# Remote Controller

*Software User Guide*

**Version 2.21**

**December 1998**

**Revision A**

**Copyright**

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# Contents

# About This Manual

Welcome to the *Remote Controller Software User Guide*. This manuals describes how to install and operate the Remote Controller™ software. The Remote Controller software remotely controls a Trimble Series 4000™, Site Surveyor 4400™, 4700, 4800, or 7400MSi™GPS receiver.

## Scope and Audience

Even if you have used other Global Positioning System (GPS) products before, we recommend that you spend some time reading this manual to learn about the special features of this product. If you are not familiar with GPS, we suggest that you read the booklet *GPS, A Guide to the Next Utility* that is available from Trimble Navigation Limited.

We assume that you are familiar with Microsoft Windows, and know how to use a mouse, select options from menus and dialogs, make selections from lists, and use online Help. For a review of these techniques, refer to your Windows documentation.

The following sections provide you with a guide to this manual, as well as to other documentation that you may have received with this product.

# Organization

This manual contains the following:

- Chapter 1, Introduction, introduces you to the Remote Controller software.

- Chapter 2, Installation, tells you how to install and configure the software.

- Chapter 3, Configuring the System, explains how to set up the Remote Controller software.

- Chapter 4, Operating the Remote Controller, shows you how to operate the Remote Controller software.

- Chapter 5, Settings, shows you how to set up the software to communicate with the receiver.

- Chapter 6, Transferring Files, tells you how to transfer files to and from the GPS receiver.

- Appendix A, Avoiding Problems, describes common errors.

- Appendix B, Error Messages, describes problems that can occur and explains how to solve them.

# Related Information

The following sections discuss other sources of information that introduce, extend, or update this manual.

## Online Help

The software has built-in, context-sensitive online Help that lets you quickly find the information you need. Access it from the Help menu. Alternatively, click the Help button in a window, or press F1.

### README.WRI File

A README.WRI file contains important information added after the manuals went to print. To read this file, double-click it or use a text editor to open it. The installation program also copies it into the program directory.

# Other Information

This section lists sources that provide other useful information.

### World Wide Web (WWW) Site

For an interactive look at Trimble, visit our site on the World Wide Web (http://www.trimble.com).

### File Transfer Protocol (FTP) Site

Use the Trimble FTP site to send files or to receive files such as software patches, utilities, and FAQs. The address is ftp://ftp.trimble.com.

You can also access the FTP site from the Trimble World Wide Web site (http://www.trimble.com/support/support.htm).

# Technical Assistance

If you have a problem and cannot find the information you need in the product documentation, ***contact your local dealer***.

If you need further assistance, contact the Trimble Technical Assistance Center (TAC) by phone, fax, or email. A support technician can help determine the cause of the problem and provide technical assistance.

To contact TAC:

Phone:          +1-800-SOS-4TAC (North America)
                +1-408-481-6940 (International)

                Phones are answered from 6 am to 5.30 pm Pacific Standard Time.

Fax:            +1-408-481-6020

Email:           trimble_support@trimble.com

When you contact TAC, have the following information available:

- The Trimble product name, any software or firmware version number(s), and if appropriate, the serial number.

- Your specific question or problem. Please detail background information, such as the configuration of your data logger or receiver, and the exact type, make, and configuration of your computer. If you have received error messages, please specify the exact wording.

If you need to send a data file with your inquiry, please compress the file using PKZIP software by PKWARE, Inc., and name the file with the extension .ZIP.

Use one of the following methods to send the file:

- Attach the file to your email inquiry.

- Put the file on the Trimble FTP site and include the file name in your email inquiry.

# Reader Feedback

Thank you for purchasing this product. We would appreciate your feedback about the documentation. Your feedback will help us to improve future revisions. Contributors of particularly helpful evaluations will receive a thank-you gift.

To forward your feedback, do one of the following:

- send an email to ReaderFeedback@trimble.com

- complete and fax or post the reader comment form at the back of this manual to the attention of the Documentation Group. (If the reader comment form is not available, send comments and suggestions to the address in the front of this manual)

All comments and suggestions become the property of Trimble Navigation Limited.

Thank you for your help.

# Document Conventions

*Italics* identify software menus, menu commands, dialog boxes, and the dialog box fields.

SMALL CAPITALS identify DOS commands, directories, filenames, and filename extensions.

Courier represents messages printed on the screen.

**Courier Bold** represents information that you must type in a software screen or window.

**Helvetica Bold** identifies a software command button.

Ctrl is an example of a hardware function key that you must press on a personal computer (PC). If you must press more than one of these at the same time, this is represented by a plus sign, for example, Ctrl+C.

# Warnings, Cautions, Notes, and Tips

Warnings, cautions, notes, and tips draw attention to important information and indicate its nature and purpose.

**Warning –** Warnings alert you to situations that could cause personal injury or unrecoverable data loss.

**Caution –** Cautions alert you to situations that could cause hardware damage or software error.

**Note –** Notes give additional significant information about the subject to increase your knowledge, or guide your actions.

**Tip –** Tips indicate a shortcut or other time- or labor-saving hint that can help you make better use of the product.

# 1 Introduction

This chapter provides an introduction to the Remote Controller software.

The Remote Controller is a software product that runs on a computer. It is connected, directly with a cable or indirectly using a modem, to a Trimble Series 4000™, Site Surveyor 4400™, 4700, 4800, or 7400MSi™ GPS receiver. It shows on the screen of the computer an image of the front panel of the receiver, and reflects on the computer exactly what appears on the receiver. Similarly, keys that are pressed on the computer image have the same effect as if they were actually pressed on the front panel of the receiver.

Figure 1-1 shows an overview of the Remote Controller system.
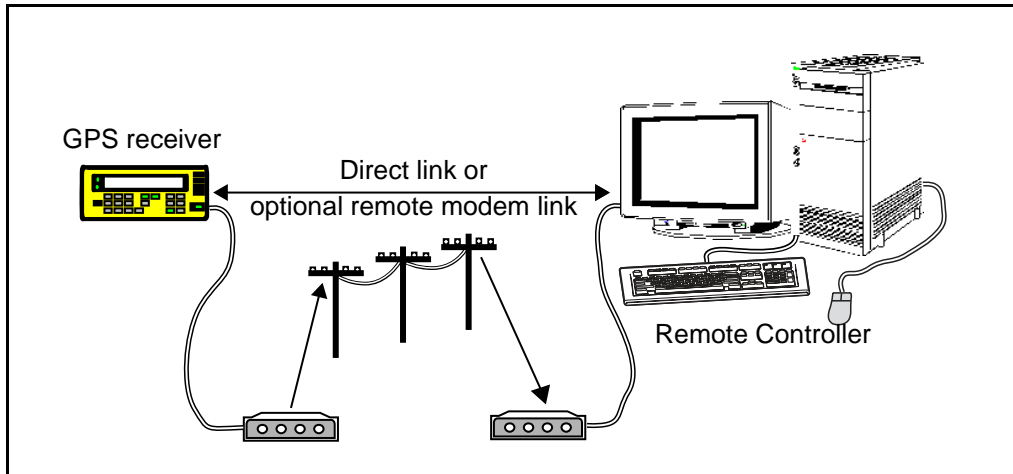


**Figure 1-1     Structure of the Remote Controller System**

Use the Remote Controller to:

- configure a receiver

- download files that have been logged in the receiver

- download session table information from the receiver for schedule log editing (this can then be sent back to one or multiple receivers) (Series 4000 GPS receivers only)

- receive almanac data suitable for preplanning

- load new firmware into the receiver (Series 4000 GPS receivers only)

- reset the receiver (Series 4000 GPS receivers only)

It is important to note that although it can control the powering down of a receiver, the Remote Controller cannot power up a receiver. Once switched off, a receiver must be powered up by some other means.

# 2   Installation

This chapter covers how to:

- install the Remote Controller software on your computer

- connect your GPS receiver and computer

- configure your GPS receiver

If you are using modems, installation also involves the connection and configuration of these modems.

## 2.1    Prerequisite Hardware and Software

The Remote Controller software requires a computer with the
following minimum specifications:

- A 33MHz 80386DX processor or better, with at least 4 MB
  RAM

- A hard disk (or network drive) with 4 MB available space for
  installing the software

- A 3½" 1.44 MB disk drive for installing the software

- A serial port for connecting to the GPS receiver

- A mouse (optional, but it must not use the serial port for the
  receiver)

- Windows version 3.1, or later

If you are using a Series 4000 receiver it must have firmware version
5.63 or later. Also, if you are using the Series 4000 receiver with
modems, you must have the remote download option (see Remote
Download Option, page 3-7) installed in the receiver.

Regardless of the type of receiver you are using, if you intend to
communicate via modems the modems used must support a fixed
computer-to-modem baud rate (fixed DTE rate), independent of the
connection baud rate. Modern high speed modems usually support a
fixed DTE rate, but older modems operating at 2400bps or lower may
not. Your modem must have a minimum baud rate of 9600 if you want
to use all of the facilities available to you with the Remote Controller
software.

## 2.2    Installing the Software

If you are upgrading from the original 'Yellobox' version of the Remote Controller software, install the software as described in this section, then remove the previous version by deleting the C:\YELLOBOX directory.

To install the Remote Controller software:

1.   Insert the CD containing the Remote Controller software into your CD-ROM drive.

2.   Using File Manager or Windows Explorer go the CD-ROM drive and double-click the RemCon folder.

3.   Double-click the Disk 1 folder, then SETUP.EXE.

4.   Follow the instructions on the screen.

During installation, all files required by the Remote Controller are copied to the hard drive of the computer.

