



Quickstep™

User Guide

Doc. No. MAN-1000A

The information in this document is subject to change without notice. The software described in this document is provided under license agreement and may be used or copied only in accordance with the terms of the license agreement.

The information, drawings, and illustrations contained herein are the property of Control Technology Corporation. No part of this manual may be reproduced or distributed by any means, electronic or mechanical, for any purpose other than the purchaser's personal use, without the express written consent of the Control Technology Corporation:

The following are trademarks of Control Technology Corporation:

- Quickstep
- CTC Monitor
- CTC Utilities

The American Advantage is a registered trademarks of Control Technology Corporation. MS-DOS and Windows are trademarks of Microsoft Corporation. DeviceNet is a trademark of Allen-Bradley Company.

Contents

Notes To Readers	vii
1 Getting Started	
Launching the Quickstep Editor	1-2
Parameter Editor	1-2
Symbol Browser	1-2
Data Table Editor	1-2
Editor Screen Overview	1-3
The Selection Bar	1-4
The Toolbar	1-5
The Shortcut Menu	1-6
Starting a New Editing Session	1-7
Programming a Step	1-7
Converting an Existing Quickstep Program	1-8
2 Using the Parameter Editor	
Parameter Editor Overview	2-2
Specifying Parameters	2-3
Specifying the Controller Model	2-3
Specifying Dedicated Input Functions	2-3
Specifying Data Table Parameters	2-4
3 Quickstep Editor Basics	
Opening Files	3-2
Opening a New Quickstep Program File	3-2
Opening an Existing Quickstep Program File	3-2
Saving Quickstep Programs	3-3
Saving a New, Unnamed File	3-3
Saving an Active File	3-3
Reverting to the Last Saved File	3-3
Using the Backup File	3-3
Printing Quickstep Program Files	3-4
Printing a Quickstep Program	3-4
Selecting a Printer and a Printer Connection	3-4
Previewing a File Before Printing	3-5
Closing Files and Exiting the Quickstep Editor	3-6
Closing a File	3-6
Exiting the Quickstep Programming Editor	3-6
Changing Editor Field Colors	3-7

4 Using the Quickstep Editor - Writing a Quickstep Program

Programming a Step	4-2
Using the Selection Bar	4-2
Listing and Selecting Items in the Selection Bar	4-3
Selection Bar Choices - Data Sources and Destinations	4-3
Selection Bar Choices - Immediate Actions	4-3
The Current Field	4-4
Defining Symbolic Names	4-5
Entering Step Names	4-7
Entering a New Step Name	4-7
Entering a Previously Defined Step Name	4-7
Entering Comments	4-9
The Comment Editor	4-9
Comment Editor Menus	4-9
Inserting Comments	4-10
Specifying Output Changes	4-12
Entering an Immediate Action Selection	4-12
Entering an Output Change for a Specific Output	4-12
Programming Quickstep Instructions	4-14
Programming Instructions and Parameters	4-14
Entering Numeric Constants Defined as Symbolic Names	4-16
Entering Numeric Constants From the Keyboard	4-17
Programming Boolean Monitor Instructions	4-18
Defining Symbolic Names When Programming an Instruction	4-20
Inserting New Lines and Steps	4-22
Inserting New Steps	4-23
Inserting New Lines	4-24
Inserting an Output Change	4-25
Inserting a New First Statement Placeholder	4-25

5 Using the Quickstep Editor - Editing a Quickstep Program

Cutting, Copying and Pasting Lines and Steps	5-2
The Importance of the Current Field when Cutting, Copying and Pasting	5-2
Cutting Text	5-2
Copying Text	5-2
Pasting Text	5-3
Copying and Pasting Text from one Program to Another	5-3
Deleting Lines and Text	5-5
Deleting Items	5-5
Deleting an Entire Line	5-5
Changing Step Names and Numbers	5-7
Changing Step Names	5-7
Changing Step Numbers	5-7
Editing Comments	5-9
Using Replace with Alternate	5-10
Replacing Part of an Instruction	5-10
Replacing an Output Change	5-11

Using the Line Editor	5-12
The Line Editor	5-12
Line Editor Menus	5-12
Editing Output Change and Instruction Line Text	5-12
Removing Placeholders	5-14
Checking Syntax	5-15
Searching for Syntax Errors	5-15
Using Search and Goto	5-16
Searching for a Step	5-16
Method One	5-16
Method Two	5-16
Searching for Symbolic Names	5-17

6 Using the Symbol Browser

Symbol Browser Overview	6-2
Screen Overview	6-2
The Toolbar	6-3
Changing Column Size	6-4
Re-displaying Columns	6-4
Changing the Font	6-5
Specifying the Order of Symbolic Names	6-5
Listing by Name or Value	6-5
Examples of Sorted Lists	6-6
Listing in Ascending or Descending Order	6-6
Examples of Sorted Lists	6-6
Inserting an Existing Symbol Table	6-7
Saving a Symbol Table	6-8
Defining Symbolic Names	6-9
Entering Symbolic Names	6-9
Specifying Step Names	6-11
Specifying Symbolic Names for Inputs	6-12
Specifying Symbolic Names for Outputs	6-13
Editing Symbol Browser Entries	6-14
Editing Symbolic Names	6-14
Deleting Symbolic Names	6-14
Copying and Pasting Text	6-15
Copying Text	6-15
Pasting Text	6-15
Printing a Symbol Table	6-16
Finding Steps and Symbols in a Quickstep Program	6-17
Finding a Step in a Quickstep Program	6-17
Finding the First Occurance of a Symbolic Name	6-17
Using the Symbol Browser as a Standalone Editor	6-19
Activating the Symbol Browser and Opening a Symbol Table	6-19
Saving Symbol Tables	6-20
Saving a New Symbol Table	6-20
Saving an Existing Symbol Table	6-20
Exiting the Symbol Browser	6-20

7 Using the Data Table Editor

Data Table Editor Overview	7-2
Data Table Editor Screen Overview	7-2
The Toolbar	7-2
Changing Column Size	7-3
Changing the Number of Rows and Columns	7-4
Saving a Data Table	7-5
Changing the Font	7-5
Entering Information in the Data Table	7-6
Entering Numbers in the Data Table	7-6
Entering Messages in the Data Table	7-6
Editing Information in the Data Table	7-8
Editing Numbers in the Data Table	7-8
Editing Messages in the Data Table	7-8
Printing a Data Table	7-10
Using the Data Table Editor as a Standalone Editor	7-11
Activating the Data Table Editor and Opening a Data Table	7-11
Specifying the Number of Rows and Columns	7-12
Saving a Data Table	7-13
Saving a New Data Table	7-13
Saving an Existing Data Table	7-14
Exiting the Data Table Editor	7-14

8 Compiling and Downloading a Quickstep Program

Compiling a Quickstep Program	8-2
Compiling a Program	8-2
Using the Cross-Reference List	8-2
Viewing Compiler Errors	8-3
Downloading a Program to the Controller	8-4
Downloading a Program	8-4

Appendix A - Installation Instructions

Before You Install Quickstep	A-2
General Information	A-2
System Requirements	A-2
Reporting Bugs	A-2
Installing Quickstep	A-3
Installation Procedures	A-3
For Windows 3.11/Serial Communications Users	A-6
Installing the CTCMON Monitor Utility	A-7

Glossary

Controller Resources	Glossary-2
Counters	Glossary-2
Data Destination	Glossary-2
Data Source	Glossary-2
Data Table	Glossary-2
Dedicated Inputs	Glossary-2
Editing Window	Glossary-2

Flags	Glossary-2
List of Symbolic Names	Glossary-2
Numeric Source	Glossary-2
Numeric Registers	Glossary-2
Parameter Editor	Glossary-3
Placeholders	Glossary-3
Resource Delay	Glossary-3
Servo Value	Glossary-3
Source Code	Glossary-3
Specialized I/O Devices	Glossary-3
Specialized Motion Control Devices	Glossary-3
Symbol Browser	Glossary-4
Symbol Type	Glossary-4
Templates (see Placeholders)	Glossary-4
Undefined Steps	Glossary-4
Unparsed Source	Glossary-4

Index

Notes To Readers

The *Quickstep™ User Guide* provides the following information:

- An overview of the Quickstep editor, Parameter editor, Data Table editor, and Symbol Browser.
- Step-by-step instructions explaining how to set up the parameters for your Quickstep program.
- Step-by-step instructions showing how to create a Quickstep program, define symbolic names, and create a Data Table
- Step-by-step instructions for compiling and downloading your Quickstep program to a controller.
- Step-by-step installation instructions.

Related Documents

The following documents contain additional information

- For information on Quickstep, refer to the *Quickstep™ Language and Programming Guide*.
- For information on your controller and its modules, refer to the appropriate Installation and Applications Guide.
- For information on the registers in your controller refer to the *Register Reference Guide* (available at www.control.com).
- For information on the DeviceNet configurator, refer to the *DeviceNet Configurator User Guide*.
- For information on Microsoft Windows or your PC, refer to the manuals provided by the vendor.

Notes to Readers

Book conventions

The following conventions are used in this book:

ALL CAPS BOLDFACE	Identifies DOS, Windows, installation program file names.
Boldface	Indicates information you must enter, an action you must perform, or a selection you can make on a dialog box.
<i>Italics</i>	Indicates a word requiring an appropriate substitution. For example, replace <i>filename</i> with an actual file name. It can also indicate a manual, book, or chapter title.
Text_Connected_With_Underlines	Indicates symbolic names used in Quickstep programs. Step Names are ALL_CAPITALS. Other symbolic names can be Initial_Capitals or lower_case.
SMALL CAPS	Identifies the names of Quickstep instructions in text.
Courier font	Identifies step names, comments, output changes, and Quick ALL CAPS BOLDFACE Identifies DOS, Windows, installation program file names.
ArtCode – DN-24	Identifies the file name of a particular graphic image.

How to Contact Control Technology Corporation

Control Technology Corporation is located in Massachusetts, and we are open from 8:30 a.m. to 5:00 p.m. eastern time. Contact us at 508 435-9595 and 800 282-5008 or Fax 508 435-2373

See us on the web at www.ctc-control.com.

Your Comments

We welcome your suggestions and comments about this or any other Control Tech document. Comment forms are in the file called BUGRPT.WRI, which was installed in your QSWIN directory during your Quickstep installation. you can also email comments to techpubs@control.com.

Getting Started

Contents

Launching the Quickstep Editor	1-2
Editor Screen Overview	1-3
Starting a New Editing Session	1-7
Converting an Existing Quickstep Program	1-8

Launching the Quickstep Editor

As part of the installation **QSSETUP.EXE** creates a Quickstep program group.

To launch the Quickstep editor:

1. Open the Quickstep program group and select the Quickstep icon
2. Click the mouse twice to launch the Quickstep editor

Starting the Quickstep editor displays the editing window, the Parameter editor and the icon for the minimized Symbol Browser.

NOTE: Installation instructions are in the Release Notes provided with your Quickstep program disks. They are also included in Appendix A.

Parameter Editor

The Parameter editor allows you to specify information about your Quickstep program and your controller:

- The model of your controller
- The number of rows and columns in data table
- Any dedicated inputs assigned

After you select the controller model, the Parameter editor can list the controller's limits.

When you start the Quickstep editor or open a new Quickstep program file, the editor displays the Parameter editor. You cannot minimize the Parameter editor until you:

- Specify a controller model and select Ok when beginning a new Quickstep program.
- Open an existing Quickstep program.

Symbol Browser

The Symbol Browser allows you to specify step names, as well as symbolic names used in your program. Symbolic names can identify the function of the numeric values, controller resources and specialized devices. For example, an output that controls a pneumatic cylinder for a stamping press can be called stamp_press_on and stamp_press_off.

NOTE: Outputs need two symbolic names, one for turning the output on and another for turning it off. Inputs can have two symbolic names, one for the normally open and another for the normally closed state.

You can also give servo motors different symbolic names, e.g., traverse, rotate, spindle, rather than call them servo_1, servo_2, and servo_3.

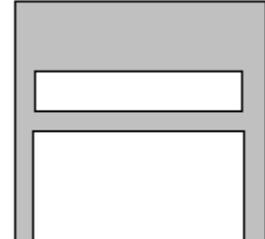
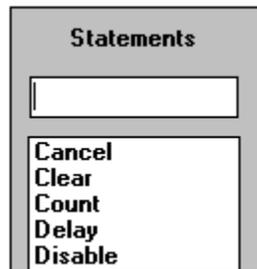
Data Table Editor

The Data Table editor allows you to enter information for a data table. In a new Quickstep program, the Data Table editor does not appear until you select Data Table from the View menu. It automatically appears when you open a program that has a Data Table already defined.

The Selection Bar

When you program step names, output changes, and Quickstep instructions, the Selection bar displays the appropriate choices. You can select among those choices using either the keyboard or mouse as explained below.

The Selection bar is empty until you select an empty placeholder or choose an option from the Edit menu, Search menu, Shortcut menu, or Toolbar.



After you choose an option, the Selection bar displays the appropriate selections or choices.

To start using the Selection bar to program a step, highlight an empty <<New Step Name>>, <<Output Change>>, or <<Statement>> placeholder with the mouse pointer and do one of the following:

- Double click the **left mouse button**.
- Press **Enter**.

The Selection bar will display the appropriate selections.

As you program an instruction, the Selection bar first displays the list of quick-step instructions, then it displays the possible choices for each parameter.

NOTE: For examples showing how to use the Selection bar to specify step names and output changes and to program instructions, see Chapter 4, *Using the Quickstep Editor - Writing a Quickstep Program*.

The Toolbar

The Toolbar appears across the top of the Quickstep editor window, below the menu bar. It contains the following tools:



New - Opens a new Quickstep program file.



Open Existing File - Opens an existing Quickstep program. The editor displays the Open dialog box.



Save - Saves the active program with its current name. When saving a new program, the editor displays the Save As dialog box.



Print - Displays the Print dialog box to print the current Quickstep program.



Cut - Removes the selected text and places it on the Clipboard



Copy - Copies the selected text and places it on the Clipboard



Paste - Inserts the contents of the Clipboard in the program file.



Insert After - Inserts a new comment line, output change, or statement placeholder (instruction) after the current line.



Insert Before - Inserts a new comment line, output change, or statement placeholder (instruction) before the current line.



Insert Step After - Inserts a new step after the current step.



Goto Step - Goes to the step whose name is highlighted.



Find Reference - Finds the next occurrence of the symbolic name specified by Find Symbol.



About the Quickstep editor - Displays the program information for the Quickstep editor, version number, and copyright.



Help Button - Gives you information about parts of the editor screen and Toolbar.

To hide or display the Toolbar, choose **Toolbar** from the **View** menu.

The Shortcut Menu

The Shortcut menu gives you fast access to Quickstep editor commands. It appears when you highlight an entire line or part of a line or a placeholder in the editor window and press the right mouse button.

R eplace with Alternate
D elete
I nset Statement B efore
I nset Statement A fter
D elete Statement
E dit Line Text
N ew First Statement
I nset Step B efore
I nset Step A fter
G oto Step

From the Shortcut menu you can select the following options:

- Replace the highlighted selection with another Quickstep instruction or a parameter or operator for the instruction.
- Delete the selected text from a line or step.
- Insert a new comment, output change, or statement line before or after the current line.
- Delete a comment, output change, or statement line.
- Activate the Line editor to edit an output change or instruction.
- Insert a new <<Statements>> placeholder before any other instructions in a step.
- Insert a new step before or after the current step.
- Go to a step

The options on the Shortcut menu change and some selections may be grayed out, depending on the previous command the editor executed, and where the cursor is in the editing window. For example, when the cursor highlight is on an output change line, the Shortcut menu appears as follows:

R eplace with Alternate
D elete Output Change
I nset Output Change B efore
I nset Output Change A fter
D elete Line
E dit Line Text
N ew First Statement
I nset Step B efore
I nset Step A fter
G oto Step

Starting a New Editing Session

Starting the Quickstep editor displays the editing window, the Parameter editor and the icon for the minimized Symbol Browser. When starting a new editing session you should:

- Use the Parameter editor to specify the model of your controller, the number of rows and columns in a data table, and any dedicated inputs.
- Specify symbolic names. You can specify symbolic names in the process of writing your program. However, we recommend you use the Symbol Browser to define the names of controller resources you will be referring to often.
- Start writing your Quickstep program.
- If you are using a Data Table, enter values in the Data Table.

Programming a Step

When you start the Quickstep editor, it displays a step with all of its placeholders empty. A Quickstep program uses steps to define each new state of a machine. A complete program is made up of a series of steps executed in a defined pattern or specific sequence. You program a step by selecting each placeholder. Steps should be programmed in order, starting with the step name.

```
Step name placeholder ————
Step number ——— [ 1 ] <<New Step Name>>
Comment line placeholder ——— <<Comment Line>>
-----
Output change placeholder ——— <<Output Change>>
-----
Statements placeholder (for ——— <<Statements>>
Quickstep instructions)
```

Summary of operations to program a new step:

- Enter the step name. Step names are optional, but Control Tech strongly recommends you use them. If you have not previously defined a symbolic name for the step, the editor allows you to define it as you program the step.
- Enter any comments for the step. You can edit comments later, using the comment editor.
- Specify the output change(s). The output change can be one of the following: turn all outputs off, do not change the current state of the outputs, or turn specific outputs on or off. You must select one of these three choices for each step.
- Enter the instructions for this step.

If you have not already defined them, you can define symbolic names while you program a step.

For step-by-step examples showing how to enter a step name, comments, output changes, instructions, and symbolic names, see Chapter 4.

Converting an Existing Quickstep Program

You can convert a Quickstep 1.6 or 1.7 program to a Quickstep 2.0 program by opening it with the Quickstep 2.0 editor. After converting a program, you should look for the following changes:

- The Quickstep 2.0 editor changes the counter, register, etc. names to symbolic names, such as `ctr#2` to `ctr_2`. You should change these names to ones appropriate to your application.
- Instructions and input/output changes that the Quickstep 2.0 editor could not convert properly (called unparsed source) are displayed in red text (system default).

NOTE: If you have changed the default color for Unparsed Source, unconverted lines are displayed in that color.

Using the Parameter Editor

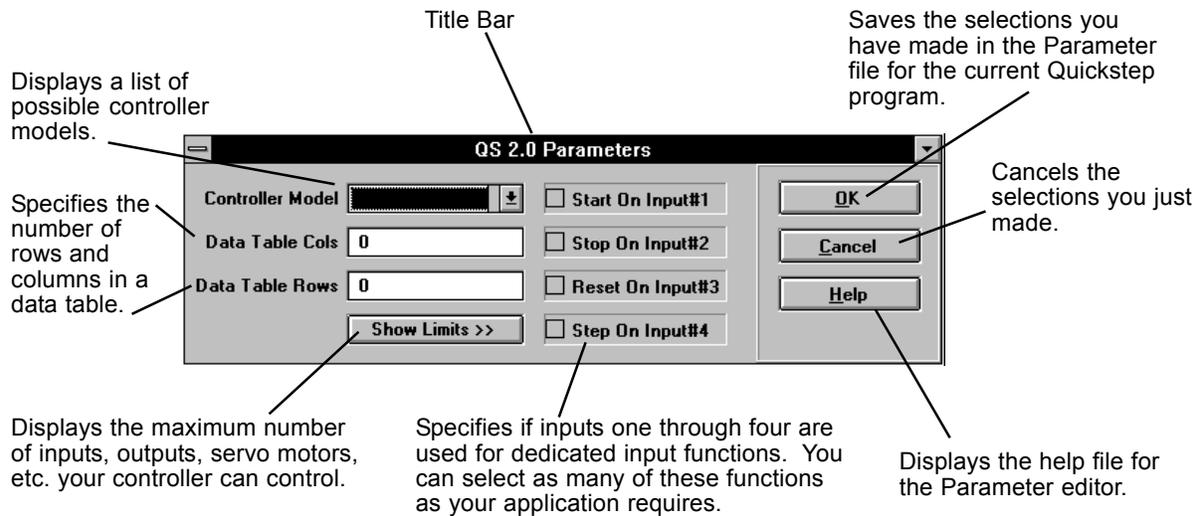
Contents

Parameter Editor Overview	2-2
Specifying Parameters	2-3

Parameter Editor Overview

When you start the Quickstep editor, it automatically activates the Parameter editor. Use the Parameter editor to specify and display the following information:

- The model of your controller
 - The number of rows and columns in a data table
 - Which, if any, of the first four inputs are used for dedicated functions
 - Specific limits for your controller
-



When you open a new Quickstep program file or start the Quickstep editor, it displays the Parameter editor. You cannot minimize the Parameter editor until you:

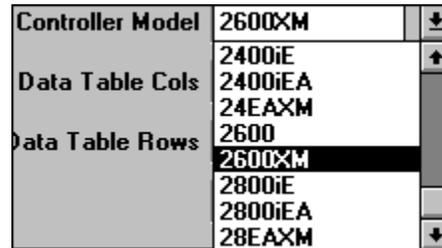
- Specify a controller model and select Ok when beginning a new Quickstep program.
- Open an existing Quickstep program.

Specifying Parameters

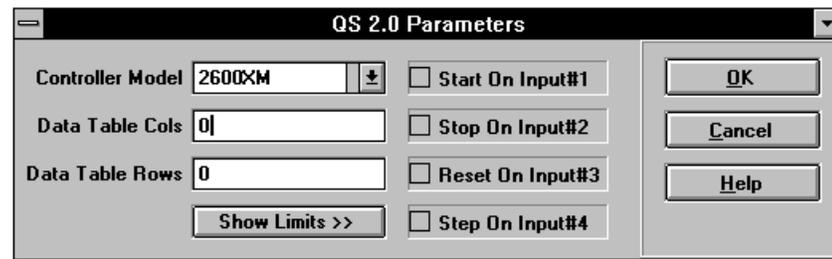
Specifying the Controller Model

Controller Model field allows you to specify the model of controller you are using. To select the controller model:

1. Click the arrow on the right side of the controller field to display a list of controller models.
2. Select your **controller model** by clicking it with the mouse.



The Parameter editor displays the controller model in the field.



3. After you select any other parameters you want (e.g., Data Table parameters), select the **OK** button.

Specifying Dedicated Input Functions

You can also assign inputs one through four as dedicated inputs. These functions are triggered automatically when an external switch connected to the appropriate input closes. The inputs are as follows:

- **Start on Input #1:** Starts or continues execution of a program.
- **Stop on Input #2:** Stops the execution of a program.
- **Reset on Input #3:** Re-initializes the controller and starts executing the program at the first step.
- **Step on Input #4:** Advances the controller one step in the program.

