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Application Note

Simple Setup Allows Users to Maximize Communications with Relays

The numerical multifunction relays allow users to improve efficiency of operations, as well as automate operations and obtain information for better long range planning and monitoring. Basler Electric's microprocessor-based, multifunction relay product line represents the current state of the art in power system protection. The models included in this category are:

- BE1 Numerical Systems:
- BE1-GPS100 Generator Protection System
- BE1-IPS100 Intertie Protection System
- BE1-1051 Overcurrent Protection System
- BE1-951 Overcurrent Protection System
- BE1-851 Overcurrent Protection System
- BE1-700V Digital Overcurrent Protection Relay
- BE1-700C Digital Voltage/Frequency Protection Relay
- BE1-CDS220 Current Differential System
- BE1-CDS240 Current Differential System withVoltage

Other Relays include:

- BE1-BPR, Breaker Protection Relay
- BE1-79A Retrofit Reclosing Relay

The communication capabilities of these relays provide many benefits. In addition to the user-friendly graphical user interface and enhanced flexibility of these products, communication between a personal computer and the relay can be established through a standard communications program that is provided with the Windows® operating system.

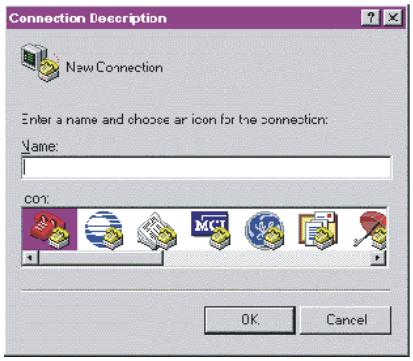
This Application Note provides basic instructions for setting up HyperTerminal and Terminal for Windows for use with Basler's numerical multifunction relays.

Setting up Windows® HyperTerminal for use with BE1 relays

Hyperterminal has changed slightly over time. The screens and input prompts in this Application Note may not be exactly the same as your version. Refer to Table 1 for appropriate settings.

1. Click Start: Highlight Programs, Accessories, HyperTerminal.
2. Click HyperTerminal to open the folder.
3. Select the file or icon labeled Hypertrm or Hypertrm. exe

Once the program has started, you will be presented with a series of dialog boxes.



4. Dialog Box: Connection Description-
   - Type desired file name such as, "BE1-851".
   - Click "OK"
5. Dialog Box: Connect to -
   - Click drop-down menu: Connect Using-
   - Select Com1 (or whichever port you are using on your computer)
   - Click "OK"
6. Dialog Box: COMn Properties-
   - Make the selections per Table 1.
   - Click "OK"

You now will need to make additional settings.

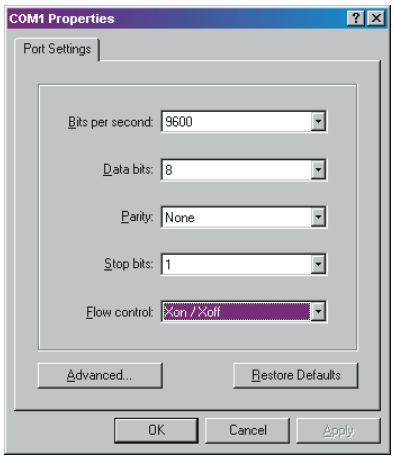


Table 1 - Hyperterminal Communication Settings

Any unlisted settings can be left at default values.	BE1-BPR	BE1 Numerical RelaysRelays	BE1-79A
COM*n* Properties			
Bits per second	Match Relay 9600 Default	Match Relay 9600 Default	9600
Data Bits	8 *	8	8
Parity	N *	N	N
Stop Bits	1 *	1	1
Flow Control	Xon/Xoff*	Xon/Xoff	Xon/Xoff
File/Properties - Per Step 8 and per ASCII Settings Below			
Send line ends with line feeds	YES	YES	YES
Echo typed characters locally	YES **	YES	YES
Line delay	100-200 ms	100-200 ms	100 ms
Character delay	0	0	0
Append line feeds to incoming line ends	NO	NO	NO
Force 7Bit	NO	NO	NO
Wrap lines that exceed terminal width	YES	YES	YES

* These are settable in the BE1-BPR. The default is 8N1 and Xon/Xoff.
** If you have set the BE1-BPR to echo characters back, you should set "Echo Typed Characters" off,

7. Click File/Properties on menu bar
8. Click Setting's tab
   - Make the following selections
     - Check Terminal Keys radio button
     - Check Backspace sends Ctrl +H
     - Select emulation; VT-100
     - Set Backscroll Buffer to maximum (500)
9. Click ASCII Setup button
   - Make the selections per Table 1
   - Click "OK"
   - Click "OK"
10. Click File
    - Click Save

Note: When you make settings changes, they do not become active until you save the settings or disconnect and reconnect.

11. HyperTerminal is now ready to communicate with the relay. Table 2 lists the parameters of each port for determining the type of cable required to make the connection.

Note: Clicking OK in Step 6 creates an icon with the name typed in Step 4 and places it in the HyperTerminal Folder. To start future communications sessions, click the appropriate icon.

