



Allen-Bradley

BASIC Interface Software for Windows

1747-WINBAS

Programming Manual

**Rockwell
Automation**

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication SGI-1.1 available from your local Rockwell Automation sales office or online at <http://literature.rockwellautomation.com>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





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The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence
SHOCK HAZARD 	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
BURN HAZARD 	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

	Preface	
	Who Should Use This Manual	3
	Purpose of This Manual.	3
	Additional Resources	4
	Conventions Used in This Manual	4
	Chapter 1	
Installing Your BASIC Interface Software	Overview	5
	Installing the Software.	6
	Install the 1747-WINBAS Software	6
	Install the RSLinx Classic OEM Software	7
	Chapter 2	
Getting Familiar With Your BASIC Interface Software	Main Menu	9
	File Menu	9
	Saving and Printing Programs.	9
	View Menu	10
	Toolbar and Status Bar.	10
	Tools Menu	11
	Cancel Xoff, Send Xon.	11
	Debug.	12
	Options.	14
	List, List NUM	14
	RAM	15
	ROM.	15
	Xfer.	16
	Erase and Prog	16
	Hex Upload and Hex Download	16
	Module Backup and Restore.	17
	Help Menu	19
	Standard Toolbar Icons	20
	Configure the Serial Port	21
	Configure DH-485	22
	User Window	24
	Pop-up Menu	24
	Editing a BASIC Program	25
	Status Bar	26
	COM Port Status	26
	Appendix A	
Keystroke Commands	Keystroke Overview	29
	Appendix B	
Escape Sequences	Escape Sequence Overview.	31

Index

Read this preface to familiarize yourself with the rest of the manual. This preface covers the these topics:

- Who should use this manual
- Purpose of this manual
- Conventions used in this manual

Who Should Use This Manual

Use this manual if you are responsible for designing, installing, programming, or troubleshooting control systems that use Allen-Bradley small logic controllers.

You should have a basic understanding of 1746-BAS, 1746-BAS-T, and 1771-DB modules and be able to interpret the ladder logic instructions required to control your application. If you do not, contact your local Allen-Bradley representative for information on available training courses before using this product.

Purpose of This Manual

This manual describes the 1747-WINBAS Windows Compatible BASIC Module Interface Software and its operation.

Additional Resources

These documents contain additional information regarding Rockwell Automation products.

Resource	Description
SLC 500 Systems Selection Guide, publication 1747-SG001	A guide to understanding and selecting SLC 500 products
SLC 500 Modular Hardware Style User Manual, publication 1747-UM011	A description on how to install and use your modular SLC 500 programmable controller
SLC 500 BASIC and BASIC-T Modules User Manual, publication 1746-UM004	A description on how to install and use your SLC 500 BASIC and BASIC-T modules
BASIC Language Reference Manual, publication 1746-RM001	A reference guide of the BASIC language commands
BASIC Module User Manual, publication 1771-UM113	A description on how to install and use your 1771 BASIC module
Industrial Automation Wiring and Grounding Guidelines Application Data, publication 1770-IN041	A guide to wiring and grounding guidelines
Allen-Bradley Industrial Automation Glossary, publication AG-QR071	A glossary of industrial automation terms and abbreviations

You can view or download publications at <http://literature.rockwellautomation.com>. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

Conventions Used in This Manual

These conventions are used throughout this manual:

- Bulleted lists such as this one provide information, not procedural steps.
- Numbered lists provide sequential steps or hierarchical information.

Installing Your BASIC Interface Software

This chapter provides overview information regarding the 1747-WINBAS Windows Compatible BASIC Module Interface Software.


Overview

BASIC software is a terminal emulation program specifically written for you to interface to a Rockwell Automation 1746-BAS, 1746-BAS-T, or 1771-DB BASIC module. BASIC software simplifies the uploading and downloading of BASIC module programs, as well as backing up and restoring complete module images. BASIC software also provides debugging tools to aid in troubleshooting BASIC programs while online. Because BASIC software is specific to these BASIC modules, it has functionality that is not provided by generic terminal-emulation programs. In turn, generic terminal-emulation programs will have functionality not provided by BASIC software. This document describes BASIC software and how to use it.

As a terminal emulation program, BASIC software requires either one RS-232 serial COM port or a DH-485 interface (1784-PCMK, 1784-PKTX, 1784-PKTXD, or 1747-UIC convertor) be available on the personal computers. Bridging to the DH-485 network from other networks is not supported.

BASIC software works on personal computers with Windows 98, 2000, NT, and XP operating systems. RSLinx Classic OEM software must be installed on the personal computer in order to communicate to the BAS module via the DH-485 interface.