The inputs are active at every step of your Quickstep program, subject to the priorities and rules listed for each input. See the *Quickstep Language and Programming Guide* for additional information on dedicated input functions.

To select an input:

1. Select the box (by clicking it with the mouse) next to the dedicated input function you want.



Specifying Parameters

The box is filled with an X.



2. Select the box next to any other dedicated input functions you want
3. After you select any other parameters you want (e.g., Data Table parameters), select the **OK** button.

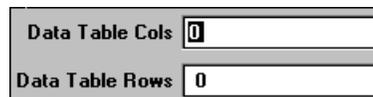
Specifying Data Table Parameters

You specify the number of columns and rows in a Data Table from the Parameter editor.

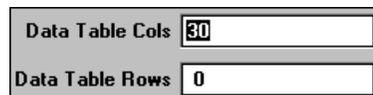
-
- IMPORTANT!**
- The value of all the cells in a new Data Table are set to zero.
 - If you resize a Data Table by making it smaller, any information in the rows and/or columns outside of the resized Data Table is lost.
 - If you resize a Data Table by making it larger, the cells in the new rows and/or columns are set to zero.
-

To specify the columns and rows:

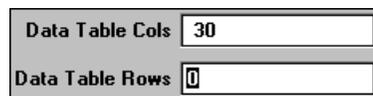
1. Place the cursor in the Data Table Cols field using one of the following methods:
 - Press the **Tab** key until it is highlighted.
 - Select the field with the mouse pointer and delete the zero.



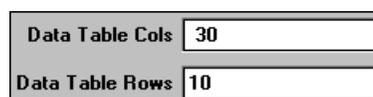
2. Enter the number of columns in the data table.



3. Place the cursor in the Data Table Rows field.



4. Enter the number of rows in the data table.



-
5. After you select any other parameters you want (e.g., dedicated input parameters), select the **OK** button.

The image shows a dialog box titled "QS 2.0 Parameters". It contains several input fields and checkboxes. The "Controller Model" field is set to "2600XM". The "Data Table Cols" field is set to "30". The "Data Table Rows" field is set to "10". There are four checkboxes: "Start On Input#1" (checked), "Stop On Input#2" (checked), "Reset On Input#3" (checked), and "Step On Input#4" (unchecked). A "Show Limits >>" button is located below the "Data Table Rows" field. On the right side, there are three buttons: "OK", "Cancel", and "Help".

Quickstep Editor Basics

Contents

Opening Files	3-2
Saving Quickstep Programs	3-3
Printing a Quickstep Program	3-4
Closing Files and Exiting the Quickstep Editor	3-6
Changing Editor Field Colors	3-7

Opening Files

Opening a New Quickstep Program File

To open a Quickstep Program file:

1. Do one of the following:
 - Choose **New** from the **File** menu (shortcut, type **CTRL + N**).
 - Choose the **New** icon on the **Toolbar**.



2. Select **OK**.

REMEMBER: You must specify the controller model from the Parameter editor when opening a new file.

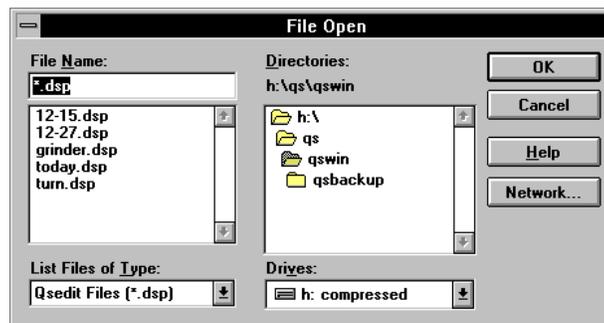
Opening an Existing Quickstep Program File

To open an existing Quickstep program file:

1. Do one of the following:
 - Choose **Open** from the **File** menu (shortcut, type **CTRL + O**).
 - Choose the **Open** icon on the **Toolbar**.



- Select a file from the **Recent** file list at the bottom of the **File** menu.
2. When the Open dialog box appears, type or select the document you want to open in the File Name box.



If the document you want to open is not listed in the File Name box, select the appropriate directory and/or drive.

3. Select **OK**.

Saving Quickstep Programs

You can save a new Quickstep program file by using the Save As command. The Quickstep editor calls new, unnamed files `qsedit.dsp`. You can save an existing file by selecting the Save command. Save records any changes you make to an active file, and the file name and location remain the same. You should save files frequently as you work.

Saving a New, Unnamed File

To save a new unnamed file:

1. Do one of the following:
 - Choose **Save As** from the **File** menu.
 - Choose the **Save** icon on the **Toolbar**.



2. When the File Save As dialog box appears, enter a name for the new file.
3. If you want to save the file in a different directory, select the appropriate directory.
4. Select **OK**.

Saving an Active File

To save the file, choose one of the following:

- Choose the **Save** icon on the **Toolbar**.



- Choose **Save** from the **File** menu (shortcut, type **CTRL + S**).

Reverting to the Last Saved File

Revert returns your Quickstep program to the last saved version of the program. When you revert to a previous version of your program, all changes you have made since the last save are gone.

To revert to the last saved version, choose **Revert** from the **File** menu.

Using the Backup File

The Quickstep editor also creates a backup version of your program. Backup files are located in the directory where you saved your Quickstep program in a subdirectory called **QSBACKUP**. The backup file is a copy of your Quickstep program prior to your most recent save.

Printing Quickstep Program Files

Printing a Quickstep Program

You can print a Quickstep program:

1. Do one of the following:
 - Select the **Print** icon on the **Toolbar**.
- 
- The image shows a small square icon with a printer symbol inside, representing the Print function in a software toolbar.
- Choose **Print** from the **File** menu (shortcut, type **CTRL + P**).
 2. When the Print dialog box appears, select one of the following:
 - Choose **All** to print the entire program file.
 - Choose **Pages** and specify the numbers of the page numbers you want to print.
 3. Select **OK**.

Selecting a Printer and a Printer Connection

Print Setup allows you to select a printer and a printer connection. It gives you the following options:

- **Default Printer** - Lists the name of the default printer.
- **Specific Printer** - Provides a list of installed printers
- **Orientation** - Specifies the printing orientation.
- **Paper Size** - Specifies the paper size.
- **Paper Source** - Specifies the paper source, paper tray, manual feed, etc.
- **Options** - Provides access to other printing options for the printer you select
- **Network** - Provides access to other printers on a network.

To select a printer and printer connection:

1. Select **Print Setup** from the **File** menu.
2. When the Print Setup dialog box appears, select options you want.
3. Choose **OK**.

Previewing a File Before Printing

Print Preview allows you to see how a file will look before you print it.

The Quickstep editor displays the Print Preview bar across the top of the Editing window when you choose this option. In Print Preview, the cursor appears as a magnifying glass when it is in the editing window.

To view a Quickstep program before printing:

1. Select **Print Preview** from the **File** menu.
2. Choose the view options you want.
3. To display the Print dialog box and print the file, select **Print**.
4. To return to editing mode, select **Close**.



To control the display of pages, select the buttons or press keys.

Button	Key	Function
Print	P	Opens the Print dialog box.
Next Page	N	Displays the next page.
Prev Page	V	Displays the previous page.
Two Pages	T	Switches to a two-page display.
One Page	O	Switches to a one page display.
Zoom In	I	Zooms in on the page display. You can zoom in twice. The Prev Page, One Page, and Two Page buttons are hazed out when you zoom in.
Zoom Out	O	Zooms out the page display.
Close	C	Ends print preview and returns to the normal view.

Closing Files and Exiting the Quickstep Editor

Closing a File

There are two ways to close a Quickstep program file:

1. Open another Quickstep program file.
2. **Exit** the Quickstep Programming Editor, using one of the following methods:
 - Choose **Exit** from the **File** menu.
 - Press **ALT + F4**.
 - Double-click the **Application Control**-menu.

IMPORTANT! If you open another Quickstep file without saving the current, active file, your changes will be lost.

Exiting the Quickstep Programming Editor

Choose **Exit** from the **File** menu to exit the Quickstep programming editor.

Changing Editor Field Colors

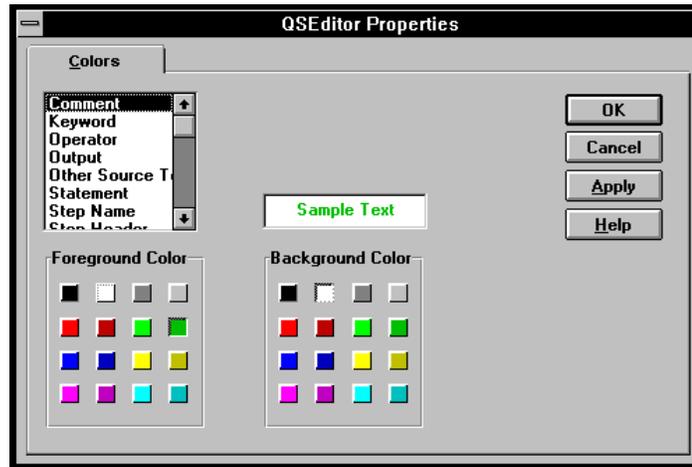
The Quickstep editor displays program items such as, comment lines, the current field, in different colors. You can change the default colors using the QSEditor Properties dialog box.

If you change the default colors, you should always have the color for the current field and for Unparsed Source as distinct colors. This way you can quickly see which field is the current field and if any lines were not parsed by the editor. Cyan with black text is the default for the current field, and white with red text is the default for Unparsed Source.

To change Quickstep editor display colors:

1. Choose **Properties** from the **Edit** menu.

The QSEditor Properties dialog box appears.



2. Select the program item whose color you want to change.



The sample text box displays the current text (foreground) color and background color.

3. Select the new Foreground Colors and/or Background Colors.



Changing Editor Field Colors

The Sample Text box displays your changes.



4. Continue selecting program items whose color you want to change.
5. To apply your changes, do one of the following:
 - Press **Enter**.
 - Select **OK**.
6. To exit without saving your changes, select **Cancel**.

Using the Quickstep Editor - Writing a Quickstep Program

Contents

Programming a Step	4-2
Defining Symbolic Names	4-5
Entering Step Names	4-7
Entering Comments	4-9
Specifying Output Changes	4-12
Programming Quickstep Instructions	4-14
Inserting New Lines and Steps	4-22

Programming a Step

When you begin writing a Quickstep program, the Quickstep editor displays a step with all of its placeholders empty. You program a step by selecting each placeholder in order, beginning with the step name, and filling in the required information.

Summary of operations to program a new step:

- Enter the step name. Step names are optional, but Control Tech strongly recommends you use them. If you have not previously defined a step name, the editor allows you to create them as you program the step.
- Enter any comments for the step. You can edit comments later, using the comment editor.
- Specify the output change. The output change can be one of the following: turn all outputs off, do not change the current state of the outputs, or turn specific output(s) on or off. You must select one of these choices for each step.
- Enter the instructions for this step.

If you have not already defined them, you can define symbolic names for steps, outputs, inputs, controller resource, and specialized I/O and motion control devices while you program a step.

Step name placeholder	—	<<New Step Name>>
Step number	[1]	<<New Step Name>>
Comment line placeholder	—————	<<Comment Line>>

Output change placeholder	—————	<<Output Change>>

Statements placeholder (for Quickstep instructions)	—————	<<Statements>>

Using the Selection Bar

When you program step names, output changes, and Quickstep instructions, the Selection bar displays your choices and allows you to select among them. To start using the Selection bar to program a step, place the mouse pointer on an empty <<New Step Name>>, <<Output Change>>, or <<Statement>> placeholder and do one of the following:

- Double click the **left mouse button**.
- Select the placeholder with the mouse pointer and press **Enter**.

The Selection bar will display the appropriate selections. It only displays the symbolic names that could possibly be used at that time. For example, it only lists the symbolic names for outputs when you are specifying an output change.

Listing and Selecting Items in the Selection Bar

To list or select items from the Selection bar and enter them in a placeholder, use one of the following methods:

- Place the mouse pointer on the item and double click the mouse.
- Select the item with the mouse pointer and press Enter.
- Press the Tab key to move the focus to the list of options displayed in the Selection bar. Use the Arrow keys to highlight the item and press Enter.
- Type the name of the item. Once you have entered enough letters to uniquely identify the item, it appears in the Selection box. Press Enter.

Selection Bar Choices - Data Sources and Destinations

As you program steps, the Selection bar displays different options depending on what part of an instruction you are programming. Some Quickstep instructions can obtain and send data to and from a variety of locations. These locations are listed in the Selection bar as follows:

Numeric Source: A numeric source supplies a numeric value. It can be a servo position or error, a numeric constant, or the value derived from a counter, register, analog input, thumbwheel, or Data Table column.

Data Destination: A data destination accepts a numeric value. It can be a register, counter, analog output, display, or a value entered into a Data Table column.

Resource Delay: A resource delay is any controller resource or specialized I/O device that provides the value for a DELAY instruction.

Data Source: A data source supplies a numeric value and is a Numeric Source. It can be a numeric constant or the value derived from a counter, register, analog input, thumbwheel, or Data Table column.

Servo Value: A servo value is the servo position or error and is a Numeric Source.

Selection Bar Choices - Immediate Actions

In some cases, the choices in the Selection bar allow you to delete placeholders for optional parameters in an instruction or provide options for completing the output change or instruction. Immediate action selections are as follows:

== > All Off Enters <TURN OFF ALL DIGITAL OUTPUTS> in the output change line. If there are any output changes in the step, it deletes them.

== > No Changes Enters <NO CHANGE IN DIGITAL OUTPUTS> in the output change line. If there are any output changes in the step, it deletes them.

== > Finish Deletes any placeholders for optional parameters left in an instruction. You can only use this if all required parameters are specified

== > Delete Deletes a highlighted placeholder for an optional parameter in an instruction.

The Current Field

The Quickstep program, as it appears in the Quickstep editor window, is composed of a number of fields (software professionals may think of these as “tokens”). As you work in the Quickstep editor window, you may move a cursor from one field to another by using the arrow keys on your computer. The field to which you have moved the cursor is known as the “current field.” The current field is indicated by displaying it in a unique color scheme.

When a placeholder is displayed in this color scheme, it is the current field. Step headers, output lines, comments and instructions are also made up of fields. Comment and output lines are considered one field. A step header has two fields, the step number and step name. Each parameter in an instruction is considered a separate field. For example, the instruction `monitor partsensor goto next`—actually consists of four fields:

- The instruction name: `monitor`
- The input name: `partsensor`
- The instruction token: `goto`
- The destination of the instruction: `next`

You can modify how the current field cursor is displayed by changing its colors, so that it may be displayed in any color you choose. For information on changing the colors of fields, see *Changing Editor Field Colors* in Chapter 3, *Quickstep Editor Basics*.

Defining Symbolic Names

The Quickstep editor uses symbolic names for step names, numeric constants, controller resources, and specialized I/O and motion control devices. You can specify symbolic names in the process of writing your program. Symbolic names defined using this method are automatically entered in the Symbol Table. However, we recommend you use the Symbol Browser when defining several symbolic names at once. For information on using the Symbol Browser, see Chapter 6, *Using the Symbol Browser*.

IMPORTANT! Each symbolic name must be unique, and within a symbol type (e.g., servos, registers) each numeric must be unique. This means you can only have one symbolic name for register 10. Inputs and outputs each have two possible states, and each state can be given a unique symbol name.

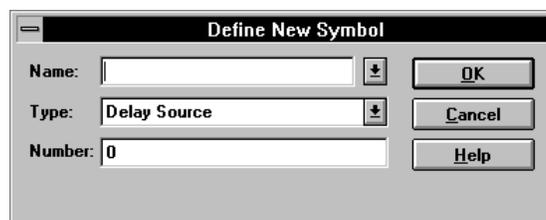
An exception to this rule is numeric constants. You can have two numeric constants one called `Over_Pressure` with a value of 5000 and another called `Base_Velocity` with a value of 5000.

You can define symbolic names from the Quickstep editor by selecting **New Symbol** from the **Edit** menu. This displays the **Define New Symbol** dialog box and allows you to define new symbolic names. This example defines a symbolic name for a flag. For an example showing how to define a symbolic name while you are programming an instruction, see *Defining Symbolic Names When Programming an Instruction* in this chapter.

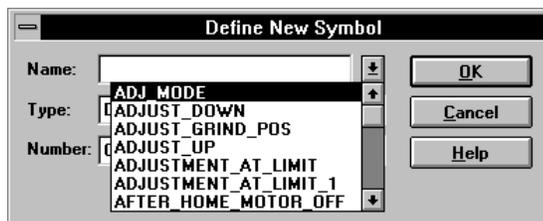
To define symbolic names:

1. Choose **New Symbol** from the **Edit** menu.

The **Define New Symbol** dialog box appears.



2. To enter a new symbolic name, do one of the following:
 - Click the **arrow** on the right side of the **Name** field to display a list of symbolic names and select an existing symbol name to edit



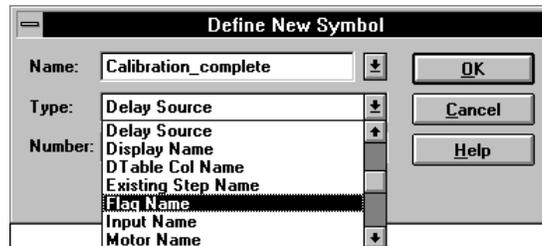
- Type the symbolic name in the **Name** field.



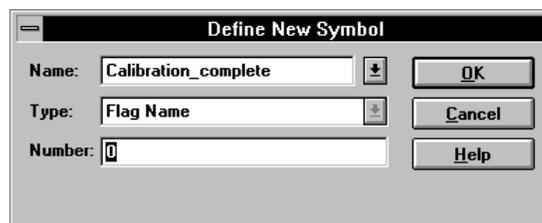
3. Press **Tab** to go to the next field.

Defining Symbolic Names

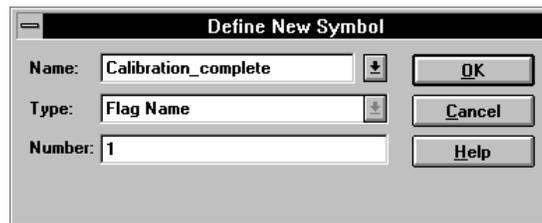
- Click the **arrow** on the right side of the **Type** field to display a list of **symbol types** and select the **symbol type** by clicking it with the mouse pointer.



The **Type** field displays the symbol type and the highlight moves to the **Number** field.



- Type the **number** of the controller resource or device in the **Number** field.



- Select **OK** to enter the symbolic name.

NOTE: If the correct Type is already displayed, you can skip steps 3 and 4.

Entering Step Names

Step names are optional, but Control Tech strongly recommends you use them. If you have not previously defined a symbolic name for a step, the editor allows you to define it as you program the step.

NOTE: Control Tech's support of step numbers in Do and GOTO instructions is for backwards compatibility only. Future releases of Quickstep will require step names in step headers and in Do and GOTO instructions.

If you have previously defined step names using the Symbol Browser, they appear in the Selection bar. If not, the selection bar is blank and you must define a step name now.

Entering a New Step Name

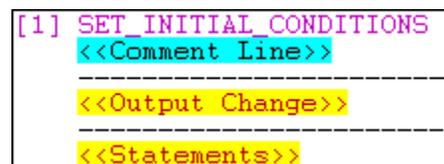
To enter a new step name:

1. Place the mouse pointer on the <<New Step Name>> placeholder and do one of the following:
 - Double click the **left mouse button**.
 - Select the placeholder with the mouse pointer and press **Enter**.
2. Type the **Step Name**. It appears in the Selection box; the editor automatically enters underlines for spaces.



3. Press **Enter** when you are done.

The editor inserts the step name.



Entering a Previously Defined Step Name

To enter a previously defined step name:

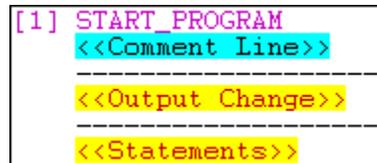
1. Place the mouse pointer on the <<New Step Name>> placeholder and do one of the following:
 - Double click the **left mouse button**.
 - Select the placeholder with the mouse pointer and press **Enter**.

Entering Step Names

2. Select the **Step Name** using the mouse or keyboard. The editor places it in the Selection box.



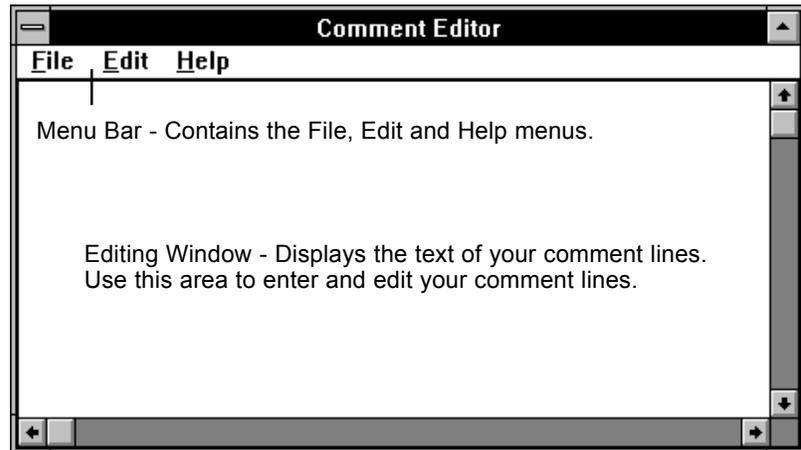
3. Press **Enter** to insert the name in the step.



Entering Comments

The Comment Editor

The Comment editor window appears when you are entering a new comment or editing an existing one.

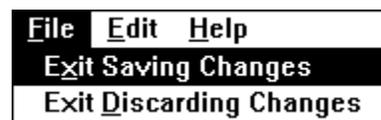


Comment Editor Menus

The menu bar contains the File, Edit and Help menus. Using these menus you can

- Insert comments into your Quickstep program
- Cut, copy and paste text in the editor
- Display the Help file for the Comment editor.

Selecting **File** displays the following menu:

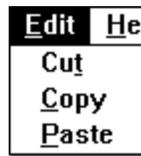


- **Exit Saving Changes:** enters the new or edited comment in the comment line.
 - **Exit Discarding Changes:** exits the Comment editor without changing the existing comment line or comment line placeholder.
-

WARNING! Exiting the Comment editor by double clicking on the Application Control menu button or using ALT + F4 keys does not save your changes. You must select Exit Saving Changes from the File menu to save comments.

