



Application Note

Substation Automation and Protection Division

Retrieving REL 512 Data Using Windows HyperTerminal

Introduction

The REL 512 is provided with an ASCII communications interface for simple access to settings and digital fault record data. Access to the data can be made with almost any Windows based terminal emulation software on almost any microcomputer using programs such as Windows HyperTerminal, CrossTalk or Procom Plus. There is such a wide variety of communication programs available that it is virtually impossible to provide specific instructions for each one. Therefore, this application note will be limited to retrieving data from the REL 512 using Windows HyperTerminal, a program provided on computers with Windows 95, 98 and NT operating systems.

The REL 512 Terminal Emulation Protocol Setting

The relay is delivered with the following communication settings for both the front and rear interfaces:

Bit rate	9600
Word Length	8
Parity	None
Stop Bits	2

Except for the bit rate, these are the recommended communication settings. The bit rate can be set up to 115,200 bits/second. The highest rate supported by your computer is recommended. Interactive dialog with the relay is achieved when the relay and communications program agree. Also, transferring data files between the relay and computer is done using the Xmodem (Checksum or CRC) binary file transfer protocol. The following settings are typical for communication programs. They may vary depending on specific communications program and computer requirements.

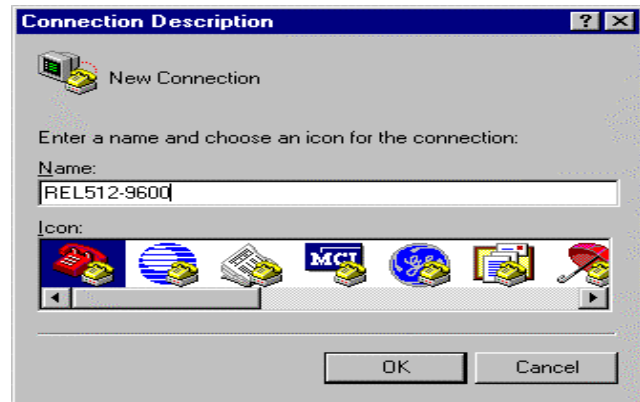
Terminal Emulation	DEC VT-100 or VT-102 (ANSI)
Binary Transfers	Xmodem (Checksum or CRC)
Terminal Preferences	Function, Arrow, and Ctrl Keys should be set to OFF
Baud Rate	9600 (based on modem and relay setting)
Data Bits	8 (relay setting)
Stop Bits	2 (relay setting)
Parity	None (relay setting)
Flow Control	None (or No Flow Control)
Comm Port	Computer's communication port (often Comm 1).

Both the correct settings and communications cable are required to allow the communication link between computer and relay to be made. The correct cable for connection to the relay's front port is a standard PC to Modem cable (9-pin D connectors, male to female, pin to pin connections). If connecting to the rear port with the same cable, it is necessary to use a null-modem and a male-to-female adapter.

Connecting with HyperTerminal

The following procedure sets up a HyperTerminal 9600 bits/second communications file that can be used to communicate with the REL 512 also set at 9600 bits/second.

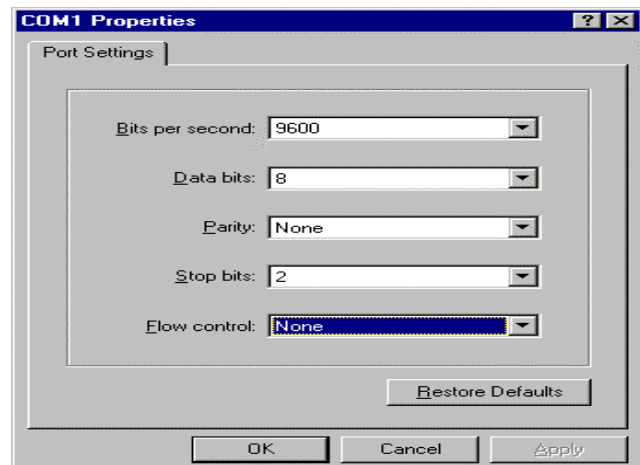
From Windows 95, 98 or NT Start menu select Programs, Accessories and HyperTerminal. The following **Connection Description** dialog box appears. Enter the file name to which you want to save the connection settings. Press OK.



The **Connect To** dialog box appears. Enter the appropriate computer's modem and phone number connection data if accessing remotely. For local direct access select the computer's communication port. This is typically COM1. Press OK.

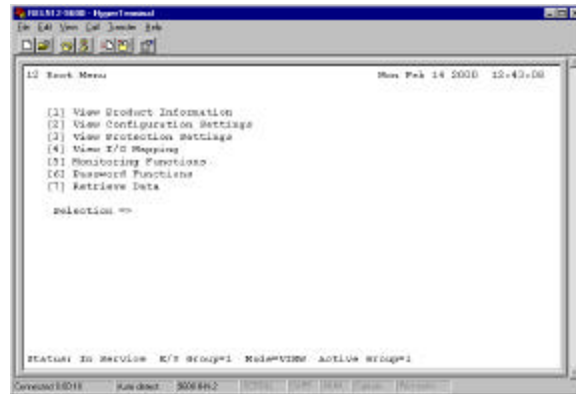


This will bring up the **COM# Properties** dialog box. Enter the values set in the REL 512. Press OK.