# 3  Configuring the System

This chapter tells you:

- how to connect the GPS receiver to the computer using direct connection or modem connection

- how to configure the GPS Receiver

- how to configure the modem

- about the Remote Download option

# 3.1    Connecting the GPS Receiver to your Computer

In addition to connecting your GPS receiver to an antenna and power supply, you must connect it to the computer so that the Remote Controller can control it. You can use a direct connection with a single cable from the receiver to the computer, or you can use a modem.

## 3.1.1    Direct Connection

Use a serial cable (such as Trimble part number 18826) to connect the I/O 1 serial port of your GPS receiver to one of the serial ports on your computer—usually COM1 or COM2. This connection is used to control the receiver from the computer.

✉    **Note –** You can actually connect to any port on the GPS receiver, but a different cable is required, since the I/O 1 port on the receiver has 5 pins but the other ports have 7 pins. A suitable 7-pin cable is Trimble part number 18827.

## 3.1.2    Modem Connection

If you want to access the receiver from a remote location, you must use a modem. A telecommunications link is also necessary. The modems chosen must have a minimum baud rate of 9600 for all Remote Controller functionality to work correctly.

At the remote site attach the receiver to the modem using a receiver cable such as Trimble part number 21295 (for port I/O 1) or 21296 (for port I/O 2).

Unless your computer has a built-in modem, you will need a modem at the base location as well. The cable used to connect your computer to the modem should be supplied with your modem or will be available from your modem dealer. The Remote Controller software requires a carrier detect line from the modem, so use a computer-to-modem cable with this facility.

## 3.2    Configuring the GPS Receiver Communication Port

Set up the Series 4000 GPS receiver's serial ports and associated parameters for use with the Remote Controller so that the software can communicate with the receiver. Do the following using your receiver manual:

> **Note –** If the receiver is connected directly to the computer (no modems used) and the Auto Baud Rate Detection option is selected the Remote Controller automatically sets the serial port settings in the receiver to match those specified in the Remote Controller. For more information see Communication Settings, page 5-2. Step 1 and Step 2 below are then unnecessary.

To configure the Series 4000 GPS receiver communication port:

1    Press the [Control] key to access the *Receiver Control* menu.

All of the following options are set under this menu.

2    Select *Baud Rate / Format* and make sure that the parameters are correctly set for Port 1 (or the receiver port that you are using to communicate with the Remote Controller software).

> **Note –** The Remote Controller can work at any baud rate with the receiver; 9600 is recommended on the receiver because that is the default for the software on the computer and the required baud rate for firmware upgrades. However, if you are doing file transfers you should use as high a baud rate as possible—38,400 is recommended. The important point is that the receiver is set to the same baud rate that the Remote Controller software is expecting.

3    Select the *Remote Protocol* option and make sure that it is set to Data Collector Compatible.

4    Make sure that the *RTCM Input* and *RTCM Output* options and other output options such as *NMEA-183* are **not** using the port that is connected to the computer.

Once these settings have been made they are retained by the receiver even if it is powered down and back up again.

**Note –** If the Remote Controller cannot detect the receiver port it is connected to, it defaults to use the currrent serial port parameters on the receiver. In other words, ignoring communication settings you may have made in Remote Controller.

## 3.3    Configuring Your Modem

For the modem link to operate, the base modem, the remote modem, and the receiver must be set up correctly. Select the *Use Modem box* in the Remote Controller *Modem Setup* dialog (see Modem Settings, page 5-4).

Before configuring the modems, set the data transfer baud rate in both the Remote Controller software (Communication Settings, page 5-2) and the receiver (Configuring the GPS Receiver Communication Port, page 3-3).

To set up the base modem:

1    Enable verbose command responses.

2    Use DTR for hang up.

3    Enable carrier detect.

4    Disable XON/XOFF flow control.

5    Use fixed baud rate.

To set up the remote modem:

1    Enable auto answer.

2    Disable XON/XOFF and RTS/CTS flow control.

3    Ignore DTR.

4    Use fixed baud rate.

☆    **Tip –** To make sure that the remote modem is not sending too much data for the base modem to handle, make sure that the base modem can communicate at the same speed or faster than the remote modem.

**Note –** If you are performing receiver firmware upgrades, the communication settings required depend on the Boot version of the receiver you are using. For information about the communication settings you should be using see Upgrading Receiver Firmware, page 6-24.

There are a number of software packages available that help in setting up modems. For example, the Terminal program in Windows 3.1.

If you are using this facility, connect the modem directly to a computer and then use the Terminal program on the computer to send the setup strings to the modem. Set the modem baud rate to the baud rate set on the receiver then save the modem setup (usually the modem command AT&W will save the setup but check your modem manual for the string you should use). You can now connect the modem to the receiver.

## 3.4    Remote Download Option

If you want to download files from or transfer firmware to a Series 4000 receiver, and you are using the Remote Controller with modems, you must install the Remote Download option in the receiver. This option can be purchase separately and then installed remotely.

When Remote Download is installed there is a *Modem Setup* command under the *Receiver Modify* menu. Using this option you can enter and enable the modem setup string on either port 1 or 2, or alternatively you can disable it if you do not want to use it.

Use the keypad on the receiver to enter the setup string.



**Note –** It may be useful to note that for modem support extra string commands are available. To access them press the ⌊.0⌋ key more than once.

Consult your modem manual for the modem command string that you should use. Figure 3-1 shows an example of a modem command string. The ATS0=1 string will assign most modems the same baud rate as that set in the receiver, and will arrange for the modem to answer after one ring.



```
MODEM SETUP STRING [ PORT 1 ]
(SCHEDULED EVERY 5 MINS WHEN IDLE)
ATS0=1
```

**Figure 3-1    Example Modem Command String**

The setup string is sent to the modem every five minutes when the receiver is idle, if an antenna is connected to the receiver, and the receiver has locked onto a satellite.

# 4 Operating the Remote Controller

When you have installed your Remote Controller software, and set up and configured your modems (if you need to) and receiver, you can operate the system.

This chapter provides information on:

- Starting a remote control session
- Controlling the receiver
- Stopping a session

## 4.1 Running the Remote Controller

To run the Remote Controller and initiate a remote control session:

1. Turn on the receiver.

2. Make sure that the receiver is not emitting data out of the same port that the computer is connected to.

3. Select Remote Controller from the Start / Programs / REMCON submenu.

A message appears saying that the program is trying to communicate with the receiver. After a moment this disappears and is replaced by an image of the front panel of the receiver:
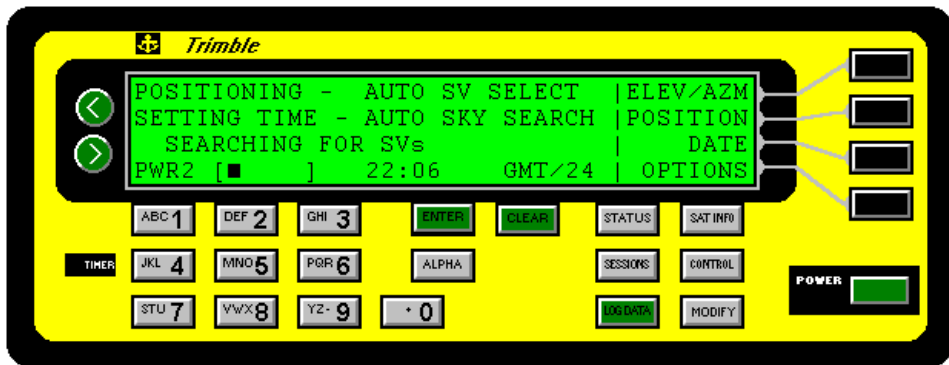
## 4.2    Dialing the Receiver

If you are using modems, you must dial the remote receiver before communication can occur between the Remote Controller software and the receiver.

Before dialing the receiver, make sure that you:

1.  Correctly connect and configure the receiver and modems.

    For more information see Chapter 3, Configuring the System.

2.  Select the *Use Modem* check box in the *Modem Setup* dialog.

    For more information see Modem Settings, page 5-4.

If there is a *Hang Up* menu at this stage, but no *Dial* menu, you have not configured the modem correctly (in particular, the modem has not been programmed so that carrier detect becomes active after the modems are detected and inactive when the carrier is lost). Before you dial the receiver, select the *Hang Up* menu.

To dial the receiver using a modem:

1.  Choose the *Dial* menu.

2.  Enter the appropriate phone number.

    Alternatively, if you have previously established a phone number directory (see Maintaining Phone Numbers, page 5-7), select a number from this directory.

    During dialing a response window is displayed:
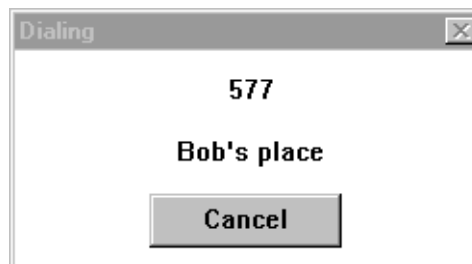
When the connection is established, the software displays messages at the bottom of the screen to indicate that the receiver has been detected and is connected. The *Dial* menu is replaced by the *Hang Up* menu (use this to terminate the connection).

To dial a receiver without using a modem:

• Select the *Connect* menu.

  When the Remote Controller starts it automatically attempts to connect to the receiver but if the connection is broken while the software is running you will need to select the *Connect* menu again to re-establish it.

## 4.3      Controlling the GPS Receiver

Control the physical receiver by clicking on the keys that are displayed by the Remote Controller. When a key is clicked, information about which key was pressed is sent to the physical GPS receiver, which acts as if its corresponding physical key had been pressed. Similarly, when the contents of the physical screen display change, a message is sent from the physical receiver to the computer so that the screen image is updated.