Entering Comments

Selecting **Edit** displays the following menu:



- **Cut:** removes selected text and places it on the clipboard. The text you place on the Clipboard remains there until you replace it with a new item.
- **Copy:** copies selected text to the Clipboard. The text you place on the Clipboard remains there until you replace it with a new item.
- **Paste:** inserts a copy of the Clipboard contents at the insertion point, If you have highlighted any text, the editor replaces the selection with the text on the Clipboard. You cannot use paste if the Clipboard is empty or if the selected text cannot be replaced.

You can cut, copy, and paste text from the editing window, another comment, the text currently displayed in the Comment editor or another Windows application.

Inserting Comments

You insert or edit comment lines using the Comment editor. Once you are in the Comment editor you can write multiple comment lines for a step and enter them. The Comment editor automatically places the leading semicolons, required by the Quickstep editor, and a space before any text.

To insert a comment:

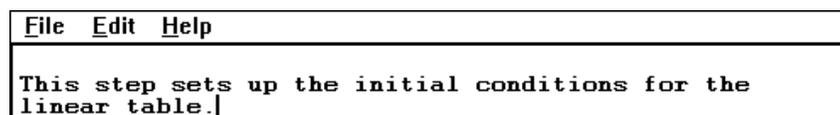
1. Highlight a **<<Comment Line>>** placeholder using one of the following methods:



- Highlight **<<Comment Line>>** and double click the mouse to activate the Comment editor.
- Highlight **<<Comment Line>>** and press **Enter** to activate the Comment editor.

The Comment Editor window appears.

2. Type the text of the comment. The editor adds the semicolons and a space before the text when it enters the comment in the step.



REMEMBER: The maximum line length is 255 characters.

-
3. To insert the comment in the step, select **Exit Saving Changes** from the **File** menu.

The Quickstep editor enters the comment in the step.

```
[1] START_PROGRAM
    ;; This step sets up the initial conditions for the
    ;; linear table.
-----
<<Output Change>>
-----
<<Statements>>
```

Specifying Output Changes

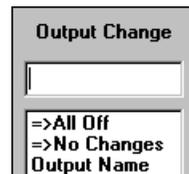
Entering an Immediate Action Selection

The possible output changes are: turn all outputs off, no change in the current state of the outputs, or turn specific output(s) on or off. To enter an output change using an immediate action selection:

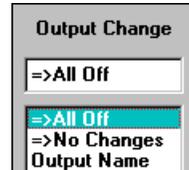
1. Place the mouse pointer on the <<Output Change>> placeholder and do one of the following:
 - Double click the **left mouse button**.
 - Select the placeholder with the mouse pointer and press **Enter**.

```
[1] SET_INITIAL_CONDITIONS
   :::
   ::: This step sets up the initial condi
   ::: the linear table.
   :::
   <<Output Change>>
   <<Statements>>
```

The editor displays the types of output changes in the Selection bar.



2. Select the output change using the mouse or keyboard.



The editor enters the output change in the step.

```
[1] SET_INITIAL_CONDITIONS
   :::
   ::: This step sets up the initial condi
   ::: the linear table.
   :::
   <TURN OFF ALL DIGITAL OUTPUTS>
   <<Statements>>
```

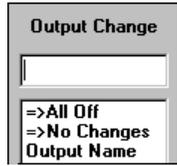
Entering an Output Change for a Specific Output

To enter an output change

1. Place the mouse pointer on the <<Output Change>> placeholder and do one of the following:
 - Double click the **left mouse button**.
 - Select the placeholder with the mouse pointer and press **Enter**.

```
[11] LOAD_CYLINDER
     :::
     <<Output Change>>
     <<Statements>>
```

The editor displays the types of output changes in the Selection bar.

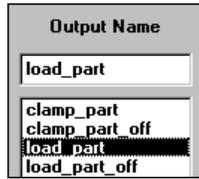


2. Select **Output Name** using the mouse or keyboard.

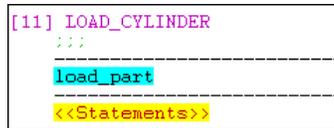
The list or symbolic names for outputs appears.



3. Select the symbolic name for the output using the mouse or keyboard.



The editor enters the output change in the step.



Programming Quickstep Instructions

When programming instructions, you follow these general steps:

1. Select the <<Statements>> place holder to display the list of Quickstep instructions in the Selection Bar.
2. Select the instruction you want to program.
3. When the Selection bar lists the possible parameters for the instruction (this includes symbol names), choose the appropriate selection.

As you program an instruction, your choices appear in the Selection bar and the placeholder for the next parameter appears in the Editing window.

4. Continue selecting each placeholder to list the possible parameters for the instruction in the Selection bar until you are finished programming the instruction.

Use one of the following methods to list items in, or select items from, the Selection bar

- Double click on the item with the mouse pointer.
- Select the item with the mouse pointer and press Enter.
- Press the Tab key to move the focus to the list of options displayed in the Selection bar. Use the Arrow keys to highlight the item and press Enter.
- Type the name of the item. Once you have entered enough letters to uniquely identify the item, it appears in the Selection box. Press Enter.

The following sections show how to program instructions using PROFILE SERVO and MONITOR BOOLEAN instructions as examples. This section also shows how to define a symbolic name in the process of programming an instruction.

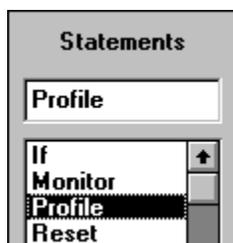
Programming Instructions and Parameters

This example shows how to use the selection bar to program an instruction.

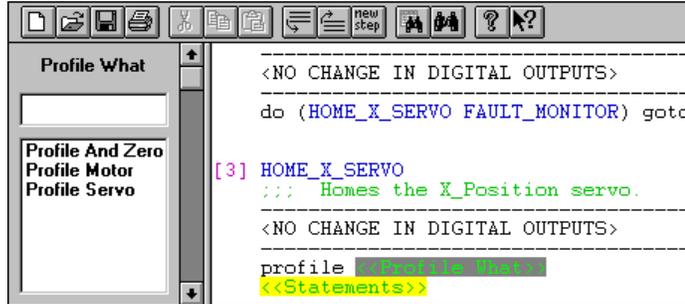
1. Highlight a <<Statements>> placeholder with the mouse pointer and do one of the following:
 - Double click the **left mouse button**.
 - Press **Enter**.

The list of Quickstep instructions appears in the Selection bar.

2. Select the instruction, in this example Profile, using one of the following methods:
 - Select **Profile** with the mouse pointer and double click the mouse.
 - Type **P** from the keyboard to select **Profile** and press **Enter**.

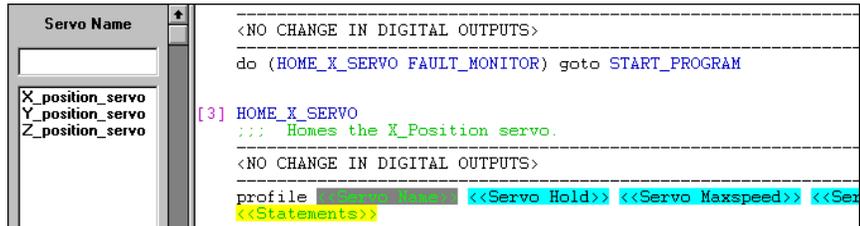


The list of profile instructions appears in the Selection bar and the placeholder <<Profile What>> appears in the Editing window.



3. Select **Profile Servo** and insert it in the statement using the mouse or keyboard.

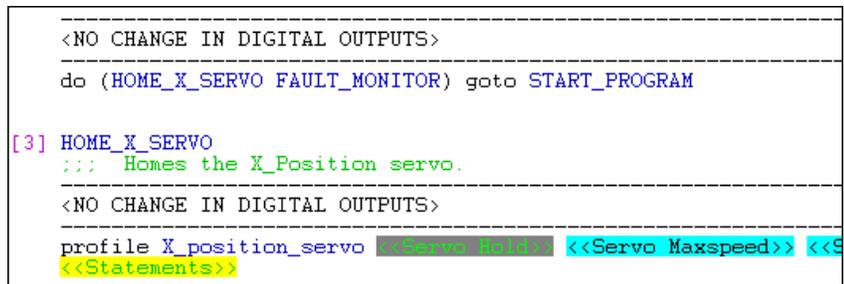
The placeholder <<Servo Name>> is highlighted in the Editing window and the Selection bar lists the symbolic names of all the servos.



4. Select the **servo name** using the mouse or keyboard as before.

NOTE: You can also define a new servo name at this time, see *Defining Symbolic Names When Programming an Instruction* in this chapter.

The Quickstep editor inserts the servo name into the instruction.



The Quickstep editor continues to highlight each placeholder until you have filled in the parameters for the instruction.

Entering Numeric Constants Defined as Symbolic Names

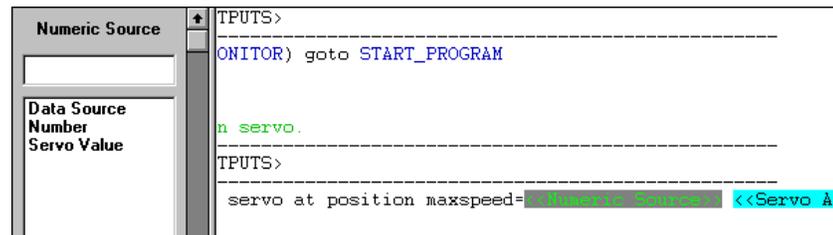
Any numeric constant can be given a symbolic name and used in your Quickstep program. The Selection bar lists numeric values defined as symbolic names as Data Sources. This example shows the <<Numeric Source>> placeholder for the servo's maxspeed.

1. Place the mouse pointer on the <<Servo Maxspeed>> placeholder and do one of the following:
 - Double click the **left mouse button**.
 - Select the placeholder with the mouse pointer and press **Enter**.

```

-----
OR) goto START_PROGRAM
-----
rvo.
-----
S>
-----
vo at position <<Servo Maxspeed>> <<Servo Accel>> <<Servo P>>
    
```

The placeholder <<Numeric Source>> appears in the Editing window and the Selection bar lists the types of Numeric Sources. There are three choices; one choice, **Data Sources**, includes symbolic names.



2. Select **Data Sources** to list the symbolic names.



3. Select the appropriate symbolic name using the mouse or keyboard as before.

In this example, **maxspeed=X_Y_home_maxsp** appears in the Editing window.

```

tion maxspeed=X_Y_home_maxsp <<Servo Accel>> <<Servo P>>
    
```

Entering Numeric Constants From the Keyboard

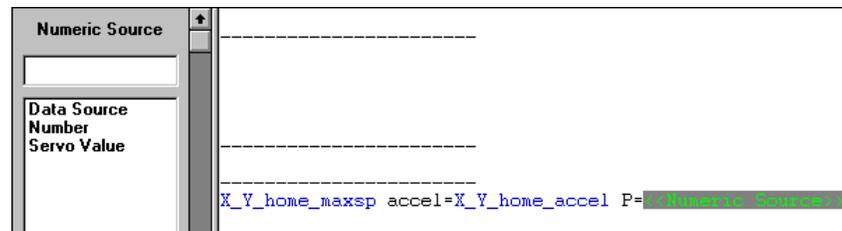
You can also enter numeric constants by typing the number from the keyboard. This example enters the proportional parameter (Servo P) in a Profile Servo instruction.

1. Place the mouse pointer on the <<Servo P>> placeholder and do one of the following:
 - Double click the **left mouse button**.
 - Select the placeholder with the mouse pointer and press **Enter**.



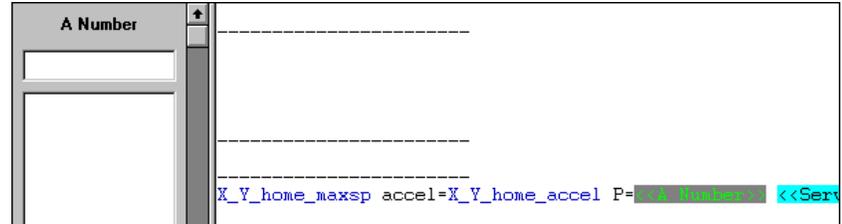
```
X_Y_home_maxsp accel=X_Y_home_accel <<Servo P>> <<Servo I
```

The placeholder <<Numeric Source>> appears in the Editing window and the Selection bar lists the types of Numeric Sources.



2. Select **Number** using the mouse or keyboard.

The Selection box is empty.



3. Type a number and press **Enter**.



P=2 appears in the Editing window.



```
X_Y_home_maxsp accel=X_Y_home_accel P=2 <<Servo I>> <<Ser
```

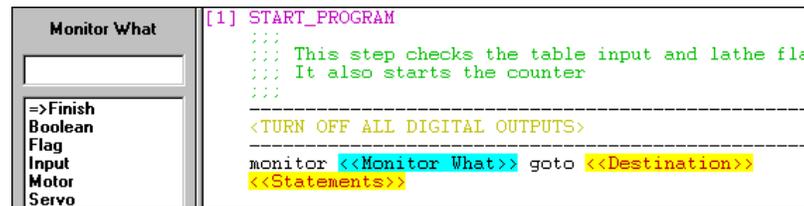
Programming Boolean Monitor Instructions

Monitor instructions allow the controller to check the state of inputs, flags, motors, and servos. A Boolean Monitor instruction can check the state of more than one controller resource and specialized I/O or motion control device.

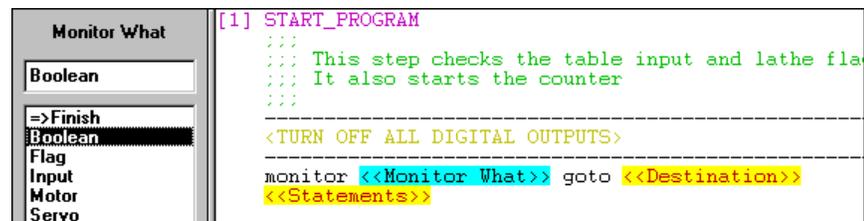
To program a Boolean Monitor instruction:

1. Select **Monitor** from the list of instructions in the Selection bar, using the mouse or keyboard.

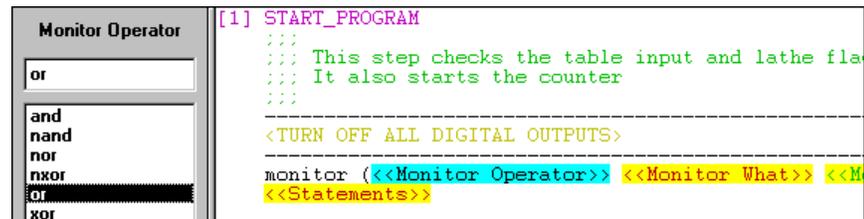
The placeholder <<Monitor What>> appears in the Editing window and the Selection bar lists choices for monitor.



2. Select **Boolean** using the mouse or keyboard as before.



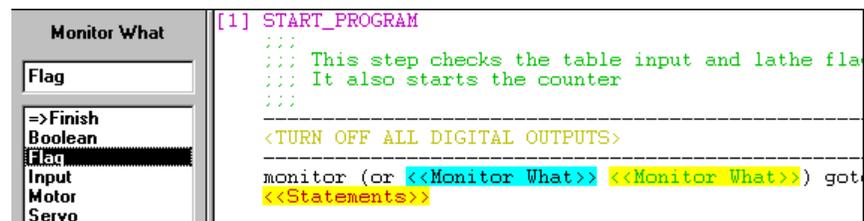
The placeholder <<Monitor Operator>> appears in the Editing window and the Selection bar lists the Boolean operators.



3. Select the **Boolean operator** you want. This example uses Or.

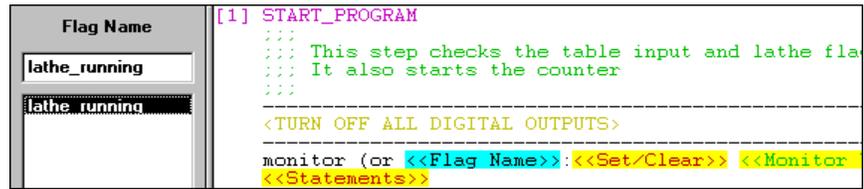
The placeholder <<Monitor What>> appears in the Editing window and the Selection bar lists choices for monitor.

4. Select the controller resource or device you want using the mouse or keyboard as before.



The Selection bar lists the symbolic names for the resource type you chose.

5. Select the symbolic name you want.

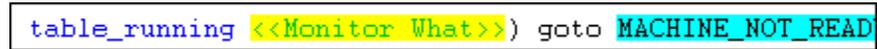


NOTE: You can also define a new servo name at this time, see *Defining Symbolic Names When Programming an Instruction* in this chapter.

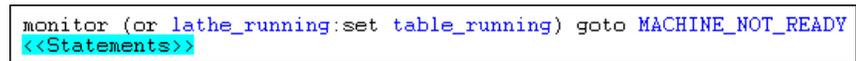
6. Continue choosing controller resources or devices until you complete the Monitor instruction.
7. When you are finished with your Boolean expression, select the <<Destination>> placeholder and specify the destination.



The Quickstep editor inserts the destination step.



8. When you select the next placeholder, the editor deletes any unused placeholders in the monitor instruction.



Defining Symbolic Names When Programming an Instruction

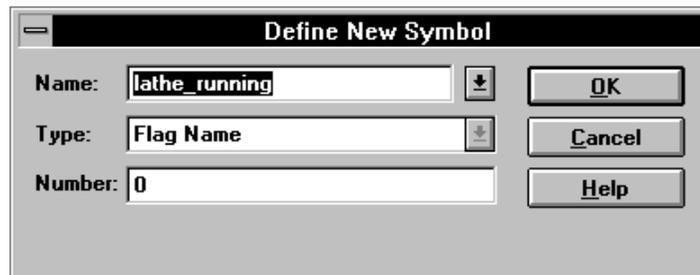
You may need to define a symbol when you are partially through entering an instruction. You can define new symbolic names from the Selection bar. Symbolic names defined using this method are automatically entered in the Symbol Table.

To define a symbolic name from the Selection bar:

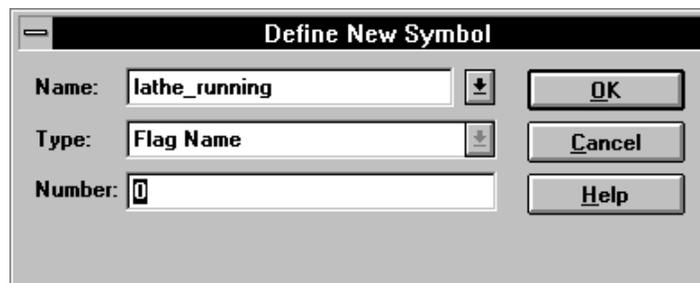
1. Type the new symbol name in the Selection box and Press **Enter**.



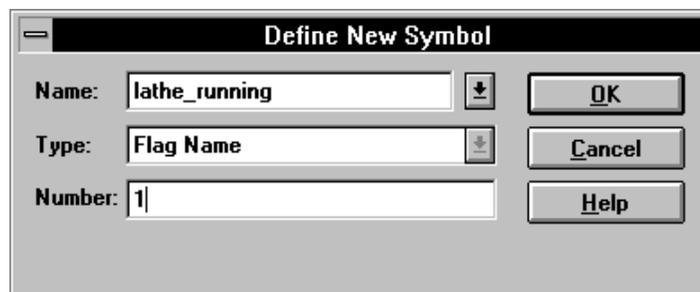
The editor displays the Define New Symbol dialog box. The symbolic name and type appear in the Name and Type fields.



2. Edit the symbolic name, if necessary.
3. Press **Tab** to go to the **Number** field.



4. Type the **Number** of the controller resource (flag number 1 here) in the **Number** field.



-
5. Select **OK** to enter the symbolic name in the instruction.

```
set lathe_running  
turn Z_position_servo to 2607  
monitor Z_position_servo:stopped goto Next
```

Inserting New Lines and Steps

As you write your Quickstep program you will need to insert:

- New steps
- New output change placeholders
- Comment line placeholders
- Statement placeholders.

You can insert new steps before or after the current step, and the editor numbers or renumbers the steps accordingly.

You can also insert new comment lines (<<Comment Line>>), output changes (<<Output Change>>), and instructions (<<Statements>>) before or after the current line. Depending on the location of the cursor, the Quickstep editor displays different options. For example, when the highlight is on a comment line, the selections in the edit and shortcut menus appear as follows:

Line Menu

<u>L</u>ines	I nser C omment B efore
<u>S</u>teps	I nser C omment A fter
P roperties...	D elete C omment
	E dit L ine T ext
	N ew F irst S tatement

Shortcut Menu

R ep L ace with A lternate
D elete C omment
I nser C omment B efore
I nser C omment A fter
D elete C omment
E dit L ine T ext
N ew F irst S tatement
I nser S tep B efore
I nser S tep A fter
G oto S tep

When the highlight is on an instruction line, the selections in the Edit or Shortcut menu appear as follows:

Line Menu

<u>L</u>ines	I nser S tatement B efore
<u>S</u>teps	I nser S tatement A fter
P roperties...	D elete S tatement
	E dit L ine T ext
	N ew F irst S tatement

Shortcut Menu

R eplace with Alternate
D elete
I nsert Statement B efore
I nsert Statement A fter
D elete Statement
E dit Line Text
N ew First Statement
I nsert Step B efore
I nsert Step A fter
G oto Step

You can also insert a new statement placeholder before any other instructions in a step by selecting New First Statement from the Edit or Shortcut menus.

Inserting New Steps

The following example inserts a new step after the current step. You can also insert a new step before the current step. In either case, the editor numbers or rennumbers the steps.

To insert a new step:

1. **Highlight** an item in the current step with the mouse pointer.

```
[5] HOME_Z_POS_SERVO
    ;;
    ;; Establishes a home position for t
    ;;
-----
<NO CHANGE IN DIGITAL OUTPUTS>
-----
profile Z_position_servo servo at pos
search and zero Z_position_servo
monitor Z_position_servo:stopped goto
[6] MOVE_TABLE_X
    ;;
    ;; Moves the table in the X directio
```

2. Do one of the following
 - Select **Steps** from the **Edit** menu and choose **Insert Step Before** or **Insert Step After**.
 - Select **Insert Step Before** or **Insert Step After** from the **Shortcut** menu
 - Select the **New Step** icon on the **Toolbar** to insert a new step after the current step.



