



Allen-Bradley

MicroView Programming Software

Catalog No. 2707-NP2

Programming Manual

**Rockwell
Automation**

Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of this control equipment must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards.

The illustrations, charts, sample programs and layout examples shown in this guide are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Allen-Bradley does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley publication SGI-1.1, *Safety Guidelines for the Application, Installation and Maintenance of Solid-State Control* (available from your local Allen-Bradley office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

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Throughout this manual we use notes to make you aware of safety considerations:

ATTENTION

Identifies information about practices or circumstances that can lead to personal injury or death, property damage or economic loss

Attention statements help you to:

- identify a hazard
- avoid a hazard
- recognize the consequences

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

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Using this Manual

Objectives

Read this chapter to familiarize yourself with the rest of the manual. You will learn about:

- Contents of this manual
- Intended audience
- Conventions
- Related publications
- Rockwell Automation support

Manual Contents

The following table lists the contents of each chapter:

Chapter	Title	Purpose
1	Using this Manual	Provides an overview of the manual contents.
2	Installing/Running MicroView Programming Software	Describes how to install DPS on your computer. Basic software operating functions are described.
3	Designing MicroView Applications	Provides guidelines for creating MicroView applications.
4	Creating and Editing an Application File	Describes how to open, edit, and save new or existing application files.
5	Using Screen Builder	Describes how to use Screen Builder to create application screens.
6	Creating Menu and Sub-Menu Screens	Describes how to create menu and sub-menu displays.
7	Creating Data Display Screens	Describes how to display the actual or scaled contents of a controller address.
8	Creating Data Entry Screens	Describes how to create a screen that allows an operator to write data to a controller address.
9	Creating Security Screens	Describes how to create screens that restrict operator access to parts of an application.
10	Creating Recipe Screens	Describes how to create screens that write data to multiple controller addresses from a single screen.

Chapter	Title	Purpose
11	Linking Menu and Application Screens	Describes how to link all of the application screens into a logical sequence.
12	Entering Configuration Data	Describes how to enter configuration data that allows the MicroView to communicate with a controller.
13	MicroView Function Key Builder	Describes how to assign screen navigation or bit write functions to the MicroView function keys.
14	Transferring / Printing Application Files	Describes how to transfer applications between a personal computer and the MicroView.
15	Upgrading the Operating System	Describes how to install a new system software.
Appendix A	ASCII Display Characters	The character set supported by the MicroView.
Appendix B	Application and Screen Worksheets	Worksheets assist in the design of an application and individual screens.
Appendix C	Mnemonics in DPS	Reference section for MicroLogix mnemonic codes used for addressing.
Appendix D	Data Formats	Description of the data formats used by MicroLogix controllers.

Intended Audience

The MicroView Programming Software does not require special programming knowledge. It is menu driven and generates an application program based on your menu selections and data entries.

If you are creating an application for a MicroView, you should be familiar with the user manuals. Refer to related publications in this chapter.

IMPORTANT

The MicroView Operator Interface is for use with the MicroLogix Controllers only.

Conventions

This manual uses the following conventions:

- Keys that you press on your personal computer keyboard are enclosed in brackets [].
For example: [Esc] refers to the Escape key
- Keys that an operator would press on the MicroView operator interface are also enclosed in brackets [].
For example: [F1] refers to the F1 function key on the MicroView.
- [Return] refers to the carriage return key of your computer keyboard. This key may appear on your keyboard as [Enter] or [↵].
- This manual describes how to use the MicroView programming software for both the Hand-Held and Panel-Mount MicroView operator interface.
- DPS refers to MicroView Programming Software (Catalog No. 2707-NP2).

Related Publications

The following publications may be helpful for additional reference.

Publication / Catalog Number	Title
2707-UM005B-EN-P (was Publication 2707-804)	MicroView Operator Interface Module User Manual
2707-802	Getting Started with DTAM Plus
1761-6.3	MicroLogix 1000 User Manual
9399-RL50GR	RSLogix 500 Getting Results

IMPORTANT

For users of MicroLogix Controllers:

MicroLogix Programmable Controllers Series D, FRN 5.0 or earlier do not support 32-bit data formats or ASCII strings greater than 2 characters.

Rockwell Automation Support

Rockwell Automation offers support services worldwide, with over 75 Sales/Support Offices, 512 authorized Distributors and 260 authorized Systems Integrators located throughout the United States alone, plus Rockwell Automation representatives in every major country in the world.

Local Product Support

Contact your local Rockwell Automation representative for:

- sales and order support
- product technical training
- warranty support
- support service agreements

Technical Product Assistance

If you need to contact Rockwell Automation for technical assistance, call your local Rockwell Automation representative.

Installing and Running the MicroView Programming Software

Chapter Objectives

This chapter describes how to install the MicroView DPS software. Menu and screen conventions are also provided.

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Introduction to MicroView Programming Software

The MicroView Programming Software (DPS) is a self-prompting, menu driven package that allows you to create and edit applications for the MicroView operator terminals. DPS does not require any programming knowledge.

System Requirements

Verify your computer is properly configured with the following:

- IBM PC/AT™ or 100% compatible
- 640K RAM (minimum)
- One or two diskette drives (1.44 Mb minimum)
- One fixed (hard) disk drive recommended. Required if only one diskette drive is present.
- DOS™ version 3.2 or later
- Serial communications port (COM1 or COM2)
RS-232C
- Monochrome or color monitor (color monitor is recommended).

MicroView Accessories

For application program transfers, you need a programming cable (Catalog No. 2707-NC8) to connect the computer to the MicroView communications port. You also need an external power supply to power the MicroView for program uploads and downloads. Refer to the MicroView User Manual (Catalog No. 2707-UM005B-EN-P) for additional download/upload information.

Making a Backup Copy

Make a backup copy of the MicroView programming software diskette. Insert the supplied disk into the diskette drive and use either the DISKCOPY or COPY command of your installed DOS version. Refer to your DOS manual for information and procedures regarding these commands.

After you have created a duplicate disk, store the original in a safe place and use the backup disk for normal operations.

Installation Files

The files on the installation disk are compressed and remain compressed until they are installed. Once installed, the following files are contained in the subdirectory:

DPS.EXE – MicroView Programming Software

DPS_CFG.EXE – DPS Configuration Utility.

MDPS_100.SLB – Operating systems for the MicroView. The version noted here is 1.00.

Installing MicroView Programming Software

This section shows how to install the software on a personal computer with at least 1 hard disk drive and 1 floppy disk drive. The software is supplied on one high density 3 1/2 inch disk

1. Turn on your computer. Your computer prompt will display the currently active drive: A:, B:, or C:
2. Insert the DPS installation disk into the floppy drive.
3. Select the drive containing the disk (**A:** or **B:**) and press [Return]. Normally this is the A: drive.

```
C:> A: [Return]
A:>
```

4. Type **install** and press [Return] to start the installation.

```
A:> install [Return]
```

The following screen appears:

```
This program will install Bul. 2707 MicroView Prog. S/W V1.00
on your computer system and verify the integrity of the
distribution disk(s).

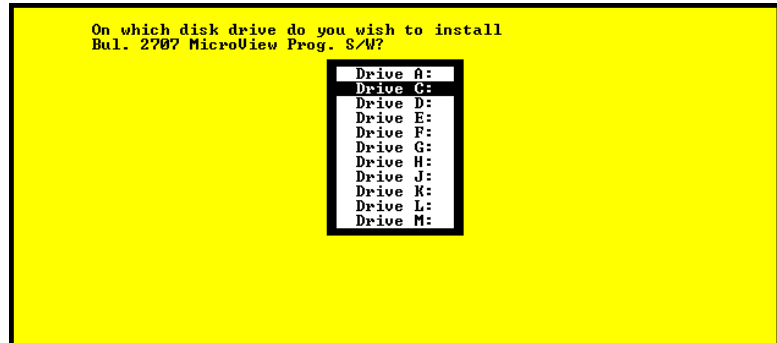
You may press the [Esc] key at any time to abort the installation.

Each question has a default answer. If the default answer is
correct, press the ENTER key in response to the question.
Otherwise, type the answer and then press the ENTER key.
```

```
Press [Esc] to quit, any other key to continue . . .
```

5. Press any key (other than [Esc]) to continue.

This screen appears.