Instead of using the mouse to press the keys, you can use the keyboard of your computer. Figure 4-1 shows the key mapping.
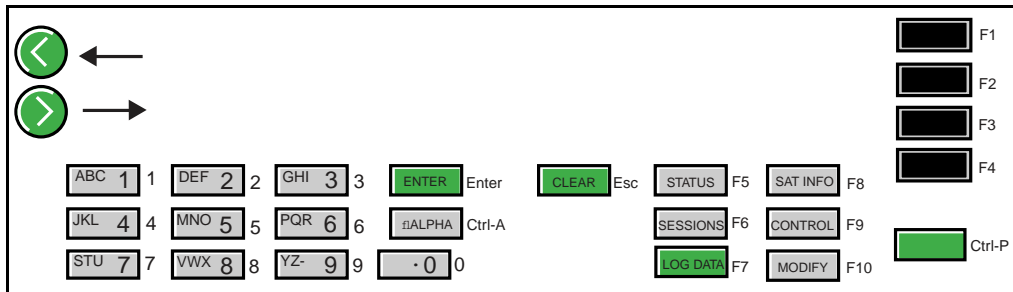


**Figure 4-1      Key Map**

All the keys function in exactly the same manner as if you were pressing the corresponding key on the physical receiver. However, the Remote Controller notes when you click ⌊Power⌋ and asks you to confirm that you really want to power off the receiver. Once the receiver is powered off, the Remote Controller cannot communicate with it until it is powered on again.

☆          **Tip –** To implement the Page Down operation on a 7400MSi receiver or a Site Surveyor 4400 receiver, press ⌊Alpha⌋. It serves as the Page Down key for these receivers.

## 4.4     Limitations of the Remote Controller

This section lists the limitations of the Remote Controller.

### 4.4.1     Powering Down

Once the physical receiver is powered down the Remote Controller
has no way of powering it up again. The physical receiver is powered
down when you click [Power] on the Remote Controller display. It may
also power down if the battery is dead or if the power supply of the
receiver is removed.

### 4.4.2     Timer Light

This version of the Remote Controller does not show the state of the
timer light on the physical receiver. The timer light on the Remote
Controller display always appears to be off, even if it is lit on the
physical receiver.

### 4.4.3     Unusual Conditions on the Receiver

Some conditions which can occur on the physical receiver are not
reflected by the Remote Controller. In particular, if the power is
removed from the physical receiver and then reinstated, the physical
receiver will show a display that advises you of the power failure and
asks you to click [Clear]. However, this screen is not shown by the
Remote Controller, which instead shows the usual status screen as if
you had already clicked [Clear]. As a result, the Remote Controller keys
appear not to work. You must click [Clear] before normal operation can
resume. This condition exists in the firmware at least up until version
5.67.

## 4.5    Stopping the Remote Control Session

To stop the Remote Controller software and terminate the remote control session select *File* / *Exit*.

If a modem is in use you are informed that the modem is still online and asked to confirm that you want to exit.

Stopping the Remote Controller has no effect on the physical receiver, which continues working without interruption.

# 5 Settings

This chapter shows you how to:

- set up the software to communicate with the receiver

- set the modem

- maintain a list of phone numbers to dial

- dial a number

- set options for the software

## 5.1 Communication Settings

This dialog is a general communications settings dialog. The parameters are as follows

To set up the software to communicate with the receiver:

1. From the *Setup* menu choose *Comms*.

   The following dialog appears:
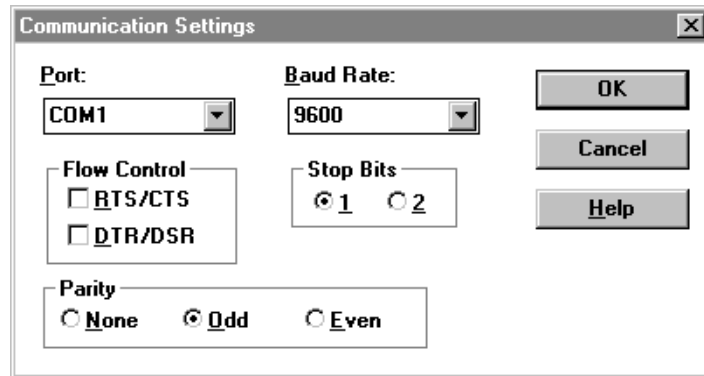


2. From the *Port* list select the serial port on the computer that is connected to the receiver.

   The options are COM1, COM2, COM3, or COM4.

3. From the *Baud Rate* list select the baud rate at which the Remote Controller communicates with the GPS receiver.

   The options are 110, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, and 57600. This setting must match the setting of the baud rate on the GPS receiver or the modem.

4. In the *Flow Control* group select the method of flow control used to stop data loss.

   The Remote Controller software normally uses a checksummed packet protocol to make sure that there is no data loss, so typically you will not need to select either of these flow control methods.

5.  In the *Stop Bits* group select the number of stop bits sent after each byte.

    The default and recommended setting is 1. This setting must match the setting of the stop bits on the GPS receiver.

6.  In the *Parity* group select the type of parity that is sent with each byte.

    This setting must match the setting of the parity on the GPS receiver.

**Note –** If the computer is connected directly to the receiver (no modems used), the Remote Controller has a facility to automatically set the baud rate and parity of the receiver to match those specified in this dialog. For more information see Setup Options, page 5-10.

**Note –** If you are using a modem to perform firmware upgrades the communication settings required depend on the Boot version of the receiver you are using. For more information see Upgrading Receiver Firmware, page 6-24.

7.  Click **OK**.

When the settings are accepted the Remote Controller immediately changes the physical settings on the PC serial port to match them and tries to communicate with the receiver using the new settings. The settings are also saved in REMCON.INI so that they can be used next time you use the Remote Controller.

**Note –** If the Remote Controller cannot detect the receiver port it is connected to, it defaults to use the currrent serial port parameters on the receiver. In other words, ignoring communication settings you may have made in Remote Controller.

## 5.2    Modem Settings

To set the modem:

1.    From the *Setup* menu choose *Modem*.

The following dialog appears:



1.    If the *Use Modem* check box is not selected, all the other fields are unavailable (dimmed).

2.    If you want to view the commands being sent to the modem during dialing operations, and the responses coming back, select the *Show Modem Responses Window* check box.

This results in a small text window appearing during dialing and showing the commands. Once a connection is established, the window disappears.

3.    When the Remote Controller starts up it automatically attempts to connect to a receiver if you are not using modems.

4.   If you want to display the *Dial* dialog (see Dialing Interface, page 5-9) before the dialing attempt is made, select the *Confirm Dial* check box.

By default this check box is selected.

5.   To confirm that you want to end the session when you hang up or click the power button of the receiver image, select the *Confirm Hang Up* check box

A message is displayed asking 'Are you sure you want to hang up the modem?'

6.   To set the maximum number of seconds that the software will wait to allow connection after dialing, enter a time in seconds in the *Timeout (Seconds)* field.

If the timeout expires, the call attempt is aborted.

7.   In the *Modem strings* group enter the modem command strings that you should use to communicate using the modem. For more information refer to your modem manual.

Table 5-1 describes the fields in the *Modem strings* group.

**Table 5-1      Modem Strings Options**

| Field | Enter in this field the … |
|-------|---------------------------|
| Init | string specifying the command sequence sent to initialize the modem for a connection. |
| *Dial* | sequence used to open a connection, that is, to indicate to the modem that dialing should begin. |

**Table 5-1     Modem Strings Options  (Continued)**

| Field | Enter in this field the … |
|-------|----------------------------|
| *Hangup* | string used as the command to "hang up the phone" at the computer's end of the data link. |
|  | The Remote Controller first attempts to hang up using the DTR control line, however, if this is unsuccessful it sends the Hangup string. |
| *Acknowledge* | response that will come back from the modem after it has been sent a command. |
|  | If the acknowledge string is not detected within one second of sending a command to the modem, the command is considered to have failed. |

**Note –** The Remote Controller supports the special modem string characters '~' and '^'. The '~' character inserts a 0.5 second delay in the stream of characters exiting the communications port. The character '^' turns the following character into a control character. (This is typically achieved by clearing bit 6. Thus '^M' is treated as a carriage return character (ASCII 13).)

**Tip –** Click **Defaults** to restore the fields to their default values.

## 5.3    Maintaining Phone Numbers

Use the *Phone Numbers* command to maintain a list of phone numbers to dial.

To maintain phone numbers:

1.   From the *Setup* menu choose *Phone Numbers*.

The following dialog appears:
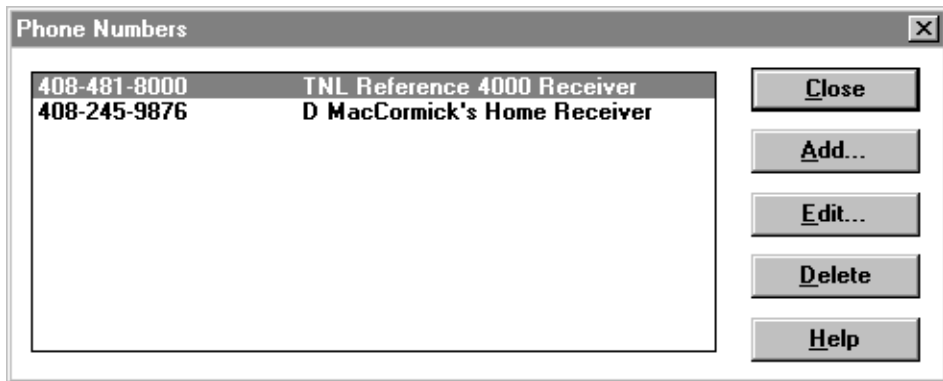


To add a phone number to the list:

1.   Click **Add…**

The *Add Phone Number* dialog appears.