Inserting New Lines and Steps

In this example, the editor inserts a new step after the current step.

```
[5] HOME_Z_POS_SERVO
    ;;;
    ;;; Establishes a home position for t
    ;;;
-----
<NO CHANGE IN DIGITAL OUTPUTS>
-----
profile Z_position_servo servo at pos
search and zero Z_position_servo
monitor Z_position_servo:stopped goto
[6] <<New Step Name>>
    <<Comment Line>>
-----
    <<Output Change>>
-----
    <<Statements>>
[7] MOVE_TABLE_X
```

Inserting New Lines

You can insert new comment, output change, and Statement placeholder before or after the current line.

The following example inserts a new statement after the current line.

1. **Highlight** an item on the line above with the mouse pointer.

```
[12] LATHE_START
-----
load_part_off
start_lathe
-----
set lathe_running
turn Z_position_servo to 2607
monitor Z_position_servo:stopped goto MACHINE_NOT_READY
```

2. Do one of the following:
 - Select **Lines** from the **Edit** menu and choose the **Insert Before** or **Insert After** option you want.
 - Select the **Insert Before** or **Insert After** icons on the **Toolbar** with the mouse pointer.
 
 - Select the **Insert Before** or **Insert After** option from the **Shortcut** menu.

REMEMBER! The selections on the Edit and Shortcut menus change depending on the location of the cursor.

The editor inserts a new placeholder after the current line.

```
[12] LATHE_START
-----
load_part_off
start_lathe
-----
set lathe_running
turn Z_position_servo to 2607
<<Statements>>
monitor Z_position_servo:stopped goto MACHINE_NOT_READY
```

Inserting an Output Change

The following example inserts a new placeholder for an output change.

1. **Highlight** an item on the line with the mouse pointer.

```
[13] LATHE_STOP
    :
    :
    : This step stops the lathe
    :
    :
-----
stop_lathe
-----
delay 2 sec 500 ms goto Next
```

2. Do one of the following:
 - Select **Lines** from the **Edit** menu and choose the insert option you want.
 - Select the **Insert Before** or **Insert After** icon on the **Toolbar** with the mouse pointer.



- Select the insert option you want from the **Shortcut** menu.

REMEMBER! The selections on the Edit and Shortcut menus change depending on the location of the cursor.

The editor inserts an output change placeholder above the current line.

```
[13] LATHE_STOP
    :
    :
    : This step stops the lathe
    :
    :
-----
<<Output Change>>
stop_lathe
-----
delay 2 sec 500 ms goto Next
```

Inserting a New First Statement Placeholder

New First Statement inserts a new <<Statements>> placeholder before any other instructions or statement placeholders in a step. It also inserts a new <<Statements>> placeholder in a step that has had all its instructions or statement placeholders deleted.

To insert a new first statement:

1. Highlight any step name, comment, output change, statement placeholder, or instruction in a step.

```
[12] LATHE_START
-----
load_part_off
start_lathe
-----
```

Inserting New Lines and Steps

2. Do one of the following:

- Select **Lines** from the **Edit** menu and choose the **New First Statement** option.
- Select the **New First Statement** option from the **Shortcut** menu.

The editor places a new statement placeholder as the first statement in the step.

```
[12] LATHE_START
-----
load part off
start_lathe
-----
<<Statements>>
[13] LATHE_STOP
```

Using the Quickstep Editor - Editing a Quickstep Program

Contents

Cutting, Copying and Pasting Lines and Steps	5-2
Deleting Lines and Text	5-5
Editing Comments	5-9
Using Replace with Alternate	5-10
Using the Line Editor	5-12
Removing Placeholders	5-14
Checking Syntax	5-15
Using Search and Goto	5-16

Cutting, Copying and Pasting Lines and Steps

The Importance of the Current Field when Cutting, Copying and Pasting

The Quickstep program, as it appears in the Quickstep editor window, is composed of a number of fields (software professionals them “tokens”). For example, the instruction—monitor partsensor goto next—actually consists of four fields:

- The instruction name: monitor
- The input name: partsensor
- The instruction token: goto
- The destination of the instruction: next

As you work in the Quickstep editor window, you may move a cursor from one field to another by using the arrow keys on your computer. The field, or token, to which you have moved the cursor is known as the “current field.” The current field is indicated by displaying the field in a unique color scheme. You can modify how the current field cursor is displayed by changing its colors, so that it may be displayed in any color you choose. For information on changing the colors of fields, see *Changing Editor Field Colors* in Chapter 3, *Quickstep Editor Basics*.

If you Paste text from the clipboard to the current field, the Quickstep editor will attempt to deduce whether the pasted text should be placed before or after the field, based on a series of rules.

If, however, you wish to replace one or more fields with text from the clipboard, you must “select” the field by dragging the mouse pointer across it, similar to selecting text in word processor applications. Then, pasting text will cause the new text to *replace* the selected field.

Similarly, you cannot use the copy or cut commands on the current field without first selecting it by dragging the mouse across it.

Cutting Text

Cut removes selected text or lines of text and places it on the clipboard. The text placed on the Clipboard replaces the previous contents and remains there until you replace it with a new item.

When you cut a step header (number and name) the Quickstep editor cuts the entire step.

Cut text by choosing:

- **Cut** from the **Edit** menu (shortcut, type **CTRL + X**).
- **Cut** icon on the **Toolbar**



Copying Text

Copy copies selected text to the Clipboard. Any text that you copy to the Clipboard replaces the previous contents and remains there until you replace it with a new item.

When you copy a step header (number and name) the Quickstep editor copies the entire step.

Copy text by choosing:

- **Copy** from the **Edit** menu (shortcut, type **CTRL + C**).
- **Copy** icon on the **Toolbar**



Pasting Text

Paste and **Paste After** insert a copy of the Clipboard contents in your program. You cannot use paste if the Clipboard is empty or if the text cannot be replaced or pasted.

The Quickstep editor has the following rules for pasting:

- When you have selected a field, a line or a step with the mouse pointer, **Paste** replaces it.
- When you do not select anything with the mouse, **Paste** inserts the text, line, or step in the adjacent syntactically correct location to the current field.
- When you do not select anything with the mouse and are pasting text that can be placed either before or after the current field, then **Paste** inserts the text, line, or step before the current field and **Paste After** inserts it after the current field.
- The Quickstep editor does not paste a step in the middle of an existing step or an instruction in the middle of an existing instruction.

Paste text by choosing:

- **Paste** from the **Edit** menu (shortcut, type **CTRL + V**).
- **Paste** icon on the **Toolbar**



Paste text after the highlight by selecting **Paste After** from the **Edit** menu.

Copying and Pasting Text from one Program to Another

Cut, copy and paste work by copying and pasting text to and from the Clipboard. Symbolic names in pasted text are interpreted in the context of the program you paste them into. Pasting text from one Quickstep program to another can result in three types of errors:

1. The symbolic name is not defined in the destination program. This causes an error message, and the editor flags the pasted text as unparsed source. To correct this error, define the new symbol name and select **Check Syntax** from the **Edit** menu to recheck the line.
2. The symbolic name(s) have a different definition in the destination program than in the originally program. For example, the name may refer to a flag in the original program and to a servo in the destination program. The symbolic name no longer makes sense in the new context. This causes an error message and the editor flags the pasted text as unparsed source.

Cutting, Copying and Pasting Lines and Steps

To correct this error, you can do one of the following:

- Define a new symbol name and use the Line editor to correct the symbol name.
 - Use the Line editor to change the symbol name to different name.
3. The symbolic name has a different, but syntactically valid definition, in the destination program. This causes an error that **is not detected**.

NOTE: The best way to avoid copy and paste problems is to define a standard set of symbolic names for use in related Quickstep programs and import them into each program as it is created.

Deleting Lines and Text

Deleting Items

You can delete a portion of the text in a comment or instruction. The **Delete**, **Delete Line**, **Delete Step** functions permanently delete the selected text. Deleted items cannot be replaced or pasted. The wording of the delete function changes depending on the location of the cursor.

You can delete an entire line or step by highlighting the line or group of lines and selecting **Delete**.

The Quickstep editor has the following restrictions:

- Deleting a step name or number deletes the entire step
- Deleting the first word in an instruction deletes the entire instruction

WARNING! Do not delete all the steps in a program. This causes a General Protection Fault.

To delete text or other items:

1. **Highlight** the text you want to delete with the mouse pointer.

```
profile Y_position_servo servo at pos:
turn Y_position_servo cw 3700 steps
monitor Y_position_servo:stopped goto
```

2. Select **Delete** from the **Edit** or **Shortcut** menu.

The editor deletes the text.

```
profile Y_position_servo servo at pos:
turn Y_position_servo 3700 steps
monitor Y_position_servo:stopped goto
```

Deleting an Entire Line

You can delete an entire comment, output change or instruction line. The **Delete Line** function permanently deletes the highlighted or selected lines. Deleted items cannot be replaced or pasted. The wording of the delete function changes depending on the location of the cursor.

To delete lines:

1. **Highlight** a portion of the line you want to delete with the mouse pointer.

```
[1] START_PROGRAM
    ;;
    ;; This step checks table input and
    ;; It also starts the counter
    ;;
-----
<NO CHANGE IN DIGITAL OUTPUTS>
-----
monitor (or lathe_running:set table_r
start widget_ctr up (count_up_close)
goto HOME_X_SERVO
```

Deleting Lines and Text

2. Do one of the following:

- Select **Lines** from the **Edit** menu and then the **Delete** option.
- Select the **Delete** option from the **Shortcut** menu

The editor deletes the line.

```
[1] START_PROGRAM
    ;;;
    ;;; This step checks table input and
    ;;; It also starts the counter
    ;;;
-----
<NO CHANGE IN DIGITAL OUTPUTS>
-----
monitor (or lathe_running:set table_r
goto HOME_X_SERVO
```

Changing Step Names and Numbers

Changing Step Names

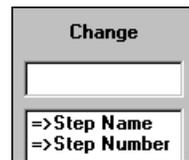
Using the Quickstep editor you can change the name of a step. The editor automatically goes through your program and changes every reference of the step to the new step name. The editor does not allow you to change the step name to the name of an existing step.

To change a step name:

1. Place the mouse pointer over the step name and do one of the following:
 - Double click the **left** mouse **button**.
 - Highlight the step name and press **Enter**.

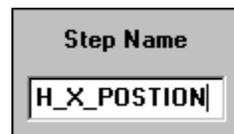
```
[7] MOVE_TABLE_X
    :::
    ::: Moves the table in the X direction. Placing it
    ::: in the correct position for lathe.
    :::
```

The Selection bar lists the options to change the step name or step number



2. Select **=>Step Name** using the mouse pointer or keyboard.
3. Type the new step name.

It appears in the Selection bar.



4. Press **Enter** to change the step name.

The editor changes the step name and all the references to it.

```
profile Z_posit Changed step name reference
search and zero
monitor Z_position_servo:stopped goto ESTABLISH_X_POSITION
[7] ESTABLISH_X_POSITION
    :::
    ::: Moves the table in the X direction. Placing it
```

Changing Step Numbers

Using the Quickstep editor you can change step numbers. When necessary, the editor automatically goes through your program and changes the numbers of the steps below it. When you change a step number to the number of an existing step, the editor renumbers the steps.

NOTE: The editor does not permit you to change a step number to a number lower than the preceding step.

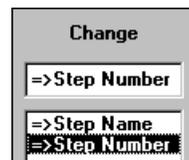
Changing Step Names and Numbers

To change a step number:

1. Place the mouse pointer over the step number and do one of the following:
 - Double click the **left** mouse **button**.
 - Highlight the step number and press **Enter**.

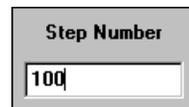
```
[16] MACHINE_NOT_READY
    :::
    ::: Displays a message so that the operator can
    :::
```

The Selection bar lists the options to change the step name or step number.



2. Select **=>Step Number** using the mouse or keyboard.
3. Type the new step number.

It appears in the Selection bar.



4. Press **Enter** to change the step number.

The editor changes the step number and the number of subsequent steps.

```
[100] MACHINE_NOT_READY
    :::
    ::: Displays a message so that the operator can
    :::
-----
<NO CHANGE IN DIGITAL OUTPUTS>
-----
store 1 to not_ready_msg
goto CHECK_MACHINE

[101] CHECK_MACHINE
    ← Step number of next step also changed
```

Editing Comments

You can edit comment lines with the Comment editor. The Comment editor automatically places the leading semi-colons and a space before any text.

To edit a comment:

1. Place the mouse pointer on the comment line and do one of the following:

```
[5] HOME_Z_POS_SERVO
    ; Home Z position servo
    ;
-----
<NO CHANGE IN DIGITAL OUTPUTS>
-----
profile Z_position_servo servo at position maxspeed=Z_home_maxsp accel
search and zero Z_position_servo
monitor Z_position_servo:stopped goto Next
```

- Double click the **left mouse button** to activate the Comment editor.
- Highlight the comment and press **Enter** to activate the Comment editor.

The Comment Editor window appears

```
File Edit Help
Home Z position servo
```

2. Edit the comment. You can use the cut, paste, and copy commands.

```
File Edit Help
Establishes a home position for the Z position servo.
```

REMEMBER: The maximum line length is 255 characters.

3. To insert the comment in the step, select **Exit Saving Changes** from the **File** menu.

The Quickstep editor enters the comment in the step.

```
[5] HOME_Z_POS_SERVO
    ;
    ; Establishes a home position for the Z position servo.
    ;
-----
<NO CHANGE IN DIGITAL OUTPUTS>
-----
profile Z_position_servo servo at position maxspeed=Z_home_maxsp accel
search and zero Z_position_servo
monitor Z_position_servo:stopped goto Next
```

Using Replace with Alternate

Replace with Alternate allows you to replace an output change or a selected portion of an instruction with a different choice. When you select Replace with Alternate, the editor lists the alternate choices in the Selection bar.

When replacing part of an instruction, depending on the instruction and the part of the instruction you choose, the Selection bar choices change.

NOTE: Selecting Replace with Alternate when the highlight is on an instruction line containing unparsed source, activates the Line editor.

Replacing Part of an Instruction

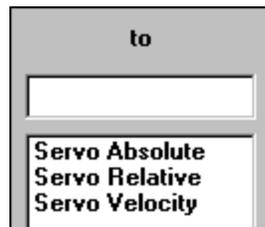
To replace with an alternate:

1. Place the mouse pointer over the portion of the instruction you want to replace and do one of the following:

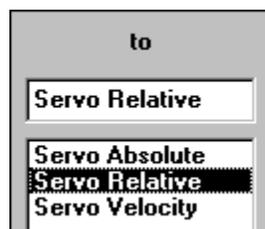
```
profile Y_position_servo servo at position maxspeed=X_
turn Y_position_servo 27560
monitor Y_position_servo:stopped goto Next
```

- Highlight the selection and choose **Replace with Alternate** from the **Edit** or **Shortcut** Menu.
- Highlight the selection and press **Enter**.

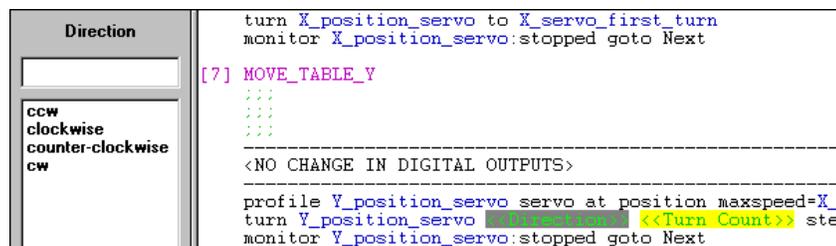
The Editor lists the alternate choices in the Selection bar.



2. To replace the selection, use the mouse or keyboard to select your choice



The Editor replaces the selected text with the alternate.



4. Continue programming the instruction.

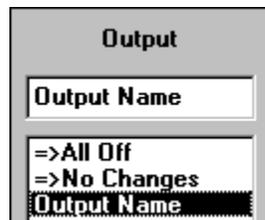
Replacing an Output Change

You can replace an output change using Replace with Alternate.

1. Place the mouse pointer over the output change you want to replace and do one of the following:
 - Double click the left mouse button.
 - Highlight the output change and choose **Replace with Alternate** from the **Edit** or **Shortcut** Menus.

```
[11] LOAD_CYLINDER
    :::
-----
<NO CHANGE IN DIGITAL OUTPUTS>
```

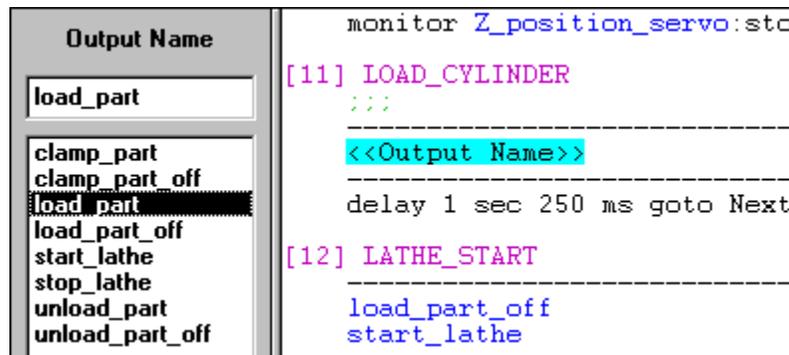
The Editor lists the alternate choices in the Selection bar.



2. To replace the selection, use the mouse or keyboard to select your choice.

If you select **All Off** or **No Changes**, the editor enters the choice in the step and deletes any other output changes in the step. If you select **Output Name**, the editor lists the symbolic names for the outputs in the Selection bar.

4. If you are turning an output on or off, select the symbolic name for the output you want using the mouse or keyboard.



The editor enters your selection in the output change line.

```
[11] LOAD_CYLINDER
    :::
-----
load_part
```

Using the Line Editor

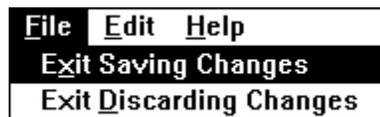
The Line Editor

The Line editor window appears when you select Edit Line Text from the Shortcut or Edit menus. Using the Line editor, you can edit a single output change or an instruction. If you type additional lines, the Line editor ignores them.

Line Editor Menus

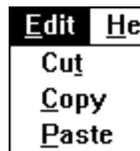
The menu bar contains the File, Edit and Help menus. Using these menus you can enter edited text into your Quickstep program, cut, copy and paste text in the Line editor; and display the Help file for the Line editor.

Selecting **File** displays the following menu:



- **Exit Saving Changes:** enters the edited line.
- **Exit Discarding Changes:** exits the Line editor without changing the existing instruction or output change.

Selecting **Edit** displays the following menu:



- **Cut:** removes selected text and places it on the clipboard.
- **Copy:** copies selected text to the Clipboard.
- **Paste:** inserts a copy of the Clipboard contents at the insertion point. If you have highlighted any text, the editor replaces the selection with the text on the Clipboard. You cannot use paste if the Clipboard is empty or if the selected text cannot be replaced.

NOTE: Selecting Replace with Alternate when the highlight is on an instruction line containing unparsed source, activates the Line editor.

Editing Output Change and Instruction Line Text

You can edit an output change or instruction using the Line editor. The Line editor only edits one line at a time. If you type additional lines, the editor does not enter them in the program.

To edit an instruction line:

1. Open the editor using one of the following methods:

```
monitor (or lathe_running:set table_moving) goto MACHINE_NOT_READ
start widget_ctr up (count_up_close) down (count_down_close)
goto HOME_X_SERVO
```

- Highlight a parameter in the instruction and select **Edit Line Text** from the **Shortcut** menu.
- Highlight a parameter in the instruction and select **Edit Line Text** from **Lines** on the **Edit** menu.

The Line Editor window appears

```
File Edit Help
monitor (or lathe_running:set table_moving) goto MACHINE_NOT_READY
```

2. Edit the instruction. You can use the cut, paste, copy commands.

```
File Edit Help
monitor (or lathe_running:set table_moving X_position_servo:running) goto MACH
```

3. To insert the edited instruction in the step, select **Exit Saving Changes** from the **File** menu.

The Quickstep editor checks the line syntax and enters the instruction in the step.

```
monitor (or lathe_running:set table_moving X_position_servo:runni
start widget_ctr up (count_up_close) down (count_down_close)
goto HOME_X_SERVO
```

Removing Placeholders

As you program steps, and their component instructions, output changes, and comments, the Quickstep editor displays empty placeholders. In most cases, the editor deletes optional placeholders, but sometimes you must delete them yourself.

To delete all the unused placeholders in a program:

Select **Remove Placeholders** from the **Edit** menu.

The following is a list of placeholders that you may want to delete when the editor does not:

- Optional place holders have a cyan background and black lettering (default). They can be removed if you are not using them.

```
<<Servo I>>
```

- Comment placeholders can be removed if the step does not have comments.

```
[2] HOME_X_SERVO  
<<Comment Line>>
```

- Extra output change placeholders can be removed. However, you must specify no change, all off, or an output change at the beginning of each step.

```
[12] LATHE_START  
    ;;;  
    ;;; This step turns off output tha  
    ;;; turns on the lathe which machi  
    ;;;  
-----  
load_part_off  
start_lathe  
<<Output Change>>
```

- Extra Statement placeholders can be removed.

```
<<Statements>>
```

Checking Syntax

The Quickstep editor displays lines with errors in red (default). A paste operation can create unchecked lines, and converting an 1.6 or 1.7 Quickstep program can cause lines to be displayed as errors when they do not have any.

To make the editor check the syntax of these lines, choose **Check Line Syntax** from the **Edit** menu.

Searching for Syntax Errors

To search for lines with an error or unchecked syntax, choose **Find Next Error** from the **Search** menu.

To find an error or unchecked syntax in a previous step, choose **Find Previous Error** from the **Search** menu.

Using Search and Goto

Searching for a Step

Goto searches a Quickstep program for a specific step. The Quickstep editor can search forward or backward for the step, depending where you start the search.

NOTE: Goto is the name of a search function in the Quickstep editor. GOTO is also an instruction in the Quickstep programming language. For information on using the GOTO instruction, see the *Quickstep™ Language and Programming Guide*.

You can use Goto to search for a step in two different ways:

Method One

1. Highlight the step name you want to find.

```
monitor in_1A goto SELECT_PROGRAM
monitor in_2A goto ZERO_COUNTER
monitor in_3A goto GET_INFO
monitor in_4A goto EXIT_SET_UP
monitor in_8A goto SEND_RUN_MODE
monitor in_9A goto SEND_CAL_MODE
monitor (and in_8B in_9B) goto SEND_ADJ_MODE
```

2. Search for the step name using one of the following methods:

- Choose **Goto Step** from the **Search** menu.
- Choose **Goto Step** from the **Shortcut** menu.
- Select the **Goto** icon on the **Toolbar**.



