ASCII Text   Metal Case

Outdoor Use

PulseStar
Handbook
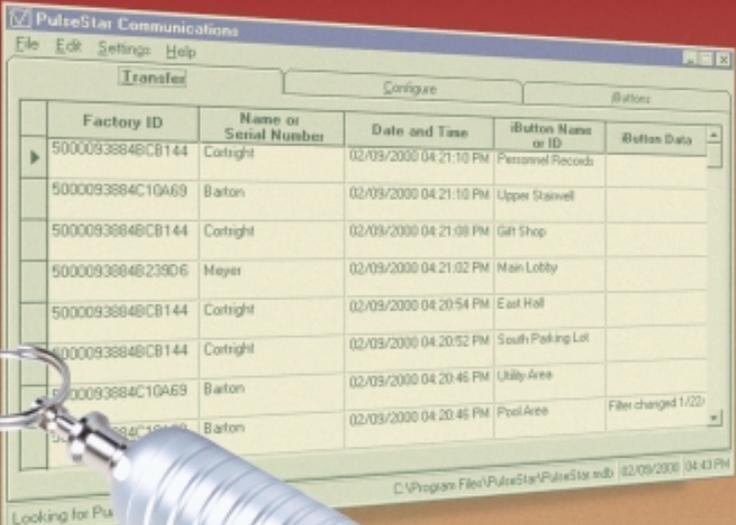
Configure

PulseStar Communications					
File Edit Settings Help					
Transfer		Configure		iButtons	
Factory ID	Name or Serial Number	Date and Time	iButton Name or ID	iButton Data	
5000093884BCB144	Cortright	02/09/2000 04:21:10 PM	Personnel Records		
5000093884C10A69	Barton	02/09/2000 04:21:10 PM	Upper Stairwell		
5000093884BCB144	Cortright	02/09/2000 04:21:08 PM	Gift Shop		
5000093884B239D6	Meyer	02/09/2000 04:21:02 PM	Main Lobby		
5000093884BCB144	Cortright	02/09/2000 04:20:54 PM	East Hall		
5000093884BCB144	Cortright	02/09/2000 04:20:52 PM	South Parking Lot		
5000093884C10A69	Barton	02/09/2000 04:20:46 PM	Utility Area		
5000093884C10A69	Barton	02/09/2000 04:20:46 PM	Pool Area	Filter changed 1/22/	
C:\Program Files\PulseStar\PulseStar.mdb 02/09/2000 04:43 PM					

Looking for Pu...

Harsh Environments

Communication

Data Transfer   Developer Tools

Table of Contents

Overview

Thank you for purchasing PulseStar and PulseStar Communications software.

PulseStar is from a family of portable data collectors with a common ancestry of superiority. Each reader is manufactured with a metal case. While each product in this lineage of data collectors has its own functionality, they all are known for their metal housing that protects the internal electronics.

PulseStar is a durable, water-resistant iButton™ reader and data collector from Videx. It indicates a successful iButton read by emitting a silent **"pulse"** that the user feels rather than hears. These features make it ideal for wet, rainy environments, and for both high noise areas or environments where quiet operation is required.

PulseStar's rugged aluminum case, with a durable nickel finish, resists scratches, drops and water.

PulseStar has the following features:

- Rugged aluminum case, with durable nickel finish
- Resists scratches, drops, and water
- Reads ID of all Dallas Semiconductor iButtons
- Capacity for up to 5400 iButton ID's with date and time stamp
- 48KB nonvolatile memory
- IR communications to host computer
- Real-time clock
- Operates on a replaceable lithium battery
- Visible LED
- Unique internal factory assigned ID
- Optionally reads up to 500 bytes of data from iButtons written in default data structure

Figure 1 - PulseStar & Base Station

Overview

Full System Contents

1.) PulseStar reader
2.) PulseStar Base Station (includes power transformer)
3.) PulseStar Communications Software CD
4.) iButtons
5.) Serial cable (9-pin or 25-pin)

PC System Requirements

❑ Requires Windows® 95 or later, or Windows NT® Workstation 4.0 or later

❑ 32MB of RAM (64MB recommended)

❑ 5MB minimum hard drive space (20MB preferred to allow for data files and for installing Adobe Acrobat)

❑ 486 or faster processor (120MHz recommended, 350MHz desirable)

❑ Available serial port

❑ CD-ROM Drive for installation and to access technical reference material

Optional Accessory

Blue Dot reader and cable (BDR-000)

Overview

Memory

PulseStar has 48KB (K = 1024 characters) of memory. This is enough storage capacity for 5400 iButton IDs (with time and date stamp) to be stored in memory before it is necessary to transfer the data to the computer.

