

# HPRCv™ User's Manual

Engineering Solutions, Inc.

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## CHAPTER 1 - GETTING STARTED

**T**he HPRcv™ Receiver Module is an accessory program for the Datamed® EKG Format Translator family. It runs as a system service and will monitor up to four serial ports for connections from HP/Philips PageWriter™ XLi, PageWriter™ 300i, and PageWriter™ 200i cardiographs. Some models have a floppy interface in addition to the serial interface, but others are limited to serial only. For serial transmissions a modem is connected to the cardiograph, which then communicates over the phone line to the computer hosting HPRcv™ that has one or more serial modems. A direct serial connection will also work, but is less typical. EKGs can be transmitted individually or in batches. As each EKG is received by HPRcv™ it is written to a specific output folder where the Datamed® EKG Format Translator software will pick it up and translate it to the appropriate destination format and location.

If the cardiograph has a floppy interface it is important to use that method instead of serial transmission. The reason is that the cardiograph can be instructed to write files that contain 12x10 data, while the serially transmitted EKGs are always either 3x4 or 6x2 and therefore only contain a partial data set. See *Chapter 3* for more information on using the floppy interface.

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## CHAPTER 2 - INSTALLATION

### Requirements

- ❖ Software CD or installation package from ESI.
- ❖ HP/Philips PageWriter™ XLi cardiograph that will transmit to HPRcv.
- ❖ Datamed® EKG Format Translator software already installed and configured.
- ❖ **Computer.** If HPRcv is not going to be installed on the computer with the Datamed® EKG Format Translator software, a computer with the following specifications is required:
  - ✓ Microsoft Windows XP Service Pack 2 or later
  - ✓ Pentium 4 or higher
  - ✓ 256 MB RAM or more
  - ✓ 20 GB HD or more
  - ✓ Serial port with a Hayes™ compatible modem attached, or
  - ✓ USB port with a Hayes™ compatible USB modem attached
- ❖ This application requires the Microsoft .NET Framework. The setup program will install the Microsoft distribution package if necessary.

## Installation

### Install the HPRcv™ software

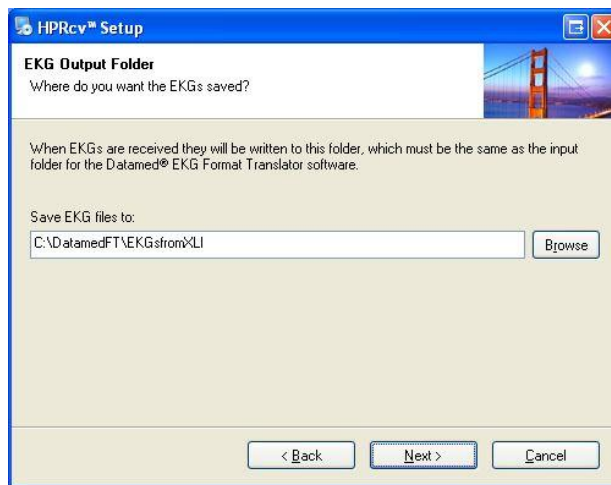
- On the Software Installation CD or in the installation package, locate HPRcvSetup.exe and double click on it. The following screen should appear. Click **Next** to continue.



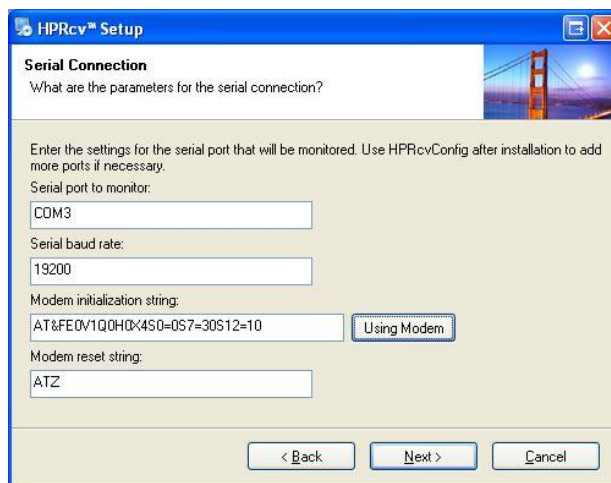
- Read the License Agreement carefully and select **I Agree**. Click **Next** to continue.