The editor finds the step.

```
store reg_17 to reg_102
goto WAIT_SET_UP

[32] ZERO_COUNTER
;;;
;;;The next 2 steps change the value of the cycle
;;;
;;;First input-2 is monitored to make sure the pu
;;; released, then 0 is stored to the counter (re
;;;the next step to display the value 0.
;;;
-----
<NO CHANGE IN DIGITAL OUTPUTS>
-----
monitor in_2A goto ZERO_COUNTER
store 0 to reg_700
goto WAIT_SET_UP
```

Method Two

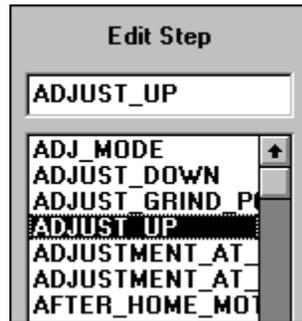
1. Do one of the following:

- Choose **Goto Step** from the **Search** menu.
- Choose **Goto Step** from the **Shortcut** menu.
- Select the **Goto** icon on the **Toolbar**.



The list of step names appears in the Selection bar.

2. Use the mouse or keyboard to select the name of the step you want to find



The editor finds the step.

```
[83] ADJUST_UP
    :
    :
    :   Increase adjustment.
    :
    :-----
    : <NO CHANGE IN DIGITAL OUTPUTS>
    :-----
monitor in_1A goto ADJUST_UP
if reg_702 >=1600 goto ADJUSTMENT_AT_LIMIT
store reg_702 + 20 to reg_702
store reg_51 + 20 to reg_51
goto UPDATE_ADJUSTMENT
```

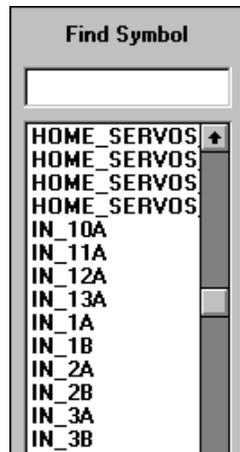
Searching for Symbolic Names

Find Symbol searches a Quickstep program for a specific symbolic name. The Quickstep editor begins the search from the location of the cursor. If you are at the end of a program file you should go to the beginning before starting your search. After the editor has found the first occurrence of a symbolic name, you can use Find Next. Find Next finds the next occurrence of the symbolic name specified by Find Symbol.

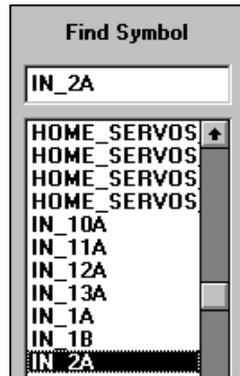
To search for a symbolic name:

1. Choose **Find Symbol** from the **Search** menu.

The editor displays the symbolic names in the Selection bar.



-
2. Select the symbolic name you want to find.



3. Press **Enter**.

The editor finds the symbolic name.

```
monitor in_1A goto SELECT_PROGRAM
monitor in_2A goto ZERO_COUNTER
monitor in_3A goto GET_INFO
```

NOTE: If you double click on the symbolic name with the mouse pointer, you can skip step 3.

4. To find the next occurrence of the symbolic name, do one of the following:

- Choose **Find Next** from the **Search** menu.
- Choose the **Find Next** icon on the **Toolbar**.



The editor finds the next occurrence of the symbolic name.

```
monitor in_2A goto ZERO_COUNTER
store 0 to reg_700
goto WAIT_SET_UP
```

Using the Symbol Browser

Contents

Symbol Browser Overview	6-2
Defining Symbolic Names	6-9
Editing Symbol Browser Entries	6-14
Printing a Symbol Table	6-16
Finding Steps and Symbols in a Quickstep Program	6-17
Using the Symbol Browser as a Standalone Editor	6-19

Symbol Browser Overview

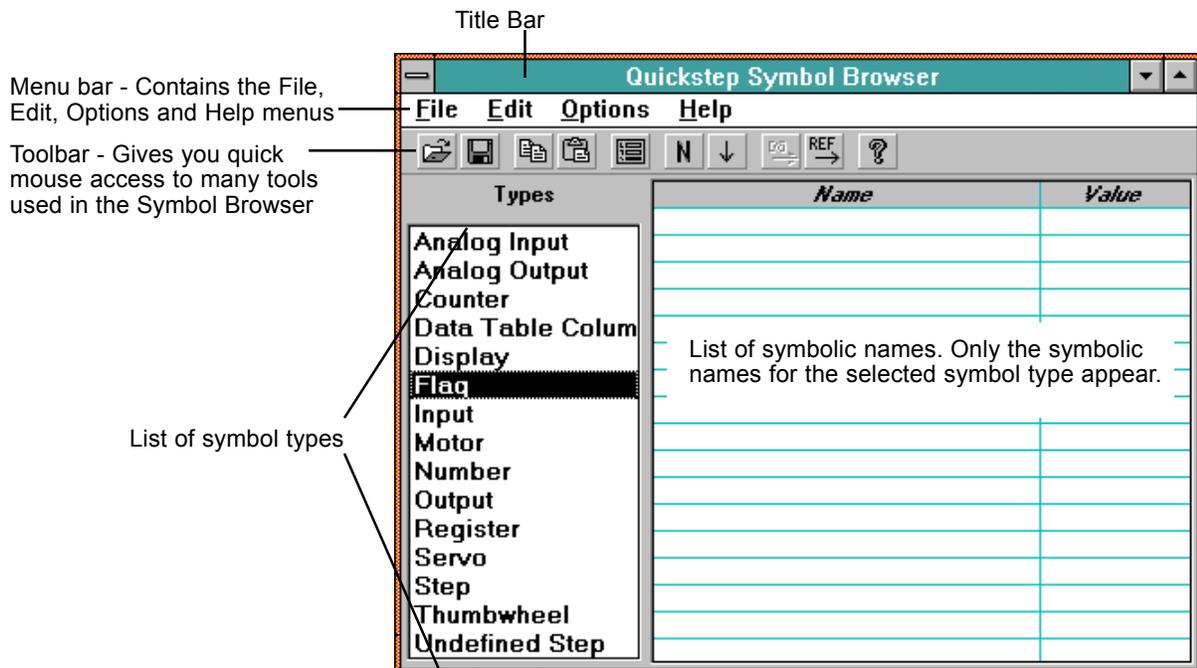
Screen Overview

When you start the Quickstep editor, it automatically activates the Symbol Browser. Use the Symbol Browser to specify step names and symbolic names for the following controller resources and specialized I/O and motion control devices:

- Analog inputs
- Analog outputs
- Counters
- Data Table columns
- Displays
- Flags
- Inputs
- Outputs
- Stepping motors
- Servo motors
- Numeric registers
- Thumbwheels

You can also give symbolic names to numeric constants used in the program.

You can edit the symbolic names that appear in the list of symbolic names, using the copy, cut, paste and delete options on the Edit menu and Toolbar. To move from one field to another on the list of symbolic names and list of symbol types, use the arrow keys



The Toolbar

The Toolbar appears across the top of the Symbol Browser window and gives you quick mouse access to many tools used in the Symbol Browser.



Open - Opens an existing Symbol Table. Accessible only when using the Symbol Browser as a standalone editor.



Save - Saves the current Symbol Table with its current name. Accessible only when using the Symbol Browser as a standalone editor.



Copy - Copies the selected text and places it on the Clipboard



Paste - Inserts the contents of the Clipboard at the insertion point



New Symbol - Displays the Define Symbol dialog Box.



Sort Key - Toggles from **N** to **V** and displays the list of symbolic names in alphabetic order or by their value.



Sort Order - Toggles from é to ê and displays the list of symbolic names in ascending or descending order of value.



Find Step - Tells the Quickstep editor to find the step whose name you've highlighted



Find Reference - Tells the Quickstep editor to find the first reference to the symbolic name you've highlighted



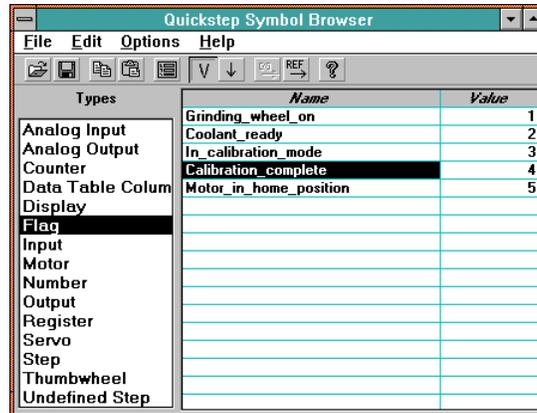
About - displays the version number and the copyright notice.

Changing Column Size

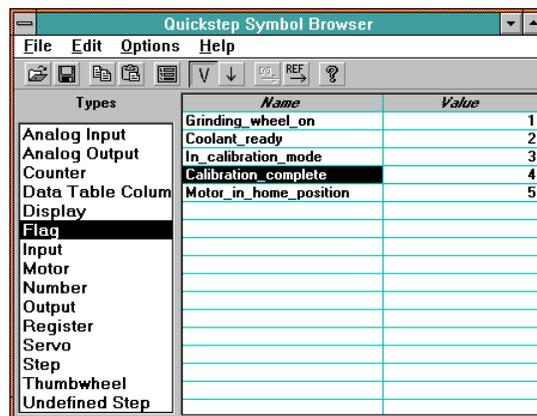
You can adjust the size of the columns in the list of symbolic names by moving the column dividers.

To change the column size:

1. Place the mouse pointer on the column divider line.
2. When the double arrowhead symbol appears, press the mouse button and move the column divider.



3. Release the mouse button when the column divider is in the correct location.



Re-displaying Columns

It is possible to move the column divider so far that the column disappears. When this happens, re-display the column by selecting:

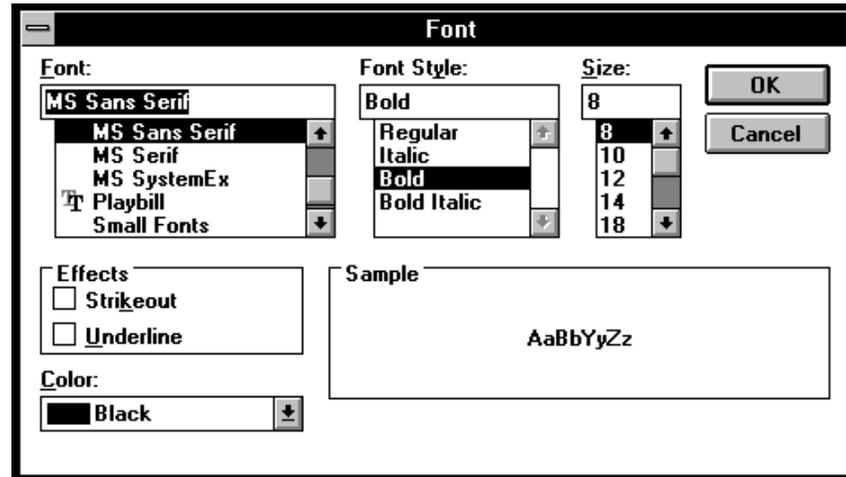
- **Show Name** from the **Options** menu to re-display the name field.
- **Show Value** from the **Options** menu to re-display the value field.
- **Show Transition** from the **Options** menu to re-display the output transition field.
- **Show State** from the **Options** menu to re-display the input state field.

Changing the Font

The Symbol Browser displays text in Microsoft Sans Serif font. You can change the default font using the Font dialog box.

1. Select **Font** from the **Options** menu.

The Fonts dialog box appears.



2. Select the **Font**, **Font Style**, **Size**, and **Color**.

The Sample box displays the current font.

NOTE: We do not recommend selecting the Strikeout or Underline effects.

3. Select **OK** to apply your changes.

To exit without saving your changes, select **Cancel**.

Specifying the Order of Symbolic Names

The Toolbar contains two icons that control how the Symbol Browser displays the list of symbolic names. One icon toggles to display the list by name (**N**) or value (**V**), and the other icon toggles to display the list in ascending (**↓**) or descending (**↑**) order of value.

Listing by Name or Value

Using the toggle icon on the Toolbar, you can display the list of symbolic names in alphabetic order by name or in order of value.

Change the way in which symbolic names are listed by selecting:

- The **N** or **V** icon on the **Toolbar**.

 Lists the symbolic names in alphabetic order by name.

 Lists the symbolic names in order by value

- **Sort by Value** from the **Options** menu

A check mark next to Sort by Value indicates that the list is sorted in order of value. No check mark indicates that the list is sorted in alphabetic order by name.

Examples of Sorted Lists

- A list ordered by name appears as follows:

<i>Name</i>	<i>Value</i>
Calibration_complete	4
Coolant_ready	2
Grinding_wheel_on	1
In_calibration_mode	3
Motor_in_home_position	5

- A list ordered by value appears as follows:

<i>Name</i>	<i>Value</i>
Grinding_wheel_on	1
Coolant_ready	2
In_calibration_mode	3
Calibration_complete	4
Motor_in_home_position	5

Listing in Ascending or Descending Order

Using the toggle icon on the Toolbar, you can display the list of symbolic names in ascending or descending order of value. To change the way in which symbolic names are listed select:

- The **up** or **down arrow** icon on the **Toolbar**.



Lists the symbolic names in ascending order of value.



Lists the symbolic names in descending order of value.

- **Sort by Ascending** from the **Options** menu

A check mark next to Sort by Ascending indicates that the list is sorted in ascending order. No check mark indicates that the list is sorted in descending order of value.

Examples of Sorted Lists

- A list ordered by value in ascending order appears as follows:

<i>Name</i>	<i>Value</i>
Grinding_wheel_on	1
Coolant_ready	2
In_calibration_mode	3
Calibration_complete	4
Motor_in_home_position	5

- A list ordered by value in descending order appears as follows:

<i>Name</i>	<i>Value</i>
Motor_in_home_position	5
Calibration_complete	4
In_calibration_mode	3
Coolant_ready	2
Grinding_wheel_on	1

- A list ordered by name and ascending order appears as follows:

<i>Name</i>	<i>Value</i>
Calibration_complete	4
Coolant_ready	2
Grinding_wheel_on	1
In_calibration_mode	3
Motor_in_home_position	5

- A list ordered by name and descending order appears as follows:

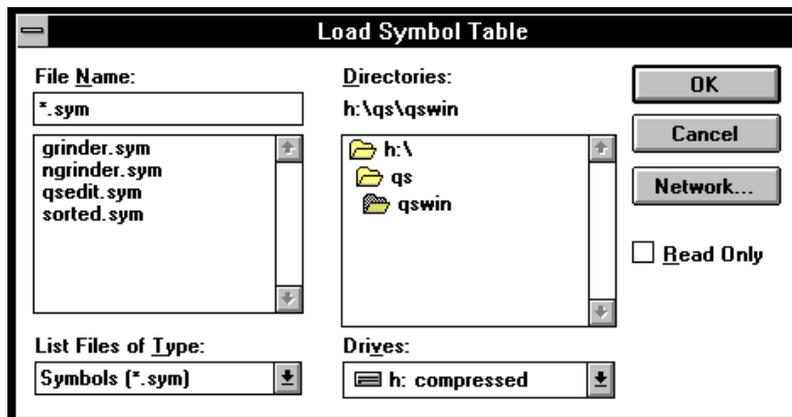
<i>Name</i>	<i>Value</i>
Motor_in_home_position	5
In_calibration_mode	3
Grinding_wheel_on	1
Coolant_ready	2
Calibration_complete	4

Inserting an Existing Symbol Table

You can insert an existing table from another Quickstep program in your current Symbol Table. This allows you to use the same symbolic names for more than one program without having to redefine them.

1. Bring up the Quickstep editor and define the parameters for your Quickstep program.
2. Click the Symbol Browser icon to display the Symbol Browser.
3. Select **Insert** from the **File** menu.

The Load Symbol Table dialog box appears.



4. If the Symbol Table is in a different directory, select the appropriate directory.

Symbol Browser Overview

5. Select the **name** of the **Symbol Table** you wish to load.
6. Select **OK**.

Saving a Symbol Table

The Quickstep editor automatically saves the Symbol Table when it saves your Quickstep program, using the same name you specified for your Quickstep program.

When using the Symbol Browser in conjunction with the Quickstep editor the Save options on the File menu and Toolbar are grayed out.

We recommend saving your Quickstep program several times during an editing session.

NOTE: When using the Symbol Browser as a standalone editor, you must save your Symbol Table using the Save options on the File menu or on the Toolbar.

Defining Symbolic Names

Using the Symbol Browser, you can create symbolic names for the following types of symbols:

- Controller resources, such as flags or registers
- I/O devices, such as numeric displays
- Motion control devices, such as servos
- Undefined steps
- Numeric constants

Symbolic names are entered using the Define Symbol dialog box.

IMPORTANT! Each symbolic name must be unique, and within a symbol type (e.g., servos, registers) each numeric must be unique. This means you can only have one symbolic name for register 10. Inputs and outputs each have two possible states, and each state can be given a unique symbol name.

An exception to this rule is numeric constants. You can have two numeric constants one called Over_Pressure with a value of 5000 and another called Base_Velocity with a value of 5000.

Entering Symbolic Names

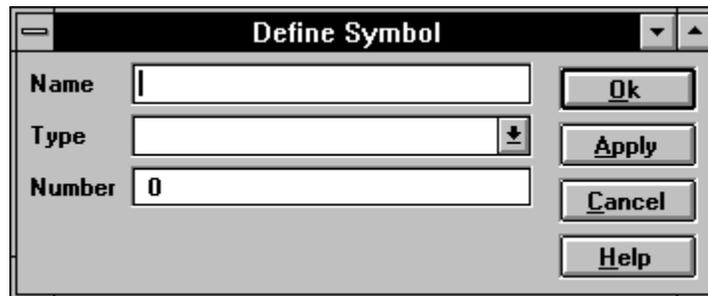
To define symbolic names:

1. Display the Define Symbol dialog box using one of the following methods:

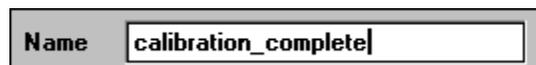
- Selecting **New Symbol** from the **Edit** menu (shortcut, type **CTRL + N**).
- Selecting the **Define Symbol** icon on the **Toolbar**.



The Define Symbol dialog box appears.



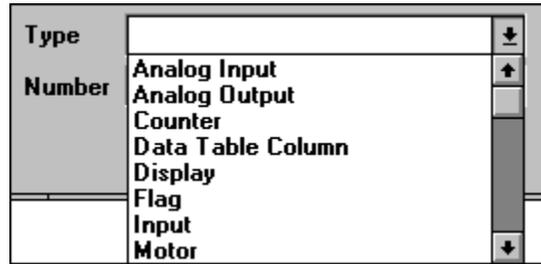
2. Type the symbolic name in the **Name** field. This example uses flags.



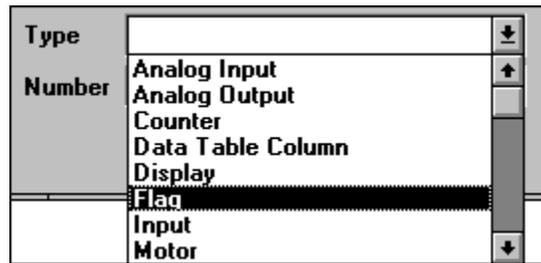
3. Press **Tab** to go to the next field.

Defining Symbolic Names

- Click the **arrow** on the right side of the **Type** field to display a list of symbol types



- Select the **symbol type** by clicking it with the mouse pointer.

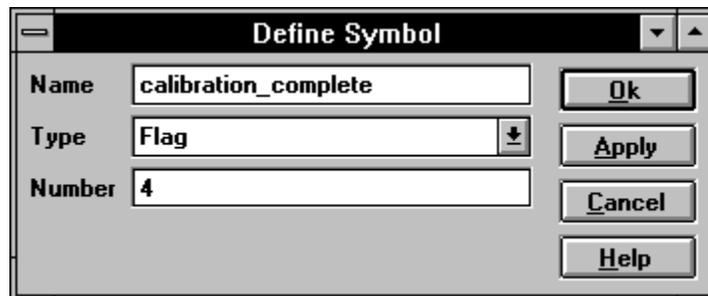


The Type field displays the symbol type.



NOTE: If the symbol type is already displayed, you can skip steps 4 and 5.

- Press **Tab** to go to the next field.
- Type the **number** of the flag in the **Number** field.



- Do one of the following:
 - Select **OK** to display the symbolic name in the list and to close the Define Symbol dialog box.
 - Select **Apply** to display the symbolic name in the list and keep the Define Symbol dialog box open.

The new symbol name appears in the list.

Types	Name	Value
Analog Input	calibration_complete	4
Analog Output	collant_ready	2
Counter	grinding_wheel_on	1
Data Table Column	in_calibration_mode	3
Display		
Flag		

Specifying Step Names

You can create symbolic names for steps. These symbolic names must be created using the symbol type Undefined Steps. Once an undefined step name is used in a Quickstep program, the Symbol Browser automatically changes the symbol type definition from Undefined Step to Step.

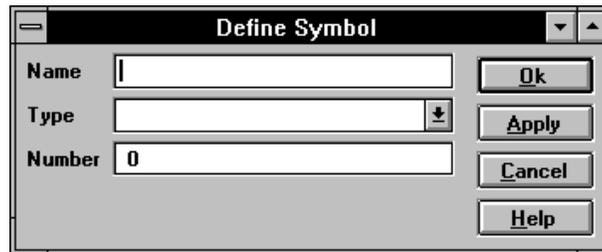
When you enter a step name for an undefined step, you cannot give it a value for a step number. The value field is zero until you use it in your Quickstep program.

To specify undefined step names:

1. Display the Define Symbol dialog box using one of the following methods:
 - Selecting **New Symbol** from the **Edit** menu (shortcut, type **CTRL + N**).
 - Selecting the **Define Symbol** icon on the **Toolbar**.



The Define Symbol dialog box appears.



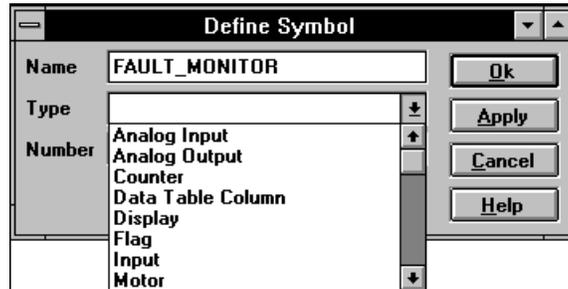
2. Type the **undefined step name** in the **Name** field.