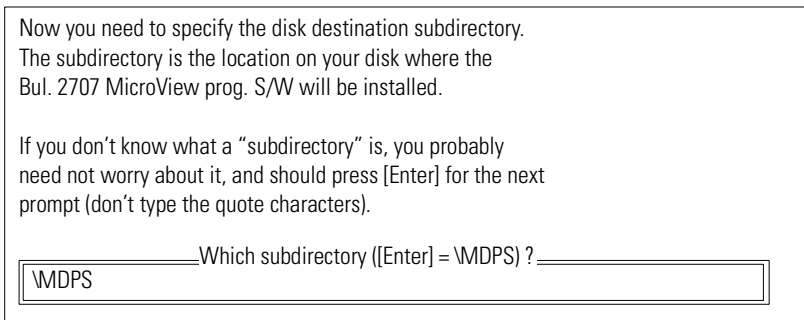
6. Use the [↑][↓] arrow keys to highlight the drive on which you want to install DPS and press [Return]. The default drive is C:

TIP



You cannot install the DPS software on the same drive the Install program resides.

This screen appears:



7. Press [Return] to install the DPS software in the \MDPS subdirectory. The Install program creates the subdirectory. If you enter your own subdirectory name, the entire path name including colons, forward slash, and name should not exceed 28 characters.

The status of the installation is displayed on the screen.

The DPS Configuration Utility screen then appears:

```

DPS CONFIGURATION UTILITY          VERSION: 3.00
Please Enter Your Name:              John Smith
Please Enter Your Company Name:      ABC Corporation
Please Enter Software Serial Number: 12345
Please Enter Video Type -- Color <C>, Mono <M>, Prompt User <P>:      c
Please Enter Comm Port -- <1>, <2>, Prompt User <P>:                    2

```

8. Enter your name, company name, and software serial number (on registration card). Also, enter the monitor type and communication port used by your computer.

TIP



Press [Return] at the Video Type and Comm Port questions to prompt the user for this information during application development.

The software serial number is required when requesting phone support (refer to startup screen on next page).

9. After responding to the above questions, you are asked to confirm the configuration. Press [Return] to accept the configuration.
10. The installation is complete. You are returned to DOS at the new subdirectory C: \MDPS>.

Running DPS

To run the MicroView Programming Software:

1. Verify that you are at the \MDPS subdirectory where the software resides.

If you are not, enter **cd \MDPS** and press [Return].

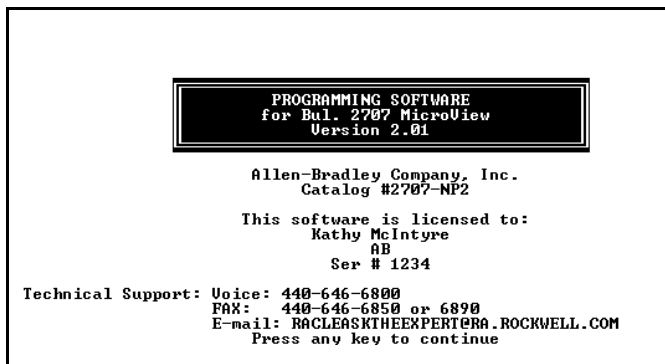
C:\MDPS>

2. Type **DPS** and press [Return] to start the program.

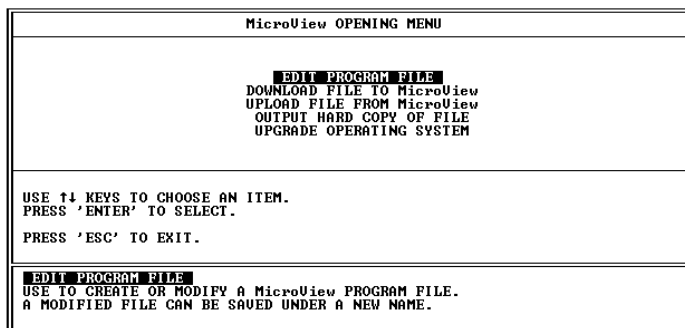
C:\MDPS> **DPS** [Return]

3. Specify whether you are using a color monitor. Enter [Y] or [N].

The startup screen displays. It identifies the MicroView version and licensed owner. A phone support number is provided for your assistance.



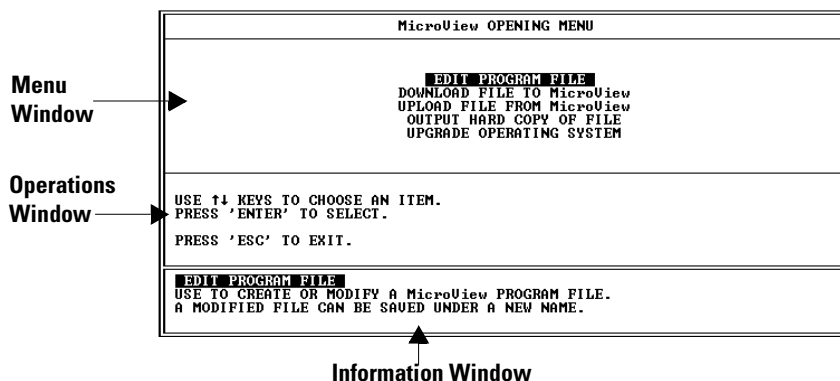
When you press any key, the Opening Menu appears:



You are now ready to create a file for your application.

Menu Conventions

The following shows the format of DPS menu screens:



Menu Window

The Menu Window lists operations available at the current menu. To select one of the operations, use the cursor keys to highlight the operation and press [Return].

Operations Windows

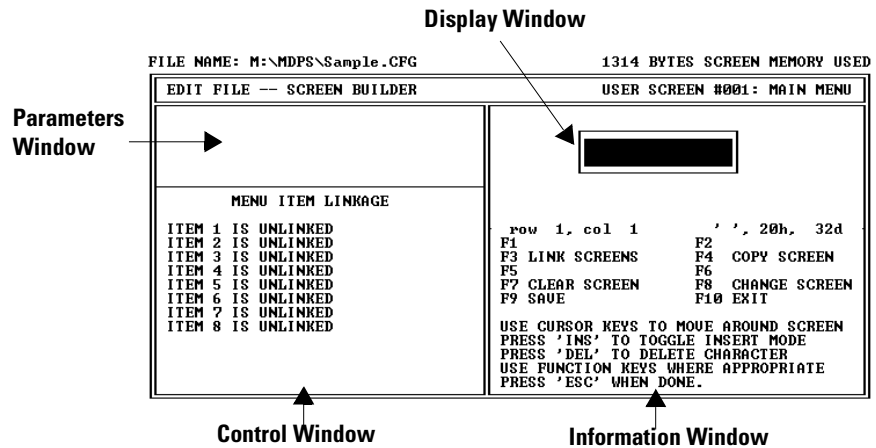
The Operations Window displays keyboard operations available at the current Menu Window.