When the PulseStar memory is full, it will <u>not</u> indicate successful reads and will instead rapidly flash its LED. Memory is nonvolatile; the battery may be removed but the memory contents are retained.

Clock

PulseStar contains a real-time clock that is set to match the computer's clock each time the unit is programmed or its data is transferred. For the PulseStar clock to be correct, the date and time on the computer must be set correctly before communicating with the PulseStar.

When an iButton is read successfully, the date and time is recorded along with the entered data. This timekeeping feature makes it possible for you to use a database, spreadsheet, or other program to calculate beginning, ending, and intervals of time from data downloaded from the PulseStar.

The clock has a two-second resolution, and will operate up to one minute after disconnection from battery power.

Installation and Operation of PulseStar System

1.)   PulseStar is ready for use the minute you receive it. To read an iButton, lightly press the PulseStar read head to an iButton. PulseStar will indicate a successful iButton read by emitting a silent "pulse."

2.)   Connect the base station to the PC using a serial cable and to power using the transformer. (See following section.)

3.)   Install PulseStar Communications software. (Detailed instructions start on page 10.)

4.)   Run PulseStar Communications software. PulseStar Communications software defaults to continually searching for the PulseStar on communication port 1. To change the default port setting, choose "Communications" from the "Settings" menu. A dialog box appears which allows you to change the communications port setting.

5.)   To download the information the PulseStar has collected, place the PulseStar into the base station. PulseStar Communications software will locate, download, and update the data log of the PulseStar.

PulseStar Base Station

Communication to the Computer

PulseStar communicates with the computer via an IR link, utilizing IrDA® technology. The PulseStar's IR link is an IR transmitter recessed in the read head. The computer's IR link is a PulseStar Base Station. PulseStar establishes two-way communication to the host computer using this IR link.

To communicate with a computer using a PulseStar Base Station, insert the PulseStar into one of the Base Station's slots (Figure 2). The Base Station must be connected to the computer's serial port with either a 9-pin or 25-pin Videx serial port cable. See pages 5 – 7 for instructions on connecting the Base Station to the computer. (Note: If the Base Station fails to communicate, reset it by unplugging it from the electric outlet and plugging it back in.)

PulseStar Base Station

Figure 2 - PulseStar Base Station

The PulseStar Base Station provides communication between the PulseStar and the computer. The base station has three LEDs: **Transmit**, **Receive,** and **Power** (Figure 3). The **Transmit** LED will illuminate when the PulseStar is sending information to the computer. The **Receive** LED will illuminate when the computer is sending information to the PulseStar. The **Power** LED will illuminate when the base station is plugged into an electric power outlet.
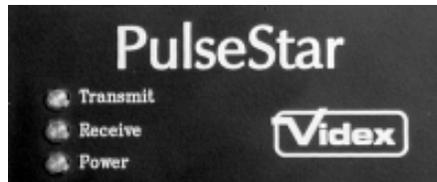
Figure 3 - Base Station LEDs

The **Computer** port, **Power** connection, and **Extension** port are located on the side of the base station (Figure 4). The **Computer** port is where the computer's serial port cable connects to the base station. The **Power** connection is where the power transformer plugs into the base station. The **Extension** port allows you to connect up to ten base stations to a single computer serial port. This allows you to transfer data from more than two PulseStars during a single transfer process.

Figure 4 - PulseStar Base Station - Side View

Connecting the Base Station to a Computer

The following steps describe how to connect a PulseStar Base Station to the computer's serial port. You will need a computer, PulseStar Base Station, and a Videx serial port cable (TWC-001 (DB25) or TWC-008 (DB9)).
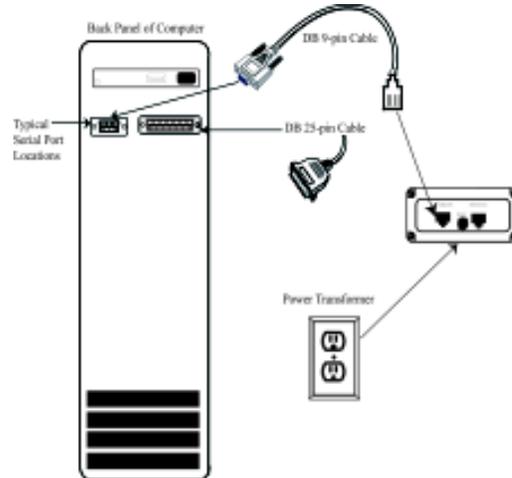
Figure 5 - PulseStar Base Station Connections

1. Shut down the computer.

2. Plug the Base Station's power transformer (Output: 12 VDC 300 mA) into an electric outlet.

3. Plug the other end of the transformer cable into the **Power** socket on the side of the Base Station. See Figure 4.

4. Verify that the **Power** light on the Base Station is lit.

5. Connect the serial port cable's connector (9-pin or 25-pin) to your computer's serial port. You can use com ports 1, 2, 3, or 4. (Note: The serial ports on a DOS/Windows computer are always a male connector. Pin-outs for the Videx serial port cables are provided on the software CD.)

