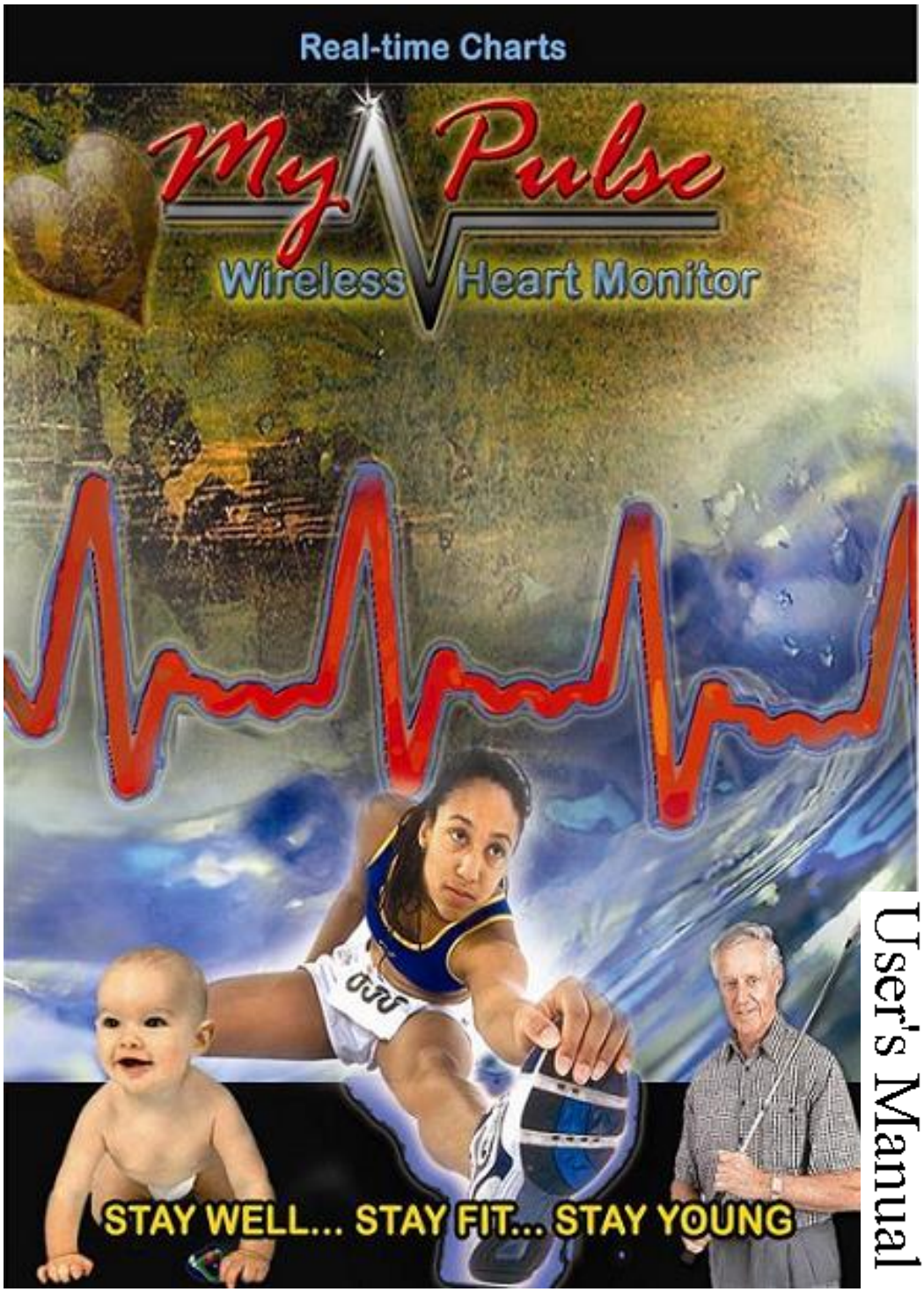


User's Manual

Video instructions at **www.MyPulseMonitor.com** & on product DVD

Computer-powered

Wireless

Ultra-intelligent Real-time

Monitor

(CWURM)

Version 2014.9
Patent no. 6897773

This manual & video instructions are on the product DVD. For the latest version please visit our website at www.MyPulseMonitor.com.

Table of Contents

Safety Information

• Before using this monitor, read all instructions in this manual, product labels and warnings; loose leaf instructions for the chest strap sensor/transmitter; as well as all instructions for any peripheral devices that the monitor is connected to, such as a computer and computer related peripheral devices such as a power supply, printer and telephone.

• Use only the voltage for which the AC adapter is rated. Excess voltage may result in fire and electrical shock.

• If your hands are wet, do not touch the AC adapter as doing so may result in electric shock.

• In case of a damaged power cord (internal wiring exposed or shorted), contact your original dealer to purchase a replacement cord. A damaged power cord may result in fire and electric shock.

• If the AC adapter will be unused for a long time, unplug it. Always grasp the AC adapter. Avoid pulling the power cord as that can cause damage, fire and electrical shock.

• Do not subject the monitor to large amounts of humidity or dust, as that may result in fire and electrical shock.

• Do not place the monitor on an unstable or tilted surface as it may fall, resulting in damage or personal injury.

• Always dispose of a MyPulse WearLink belt ‘used battery’ according to government regulations.

• Under no circumstances should the Long Range Receiver, Repeater or Short Range Receiver be opened, taken apart, or modified in any way. Any such action may result in fire and electrical shock. If the rechargeable battery in the repeater is worn out, contact your original dealer to purchase a replacement battery. The dealer will install the battery.

• If the monitor is emitting smoke or a strange odor, turn it off immediately and unplug the AC adapter from the wall outlet. Contact your original dealer to request servicing.

Computer-Powered Wireless
Ultra-Intelligent Real-Time Monitor
This monitor is a reference device.

General User Information

MyPulse is a multifunction vital signs monitor suitable and convenient for use in private homes, gymnasiums, sports, nursing homes and hospitals. It is a high performance, mobile and fully integrated heart monitoring system to help in the analysis of fitness and performance for the average active person.

Unlike other heart monitoring devices that only detect high or low values in heart rate, MyPulse provides a comprehensive method for reading and interpreting data. It monitors and reports heart rate activity in excess of user-specified limits, as well as irregular heart rate fluctuations (by calculating the frequency of changes in the user's heart rate). MyPulse defaults to average norms depending on the user's age and sex (reference 7,8). It also automatically customizes to each individual user after collecting data for only a short period of operating time. The information is displayed in real time, which facilitates rapid observation of abnormal conditions so that corrective action can be taken immediately. Archived data (1 year) may be reviewed for cardiac rehabilitation.

The short range monitor has a range of 3 feet. The bluetooth mid range monitor has a range of 33 feet, extendable with an android smart phone to anywhere there is internet service. The long range monitor has a range of 1000 feet. They are safe for children. The chest strap is a welcome alternative to skin irritating gels and wires. Each wireless monitor provides continuous up to date charts and graduated sound and full screen color alarms, as well as a worldwide telephone/email alarm. The user or caregiver decides when to take action, so there are no false alarms.

Professional Edition User Information

A smart phone will extend the mid range monitor to anywhere that the phone has internet access, and add GPS coordinates. A single computer can be used to create a multiple user integrated Nurse's Station or Physical Trainer's Station. User administrative data are encrypted and stored along with historical charts. Charts are separated into internal biological effects and external environmental effects, in terms of actual values and standard deviations, to speed up and improve data analysis. A spectral analysis of any desired transformation of any segment of 24 hour beat to beat and inter-beat data is easily produced. MyPulse is easy to use and ideal for use at a medical establishment, gymnasium or at home. Due to very low frequency {5kHz} and short range {3feet}, interference with other equipment in a hospital or gymnasium is easily avoided (references 1,2,3,4,5,6).

Refer to section titled Applications for more information on monitoring.

Installing the MyPulse Heart Monitoring Software.

NOTE: Turn off popup blocker and virus protection. Install MyPulse. After installation is complete, add MyPulse.exe to the list of acceptable programs.

NOTE: System Requirements. Before proceeding verify the following minimum operating system, speed and RAM memory requirements for your computer.

Operating system: Windows XP, Vista, Windows 7
RAM: 256 Mega Bytes.
Speed: 500MHz.

Insert the Heart Monitoring Software DVD into your computer's DVD-ROM / DVD-ROM drive.

The MyPulse Software Setup Wizard will launch automatically. If not double-click the desktop 'My Computer' icon, double-click the DVD ROM drive icon, and double-click on the Setup.exe icon. Follow the Setup Wizard's installation instructions. The default folder where the software program will be installed is MyPulse. The installer will ask you to insert the short range or long range receiver at the appropriate time. Otherwise, the windows device manager may be used to install the receiver. The mid range bluetooth sensor/transmitter are installed by Windows Control panel/Add a device.

If MyPulse is reinstalled, for example during an upgrade to a new version, all user settings from the previous version are retained.

NOTE: The DVD ROM drive contains USB drivers that are required for the short range and long range MyPulse receivers. The setup wizard will copy the drivers to the installation folder MyPulse. This will allow you to install additional receivers without the DVD.

In case of the Bluetooth mid range monitor, if a smart phone is used to collect and transmit gps coordinates and data to the computer, then in addition to the MyPulse computer software, MyPulse smart phone must be downloaded from www.MyPulseMonitor.com and installed on the phone. The DropBox APP must be downloaded and installed on the computer.

Installing the MyPulse Heart Monitoring Hardware

1. Installing the short range or long range MyPulse Heart Monitoring Hardware on your computer
In order to install the MyPulse Heart Monitoring device, you must have an available USB Port.

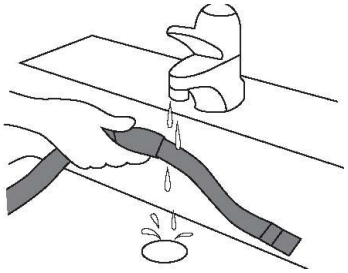
Insert the USB Cable that is connected to the MyPulse Receiver into an available USB Port on your computer, as shown in the diagram below.

Short range receiver (no antenna) **must be at least 1 foot away the computer.** Long range receiver (with antenna) may touch computer.

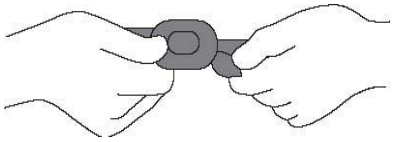
If the receiver is not yet installed, the windows device manager will appear on the screen, and will automatically locate and install the receiver device drivers that are located on the MyPulse installation DVD and in the installation folder MyPulse. Click next.

2 - Installing the MyPulse Hardware on the Person to be Monitored
Follow the instructions below that pertain to the MyPulse Heart Rate Sensor/Transmitter Model (WearLink or Bluetooth) you are using. Only one of these two is required.

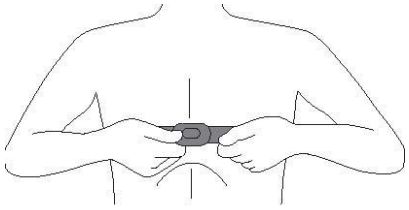
MyPulse WearLink™ Heart Rate Sensor/Transmitter (CE 0537):



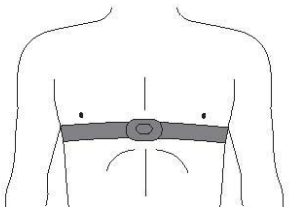
a. Wet the left and right electrode areas of the strap under running water and make sure they are well moistened. Squeeze the water in so it does not just run off like it will on a new strap. Use electrode gel if planning to be sedentary or for sleep monitoring.



b. Attach one end the Sensor/Transmitter connector to the chest strap connector and snap the fasteners in place, as shown on the right.



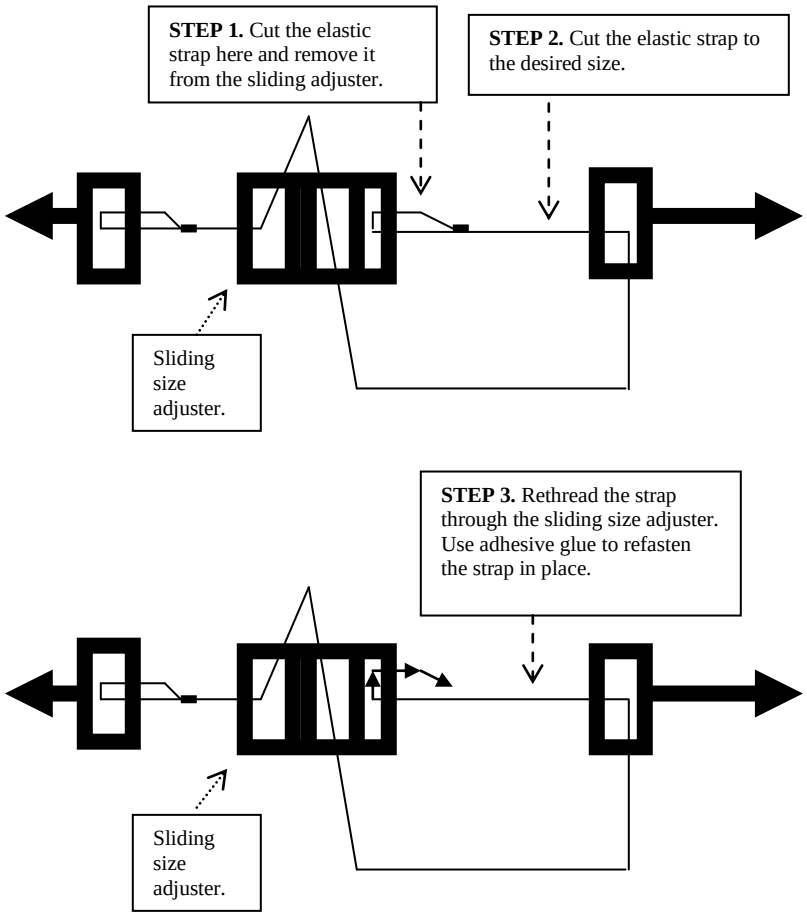
c. Adjust the strap length to fit snugly and comfortably. Secure the strap around your chest, just below or over the chest muscles for men, and below or over the breasts for women (over the chest muscles or breasts may give better contact when lying down), and snap in the second fastener.



d. Check that the two electrode areas are firmly against your skin and that the MyPulse logo of the connector is in a central, upright position.