This will bring up Hyper Terminal's text dialog screen. Press <ENTER> or < / > and the REL 512 Root Menu will appear if the proper connection is made.

If the Root Menu does not appear, then communications is not achieved. In this case check your cable connection, COM# and Hyper Terminal's COM# Properties. The current COM# Properties is available via the File, Properties menu.



Retrieving REL 512 Data

From the REL 512 Root Menu select [7] Retrieve Data. Press < ENTER > and the Retrieve Data menu appears. You can download the recorded digital fault records or the relay's settings.

Retrieve Data

- [1] Receive Fault Records from Relay
- [2] Receive Settings from Relay

Selection => 1

Select [1] to receive fault records. Up to 15 fault records may be available. They are listed on this screen in order of occurrence by time and date, the most recent being [A] and up to [O] being the oldest.

Fault Records

[A] Record	0	Mon Feb 14 2000 14:26:42.413	Typ:A-G	Loc:	3.06 Km
[B] Record	-1	Mon Feb 14 2000 14:24:45.250	Typ:A-G	Loc:	3.08 Km
[C] Record	-2	Mon Feb 14 2000 14:24:41.695	Typ:A-G	Loc:	3.08 Km
[D] Record	-3	Mon Feb 14 2000 14:04:20.043	Typ:A-B-C	Loc:	2.00 Km

Enter selection: A

Select the desired record and the following message appears:

Transmit Capture Data to Host Terminal

Ready to send 16 cycles (40320 bytes, 319 blocks) of captured data to host terminal via XMODEM

Press ESC to exit, any other key to continue with transmission.

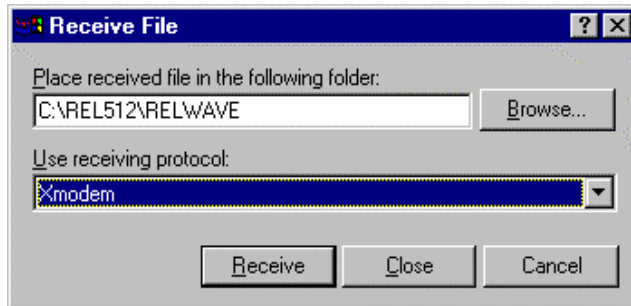
Note: The above message will read "Transmit Settings Data to Host Terminal" if you selected [2] Receive Settings from Relay

Press < ESC > to abort or any other key to continue. Press the space bar and the message to start transfer appears.

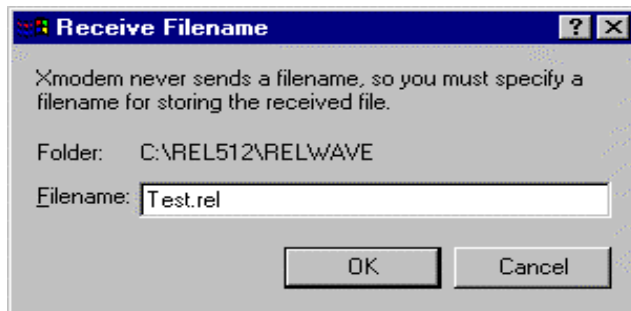
```
Start host terminal XMODEM receive protocol now.
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Select Receive File from the Transfer Menu to setup for receiving the data file.

The **Receive File** dialog box appears. Use the Browse button to locate the folder(directory) where the file is to be received. Set the receiving protocol to Xmodem. Press < Receive >

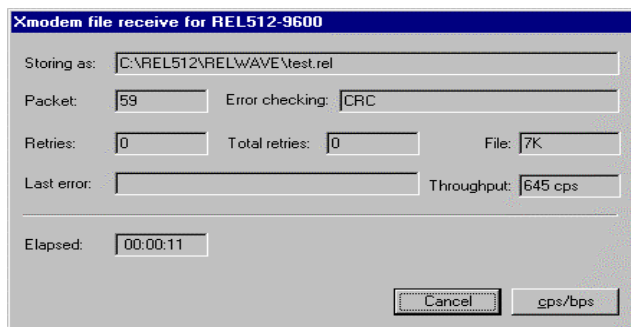


The **Receive Filename** dialog box appears. Type the filename you want the downloaded fault record copied to. Be sure to add the "rel " file extension for fault data (or ".bin" for settings).



The download process is monitored. You will observe the Packets to increase from 0 to 320 in the transfer process.

Timeout may occur if you were slow in setting up the receive file parameters. If it does, cancel the transfer and restart the process.



The following message appears upon a successful completion of the file transfer:

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SUCCESS - Transmission complete
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You can now open this file in the RELWAVE Fault Analysis Program.

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02/14/00

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