6. Connect the serial port cable's RJ-11 plug to the **Computer** port of the Base Station.

7. The Base Station must be placed *at least* three inches away from the computer and monitor to prevent the possibility of high levels of electro-magnetic interference hindering communications.

Using Multiple PulseStar Base Stations
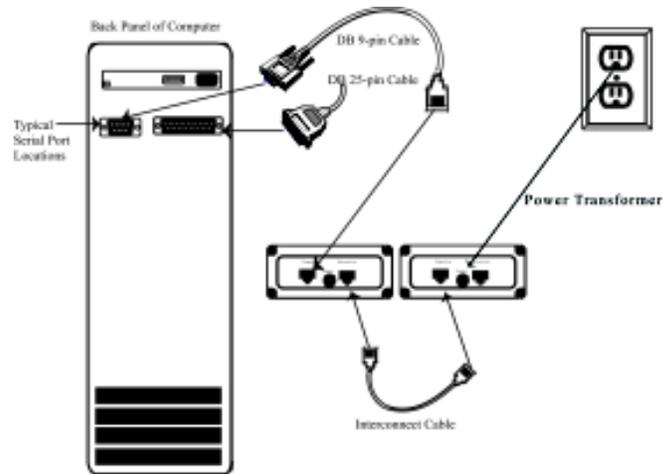
Figure 6 - Base Stations in Series

Up to 10 Videx Base Stations, holding 20 PulseStars, can be connected in series to a single serial port; this allows the user to transfer data from multiple data collectors in a single transfer process. You can transfer data from up to 20 units at a time. ***Note:*** *The additional base stations are powered from the first one, so no additional power transformers are required in most cases.*

Connecting the Base Stations

To connect multiple Base Stations:
1) Connect the first Base Station to the computer's serial port:
   a) Plug the Base Station's transformer into an electric outlet and connect the other end into the Base Station's **Power** connection.
   b) Use the serial port cable to connect the computer's serial port to the Base Station's **Computer** port.
   c) The Base Station should be placed at least three inches away from the computer and monitor.

2) To add additional Base Stations:
   a) Use an interconnect cable (TWC-006) to connect the **Extension** port of the first Base Station to the **Computer** port on the second Base Station.
   b) Continue the same pattern of connection for each additional unit.

Using Multiple PulseStar Base Stations

To avoid problems when using multiple Base Stations, you need to be aware of the following caution:

Caution:

When transferring data from the PulseStars, do not interrupt the process by removing a PulseStar from its Base Station or aborting the program. The system is designed to avoid data loss, but observing this caution provides added protection.

If you should inadvertently remove a PulseStar while it is in the process of transferring data, the software displays a message that it was unable to communicate with the unit and then continues to try to transfer the data from all of the other PulseStars. The data in the interrupted unit will not clear and can be transferred after the others have completed their data transfer.

iButton

An iButton (also known as an Touch Memory Button) is a memory chip housed in a stainless steel container. The stainless steel container protects the memory chip and also provides an electrical path for communication. The top of the button is connected to the enclosed memory chip circuit, and the bottom and sides of the button provide a signal ground. When a PulseStar touches an iButton, the top and the sides of the button are connected and an electrical path is established. Through this path, data is transferred at up to 16,000 bits per second.

All iButtons contain a unique serial number (12 hexadecimal digits) that is programmed into the button at the factory. The serial number is unalterable and uniquely identifies each button.

The PulseStar reads the ID number in all iButtons. Optionally you can configure the PulseStar to read data written to buttons in Dallas default data structure from the following iButtons: 1982, 1985, 1986, 1992, 1993, and 1994. In addition to the iButton ID number, the data stored in the iButton's memory can be transferred from the iButton to the PulseStar. This option is OFF by default and must be enabled with PulseStar Communications software.

Software Installation

If the PulseStar Autoplay window (Figure 7) appears when you insert the PulseStar CD into your CD drive, you can use it to install and explore the contents of the CD. If the default settings on your Windows system prevent the Autoplay window from appearing, you can simply follow the instructions in this document to install and explore the contents of this CD.