This turns it on.

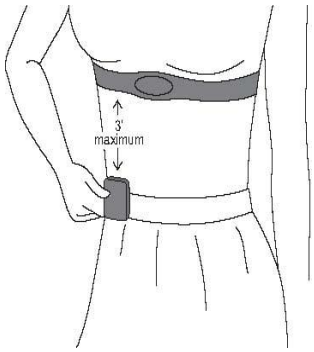
Extra Small Strap. If your chest size is not the standard Medium - Large or Small, then it is Extra Small. Extra Small is a non standard size. Therefore, the elastic portion of the strap must be cut to the size that you require. Follow steps 1, 2 and 3 in the diagram below.



If the sensor/transmitter is a bluetooth transmitter, skip to step 5 below.

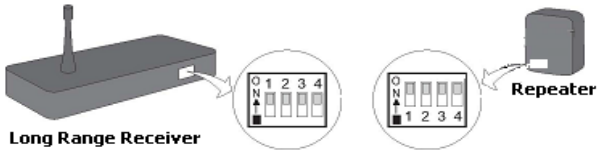
NOTE: The following step is only necessary when using the Long Range MyPulse hardware configuration.

e. Attach the MyPulse Signal Repeater within 3 feet of the MyPulse Heart Rate Sensor/Transmitter, to an area such as your belt, waistline, or pocket, as shown to the right. The repeater may also be placed under your mattress, recharged and operated normally while you sleep, so that monitoring is non-stop.



3 - Setting The Frequency Switches (Long range monitor only)

The MyPulse Signal Repeater and MyPulse Receiver use wireless technology (radio waves) to transmit information. Therefore, it is essential that they are set to the same radio wave frequency. As shown in the diagram below, set the frequency switches on the MyPulse Signal Repeater and MyPulse Receiver to the same positions. Here, they are all in the down (OFF) position on both devices.



For further information on frequency settings, refer to Appendix B.

4 - Charging the MyPulse Repeater

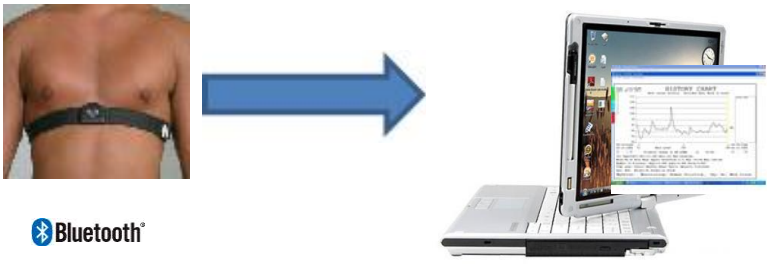
The MyPulse Repeater is equipped with a rechargeable battery. It must be fully charged before first use. It is recharged by connection to the provided A/C Adapter, which is plugged into an electrical wall outlet. While recharging, the LED indicator light blinks rapidly. When fully charged, the LED light remains on. The first full charge will be achieved in 5-7 hours if the Repeater is turned ON (fast charge mode). Subsequent fast recharges may require as little as one

hour. It will slow charge (about 24 hours) when the repeater is turned OFF. The repeater operates normally while it is being recharged. When it is disconnected from the charger, and is outside the range of the chest strap, the LED will blink once every 5 seconds. When placed within 3 feet of the chest strap, it will blink once for every heartbeat. A full battery will last about 48 hours. Never leave the battery in a discharged state, as doing so, will damage it. A damaged battery will not hold charge. Always charge it fully before storing.

5 - Installing the MyPulse bluetooth Heart Rate Sensor/Transmitter (FCC ID: QOQWT12):

a. Charging the MyPulse bluetooth Heart Rate Sensor/Transmitter Plug the charger into a usb port and the sensor/transmitter into the charger. The green LED indicates the charger is connected to a power source. The red LED indicates that the sensor/transmitter is charging. The red light will turn off when it is fully charged. Expect 90% charge in 1hour, 100% charge in 3 hours. A fully charged new battery will last about 26 hours.

b. Direct mid range computer communications: Wet the chest strap electrodes thoroughly, then placed them firmly against your skin, adjusting the strap length for comfort. Use electrode gel if planning to be sedentary or for sleep monitoring. Clip the sensor/transmitter to the chest strap with the MyPulse logo in a central upright position. This turns it on. ***The first time you wear the sensor/transmitter, click Windows Control panel/Add a device to add the sensor/transmitter. The sensor/transmitter pairing code is 1234. View Devices & Printers then Right click the new HxM heart monitor icon and click properties then services. Note the OUTGOING serial port COM number. You will need it to customize the MyPulse computer software.***



C. **Smart phone indirect global communications:** If a smart phone is to be used to collect and transmit data and gps coordinates to the computer (for the Smart Phone APP go to MyPulseMonitor.com and click Downloads), then move at least 33 feet away from the computer to get out of Bluetooth range. Wet the chest strap electrodes thoroughly, then placed them firmly against your skin, adjusting the strap length for comfort. Use electrode gel if planning to be sedentary or for sleep monitoring. Clip the sensor/transmitter to the chest strap with the MyPulse logo in a central upright position. This turns it on. ***The first time you wear the sensor/transmitter, enable the smart phone Bluetooth and make it visible. Pair the sensor/transmitter to the smart phone. The sensor/transmitter pairing code is 1234.***

NOTE. Only one option: **b) direct communications with the computer** or **c) indirect communication with the computer via the smart phone** may be chosen. Consider choosing Method 'b' initially as it may simpler. Method 'c' can be chosen next.

6 - Deactivating Screen and Computer Power-Saving features (Required)

Prior to using the MyPulse Monitor, it is required that you turn off your computer's screen saver, and all power-save options, such as Sleep Mode and Hibernate Mode. Set the sleep option to NEVER. Set the lap top close lid option to DO NOTHING. Failure to do so will cause MyPulse to stop operating, including all alarm functions, if and when the computer enters sleep mode. Furthermore, the usb ports will be turned off requiring that the computer be restarted. Also, turn off all other systems and programs that are unrelated to and/or not required by the MyPulse monitor.

For details on this step refer to Appendix D.

Launching, Utilizing, and Customizing MyPulse Software

Important First Steps

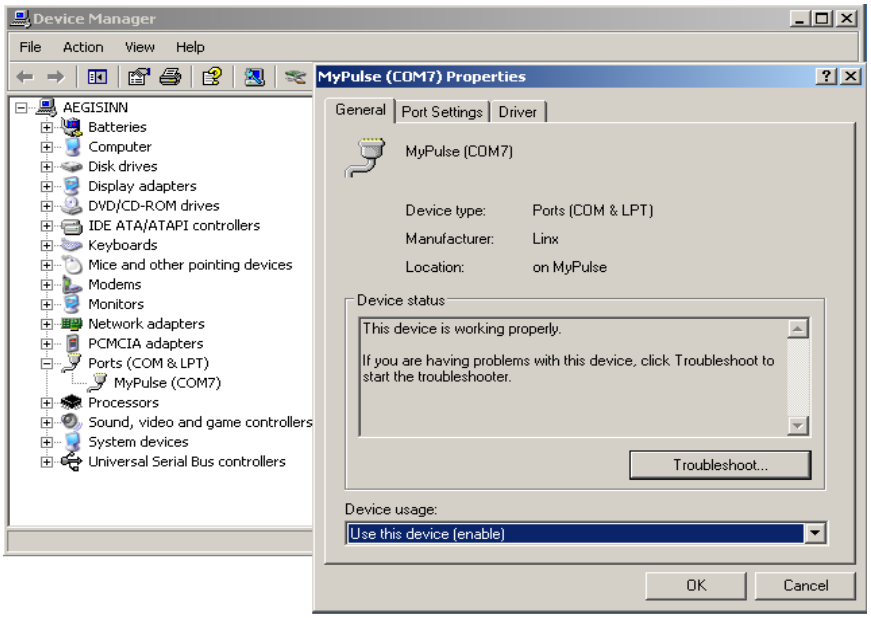
The following are WindowsXP screens. For Windows 7, click on the Start button then Devices and Printers**.**

1 -Identify the USB COM Port to which the MyPulse receiver is connected:

- Double-click on Display Device Manager icon (shown to the right).

- Scroll down and double-click on Ports (COM & LPT). Double-click on USB Serial Port (COM#) for details.

- Make a note of the USB Port (7 in this example) to which the MyPulse receiver is connected (if necessary, unplug and plug in the receiver). Use a printed number sticker to mark the receiver with the COM port number. You will need it to customize the monitor as explained in the next section.

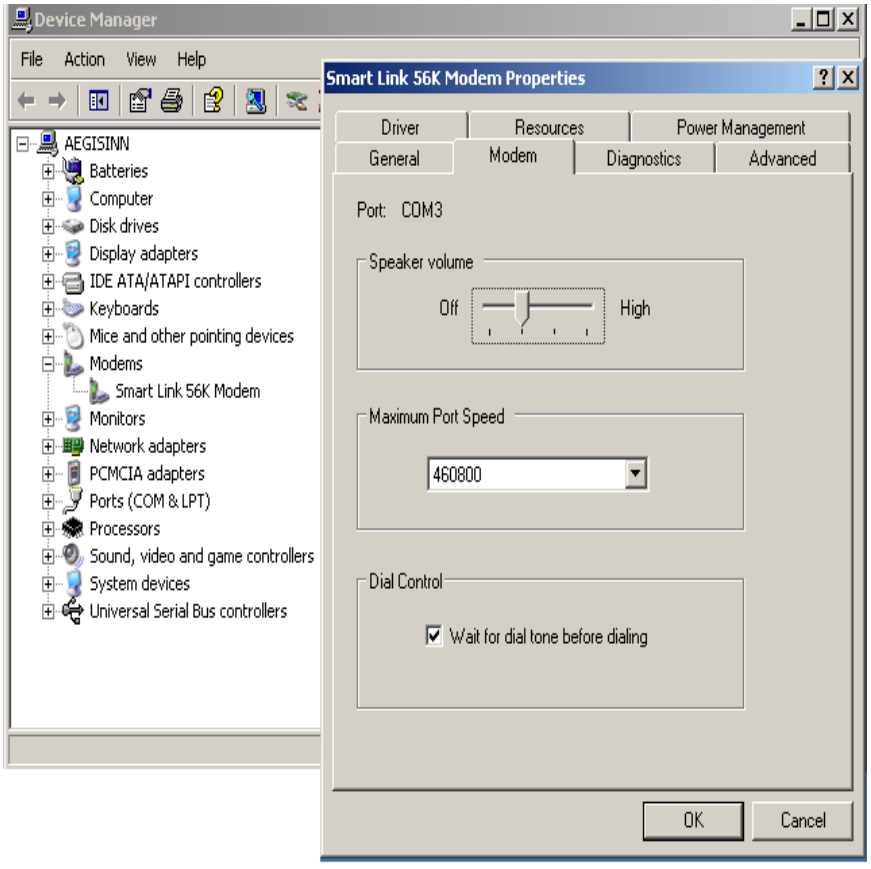


2 -Identify the Modem COM Port to which your modem is connected:

- Double-click on Display Device Manager icon (shown to the right) .

- Scroll down and Double-click on Modems. Double-click on the listed modem.

- Make a note of the Modem Port COM number (3 in this example) to which the telephone line is connected. You will need it to customize the monitor as explained in the next section.



Launching MyPulse

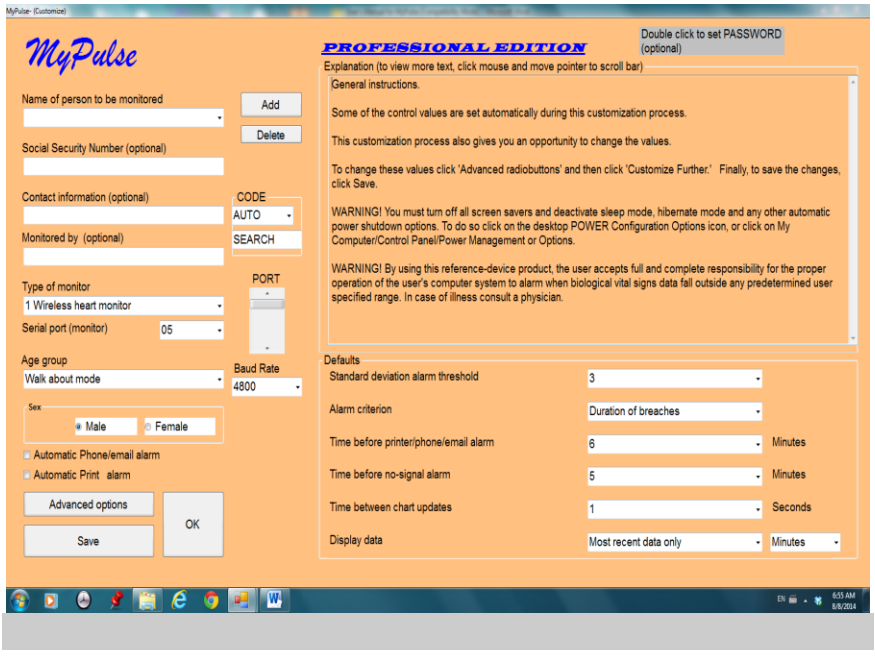
Double-click on the MyPulse Monitor program icon on your desktop. Alternatively, click on the windows task bar Start/All Programs/MyPulse/MyPulse. If this is the first launch, the program will start and take you directly to the Customize Screen.