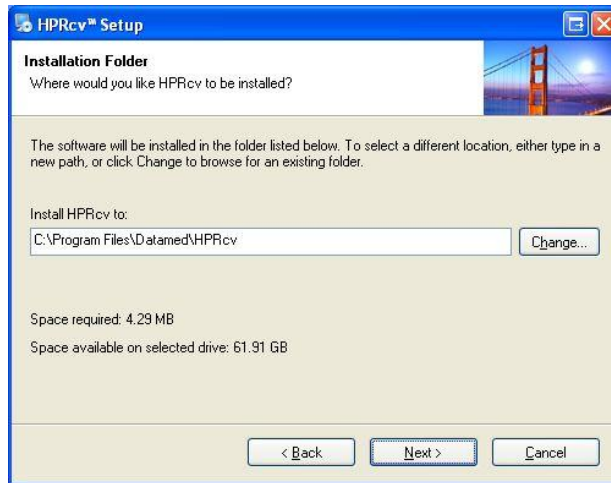
- The output folder shown as the default is correct for a typical installation of the Datamed® EKG Format Translator Software. If the translator software is looking for files in another folder or if it is running on a separate computer this folder will need to be adjusted accordingly. For example, when writing to the first process for DatamedFT™, the appropriate folder can be found in the registry as:  
`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\DatamedFT\Process01\DirIn`  
 If the format translator is on a separate computer the folder will need to be shared and then the output folder would be [\\computername\sharename](#). When all of the information is correct click **Next** to continue.



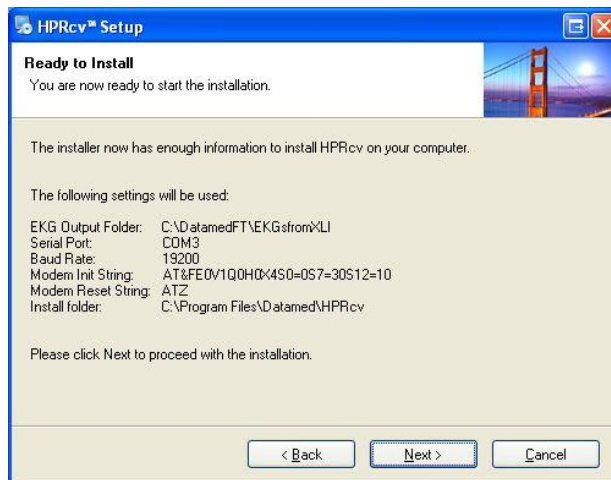
- Enter the settings for the first serial port. If more than one serial port will be used, run *HPRcvConfig* after installation. Press the *Using Modem* button to fill in the default modem strings which will work with most Hayes® compatible modems. If a direct-serial cable is used then the modem initialization string **must** be blank. When all information is correct click **Next** to continue.



- Select the installation folder for the program and then click **Next** to continue.

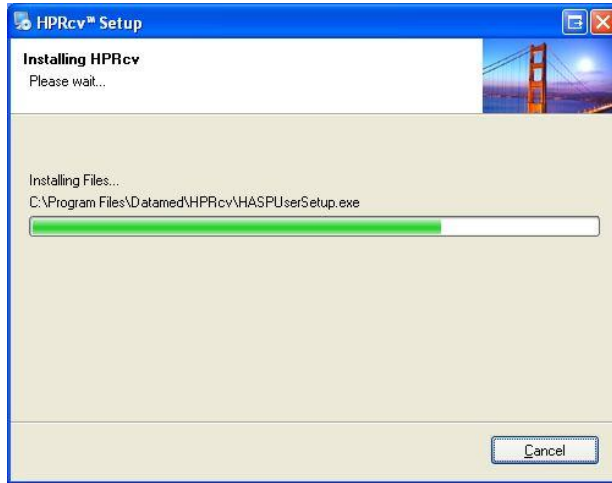


- Confirm all of the settings (you may go back to correct them) and then click **Next** to begin installing the application.