To install PulseStar software, click the "Install PulseStar Software" button in the PulseStar Autoplay window. (Or, use Windows Explorer to locate and open the PulseStar CD and double click the "Setup.exe" file.) When the installer appears, follow the on-screen instructions.
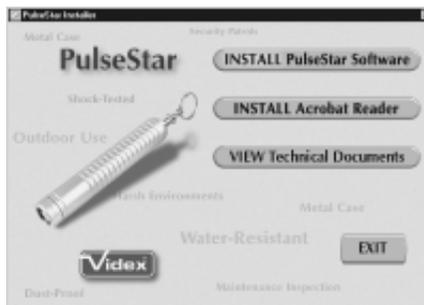
Figure 7 - PusleStar Autoplay window

Getting Started

Start PulseStar Communications by selecting Programs and then PulseStar Communications from the Windows Start menu. When PulseStar Communications first starts, it will attempt to use COM1 on your computer. If COM1 is not available, it will display the message "Unable to Open COM1" in the status bar at the bottom of the window.

To use a different COM port, choose "Communications" (F2) from the "Settings" menu, and select one of the four available COM ports as your Data Transfer Serial Port. Then click OK. If "Looking for PulseStar on COM*x*" does not appear in the status bar, then from the "Settings" menu, choose "Look for PulseStar" to start the process. The Receive light on the PulseStar Base Station should now be lit.

Now insert a PulseStar into the base station. PulseStar Communications will find it, configure it, and add it to the list of PulseStars in the Configuration tab. If there is any data it will transfer it, clear the data from the PulseStar, set the PulseStar's clock, and display the data in the Transfer tab. It will also add any iButtons to the list in the iButtons tab that are not already there.

PulseStar PC Software - Tab Windows
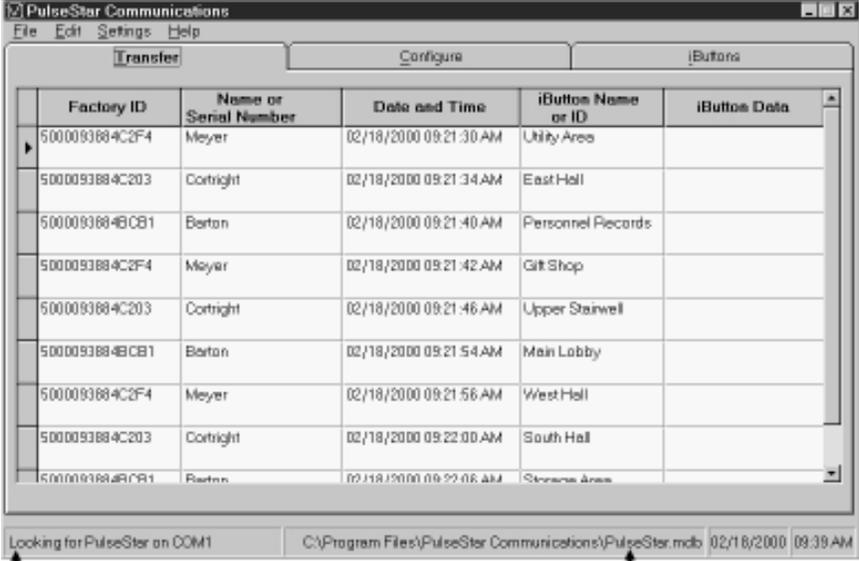
Status of communications with PulseStar

Name and location of data file

Figure 8 - Transfer Tab

Transfer Tab

This tab shows data transferred from the PulseStar. In this window you may sort or filter the data, then export or print it. Click on column headers to sort. (Note: Cannot sort on iButton data.) Data can be filtered by "Factory ID," "Name or Serial Number," or "iButton Name or ID." To filter data, first highlight the field to be filtered by single clicking on it. Then if you double click on that cell, filtered data will appear in the Transfer window.

To return the view to showing all data, double click on any of the column header fields.

Tab headings:

Factory ID -	Unique ID of PulseStar
Name or Serial Number -	User-defined serial number or name for PulseStar

PulseStar PC Software - Tab Windows

Date and Time -   Date and time of iButton read
iButton Name or ID -   iButton ID read
iButton Data -   Data retrieved from iButton. To read this
                            data, first highlight the iButton data field by
                            single clicking on it. Then if you double
                            click on that field, the iButton data will be
                            displayed (Figure 9).
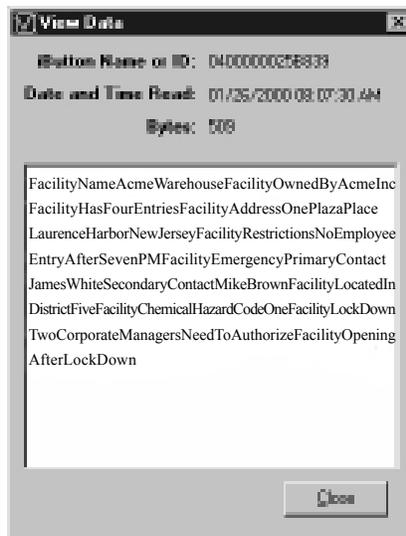
Figure 9 - iButton Data