2.   In the *Number* field type the phone number.

3.   In the *Description* field enter a description.

4.   Click **OK** to return to the *Phone Numbers* dialog.

To edit a phone number in the list:

1.  Select the phone number and description that you want to change and click **Edit…**

    The *Edit Phone Number* dialog appears.

2.  Edit the number and description as necessary.

3.  Click **OK** to return to the *Phone Numbers* dialog.

To delete a phone number:

•   Select the phone number and description that you want to remove and click **Delete**.

## 5.4    Dialing Interface

If there is no default phone number, choosing the *Dial* menu displays
the following dialog:

| Dial | ⊠ |
|---|---|
| **Phone Number:** | 408-245-9876  Harry Smith's home receiver ▾ |
| | **Dial**          **Cancel**          **Help** |
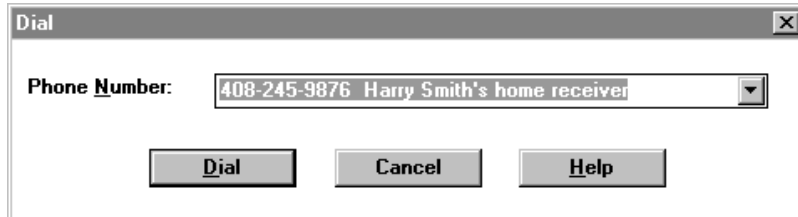
To dial a number:

1.   Select a phone number to dial from the Phone Number list.
     Alternatively, type in the number.

     The last phone number you used is offered as the default
     number.

2.   Click **Dial**.

     If the *Show Modem Responses Window* check box in the *Modem
     Setup* dialog is selected, a small text window showing the
     commands being sent to the modem and the responses coming
     back from the modem  appears. Once a connection is
     established (as determined by the carrier detect signal), the
     window disappears.

     While a connection is established, the title bar changes to
     display the number and name of the currently-attached site.

## 5.5    Setup Options

To set up options for the Remote Controller:

1.    From the *Setup* menu choose *Options*.

The following dialog appears:

```
┌─────────────────────────────────────────────────────────────────┐
│ Remote Controller Options                                     ×  │
├─────────────────────────────────────────────────────────────────┤
│                                                                  │
│  ☑ Auto Baud Rate Detection              ┌──────────────┐        │
│                                          │     OK       │        │
│  ☑ Use Status Bar                        └──────────────┘        │
│                                          ┌──────────────┐        │
│  ☐ Allow Power Down                      │   Cancel     │        │
│                                          └──────────────┘        │
│  ☐ Allow Serial Port Changes             ┌──────────────┐        │
│                                          │   Defaults   │        │
│                                          └──────────────┘        │
│      Screen Update Rate (Seconds):  1    ┌──────────────┐        │
│                                          │    Help      │        │
│      Character Timeout (Seconds):   2    └──────────────┘        │
│                                                                  │
│      Frame Timeout (Seconds):       6                            │
│                                                                  │
└─────────────────────────────────────────────────────────────────┘
```
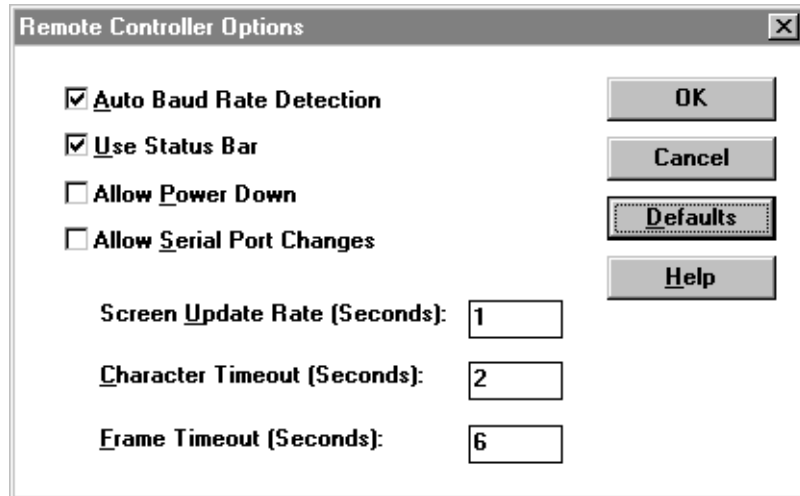
2.    Select the *Auto Baud Rate Detection* check box if you want the Remote Controller to automatically set the baud rate and parity of the receiver to match those in the *Communication Settings* dialog.

The Remote Controller endeavors to connect to the receiver using the serial port parameters specified in the *Communication Settings* dialog (see Communication Settings, page 5-2). Usually the connection attempt fails if the receiver is using a different baud rate or parity setting, however if this check box is selected, the computer is connected directly to the receiver (no modems used), and the baud rate is at least 1200, the Remote Controller automatically sets the baud rate and parity of the receiver to match those in the *Communication Settings* dialog.

3.  Select the *Use Status Bar* check box to display the status bar at the bottom of the Remote Controller window.

    Messages generated by the software is shown on the status bar.

4.  Select the *Allow Power Down* check box if you want to be able to power down the receiver.

    When this check box is selected and you click **Power** on the Remote Controller window, you are asked to confirm that you want to do so.

    By default this check box is not selected, so when you click **Power** a message appears saying that the power-down function has been disabled.

5.  Select the *Allow Port Changes* check box if you want to be able to change the baud rate on the receiver.

    In some instances, for example when a modem is being used, changing the receiver baud rate causes the data link to become unusable.

6.  In the *Screen Update Rate* field enter the number of seconds between updates of the display showing the receiver front panel.

    The default value is one second.

7.  In the *Character Timeout* field enter a timeout period in seconds.

    If a character is not received from the receiver in this period an error message is issued. The default value is two seconds. To reduce the occurrence of error messages change this value if the communication system you are using imposes larger transmission delays.

8.  In the *Character Timeout* field enter a timeout period in seconds.

    If a frame is not received from the receiver in this period an error message is issued. The default value is six seconds.

9.  Click **OK**.

---

☆ | **Tip –** Click **Defaults** to restore the fields to their default values.

---

# 6    Transferring Files

This chapter shows you how to:

- download receiver files

- send session tables

- use the Session/Station editor

## 6.1    Downloading Receiver Files

There are three file types that you can download from the receiver:

- Raw GPS observation data file

- Ephemeris file

- Session table file

The following sections give you information on how to download each of these file types.

## 6.1.1    Downloading Raw GPS Observation Data Files

To transfer a raw GPS observation data files from the receiver to your computer:

1. From the *File* menu choose *Receive*.

    The following dialog appears:
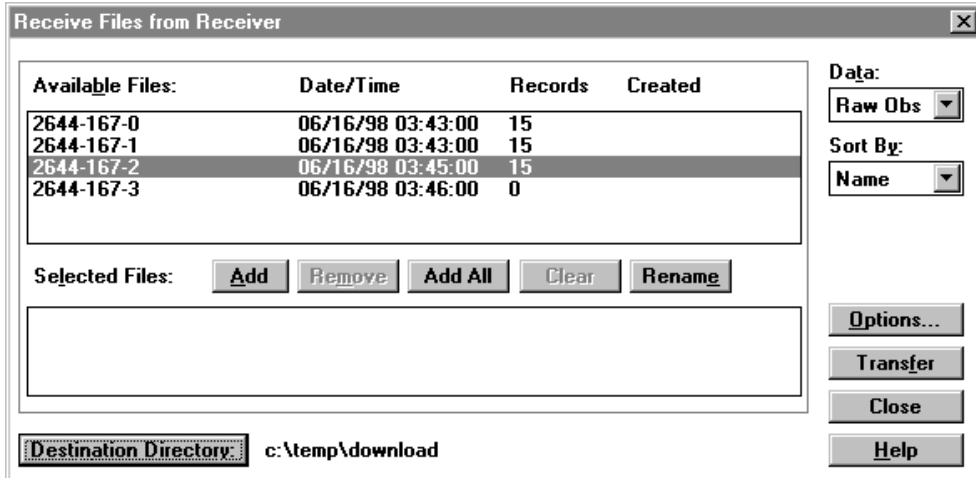


2. In the *Data* list select Raw Obs.

    The raw GPS observation data files on the receiver are shown in the *Available Files* list.

3. From the *Available Files* list select the files you want to download.

    The *Available Files* list shows the files on the receiver, the date and time when they were created, the size of each, and their creation status (whether the file has been transferred or renamed). Many of the controls in this dialog are disabled if there are no available files.

**Note –** 4400 / 7400Msi receivers cannot collect raw data or download files.

☆ **Tip –** Use the *Sort By* list to change the order that files appear in the *Available Files* list. Files can be sorted by name, date, or size. This option has no effect on the operation of the software—only on the appearance of the *Available Files* list. Sorting is useful when the list contains many entries.

4. Modify the *Selected Files* list using the buttons in the *Selected Files* list. See Table 6-1.

The *Selected Files* list displays the available files that you have selected for transfer.

You must select at least one file before you can start the transfer.

