSY light flashes yellow during set-up:

The Data Logger contains data from a previous session that has not been copied to a computer. To continue, EITHER copy the data to a computer OR overwrite the data without copying:

» To overwrite the data without copying it, hold down the ON button for three full seconds until the Data Logger beeps one time. CAUTION: This will erase all the existing data and you will not be able to retrieve it later.

» To copy the existing data to a computer as instructed, and then resume set-up.

If the Data Logger makes a long beep and the BUSY light turns solid yellow while recording:

The Data Logger is full. Copy the data onto a computer as instructed and then resume recording.

If the DATA light turns solid yellow while recording:

The Data Logger is not receiving data from the Sensor Module. Check the cable to make sure the Sensor Module and Data Logger are connected properly.

If the computer takes more than two minutes to recognize and display the Data Logger the first time it is connected:

Disconnect the USB cable and try again.

If the data does not display graphically when you open the file in VivoCommand:

The file is corrupted. Repeat the instructions to copy the data file onto the computer.

Service

If your VivoMetrics Data Logger requires warranty or non-warranty service, please contact VivoMetrics Customer Support for a return authorization and shipping address. Disconnect all cables and pack all components carefully, using the original packing materials and the original shipping carton so they will not be damaged.

If you fax or email Customer Support, be sure to include your name and a contact phone number or email, and a complete description of the problem you encountered, including what you were doing and the piece of equipment that is not working properly.

Customer Support: 800-631-4445 (inside U.S.)

805-667-2225 (outside U.S.)

Fax: 805-667-6646

Email address: help@vivometrics.com

Specifications

Dimensions

3.75" x 2.5" x .75"

Weight

6.6 oz.

Battery Life

3 Days

Data Card

Standard MiniSD

256 Megs can be upgraded

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND

BASE STATION USB RX

DATA LOGGER

WARRANTY & DISCLAIMER

Warranty
& Disclaimer

FCC Information

FCC Certification

This equipment has been tested and found to comply with the limits pursuant to Part 15.247 of the FCC Rules and RSS-210 of Industry Canada for operation at 915MHz.

FCC ID: UWVVivoResponder™RX

IC #: 6897A-VivoResponder™RX

Changes or modifications not expressly approved by VivoMetrics, Inc. could void the user's authority to operate the equipment.

FCC Declaration of Conformity

For the following named product :

VivoResponder™ US System

This device complies with Part 15 rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and

2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules and ICES-003. These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses, and radiates radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference.

Andrew Behar, COO

VivoMetrics, Inc.
121 N. Fir Street, Suite D
Ventura, CA 93001
805-667-2225
info@vivometrics.com
www.vivometrics.com/responder

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND

BASE STATION USB RX

DATA LOGGER

WARRANTY & DISCLAIMER

CE Declaration of Conformity

CE **CE Declaration of Conformity**

VivoMetrics, Inc.
121 N. Fir Street, Suite D
Ventura, CA 93001
805-667-2225
info@vivometrics.com
www.vivometrics.com/responder

Authorized by :

Andrew Behar, Chief Operating Officer
March 6, 2007
VivoMetrics, Inc.

We declare that the products below meet the essential health and safety requirements, are in conformity with and the CE Marking has been applied according to the relevant Directives listed below using the relevant section of the following standards and other normative documents;

Year of Issue:	2007
Applicable Directives:	• 99/5/EEC - RTT&E Directive - Radio equipment and the mutual recognition of their conformity*
	• 89/336/EEC - EMC Directive - Laws relating to Electromagnetic Compatibility
	• 73/23/EEC - Low Voltage Directive - Laws for electrical equipment within certain voltage limits
Applicable Standards:	• EN 55022:98; +A1:00 +A2:03 Limits and methods of measurement of radio disturbance characteristics of information technology equipment
	• EN 55024: +A1:01 +A2:03 Information technology equipment - Immunity characteristics - Limits and methods of measurement
	• EN 301 489-01 V1.6.1 Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
	• EN 301 489-03 V1.4.1 Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz
	• EN 300 220-2 V2.1.1 Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW
	• EN 61010-1:01 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use.

* Applicable to intentional radiators only where noted below.

NOTE:

1. The Safety compliance described is only for the equipment listed in this declaration. When this equipment is installed in a system, the end-user is responsible to ensure the Safety compliance of the overall system.

2. This equipment must be installed and used in accordance with all the "conditions of use" described in the user Manual.

3. Do not modify or expand this equipment without official permission and direction of VivoMetrics, Inc.

4. Failure to follow any of these requirements makes this declaration invalid.

Declared Model Numbers:

Base No.   Option
VivoResponder™Rx-EU   VivoResponder™ European Radio System operating at 868.9MHz

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND

BASE STATION USB RX

DATA LOGGER

WARRANTY & DISCLAIMER

Warranty & Disclaimer

Limited 90-day Warranty

VivoMetrics, Inc. warrants to the original consumer/purchaser that this product will be free from defects in material or workmanship for 90 days from the date of purchase.