Information Window

The Information Window displays a brief explanation of each operation available for the selected menu item.

Screen Building Conventions

Application programs are written or edited using the Screen Builder. Chapter 5 provides you with detailed instructions on how to use this screen for creating application programs. The following shows the Screen Builder format:



There are two information lines at the top of the screen:

- The first line identifies the current program path and file name, as well as screen memory usage to help you track the size of your program file.
- The second line identifies the current DPS operating area as well as the current screen number and type.

Screen Builder has 4 windows:

Parameters Window

The Parameters Window displays the linking definitions that have been established for the current screen.

Display Window

The Display Window simulates the MicroView (2 line display) screen. It displays the formatted data and text as it would appear to the MicroView operator.

Control Window

The Control Window displays the available data format selection and the register information which can be defined for the current screen.

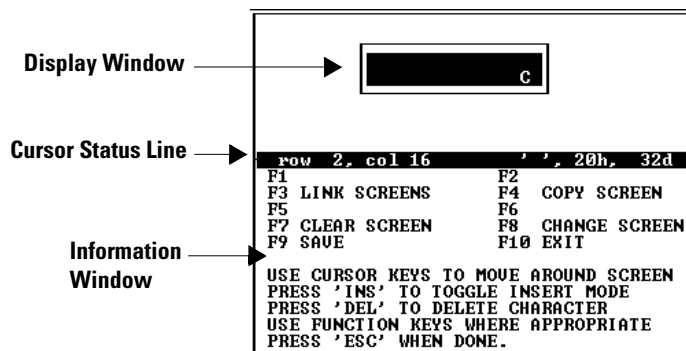
Information Window

The Information Window displays information about the function key and keyboard operations available at the current screen.

Cursor Status Line

The cursor status line is located between the Display and Information windows. This line displays the current row and column of the cursor. Also listed is the character at that position along with the character ASCII code in hex and decimal formats. Confirm character codes by placing the cursor under the character and reading the code from the cursor status line.

The following example shows the character C at row 2, column 15.



Moving Around Screens

DPS uses menus to guide you through the application development process. Select a menu item and the next menu or screen is displayed. The standard keyboard operations are:

Use these keys:	To:
[↑] [↓] [←] [→]	Highlight a menu selection.
[Return]	Select a menu item.
[Esc]	Return to the previous menu.

Linking Application Screens

MicroView application files allow you to present screens in a meaningful sequence, a hierarchy of possible tasks and operations. To do this, you will need to specify a link for each screen.

The linking function is the basis of a MicroView operator terminal's power and flexibility. When screens are linked, the MicroView becomes an interactive operator workstation, one that can guide an operator through a hierarchy of operations. This hierarchy can be as simple or as complicated as your application requires.

Note: All application screens must be created before they can be linked.

Designing Microview Applications

Chapter Objectives

This chapter provides guidelines for creating MicroView applications.

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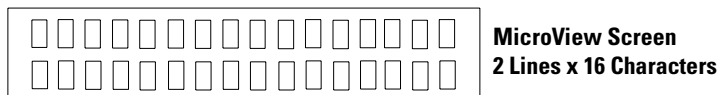
MicroView Operator Terminal

MicroView application programs are created using MicroView DPS. The development of applications for the MicroView are very similar to the DTAM Micro and DTAM Plus. The differences in application development are related to differences in the operator terminals. The following table lists MicroView Functional considerations.

Function	MicroView
Screen Capacity	Up to 50 Screens
Display Format	2 Line x 16 Character
Function Keys	2
Recipe Operations	Yes
Advisor Option	Yes
Screen Write Option	Yes
Alarm Screens	No
Point Access Display (P/AD)	Yes
Auto Scaling	Yes
Printer Port	No
Mode Menu Changing of Comm. port	Baud Rate
Mode Menu changing of Security Codes	Yes
Processor Registers Supported	MicroLogix

Function	MicroView
Communications Port	RS-232
Protocol	MicroLogix DF1
Off line Programming Software	2707-NP, 2707-NP2, 2707-NP3

A major consideration when designing application programs is the screen size of the MicroView.



MicroView File Types

The MicroView can read and write MicroLogix controller files. Refer to the following when designing applications.

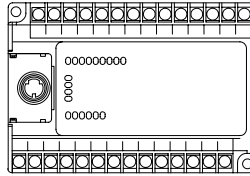
MicroLogix (DF1 File Types)

File Type	File Type Supported By MicroView	Read / Write	Identifier	File Number	Element	Integer Sub-Element	Bit Number
Output	Yes	Read	O	0	0	NA	0-15
Input	Yes	Read	I	1	0,1	NA	0-15
Status	Yes	Read / Write	S	2	0-32	NA	0-15
Bit (Binary)	Yes	Read / Write	B	3	0-31	NA	0-511
Timer	Yes	Read / Write	T	4	0-39	PRE, ACC	EN, TT, DN
HSC (High Speed Counter)	Yes	Read / Write	C	5	0	PRE, ACC	CU, CD, DN, OV, UN, UA, HP, LP, IV, IN, IH, IL, PE, LS, IE
Counter	Yes	Read / Write	C	5	1-31	PRE, ACC	CU, CD, DN, OV, UN
Control	Yes	Read / Write	R	6	0-15	LEN, POS	EN, EU, DN, EM, ER, UL, IN, FD
Integer	Yes	Read / Write	N	7	0-104	NA	0-15

Screen Types and Data Formats

Some application screens require that you specify register information. Each MicroView screen type supports different data formats. The table below lists each screen type and the data formats supported.

MicroLogix Controller



MicroLogix Data Formats

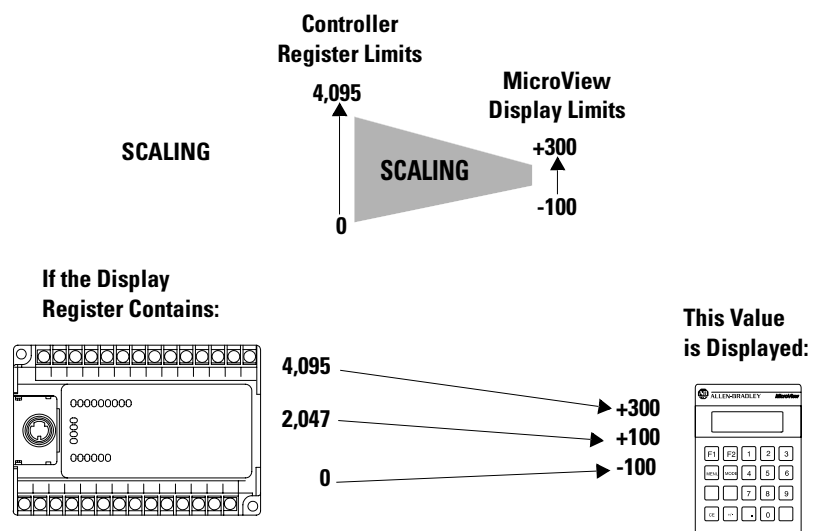
Format	Display Screens	Data Entry Screens	Recipe Screens
Bit	Yes	Yes	
16 Bit Signed Integer	Yes	Yes	Yes
16 Bit Unsigned Integer	Yes	Yes	Yes
16 Bit BCD	Yes	Yes	Yes
16 Bit Hex	Yes		
ASCII	Yes		

Data Scaling

Data entered by an operator can be scaled from engineering units such as gallons or PSI to machine control values. Likewise, data displays can take raw numeric values and scale them so they are displayed in engineering units.