Characters typed on the personal computer keyboard will be translated and transmitted out the selected port. Information received via the selected port will be translated and displayed in the BASIC software client window.

BASIC Interface Software Client Window


```

Untitled - 1747-WINBAS
File View Tools Help
>570 V1=31
>580 V2=5
>590 V3=2
>600 GOSUB 750
>610 G=GET
>620 IF G<>0 THEN GOTO 950
>630 V1=44
>640 V2=2
>650 V3=3
>660 GOSUB 750
>670 G=GET
>680 IF G<>0 THEN GOTO 950
>690 V1=57
>700 V2=1
>710 V3=4
>720 GOSUB 750
>730 G=GET
>740 IF G<>0 THEN GOTO 950 ELSE GOTO 490
>750 R=V2+INT(RND*4)
>760 IF V3=1 THEN PRINT CHR(27); "[31m",
>770 IF V3=2 THEN PRINT CHR(27); "[32m",
>780 IF V3=3 THEN PRINT CHR(27); "[34m",
>790 IF V3=4 THEN PRINT CHR(27); "[37m",
>800 FOR X=1 TO R
>810 Z=10-X
>820 PRINT CHR(27); "[",CHR(INT(Z/10)+30H),CHR((Z-(INT(Z/10)*10))+30H),
>830 PRINT " ",CHR(INT(V1/10)+30H),CHR((V1-(INT(V1/10)*10))+30H),
>840 Z=10-X-1
>890 PRINT CHR(27); "[",CHR(INT(Z/10)+30H),CHR((Z-(INT(Z/10)*10))+30H),
>900 PRINT " ",CHR(INT(V1/10)+30H),CHR((V1-(INT(V1/10)*10))+30H),
>910 PRINT "H",
>920 PRINT " ",
>930 NEXT X
>940 RETURN
>950 PRINT CHR(27); "[2m",
>960 PRINT CHR(27); "[40m",
>970 PRINT CHR(27); "[30m",
>980 PRINT CHR(27); "[27",
>990 END
>
Ready
DH-485 12000 B3

```

Installing the Software

The BASIC software is comprised of two CDs. They are:

- the 1747-WINBAS software CD.
- the optional RSLinx Classic OEM version software CD.

The 1747-WINBAS software enables communication to the 1747-BAS module via an RS-232 serial port.

The RSLinx Classic OEM version software enables communication to the 1747-BAS module via the DH-485 port.

To configure your computer serial port for communication with the 1747-BAS module, refer to page 21.

To configure your computer for communication with the 1747-BAS module, refer to using DH-485 on page 22.

Install the 1747-WINBAS Software

To install the 1747-WINBAS software, insert the 1747-WINBAS software CD into your CD drive and follow the installation instructions.

Install the RSLinx Classic OEM Software

To install the RSLinx Classic OEM software (only necessary if connecting to the BAS module using DH-485), insert the RSLinx Classic OEM software CD into your CD drive and follow the installation instructions.

Notes:

Getting Familiar With Your BASIC Interface Software

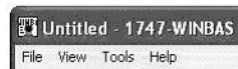
This chapter is intended to give you an overview of the BASIC Interface Software so you can understand the software's general structure.

Main Menu

These menus are accessed through the Main menu:

- File
- View
- Tools
- Help

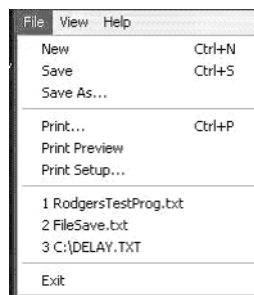
Main Menu



File Menu

You can save and print programs from the File menu.

Saving and Printing Programs



From the File menu, you can choose the following options:

- File > New clears all the old data from the history buffer and the dialog.

- File > Save saves the data to a file for later reference. This command will also result in the new file name being displayed in the title bar. The files are not appended. If you save the data to the same file twice, the data that was first saved will be lost. The data is saved as ASCII text exactly as it appears on the BASIC software dialog.
- File > Save As saves the data to a file for later reference. This command will also result in the new file name being displayed in the title bar. The files are not appended. If you save the data to the same file twice, the data that was first saved will be lost. The data is saved as ASCII text exactly as it appears on the BASIC software dialog.
- File > Print formats and sends the data to a printer.
- File > Print Preview lets you preview the printed data before actually printing.
- File > Exit exits the BASIC software program.