**Table 6-1     Selected Files Buttons**

| Button | Click this button to … |
|--------|------------------------|
| **Add** | add a file to the *Selected File* list. |
|  | To do this, select the file in the *Available Files* list and click **Add**. Alternatively, double-click its name in the *Available Files* list. |
| **Add All** | add all files from the Available Files list to the Selected Files list. |
| **Remove** | remove a file from the *Selected Files* list. |
|  | To do this, select the file in the *Selected Files* list and click **Remove**. Alternatively, double-click its name in *Selected Files* list. |
|  | **Note –** You cannot delete files from the receiver here. To delete files from the receiver you must go to the Remote Controller front panel and follow the instructions in your receiver manual. |
| **Clear** | Removes all of the selected files. |
| **Rename** | To rename a file before it is downloaded. |
|  | To do this, highlight the file in the *Selected Files* list and click **Rename**. This button is only available if you are downloading raw GPS observations. |

5.  If required, click **Destination Directory** to change the destination of the downloaded files before starting to transfer the files.

    The files are transferred to the destination directory shown beside the **Destination Directory** button.

6.  To set the options that determine what the Remote Controller will do if you try to transfer a file that has the same name as a file already stored in the destination directory, click **Options**.

    The *Options* dialog appears.

    a.  Select the *Query file overwrites* check box (the default), for the Remote Controller to prompt you for permission before overwriting an existing file. You can then choose to allow the overwrite or quit the transfer and rename the existing file.

    b.  Select the *Auto-concatenate files of the same name* for Remote Controller to concatenate files of the same name as they are transferred.

        If you do not select this option, you must use the **Rename** button to change the names of files which have a naming conflict.

    c.  Click **OK**.

    Generally data files have unique names but receivers may create multiple files with the same name if a data logging session is interrupted by a power failure.

7.  When the *Selected Files* list displays all the files you want to transfer, click **Transfer**.

☆ **Tip –** To make sure that the remote modem is not sending too much data for the base modem to handle, make sure that the base modem can communicate at the same speed or faster than the remote modem.

### 6.1.2       Downloading an Ephemeris or Session Table File

You cannot download an ephemeris file using a 4400/7400 GPS receiver. You can only use a 4000 GPS receiver to send and receive session tables.

To transfer a ephemeris file or session tables from the receiver to your computer:

1.   From the *File* menu choose *Receive*.

     The following dialog appears:
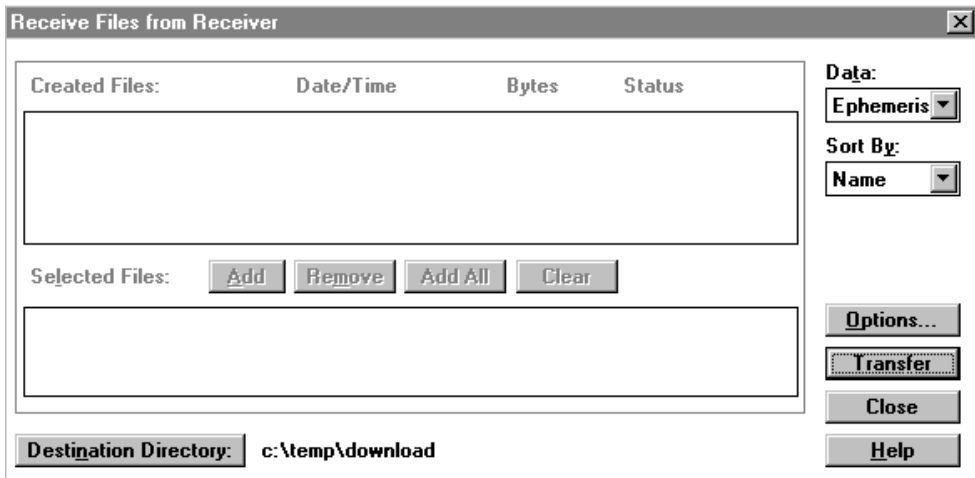


2.   In the *Data* list select Ephemeris or Session Table.

     Since there is only one ephemeris file and one session table file in the receiver, it is not necessary to select the files you want to transfer and in fact most of the dialog will be unavailable.

3.  If required, click **Destination Directory** to change the destination of the downloaded files before starting to transfer the files.

    The files are transferred to the destination directory shown beside the **Destination Directory** button.

4.  To set the options that determine what the Remote Controller will do if you try to transfer a file that has the same name as a file already stored in the destination directory, click **Options**.

    The *Options* dialog appears.

    a.  Select the *Query file overwrites* check box (the default), for the Remote Controller to prompt you for permission before overwriting an existing file. You can then choose to allow the overwrite or quit the transfer and rename the existing file.

    b.  Select the *Auto-concatenate files of the same name* for Remote Controller to concatenate files of the same name as they are transferred.

        If you do not select this option, you must click **Rename** to change the names of files which have a naming conflict.

    c.  Click **OK**.

5.  Click **Transfer**.

    A dialog letting you change the destination filename and confirm the transfer appears:

    | Confirm | ✕ |
    |---|---|
    | **F**ile name: | current.eph |
    | | OK    Cancel |
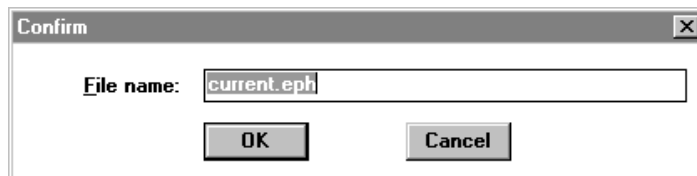
    If you are downloading an ephemeris file, the default filename is CURRENT.EPH. If you are downloading a session table file, the default filename is CURRENT.TAB.

6.   Click **OK** to transfer the file to the destination directory shown
     on the dialog.

**Note –** An ephemeris and session table file is always present in the
receiver although they may not always contain data. Empty files
transfer correctly so check downloaded files to verify that they contain
data.

Downloading a session table file from a receiver is useful to edit the
existing session data in the receiver and/or transfer the data to one or
multiple receivers when required at a later date.

## 6.2    Sending Session (Station) Tables

You can program a receiver to start and stop its observation sessions automatically by uploading a session table to it.

A station/session table describes one or more stations (locations where a receiver is set up to make observations for a static survey) and for each station, one or more sessions (periods of observation at that station).

To create and send a session table to the receiver:

1.    From the *File* menu choose *Send Sessions*.

The following dialog appears:
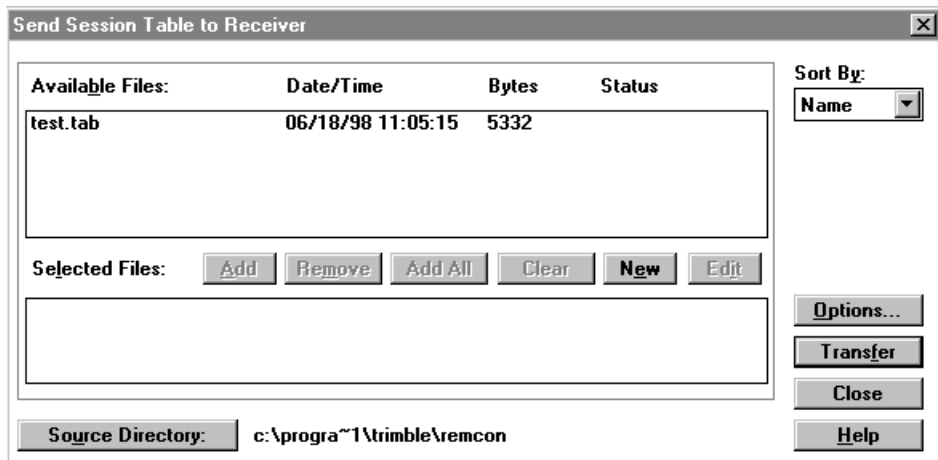
2.    From the *Available Files* list select the files you want to download.

The *Available Files* list shows the files on the receiver, the date and time when they were created, the size of each, and their creation status (whether the file has been transferred or renamed). Many of the controls in this dialog are disabled if there are no available files.

☆

**Tip –** Use the *Sort By* list to change the order that files appear in the *Available Files* list. Files can be sorted by name, date, or size. This option has no effect on the operation of the software—only on the appearance of the *Available Files* list. Sorting is useful when the list contains many entries.

3.  Modify the *Selected Files* list using the buttons in the *Selected Files* list. See Table 6-2.

    The *Selected Files* list displays the available files that you have selected for transfer.

    You must select at least one file before you can start the transfer.

**Table 6-2     Selected Files Buttons**

| Button | Click this button to … |
|--------|------------------------|
| **Add** | add a file to the *Selected File* list. |
|  | To do this, select the file in the *Available Files* list and click **Add**. Alternatively, double-click its name in the *Available Files* list. |
| **Remove** | remove a file from the *Selected Files* list. |
|  | To do this, select the file in the *Selected Files* list and click **Remove**. Alternatively, double-click its name in *Selected Files* list. |
|  | **Note –** You cannot delete files from the receiver here. To delete files from the receiver you must go to the Remote Controller front panel and follow the instructions in your receiver manual. |
| **Add All** | add all files from the *Available Files* list to the *Selected Files* list. |
| **Clear** | Removes all of the selected files. |

**Table 6-2      Selected Files Buttons (Continued)**

| New | create and edit a new session table using the Station/Session Editor. |
|---|---|
|  | See Using the Station/Session Editor, page 6-12. |
| Edit | select and edit an existing session table using the Station/Session Editor. |
|  | See Using the Station/Session Editor, page 6-12. |

4.  If required, click **Source Directory** to change the location where the files will be taken from.

    Many of the controls in this dialog are unavailable if there are no available files in the source directory.

5.  To set the options that determine what the Remote Controller will do if you try to transfer a file that has the same name as a file already stored in the destination directory, click **Options**.