Scaling of data is accomplished by defining a proportional ratio between the register value range and the display or entry value range. If a 1:1 ratio exists, the MicroView displayed or entered value equals the controller register value.

Here is an example of scaling using a data display to scale a register data range of 0 to 4,095 to a MicroView display range of -100 to +300.



When the ratio between the controller register values and MicroView display or entry values is not a multiple of 2, the value is rounded. Rounding may result in a 1 count error. Depending upon the direction of the scaling, this means that:

When the ratio between the controller register values and MicroView display or entry values is not a multiple of 2, the value is rounded. Rounding may result in a 1 count error. Depending upon the direction of the scaling, this means that:

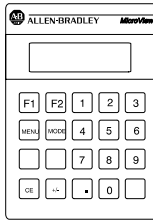
- The MicroView display value may be off by 1 when the controller register value is scaled
- The controller register value may be off by one when a MicroView data entry is scaled.

An error screen appears if a rounding error occurs at the end points of a data range. You must either increase the minimum or decrease the maximum range of either the controller register or display ranges.

Scaling Formulas

The scaling formula for a MicroView display value is:

$$\text{Displayed Value} = m \times \text{Register Value} + b$$



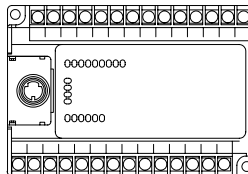
Where:

$$m = \frac{\text{Display Maximum Value} - \text{Display Minimum Value}}{\text{Register Maximum Value} - \text{Register Minimum Value}}$$

$$b = \text{Display Maximum Value} - \text{Display Minimum Value} - (m \times \text{Register Minimum Value})$$

The scaling formula for an entered value is:

$$\text{Register Value} = m \times \text{Entered Value} + b$$



Where:

$$m = \frac{\text{Register Maximum Value} - \text{Display Minimum Value}}{\text{Entry Maximum Value} - \text{Entry Minimum Value}}$$

$$b = \text{Register Minimum Value} - \text{Entry Minimum Value} - (m \times \text{Entry Minimum Value})$$

Register Range = 0 to 4,095
 Display Range = -100 to +300
 Actual Register Value = 2,047

Scaling Example:

$$m = \frac{300 - (-100)}{4,095 - 0} = 0.0977$$

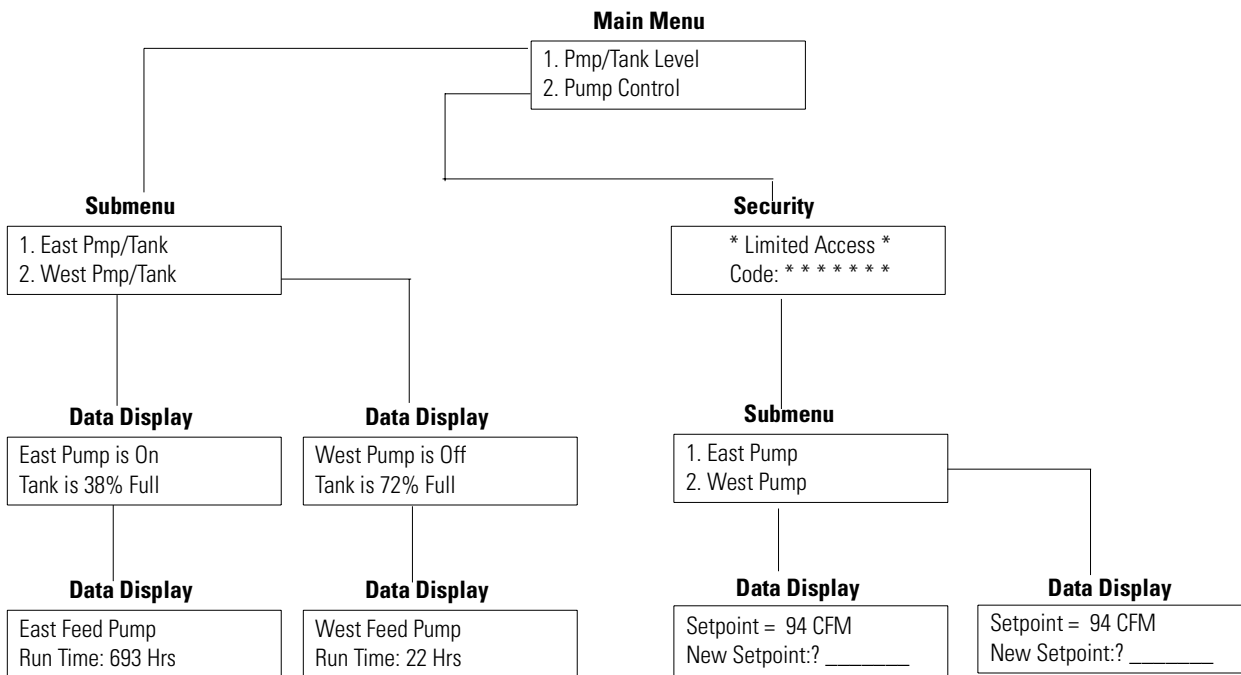
$$b = -100 - (0.0977 \times 0) = -100$$

$$\begin{aligned} \text{Displayed Value} &= 0.0977 \times 2,047 + (-100) \\ &= 99.9919 \\ &= 100 \end{aligned}$$

Application Example

The following example shows typical menus and screens of a MicroView application.

MicroView Application Outline



Description of Example Application

Pump/Tank Levels

When Pump/Tank Levels is selected from the Main Menu, a Sub-Menu displays two new choices (East Pump/Tank and West Pump/Tank). Selecting either of these Sub-Menu items allows you to display pump and tank information for the East or West systems.

Pump Control

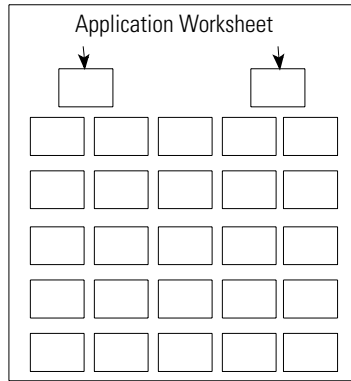
Allows you to enter new pump setpoints to be entered. A security code is required to access the Data Entry screens.

Data Entry screens use data from the controller (% Full & CFM) to display this information along with a prompt to enter a new setpoint. When a new setpoint is entered, the value is checked to verify that it is within the programmed limits. If the value is within the entry limits, the number is then scaled to engineering units and sent to the controller. If the value is outside the limits, an error message informs you of the valid range. You can then enter another value.

Appendix B contains worksheets for designing both MicroView applications. Both application layout and screen design worksheets are provided.