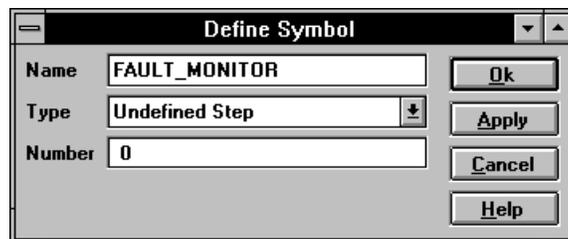
3. Press **Tab** to go to the next field.

Defining Symbolic Names

- Click the **arrow** on the right side of the **Type** field to display a list of symbol types



- Select **Undefined Step** by clicking it with the mouse pointer. The Type field displays the symbol type.



NOTE: If the correct symbol type is already displayed, you can skip steps 3 through 5.

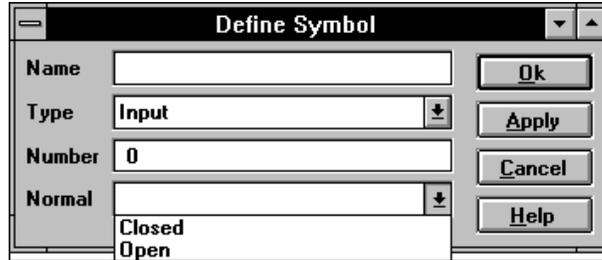
- Do one of the following:
 - Select **Ok** to display the symbolic name in the list and to close the Define Symbol dialog box.
 - Select **Apply** to display the symbolic name in the list and keep the Define Symbol dialog box open.

Types	Name	Value
Analog Input	FAULT_MONITOR	0
Analog Output	IMPRINT	0
Counter	INITIALIZE_AND_HOME	0
Data Table Column	MOTOR_NEXT	0
Display	POSITION_MOTOR	0
Flag	STAMP_PRESS_OFF	0
Input		
Motor		
Number		
Output		
Register		
Servo		
Step		
Thumbwheel		
Undefined Step		

Specifying Symbolic Names for Inputs

Inputs can have two symbolic names for the same input. One symbolic name is for monitoring the input as a normally open input. This means the input's active state is closed. The other possible symbolic name refers to the same input as a normally closed input. In this case, the input is considered active when the input is open. Refer to the *Quickstep Language and Programming Guide* for a description of normally open and normally closed inputs.

The Define Symbol dialog box has an extra field labeled Normal. Use this field to specify normally open or closed for inputs.



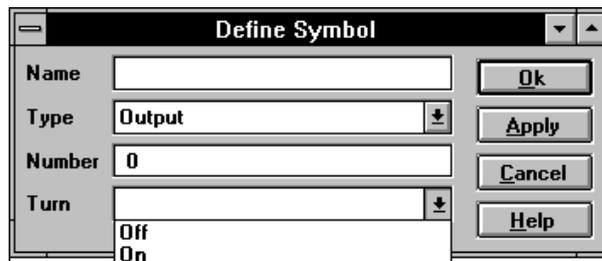
The list of symbolic names has three columns (shown below):

- Symbolic name
- Value (number of the input)
- Normal state of the input

<i>Name</i>	<i>Value</i>	<i>Normal State</i>

Specifying Symbolic Names for Outputs

Outputs can have two symbolic names for the same value. One symbolic name turns the output on, and the other turns it off. The Define Symbol dialog box has an extra field labeled Turn to enter this information



The list of symbolic names has three columns (shown below):

- Symbolic name
- Value (number of the output)
- Output transition (output on or off)

<i>Name</i>	<i>Value</i>	<i>Output Transition</i>

Editing Symbol Browser Entries

Editing Symbolic Names

You edit a name in the list of symbolic names by selecting the field and entering the new name.

To edit a symbolic name:

1. Place the cursor in the appropriate field by selecting it with the mouse pointer or by using the **Tab** and **Arrow** keys.

<i>Name</i>	<i>Value</i>	<i>Normal Stat</i>
in_10A	10	Open (0)
in_11A	11	Open (0)
in_12A	12	Open (0)
in_13A	13	Open (0)
in_1A	1	Open (0)
in_1B	1	Closed (1)
in_2A	2	Open (0)
in_2B	2	Closed (1)
in_3A	3	Open (0)

2. Type or paste the new name and press **Enter**.

<i>Name</i>	<i>Value</i>	<i>Normal Stat</i>
in_10A	10	Open (0)
in_11A	11	Open (0)
in_12A	12	Open (0)
in_13A	13	Open (0)
On_start_open	1	Open (0)
in_1B	1	Closed (1)
in_2A	2	Open (0)
in_2B	2	Closed (1)
in_3A	3	Open (0)

3. To edit a value in another field, you can use the **Arrow** keys to move the field.

Deleting Symbolic Names

You can delete a name in the list of symbolic names by selecting the field and deleting it. This deletes the both the symbolic name and its associated value. If you try to cut a symbol name that is used in your Quickstep program, the Symbol Browser displays a message stating that the symbol is used in the program. You must first delete all references to the symbolic name before you can delete it. If you are using the Symbol Browser as a standalone editor, the message does not appear.

To delete a symbolic name and its associated value:

1. Place the cursor in the appropriate field by selecting it with the mouse pointer or by using the **Tab** and **Arrow** keys.

<i>Types</i>	<i>Name</i>	<i>Value</i>
Analog Input	Grinding_adjustment	1
Analog Output		
Counter		

2. Select **Delete** from the **File** menu (Shortcut, press the **Delete** key).

The Symbol Browser deletes the entry.

Copying and Pasting Text

You can copy and paste text in the Symbol Browser.

Copying Text

Copy copies selected text to the Clipboard. This command is available only when you select text.

Copy text by selecting:

- **Copy** from the **Edit** menu (shortcut, type **CTRL + C**).
- **Copy** icon on the **Toolbar**



Pasting Text

Paste inserts a copy of the Clipboard contents at the insertion point. If you have highlighted text, Paste replaces it. You cannot use paste if the Clipboard is empty or if the selected text cannot be replaced.

Paste text by selecting:

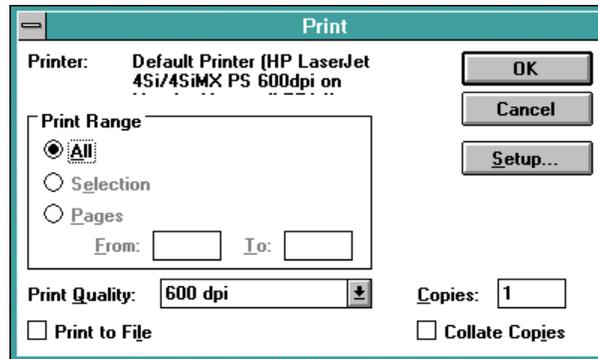
- **Paste** from the **Edit** menu (shortcut, type **CTRL + V**).
- **Paste** icon on the **Toolbar**



Printing a Symbol Table

You can print a Symbol Table:

1. Select **Print** from the **File** menu.
2. When the Print dialog box appears, choose the options you want.



3. Select **Ok** to print the Symbol Table.

Finding Steps and Symbols in a Quickstep Program

Finding a Step in a Quickstep Program

Find Step finds the selected step name in your Quickstep program. This function does not work when the Symbol Browser is in Standalone mode.

To find a step in your Quickstep program:

1. Highlight a step name in the list of symbolic names.

<i>Name</i>	<i>Value</i>
CHECK_MACHINE	51
HOME_X_SERVO	2
HOME_Y_SERVO	3
HOME_Z_POS_SERVO	5
LATHE_START	12
LATHE_STOP	13
LOAD_CYLINDER	11
MACHINE_NOT_READY	50
MOVE_TABLE_X	7
MOVE_TABLE_Y	9
MOVE_Z_SERVO	10
NEXT_PART	15
START_PROGRAM	1
UNLOAD_CYLINDER	14

2. Click the Find Step icon with the mouse pointer.



The Quickstep editor finds the step.

```
[13] LATHE_STOP
    :::
    ::: This step stops the lathe
    :::
    -----
    stop_lathe
    -----
    delay 2 sec 500 ms goto Next
```

Finding the First Occurance of a Symbolic Name

Find First Reference finds the first reference to a symbolic name in your Quickstep program. This function does not work when the Symbol Browser is in Standalone mode.

To find a step in your Quickstep program:

1. Highlight a symbol name in the list of symbolic names.

Flag	Symbolic Name	Value	Status
Input	count_up_open	5	Open (0)
Motor	machine_ready	11	Open (0)
Number	Reset_controller	3	Closed (1)
Output	reset_ctr_close	7	Closed (1)
Register	reset_ctr_open	7	Open (0)
Servo	start_controller	1	Closed (1)
Step	stop_controller	2	Closed (1)
Thumbwheel	table_running	10	Closed (1)
	table_stopped	10	Open (0)

Finding Steps and Symbols in a Quickstep Program

2. Click the Find First Reference icon with the mouse pointer.



The Quickstep editor finds the first occurrence of the symbolic name.

```
[51] CHECK_MACHINE
-----
<TURN OFF ALL DIGITAL OUTPUTS>
-----
monitor machine_ready goto START_PROGRAM
```

Using the Symbol Browser as a Standalone Editor

In some cases you may want to specify the symbolic names before activating the Quickstep editor. To do this you must use the Symbol Browser as a standalone editor.

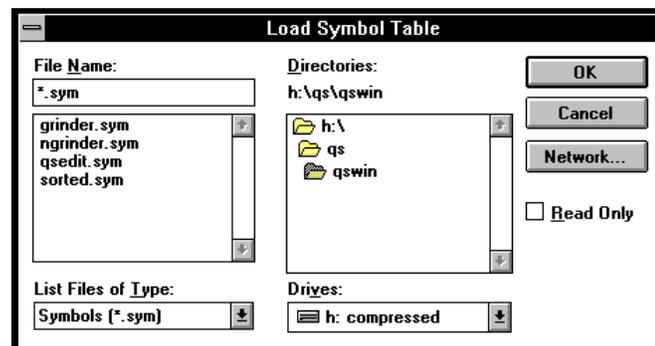
The steps for creating a Symbol Table using the Symbol Browser as a standalone editor are as follows:

- Activate the Symbol Browser
- Enter the symbolic names
- Save the Symbol Table using a different name than Quickstep program you are planning to write.

Activating the Symbol Browser and Opening a Symbol Table

1. To activate the Symbol Browser, chose one of the following methods:
 - Using the File Manager:
 - a. Open the File Manager and select the directory where the Quickstep 2.0 files are stored. The default directory is C:\QSWIN.
 - b. Place the mouse pointer over the file labeled **browser.exe**, and double click the left mouse button.
 - Using the Program Manager:
 - a. Following the instructions provided with Microsoft Windows, create an icon for Symbol Browser in the Quickstep group in the Program Manager.
 - b. Activate the Symbol Browser by selecting the icon as you would any Microsoft Windows program icon.

The Load Symbol Table dialog box appears.



2. To open a Symbol Table, chose one of the following methods:
 - To create a new Symbol Table, select **Cancel** on the Load Symbol Table dialog box to display the Symbol Browser.
 - To open an existing Symbol Table, choose the name of the Symbol Table you wish to load and select **OK**. If the Symbol Table is in a different directory, select the appropriate directory.

Saving Symbol Tables

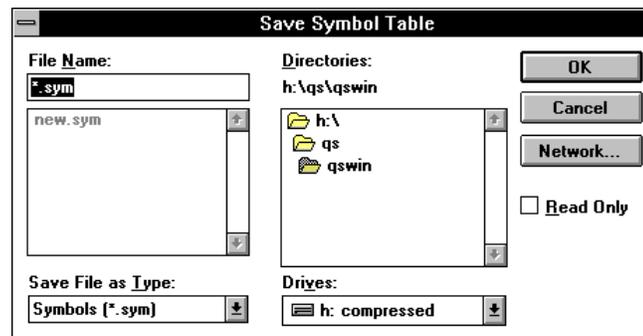
Once you have defined your symbolic names you must save your Symbol Table. The table must have a different name than the Quickstep program you are planning to write. When the Quickstep Programming Editor creates a new program file, it overwrites any Symbol Table with the same name as the program file.

Saving a New Symbol Table

1. Do one of the following:
 - Select **Save as** from the **File** menu.
 - Select the **Save** icon on the **Toolbar**.



The Save Symbol Table dialog box appears:



2. Enter a name for the new table.

REMEMBER! The table must have a different name than the Quickstep program you are planning to write.

3. If you want to save the Symbol Table in a different directory, select the appropriate directory.
4. Select **OK**.

Saving an Existing Symbol Table

Do one of the following:

- Select **Save** from the **File** menu (shortcut, type **CTRL + S**).
- Select the **Save** icon on the **Toolbar**.



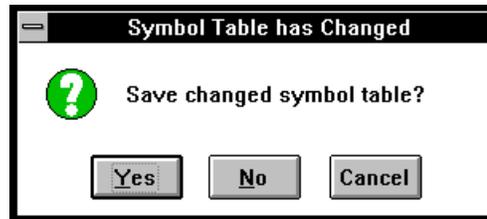
Exiting the Symbol Browser

When using the Symbol Browser as a standalone editor, you must exit it before you start the Quickstep editor. The editor will then reactivate the Symbol Browser. The only time you should exit the Symbol Browser is when you are using it as a standalone editor.

To exit a standalone Symbol Browser:

1. Select **Exit** from the **File** menu.

If you have not saved your most recent changes the following dialog box appears:



2. Select the appropriate choice.

Using the Data Table Editor

Contents

Data Table Editor Overview	7-2
Entering Information in the Data Table	7-6
Editing Information in the Data Table	7-8
Printing a Data Table	7-10
Using the Data Table Editor as a Standalone Editor	7-11

Data Table Editor Overview

The Data Table editor allows you to enter the information in a Data Table. The Data Table stores numeric information and messages used in Quickstep programs. It can contain greater than 8000 numbers in an array, depending on the controller model. The numbers can range from 0 to 65,535.

You specify the number of rows and columns in a table using the Parameter editor. You activate the Data Table editor from Quickstep editor by selecting the Data Table option from the View menu.

You can use the copy, cut, paste and delete options on the Edit menu to edit the values or messages that appear in the table.

You can also use the arrow keys to move from one cell to another on the list of values or messages.

Data Table Editor Screen Overview

The Data Table editor menu is shown below and has the following parts:

Title bar

Menu bar - Contains the File, Edit, Options, and Help menus.

Toolbar - Gives you quick mouse access to many tools used in the Data Table editor.

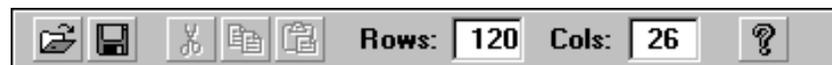
Row	1	2	3	4	5	Message
1	20	14	0	0	0	.....
2	25	12	0	0	0	.....
3	25	17	5	25	19	.....!DONE.....
4	25	17	3	25	19	.....
5	25	17	3	25	19	.....
6	25	17	1	25	19	.....WELCOME TO DOC
7						.....GRINDER.....
8						.....HOME.....
9						.....SERVOS.....
10						Message List - This
11						list displays the
12						ASCII character
13						representation of the
14						data in each row of
15	25	17	3	25	19	the table. You can
16	25	17	1	25	19	uses this area to
17	25	17	2	25	19	create message for

Table Rows and Columns - Displays the rows and columns in your Data Table. The Data Table is a two-dimensional array of numbers. The contents of table will be stored in the controller's memory along with your Quickstep program.

Message List - This list displays the ASCII character representation of the data in each row of the table. You can use this area to create message for transmission to external devices such as, alpha-numeric displays or bar code readers.

The Toolbar

The Toolbar appears across the top of the Data Table editor window, below the menu bar. It contains the following tools:





Open Existing File - Opens an existing Data Table. Accessible only when using the Data Table editor as a standalone editor.



Save - Saves the current Data Table with its current name. Accessible only when using the Data Table editor as a standalone editor



Cut - Removes the selected text and places it on the Clipboard



Copy - Copies the selected text and places it on the Clipboard



Paste - Inserts the contents of the Clipboard in the Data Table.

Rows:

Rows: - Indicates the number of rows in the Data Table.

Cols:

Cols: - Indicates the number of columns in the Data Table.



Help Button - Gives you information about parts of the Data Table editor screen and Toolbar.

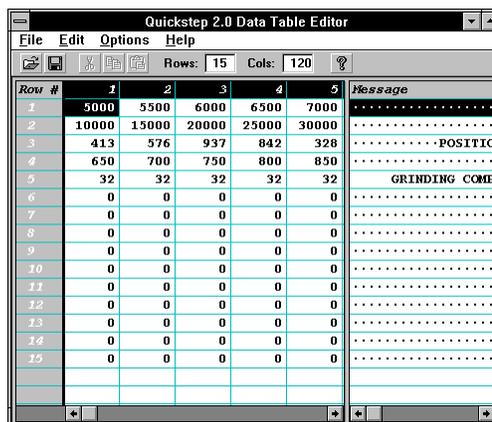
To hide or display the Toolbar, choose **Toolbar** from the **View** menu.

IMPORTANT! After you specify the size of a Data Table, you must select Data Table from the View menu in the Quickstep editor to create the Data Table. Otherwise, the Quickstep editor does not create the Data Table at compile time. You must do this even if you are planning to use CTCMON or another utility to download information to the Data Table in the controller.

Changing Column Size

You can change the size of the columns and message display area on the Data Table by moving the column dividers. To change the column size:

1. Place the mouse pointer on the divider.
2. When the double arrowhead symbol appears, press the mouse button and move the column divider.



Data Table Editor Overview

3. Release the mouse button when the column divider is in the correct location.

NOTE: You can also move the dividers between the columns.

Changing the Number of Rows and Columns

You can change the number of columns and rows in a Data Table. To change the rows and columns:

1. Place the cursor in the **Rows:** field by selecting it with the mouse pointer or by using the **Tab** key.

2. Enter the new number of rows in the table and press **Enter**.

The Data Table editor changes the number of rows and the cursor highlight moves to the **Cols:** field.

3. Enter the new number of columns in the table and press **Enter**.

The Data Table editor changes the number of columns in the Data Table.

- IMPORTANT!**
- The value of all the cells in a new Data Table are set to zero.
 - If you re-size a Data Table by making it smaller, any information in the rows and/or columns outside of the re-sized Data Table is lost.
 - If you re-size a Data Table by making it larger, the cells in the new rows and/or columns are set to zero.
-

Saving a Data Table

The Quickstep editor automatically saves the Data Table when it saves your Quickstep program, using the same name you specified for your Quickstep program.

When using the Data Table editor in conjunction with the Quickstep editor the Save options on the File menu and Toolbar are grayed out. We recommend saving your Quickstep program several times during an editing session.

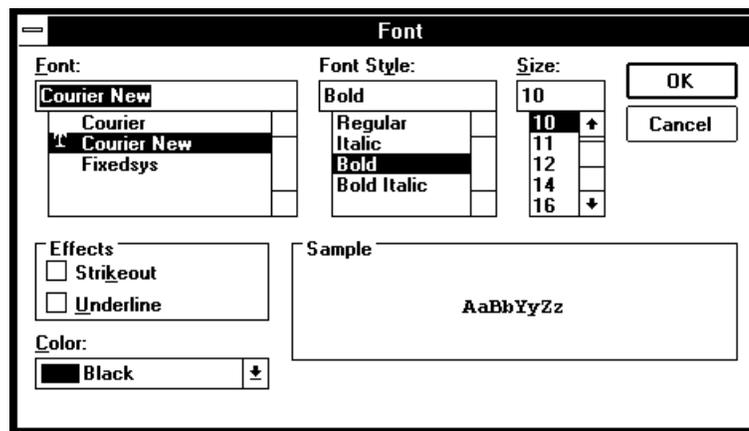
NOTE: When using the Data Table editor as a standalone editor, you must save your Data Table using the Save options on the File menu or on the Toolbar.

Changing the Font

The Data Table editor displays text in Courier New font. You can change the default font using the Font dialog box.

1. Select **Font** from the **Options** menu.

The Fonts dialog box appears.



2. Select the **Font**, **Font Style**, **Size**, and **Color**.

The Sample box displays the current font.

NOTE: We do not recommend selecting the Strikeout or Underline effects.

3. Select **OK** to apply your changes.

To exit with out saving your changes, select **Cancel**.

Entering Information in the Data Table

Entering Numbers in the Data Table

You can enter a number by typing from the keyboard or pasting it from the Clipboard.

To enter a value:

1. Place the cursor in the appropriate cell by selecting it with the mouse pointer or by using the **Tab** and **Arrow** keys.

The Data Table editor highlights the cell.

Row #	1	2	3	4	5	Message
1	5000	5500	6000	6500	7000	.....
2	10000	15000	20000	25000	30000	.....
3	413	576	927	842	328	.....
4	0	0	0	0	0	.....
5	0	0	0	0	0	.....

2. Type or paste the number and press **Enter**.

Row #	1	2	3	4	5	Message
1	5000	5500	6000	6500	7000	.....
2	10000	15000	20000	25000	30000	.....
3	413	576	927	842	328	.....
4	650	0	0	0	0	.....
5	0	0	0	0	0	.....

3. To enter a value in another cell:
 - Press **Enter** to move to the next column in the row.
 - Use the **Arrow** keys to move to the another cell.

The Data Table editor highlights the cell.

Entering Messages in the Data Table

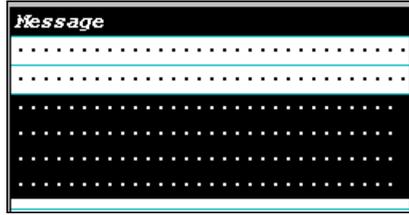
You can enter a message in Message field in the Data Table editor by typing.

NOTE: The length of message (letters, numbers, and spaces) cannot be longer than the number of columns in the table.

To enter a message:

1. Select the **Message** field using one of the following methods:
 - Place the mouse cursor on the **Message** field and double click the mouse.
 - Highlight the **Message** field using the **mouse** or **Tab** and **Arrow** keys and click it with the mouse.
 - Highlight the **Message** field using the **mouse** or **Tab** and **Arrow** keys and start typing your message.

The Data Table editor expands the field.