PulseStar PC Software - Tab Windows
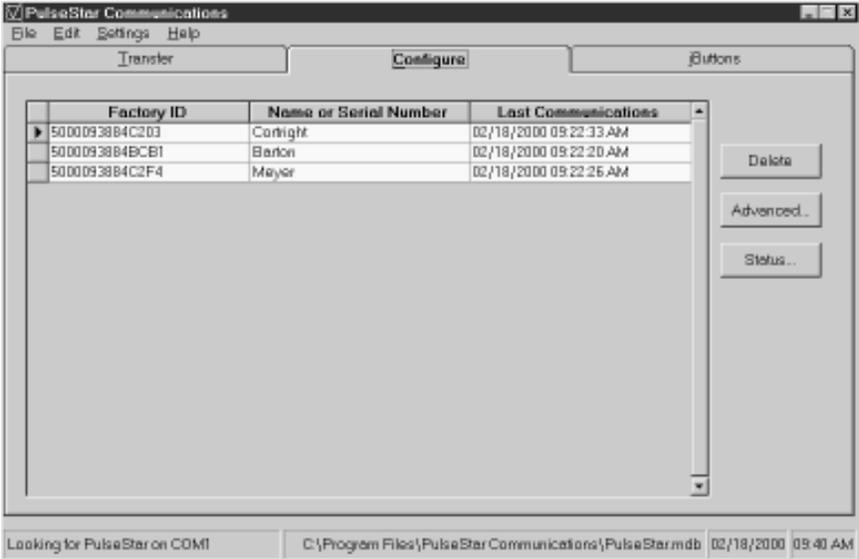
Figure 10 - Configure Tab

Configure Tab

This tab shows the list of PulseStars in your system, the name or serial number assigned to them, and the last date and time of communications. New PulseStars are automatically added to the list when they are encountered by the communications software. To assign a name or enter the serial number, simply type in the desired name. The transfer grid will automatically update to show the changes.

Tab headings & buttons:

> Factory ID -   Unique ID of PulseStar
> Name or Serial Number -   User defined name or serial number
> Last Communications -   Date and time of last communication

Delete button - Remove PulseStar from list.

Advanced button - Brings up the list of settings to program into the PulseStar the next time it is encountered. When a PulseStar is new, it is configured to the four settings shown in Figure 11.
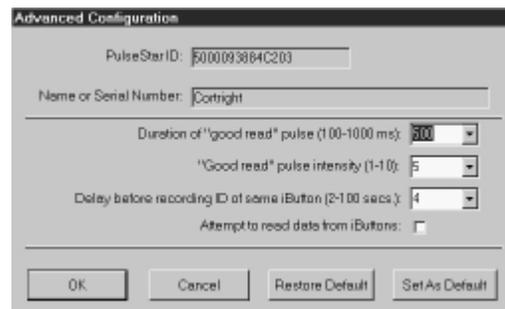
Figure 11 - Advanced Configurations

*Duration of "good read" pulse* – This tells the PulseStar how long to run its motor to indicate that an iButton has been read and recorded. The factory default is 1000 milliseconds (1 second). Since the "good read" pulse is the largest current draw in the system, increasing this value could significantly reduce battery life. Conversely, decreasing the duration could improve battery life, particularly if reading more than 50 iButtons daily. Increasing the duration of the pulse also effectively reduces the number of iButtons that can be read in a short period of time because PulseStar cannot read an iButton while it is pulsing. PulseStar Communications software automatically sets it to 500 milliseconds (1/2 second) at its first communications.

"Good read" pulse intensity – This setting increases or decreases the duty cycle of the motor. The factory setting of 5 represents a 50% duty cycle. Increasing the "Good read" pulse intensity to 10 (or 100% duty cycle) effectively doubles the current draw of the motor and could significantly reduce battery life.

Delay before recording ID of same iButton – Since the PulseStar will read and record iButton ID's very quickly, it is likely to read and record an iButton more than once when you only intended to record it once. This setting imposes a delay in 2 second increments that gives you some time to remove the reader from the iButton after the iButton ID is recorded in the PulseStar's memory and the PulseStar emits its pulse. This delay is not imposed when you read iButtons with different IDs.

Attempt to read data from iButtons – The PulseStar can read and record data from iButtons written in the Dallas default data structure. Since this function adds to the overall iButton reading time, it is turned off by default but may be enabled by toggling this control.

Set As Default button – Takes the settings from the current window and stores them as the default.