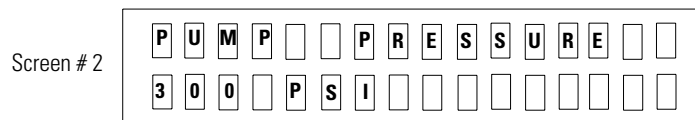
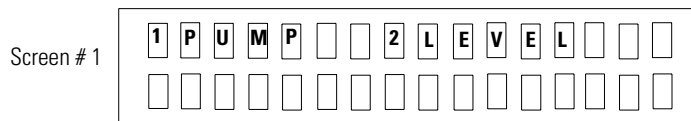
Designing an Application

Use the application design worksheets to layout a logical sequence of screens. Make copies of the worksheets as needed. On each worksheet, list the screen numbers, type of screens, register numbers, etc.



Use the screen worksheets to define screen text and layout. Make copies of the screen worksheets and write out each application screen.

MicroView Screen Worksheets



Before you design an application, become familiar with the types of screens and how they function. To assist you, a sample application is provided in this chapter. In addition, you should become familiar with the controller files and data type supported for each operator module type and selected protocol (see previous section). When register information is required, this manual lists the applicable data formats (such as ASCII or 16 Bit Hex) for each controller file type.

Recommended sequence for designing an application

- 1.** On paper, design all the operator screens with the associated register numbers, and produce a map of how all screens are linked together.
- 2.** Construct all screens using DPS. Save the program file without linking.
- 3.** Link the application screens. Use the design from step 1. When you have established all links, save the program file. An error display will warn you of any unlinked screens.
- 4.** Download the application file.
- 5.** Use the Simulate function (described in the MicroView User Manual) to verify operations such as screen links, text, and screen types.
- 6.** Run the application.

Creating or Editing an Application File

Chapter Objectives

This chapter describes how to open, edit and save an application file.

Section	Page
Opening Menu	4-1
Creating/Editing Application File	4-2
Saving Application File	4-3

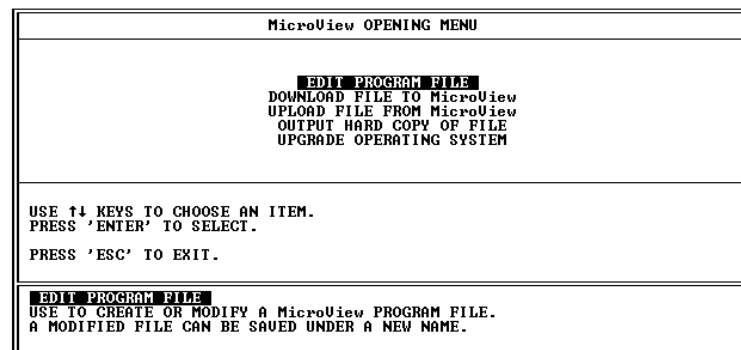
Opening Menu

The Opening Menu is the first menu displayed each time you run the software.

TIP



If you specified prompts for the monitor type during installation, these prompts will appear before the opening menu.



The Opening Menu displays the following operations:

- Edit Program File
- Download File to MicroView
- Upload File from MicroView
- Output Hard Copy of File
- Upgrade Operating System

Creating / Editing Applications

To create or edit an application:

1. Select Edit Program File to create or edit a MicroView application file.

You are prompted for the file name to edit or create. All MicroView application files in the current directory are listed.

```

FILE NAME? Sample.cfg
FILES IN PATH -- M:\MDPS
- UVIEW DF1

ENTER FILE NAME          F1          F2
OR USE ↑↓ KEYS TO CHOOSE AN ITEM.  F3          F4
PRESS 'ENTER' TO SELECT.  F5          F6
PRESS 'ESC' WHEN DONE.    F7          F8
                          F9          F10 EXIT
    
```

If files already exist, each file name is followed by “- MicroView”. Which is the type of Operating System the file was created for.

2. Select the name of an existing application file or enter a new file name. The new file name must be less than eight characters. Do not use a file name extension. DPS automatically adds a “.CFG” extension to each file name.

After you select an existing file or enter the new file name, the following screen appears. Press [Return] to continue.

```

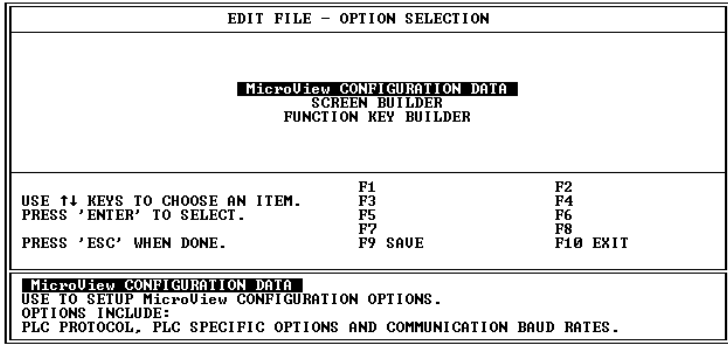
FILE NAME? Sample.cfg

MicroView MicroLogix DF1

USE ↑↓ KEYS TO CHOOSE AN ITEM.  F1          F2
PRESS 'ENTER' TO SELECT.        F3          F4
PRESS 'ESC' WHEN DONE.          F5          F6
                                F7          F8
                                F9          F10 EXIT

MicroView MicroLogix DF1
TO BE USED WITH THE AB MicroLogix PROCESSORS.
THIS PROTOCOL MUST BE USED WITH MicroView VERSIONS 1.00 AND NEVER.
    
```


The Edit File - Option Selection menu is displayed.



3. Access the following functions from the Edit File - Option Selection menu to create your application screens and enter configuration data.

Select this Menu Option:	To:
MicroView Configuration Data	Set configuration and operating parameters.
Screen Builder	Create or modify application screens.
Function Key Builder	Assign application specific operations to the MicroView function keys.

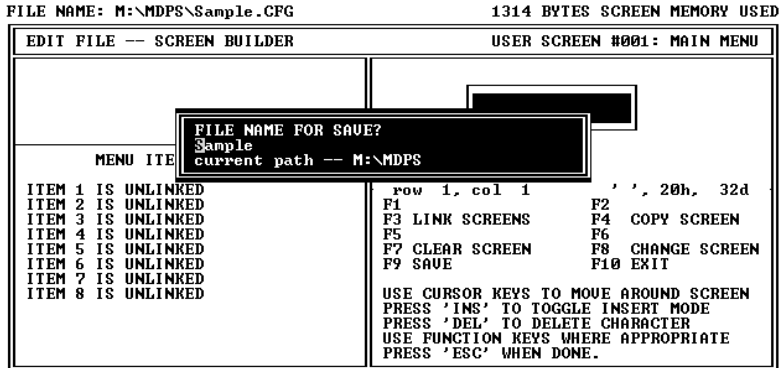
Saving Application File

Save the application periodically while you are working on the application screens and save the file again before you exit the software.

To save an application periodically during editing:

1. Press [F9].

You are prompted to save the application under the current file name or you can enter a new file name.



Note: If the same file name currently exists, you are prompted if you want to overwrite the existing file.

FILE EXISTS!!! OVERWRITE? (Y or N)

2. Press [Return] to save the application under the file name entered when the application file was opened.
Or enter a new file name of less than eight characters:
If you were creating a new file, the new file name replaces the file name entered when the application was opened.
If you are editing an existing file, the original file is unchanged. The file and all edits made prior to the last save are stored under the new file name.
3. After saving the file, you can continue editing the application program.

To save an application before exiting:

1. Exit the software by pressing [F10].
You are prompted save the application under the current file name or you can enter a new file name.
2. If you enter a new file name, the original file is unchanged and all edits are stored under the new file name.