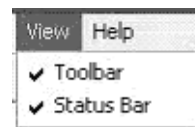
Between File > Print Setup and File > Exit, there can be up to four file names. These file names are a list of the most recent four files saved using BASIC software. If you select one of these files, the title bar document title will change to show the name of this file. Also, the next time you save this data, the file name will be selected, but nothing else will happen. No file is actually opened.

View Menu

The View menu lets you gain access to the toolbar and status bar.

Refer to page 20 for additional information on the toolbar and page 26 for additional information on the status bar.

Toolbar and Status Bar



From the View menu, you can choose the following options:

- View > Toolbar switches the toolbar on and off.
- View > Status Bar switches the status bar on and off.

Tools Menu

The Tools menu lets you interface with your BASIC module.

Tools Menu



Cancel Xoff, Send Xon

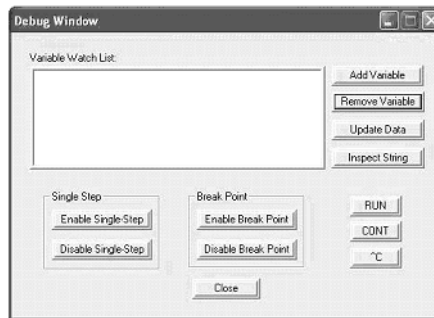
From the Tools menu, you can choose the following options:

- Tools > Cancel Xoff clears an internal flag that indicates the attached module has sent an Xoff to BASIC software. Only choose Tools > Cancel Xoff on rare occasions. There are situations when you are working with multiple BASIC modules. One module may send an Xoff to BASIC software. You then disconnect the cable from the first module and connect to another module. BASIC software will appear to be locked up, because it has received an Xoff and therefore should not be transmitting any data. In this case, you can cancel the Xoff flag via Tools > Cancel Xoff. There are also occasions when the BASIC module may not transmit, because it thinks that it has received an Xoff.
- Tools > Send Xon will immediately transmit an Xon to the connected module.

Debug

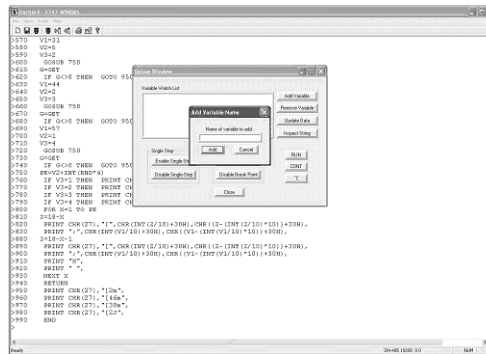
Tools > Debug opens a dialog that aids you in debugging the BASIC program. The Variable Watch List box on the upper left side of the dialog displays the variables you added. The buttons to the right of the Variable Watch List box lets you add variables to the Watch List, remove variables from the Watch List, get the latest values for the variables in the Watch List and inspect strings in detail.

Debug Dialog



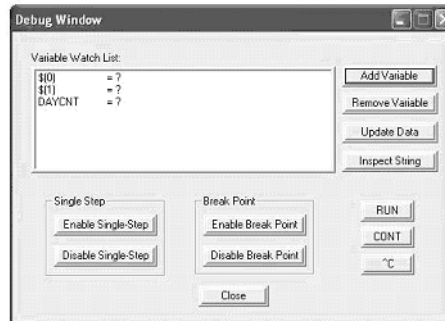
The following dialog lets you add a variable to the Variable Watch List.

Variable Added to the Debug Dialog



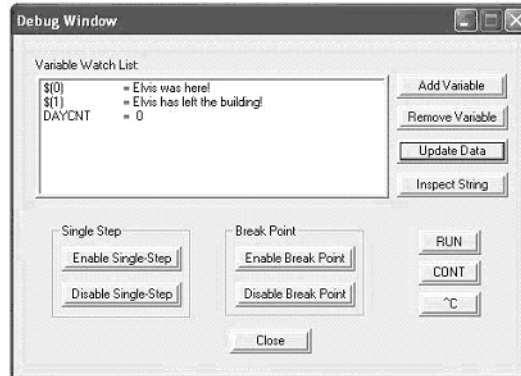
The following dialog shows the Debug Window with some variables in the Watch List before clicking Update Data.