Utilizing MyPulse

There are three main processes to learn when utilizing the MyPulse Heart Monitoring Software. They are: 1) Customizing the MyPulse Monitor, 2) Starting the MyPulse Heart Rate Monitor and 3) Reporting. These are described in detail below.

3 - Customizing MyPulse

Each user must have a unique profile set up before using the MyPulse Monitor. The steps for creating each profile are as follows. On the Main Menu Screen, click *Customize*. This will take you to the user-profile customization screen.



NOTE: Unless otherwise specified, all data fields require an entry.

i. **Set Password** (*Optiona*l)– Near the top-right corner of this screen, you will see Set Password. If you double-click on *Set Password*, a screen will open in which you can set a password that will restrict access to the custom settings and to all encrypted client names and data.

NOTE: If you no longer want password protection, set the password to 'no'.

ii. **Name of Person Being Monitored** – If you plan to monitor a previous user, open the drop-down menu (Professional Edition) and click on that person's name. If you are entering a new user, type the user's name into the appropriate field and click *Add*. The name you choose will appear on all output text and charts.

iii. **Social Security Number** – Enter the user's social security number in this field. This information is strictly used as a unique identifier for each user.

iv. **Contact information** (*Optiona*l) – Enter the user's address and telephone number.

v. **Caregiver** (*Optiona*l) – In this field enter the name of the caregiver or supervisor of the person being monitored (user). This person's name will appear on all output text and charts.

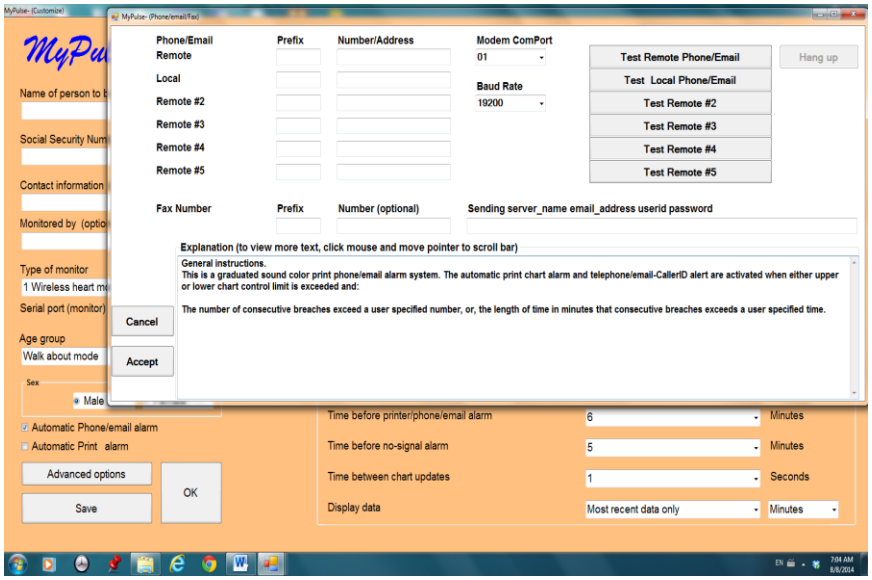
vi. **Type of Monitor** – In this field, select '1 Wireless Heart Monitor' from the drop down menu. This identifies the type of monitor being used. If the sensor/transmitter has a fixed code that is known, it may be used to identify it, otherwise use the MyPulse automatic search feature.

vii. **USB Serial COMport (monitor)** – In this field, specify the number assigned to your computer's USB COM Port where the MyPulse Monitor is connected. (See instructions in section 1 above). In case of the Bluetooth mid range/global range monitor, if a smart phone is used to collect and transmit data and gps coordinates to the computer, select *SmartPhone*. In addition to the MyPulse computer software, MyPulse smart phone must be downloaded from www.MyPulseMonitor.com and installed on the phone. The SmartPhone APP 'Name' of person to be monitored must be identical to the name in ii above. The DropBox APP must be downloaded and installed on the computer.

viii. **Age Group** – In this field, select the age group of the person being monitored. Normal pulse rates vary depending on age and sex. The MyPulse software contains pre-selected default settings for each age range and sex. These pre-selected choices are for a person who is at rest, sitting down, or sleeping. If the person being monitored will be walking around or exercising, their pulse will normally rise far above their resting pulse rate. In this case, select Walk About Mode from the dropdown menu. This will prevent excessive false alarms from occurring. The lower pulse limit will be set to 50 bpm, but there will be no effective upper limit. An alarm will still be activated if there is a sudden, large increase or decrease in pulse rate (greater than the preset limits on the standard deviation chart.)
For further information on pre-selected default settings, refer to Appendix C.

ix. **Sex** – Select the sex of the person being monitored.

x. **Automatic Phone/email Alarm** (Advanced & Professional editions) Check this box to activate a feature which automatically sounds a local voice alarm and dials user-specified phone numbers in the event that any chart for the person being monitored turns red. The phone/email alarm will continue to ring until the charts are no longer red. Once this box is checked, a new screen will open, requesting information for options a through i below.



IMPORTANT NOTE: In order for the Automatic Phone Alarm to operate, your computer must have a modem with an assigned COM Port (see g below), and an active telephone line. A cell phone can also be used as modem. Email requires an internet connection. See warning regarding modem use.

a. Remote Phone/email– Number will be dialed and email text message and data sent if any chart remains red (due to no-connection, or due to heart activity in excess of the user-specified limits) for a user-specified period of time (See Time Before Printer/Telephone/email Alarm on Customize screen.) It may be used to notify a relative, friend, neighbor, or service provider at a remote location. If number/email are omitted, all remote and local telephone/email alarms will be deactivated.

b. Test Remote Phone/email – This button is used to test the Remote Telephone connection. It will dial the user-specified Remote phone number and send email message (no data). These instructions also apply to the (o*ptiona*l *phone/email*) buttons labeled "Test Remote #2, #3, #4, #5 Phone/email."

c. Local Phone/email – This number will be dialed (only one complete ring)/email message sent (no data) if any chart becomes red (due to no-connection, or due to heart activity in excess of the user-specified limits) for any amount of time. It may be used to notify the person being monitored and who may have traveled outside the listening or viewing range of the computer. For example, this could be the number/email address of the cell phone that the user carries.

NOTE: You must enter a Remote Phone number or email address in order for local or additional remote Phone/email to be activated.

d. Test Local Phone/email – This button is used to test the Local Telephone/email connection. It will dial/send email to the user-specified Local phone number/email address.

Remote #2 Phone/address will also accept the name of a batch file (Example: AutoDialer.bat) to be executed when MyPulse alarms. The batch file must be created by the user and placed in the MyPulse folder. It must contain the command line for a user supplied automatic dialing and message announcement program (c:\folder name\automatic dialing program name).

e. Hang Up – This button is used to end or disconnect any test call.

NOTE: Each phone/email test above is conclusive when the recipient of the phone call/email responds. To verify that the phone resets correctly, hang up and repeat test. Also, test them while the monitor is operational.

f. Fax Number (*Optional*) – This number is for record keeping only. Faxes are not sent automatically. A Care giver / Supervisor, or a service provider may manually copy charts, dynamically while the monitor is operational, paste the charts into a word processing document and fax the document using the fax facility provided by the word processor.

g. Modem COM Port – In this menu, select the Modem COM Port to which your modem is connected. Please be sure to select the correct COM Port for the modem you would like to use.

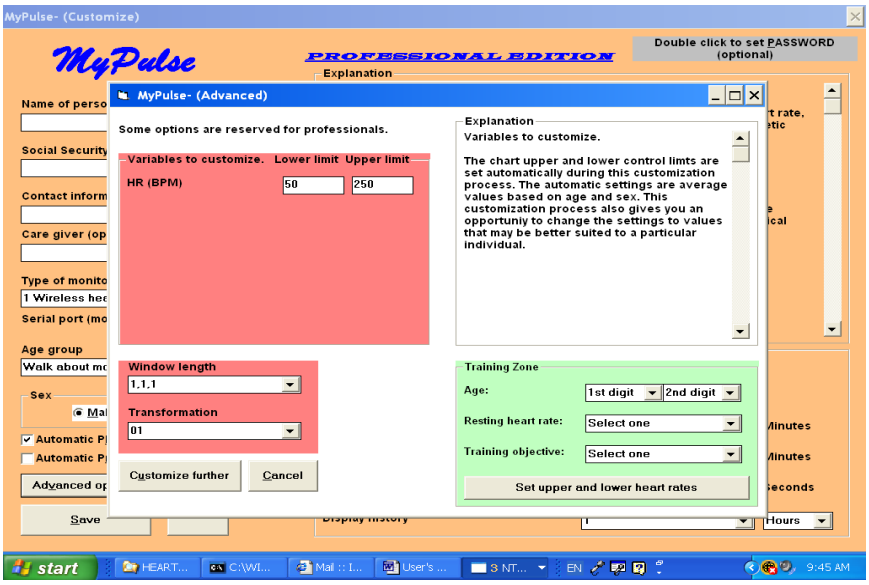
h. Baud Rate – In this menu, select your telephone's Baud rate. If you do not know the baud rate, consult your telephone provider's user manual, or contact your telephone provider for details.

i. Sending email address (optional) – A server name and sending address is required if a receiving address is included in any of the above Phone/Address fields. A Care giver / Supervisor may also copy charts, dynamically while the monitor is operational, paste the charts into a word processing document and email the document using the email facility provided by the word processor.

xi. **Automatic Print Alarm** (Advanced & Professional editions) – Similar to the *Automatic Phone/email Alarm*, this feature automatically prints charts in the event that the charts of the person being monitored becomes red. The print alarm will only be activated if the user's charts have been red for longer than five minutes. The charts will be printed only once.

xii. **Advanced Options** – Some advanced options are reserved for professionals with expertise in the variables being monitored, and/or professionals with expertise in mathematical models.

Click on the *Advanced Options* button, and a new window will open, giving you the following options.



a. Variables to Customize – This customization process allows you the opportunity to change the upper and lower control settings independently. To set the alarm for the chart of actual values, enter the lower & upper absolute limits for the variables listed (you should see only "HR (BPM)").

b. Window Length – This feature can be used to improve data analysis when the data contains cycles. It is set equal to the longest cycle in the data. If the length of the longest cycle is unknown, the program can be directed to select the best value from a set of different values. (See explanation on screen for more details.)

c. Transformations – The following differencing, power, and antithetic transformation options are available to improve data analysis. For further information on Window Length and Transformations, please see references (3, 4, 5).

01 = No transformation
0* = No differencing + power + no antithetic
0a = No differencing + no power + antithetic
0A = No differencing + power + antithetic
11 = Differencing + no power + no antithetic
1* = Differencing + power + no antithetic
1a = Differencing + no power + antithetic
1A = Differencing + power + antithetic

d. Training Zone – enter your Age, Resting heart rate, and Training objective (Regular, Fat burning, Athletic performance, or Maximum effort).

Once you have the settings configured properly, click on *Customize Further* to accept these settings.

xiii. **Code –** The transmission code options are as follows.

AUTOMATIC search: Select AUTOmatic search to let MyPulse search for and discover the code number of the sensor/transmitter or repeater. This procedure must be used when the sensor/transmitter or repeater does not have a fixed code, but generates a new random code each time the sensor is used. This procedure must also be used when the sensor/transmitter or repeater code is fixed but not known. Refer to the section 'Starting the MyPulse Heart Rate Monitor' for additional information on 'Simultaneous Monitoring of Multiple Users.'

If the repeater is marked with a unique 8 digit serial code number:

Select R+T and enter the repeater code number to search for the sensor/transmitter + repeater codes. This is useful if monitoring two or more individuals to whom repeaters have been uniquely assigned. They can be identified even if their sensor/transmitter codes are the same.

Select R and enter the repeater code to lock onto the repeater only, and ignore the sensor/transmitter code.

Select T to lock onto the transmitter, and ignore the repeater code. This permits someone to be monitored by means of two or more repeaters that have been placed at different locations more than 10 feet apart.

NOTE: Receiver serial numbers are unrelated to the transmission code. In a multi-user environment, heart monitors (chest straps, repeaters & short range receivers) must never be transferred between users while they are being monitored. This could cause the charts of different users to be reassigned incorrectly.

xiv. **PORT** – Scroll bar displays the database of persons being monitored.

xv. **Baud Rate –** Select the baud rate for the type of monitor as follows.
Before April 2008, baud rate = 4800 for all monitors.
After April 2008, baud rate = 1200 for all short range monitors.
If a long range monitor repeater is unmarked, the baud rate = 4800.
If the long range monitor repeater is marked with an 8 digit code number, then the baud rate is determined from the first digit as follows.