After saving the file, you are returned to the DOS prompt.

Using Screen Builder

Chapter Objectives

This chapter describes how to use the Screen Builder to create or edit application programs.

Section	Page
Screen Builder	5-1
Accessing Screen Types	5-2
Editing Screen Displays	5-4
Copying Screens	5-5
Selecting Other Screens	5-6
Clearing Screens	5-7
Exiting Screen Builder	5-8

Screen Builder

Screen Builder is one of the menu items available when you select Edit Program File from the Opening menu. Use Screen Builder to create:

- Menus and Sub-menus
- Data Entry screens
- Data Display screens
- Security screens
- Recipe screens

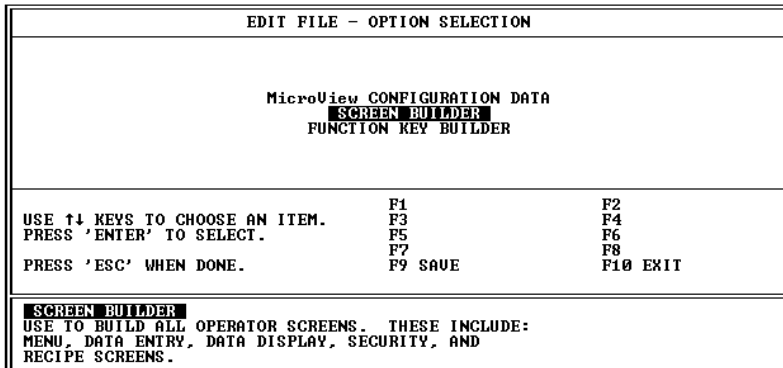
The Special menu security screen is not created within Screen Builder. This screen is created using other DPS functions:

- For the Special menu security screen, see Chapter 12.

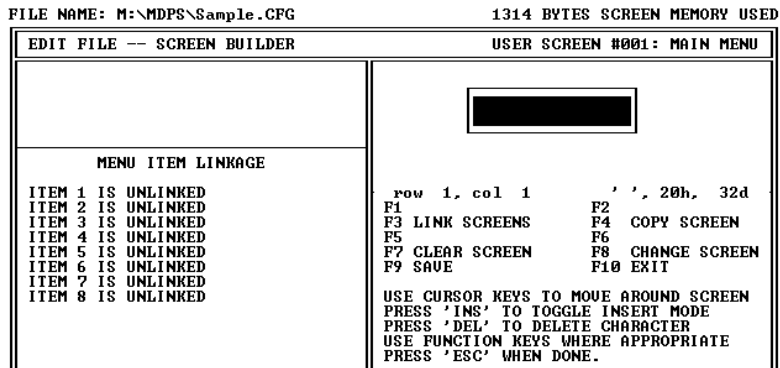
Accessing Screen Types

To access Screen Builder screens:

1. Select Screen Builder from the Edit File - Option Selection menu.



The Screen Builder for the main menu screen (screen #1) displays:



2. If you have designed your main menu screen, you can create it now as described in Chapter 6. Each application must have a main menu screen. If you want to create another screen type, proceed to the next step.

- Press [F8] on any screen to access the other screen types. You are prompted for a screen number:

```

FILE NAME: M:\MDPS\Sample.CFG          1314 BYTES SCREEN MEMORY USED
-----
EDIT FILE -- SCREEN BUILDER          USER SCREEN #001: MAIN MENU
-----
[Empty box]
[Empty box]
SWITCH TO WHICH SCREEN? 2
-----
row 1, col 1      ' ', 20h, 32d
F1 FIRST SCREEN   F2
F3                F4
F5                F6 NEXT UNUSED
F7 LAST SCREEN   F8 NEXT PROG
F9                F10
ENTER SCREEN NUMBER TO GO TO
OR PRESS FUNCTION KEY.

```

Press [F6] to go to the next available unused screen. Press [F8] to view the next programmed screen. Press [F1] to go to the first screen that you created. Press [F2] to go to the last screen of the current program.

- If you enter any screen number other than screen #1 (main menu screen), you are prompted for a screen type:

```

FILE NAME: M:\MDPS\Sample.CFG          1314 BYTES SCREEN MEMORY USED
-----
EDIT FILE -- SCREEN BUILDER          USER SCREEN #002: NEW SCREEN
-----
[Empty box]
[Empty box]
SCREEN TYPE:
SUB-MENU SCREEN
DATA DISPLAY SCREEN
DATA ENTRY SCREEN
SECURITY SCREEN
RECIPE SCREEN
-----
row 1, col 1      ' ', 20h, 32d
F1                F2
F3                F4
F5                F6
F7                F8 CHANGE SCREEN
F9 SAVE          F10 EXIT
USE ↑ KEYS TO CHOOSE AN ITEM.
PRESS 'ENTER' TO SELECT.
SUB-MENU SCREENS ALLOW THE OPERATOR TO
EASILY SELECT A DESIRED FUNCTION OR
SCREEN.

```

- Select a screen type. A Screen Builder for the selected screen type is then displayed. Refer to Chapters 6 through 10.

Screen Type	Chapter
Menus and Sub-Menus	6
Data Displays	7
Data Entry	8
Security	9
Recipe	10

Editing Screen Displays

When you are editing screen text, the following editing operations are available:

Screen Text Edit Functions

Screen Edit Key	Function
[↑] [↓] [←] [→]	Move the screen cursor.
[Del]	Deletes the character at the cursor position.
[Back Space]	Deletes the character to the left of the cursor position. The cursor is moved to the left one space.
[Ins]	Toggles the insert mode on or off. Characters entered in the insert mode are shifted to the right. A block shaped cursor indicates the insert mode is on. An underline cursor indicates that insert mode is off.

The extended MicroView character set can be used, refer to Appendix A for additional information.

Screen Builder Function keys

The following function keys are available on most screen types.

Function Key	Designation	Function
[F3]	LINK SCREENS	Accesses screen mapping functions that link application screens in a logical sequence. Link screens only after all of the screens have been created.
[F4]	COPY SCREEN	Copies an existing screen to or from the current display window. Both the source and destination screens must be of the same type (such as Data Display screens).
[F7]	CLEAR SCREEN	Clears the current screen. You have the option of clearing only the screen text or deleting the entire screen including any linking you may have established.
[F8]	CHANGE SCREEN	Displays menu for selecting another screen.
[F9]	SAVE	Saves the application without exiting the Screen Builder function.
[F10]	EXIT	Prompts you to save the application to the current file and exits the DPS software.

Copying Screens

Use the copy function [F4] to save time when creating similar screens. Both the source screen and the destination screen must be of the same type. For example, you can't copy Data Entry screen text into a Data Display screen.

When you copy a screen, all register data and display text is also copied. Edit the screen as needed after copying.