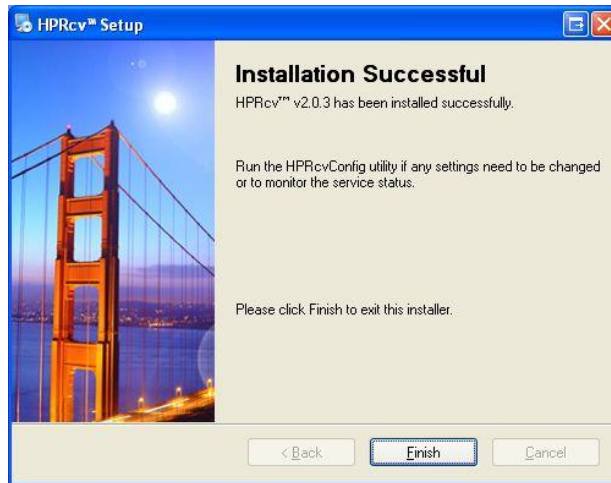




- The following screens will appear to show the progress of the installation.



- Once installation is complete, click **Close** to finish.



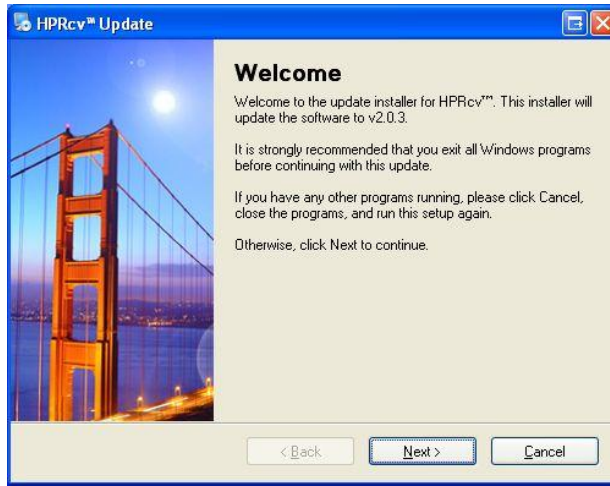
- The HPRcv service will not start until the computer is rebooted. It can be started immediately using the *HPRcvConfig* utility. This utility should be found at *Start* → *All Programs* → *Datamed* → *HPRcv* → *HPRcvConfig*. If any configuration changes are needed this utility is used to make them.

An alternative method of starting the service is to open the **Services** applet from *Control Panel* → *Administrative Tools* and start the *HPRcvStart* service. The job of this service is to make sure that HPRcv runs and is restarted if it stops for any reason.

## Updating

When an update to HPRCv™ is needed, an update package will be distributed. This package will install the updated software as necessary. To run the update, do the following:

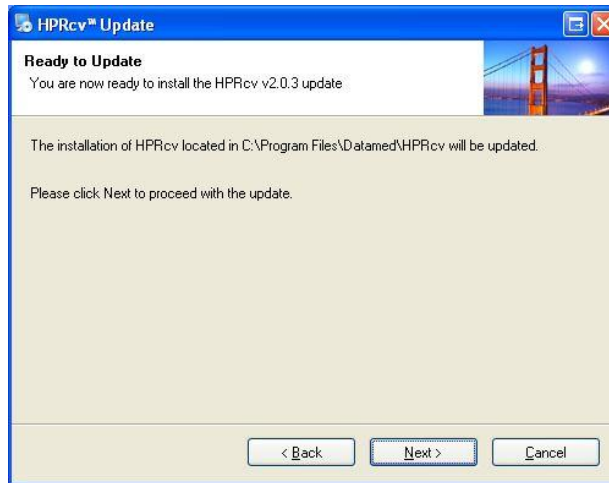
- Download the update package from the website (contact ESI for access), locate *HPRCvUpdate.exe* and double click on it. The following screen should appear. Click **Next** to continue.