Variables in Watch List Before Update



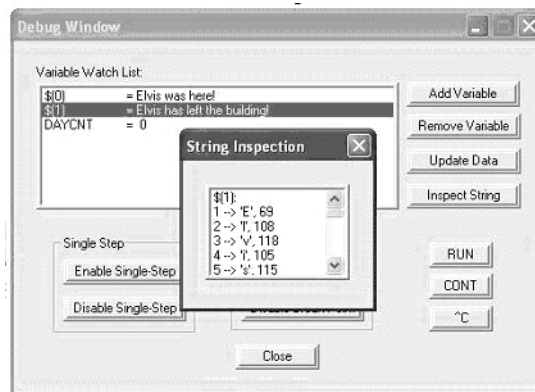
The following dialog shows the Debug Window with the same variables after clicking Update Data.

Variables in Watch List After Update



It may be difficult to count the number of characters in the strings and determine a character's precise location in the string. This dialog displays when you select a string in the Watch List Variable by clicking Inspect String.

Inspect String Dialog



Below the Watch List box and to the left are two buttons that will put the BASIC module in Single Step mode or clear Single Step mode. In the module, Single-Step is enabled until it is disabled. When Single-Step is enabled, clicking RUN causes the module to execute the first line of the program and stop. Also, when Single-Step is enabled, clicking CONT causes the module to execute the next line of BASIC programming and stop.

Below the Watch List box and in the middle are two buttons that either set or clear a BASIC-program break point. The BASIC modules allow only one break point to be set at a time. When this break point is encountered during program execution, the program stops and the BASIC module goes to the command prompt. Also, the break point is automatically cleared by the module after it is encountered. If you want to continuously stop inside a loop, the break point must be set after each break. Clicking RUN causes the module to start executing from the first line of the BASIC program. Clicking CONT causes the module to continue executing the BASIC program after either a break point or pressing Ctrl+C. If Ctrl+C detection is enabled in the module (module default) and you press Ctrl+C, then the program will stop executing at the end of the currently running line.

Below the Watch List box and to the right are three buttons that provide short cuts for the RUN, CONT, and Ctrl+C BASIC commands. Use these three buttons independently or in conjunction with Single-Step or Break Point.

Click close at the bottom to close the Debug Window dialog.

Options

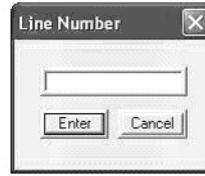
Tools > Options opens a dialog that lets you change the BASIC software font size. The legal sizes are 12, 14, 16, 18, 20, 22, and 24.

List, List NUM

From the Tools menu, you can choose List and List NUM.

- Tools > List is a shortcut that sends the LIST command to the BASIC module. The LIST command prints the entire program to the BASIC software dialog.
- Tools > List NUM opens a dialog that lets you enter a line number. Then the BASIC LIST command is sent to the module followed by the line number (for example, LIST 100). This action lists the BASIC program from the specified line number to the end of the BASIC program to the BASIC software dialog.

Line Number Dialog



- Tools > List NUM1-NUM2 opens a dialog that lets you enter the first line number (NUM1). If a valid line number is entered, then the same dialog is cleared for entry of the second line number (NUM2). Then the BASIC LIST command is sent to the module followed by both line numbers separated by a dash (for example, LIST 100-200). This action lists the BASIC program from the first specified line number to the second specified line number to the BASIC software dialog.

RAM

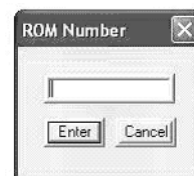
Tools > Ram sends a RAM command to the BASIC module. The RAM command causes the BASIC program pointer to be changed to point at the program in RAM. In other words, the program in RAM is selected.

ROM

From the Tools menu, you can choose the following options:

- Tools > Rom sends a ROM command to the BASIC module. The ROM command causes the BASIC program pointer to be changed to point at the first program in ROM (or ROM 1). In other words, the ROM 1 program is selected.
- Tools > Rom N opens a dialog that lets you enter a number. Then the BASIC ROM command is sent to the module followed by the specified number (for example, ROM 3). This action causes the BASIC program pointer to be changed to point at the specified program in ROM.

ROM Number Dialog



Xfer

Tools > Xfer sends a XFER command to the BASIC module. Use the XFER command to transfer the currently selected program in ROM to RAM and select RAM mode. After the XFER command executes, you can edit the program in the same way you would edit any RAM program.

Erase and Prog

From the Tools menu, you can choose the following options:

- Tools > Erase sends an ERASE command to the BASIC module. The ERASE command deletes the last program stored in EEPROM through the PROG command.
- Tools > Prog programs the resident EEPROM with the current program in RAM.
- Tools > Prog1 programs the resident EEPROM with the port information for all three ports, as well as MTOP information.
- Tools > Prog2 causes the first program stored in ROM (ROM 1) to be run each time power is applied.