First digit	Baud Rate	First digit	Baud Rate	First digit	Baud Rate	First digit	Baud Rate
1	300	3	1200	5	4800	7	19200
2	600	4	2400	6	9600	8	28800

The bluetooth mid range monitor baud rate =115200.

xvi. **Standard Deviation Alarm Threshold** – Use this menu to select your desired standard deviation threshold. The automatic sound and color alarms are activated when the MyPulse Monitor is running and there is a relatively sudden change in any heart rate that is greater than the specified standard deviation threshold. This information is shown on the standardized chart, and is based on relative heart rate change – which means that it automatically customizes to the individual being monitored, regardless of age or sex. **For further information on standard deviation, refer to Appendix A.**

xvii. **Alarm Criterion** – Use this field to select the criteria by which you want the alarm to initiate. You will have the following options:

a. Number of Breaches – This selection identifies the number of times either the upper or lower control limit of a chart is exceeded.

NOTE: If you select Number of Breaches as your alarm criteria, you must specify your desired number of breaches in the No. of Breaches Before Phone/email Alarm field. If the number of breaches is five or less, only the telephone/email alarm will be activated. If the number of breaches exceeds five, the print alarm will be activated as well.

b. Duration of Breaches – This selection identifies the length of time that either the upper or lower control limit is exceeded.

NOTE: If you select Duration of Breaches as your alarm criterion, you must specify your desired time before the alarm is activated by selecting a time period in the Time Before Printer/Telephone/email Alarm Field. If the duration of consecutive breaches is five minutes or less, only the telephone/email alarm will be activated. If the duration of consecutive breaches exceeds five minutes, the print alarm will be activated.

xviii. Time Before Printer/Phone/email Alarm – In this field, select the number of minutes you want the MyPulse System to allow a breach to occur before it activates the Print Alarm or Phone/email Alarm. Keep in mind that the Print and Phone/email Alarms must first be enabled in order to be activated.

xix. Time before no-signal alarm – If no data are received for about this period of time, the chart will turn red and the local phone/email caller/ID alarm is initiated. If more than one person is being monitored (professional version), this time is increased automatically. If the no-signal alarm persists for about 10 minutes (cannot be changed), the remote phone/email callerID alarm is initiated. The no-signal time before the remote alarm is set to 10 times the cube root of the number of persons being monitored.

xx. Time Between Chart Updates – In this field, enter the viewing time (1 to 10 seconds per chart) between which the charts are to be updated. The data will be collected as changes occur, and held in memory for periodic updating of the chart.

xxi. Display Time – This field allows the user to increase or decrease the charting observation interval, in either minutes or hours.

NOTE: A short display time will result in a more responsive chart and alarm system. A long display time will result in a less responsive chart and alarm system.

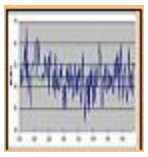
Once all Customize settings are correct, click *Save*, then *OK* to exit the Customize Screen.

4 - Starting MyPulse

There are two methods you can use to start the MyPulse Heart Monitor. They are:

a. On the Main Menu Screen toolbar, click *Start Monitor*. In the drop-down menu, click *Start Monitor* (MyPulse).

b. **Shortcut** – On the Main Menu Screen, click the icon shown to the right.



Either one of these methods will take you to the start menu (*shown below*), prompting you to select your charts and starting mode.

IMPORTANT NOTE: Before proceeding, you must select the appropriate user and settings in the Customize Menu. If you have already done so, you may proceed.

You may select from the following options.

i. **Selecting the Charts to be Displayed**

There are four chart types to select from, as well as several dual-chart options (displays more than one chart on the screen). They are explained below.

Single Chart Options:

a. **Real-time Chart** – This is a simple chart containing actual heart rate data.

b. **Standard Deviation Chart** – This chart depicts the heart rate data in terms of standard deviations. It detects changes in the data that are sudden and unusual, when compared to earlier changes.

c. **Special Cause Chart** (Professional Edition) – This chart type depicts random effects, such as irregular pulse rates, or brain wave fluctuations due to external environmental stimulation.

d. **Common Cause Chart** (Professional Edition) – This chart type depicts systematic effects, such as systematic internal biological changes in heart rate.

Dual-Chart Options (Professional Edition)**:**

e. **Real-time & Special Cause**(Professional Edition) – This option will display both a Real-time Chart and a Special Cause Chart on one screen.

f. **Real-time & Common Cause** (Professional Edition) – This option will display both a Real-time Chart and a Common Cause Chart on one screen.

g. **Special Cause & Common Cause** (Professional Edition) – This option will display both a Special Cause Chart and a Common Cause Chart on one screen.

IMPORTANT NOTE: The MyPulse heart monitoring system reads heart rate data from a remote device worn by the user being monitored, and sends alerts via print (if selected) and telephone (if selected) to user-specified destinations when the user's heart rate activity or standard deviation threshold are in excess of user-specified limits. These "excesses" are referred to as breaches. If the user's heart rate activity or standard deviation thresholds exceed these user-specified limits, the chart color on your screen will change as follows:

1. Blue – This occurs after the software detects one breach.

2. Yellow – This occurs after the software detects two consecutive breaches.

3. Red – This occurs after the software detects three consecutive breaches.*

*If the print and phone/email alarm have been selected, they will be activated after the chart color remains red for a user-specified length of time (refer to *Time Before Printer / Telephone/email Alarm* above).

Once activated, the phone/email alarm will continue to ring until the chart is no longer red, or the alarm is reset via user intervention. (The alarm may be stopped and reset by clicking STOP on the *Main Menu Screen*.)

ii. **Selecting the Starting Mode**

There are three Starting Mode selection options, listed below.

a. **Create New Chart** – If this is selected, new charts will be created and updated continuously.

b. **Resume** – If the monitor is running, but must be stopped for any reason, you may select this option to resume monitoring from the previous stopping point.

c. **Restore** – If 'Create New Chart' is inadvertently selected, and the monitor is started, you may recover by stopping the monitor, selecting 'Restore', and starting the monitor once again.

Noise Filter

The noise filter eliminates any incoming data value that is different from the immediately preceding data value by the percentage specified.

Listen to data Check this box to hear beep when a data value is received.

Multiple Start See simultaneous monitoring of multiple users below.

Click ***Continue*** to accept your selections and start the monitor.

IMPORTANT NOTE: The first time you attempt to start the MyPulse Heart Monitor after installation, a customer code will appear on the screen and you will be prompted for an activation code (one time only). The software will not work without it. In order to obtain the activation code via e-mail, do the following:

1. Establish an internet connection & visit our website.
2. Click on 'Contact us.' Complete the email form.
Enter your customer code (and the bar code number if printed on the MyPulse container box, and the number of monitors), in the comment field. Click send.
3.The activation code will be sent to you by return email.

IMPORTANT NOTE: If you are paying for the monitor in installments, you will receive a temporary activation code. This code will expire in an allotted time if full payment is not received as agreed.

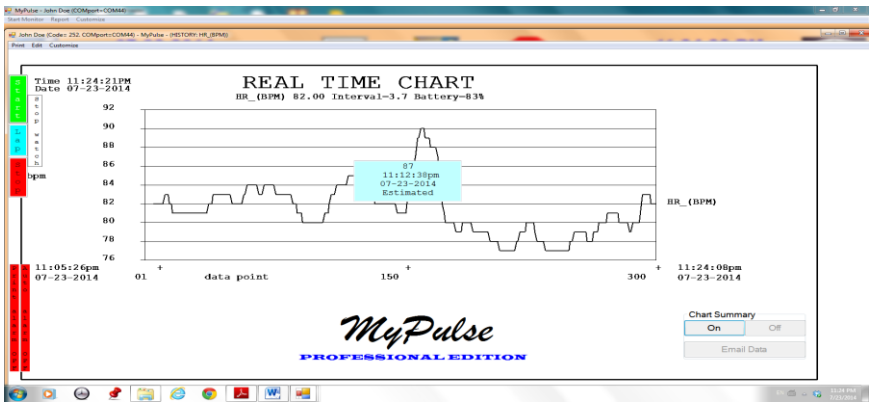
If you do not have an e-mail connection, contact us by telephone or mail and request your MyPulse software activation code.

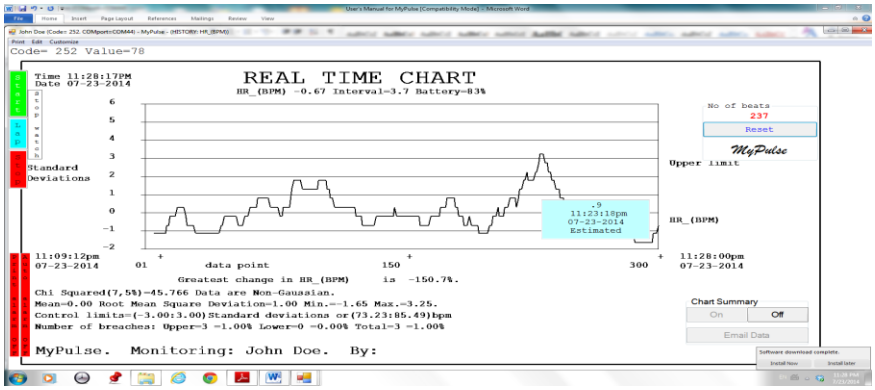
Once you receive the activation code, enter it. The monitor will begin searching for the coded signal being sent from the coded transmitter (only a coded transmitter must be used). The **short range** user must always stay within 3 feet of the receiver. The **mid range** (Bluetooth) user must always stay within 33 feet of the receiver. There are two **long range** options. If the sensor/transmitter or repeater has a fixed code that is known and was entered in the customize screen, then the wearer may be detected from a distance, otherwise the automatic search feature must be used as follows. The user must start out close to the receiver (with the repeater turned on 1ft from the computer), but can travel up to 1000 feet away after the charts appear on the computer screen. Once the signal is detected, no other signal with a different code will be accepted. The **global range** (Bluetooth) user with a smart phone may be anywhere that there is access to the internet.

NOTE: If the non-bluetooth chest strap is removed for more than 10 seconds, the code will change. The monitor will no longer recognize it. In that case the monitor must be restarted.

The charts will appear next. Of the many charts available, two are shown below. The standardized chart is the same as the real-time chart, except that it is rescaled in terms of standard deviations. The real-time and standardized charts shown below are for different time periods.

Continuous Updating (Note that the windows "X" button is disabled to prevent accidental stopping of the monitor) The charts will be updated continuously as new incoming data are received. To temporarily pause updating, so as to read a chart, or email data to a care giver/supervisor, double-click the top of the window to maximize it. To resume updating, double-click the top of the window to restore it. MyPulse will automatically resume updating after approximately one minute.





Stop watch functions. At any time, click on *Start*, *Lap* or *Stop* to write *'Start event,' 'Lap number'* or *'Stop event'* into the historical data records. The data will be divided accordingly.

iii. **Simultaneous Monitoring of Multiple Users** (Professional Edition) – The MyPulse Heart Monitoring System can be utilized in a multi-user environment, and has the capacity to simultaneously monitor several users. The number of users that can be monitored on one computer is, however, limited to your computer's available system resources (due to the high level of processing) and number of available USB Ports. Below are instructions for monitoring 2 or more users simultaneously.

Short range monitors. Each monitor must be used with it's own receiver, connected to a separate USB COMport and spaced at least 3 feet apart.

Mid range monitors share a common Bluetooth receiver. Each monitor is paired to a different serial COMport.
Global range monitors use separate Bluetooth smart phones to receive the data and extend the monitoring range to anywhere that there is access to the internet. Each monitor is paired to its smart phone.

Long range monitors may share a common receiver and COMport. However, if only one receiver is installed and the number of monitors is excessive, they will interfere with each other. In that case interference can be reduced by adding more receivers and operating them at different frequencies. Verify that the light on the repeater is on and flashing.

Coded Repeater (8 digit code marked on the repeater)
If the repeater is coded (best), then the persons to be monitored can be anywhere (within 1000ft). If all repeaters are coded, the persons to be monitored can all be moving around while their monitors are started simultaneously. The repeater codes must be entered in the customize screen (click on main menu *customize*) prior to starting the monitors.

Non-coded Repeater (no 8 digit code on the repeater)
Make sure that the transmission code detected by the computer is for the correct sensor/transmitter and no other sensor/transmitter that could be in use within the transmission range of the receiver. Do this by starting the monitor while the user is close to the receiver, and is wearing the sensor/transmitter. This will give the wearer of the sensor/transmitter priority in the event that there is another transmitter operating at the same frequency and within the range of the receiver. When starting a new monitor, all monitors that are already running may be left on. However, only one new monitor at a time can be started. Therefore, the monitor that you are starting must be the only new one turned on. All other monitors not yet started must be turned off.

Individual Starts (necessary for non-coded repeaters)

a. Launch the MyPulse Program by double-clicking the *MyPulse Program* icon on your desktop.

b. Enter the *Customize Menu* by clicking *Customiz*e.

c. Select the first user to be monitored.

d. Click *Save*, then click *OK.*

e. On the *Main Menu* Screen, click *Start Monitor* then *Continue*. The MyPulse Program will begin monitoring User #1.

f. Minimize the MyPulse Program application and the user's chart.

g. Launch a second application (Professional Edition) of the MyPulse Program by double-clicking the *MyPulse Program* icon on your desktop.

h. Enter the *Customize Menu* by clicking *Customize*.

i. Select the second user to be monitored.

j. Click *Save*, then click *OK.*

k. On the *Main Menu Screen*, click *Start Monitor* then *Continue*. The MyPulse Program will begin monitoring User #2.

l. Minimize the MyPulse Program application and the user's chart.

NOTE: Each chest strap (sensor/transmitter) is coded. If a message appears stating that the transmission code you are searching for is already being used by the first monitor, you must change the code before continuing (this will not arise with coded repeaters or bluetooth sensors). If the chest strap is non-bluetooth, the code may be changed by raising the front part of the strap (the electrodes) off the skin for at least 10 seconds, then replacing it.