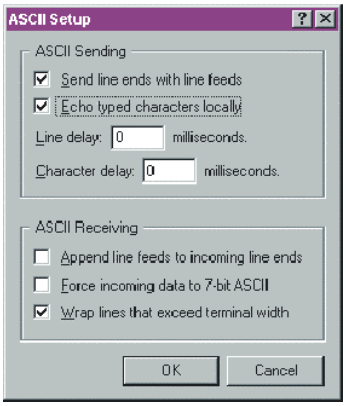
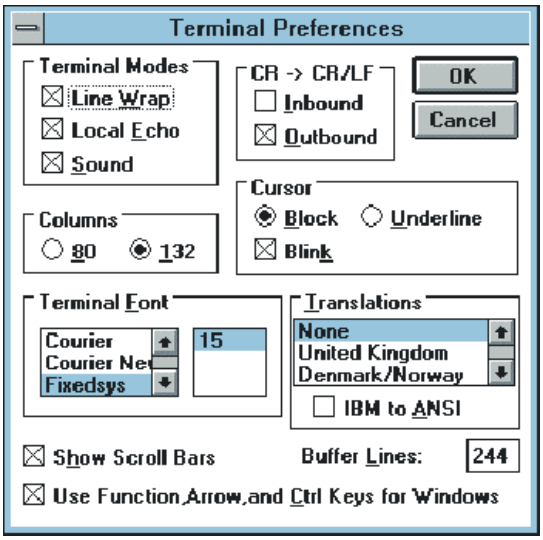


Table 2 - RS-232 Ports

	BE1-BPR	BE1 Numerical	BE1-79A
Front Port	9 pin, Female DCE	9 pin, Female DCE	9 pin, Female DCE
PC to Front RS232 Port Cable	Straight	Straight	Straight
Rear Port	9 pin, Female DCE	9 pin, Female DCE	NA
Modem to Rear RS232 Port Cable	Null Modem	Null Modem	NA
PC to Rear RS232 Port Cable	Straight	Straight	NA

Setting up Windows® Terminal for use with BE1 relays

1. In Program Manager, open the Accessories program group and double click the Terminal icon to start the program.
2. On the menu bar, select Settings/Terminal Emulation.
   - In the dialog box, click
     - DEC VT-100 (ANSI)
3. Select Settings/Terminal Preferences.
   - In the dialog box, Make the following selections.
     - Line Wrap; per Table 3
     - Local Echo ; per Table 3
     - CR->CR/LF Inbound; per Table 3
     - CR->CR/LF Outbound; per Table 3
   - Set the Buffer Lines to maximum (244).
   - Click OK
4. Select Settings/Text Transfers.
   - Make the following selections
     - Click; Line at a time
     - Click; Delay Between Lines
     - Select Delay time; per Table 3
     - Do not click; Word Wrap Outgoing Text at Column
   - Click OK



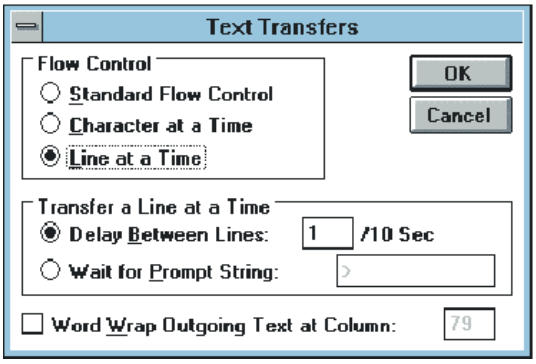


Table 3 - 16-bit Communication Settings

	BE1-BPR	BE1 Numerical	BE1-79A
Terminal Preferences			
Line Wrap	YES	YES	YES
Local echo	YES**	YES	YES
CR->CR/LF Inbound	NO	NO	NO
CR->CR/LF Outbound	YES	YES	YES
Text Transfers			
Delay Between Lines	(1-2)/10 Sec	(1-2)/10 Sec	(1-2)/10 Sec
Word Wrap Outgoing Text at Column	NO	NO	NO
Communications			
Baud Rate	Match relay 19K Default	Match relay 19K Default	9600
Data Bits	8*	8	8
Parity	N*	N	N
Stop Bits	1*	1	1

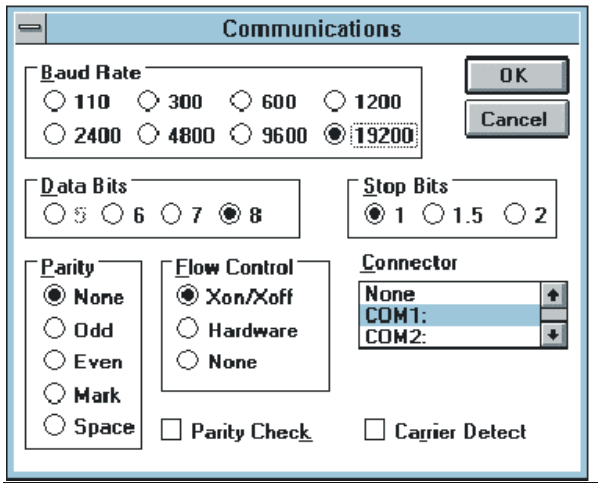
* These are settable in the BE1-BPR. The default is 8N1
** If you have set the BE1-BPR to echo characters back, you should set local echo off.

5. Select Settings/ Communications
   - Make the following selections
     - Baud Rate; per Table 3
     - Data Bits; per Table 3
     - Parity; per Table 3
     - Stop Bits; per Table 3
     - Flow Control; Xon/Xoff *
   - Click OK

* This is settable in the BE1-BPR. The default is Xon/Xoff.

6. Click File
   - Click Save
   - Enter a file name such as BE1-851.trm
7. Terminal is now ready to communicate with the relay. Table 2 lists the parameters of each port for determining the type of cable required to make the connection.

Note: For future communications sessions, click File/ Open and this file name and Terminal will automatically be set up properly to communicate with the relay.



For More Information

If you have any questions about Basler relays and their communications capabilities, contact Basler Electric's Power Systems Group Customer Service at +1 618.654.2341 or visit our web site at www.basler.com.

If you would like more information on a specific Basler relay, you can download the product bulletin or instruction manual from www.basler.com.

The web site also offers the opportunity to download technical papers and other technical resources and request Basler software updates.

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