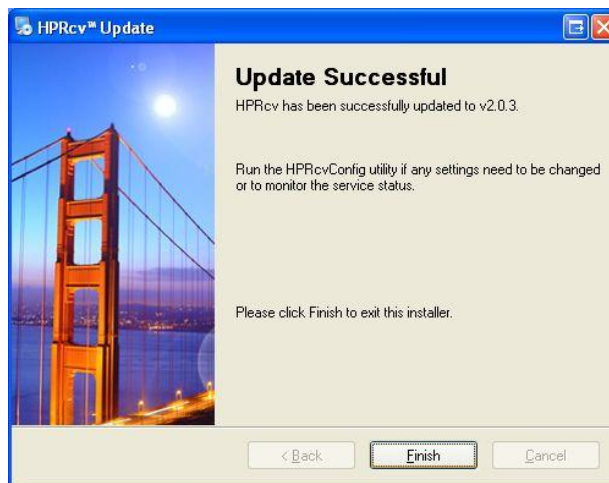
- Read the License Agreement carefully and select **I Agree**. Click **Next** to continue.



- Click **Next** to begin installing the update.



- Once installation is complete, click **Close** to finish.



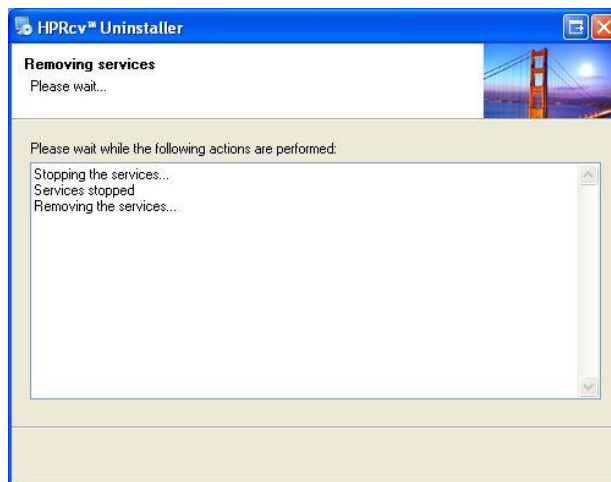
## Uninstalling

To uninstall HPRcv, do the following:

- From *Start* → *All Programs* → *Datamed* → *HPRcv*, select *Uninstall HPRcv*. Alternatively, open *Control Panel*, choose *Add or Remove Programs*, select *HPRcv*, and press the *Remove* button. The following screen should appear. Click **Next** to continue.



- The following screen will appear to show the progress of the uninstall.



- Once the uninstall is complete, click **Close** to finish.



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## CHAPTER 3 - CONFIGURING AN XLI CARDIOGRAPH

**T**o get the most data from an HP PageWriter™ Xli cardiograph, the floppy interface should be used and the special 12x10x500 mode should be enabled. If this type of setup is not used, the data being transmitted to the host system will be incomplete (either 3x4 or 6x2). Note that when the cardiograph is in this special mode, the EKGs that are stored are not compatible with most TraceMaster systems directly.