The center console (Nurse's station or Physical Trainer's station) contains a list of the persons being monitored as shown below.

To monitor additional users (Professional Edition), simply repeat the steps listed above. All persons being monitored must be at least 3 feet apart. The names of additional users will be added to the above center console.

Simultaneous Starts (possible for coded repeaters).
You may also use the *Multiple Start* ADD name feature to create a list of names to be monitored and start their monitors simultaneously.

At any time, any user's chart may be restored for normal viewing. Under normal conditions the user charts will remain minimized. However, if there is a loss of signal or if a telephone/email alarm is initiated, the related user chart will automatically be restored for viewing.

iv. **Stopping the MyPulse Monitor** (Note that the windows "X" button is disabled to prevent accidental stopping of the monitor)– To stop the monitor, restore the main Monitor Window application program screen that contains the STOP icon shown on the right. If more than one monitor is running, select the window by the name of the person being monitored. Minimize (click on -) the window that contains the charts so as to expose the main Monitor Screen and the STOP icon.

Next, click on the Stop icon (shown on the right.)

You will be prompted to select whether or not you want to terminate the monitor.

- If you select *Yes*, the monitor will terminate, ending the session, and you will be prompted to select whether or not you want to exit the MyPulse program.

  • If you select *Yes*, the MyPulse program will exit.

- If you select *No*, you will be returned to the *Main Menu Screen*.

- If you select *No* (to not terminate the monitor), the monitor will continue to run, and you will be returned to the *Main Menu Screen*.

5 – Reporting (Advanced & Professional editions)

There are two methods you can use to enter the MyPulse *Report Menu Screen*. They are explained below.

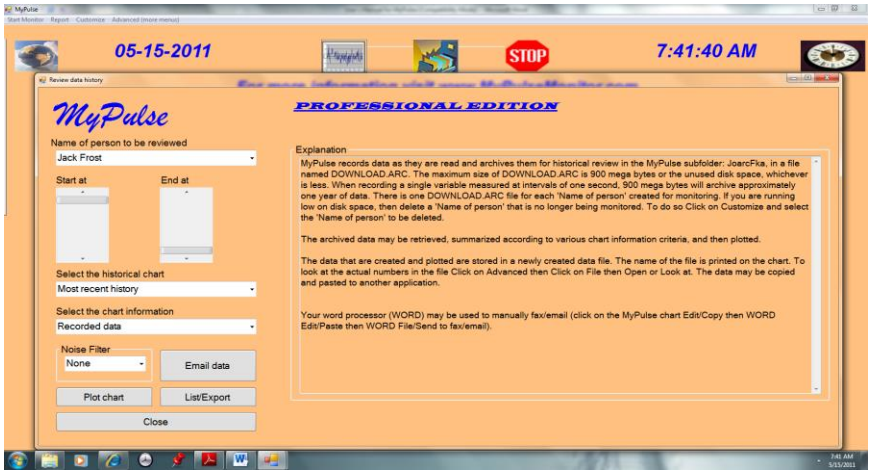
a. On the *Main Menu Screen*, click *Report*. In the drop-down menu, click *Review Data History*.

b. **Shortcut** – On the *Main Menu Screen*, click the icon shown on the right.

Either one of these methods will take you to the *Report Menu (shown below).*

i. **Name of Person to be Reviewed**

Open the drop down menu box. If you just started MyPulse, you will see all the names of persons that were entered from the customize menu (see customizing the MyPulse monitor). If you were monitoring a person and just stopped the monitor, the drop down menu will show only the person who you were monitoring. In that case the name must be changed using the customize menu. In either case, click the name of the person to be monitored.



ii. **Selecting the historical data to be reviewed**.

a. Start at

Use the vertical scroll bar labeled *start at* to select the starting position and date of the data to be reviewed.

b. End at

Use the vertical scroll bar labeled *end at* to select the ending position and date of the data to be reviewed.

iii. **Select the historical chart.**

Open the drop down menu box. The listed options are defined as follows:

a. Most recent history.
Contains the most recent data values read and recorded by the monitor.

b. Minutely history.
Data are aggregated and summarized into intervals of one minute each.

c. 5 Minutely history
Data are aggregated and summarized into intervals of five minutes each.

d. Hourly history.
Data are aggregated and summarized into intervals of one hour each.

e. Daily history.
Data are aggregated and summarized into intervals of one day each.

For 'a,' select: 'Recorded data', or 'Time between records' (this represents interbeat time in the case when each record corresponds to a heartbeat).
For 'b-e,' select: Average, Maximum or Minimum values.

Noise Filter The noise filter excludes any recorded data value that is different from the immediately preceding data value by the percentage specified.

iv. **Plot chart**
Click on *Plot* to create a chart of the data selected.

v. **List/Export**
Click on *List* to display the data selected. The list also shows when remote phone/email alarms were initiated.

vi. Email data
Click on *Email* to send the data selected to a Care giver/Supervisor.

vii. **Close**
Click on *Close* to end reporting and return to the main menu.

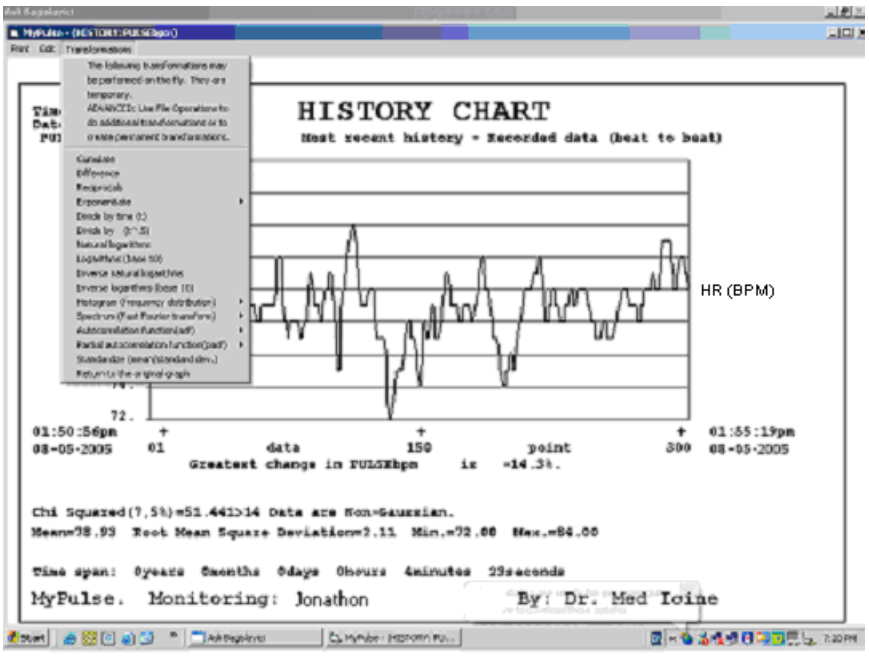
6 -Advanced (More Menus) (Professional Edition)
Some advanced menu options are reserved for professionals with expertise in the variables being monitored, and/or professionals with expertise in mathematical models.

The monitor archives data at the same time that they are being charted, for up to one year. The advanced menus permit additional analysis of the historical data. By using the report menu to select and plot historical data, any desired transformation of any segment of 24 hour beat to beat and inter-beat data is easily produced. For example, to display an inter-beat chart (time between beats in milliseconds), plot the chart then select the *Reciprocals* transformation.

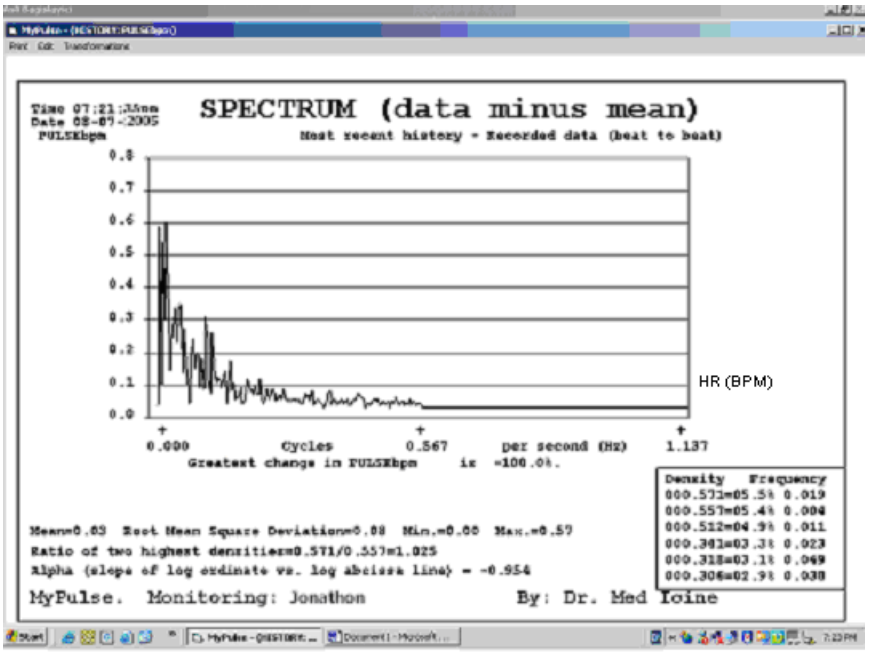
While the chart is displayed, click on *Transformations* and select any one of the following:

Cumulate, Difference, Reciprocals, Exponentiate,
Divide by time (t), Divide by (t^.5),
Natural logarithms, Logarithms (base 10),
Inverse natural logarithms, Inverse logarithms (base 10),
Histogram (frequency distribution)
Spectrum (Fast Fourier transform),
Autocorrelation function (acf), Partial autocorrelation function (pacf),
Standardize (mean/standard deviation).

Refer to the following two charts for an example, and to reference 9 for heart rate analysis and applications, reported by the Task Force of the European Society of Cardiology & the North American Society of Pacing Electrophysiology. **For more information visit our website.**



For example if *Spectrum (Fast Fourier transform)* is selected:



Each chart contains summary data and indices to assist in its interpretation.

To reconstruct the model that is used to separate the data into common cause and special cause charts, click on the main menu *Advanced(more menus)*. Then, click on *Calculate / Model Parameters*, or on the **shortcut** icon shown to the right. To display the common cause and special cause charts, click on *Report* and select the chart. To change the window length (number of data points) on which the spectrum and therefore model and charts are based, click on the main menu *File / Update.* After making changes, save the file before repeating *Calculate* & *Report*. If the *Report/Review data HISTORY* menu is used to select a new data segment for analysis, the window length will be reset to the values specified in the customize menu. See references 1 & 4 and our website for information to assist in the interpretation of the model and charts.

See reference 9 for heart rate analysis and applications, reported by the Task Force of the European Society of Cardiology & the North American Society of Pacing Electrophysiology. **For more information visit MyPulseMonitor.com.**

Internet monitoring from a central station or cell phone.
Click Customize on the central station computer and add the name and related information of the person being monitored, exactly as it appears on the client computer. This will permit rapid information retrieval in case of an emergency.

If the client computer's remote telephone/email alarm is activated and it dials the central station phone number, the client's name and the most recent data will be emailed to the central station. The data history for the client may be retrieved as follows. Start internet explorer or other browser on the central station computer. Copy the data from the email. Follow the instructions in the email to paste the data into the specified MyPulse folder file at the central station computer. On the central station computer, click on customize and select the name of the person being monitored. Click on save then OK. To recreate any original or transformed chart, follow the instructions listed above under (**5 – Reporting**). Copy and paste the chart into Microsoft word, adding any desired annotations. Email the chart and annotations as needed, for example, to a professional.

At any time, access the real time charts via the internet with a web browser, by setting the url to www.logmein.com and entering the userid and password for the client monitoring & charting computer. The alternative www.join.me does not require a password and is perfect for viewing from a cell phone. For example, make daily visits to an outpatient, or monitor a bicyclist on a cross-country ride, who is being monitored on a pocket computer connected to the internet. To retrieve a chart, click on the chart edit/copy, then paste it into Microsoft word at the central station computer. Then, save it and/or email it as needed, for example, to a professional.