The following pop-up appears:
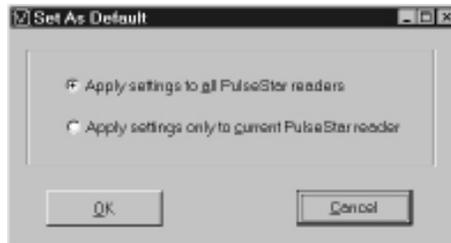
Figure 12 - Set As Default

Unless you choose otherwise, all PulseStars in the system will be updated to the new default settings when they are encountered.

Restore Default button – Retrieves your stored defaults from memory and writes them to the fields in the window.

**Status button** - displays the configuration settings read from the PulseStar during its most recent communications.
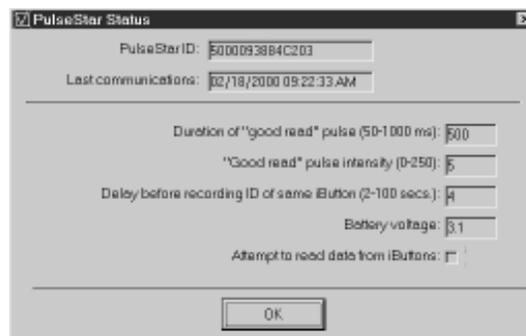
Figure 13 - PulseStar Status

iButton ID	iButton Name
01 00 00 02 B7 C5 54	Personnel Records
01 00 00 02 A2 5A 26	Upper Stairwell
21 00 00 00 00 41 DA	Gift Shop
01 00 00 03 41 13 E3	Main Lobby
01 00 00 01 D0 40 3F	East Hall
21 00 00 00 00 2E D2	South Parking Lot
01 00 00 23 C0 5E 8	Utility Area
01 00 00 35 E8 A4 0	Pool Area
0C 00 00 00 03 D9 04	North Hall
08 00 00 00 04 12 2F	West Hall
04 00 00 00 01 F1 8B	South Hall
09 00 00 00 9F F3 65	Storage Area

Status of communications with Blue Dot reader

iButton reader not found. | C:\Program Files\PulseStar Communications\PulseStar.mdb | 02/18/2000 | 02:48 PM

Figure 14 - iButton Tab

iButton Tab

This tab displays a list of iButtons in your system. To assign a name or description to an iButton, simply type in a name. The Transfer grid will automatically update with the new name. iButtons not in the list will be automatically entered into the list during communications. If you wish to add iButtons from the Edit menu, choose "Manually Add iButton" to type into the entry form (Figure 15). Alternatively you can use the Blue Dot reader to manually add iButtons. The Blue Dot reader is an optional accessory. Before using the Blue Dot reader, make sure that the correct serial port has been selected for this device. (From the Settings menu, choose Communications, and then select an iButton reader serial port.)

Tab headings:

iButton ID -   Unique factory ID
iButton Name - User-defined name

Figure 15 - Manually Add iButton

PulseStar PC Software - Drop-Down Menus

File Menu

New - Create new data file
Open - Open existing data file
Save As - Save as Access database file (*.mdb) or as text file
      (*.txt)
Print Setup - Standard print setup
Print - Standard print options
Exit - End program

Edit Menu

Cut - Future use
Copy - Future use
Paste -Future use
Remove Record(s) - Removes record(s) (Transfer and
                Configuration screens)
Remove iButton - Removes iButton from iButton screen
Manually Add iButton - Allows user to add iButtons manually

Settings Menu

Communications

Data Transfer Serial Port - Select the communication
port to which the base station is physically attached.

Blue Dot Reader Serial Port - Select the communication port
to which the iButton Reader cable is physically attached.

PulseStar Settings -
Clear PulseStar data after transfer (Default)
Set PulseStar clock after transfer - Update each PulseStar after
download is complete. (Default)
Warn if battery voltage drops below threshold - Allows user to
set low battery voltage threshold. (Default 2.51V)
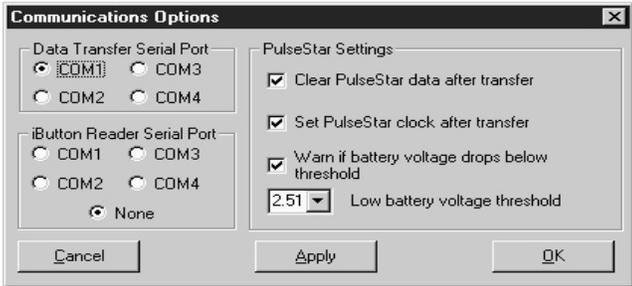
Figure 16 Communications Options

PulseStar PC Software - Drop-Down Menus

Raw Scan File

Output to Videx raw data file in addition to writing to the database - This option allows the software to create a Videx raw data file in addition to the database file (.mdb) that is created automatically. This option is provided to allow compatibility with previously existing applications. Contact Videx Customer Service for more information.