NOTE: The dots in the message indicate that the corresponding cell in the Data Table does not contain a number which is an ASCII code for a printing character.

2. Type the message and press **Enter**.



3. To enter a message in another field, use the **Arrow** keys to move that field. The Data Table editor highlights the field.

Editing Information in the Data Table

Editing Numbers in the Data Table

You edit an entry in the table by selecting the cell and entering the new number.

To edit a table entry:

1. Place the cursor in the appropriate cell by selecting it with the mouse pointer or by using the **Tab** and **Arrow** keys.

Row #	1	2	3	4	5	6
1	5000	5500	6000	6500	7000	7500
2	10000	15000	20000	25000	30000	35000
3	413	576	927	842	328	50

2. Type or paste the number and press **Enter**.

Row #	1	2	3	4	5	6
1	5000	5500	6000	6500	7000	7500
2	10000	15000	20000	25000	30000	35000
3	413	576	937	842	328	50

3. To edit a value in another cell:
 - Press **Enter** to move to the next column in the row.
 - Use the **Arrow** keys to move to another cell.

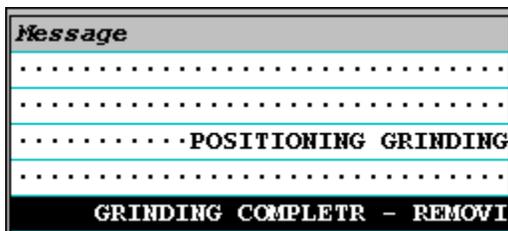
The Data Table editor highlights the cell.

Editing Messages in the Data Table

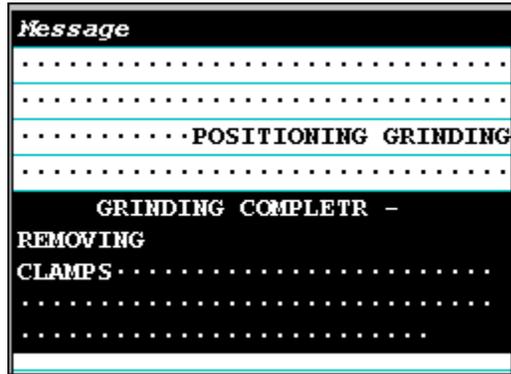
You edit a message by selecting the message and editing it.

To edit a message:

1. Select the appropriate **Message** field using one of the following methods:
 - Place the mouse cursor on the **Message** field and double click the mouse.
 - Highlight the **Message** field using the **Tab** and **Arrow** keys and click it with the mouse.



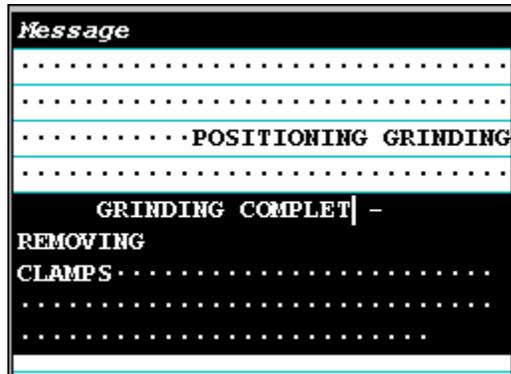
he editor displays the entire message.



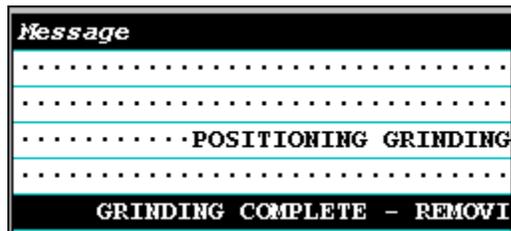
2. Position the **cursor** on the part of the message you want to edit.

NOTE: The dots in the message indicate that the corresponding cell in the Data Table does not contain a number which is an ASCII code for a printing character.

3. Press the **Backspace** key to delete that part of the message.



4. Type the corrections and press **Enter**.

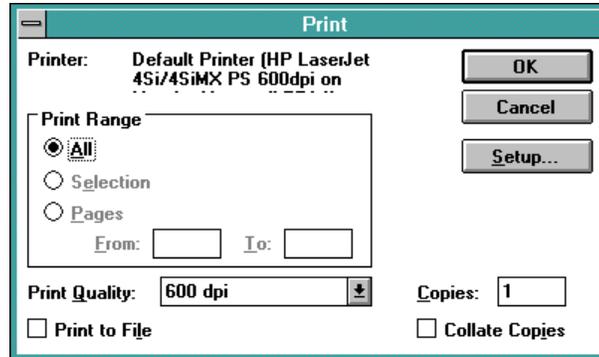


6. To edit or enter a message in another field, use the **Arrow** keys to move to that field.

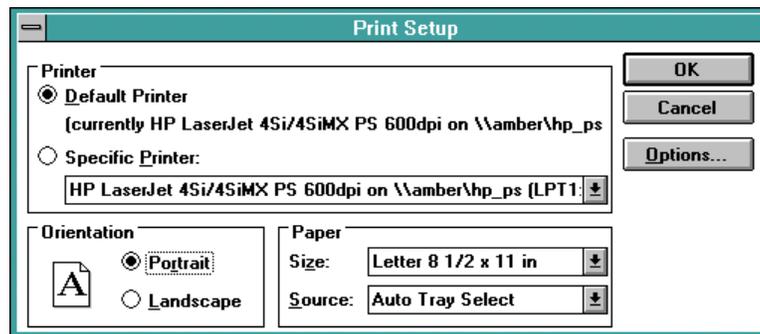
Printing a Data Table

You can print a Data Table:

1. Select **Print** from the **File** menu.
2. When the Print dialog box appears, choose the options you want.



3. To print the Data Table in Landscape mode, select **Setup**.
4. When the Setup dialog box appears, select **Landscape**.



NOTE: You can also choose other print setup options you want at this time.

5. Choose **Ok** to return to the Print dialog box.
6. Select **Ok** to print the Data Table.

Using the Data Table Editor as a Standalone Editor

In some cases you may want to enter values or messages in the Data Table before activating the Quickstep editor. To do this you must use the Data Table editor as a standalone editor.

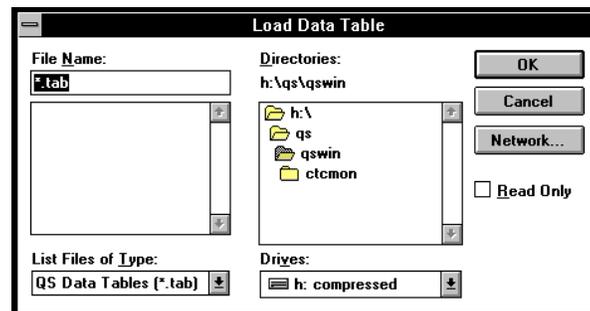
The steps for creating a Data Table using the Data Table editor as a standalone editor are as follows:

- Activate the Data Table editor
- Enter values and messages in the table.
- Save the Data Table using a different name than the Quickstep program you are planning to write.

Activating the Data Table Editor and Opening a Data Table

1. To activate the Data Table editor, chose one of the following methods:
 - Using the File Manager:
 - a. Open the File Manager and select the directory where the Quickstep 2.0 files are stored. The default directory is C:\QSWIN.
 - b. Place the mouse pointer on the file labeled **dtable.exe** and double click the mouse.
 - Using the Program Manager:
 - a. Following the instructions provided with Microsoft Windows, create an icon for Data Table editor in the Quickstep group in the Program Manager.
 - b. Activate the Data Table editor by selecting the icon as you would any Microsoft Windows program icon.

The Load Data Table dialog box appears.

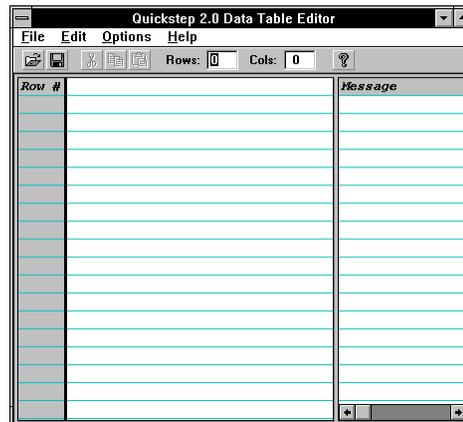


2. To open a Data Table, choose one of the following methods:
 - To create a new Data Table, select **Cancel** on the Load Data Table dialog box.
 - To open an existing Data Table, choose the name of the Data Table from the Load Data Table dialog box and select **OK**. If the Data Table is in a different directory, select the appropriate directory.

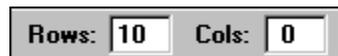
Specifying the Number of Rows and Columns

When you create a new Data Table using the Data Table editor as a standalone editor, the new table has 0 rows and columns. You specify the rows and columns as follows:

1. Place the cursor in the **Rows:** field by selecting it with the mouse pointer or by using the **Tab** key.



2. Enter the number of rows in the table and press **Enter**.

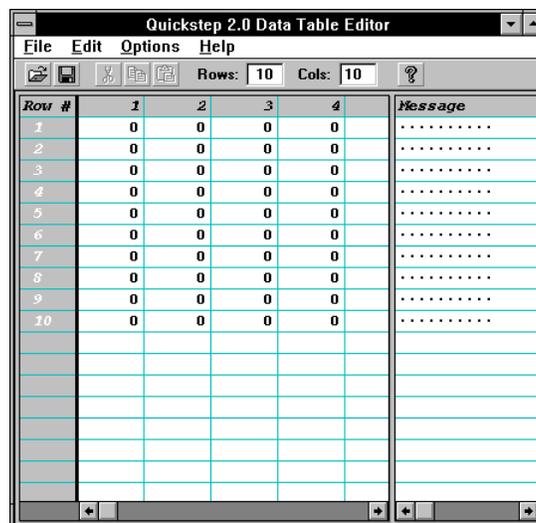


The cursor moves to the **Cols:** field.



3. Enter the number of columns in the table and press **Enter**.

The table displays the rows and columns



-
- IMPORTANT!**
- The value of all the cells in a new Data Table are set to zero.
 - If you re-size a Data Table by making it smaller, any information in the rows and/or columns outside of the re-sized Data Table is lost.
 - If you re-size a Data Table by making it larger, the cells in the new rows and/or columns are set to zero.
-

Saving a Data Table

Once you have specified the values and messages in a Data Table you must save your file. The file must have a different name than the Quickstep program you are planning to write. When the Quickstep editor creates a new program file, it overwrites any Data Table with the same name as the program file.

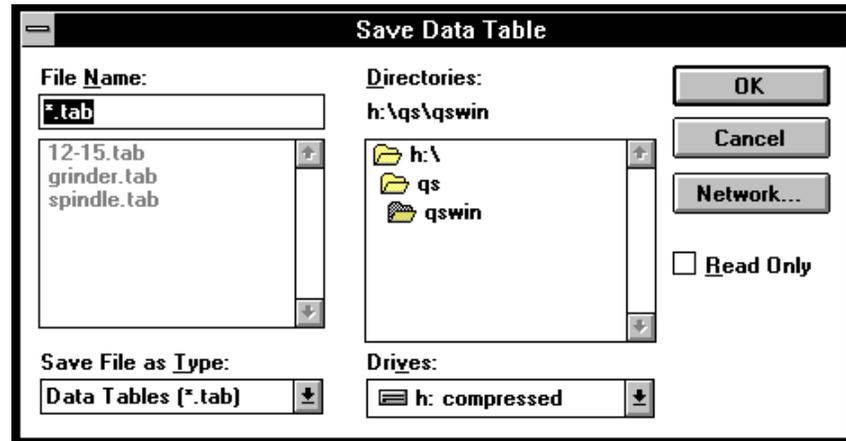
Saving a New Data Table

To save a new Data Table:

1. Do one of the following:
 - Select **Save as** from the **File** menu.
 - Select the **Save** icon on the **Toolbar**.



The Save Data Table dialog box appears:



2. Enter a name for the new file.

REMEMBER! The file must have a different name than the Quickstep program you are planning to write.

3. If you want to save the Data Table in a different directory, select the appropriate directory.
4. Select **OK**.

Saving an Existing Data Table

To save an existing Data Table:

Do one of the following:

- Select **Save** from the **File** menu (shortcut, type **CTRL + S**).
- Select the **Save** icon on the **Toolbar**.



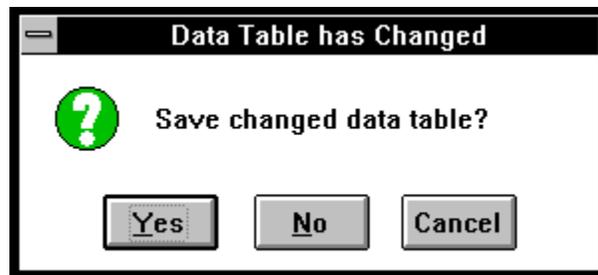
Exiting the Data Table Editor

When using the Data Table editor as a standalone editor, you must exit it before you start the Quickstep editor. The editor will then reactivate the Data Table editor. The only time you should exit the Data Table editor is when you are using it as a standalone editor.

To exit a standalone Data Table editor:

1. Select **Exit** from the **Edit** menu.

If you have not saved your most recent changes the following dialog box appears:



2. Select the appropriate choice.

Compiling and Downloading a Quickstep Program

Contents

Compiling a Quickstep Program	8-2
Downloading a Program to the Controller	8-4

Compiling a Quickstep Program

You must compile a Quickstep program before downloading it to a controller.

If you did not enter the location (pathname) of the Quickstep editor files in your **AUTOEXEC.BAT** file on your computer during installation, you must do so now before compiling. The default installation directory is **C:\QSWIN**, and the **AUTOEXEC.BAT** file is located in **C:**.

1. Enter set **QSWIN=pathname** in your **AUTOEXEC.BAT** file:
2. Reboot your computer.

Compiling a Program

You compile your Quickstep program from the Quickstep editor. The editor notifies you if your program has compiled successfully or not. To compile a Quickstep program, choose **Compile** from the **View** menu.

- The following window appears (temporarily):



```
Quickstep Compiler
Reading configuration parameters from file "qs.fig"...
Read configuration parameters from file "qs.fig"...
Reading DSP program from file "C:\TMP\XYZSERU0.DSP"...
Reading configuration parameters from file "C:\TMP\XYZSERU0.fig"...
Read configuration parameters from file "C:\TMP\XYZSERU0.fig"...
Reading data table from file "C:\TMP\XYZSERU0.tab"...
Read data table from file "C:\TMP\XYZSERU0.tab"...
Reading DSP program steps from file "C:\TMP\XYZSERU0.DSP"...
Read file "C:\TMP\XYZSERU0.DSP" [14 steps, 8 output changes, 32 instructions].
Compiling source file "C:\TMP\XYZSERU0.DSP"...
Checking labels...
```

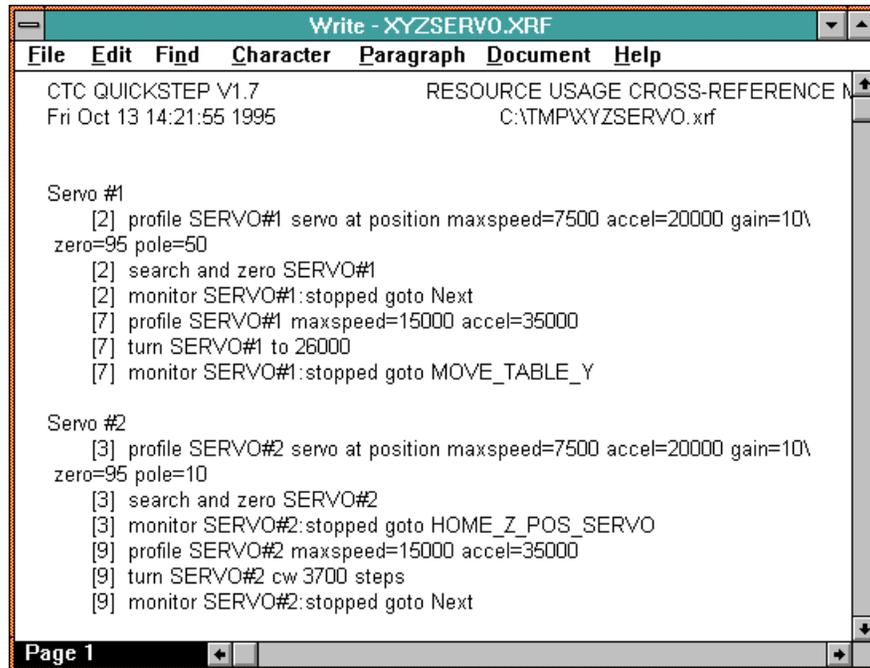
- If your program is compiled successfully, the following window appears:



Using the Cross-Reference List

When the Quickstep editor successfully compiles your program, it creates a cross-reference list. This list contains the name of every controller resource, I/O and motion control device in your program. Instead of listing your symbolic names, the list shows the internal names used by the controller.

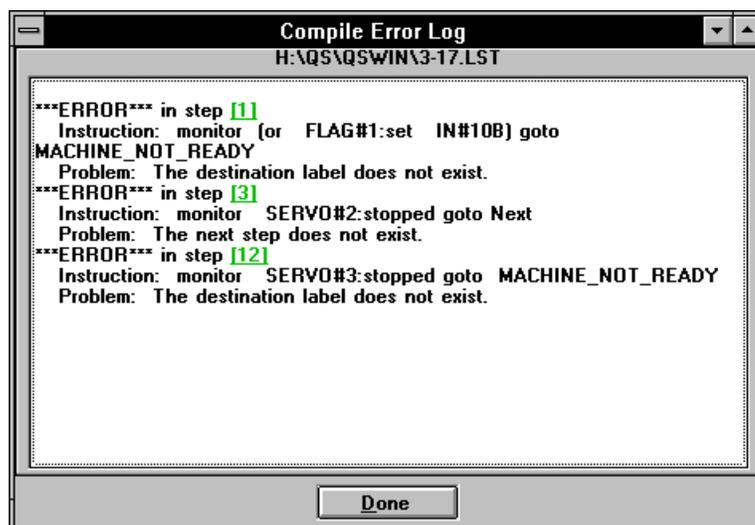
The Cross-reference list shows each use of the internal name on a separate line. The cross-reference list is shown below. To display the cross-reference list, choose **Xref** from the **View** menu.



NOTE: When the CTC Utilities for Windows package becomes available, you will be able to use it to view the cross-reference list with symbolic names.

Viewing Compiler Errors

After compiling a program, the editor notifies you if your program compiled successfully or not. If a program has errors, the Quickstep editor displays the compile error log. The compile error log shows each error on a separate line, along with a link to the step where the error occurs. To go to an error, select the step number with the mouse.



Downloading a Program to the Controller

After compiling a Quickstep program, you can download it to your controller. You can use either serial or ethernet communications to download programs. To download your program successfully:

- Make sure the controller model you download your program to is the same one specified in the Parameter editor.
- Compile your program.
- If you are using the CTCMON Monitor Utility, suspend it. You cannot download a program with the CTCMON Monitor Utility active.
- Make sure your controller is turned on and connected to your PC.
- Specify either serial or ethernet communications

For serial communications, you must specify the following parameters before you download your program:

- Port used: COM1 to COM8.
- Baud rate: speeds from 300 to 19200

For ethernet communications, you must specify the following Node IDs before you download your program:

- Node ID of the host PC: You must assign the Node ID of the host PC. Each host PC must have a unique Node ID, and it can range from 1 to 999.
- Node ID of the target controller: If you do not know the controller's Node ID, use the CTCMON Monitor Utility to read the value stored in register 20,000. This is the Node ID for the controller.

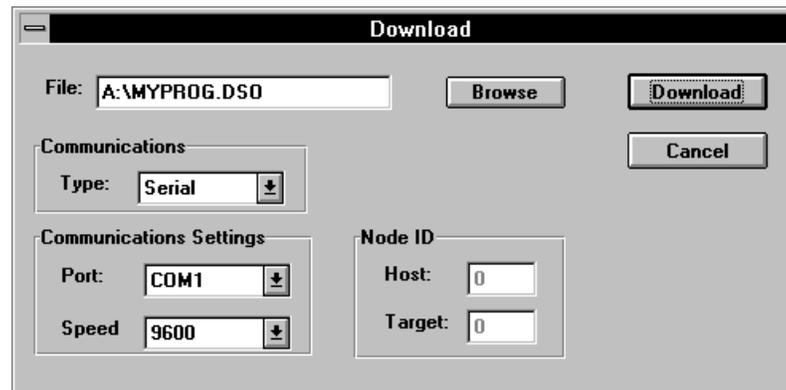
The editor notifies you if your program downloaded successfully or not.

Downloading a Program

Once you have compiled your Quickstep program, you can download it to your controller. To download a Quickstep program:

1. Choose **Download** from the **View** menu.

The Download dialog box appears



2. Click the **arrow** on the right side of the **Type** field and select either **Serial** or **Ethernet** communications.

-
3. Do one of the following:
 - For serial communications, click the arrow on the right side of the **Port**, and **Speed** fields to select the communication port, and baud rate.
 - For ethernet communications, specify the **Node ID** for the **Host PC** and **Target** controller.
 4. Select **Download**.

If your program downloads successfully, the following window appears:



Installation Instructions

Contents

Before You Install Quickstep	A-2
Installing Quickstep	A-3
For Windows 3.11/Serial Communications Users	A-6
Installing the CTCMON Monitor Utility	A-7

Before You Install Quickstep

General Information

Your Quickstep 2.0 package contains the following items:

- Two disks containing the **QSSETUP.EXE** program, **README.WRI**, and the **WG1001** subdirectory. **QSSETUP.EXE** includes the Quickstep editor, compiler, download program, and Windows help files.
- One disk containing the **MONSETUP.EXE** program. **MONSETUP.EXE** includes Control Tech's controller monitor utility, **CTCMON**, and its Windows help file.
- The Release Notes.
- Copies of the *Quickstep™ Language and Programming Guide* and the *Quickstep™ User Guide*.

System Requirements

Recommended System Configuration

The recommended system requirements are as follows:

- 486, 8.0 Mbytes RAM, 9.5 Mbytes of free disk space.
- 1024 x 768 or 800 x 600 SVGA display
- Microsoft Windows 3.1 or higher.

Minimum System Configuration

The minimum system requirements are as follows:

- 386/25 MHz, 4.0 Mbytes RAM, 6.0 Mbytes of free disk space.
- Any Windows compatible display
- Microsoft Windows 3.1 or higher.