Applications

GLOBAL RANGE
Computer-powered Wireless Ultra-intelligent Real-time monitor

SINGLE HOME USER
INSIDE GYMNASIUM or OUTDOOR PLAYING FIELD
HOSPITAL or NURSING HOME
CARDIOLOGY OFFICE

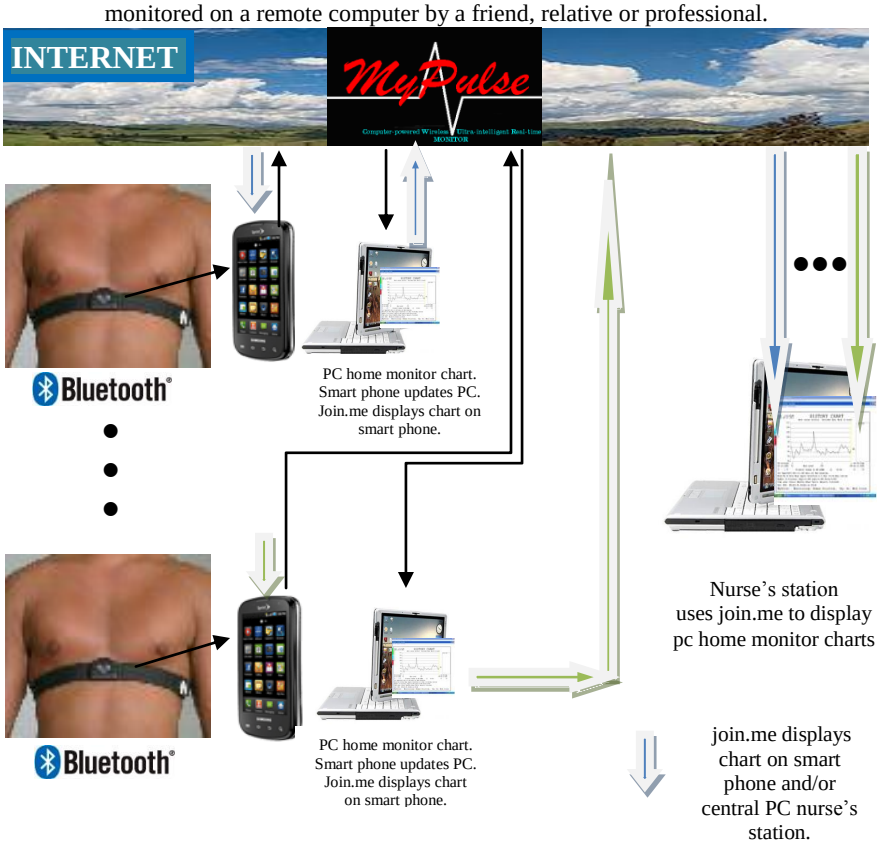
With user supplied smart phone, one or more users may be anywhere in the world where there is access to the internet. All normal activities can be performed while being monitored on a remote computer by a friend, relative or professional.

Individual monitor
Trainer's station
Nurse's station

GLOBAL RANGE
Computer-powered Wireless Ultra-intelligent Real-time monitor

SINGLE HOME USER
INSIDE GYMNASIUM or OUTDOOR PLAYING FIELD
HOSPITAL or NURSING HOME
CARDIOLOGY OFFICE

With user supplied smart phone, one or more users may be anywhere in the world where there is access to the internet. All normal activities can be performed while being monitored on a remote computer by a friend, relative or professional.

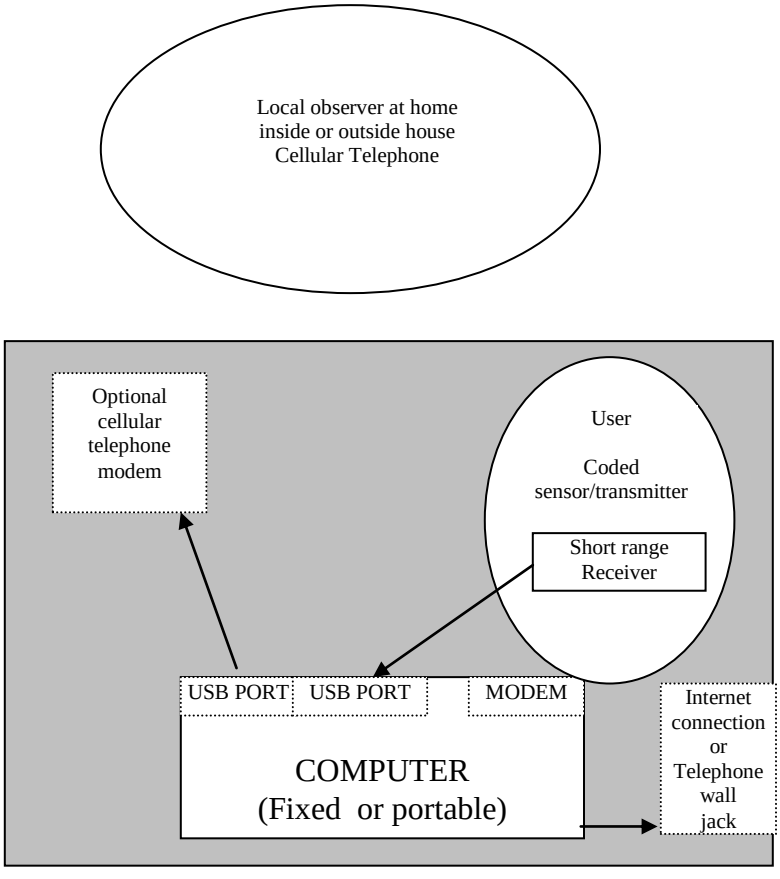


SHORT RANGE

Computer-powered Wireless Ultra-intelligent Real-time monitor

SINGLE HOME USER

User is confined to 3ft radius but can adjust their body position completely free of wires.
If the computer is portable & powered by a motor car battery, then travel is possible.

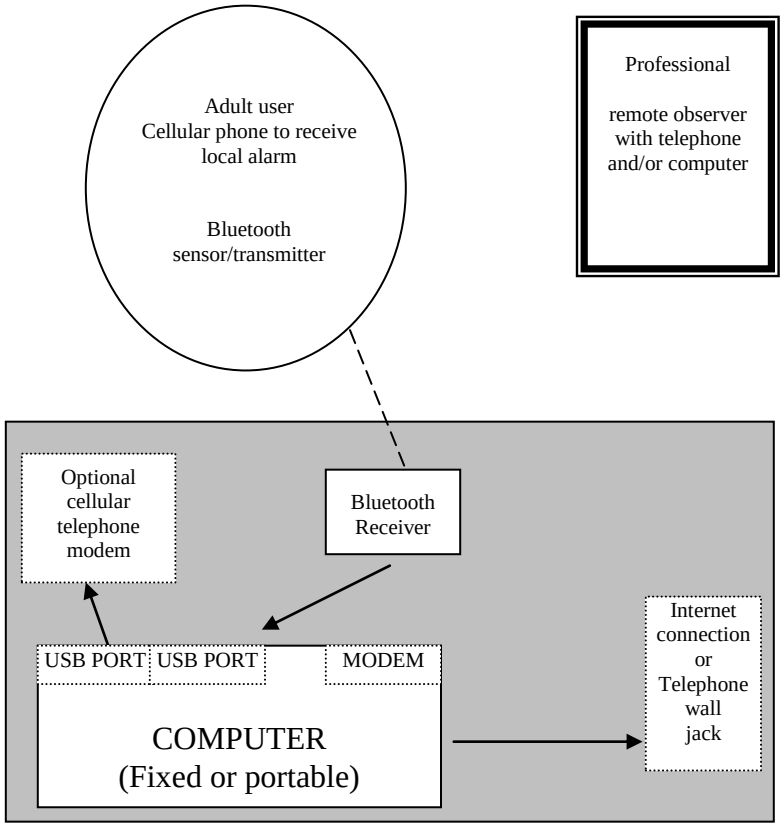


MID RANGE

Computer-powered Wireless Ultra-intelligent Real-time monitor

SINGLE HOME USER

User can move about inside home within a 33 foot radius, completely free of wires.
If the computer is portable & powered by a motor car battery, then travel is possible
(e.g. shopping, picnic, etc.).

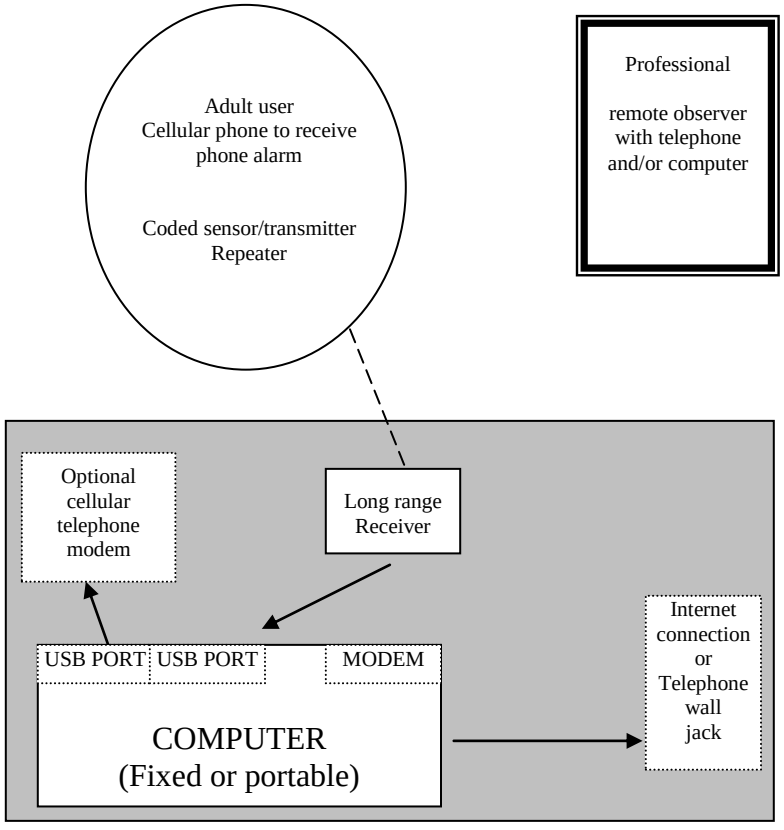


LONG RANGE

Computer-powered Wireless Ultra-intelligent Real-time monitor

SINGLE HOME USER

Home adult user can move about inside and outside of home completely free of wires.
If the computer is portable & powered by a motor car battery, then travel is possible
(e.g. shopping, picnic, etc.).

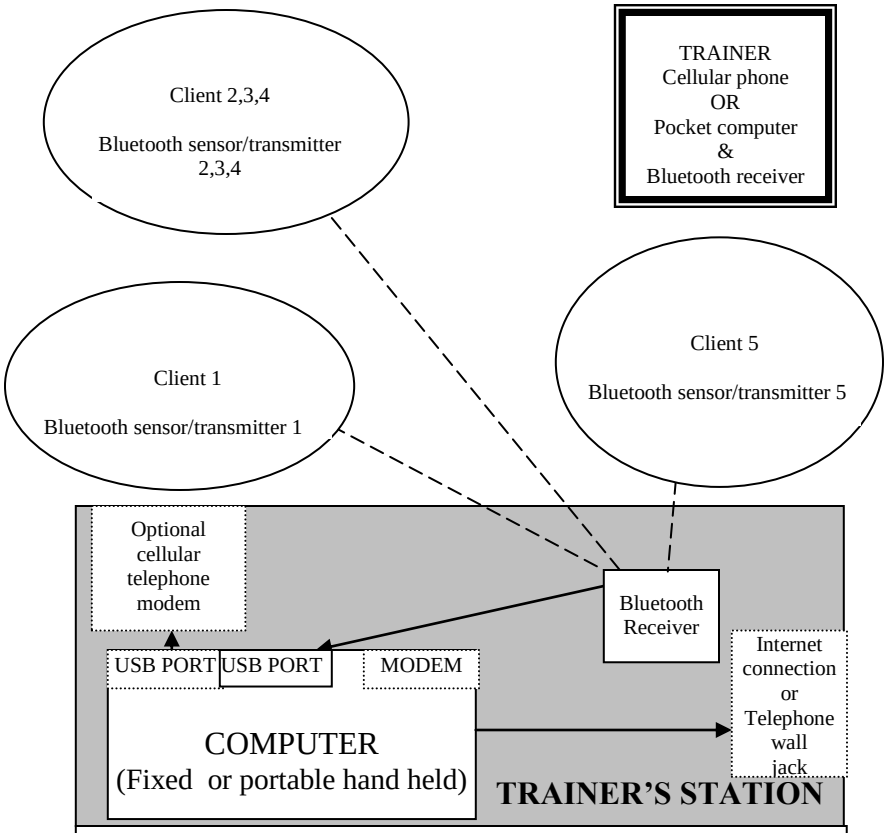


MID RANGE

Computer-powered Wireless Ultra-intelligent Real-time monitor

INSIDE GYMNASIUM or OUTDOOR PLAYING FIELD

Clients can move about (33 feet from computer) completely free of wires.



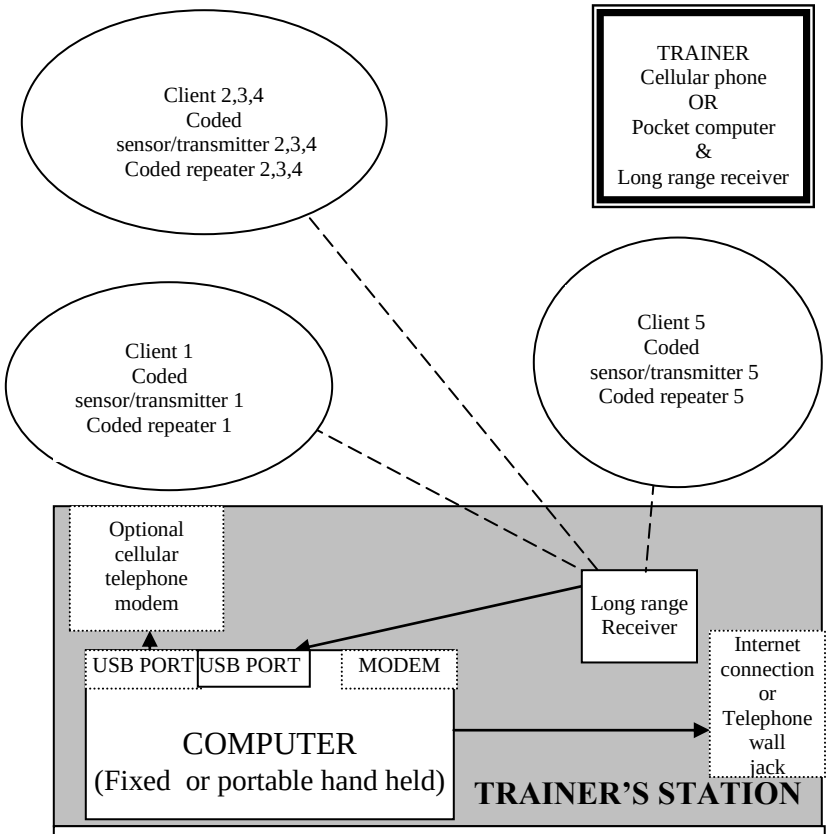
Note: Clients are ambulatory and arrive and leave at different times. Therefore, a single receiver may be used with several bluetooth sensor/transmitters as follows. Assign a unique bluetooth sensor/transmitters to each client. Add the sensor/transmitter using its pairing code. Make a note of the assigned OUTGOING serial COMM port number. Enter each client name and corresponding serial COMMport number in the MyPulse *Customize* screen. For each arriving client, start a new monitor and select the client number in the *Customize* screen. The monitor will only accept data from the bluetooth sensor/transmitter that was assigned to that client. If all clients are present at the same time, the *Multiple Start* feature may be used. When a monitor is stopped, the corresponding bluetooth sensor/transmitter must be removed and placed on its charger.