Data File Name - Allows user to select location and name of data file.

Replace iButton ID with iButton data when there is data read from the iButton - When this option is checked, the PulseStar will read the data that has been written to the iButton's memory instead of the ID of the button, and write it to the raw scan file.

Data Indentation - Select Spaces, Tab, or None - This option allows user to select what type of indentation will be used in the data file.
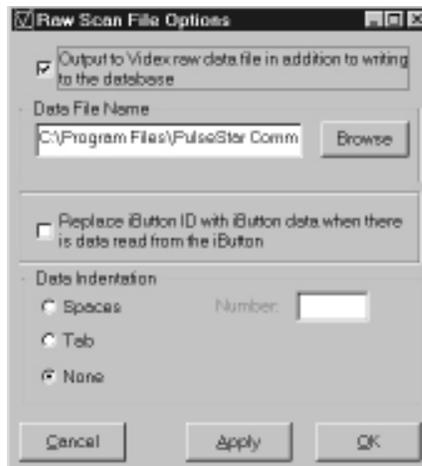

Figure 17 Raw Scan File Options

Look for PulseStar - When this menu option is checked, the software continually searches for the PulseStar for data transfer.

PulseStar PC Software - Drop-Down Menus

## Help Menu

About - Version of PulseStar Software

Figure 18 - About PulseStar Communications

PulseStar Battery Replacement

The PulseStar is shipped with a 3V lithium battery. The life of this battery in sleep (storage) mode is up to 1 year or up to 40,000 reads when using default settings. Exact battery life depends upon actual use.

> **CAUTION:**
> To help insure data integrity, download the PulseStar prior to changing the battery. The system is designed to avoid data loss, but observing this caution provides added protection.

To replace the battery, remove the battery cap using the spanner wrench provided with the PulseStar (Figure 19).
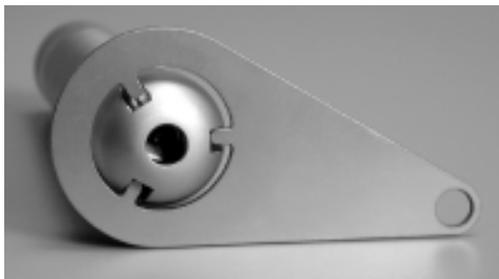

Figure 19 - PulseStar Spanner Wrench

Unscrew the battery cap counterclockwise. Replace the old battery with a new one, replace the battery cap, and tighten until snug. The new battery should be installed with the positive terminal facing toward the PulseStar read head (Figure 20). Replacement batteries are available in most photography outlets.

Figure 20 - Battery Installation

PulseStar Battery Information

The following chart provides an estimate of the days of battery life for PulseStar; it assumes that the PulseStar will be used 9 hours in a day, then downloaded and put into sleep mode. The PulseStar pulse duration is set at 1000 milliseconds (1 second) when it is shipped from the factory. PulseStar Communications software automatically sets it to 500 milliseconds (1/2 second) at its first communications.

Number of reads per day	Pulse duration in milliseconds		
	1000	750	500
	Total Days of Battery Life		
0	285.50	285.50	285.50
100	118.10	138.38	167.08
800	23.14	30.04	42.80
1800	10.77	14.18	20.75

PulseStar Low Battery Level Warning

Both the PulseStar reader and PulseStar Communications software provide a low battery warning. The warning is triggered when the measured battery voltage drops below a threshold. If it does, the PulseStar's LED stops flashing and, if enabled, the PC will post a warning after completing communications with the PulseStar.

By default, the threshold voltage is 2.51, but it may be adjusted if desired. You may select from 2.19, 2.35, 2.51, 2.66, and 2.82 volts. The new threshold is programmed into each PulseStar at its next communication session.

PulseStar Flashing LED

A light-emitting diode in the read head of the PulseStar is a status indicator. The following light patterns indicate the corresponding status:

1 flash every 2.3 seconds	PulseStar battery level is above the low threshold, and it is checking every flash for a communications signal from the PC.
Double flash every 4.6 seconds	PulseStar battery level is above the low threshold, but it is not checking for communications from the PC. This is the low power sleep mode set by the PC after data transfer.
Steady on	PulseStar infrared communications circuit is powered on and is ready to communicate with the PC. Typically this mode is invoked by the PC software, but it may also be invoked by reading the same iButton 10 times in a row. The next button touch turns off the IR circuit and the LED.
Off	PulseStar battery level is below the low threshold or PulseStar is nonfunctional.

Please refer to the technical documents included on the PulseStar Communications CD.