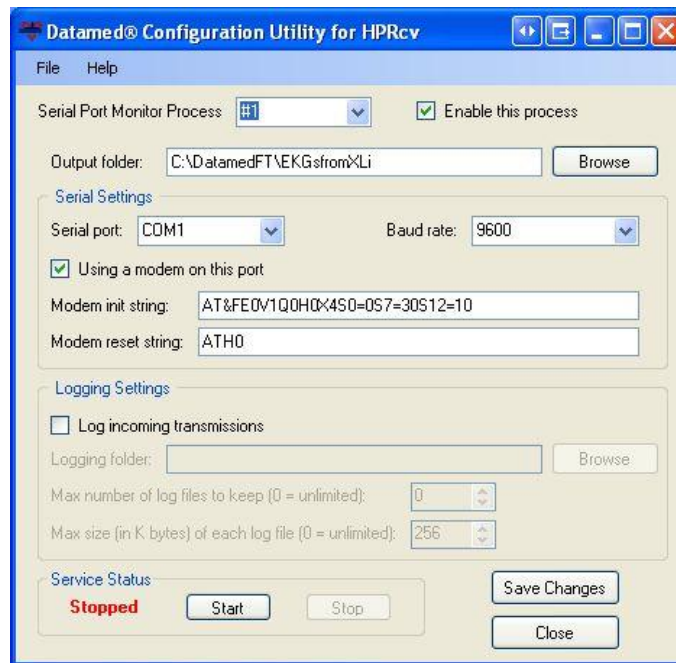
To place the cardiograph in the special 12x10x500 mode, do the following:

1. Press **MENU** until you see choices including **Config**, then press **Config**.
2. If a password is requested, enter your password. (your BioMed should know what it is)
3. Press **Global**. As each choice is presented, press **Enter** to go to the next step or **Choose** to change the entry, then press **Enter** to go on to the next entry. Most items should be left unchanged, unless there is a good reason to change them.
4. Keep pressing **Enter** to step through the long list of entries until you see an entry labeled **Special Applications**. Press **Choose** to change it to **Yes**, then **Enter**.
5. Press **Enter** until you see **EKG Store Mode**. Press **Choose** to change it from **Standard** to **Special**. Then press **Enter** to save the choice.
6. Press **Exit** to leave the menu and keep your settings.
7. Make these changes to each XLi cart.

Note that using the special leads format will limit the number of EKGs stored on each diskette to about 30.

## CHAPTER 4 - CONFIGURING HPRCV

Once HPRcv is installed, changes to the configuration settings can be done using the HPRcvConfig utility that is installed along with the service. Open the utility from the Windows™ Start menu and it will automatically read the current configuration settings from the registry. The window should look similar to this:



There are four port monitor processes that can be set up. Use the first selection box on the screen to pick the appropriate process and the information for that process will populate the rest of the screen. Note that after installation only the first process is enabled - enable the others as necessary.

The output folder, serial port settings, modem settings, and logging settings can be set individually for each port monitor process. **Note that a mapped drive cannot be used for the Output Folder setting because mapped drives are not available to services.** Any changes made will not take effect until they are saved (using the button or the menu choice) and the service is restarted. The current status (Running or Stopped) can be seen near the bottom of the window and the service can be directly stopped and/or started from this utility. Note that the Serial Port selection box is filled in with all of the valid entries that the operating system is aware of. If changes are made on the screen but you want to return to the current values you can choose *Reload from Registry* on the *File* menu.

If HPRcv is not operating properly and ESI support personnel request that you turn on debugging, choose *Access Advanced Settings* from the *File* menu and a new section will appear on the window.



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Check the *Enable Debugging* checkbox and select a folder to write the debug files to, then save the settings and restart the service. One or more debug files will be created in the output folder which can be forwarded to ESI support for analysis. The *Max ECGs allowed per batch* should not be adjusted unless instructed to do so by ESI support personnel.

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## CHAPTER 5 - TROUBLESHOOTING

**W**hen HPRcv is installed, two new Windows™ services are created: HPRcv and HPRcvStart. The functions of HPRcvStart are to start and stop HPRcv, as well as to monitor it. If HPRcv stops for some reason HPRcvStart will restart it. During installation HPRcv's startup type will be set to *Manual*, and HPRcvStart's startup type will be set to *Automatic*. HPRcv should never be started or stopped directly. When HPRcvStart is started or stopped it will take care of HPRcv.