LONG RANGE

Computer-powered Wireless Ultra-intelligent Real-time monitor

INSIDE GYMNASIUM or OUTDOOR PLAYING FIELD

Clients can move about (at least 3ft apart from each other) completely free of wires.

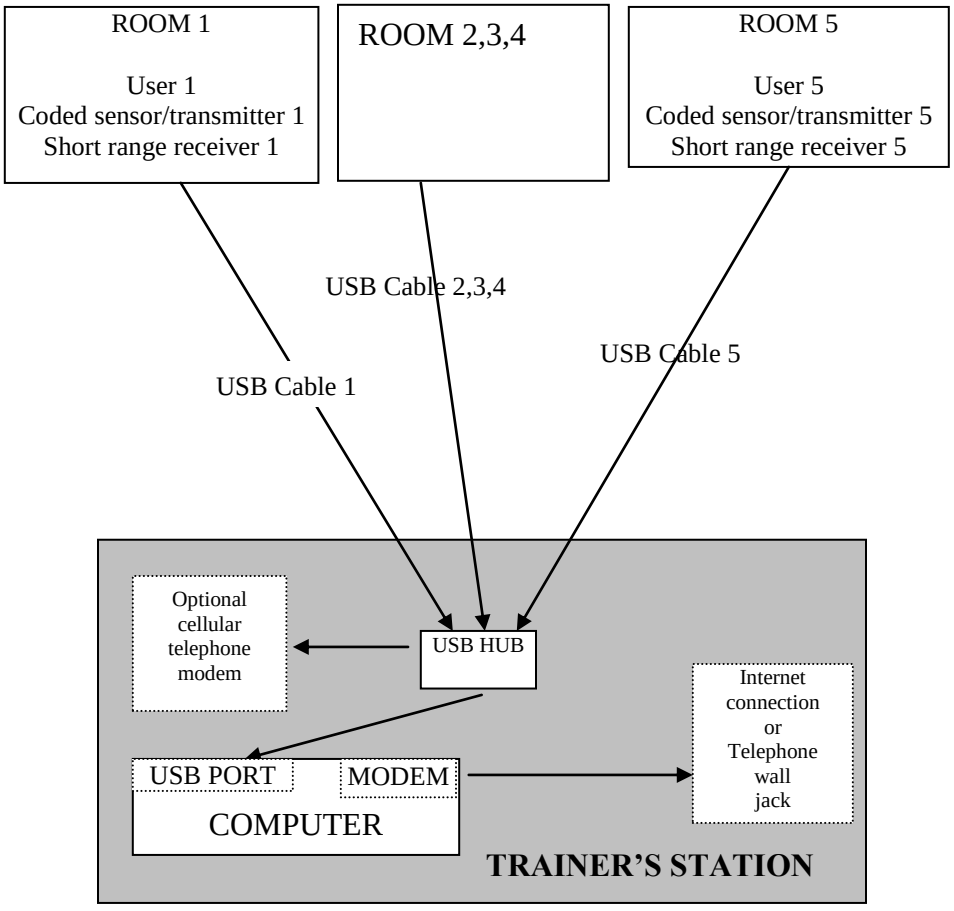


Note: Clients are ambulatory and arrive and leave at different times. Therefore, a single receiver may be used with coded sensor/transmitters & coded repeaters as follows. Assign separate coded repeaters to all clients who will be present at the same time. Enter each client name and corresponding repeater code in the MyPulse *Customize* screen. For each arriving client, start a new monitor using the coded repeater that is assigned to that client. If all clients are present at the same time, the *Multiple Start* feature may be used. When a monitor is stopped, the corresponding repeater must be turned off and placed on the charger. If only one receiver is installed as shown and the number of monitors is excessive, they will interfere with each other. In that case interference can be reduced by adding more receivers and operating them at different frequencies.

SHORT RANGE
Computer-powered Wireless Ultra-intelligent Real-time monitor

EXERCISE GUIDANCE
HOSPITAL or NURSING HOME

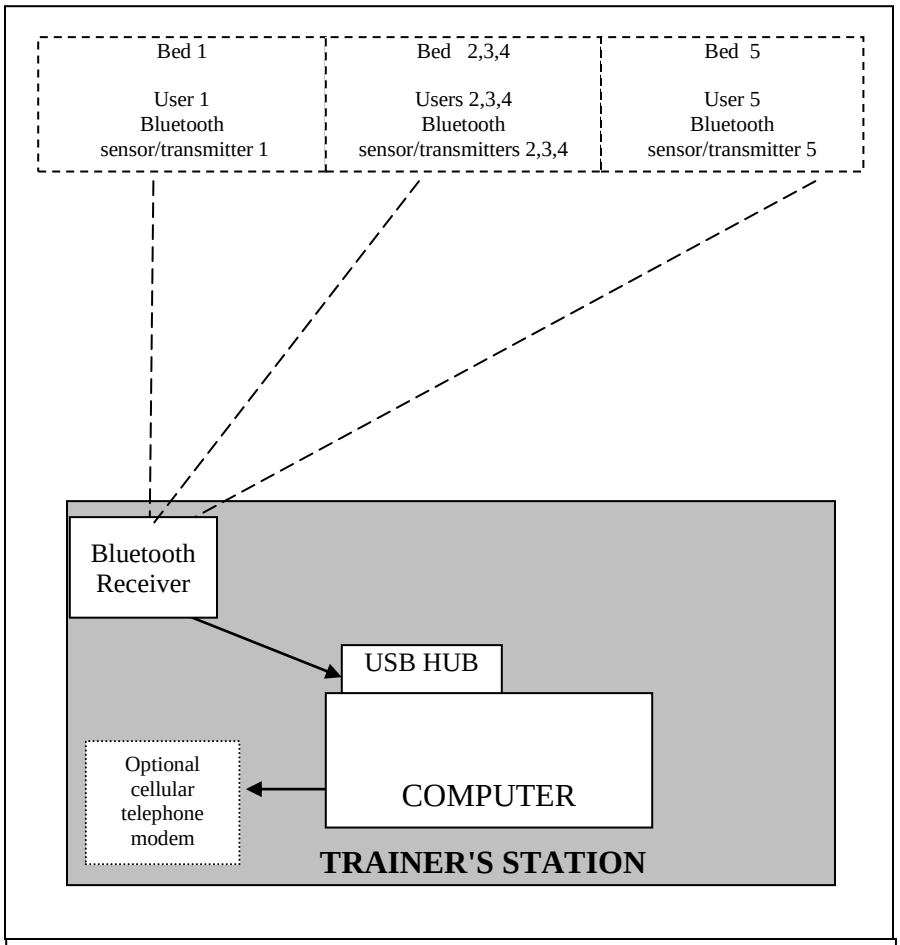
Clients are exercising (at least 3ft apart) in a confined area
completely free of wires.



MID RANGE
Computer-powered Wireless Ultra-intelligent Real-time monitor

EXERCISE GUIDANCE
HOSPITAL or NURSING HOME

Clients can lie down, sit up, or walk about (33 feet from computer) completely free of wires.

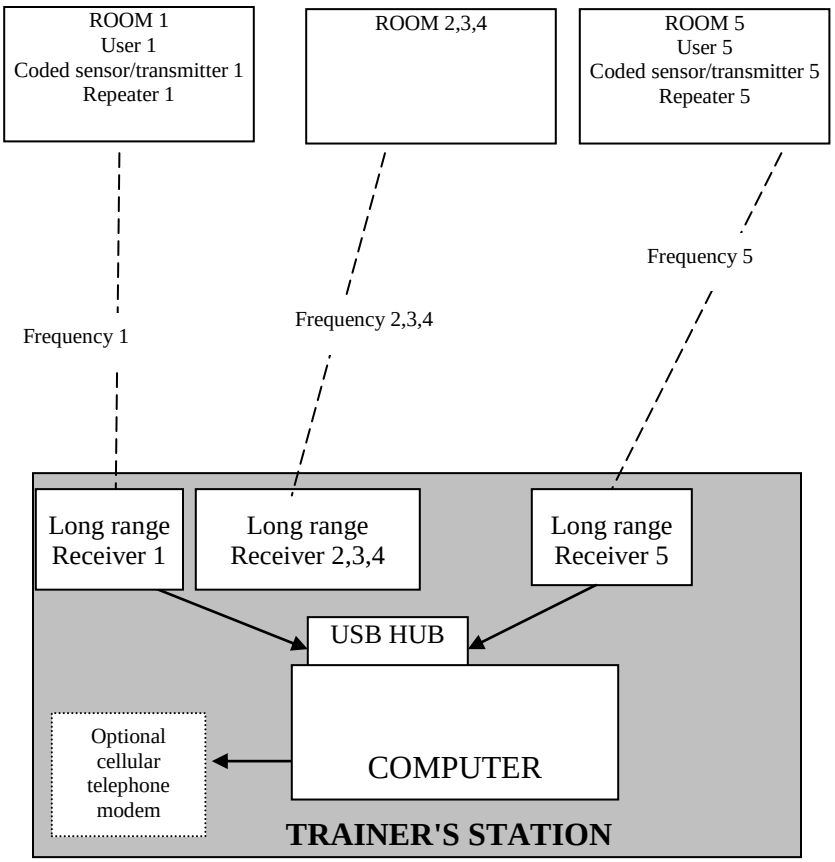


Note: Bluetooth transmission range is limited to 33 feet in line of sight, and attenuates significantly when travelling through walls. Computers and beds must be in the same room.

LONG RANGE
Computer-powered Wireless Ultra-intelligent Real-time monitor

EXERCISE GUIDANCE
HOSPITAL or NURSING HOME

Clients can lie down, sit up, or walk about (at least 3 ft apart from each other) completely free of wires.



Appendix A
Actual values & Standard Deviations

Standard deviation is a measure of dispersal or amount of variation amongst a set of numbers. A low standard deviation indicates that the numbers are close to each other. A high standard deviation indicates that the numbers differ greatly.

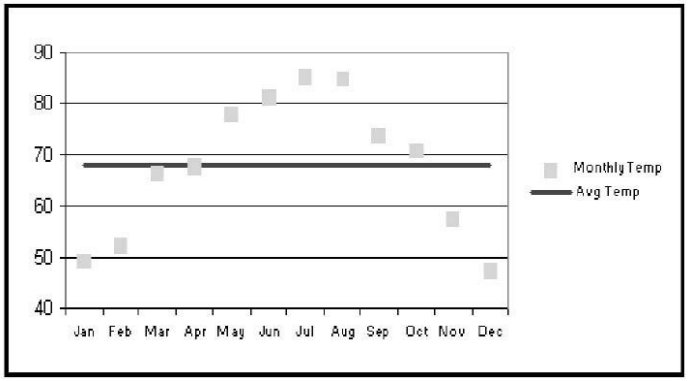
The MyPulse monitor displays a data chart in terms of actual values and a standard deviation chart in terms of standard deviations. These charts are explained below.

Actual values

The chart of actual values is customized to the category in which the person being monitored falls. The upper and lower alarm limits are for the category (not the individual person). However, even within a category, one size does not fit all. A person who exercises regularly may have a relatively strong heart that pumps more blood with each heartbeat. In that case the normal heart rate is relatively low, and may be lower than the lower alarm limit. Conversely, a sedentary person may have a relatively weak heart that pumps less blood with each heartbeat. In that case the normal heart rate is relatively high, and may be higher than the upper alarm limit.

Standardized values

The chart of standardized values is customized to the individual person being monitored. The upper and lower alarm limits are for the individual person (not their category). The unit of measure on the standardized chart is standard deviations. The standardized chart will detect a relatively large sudden increase or decrease in a data value, even if the data value is normal for the designated category.



Appendix B
Frequency Switches

Frequency Switches are mechanical devices used to change the modulation of information via electrical signals. They are used to set the frequency on the MyPulse repeater and long range receiver to enable them to communicate with each other. The switches may also be used to change the operating frequency so as to avoid interference from other devices.

The MyPulse repeater and long range receiver have three frequency setting switches each. There are 2^3=8 possible settings for the frequency switches as demonstrated below.

	Setting #1	Setting #2	Setting #3	Setting #4
SWITCH position	1 2 3 Off Off Off	1 2 3 On Off Off	1 2 3 On On Off	1 2 3 On Off On

	Setting #5	Setting #6	Setting #7	Setting #8
SWITCH position	1 2 3 Off On Off	1 2 3 Off Off On	1 2 3 Off On On	1 2 3 On On On

Appendix C

Pre-selected Default Settings for User Age & Sex

The pre-selected default settings for age range and sex are only for those users who are at rest, sitting down, or sleeping. If the person being monitored will be walking around or exercising, their pulse will normally rise far above their resting pulse rate. In this case, select Walk About Mode. This will prevent excessive false alarms from occurring. The lower pulse limit will be set to 50 bpm, but there will be no effective upper limit. An alarm will still be activated if there is a sudden, large increase or decrease in pulse rate (greater than the preset limits on the standard deviation chart.)