PulseStar Error Codes and Descriptions

Error Number	Error Text
1000	"No error has occurred."
1001	"An attempt to allocate or reallocate memory failed."
1002	"An attempt to access a file failed."
1003	"An attempt to manipulate a comm port failed."
1004	"A synchronization error occurred while attempting to communicate with a button reader."
1005	"The function was interrupted by user input."
1006	"An invalid PulseStar ID was detected."
1007	"An invalid command was sent to the PulseStar."
1008	"No data is available."
1009	"A time-out occurred."
1010	"A bad bit value was specified for the PulseStar configuration bit variable."
1011	"No data is available."
1012	"Attempt to synchronize with the PulseStar failed."
1013	"One or more parameters contained an illegal value."
1014	"An error of unknown type occurred."

PulseStar Troubleshooting

If you have problems with your PulseStar system, try the following troubleshooting tips. If you continue to have problems, contact Videx Customer Service by phone at (541)758-0521, by fax at (541)752-5285, or by e-mail at support@videx.com.

My computer will not download data from the PulseStar.

1.) If the status bar at the bottom of the PulseStar window displays "Unable to Open Com*x,"* then the serial port may be in use by another program or device. To free up the serial port for use by the PulseStar, disable that program or device.

2.) If the status bar displays "PulseStar Communications are idle," from the "Settings" drop-down menu, be sure that "Look for PulseStar" is checked.

3.) If the status bar displays "Looking for PulseStar on Com*x*" or "Unable to Open Com*x,"* make sure that the correct serial port has been selected. You can change the serial port by clicking on "Settings" and then selecting "Communications."

4.) If the status bar displays "Looking for PulseStar on Com*x,"* try cleaning the outside surface of the PulseStar's IR link (the recessed circular area in the read head). If dust or debris accumulates here, it can interfere with the PulseStar's ability to communicate. A Q-tip or similar item can be used to clean this area.

5.) If the status bar displays "Looking for PulseStar on Com*x,"* be sure that the PulseStar is firmly seated in the downloader.

6.) If the PulseStar LED is not flashing, replace the battery.

PulseStar Specifications

Physical:	Sealed plated aluminum case that resists scratches, drops, and water
Weight:	3.7 oz (105 g)
Dimensions:	Length 5 1/8"; diameter 15/16" (130.2 x 23.8 mm)
Memory:	48K byte chip
Storage Capacity:	Up to 5400 iButton ID reads
Battery:	3V lithium, 2/3 "A" size (Eveready Energizer EL123AP or equivalent)
Battery Life:	Up to 1 year or up to 40,000 continuous reads (default settings)
Clock:	Real-time clock with capacity to operate up to 1 minute after battery disconnected
Communications:	IrDA Layer 1 (HP/SIR)
Transfer Rate:	Full memory will transfer in approximately 26 seconds (57,000 bps)
Data Output:	Access database and/or ASCII text file
iButton:	Reads ID in all iButtons. Optionally reads data written to buttons in Dallas default data structure (not TMEX) from these iButtons: 1982, 1985, 1986, 1992, 1993, and 1994. Data is stored in memory with button ID. This option is OFF by default and must be enabled with software.
Storage Temperature:	-40° to 149°F (-40° to 60°C)
Operating Temperature:	32° to 122°F (0° to 50°C)
Humidity:	5% to 95% noncondensing

PulseStar Downloader Specifications

Dimensions:	4.0" x 4.1" x 1.8" (102 x 105 x 46 mm)
Weight:	8.2 ounces (232.5 g)
Number of Readers:	2
Power Supply Adaptors:	120 volt, 60 Hz; 220 volt, 50 Hz
Indicator Lights:	Transmit, Receive, Power
Connection Ports:	Computer, Extension, Power
Serial Communications:	Standard RS-232

PulseStar Configuration Options

Motor duty cycle (Read/Write): 1 - 10 (default 5 which is 50%) PC software presents this as *"Good read" pulse intensity.*

Read RAM in iButton: On -Off (default Off) This option increases read time on all buttons if enabled.

DLL Settings

Motor running time (Read/Write): 0 - 12 seconds (default 1000 milliseconds) PC software calls this *Duration of "good read" pulse.* Allows range of 100 - 1000 ms. NOTE: 0 - 1 second adjustable through PulseStar Communications Software.

Time between automatic IrDA sync retries: 0 to 586 seconds (default 2.3 seconds)

Time attempting to sync: 1 - 255 ms (default 10 ms)

Turn off ability to wake up by shorting contact: On - Off (default On)

Refer to "Data Communications DLL Specification for PulseStar" document for information regarding additional settings. Technical documents can be located on the PulseStar Communications CD.