Hex Upload and Hex Download

From the Tools menu, you can choose the following options:

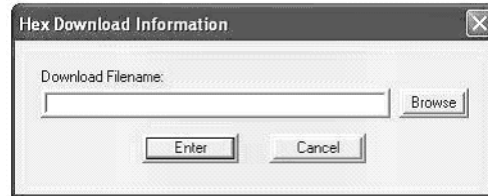
- Tools > Hex Upload opens a dialog that lets you enter/select a file name (default extension .hex) and two numbers. These two numbers are absolute microprocessor addresses. BASIC software then sends the following command: PUSH ADDR1, ADDR2 : CALL 101. The resulting data (in Intel Hex format) is saved to the specified file.

Hex Upload Information Dialog



- Tools > Hex Download opens a dialog that lets you enter/select a file name (default extension .hex). BASIC software then sends a CALL 100 command and downloads the specified Intel Hex file to the module.

Hex Download Information Dialog

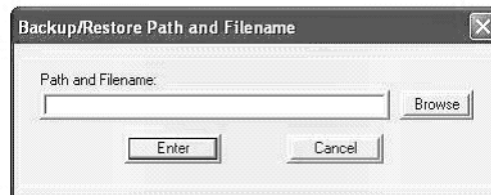


Module Backup and Restore

From the Tools menu, you can choose the following options:

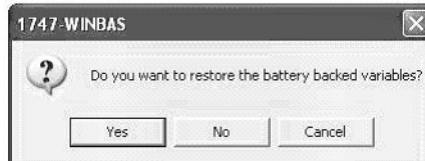
- Tools > Module Backup opens a dialog that lets you enter a file name. This file name (default extension .IMG) will be used to store a backup of the entire module. This backup consists of four or five files. The module type, module firmware release, and other general information, as well as pointers to the other files, are stored in the above .IMG file. The RAM information will be stored in a file with the same above path and file name, but with a .RAM extension. The port parameters and MTOP information will be stored in a file with the same above path and file name, but with a .PRM extension. The battery-backed variable information will be stored in a file with the same above path and file name, but with an .USR extension. If there is an EEPROM present in the module, then ROM information will be stored in a file with the same above path and file name, but with a .ROM extension.

Backup/Restore Path and Filename Dialog



- Tools > Module Restore opens a dialog that lets you enter a file name (default extension.IMG). If the above file name is valid, the module type matches, and the module firmware revision matches, then the dialog lets you decide whether to restore the battery backed variables. The file name is used to restore this connected BASIC module exactly like the module used to produce the original backup.

Restore Dialog



Help Menu

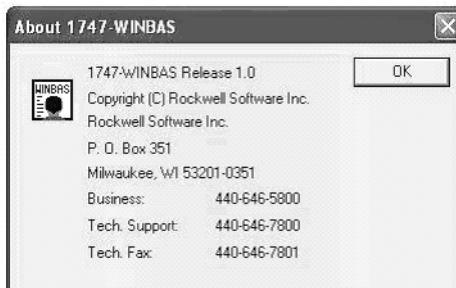
The Help menu provides you with a resource to locate information you need to keep your program operational.



From the Help menu, you can choose the following options:

- Help > About WINBAS will open as the dialog that identifies the release and contact information.

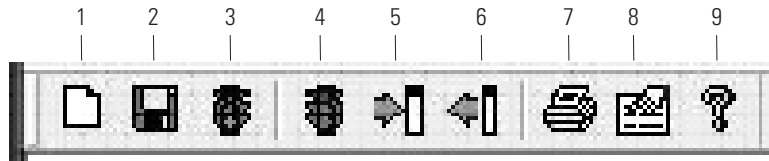
About 1747-WINBAS Dialog



- Help > BAS Users Manual opens the SLC 500 BASIC and BASIC-T Modules User Manual, publication 1746-UM004. Adobe Acrobat software must be installed on the personal computer for this function to work.
- Help > DB Users Manual opens the BASIC Module User Manual, publication 1771-UM113. Adobe Acrobat software must be installed on the personal computer for this function to work.
- Help > WINBAS Help opens this document. Adobe Acrobat software must be installed on the personal computer for this function to work.

Standard Toolbar Icons

There are nine choices on the standard toolbar.