The pre-selected default settings are based on nationally published resting heart rate ranges for the following age ranges and sex (references 7,8).

Age Group	**Sex**	**Resting Heart Rate Range**
Newborn	M & F	70 to 170 bpm
1 to 2 Years	M & F	80 to 130 bpm
2 to 4 Years	M & F	80 to 120 bpm
4 to 6 Years	M & F	75 to 115 bpm
6 to 10 Years	M & F	70 to 110 bpm
10 to 12 Years	M	65 to 105 bpm
10 to 12 Years	F	70 to 110 bpm
12 to 14 Years	M	60 to 100 bpm
12 to 14 Years	F	65 to 105 bpm
14 to 16 Years	M	55 to 95 bpm
14 to 16 Years	F	60 to 100 bpm
Over 16 Years	M	50 to 90 bpm
Over 16 Years	F	55 to 95 bpm

Appendix D
Deactivating Screen Savers and Automatic Power Shut Down Options

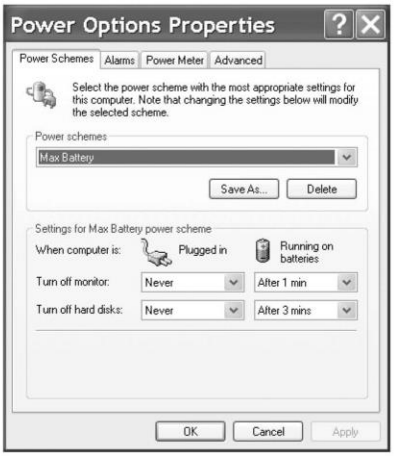
It is imperative that you turn off all screen savers and deactivate sleep mode, hibernate mode and any other automatic power shut down options.

To assist in this process use the Display and Power controls Icon to launch the display properties window.

NOTE: Certain screens appear differently depending on the particular operating systems and computer. This sample screen is one example of the display properties for a laptop running Windows XP.

To Turn Off Your Screen Saver:

1- Select the "POWER" button.



2- Select the appropriate setting to disable all power down options. button.

Glossary of Terms

Automatic Phone/email Alarm– Automatically dials user-specified phone numbers and sends email and text message in the event that any chart of the person being monitored becomes red. A chart will turn red after three consecutive breaches of the user specified limits.

Automatic Print Alarm– Automatically prints charts in the event that any chart of the person being monitored is red for a user specified time. A chart will turn red after three consecutive breaches of the user specified limits.

Baud Rate– Baud rate is a measure of the number of times per second a signal in a communications channel changes state.

*Breac*h– Any heart rate activity in excess of user-specified control limits.

Caregiver– A person who is responsible for attending for the needs of a child or a dependent adult.

Common Cause– Vital signs response associated with internal biological effects.

External Cause– An event that is triggered by something outside the body.

Frequency Switch – Mechanical device used to modulate the flow of information via electrical signals.

Internal Cause– An event that is triggered by something inside the body.

Local Phone Number– Phone number dialed if any chart becomes red.

Modem – A device or program that enables a computer to transmit data over, for example, telephone or cable lines.

Modem COM Port– A signal input (access) or output cable point for a modem on your computer.

Password – A form of authentication that uses secret data to control access to a resource. The password should be kept secret from those not allowed access.

MyPulse Heart Rate Transmitter– A wireless chest strap transmitter that detects heart rate accurately from a user's chest, and sends this information to the MyPulse receiver.

Profile– A subset of information that is used as a unique identifier for an individual.

Real-time– A level of computer responsiveness that allows a user to access information almost immediately.

Remote Phone Number/address– Phone number dialed if any chart remains red for a user specified period of time. A text message and data are emailed to the specified address. Additional remote devices will receive phone calls and text messages but no data.

Local Phone Number/address– Phone number dialed if any chart remains red for any period of time. A text message with no data is emailed to the specified address.

Session– A period of time devoted specifically to heart rate monitoring.

Special Cause– Vital signs response associated with external environmental effects

Standard Deviation – Measures the dispersal, or variation in a group of numbers. It represents how tightly a set of values is clustered around the average of those same values. (See also Appendix A.)

MyPulse Heart Monitoring System– A low-cost alternative for monitoring heart rate during exercise activities in the average household, in sports, in hospitals, and in nursing homes. MyPulse also serves as a mobile and fully integrated heart monitoring system to help in the analysis of fitness and performance for the active adult.

MyPulse Receiver – Wireless device which receives heart rate information from the transmitter, and feeds the heart rate information into a personal computer.

MyPulse Signal Repeater – Receives heart rate information from the transmitter and re-transmits the heart rate information to the MyPulse Long Range Receiver

Threshold– The point that must be exceeded to begin producing a given effect or result; or to elicit a specific response.

USB (Universal Serial Bus) Port– An external interface signal input (access) or output cable point for communication between a computer and peripheral.

USB Cable– An electrical conductor used to connect a USB cable point in the computer to the external peripheral.

Walk About Mode– The lower pulse limit will be set to 50 bpm, with no effective upper pulse limit. An alarm will still be activated if there is a sudden, large increase or decrease in pulse rate (greater than the preset limits on the standard deviation chart.)

Trouble Shooting

No data or chart appears on the screen.

Causes:
The chest strap (5KHz) battery has expired (the battery life is about 2500 hours).
The bluetooth (FCC ID:QOQWT12) chest strap has discharged (cycle 26 hrs).
The chest strap electrodes require moistening.
The short range monitor receiver is less than 1 foot from the computer.
The USB drivers for the receiver are not installed.
The USB port number assigned in the customize menu is not correct.
The repeater battery requires recharging (long range monitor only).
The repeater is turned off.
The repeater is more than 3 feet from the chest strap.
The repeater is less than 1 foot from the computer or other interference generating electrical equipment. The light may stop flashing. If the repeater is in the front of a motor car, move the repeater towards the rear of the car.
The receiver is not plugged in.
The repeater and receiver frequency switch settings do not match.
The repeater is more than 1000 feet from the receiver.
The monitor is experiencing interference at the particular frequency to which it is set (on the repeater & receiver). The frequency settings must be changed.

Chart has stopped updating (see also the above comments on interference).
Causes: The short range chest strap was temporarily removed and replaced, and the transmission code changed. The monitor must be restarted.
A Bluetooth USB adapter is in an overloaded hub.

Repeater LED does not blink
Causes: The repeater requires recharging.

Repeater LED blinks every 5 seconds not with every heat beat
Causes: The repeater is more than 3 feet from the chest strap or the strap needs moistening or a new battery. The battery life is about 2500 hours.

Repeater battery does not hold charge
Causes:
Battery was left discharged for an extended period. Place the repeater on a 24 hour slow charge (switch turned OFF). If that fails, the battery is damaged.
Battery is damaged or has expired. A damaged battery can result from storage in a state of discharge. Also, the battery will expire after about 1000 recharges or about 2 years of use.

Telephone alarm(email) does not work.
Causes: The port number for the modem to which the telephone is connected is not correct (for email: no internet connection). Correct the port settings and test the telephone/email connection and number from the customize screen.

Technical Specifications

INTENDED USE:	Pulse rate measurement, real time charts, variability, analysis and wireless notification.
PATENT:	US Patent #6897773
CE notice:	Chest strap sensor/transmitter: N2965 CE0537 indicates compliance with European medical device directive.
FCC notice:	FCC ID: QU8FOURCAST, QOQWT12. Declaration of conformity to FCC Rule part 15.
TCB notice:	Grant of equipment authorization. Declaration of conformity to FCC Rule part 2.931.
ANSI notice:	Declaration of conformity to ANSI standard C63.4-1992.
UL listed:	81J1E81356.
FEATURES:	Provides fast reliable pulse rate measurements on any person. Non-invasive. Wireless convenience. Coded to prevent interference. No wires to entangle or restrict the movement of a person. No contact gels to irritate the skin. Ideally suited for use in homes, gymnasiums, sports, work place, at a picnic. Tele-monitoring from a remote location.
METHOD OF POWER:	Chest sensor/transmitter (5KHz 3feet) Battery type: CR2025 Battery life: Approximately 2500 hours or 2 years (1hour/day, 7 days/week). Chest sensor/transmitter (Bluetooth 2.4-2.4835MHz 33feet) Rechargeable 90% in1 hr, 100% in 3hrs 26 hr charge cycle. Repeater: Battery type: Size AA. Rechargeable. 1.5volt. Nickel metal hydride. Charging circuit includes a 2amp fuse and monitoring to prevent overcharging. Time between charges (inside device): 48 hours. Battery life: Approximately 1000 recharges in 2 years.

Receiver:
5 volts USB computer port.

Charger:
Wall transformer: CUI Stack DPD030040-P7-DK.
Input 120VAC 60 Hz 4W. Output 3VDC 400mA
Model No. DV-3400

OPERATING TEMPERATURE: 14degF to 122degF
(-10degC to 50degC).

DIMENSIONS: Chest sensor/transmitter: 2.5x1.5x0.5 inch hard plastic enclosure
Chest strap: 1.125 inch wide. Adjustable length.
Repeater: 2.75 x 2 x 0.8 inch.
Charger: 2.125 x 1.375 x 1.375 inch.
Receiver: 2.75 x 2 x 0.8 inch.

WEIGHT:

Chest sensor/transmitter	1.0	
Chest strap	1.3	

Chest total (**on body**)	**2.3**	
Repeater (in pocket)	2.7	1.8 (without battery)
Receiver (remote) 3.0		

Grand total	8.0 ounces	

MATERIALS: Sensor/Transmitter: Hard plastics enclosure. Polyamide.
Water proof up to 30meters (100 feet).
Chest strap: Polyurethane, polyester, polyamide, nylon and natural rubber including a small amount of latex.
Repeater: Hard plastic enclosure.
Receiver: Hard plastic enclosure.
Plastic covered metal wire cable between receiver and computer.

DATA COMMUNICATIONS:
Wireless to computer via USB port. Coded to prevent interference

INFORMATION DISPLAY:
Computer screen: Real time. Beat to beat numeric pulse rate. Time chart of current pulse rates and archived pulse rate log for up to approximately 1 year for 1000 users. Hard copy printable.

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WARNINGS and NOTICES

WARNING! The products to which these instructions apply rely on the proper operation of **the user's computer**, sound speaker, video screen, modem, telephone system, electrical power supply, other hardware and software at all times. Without any one of these components, the alarm systems will not operate. The user must inspect each of these items to ensure that they are operating correctly at all times.

WARNING! The program relies on the **windows operating system** provided by the user. The user must check the computer screen periodically (at least once every hour) to verify that the charts are being updated, and especially once per day when the operating system updates the date calendar.

WARNING! The monitor uses the computer's **modem** to execute the telephone alarm. The monitor can be used on a computer that is also being used by other applications. However, there must be no sharing of the same modem and/or telephone line. For example if the computer is being used to browse the internet via a single modem, the monitor's telephone alarm will not function because the modem will already be in use. In that case, a separate modem or other means of internet connection must be used. If the internet connection is different from DSL, for example when using a pocket computer with a blue tooth connection to a cell phone, the internet connection must be separate from the cell phone. If the internet connection is via a cell phone, it's number must be omitted. Otherwise, neither phone nor email notification will occur. If phone notification is desired, the number must be for a separate phone.

WARNING! In a multi-user environment, heart monitors (chest straps, repeaters & short range receivers) must never be transferred between users while they are being monitored. This could cause the charts of different users to be reassigned incorrectly.

NOTICE

The products to which these instructions apply are recommended for the non-invasive measurement of biological vital signs. They display data on a computer screen and a printer, and will alarm when values fall outside a predetermined user specified range. They are not suggested or recommended for use in connection with any illness or health defect whatsoever. No medical interpretation or diagnosis is performed and no treatment or action whatsoever, medical or otherwise, is suggested or recommended. They will not prevent, treat or cure any illness. By using this reference monitor, the user accepts full and complete responsibility for the proper operation of the user's computer, sound speaker, video screen, modem, telephone system, electrical power supply, other hardware and software at all times, so as to alarm when biological vital signs data fall outside any predetermined user specified range. In case of illness consult a physician.

DISCLAIMER

The manufacturer of this product is continually striving to improve the quality and function of its products and services; for this reason, it reserves the right to make changes without notice. Specifications are based on representative lot samples. Values may vary from lot to lot and are not guaranteed. The manufacturer makes no guarantee, warranty, or representation regarding the suitability or legality of any product or service for use in a specific application. No device, product or service is intended for use in applications of a critical nature where the safety of life or property is at risk. The user assumes full liability for the use of the device, product or service in such applications. Under no circumstances will the manufacturer be responsible for losses arising from the use or failure of any device, product or service in any application, other than the repair, replacement, or refund limited to the original device, product or service purchase price. Some devices are patented. Under no circumstances shall any user be conveyed any license or right to use or ownership of these patents.

RADIO FREQUENCY

The long-range monitor described in this product contains a RF module that has been previously tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and the receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a Class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of the manufacturer could void the user's authority to operate this equipment.

FCC ID: QU8FOURCAST, FCC ID:QOQWT12

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC 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.

Model Number: FOURCAST

Tested To Comply
With FCC Standards

FOR HOME OR OFFICE USE