- » Warranty does not cover damages due to misuse, abuse, accidents or negligence of the precautions; improper maintenance, cracked or broken cases.

- » Warranty does not cover damage or consequential damage caused by service not authorized by VivoMetrics, Inc.

During this warranty period (90 days), the product will be either repaired or replaced (at your distributor's option) without a charge.

Disclaimer

The material in this manual is for informational purposes only. The products it describes are subject to change without prior notice due to manufacturer's continuous development programs.

VivoMetrics, Inc. makes no representations or warranties with respect to this manual or with respect to the products described herein. VivoMetrics, Inc. shall not be liable for any damages, direct or incidental, consequential or special, arising out of or related to the use of this manual or the products described herein.

The information contained in this manual is subject to change without notice. VivoMetrics makes no commitment to update or keep current the information contained in this manual. The only product warranty intended by VivoMetrics is the express, written warranty accompanying the bill of sale to the original purchaser. VivoMetrics makes no other warranty, express or implied, and in particular, makes no warranty of merchantability or fitness for any particular purpose.

VivoMetrics is in compliance with Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (ROHS) and assures customers that there is no lead, mercury, cadmium, hexavalent chromium and brominated flame retardants (polybrominated biphenyls, PBB) or polybrominated diphenylethers (PBDE) used in LifeShirt products.

VivoMetrics is also in compliance with Directive 2002/96/EC on waste electrical and electronic equipment (WEEE). These measures are designed to tackle the fast increasing waste stream of electrical and electronic equipment and complements European Union measures on landfill and incineration of waste. To this end, VivoMetrics will be responsible for taking back and recycling electrical and electronic equipment at end-of-life. Customers will be able to return their equipment free of charge to VivoMetrics by contacting Customer Service.

The VivoResponder™ System is designed to help responders and athletes improve their performance by increasing their awareness of physiologic intensity, recovery, and fitness, and their understanding of the relationship between strenuous activity and physiology.

No other use is intended or implied.

Exercise and exertion may include some risk, especially for those who have been sedentary.

Before starting a regular exercise program or sustained exertion an individual is recommended to answer to the following questions for health status. If the answer is yes to any of the questions, we recommend to consult a doctor before starting an exercise program.

- Have you not exercised for the past 5 years?
- Do you have high blood pressure?
- Do you have high blood cholesterol?
- Do you have symptoms of any disease?
- Are you taking any blood pressure or heart medication?
- Do you have a history of breathing problems?
- Are you recovering from a serious illness or medical treatment?
- Do you use a pacemaker or another implanted electronic device?
- Do you smoke?
- Are you pregnant?

Note that in addition to exercise intensity, medications for heart, blood pressure, psyche, asthma, breathing etc. as well as some energy drinks, alcohol and nicotine, can affect heart rate.

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND

BASE STATION USB RX

DATA LOGGER

WARRANTY & DISCLAIMER

Warranty & Disclaimer

It is important to be sensitive to your body's reactions during exercise and exertion. If you feel unexpected pain or tiredness regarding your exercise intensity level, it is recommended to stop the exercise or continue at a lighter intensity.

Notice to persons with pacemakers, defibrillator or other implanted electronic device. Persons who have a pacemaker use the VivoResponder™ monitor at their own risk. Before starting use, we always recommend an exercise test under doctor's supervision. The test is to ensure the safety and reliability of the simultaneous use of the pacemaker and the heart rate monitor.

If you are allergic to any substance that comes into contact with the skin or if you suspect an allergic reaction due to using the product, check the listed materials in the "Technical Specifications" chapter.

The VivoResponder™ System is designed to help first responders improve their performance by increasing their awareness of physiologic intensity, recovery, and fitness, and their understanding of the relationship between strenuous activity and physiology.

No other use is intended or implied.

Copyright © 2006 VivoMetrics, Inc., Ventura, CA, U.S.

Additional hard copies of this manual can be obtained from VivoMetrics by addressing your request to:

VivoMetrics, Inc.
121 North Fir Street, Suite D
Ventura, CA 93001
Telephone: 800-631-4445 (inside the U.S.A.)
                    805-667-2225 (outside the U.S.A.)
Fax: 805-667-6646
Web: www.vivometrics.com

SET-UP GUIDE

VIVORESPONDER™

VIVOCOMMAND

BASE STATION USB RX

DATA LOGGER

WARRANTY & DISCLAIMER

VivoMetrics®
Government Services

MONITORING LIFE®

VivoMetrics, Inc.

121 N. Fir Street, Suite D

Ventura, CA 93001

805-667-2225

info@vivometrics.com

www.vivometrics.com/responder