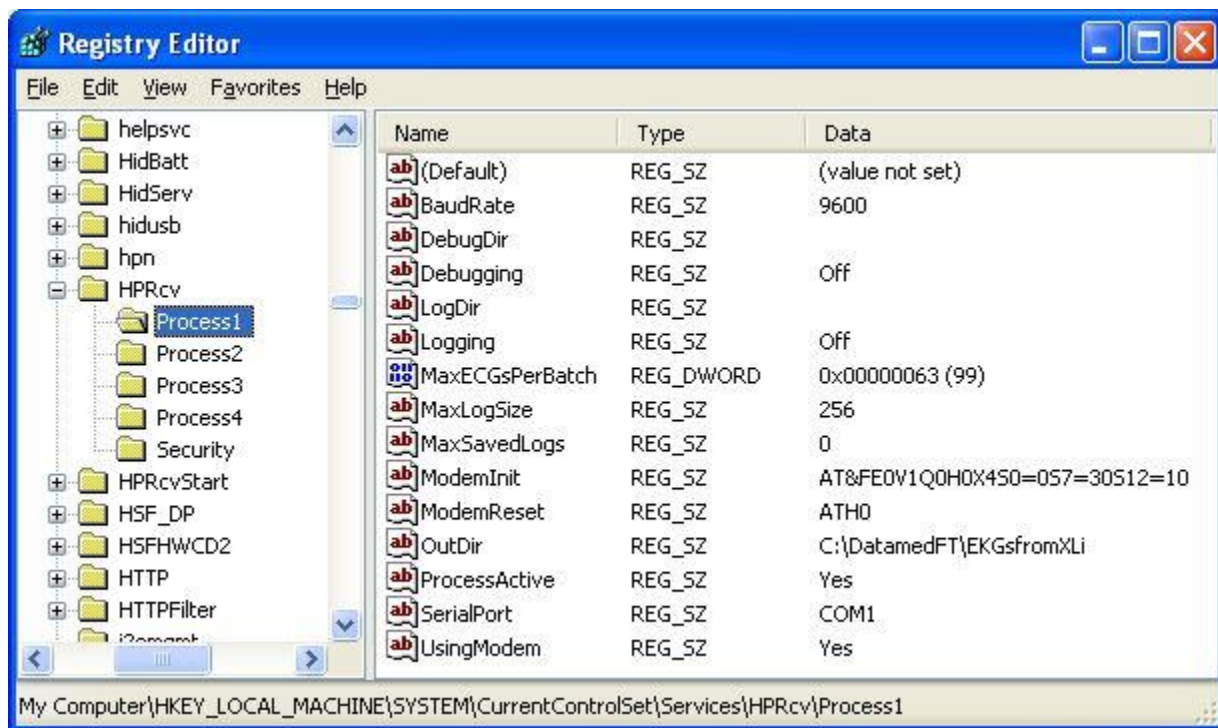
If there is a problem, the first place to look is the **Event Viewer**, which can be accessed from **Control Panel** → **Administrative Tools**. Once the viewer is open, select **Application** from the left side menu and the right side will be filled with the application event log. Double-clicking on any entry in the log will open a window that shows the details for the event. The **Type** column in the log will indicate whether this is an *Information* or *Error* message, and the **Source** column will indicate what service logged the entry. The *Information* messages are normal and for a normal startup there will be one from HPRcvStart (*Service started successfully*), and three or four from HPRcv depending on what ports are set up. The *Error* messages describe problems that have occurred. Reviewing the log entries will give insight into what is working and what is a problem.

On startup there should be either one or two messages that say that HPRcv has started listening for messages and listing the directory where files will be written. There should be a startup message for each process that is enabled. If any message that should be there is not present, check the configuration settings using HPRcvConfig to confirm that the parameters are correct (see *Chapter 4* for details). If the message is missing and there is no error relating to it, make sure the process is enabled. In most cases, however, there will be an error message that describes the problem. For example if the **SerialPort** setting is set to "1" instead of "COM1", or if it is set to a port that doesn't exist then an error would be produced. Most errors are self-explanatory and can be resolved by correcting the setting or condition that caused them.