Additional Requirements

In addition to the system requirements, you should have basic knowledge of how to operate Microsoft® Windows as a user.

Reporting Bugs

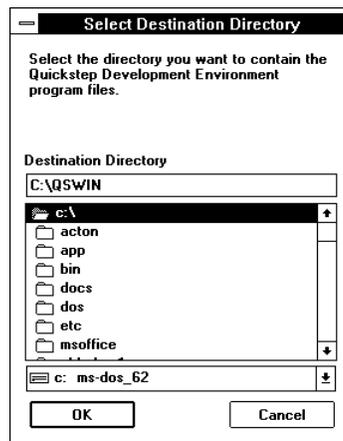
Bug report forms are supplied with the Release Notes. Please fill them out and either fax them to (508) 435-2373 or email bug reports to help@control.com for Quickstep bugs or to techpubs@control.com for documentation bugs and comments. Copies of the Bug report forms are also supplied in **BUGRPT.WRI**. You can print them out using Microsoft Write.

Installing Quickstep

Installation Procedures

You install the Quickstep editor software from Windows as follows:

1. Insert **Disk 1** of Quickstep™ 2.0 for Windows into **drive A or B**.
2. Open the **File** menu on the Program Manager and choose the **Run** command.
3. Type **A:\QSSETUP** (type **B:\QSSETUP** if you are using drive B) in the Command Line text box and press **ENTER** or select **OK**.
4. When the Select Destination Directory dialog box appears, specify the directory you want to contain the Quickstep editor (default is **C:\QSWIN**) and select **OK** or press **Enter**.



5. When the Customer Identification dialog box appears, enter the registration information and select **OK**.

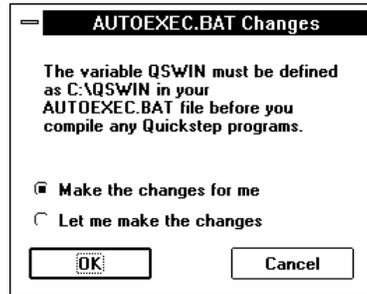
IMPORTANT! Quickstep licenses are typically sold as site licenses, valid for any number of users within a single facility. Also available are media and documentation kits, which contain disks and manuals, but do not convey any additional licenses. If you are installing your facility's site license, make careful note of the serial number on your registration card and return the reply portion of the registration card to Control Technology Corporation.

If you are installing a secondary copy using a media kit, refer to the holder of the original license within your facility for the serial number or contact Control Technology Corporation to determine that the license was properly registered. Keep your part of the registration card; it is the only place the serial number appears.

-
6. When **QSSETUP** displays a dialog box listing the information you just entered, select **OK** if it is correct or **NO** to correct it.
 7. When the system prompts you, place disk two into the floppy drive and select **OK**.
 8. When the Select Program Group dialog box appears, specify the program manager group you want Quickstep to be in (default is Quickstep) and select **OK** or press **Enter**.

QSSETUP.EXE displays the **AUTOEXEC.BAT** Changes dialog box. This dialog box gives you the option of having **QSSETUP** automatically modify your **AUTOEXEC.BAT** file to define the environment variable **QSWIN** or

modifying it yourself. This environment variable points to the location of the Quickstep editor and its associated files.



8. Select one of the following:

- Make the changes for me
- Let me make the changes

If you have QSSETUP make the change to the AUTOEXEC.BAT file, follow these instructions. See page A-6 if you choose to make the changes yourself.

9. Select **OK** or press **Enter**.

QSSETUP displays the following message:

If QSWIN is not already defined you will need to reboot your PC before compiling a program.

10. Select **OK** or press **Enter**.

QSSETUP displays the following message:

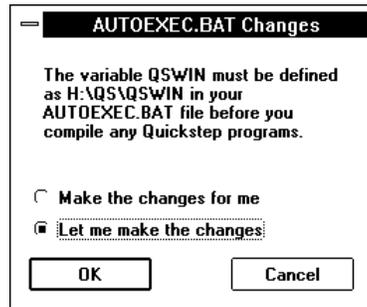
This system must be restarted to complete the installation. Press the OK button to restart this computer. Press Cancel to return to Windows without restarting.

11. Do one of the following:

- Select **OK** to reboot your PC.
- Select **Cancel** to return to return to Windows.

-
- IMPORTANT!**
1. You cannot compile a Quickstep program until you reboot your PC, unless QSWIN was already defined as an environment variable in a previous Quickstep 2.0 installation.
 2. If you install Quickstep in a different directory than the one in which you installed a beta version of Quickstep, you must manually edit your **AUTOEXEC.BAT** file and remove the old `SET QSWIN=Pathname` statement from the file.
-

If you elect to change the AUTOEXEC.BAT file yourself, follow these instructions



NOTE: The default directory used by **QSSETUP.EXE** for installation is **C:\QSWIN**. This example shows Quickstep being installed in the **H:\QS\QSWIN** directory.

9. Select **OK** or press **Enter**.

QSSETUP displays the following message:

Please add the following line to your **AUTOEXEC.BAT** file before you reboot your PC: **set QSWIN=H:\QS\QSWIN**.

10. Select **OK** or press **Enter**.

QSSETUP displays the following message:

If QSWIN is not already defined you will need to reboot your PC before compiling a program.

11. Select **OK** to return to Windows.

- IMPORTANT!**
1. You cannot compile a Quickstep program until you reboot your PC, unless QSWIN was already defined as an environment variable in a previous Quickstep 2.0 installation.
 2. If you install Quickstep in a different directory than the one in which you installed a beta version of Quickstep, you must manually edit your **AUTOEXEC.BAT** file and remove the old **SET QSWIN=Pathname** statement from the file.
-

For Windows 3.11/Serial Communications Users

Intermittent Communications with your Controller

When you use Windows for Workgroups version 3.11 with serial communications, you may experience the following problems:

- If you are using a Pentium™-based machine with a 16550 UART chip, your system stops responding (hangs) if there is data in the chip when the serial communications application attempts to open the communications port.

A problem with the 16550 UART implementation causes the chip to become trapped in a mode in which data is always detected in its FIFO buffer.

- When you are using communications software, you may be able to make one connection after starting Windows for Workgroups, but any subsequent connections fail and may hang your system.

This problem occurs when SERIAL.386 sends an extra NUL character through the port when the communications software calls the CloseComm application program interface (API) function. While this does not normally cause problems, your second connection may fail with some modems.

The WG1001 subdirectory on Disk 2 contains an updated SERIAL.386 driver from Microsoft that corrects both of these problems.

Installing the CTCMON Monitor Utility

Installation Procedures

You install the CTCMON monitor utility software from Windows as follows:

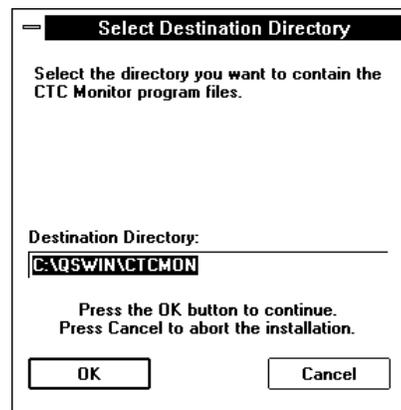
1. Insert the disk labeled CTCMON into **drive A** or **B**.
2. Open the **File** menu on the Program Manager and choose the **Run** command.
3. Type **A:\MONSETUP** (type **B:\MONSETUP** if you are using drive B) in the Command Line text box.
4. Press **ENTER** or select **OK** to start the installation.

MONSETUP displays the following message:

This program will install CTC Monitor Utility onto your computer. Press the **OK** button to start the installation. You can press the **Cancel** button if you do not want to install this software.

5. Select **OK**.

MONSETUP displays the Select Destination Directory dialog box.



5. Specify the directory you want to contain the CTC Monitor Utility (default is **C:\QSWIN\CTCMON**).

If you installed Quickstep in a directory other than **C:\QSWIN**, you must install the CTC Monitor Utility in a subdirectory under it called **CTCMON**. For example, if Quickstep was installed in **H:\QS\QSWIN**, install the CTC Monitor Utility in **H:\QS\QSWIN\CTCMON**.

6. Select **OK** or press **Enter**.

MONSETUP displays a dialog box showing the progress of the installation.

7. When the Select Program Group dialog box appears, specify the program manager group you want CTC Monitor Utility to be in (default is Quickstep) and select **OK** or press **Enter**.

MONSETUP displays the following message:

CTC monitor installation finished!

8. Select **OK**.

Glossary

Glossary

Controller Resources

Control Tech controllers provide the following internal controller resources you can use when writing your Quickstep program: special and general purpose numeric registers, counters, flags, and Data Table.

Counters

Counters allow the automatic counting of pulses from the controller's inputs. They work in the background and, once started, operate much like an independent device within the controller.

Data Destination

A data destination is a controller resource (register or counter), specialized I/O device (analog output or display), or Data Table column which accepts a numeric value. A data destination is one of the choices that appears in the Selection bar when programming Quickstep instructions.

Data Source

A data source supplies a numeric value. It can be a numeric constant or the value derived from a counter, register, analog input, thumbwheel, or Data Table column. A data source is one of the choices that appears in the Selection bar when programming Quickstep instructions.

Data Table

The Data Table is a two-dimensional array of numbers that can be stored in the controller's memory along with your Quickstep program. Storing this information in the Data Table instead of within the body of a program makes the program easier to maintain. The size of the Data Table depends on the controller model.

Dedicated Inputs

Dedicated inputs are functions that can be programmed for certain controller inputs. They are called Start, Stop, Reset, and Step. For additional information on dedicated inputs, refer to the *Quickstep™ Language and Programming Guide*.

Editing Window

The Editing window is the part of the Quickstep editor where you view and edit your file.

Flags

Flags are memory elements within a controller that can be either set or clear and are used to store yes/no types of information.

List of Symbolic Names

The Symbol Browser displays the symbolic names in a list. Only the symbolic names for the selected symbol type appear.

Numeric Source

A numeric source supplies a numeric value. It can be a servo position or error, a numeric constant, or the value derived from a counter, register, analog input, thumbwheel, or Data Table column. A numeric source is one of the choices that can appear in the Selection bar when programming Quickstep instructions.

Numeric Registers

Numeric Registers are storage locations for numbers within your controller. Special purpose registers perform specific functions, depending on the register number and the value stored in it.

For the storage capacity of the general purpose registers and a list of the special purpose registers and their functions, refer to the *Quickstep™ Language and Programming Guide* and the installation instructions for your controller model.

Parameter Editor

Use the Parameter editor to specify the following information:

- The model of your controller
- The number of rows and columns in data table
- Which, if any, of the first four inputs are used for dedicated functions

Placeholders

The placeholders indicate where you need to enter information while you are writing your Quickstep program. Examples are as follows:

- Comment line placeholders <<Comment Line>>
- Output change placeholders <<Output Change>>
- Instruction placeholders <<Statements>>
- Data Source placeholders <<Data Source>>
- Servo Name placeholders <<Servo Name>>

Registers (see Numeric Registers)

Resource Delay

A resource delay is any controller resource or specialized I/O device that provides the value for a Delay instruction. It is one of the choices that can appear in the Selection bar when programming Quickstep instructions.

Servo Value

A servo value is the servo position or error of a servo. It is one of the choices that can appear in the Selection bar when programming Quickstep instructions.

Source Code

Step headers (step numbers and names), comments, input/output changes, and instructions are called source code. The editor uses the source code in your Quickstep program to compile the **.dso** file that you download to your controller. Source code lines that have errors in them due to editing or cutting and pasting are displayed in red text (system default). Also refer to the definition for Unparsed Source in this section.

Specialized I/O Devices

Quickstep supports the following specialized input/output devices:

- Analog inputs and outputs
- Thumbwheel arrays
- Numeric displays

Specialized Motion Control Devices

Quickstep supports the following specialized motion control devices:

- Servo motors
- Stepping motors

Symbol Browser

Use the Symbol Browser to specify symbolic names for steps, numeric constants and the following controller resources and special devices:

- Analog inputs
- Analog outputs
- Counters
- Data Table columns
- Displays
- Flags
- Inputs
- Outputs
- Stepping motors and servos
- Numeric registers
- Thumbwheels

Symbol Type

A Symbol type defines the nature of the object being referred to by a symbolic name. For example, the symbolic name Spindle_Motor might have a symbol type of servo. Symbol types are listed on the left side of the Symbol Browser.

Templates (see Placeholders)

Undefined Steps

Undefined Steps are step names that have not been used in a Quickstep program. Once an undefined step name is used in a Quickstep program, it becomes a step name with a step number and is listed as a Step in the Symbol table.

Unparsed Source

Unparsed source is any line in a Quickstep program that contains errors or has not been checked by the Quickstep editor. Unparsed source is displayed in red text (system default). **See also: Source Code**

Index

Index

A

- Activating the Data Table editor 7-2
 - as a standalone editor 7-11
- Activating the Symbol Browser 6-2
 - as a standalone editor 6-19

B

- Backup Quickstep program file 3-3

C

- Changing
 - column size
 - in Data Table editor 7-3
 - in Symbol Browser 6-4
 - editing symbolic names 6-14
 - font
 - in Data Table editor 7-5
 - in Symbol Browser 6-5
 - instructions 5-12
 - number of rows or columns
 - in Data Table editor 7-4
 - output change 5-11, 5-12
 - Quickstep editor colors 3-7
 - step names 5-7
 - step numbers 5-7
- Checking
 - syntax 5-15
- Closing
 - the Quickstep editor 3-6
- Colors
 - changing 3-7
- Columns
 - changing number of
 - in Data Table editor 7-4
 - redisplaying in Symbol Browser 6-4
- Comments
 - editing 5-9
 - editor description 4-9
 - entering 4-10
- Converting a program 1-8
- Copying
 - symbolic names
 - in the Symbol Browser 6-15
 - text
 - in Quickstep editor 5-2
- Creating
 - a new program 1-7, 3-2
 - new lines 4-24
 - new steps 4-23
- Cutting
 - text
 - in Quickstep editor 5-2

D

- Data Table editor
 - changing column size 7-3
 - changing number of rows or columns 7-4
 - changing the font 7-5
 - editing messages 7-8
 - editing numbers 7-8

- entering messages in 7-6
- entering numbers in 7-6
- overview 7-2
- saving a Data Table 7-5
 - with a standalone editor 7-13
- specifying rows and columns 2-4
 - with a standalone editor 7-12
- using as a standalone editor 7-11
 - activating 7-11
 - exiting a Data Table 7-14
 - opening a symbol table 7-11
 - saving a Data Table 7-13
 - specifying number of rows and columns 7-12

Dedicated input functions

- specifying 2-3

Defining

- number or rows and columns
 - in Data Table editor 7-4
- symbolic names
 - for inputs 6-12
 - for outputs 6-13
 - for steps 6-11
 - from the Symbol Browser 6-9
 - while programming an instruction 4-20

Deleting

- lines
 - in Quickstep editor 5-5
- placeholders 5-14
- symbolic names
 - from the Symbol Table 6-14
- text
 - in Quickstep editor 5-5

E

- Editing
 - checking syntax 5-15
 - comments 5-9
 - instructions 5-12
 - messages
 - in the Data Table 7-8
 - numbers
 - in the Data Table 7-8
 - symbolic names 6-14
- Editor
 - edit session overview 1-7
 - Quickstep editor overview 1-3
 - using Data Table editor as a standalone editor 7-11
 - using Symbol Browser as a standalone editor 6-19
- Entering
 - boolean Monitor instructions 4-18
 - comments 4-10
 - instructions 4-14
 - messages in the Data Table 7-6
 - new lines 4-22, 4-24
 - new output change lines 4-25
 - new steps 4-22, 4-23
 - numbers in the Data Table 7-6
 - numeric values defined as symbolic names 4-16
 - numeric values from the keyboard 4-17

Exiting
 a standalone Data Table Editor 7-14
 a standalone Symbol Browser 6-20
 the Quickstep editor 3-6

F

Find First Ref
 searching for symbolic names 6-17

Find Step
 searching for steps 6-17

Find Symbol
 searching for symbolic names 5-17

Finding
 steps using Find Step 6-17
 steps using Goto 5-16
 symbolic names using Find First Ref 6-17
 symbolic names using Find Symbol 5-17

Font
 changing
 in Data Table editor 7-5
 in Symbol Browser 6-5

G

Goto
 searching for steps 5-16

I

Inputs
 defining symbolic names 6-12

Inserting
 comments 4-10
 existing symbol table 6-7
 instructions 4-14
 new lines 4-24
 new output change lines 4-25
 new steps 4-23

Instructions
 programming 4-14
 programming boolean Monitor instructions 4-18

L

Line editor
 overview 5-12

Listing
 order of symbolic names
 in Symbol Browser 6-5
 symbolic names
 by name in Symbol Browser 6-5, 6-6
 by value in Symbol Browser 6-5, 6-6
 examples 6-6
 in ascending or descending by value 6-6

M

Messages
 editing in Data Table 7-8
 entering in Data Table 7-6

N

Numbers
 editing numbers in Data Table 7-8
 entering numbers in Data Table 7-6

O

Opening
 a Data Table
 with the standalone editor 7-11
 a Symbol Table
 with the standalone editor 6-19
 existing Quickstep program file 3-2
 new Quickstep program file 3-2

Output changes
 changing 5-11, 5-12

Outputs
 defining symbolic names 6-13

P

Parameter editor
 description 1-2, 2-2
 specifying dedicated input functions 2-3
 specifying the controller model 2-3

Pasting
 symbolic names
 in Symbol Browser 6-15
 text
 in Quickstep editor 5-3

Placeholders
 removing 5-14

Printing 3-4
 previewing a file before printing 3-5
 selecting a printer 3-4

Programming a step 4-2
 boolean Monitor instructions 4-18
 changing output changes 5-11, 5-12
 checking syntax 5-15
 copying text 5-2
 cutting text 5-2
 defining symbolic names 4-20
 deleting lines 5-5
 deleting text 5-5
 editing comments 5-9
 editing instructions 5-12
 entering instructions 4-14
 entering numeric values defined as symbolic names 4-16
 entering numeric values from the keyboard 4-17
 inserting new lines 4-24
 inserting new steps 4-22, 4-23
 pasting text 5-3
 removing placeholders 5-14

Q

Quickstep editor
 changing editor colors 3-7
 changing output changes 5-11, 5-12
 changing step names 5-7
 changing step numbers 5-7
 checking syntax 5-15

Index

- closing a file 3-6
 - comment editor 4-10
 - converting a program 1-8
 - copying text 5-2
 - creating a new program 1-7
 - cutting text 5-2
 - defining symbolic names 4-20
 - deleting lines 5-5
 - deleting text 5-5
 - description 1-3
 - editing comments 5-9
 - editing instructions 5-12
 - entering comments 4-10
 - entering numeric values defined as symbolic names 4-16
 - entering numeric values from the keyboard 4-17
 - entering step names 4-7-4-8
 - exiting 3-6
 - finding step names using Goto 5-16
 - inserting
 - new lines 4-24
 - new output change lines 4-25
 - new steps 4-23
 - Line editor 5-12
 - locating the backup file 3-3
 - opening a new Quickstep program file 3-2
 - opening an existing Quickstep program file 3-2
 - pasting text 5-3
 - printing a program 3-4
 - programming a step 4-2
 - programming boolean Monitor instructions 4-18
 - programming instructions 4-14
 - removing placeholders 5-14
 - reverting to the last saved file 3-3
 - saving a new Quickstep program file 3-3
 - saving an existing Quickstep program file 3-3
 - searching for symbolic names 5-17
 - searching step names 5-16
 - Shortcut menu 1-6
 - Toolbar 1-5
- R**
- Removing placeholders 5-14
 - Replacing
 - output changes 5-11
 - Reverting to the last saved file 3-3
 - Rows
 - changing number of
 - in Data Table 7-4
 - specifying the number of
 - in a standalone editor 7-12
- S**
- Saving
 - a Data Table 7-5
 - using the standalone editor 7-13
 - a Symbol Table 6-8
 - using the standalone editor 6-20
 - an existing Quickstep program file 3-3
 - new Quickstep program file 3-3
 - reverting to the last saved file 3-3
 - Searching
 - for steps using Find Step 6-17
 - for steps using goto 5-16
 - for symbolic names using Find First Ref 6-17
 - for symbolic names using Find Symbol 5-17
 - for syntax errors 5-15
 - Selection Bar
 - description 1-4
 - Shortcut menu
 - description 1-6
 - inserting new lines 4-22
 - inserting new steps 4-22
 - Specifying
 - controller model 2-3
 - dedicated input functions 2-3
 - rows and columns 2-4
 - in a standalone editor 7-12
 - Step name
 - changing 5-7
 - defining from Quickstep editor 4-7
 - entering previously defined 4-7
 - Step number
 - changing 5-7
 - Steps
 - defining symbolic names 6-11
 - Symbol Browser
 - changing column size 6-4
 - changing font 6-5
 - copying symbolic names 6-15
 - defining symbolic names 6-9
 - for inputs 6-12
 - for outputs 6-13
 - for steps 6-11
 - deleting symbolic names 6-14
 - description 1-2
 - editing symbolic names 6-14
 - exiting 6-20
 - finding step names using Find Step 6-17
 - finding symbolic names using Find First Ref 6-17
 - inserting an existing symbol file 6-7
 - overview 6-2
 - pasting symbolic names 6-15
 - redisplaying columns 6-4
 - saving a Symbol Table 6-8
 - using the standalone editor 6-20
 - searching step names 6-17
 - searching symbolic names 6-17
 - specifying order of symbolic names 6-5
 - by name or value 6-5, 6-6
 - examples 6-6
 - in ascending or descending by value 6-6
 - Toolbar description 6-3
 - using as a standalone editor 6-19
 - activating 6-19
 - exiting 6-20
 - opening a symbol table 6-19
 - saving a symbol table 6-20

Symbolic names 4-5
 copying 6-15
 defining from Quickstep editor
 while programming an instruction 4-20
 defining symbolic names 6-9
 for inputs 6-12
 for outputs 6-13
 for steps 6-11
 deleting 6-14
 editing symbolic names 6-14
 entering previously defined names 4-7
 inserting from existing table 6-7
 pasting 6-15
 saving a Symbol Table 6-8
 searching for, using Find First Ref 5-17
 specifying order of 6-5
 by name or value 6-5, 6-6
 examples 6-6
 in ascending or descending by value 6-6

Syntax errors
 checking for 5-15

T

Toolbar
 Data Table editor 7-2
 Quickstep editor 1-5
 Symbol Browser 6-3

U

Using the backup file 3-3