    The *Options* dialog appears.

    a.  Select the *Query file overwrites* check box (the default), for the Remote Controller to prompt you for permission before overwriting an existing file. You can then choose to allow the overwrite or quit the transfer and rename the existing file.

    b.  Select the *Auto-concatenate files of the same name* for Remote Controller to concatenate files of the same name as they are transferred.

        If you do not select this option, you must click **Rename** to change the names of files which have a naming conflict.

    c.  Click **OK**.

6.  When the *Selected Files* list displays all the files you want to transfer, click **Transfer**.

> **Note –** Only one session table can exist in the receiver. For this reason, if you inadvertently add an incorrect file to the *Selected Files* list you must remove it before you can select and transfer the correct file. Also, a session table sent to the receiver overwrites the prevous table in the receiver.

## 6.3    Using the Station/Session Editor

Use the Station/Session editor to edit station/session tables.

To use the Station/Session editor:

1.  Click **New** or **Edit** in the *Send Session* dialog.

    For more information see Sending Session (Station) Tables, page 6-8.

    The following dialog appears:



2.  In the *Table Name* field enter the name of the station/session table that you are going to create or edit.

3.  In the *Stations* group, create new stations or edit the list of stations already defined in this table.

    You can define up to 30 stations. For more information see The Stations Group, page 6-14.

4.  In the *Sessions* group, create new sessions or edit the list of sessions already defined for the selected station.

You can define up to50 sessions. For more information see The Sessions Group, page 6-16.

5.  Click **OK** to accepts the changes made and close the dialog.

**Note –** Each session table is stored in a file whose filename is the name of the table, and whose extension is TAB. For example, a table named BRIDGE is stored in a file named BRIDGE.TAB. A single station/session table customarily contains definitions for all of the stations in a project, regardless of how many receivers are being used. When a receiver is set up at a site it is programmed to use the station that represents that site; stations intended for use by other receivers simply never get used.

## 6.3.1       The Stations Group

The *Stations* group lists the stations defined in this station/session table. Each line describes one station. The entries in each line are:

- *ID*

   The identification of the station; a four-character code that uniquely identifies each station in this table.

- *Name*

   The name of the station; a description of the station up to 50 characters long that will appear in reports.

- *Type*

   The accuracy of the reference position at this station. The value can be High or Low. High typically identifies a reference position that is based on a known control point. Low represents any other type of reference position.

To modify entries in the *Stations* panel use the buttons described in Table 6-3.

**Table 6-3       Buttons in the Stations Group**

| Button | Click this button to … |
|--------|------------------------|
| New | creates a new station. |
| Edit | edit the highlighted station. |
| Copy | make a copy of the highlighted station, along with each of its sessions. |
|  | Copying stations is useful for defining static surveys, where observations are normally made at several stations at the same time. After you have defined a station and sessions for the first receiver, you can define a station for the second receiver by copying the first station and modifying its station information. The second station's sessions are copied from the first, and you do not need to modify them at all. |

**Table 6-3        Buttons in the Stations Group (Continued)**

| | |
|---|---|
| Remove | Deletes the highlighted station, along with all of its sessions. |
| Clear | Deletes all stations in the table, along with all of their sessions. |

### 6.3.2    The Sessions Group

The *Sessions* group lists the sessions defined for the highlighted station in the *Stations* group. Each line describes one session. The entries on each line are:

- *ID*

  The identification of the session; a four-character code that uniquely identifies each session for this station.

  The session ID normally consists of the session's Julian day (the day of year) followed by a sequence number. For example, the first session conducted at a certain station on February 1 would customarily be named 032-1 (because February 1 is the 32nd day of the year); the second session on that date would be 032-2; and so on.

- *Schedule*

  The manner in which this session is scheduled to be run. The options are:

  - Manual

    The session will be started and stopped manually.

  - Any Day

    The session will automatically run once a day at a specified time.

  - Once

    The session will automatically run once at a specified date and time.

- *Start*

  The session's scheduled start time in UTC (Universal Coordinated Time).

- *Obs Time*

  Observation time, that is, the length of the session in hours and minutes.

- *Date*

  The date on which the session is to be run.

To modify entries in the *Sessions* group use the buttons described in Table 6-4.

**Table 6-4        Buttons in the Sessions Group**

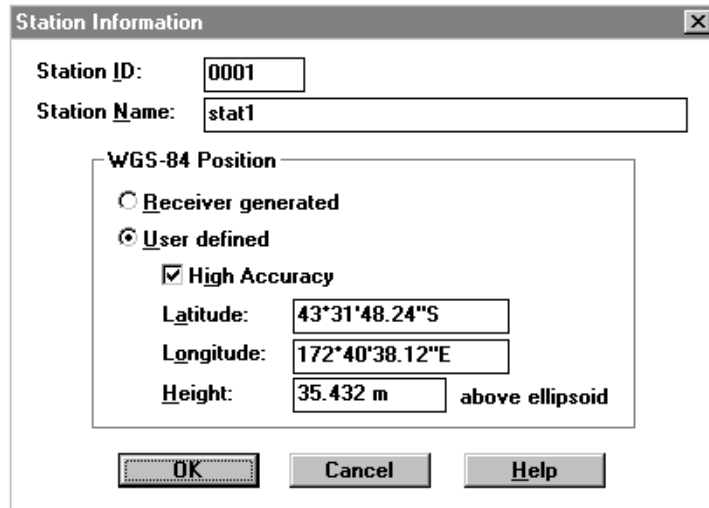| Button | Use this button to … |
|--------|----------------------|
| New | create a new session. |
| Edit | edit the highlighted session. |
| Remove | deletes the highlighted session. |
| Clear | deletes all sessions in the highlighted station. |

### 6.3.3    Editing Station Information

To edit station information:

1.  Click **Edit** in the *Stations* group*.*

    The editor displays the following dialog that contains a
    description of the highlighted station:

| Station Information | | | | ✕ |
|---|---|---|---|---|

**Station ID:** `0001`

**Station Name:** `stat1`

┌─ **WGS-84 Position** ───────────────────┐

○ **R**eceiver generated

◉ **U**ser defined

☑ **High Accuracy**

**L**atitude:     `43°31'48.24"S`

**L**ongitude:   `172°40'38.12"E`

**H**eight:       `35.432 m`     **above ellipsoid**

└────────────────────────────────────┘

[ **OK** ]    [ **Cancel** ]    [ **Help** ]

☆    **Tip –** When you click **New** in the *Station* group, the editor creates a
new station description and displays the same dialog as above, but
with its fields empty.

2.  In the *Station ID* field enter a four-character code that uniquely
    identifies the station.

3.  In the *Station Name* field enter a description of the station
    name.

    The station name will appear in reports. The name can be up to
    50 characters long.

4.  Select an option from the *WGS-84 Position* group.

    The options describe the position of the station.

    •   Select the *Receiver generated* option to request that the receiver fill in the approximate position with an autonomous position fix.

        This is the customary choice for a static survey.

    •   Select the *User defined* option to enter a set of coordinates

        Enter the coordinates in the *Latitude* and *Longitude* fields. If the coordinates are the accepted coordinates of a network control point, select the *High Accuracy* check box; for any other type of position, clear the check box.

        Enter the coordinates in the *ddd° mm' ss.ssss"* or *ddd° mm.mmmmm'* format. A space can be used instead of the degree, minute, and seconds signs but you must enter a decimal point where it is required.

☆

**Tip –** If you use the *ddd° mm' ss.ssss"* format the only separator necessary is a decimal point immediately after the degrees value. For example, if you require 123°33'24.125" you can enter 123.3324125.

        You can indicate hemisphere by entering a letter (N, S, E, or W) after a coordinate. You can also indicate hemisphere by entering a minus sign before a coordinate to represent the southern or western hemisphere, and no sign to represent the northern or eastern hemisphere. The program does not accept a plus sign.

        Height is measured at ground level, not antenna level. It is specified as ellipsoid height in meters.

5.  Click **OK**.

### 6.3.4 Editing Session Information

To edit session information:

1. Click **Edit** in the *Sessions* group.

   The editor displays the following dialog that contains a description of the highlighted session:

| Session Information | ✕ |
| --- | --- |

**Session ID:** 0002

**Schedule**

- ○ Manual start by user
- ○ Any day at a specified time
- ◉ Once at a specified date and time

Start time (UTC): 09:00
Obs Time: 01:00
Date: 06/18/98

**Parameters**

Measurement sync time: 15.0    ☐ Position data every cycle

Elevation mask: 15°

Minimum # SV's: 3

OK     Cancel     Help

☆ **Tip** – When you click **New** in the *Sessions* group in the *Station/Session Editor* dialog, the editor displays the same dialog shown above, but with its fields empty.

2. In the *Session ID* field enter a four-character code that uniquely identifies the session.

3. In the *Schedule* group select an option. See Table 6-5.

**Table 6-5      Schedule Group Options**

| If you select the following option | You must enter information into … |
|---|---|
| *Manual start by user* | no fields. |
| *Any day at a specified time* | the *Start time* and *Obs Time* fields. |
| *Once at a specified date and time* | the *Start Time*, *Obs Time*, and *Date* fields. |

4. In the *Measurement sync time* field enter the length of an epoch (the time interval in which the receiver will make one carrier phase measurement).

   The range is from 0.5 to 1.0 second in 0.1-second steps, and from 1 to 900 seconds in 1-second steps.

5. In the *Elevation Mask* field enter the elevation below which a satellite will not be used in a survey.

   The range is from –9° to 90°.

6. In the *Minimum # of SVs* field enter the minimum number of satellites that must be at or above the elevation mask before the survey will begin.

7. In the *Position Data Every Cycle* field do one of the following:

   • select the check box to make the receiver store both a position solution and satellite measurements for each epoch.