If the services start properly but no files are received when the originating device makes a transmission, contact ESI support for assistance resolving the problem. If instructed to turn on debugging, follow the instructions in *Chapter 4* and send the debug file(s) to ESI.

## APPENDIX A - CONFIGURATION SETTINGS

HPRcvConfig should be used to make all configuration changes, however if there is a problem with it or if instructed by ESI support personnel, the registry editor can be used to directly access the settings. Note that improper use of the registry editor can lead to serious problems with the computer, including rendering it inoperable, so extreme care must be used. Open the registry editor by selecting Start → Run and then type “*regedit*” and press **OK**. When the registry editor opens, navigate the folders to HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\HPRcv. It should look like this:



Most of the settings must not be changed or the operation of HPRcv will be affected. If any setting is changed HPRcvStart must be restarted. The following configuration settings may be changed:

- ❖ **BaudRate** - This is the baud rate for the serial port. Valid settings are 2400, 9600, 19200, and 115200. Do not include any characters other than digits.
- ❖ **DebugDir** - The folder where debug files will be written if debugging is on.
- ❖ **Debugging** - This indicates whether debugging is turned on or not.
- ❖ **LogDir** - The folder where log files will be written if logging is on.
- ❖ **Logging** - This indicates whether logging is turned on or not.

- ❖ **MaxECGsPerBatch** - This indicates the maximum number of EKGs that can be received in a single batch transmission. This should not be changed.
- ❖ **MaxLogSize** - This is the maximum size (in Kbytes) that a log file will be allowed to grow before creating a new log file.
- ❖ **MaxSavedLogs** - This is the maximum number of log files to keep. Excess log files will be deleted.
- ❖ **ModemInit** - This is the string that is sent to the modem to initialize it and may be changed as needed if serial communication is used. For a direct connection (no modem), this should be blank.
- ❖ **ModemReset** - This is the string that is sent to the modem to reset it after a transmission and may be changed as needed if serial communication is used. For a direct connection (no modem), this should be blank.
- ❖ **OutDir** - This is the location where the files will be written. It should always point to the same location as the InDir setting for DatamedFT. **IMPORTANT NOTE: A mapped drive cannot be used for this setting because mapped drives are not available to services.**
- ❖ **ProcessActive** - This indicates that this port monitor process is enabled.
- ❖ **SerialPort** - This is the port to use for serial communication. The format is “COM1”, “COM2”, etc. If serial communication is not used this *must* be blank. Note that if this is set to a port that does not exist then errors will be produced.
- ❖ **UsingModem** - This indicates that a modem is attached to this serial port.

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**14. U.S. GOVERNMENT LICENSE RIGHTS.** All Product provided to the U.S. Government pursuant to solicitations issued on or after December 1, 1995 is provided with the commercial license rights and restrictions described elsewhere herein. All Product provided to the U.S. Government pursuant to solicitations issued prior to December 1, 1995 is provided with "Restricted Rights" as provided for in FAR, 48 CFR 52.227-14 (JUNE 1987) or DFAR, 48 CFR 252.227-7013 (OCT 1988), as applicable.

**15. APPLICABLE LAW.** This EULA is governed exclusively by the laws of the State of Tennessee, USA.

**16. ENTIRE AGREEMENT; SEVERABILITY.** This EULA (including any addendum or amendment to this EULA which is included with the Product) is the entire agreement between you and ESI relating to the Product and the support services (if any) and they supersede all prior or contemporaneous oral or written communications, proposals and representations with respect to the Product or any other subject matter covered by this EULA. This EULA sets forth the entire liability of ESI and its representatives and your exclusive remedy with respect to the Product and services and their use. To the extent the terms of any ESI policies or programs for support services conflict with the terms of this EULA, the terms of this EULA shall control. Any waiver of the terms herein by ESI must be in a writing signed by an authorized officer of ESI and expressly referencing the applicable provisions of this EULA. If any provision of this EULA is held to be void, invalid, unenforceable or illegal, the other provisions shall continue in full force and effect. Headings are included for convenience only, and shall not be considered in interpreting this Agreement. This EULA does not limit any rights that ESI may have under trade secret, copyright, patent or other laws.