To copy a screen:

1. Open the screen you want to copy the screen to or from. In this example, a Data Display screen:

EDIT FILE -- SCREEN BUILDER	USER SCREEN #027: DATA DISPLAY
<p>SCREEN LINKAGE</p> <p>NEXT SCREEN IS UNLINKED. PREVIOUS SCREEN IS UNLINKED.</p>	<p>*Motor Overload*</p> <p>row 2, col 1 ' ', 20h, 32d</p> <p>F1 DISPLAY REG F2 </p> <p>F3 MAP SCREEN F4 COPY SCREEN</p> <p>F5 F6 </p> <p>F7 CLEAR SCREEN F8 CHANGE SCREEN</p> <p>F9 SAVE F10 EXIT</p> <p>USE CURSOR KEYS TO MOVE AROUND SCREEN PRESS 'INS' TO TOGGLE INSERT MODE PRESS 'DEL' TO DELETE CHARACTER USE FUNCTION KEYS WHERE APPROPRIATE PRESS 'ESC' WHEN DONE.</p>

2. Press [F4]. You are prompted for the screen to copy to or from:

EDIT FILE -- SCREEN BUILDER	USER SCREEN #027: DATA DISPLAY
<p>SCREEN LINKAGE</p> <p>NEXT SCREEN IS UNLINKED. PREVIOUS SCREEN IS UNLINKED.</p> <p>SELECT COPY OPTION PRESS 'ESC' TO ABORT</p>	<p>*Motor Overload*</p> <p>row 2, col 1 ' ', 20h, 32d</p> <p>F1 COPY TO F2 </p> <p>F3 COPY FROM F4 </p> <p>F5 F6 </p> <p>F7 F8 </p> <p>F9 F10 </p> <p>SELECT WHETHER YOU WANT TO COPY TO AN UNPROGRAMMED SCREEN OR COPY FROM AN EXISTING SCREEN.</p>

3. Press [F1] to copy the current screen to another screen. Press [F2] to copy another screen to the current screen.

You are prompted for a screen number.

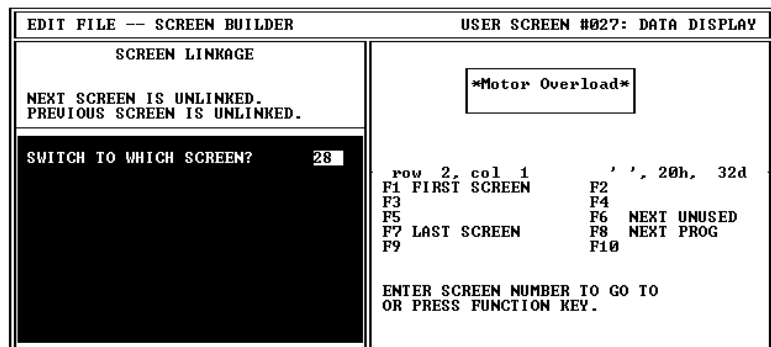
4. Enter the screen number and press [Return].
The screen is copied.
5. Edit the copied screen text and/or register data, refer to descriptions of individual screen types (Chapters 6 through 10).

After you have completed an application screen, use [F8] Change Screen to edit another screen. You can change to any screen.

Selecting Other Screens

To change screens:

1. Select [F8] Change Screen.



2. Enter the screen number you want to change to or select one of the function keys:

Function Key	Designation	Function
[F1]	FIRST SCREEN	Returns to screen #1, the main menu.
[F6]	NEXT UNUSED	Selects the next unused screen.
[F7]	LAST SCREEN	Selects the last programmed screen.
[F8]	NEXT PROG	Selects the next programmed screen.

The selected screen is displayed.

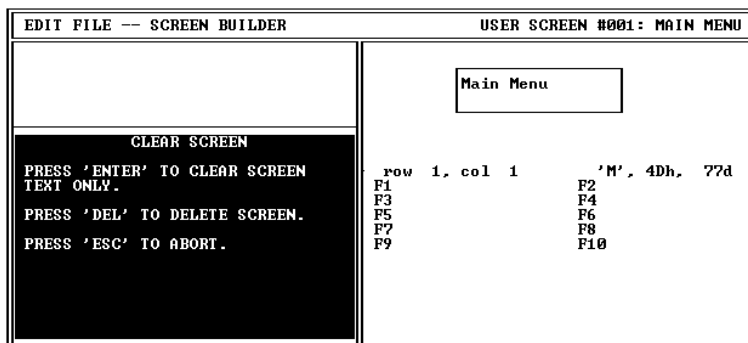
Clearing Screens

Use the [F7] Clear Screen function to clear all or part of the currently displayed screen.

To clear a screen:

1. Open the screen you want to clear.
2. Select [F7] Clear Screen.

You are prompted for a clear screen option:



3. Select the Clear Screen option.

Function Key	Function
ENTER [Return]	Clear the display text only. Screen linking and register data for the screen are not deleted.
DELETE [Del]	Clears the entire screen including screen display text, register data, and screen links.
ESCAPE [Esc]	Cancels the clear screen function.

The screen is cleared.

4. Continue editing or change to another screen.

Exiting Screen Builder

You can exit Screen Builder at any time during the design of an application. Screen edits are not lost when you exit Screen Builder, however, we recommend that you press [F9] SAVE before exiting.

To exit Screen Builder:

1. Press [Esc].

If you haven't established screen linking, you are provided a reminder:

```
WARNING 01: Screen Number 002 has not been mapped.
WARNING 01: Screen Number 003 has not been mapped.
WARNING 01: Screen Number 007 has not been mapped.
WARNING 01: Screen Number 008 has not been mapped.
WARNING 01: Screen Number 011 has not been mapped.
```

PRESS 'Y'

2. Press [Y] to acknowledge the reminder (if displayed).

After exiting Screen Builder, the Edit File - Option Selection menu is displayed.

EDIT FILE - OPTION SELECTION		
MicroView CONFIGURATION DATA SCREEN BUILDER FUNCTION KEY BUILDER		
USE ↑↓ KEYS TO CHOOSE AN ITEM.	F1	F2
PRESS 'ENTER' TO SELECT.	F3	F4
	F5	F6
	F7	F8
PRESS 'ESC' WHEN DONE.	F9 SAUE	F10 EXIT
MicroView CONFIGURATION DATA USE TO SETUP MicroView CONFIGURATION OPTIONS. OPTIONS INCLUDE: PLC PROTOCOL, PLC SPECIFIC OPTIONS AND COMMUNICATION BAUD RATES.		

You can re-enter Screen Builder later for additional edits or to establish screen linking.

Creating Menu and Sub-Menu Screens

Chapter Objectives

This chapter describes how to create the main menu and sub-menu screens.

Section	Page
Menu Screens	6-1
Building a Menu	6-2
Main Menu and Sub-Menu Screen Builder	6-3
Creating a Menu Screen	6-4

Menu Screens

Menu Screens provide easy access to different parts of an application. Menus structure an application on the basis of specific tasks and responsibilities.

Each menu screen may consist of up to 8 different menu items. When selected (by pressing a corresponding numeric key), a menu item displays the linked screen or sub-menu.

A typical menu screen might look like this:

<p>1. TEMP. 3. LEVEL 2. MONITOR</p>
--

Main Menu Screens

The Main Menu is always operator screen #1. This menu lists the primary components of your application. All other menus and data screens are accessed from this screen.

There are two differences between the main menu and sub-menus:

- The MicroView [MENU] key displays the Main Menu. This key is active at all times.
- The Main Menu is the first screen that appears after a restart or reset.