Icon Number	Description
1	Performs the same function as File > New. It clears all the old data from the history buffer and the screen.
2	Performs the same function as File > Save.
3	Transmits a RUN command followed by an ENTER out the serial port to the attached BASIC module.
4	Sends a Ctrl+C command out the serial port to the attached BASIC module.
5	Downloads a BASIC program stored on disk to the attached BASIC module. At the end of each downloaded line, the BASIC module will tokenize the line then save it in memory. This tokenization process takes time, which means the BASIC module input buffer can overflow and data can be lost. If the program to be downloaded is more than a few lines long (~10), then Xon/Xoff flow control is required on both BASIC software and the BASIC module.
6	Uploads a BASIC program from the attached BASIC module and stores the program in a file on the computer. The personal computer saves the data to disk as it is being uploaded, which takes time. If the program to be uploaded is longer than a few lines long, then Xon/Xoff flow control is required on both BASIC software and the BASIC module.
7	Performs the same function as File > Print.
8	Opens a dialog for you to configure the serial port.
9	Opens the About BASIC Interface Software dialog.

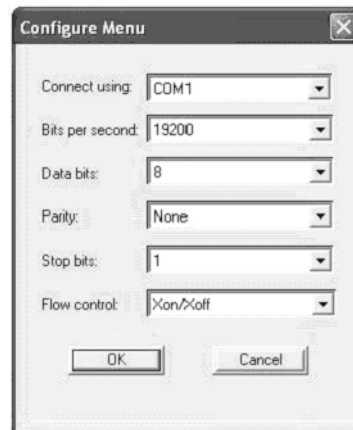
Configure the Serial Port

Follow these steps to configure the serial port.

1. Click the hand-on-paper icon.

See icon number 8 on page 20.

The following dialog appears.



2. From each pull-down menu, choose a value for each parameter.
 - Connection
 - Bits per second
 - Data bits
 - Parity
 - Stop bits
 - Flow control

Port Configuration Dialog Options

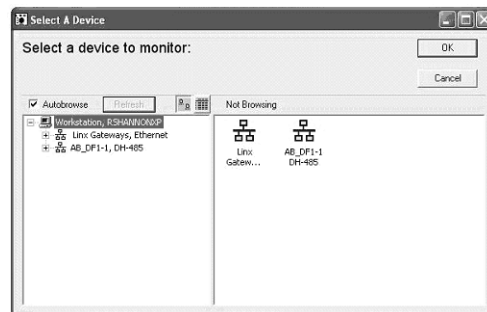
Parameter	Value
Connect using	COM1, COM2, COM3, COM4, or DH-485 ⁽¹⁾
Bits per second	300, 1200, 2400, 4800, 9600, 19,200, 38,400, 57,600, or 115,200
Data bits	7 or 8
Parity	None, even, or odd
Stop bits	1 or 2
Flow control	None or Xon/Xoff
OK button	<ul style="list-style-type: none"> Saves the configuration. Reconfigures the appropriate port. Exits the configuration dialog returning you to the BASIC Interface main program.
Cancel button	<ul style="list-style-type: none"> Exits the configuration dialog returning you to the BASIC Interface main program without saving any changes. Uses the previous configuration information to configure the appropriate port.
X button	<ul style="list-style-type: none"> Exits the configuration dialog returning you to the BASIC Interface main program without saving. Uses the previous configuration information to configure the appropriate port.

⁽¹⁾ If you select DH-485, all other list boxes are disabled since the other parameters are not valid or set by RSLinx software.

Configure DH-485

If you select DH-485 for the port and the BASIC software has never made a connection via DH-485 previously, then the BASIC software will open this dialog.

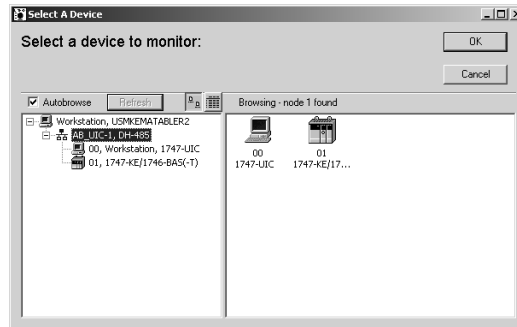
Select a Device



Acceptable DH-485 interfaces are the 1784-PCMK, 1784-PKTX, 1784-PKTXD, or 1747-UIC convertor. Bridging to the DH-485 network from other networks is not supported.

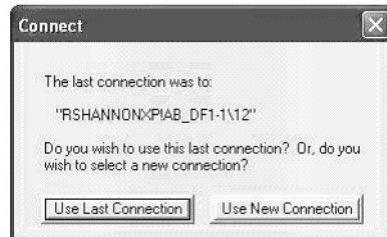
You must go through the selections shown in this dialog and double-click the correct BASIC module.