   • clear the box to make the receiver store a position solution only once every 5 minutes. Post-processing software for differential GPS applications can require position data every cycle. Surveying software does not.

The default values are appropriate for most surveys.

8. Click **OK**.

## 6.3.5     Generating a Report

You can generate a report from the Station/Session Editor. The report describes all the stations and sessions defined in the table. It is written to a text file whose name is the same as that of the station/session table, with the extension RPT.

To generate a report click **Report** at the bottom of the *Station/Session Editor* dialog.

The report shows the date and time it was generated and the name of the station/session table file being reported on.

Each section of the report describes one station, and begins with:

- Station ID and station name

- Type of station position: Receiver for a generated position, User for low or high accuracy position

- For a low or high accuracy position: Latitude, Longitude, and Height

Following the station information, there is an entry for each session:

- Session ID

- Type of schedule (Once, Any Day, or Manual)

- Start time, observation time, and date

- Sync time, elevation mask, and the minimum number of satellites

- Type of position data recording (Normal or Every Cycle)

Figure 6-1 shows an example report.

```
Report generated: 09/15/94 08:10:25 by: Station/Session Editor

-----------
SAMPLE.TAB
-----------

Station:  TRSW
Name:     TRIMBLE SW ANT8
Position: User
Lat:      2494ø05'20.45523"  Long:      9893ø40'40.79395"  Height:    35.643

   Session:  1813
   Schedule: Any Day  Start:    01:00    Obs time: 22:00
   Sync:     15.0     Elv mask: 15       Min SV's: 3          Pos data: Normal

   Session:  1812
   Schedule: Once     Start:    22:00    Obs time: 05:00      Date:     09/10/94
   Sync:     15.0     Elv mask: 15       Min SV's: 3          Pos data: Normal

   Session:  1811
   Schedule: Any Day  Start:    02:00    Obs time: 00:35
   Sync:     15.0     Elv mask: 15       Min SV's: 3          Pos data: Normal

Station:  TRNE
Name:     TRIMBLE NE ANT8
Position: User
Lat:      2494ø05'33.18636"  Long:      9896ø32'46.82841"  Height:    135.643

   Session:  1812
   Schedule: Manual
   Sync:     15.0     Elv mask: 15       Min SV's: 3          Pos data: Normal

   Session:  1810
   Schedule: Any Day  Start:    00:00    Obs time: 00:10
   Sync:     15.0     Elv mask: 15       Min SV's: 3          Pos data: Normal
```

**Figure 6-1      A Station/Session Report**

## 6.4    Upgrading Receiver Firmware

Currently you can only upgrade the firmware on Trimble Series 4000 receivers.

You can only upgrade receiver firmware over a modem if the following criteria are satisfied:

- The Remote Download option has been purchased and installed in the receiver.

  For more information see Remote Download Option, page 3-7.

- The modem communication settings match those of the Series 4000 receiver's remote monitor software.

- For receivers with Boot version less than 3.32, the required communication settings are:

  baud rate        9600

  word length      8

  parity           odd

  stop bits        1

- For modern receivers with Boot version 3.32 or later, the required communication settings are:

  baud rate        9600

  word length      8

  parity           none

  stop bits        1

  For modern receivers, these settings are not the default settings but you must configure the receiver to default to them *before* uploading new firmware. In order to change these settings a password is required from Trimble. Contact the Trimble Assistance Center (see page viii).

To upgrade the receiver firmware:

1.   From the *File* menu choose *Upgrade Firmware.*
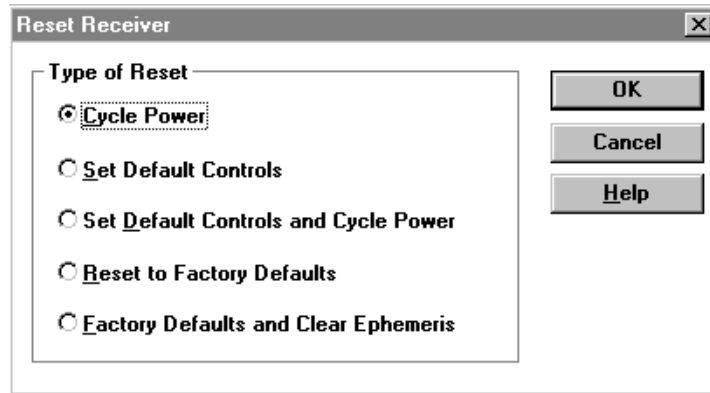
     The following dialog appears:
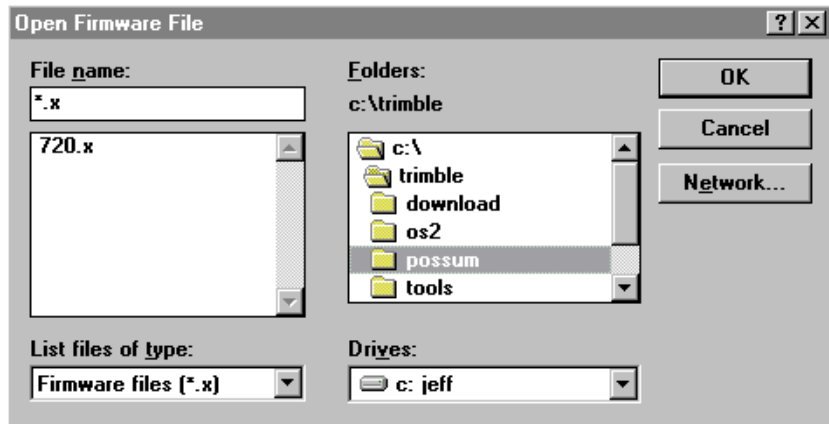


2.   Select the file that contains the firmware you want to use in the
     receiver and click **OK**.

## 6.5    Resetting the Receiver

To reset the receiver:

1.  From the File menu choose *Reset Receiver.*

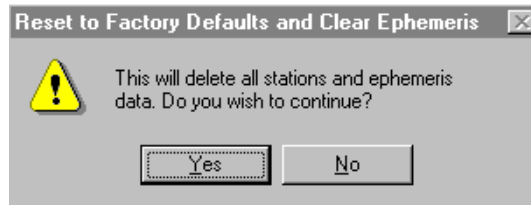    The following dialog appears:



2.  Select the type of reset you want to perform.

    The options are:

    - Cycle Power

    - Set Default Controls

    - Set Default Controls and Cycle Power

    - Reset to Factory Defaults

• Factory Defaults and Clear Ephemeris:

This option generates a message requesting confirmation:



a.   Click **Yes**.

---

**Note –** No reset options are available if your receiver firmware version
is less than 5.71.

---

# A   Avoiding Problems

The Remote Controller can communicate with the GPS receiver only if the following conditions are met:

- Serial parameters match

  The baud rate, parity and word length must be the same on the PC and the receiver unless you have selected the Auto Baud Rate Detection option. For information about automatic baud rate detection and adjustment See Setup Options, page 5-10. Note that this facility is only available for baud rates of at least 1200.

- Data collector protocol

  The Remote Controller uses the 'Data collector compatible' protocol to communicate with the receiver. If you change the receiver so that it is no longer recognizing this protocol then communications will stop. There are several ways this can happen:

  - Changing the protocol in the *Remote Protocol* screen (press ⌷Control⌷) on the receiver.

  - Using a streamed output such as NMEA on the same port that the PC is connected to. The extra output confuses the Remote Controller software.

  - Having the RTCM input port the same as the port connected to the PC. This is a problem because it disables the Data collector protocol even if RTCM input is turned off.

- Only one stop bit for port one

  It is not possible to use two stop bits for port one. If you require two stop bits, use another port.

The following are required to upgrade the receiver firmware:

- Series 4000 GPS receiver

  You must be using a Trimble Series 4000 GPS receiver.

- Remote Download installed

  If you are performing the firmware upgrade over a modem, you must have purchased and installed the Remote Download option for your receiver. Contact the Trimble Assistance Center.

- Correct communication parameters

  If you are performing the firmware upgrade over a modem, the communication settings required are dependent on the Boot version of the receiver you are using. For information about the communication settings you should be using, see Upgrading Receiver Firmware, page 6-24.

# B    Error Messages

The following table lists and explains the error messages that can be issued by the Remote Controller software. They are presented in alphabetical order. If you are unable to resolve error conditions, contact the Trimble Assistance Center.

**Auto-concatenation option must be used to download duplicate files**

You are trying to download files with duplicate names.

You must enable Auto-Concatenation in the *Options* dialog. For more information see page 6-4.

**Bad or unknown response from GPS receiver**

The Remote Controller has received an unknown response from the receiver.

Check that all output options on the receiver are turned off, including Power Control on the *Control* menu.

**Changing serial parameters is disabled**

You tried to change the serial parameter on the receiver when the Remote Controller has been configured to disallow changing of serial parameters.

For more information see Setup Options, page 5-10.

**Communications error**

The Remote Controller cannot access the serial port on the computer that is specified in the *Communications Settings* dialog (see Communication Settings, page 5-2).

Check that this communications port exists and that it is not already in use.

**Could not set GPS receiver into monitor mode**

The receiver did not respond correctly to the Remote Controller's firmware transfer command.

Transfer the file again.

**Destination directory does not exist – change to new directory**

Check the Remote Controller's destination directory for the file transfer. The directory may have been removed from the disk since it was selected.

**Disk full**

Your destination disk is full.

Delete any files that you no longer require or select a destination directory on another disk.

**Download system not opened properly**

The receiver is not operating correctly.

Contact the Trimble Assistance Center. See page viii.