**The following ESI GUARANTEE applies to you if you acquired this Product in any country other than the United States:**

*Statutory rights not affected* - The following guarantee is not restricted to any territory and does not affect any statutory rights that you may have from your reseller or from ESI if you acquired the Product directly from ESI. If you acquired the Product or any support services in Australia, New Zealand or Malaysia, please see the "Consumer rights" section below.

*The Guarantee* - The Product is designed and offered as one of ESI's Datamed® products. You accept that no Product is error free and you are strongly advised to back-up your files regularly. Provided that you have a valid license, ESI guarantees that a) for a period of 90 days from the date of receipt of your license to use the Product or the shortest period permitted by applicable law it will perform substantially in accordance with any written materials that accompany the Product; and b) any support services provided by ESI shall be substantially as described in applicable written materials provided to you by ESI and ESI support engineers will use reasonable efforts, care and skill to solve any problem issues. Acknowledging that ESI has limited support resources, all support will be done remotely from ESI's home location. In the event that the Product fails to comply with this guarantee, ESI will either (a) repair or replace the Product or (b) return the price you paid. This guarantee is void if failure of the Product results from accident, abuse or misapplication. Any replacement Product will be guaranteed for the remainder of the original guarantee period or 30 days,

whichever period is longer. You agree that the above guarantee is your sole guarantee in relation to the Product and any support services.

*Exclusion of All Other Terms* - To the maximum extent permitted by applicable law and subject to the guarantee above, ESI disclaims all warranties, conditions and other terms, either express or implied (whether by statute, common law, collaterally or otherwise) including but not limited to implied warranties of satisfactory quality and fitness for particular purpose with respect to the Product and any written materials that accompany the Product. Any implied warranties that cannot be excluded are limited to 90 days or to the shortest period permitted by applicable law, whichever is greater.

*Limitation of Liability* - To the maximum extent permitted by applicable law and except as provided in the ESI Guarantee, ESI and its Representatives shall not be liable for any damages whatsoever (including without limitation, damages for loss of business profits, business interruption, loss of business information or other pecuniary loss) arising out of the use or inability to use the Product, even if ESI has been advised of the possibility of such damages. In any case ESI's entire liability under any provision of this EULA shall be limited to the amount actually paid by you for the Product. These limitations do not apply to any liabilities that cannot be excluded or limited by applicable laws.

*Consumer Rights* - Consumers in Australia, New Zealand or Malaysia may have the benefit of certain rights and remedies by reason of the Trade Practices Act and similar state and territory laws in Australia, the Consumer Guarantees Act in New Zealand and the Consumer Protection Act in Malaysia in respect of which liability cannot lawfully be modified or excluded. If you acquired the Product in New Zealand for the purposes of a business, you confirm that the Consumer Guarantees Act does not apply. If you acquired the Product in Australia and if ESI breaches a condition or warranty implied under any law which cannot lawfully be modified or excluded by this agreement then, to the extent permitted by law, ESI's liability is limited, at ESI's option, to: (i) in the case of the Product: a) repairing or replacing the Product; or b) the cost of such repair or replacement; and (ii) in the case of support services: a) re-supply of the services; or b) the cost of having the services supplied again.

Should you have any questions concerning this EULA, or if you desire to contact ESI for any reason, please use the address information enclosed in this Product to contact ESI directly or visit ESI on the World Wide Web at <http://www.engs.com>.