BASIC Module Selection via RSWHo Feature in RSLinx Classic Software



If you select DH-485 for the port and the BASIC software has connected to a DH-485 BASIC module previously, then this dialog is displayed. This dialog lets you select the previous connection path without having to go through the RSLinx software selection process.

Last Connection Path Dialog



User Window

The user window is the client area where the data received via the port is displayed. There is a vertical scroll bar on the right side of the window and a horizontal scroll bar on the bottom of the window. The vertical scroll bar lets you view data that has scrolled off the viewable page. The horizontal scroll bar lets you view data that exceeds the width of the user window. Up to 128 characters can be displayed per line. If more than 128 characters are received in one line, BASIC software will automatically wrap the line to the next line.

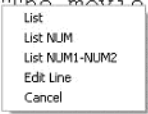
You can view up to 1000 lines of data using BASIC software. If the terminal emulator session exceeds more than 1000 lines, then the oldest lines are discarded, while the newest 1000 lines are retained.

Pop-up Menu

If you click the right mouse while the mouse pointer is in the main viewing window, this pop-up dialog is displayed.

```
>list
10  STRING 500,100
20  $(0)="Elvis was here!"
30  $(1)="Elvis has left the building!"
40  $(2)="The movie was 'Big'."

READY
>run
```



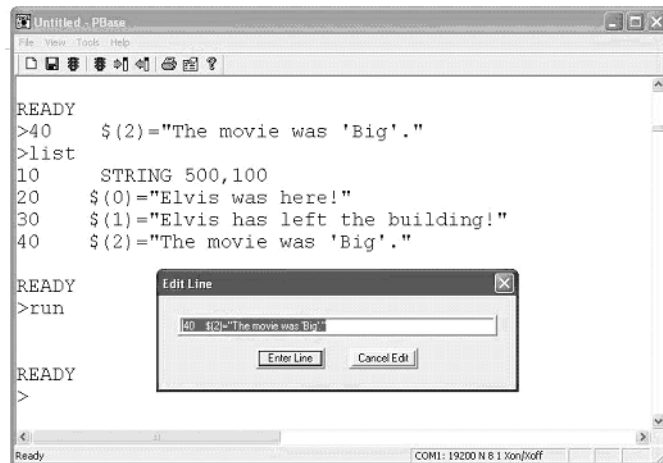
```
READY
>|
```

- Right-clicking List performs the same function as Tools > List.
- Right-clicking List NUM performs the same function as Tools > List NUM.
- Right-clicking List NUM1-NUM2 performs the same function as Tools > List NUM1-NUM2.
- Right-clicking Edit Line causes BASIC software to evaluate where the mouse is located at the time of the right-click.
- Right-clicking Cancel exits the pop-up dialog.

Editing a BASIC Program

When you right-click Edit Line in the pop-up menu, the BASIC software opens an edit dialog that lets you edit any BASIC line of code. The edit box in this Edit Line dialog is automatically loaded with the BASIC line being pointed at when you right-clicked the mouse. You can modify this line in any fashion. If you clicked Enter Line, this modified line will be downloaded to the BASIC module.

Edit Line Dialog



Status Bar

The BASIC software status bar is at the very bottom of the user window and is divided into five sections.



Button	Description
User Help	When you move the cursor over any menu item or the tool bar icon, a description of the function or icon appears.
COM Port Status	See COM Port Status section.
Caps Lock	Provides capitalization status.
Num Lock	Provides numbering status.
Scroll Lock	Provides scroll status.

COM Port Status

COM Port Status has two functions. If you select a standard RS-232 COM port, the window contains the following information:

- Availability of the selected COM port
- Selected COM port
- Communication rate
- Parity
- Number of bits per character
- Number of stop bits
- Type of data flow control used (Xon/Xoff or None)

For example, COM1: 1200 N 8 1 None would indicate that the selected COM port is COM1 and COM1 is configured for 1200 Kbps, no parity, 8 data bits per character, 1 stop bit, and no flow control. Or, X COM2: 19,200 E 7 2 Xon/Xoff would indicate COM2 was selected at 19,200 bps, with even parity, 7 data bits per character, 2 stop bits and Xon/Xoff data flow control. However, the X in front of the string indicates that COM2 is not available.

If you select a DH-485 port, the following four pieces of information are displayed:

- Availability of the BASIC software DH-485 connection
- DH-485
- RSLinx function return code
- DH-485 connection return code

For example, DH-485 0 0 indicates that the BASIC software is connected to a BASIC module via the DH-485 network, and that there are no problems. If a non-zero value is ever displayed for either the RSLinx function return code or the DH-485 connection return code, then the BASIC software has lost the connection to the BASIC module. Further, X DH-485 0 0 indicates that the BASIC software was not able to open a connection to a BASIC module.