**Duration must be less than 24**

In the *Session Information* dialog (see Editing Session Information, page 6-20), you specified a session duration with an invalid range.

Enter a duration less than 24 hours.

**Elevation mask must be between -9 and 90**

You specified an invalid elevation mask.

Change the mask to a value between -9 and 90.

**Error in raw obs file – STX or EOT not found**

The character to start or end transmission in a log file from a receiver has not been found.

Transfer the file again. If error persists, contact the Trimble Assistance Center. See page viii.

**Error reading station/session table file**

The Remote Controller cannot read the station/session table. The source directory may be set incorrectly, or another program may be using the file.

**Error receiving station/session table file**

An error has occurred during transfer.

Check the receiver, the cabling, and the serial port parameters in both the Remote Controller and on the receiver.

**Error writing station/session table file**

Unable to write the destination file.

Check that sufficient disk space is available. Check the destination directory for a read-only file with the same name. If the file does exist, change the access permission to read-write so the file can be updated.

**ETX record framing**

During a file transfer operation, an incorrect packet of data was received.

Transfer the file again. If the error persists, try reducing the baud rate. If the error continues to persist, contact the Trimble Assistance Center. See page viii.

**File Error. Cannot find COREUIS.DLL**

This message might appear with a different file name instead of COREUIS.DLL. It generally appears when the Remote Controller is first run, and is often followed by a second and related error message. The most obvious cause is that the named file is missing for some reason. This file needs to be in the \REMCON directory. Another possibility is that the working directory specified for the Remote Controller is not correct. It should be the same as the directory that REMCON.EXE is in.

**File is not a TNL station/session table**

You are attempting to transfer a file that is not a session table. Examine the file to see if it has been overwritten.

**<filename> is read only**

The file is read only.

Change the access permission to read-write so the file can be updated.

**ID must be unique four character alphanumeric string**

You are trying to create a new station, but you entered a station ID that already exists. Enter an ID that is unique for this station/session table.

or

You are trying to create a new session, but you entered a session ID that already exists. Enter an ID that is unique for this station in this table.

**Invalid date**

The date is invalid. A date must be in the format specified by Microsoft Windows' International options.

To view or change the date format, double-click the International icon in the Microsoft Windows Control Panel group.

**Invalid duration**

You entered a duration with an invalid format.

Enter the duration in hours and minutes. It must be no greater than 23:59.

**Invalid height**

A valid height is unable to be produced from the string of characters you entered.

Check for invalid characters and format. The height must be a number or decimal fraction; units are not allowed.

**Invalid latitude**

A valid latitude is unable to be produced from the string of characters you entered.

Check for invalid characters and format.

**Invalid longitude**

A valid longitude is unable to be produced from the string of characters you entered.

Check for invalid characters and format.

**Invalid start time**

The start time is invalid.

Enter the time (in 24 hour clock notation) in the format h:mm or hh:mm, where h is hours and m is minutes.

**Invalid table name**

You entered an invalid station/session table name.

The table name must be from one to eight characters long and all characters must be alphanumeric. You may not specify an extension (the extension of a station/session table is automatically TAB).

**I/O Port general failure**
**I/O Port receiver error**
**I/O Port transmission error**

Any of these errors means that the Remote Controller detected an error while transferring data.

Check the cabling, the receiver, and the serial port parameters both in the Remote Controller and on the receiver. Try the file transfer again. If problem persists, contact the Trimble Assistance Center. See page viii.

**Lat must be between –90 and 90 degrees**

You entered an invalid latitude.

Enter a latitude between –90 and 90 degrees.

**Long must be between –180 and 180 degrees**

You entered an invalid longitude.

Enter a longitude between –180 and 180 degrees.

**Memory allocation failed**

Microsoft Windows does not have enough free memory to run this application.

Check the memory available under Windows and close any Windows applications that are not in use.

**Minimum SV's must be between 0 and 24**

You entered an invalid number of satellites.

Enter a value between 0 and 24.

**No answer to call**

This message is only generated if the receiver is connected to your computer via modem, and the modem attached to the receiver did not respond to the phone call sent by the modem attached to your computer.

Check that you are using the correct phone number. Check that the remote modem has been turned on and is set up correctly.

**Only one file can be transferred to the GPS receiver**

You tried to send more than one station/session or firmware file to the receiver. The Remote Controller does not allow this as the receiver can only hold one station/session table and one firmware file.

**Overwrite <file name>?**

The Remote Controller is trying to create a new file, but a file with the same name already exists in the destination directory.

You must tell it whether to proceed (overwriting the existing file) or to cancel the current operation. (This message appears only if *Query File Overwrites* check box is selected in the *Options* dialog. For more information, see page 6-4.)

**Power-down is disabled**

You pressed the Power button on the Remote Controller's receiver emulation screen, but the Remote Controller has been configured so that the receiver cannot be powered down. For more information see Setup Options, page 5-10.

**Receiver can only hold 50 sessions**
**Receiver can only hold 30 stations**

You tried to create more than 50 sessions or 30 stations in one station/session table. The Remote Controller does not allow you to do this as a receiver cannot store more than 50 sessions and 30 stations.

**Receiver could not be set into monitor mode**

The receiver did not respond correctly to the Remote Controller's firmware transfer command.

Check that the receiver is turned on. Check the serial port parameters on both the Remote Controller and on the receiver. Check the cabling. You may also need to reset the receiver.

**Receiver not supported—use TRIM4000.EXE**

Your receiver firmware is not an acceptable version. Series 4000 receiver firmware must be version 5.63 or higher. For earlier firmware, use the program TRIM4000.EXE instead of the Remote Controller.

**Receiving Nav Version must be 5.63 or higher**

Your receiver does not have an acceptable firmware version.

**Record checksum**

A corrupted file has been received—that is, the file received was not identical to the file that was sent.

Reduce the serial port's baud rate and try the transfer again.

**Source directory does not exist – change to new directory**

Check the Remote Controller's source directory. It may have been removed from the disk.

**Station/session table contained unexpected data**

The station/session table has become corrupted.

Recreate the table.

**STX record framing**

An incorrect packet of data has been received.

Check that the computer and receiver serial interface parameters are identical. Transfer the file again. If problem persists, reduce the baud rate. If problem still persists, contact the Trimble Assistance Center. See page viii.

### Sync time must be 0.5, 0.6, 0.7, 0.8, 0.9 or an integer between 1 and 900

You tried to set an invalid Measurement Sync Time. For more information see Editing Session Information, page 6-20. Only the listed values are allowed.

### The GPS receiver is not responding

The Remote Controller cannot get a response from the receiver.

Check that the receiver is turned on, and that the Data Collector protocol has been selected on the receiver. Check the serial port parameters on both the Remote Controller and on the receiver, and check the cabling.

### This GPS receiver is not authorized to receive this firmware upgrade

You can only upgrade a receiver's firmware if you have been granted upgrade rights for the receiver.

### Time out of sequence, bad merge

A corrupted file has been received. Try the transfer again. If the problem persists, contact the Trimble Assistance Center. See page viii.

### Time-out sending data to GPS receiver
### Time-out waiting for response from receiver

The software is unable to communicate with the receiver.

Check the receiver, the cabling, and the serial port parameters both in the Remote Controller and on the receiver.

**Time out waiting for GPS receiver**

The software is unable to communicate with the receiver.

Check the receiver, the cabling, and the serial port parameters both in the Remote Controller and on the receiver. See also Setup Options, page 5-10.

**Trying to update message recs**

An error has occurred while transferring data.

Try the file transfer again. If problem persists, contact the Trimble Assistance Center. See page viii.

**Unable to complete transfer of firmware**

An error has occurred while the firmware file was being transferred to the receiver.

Try the file transfer again. If problem persists, contact the Trimble Assistance Center. See page viii.

**Unable to confirm GPS receiver is in monitor mode**

The receiver did not respond correctly to the Remote Controller's firmware transfer command.

Transfer the file again.

**Unable to create <file type> destination file**

The Remote Controller cannot create the destination file. A file with the same name may already be open.

**Unable to decode firmware file**

The firmware file is either invalid or has become corrupted.

Recreate the file.

**Unable to get current GPS receiver firmware version number**

The receiver did not respond correctly to the Remote Controller's firmware transfer command.

Try the transfer again. If problem persists, call the Trimble Assistance Center. See page viii.

**Unable to get the GPS receiver serial number**

The Remote Controller was unable to obtain the receiver's serial number and hence could not continue with the firmware transfer operation.

Try the transfer again. If problem persists, call the Trimble Assistance Center. See page viii.

**Unable to initialize modem**

The Remote Controller can not initialize the modem to which it is connected.

Make sure that the modem is switched on and in a valid operative mode.

**Unable to locate raw GPS receiver data**

The Remote Controller cannot find necessary information on the receiver.

Contact the Trimble Assistance Center. See page viii.

**Unable to open firmware file**

The firmware file may have become corrupted.

Transfer the file again.

**Unable to reset GPS receiver to use new firmware**

Check the cabling. Try to reset the receiver. If problem persists, call the Trimble Assistance Center. See page viii.

**Unable to write <file type> destination file**

The Remote Controller cannot update the destination file.

Check the file's directory entry; if the file is marked read-only, it cannot be updated unless you change it to read-write.

**Unsupported station/session table version**

You tried to use a station/session table created for a Series 4000SL receiver. The Remote Controller does not process such tables. Re-enter the table manually. Note that a number of other related error messages may also appear if you are using the 4000SL receiver file.

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# Reader Comment Form

**Remote Controller Software User Guide**        **December 1998**
**Version 2.1**        **Revision A**

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for _____

**Please circle a response for each of the statements below:**

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