Notes:

Keystroke Commands

Keystroke Overview

Windows programs typically support several keystroke commands that have been modified for use with BASIC Interface Software.

Keystroke	Effect on BASIC Interface Software
Ctrl+C	Transmits a Ctrl+C (03h) command from the serial port.
Ctrl+N	Transmits a Ctrl+N (0Eh = ASCII S0 character) command from the serial port.
Ctrl+O	Transmits a Ctrl+O (0Fh = ASCII SI character) command from the serial port.
Ctrl+P	Transmits a Ctrl+P (10h = ASCII DLE character) command from the serial port.
Ctrl+S	Transmits a Ctrl+S (13h = ASCII DC3 character) command from the serial port.
Ctrl+V	Transmits a Ctrl+V (16h = ASCII SYN character) command from the serial port.
Ctrl+X	Transmits a Ctrl+X (18h = ASCII ESC character) command from the serial port.
Ctrl+Z	Transmits a Ctrl+Z (1Ah = ASCII SUB character) command from the serial port.
Esc	Transmits an escape (1Bh = ASCII ESC character) command from the serial port.
Backspace	Transmits a DEL (7Fh = ASCII DEL character) command from the serial port.
Delete	Transmits a DEL (7Fh = ASCII DEL character) command from the serial port.
Del	Transmits a DEL (7Fh = ASCII DEL character) command from the serial port.
F5 through F12	None.
Insert	None.
Ins	None.
Home	Transmits an ESC [H command.
Page Up	None.
Pg Up	None.
Page Down	None.
End	Transmits an ESC [K command.
Up arrow	Transmits an ESC [A command.
Down arrow	Transmits an ESC [B command.

Keystroke	Effect on BASIC Interface Software
Left arrow	Transmits an ESC [D command.
Right arrow	Transmits an ESC [C command.
F1	Transmits an ESC O P command.
F2	Transmits an ESC O Q command.
F3	Transmits an ESC O R command.
F4	Transmits an ESC O S command.

Escape Sequences

Escape Sequence Overview

Escape sequences are supported by BASIC Interface Software. The fully-supported escape sequences are listed in this table.

Escape Sequence	Description
ESC[#1;#2H	Moves cursor to line 1 and column 2.
ESC[#1;#2f	Moves cursor to line 1 and column 2.
ESC[#A	Moves cursor up set number of lines.
ESC[#B	Moves cursor down set number of lines.
ESC[#C	Moves cursor forward set number of spaces.
ESC[#D	Moves cursor back set number of spaces.
ESC[s	Saves cursor position for recall later.
ESC[u	Returns to saved cursor position.
ESC[2J	Clears screen and homes cursor.
ESC[K	Clears to end of line.

There are several escape sequences that are accepted, but no action is taken. All of these no action sequences are of the form ESC[#m, where # describes what display attributes are modified (for example, ESC[45m means set the background color to magenta).

All other escape sequences display the string ESC in the dialog followed by the actual sequence (for example, ESC[=h or ESC[=3;7h).

Notes:

C

configure the serial port 21
conventions used in this manual 4

D

debug 12

E

edit a BASIC program 25
erase 16
escape sequences 31

F

file menu 9

H

help menu 19
hex download 16
hex upload 16

I

install the software 6

K

keystroke commands 29

L

list 14
list NUM 14

M

main menu
file menu 9
help menu 19
tools menu 11
view menu 10
module backup 17
module restore 17

O

options 14
overview
software 5

P

port status 26
print a program 9
prog 16
purpose of manual 3

R

RAM 15
related documentation 4
ROM 15

S

save a program 9
software
edit a program 25
installation 6
overview 5
print a program 9
save a program 9
status bar 26

T

tool bar 20
tools menu 11

U

user window 24

V

view menu 10

W

who should use this manual 3

X

Xfer 16
Xoff 11
Xon 11



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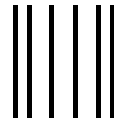
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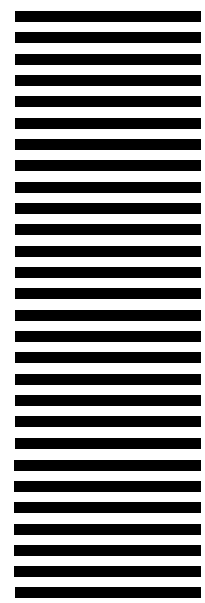
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