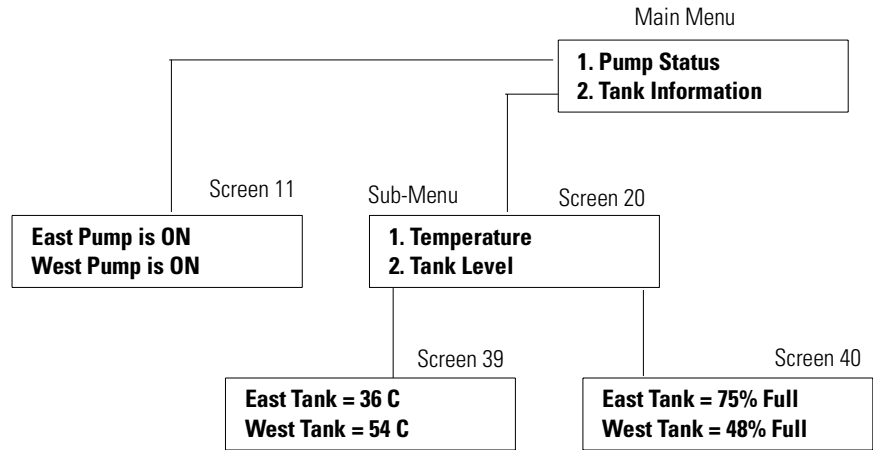
Sub-Menu Screens

Sub-menu screens are identical in appearance to the main menu screen. Sub-menu screens enable you to expand the scope of an application by providing directed choices through linked menus. This allows you to construct a large application and maintain efficient access to specific areas.

Building a Menu

When you build a menu, you are directing the operator to more specific screens. A menu is a numbered list of components available at the current stage of a process. Number each successive menu entry sequentially. The number tells the operator which MicroView keypad key ([1] through [8]) to press for each menu item (1 through 8).

The following example shows the menu structure of a MicroView application. The operator uses the MicroView numeric keypad keys to select a menu item. Pressing [1] on the keypad selects the Pump Status screen. Screen #11 is linked to keypad key [1] on the MicroView while this menu is displayed. Pressing keypad key [2] on the MicroView displays another menu which has different links assigned to keypad keys [1] and [2].



To assign menu text, position the cursor at the location you want the list to begin and enter text.

EDIT FILE -- SCREEN BUILDER

USER SCREEN #001: MAIN MENU

MENU ITEM LINKAGE

```

ITEM 1 IS UNLINKED
ITEM 2 IS UNLINKED
ITEM 3 IS UNLINKED
ITEM 4 IS UNLINKED
ITEM 5 IS UNLINKED
ITEM 6 IS UNLINKED
ITEM 7 IS UNLINKED
ITEM 8 IS UNLINKED
            
```

1. Menu Item #1

2. Menu Item #2

row 2, col 16 ' ', 20h, 32d

F1	F2
F3 LINK SCREENS	F4 COPY SCREEN
F5	F6
F7 CLEAR SCREEN	F8 CHANGE SCREEN
F9 SAVE	F10 EXIT

USE CURSOR KEYS TO MOVE AROUND SCREEN
PRESS 'INS' TO TOGGLE INSERT MODE
PRESS 'DEL' TO DELETE CHARACTER
USE FUNCTION KEYS WHERE APPROPRIATE
PRESS 'ESC' WHEN DONE.

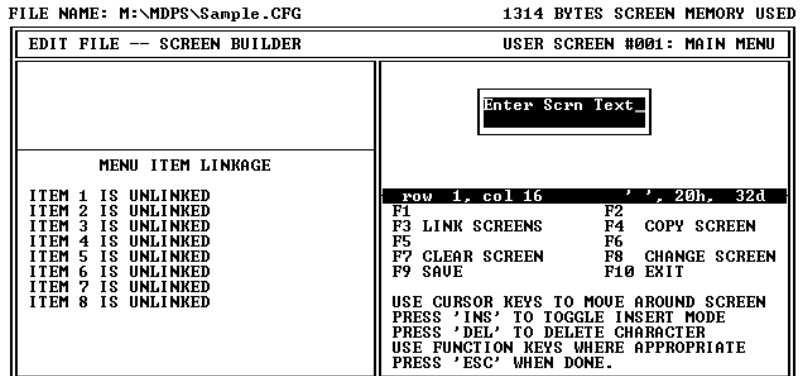
Enter
Menu
Text here.

Items 1 through 8 correspond to MicroView keypad keys 1 through 8. Each key can be linked to a screen number.

Screens can't be linked to MicroView keypad keys ([1] – [8]) until you have first created the screens. After creating your application screens, you can return to the menu screens and assign the links, refer to Chapter 11.

Main Menu and Sub-Menu Screen Builder

The screen for creating the main menu and sub-menu screens is the same. Both the main menu and sub menu screens can display up to a 16 character two line message.



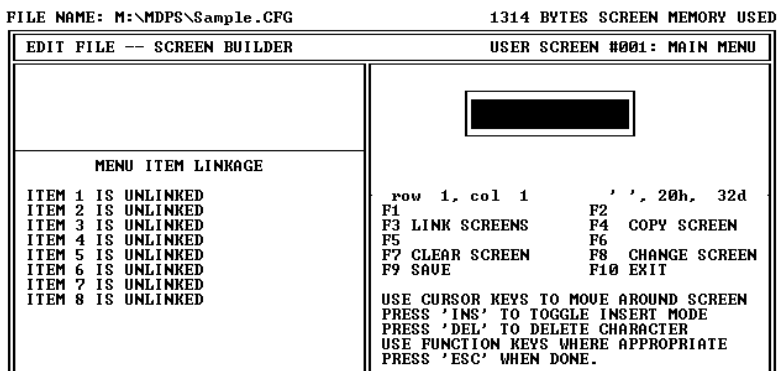
Menu Screen Builder Function Keys

Function Key	Designation	Function
[F3]	LINK SCREENS	Accesses screen mapping functions that link application screens in a logical sequence. Link screens only after all of the screens have been created. Refer to Chapter 11.
[F4]	COPY SCREEN	Copies an existing screen to or from the current display window. Both the source and destination screens must be of the same type (Menu screens).
[F7]	CLEAR SCREEN	Clears the current screen. You have the option of clearing only the screen text or deleting the entire screen including any linking you may have established.
[F8]	CHANGE SCREEN	Selects another operator screen.
[F9]	SAVE	Saves the application without exiting the Screen Builder function.
[F10]	EXIT	Prompts you to save the application to the current file and exits the DPS software.

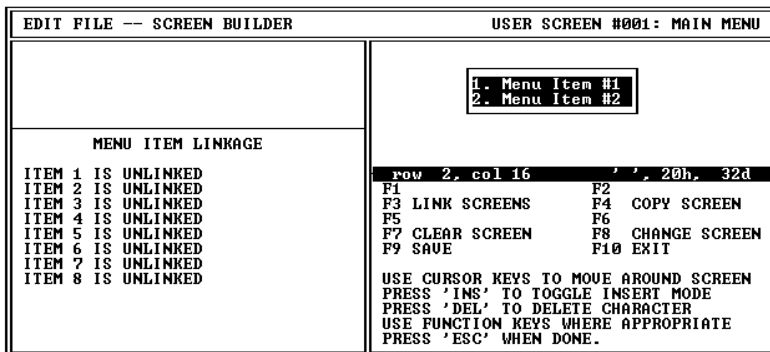
Creating a Menu Screen

To create a menu screen:

1. Select Screen Builder from the Edit File - Option Selection menu. The Screen Builder for the main menu (screen #1) is displayed.



2. If you are creating a sub-menu, press [F8], enter the screen number, and select a sub-menu screen type. The screen builder for a sub-menu is displayed. The sub-menu screen builder is the same as the main screen (shown above).
3. Enter the screen text. The sequence, length and location of the text does not matter but make sure you number each menu item (1 through 8).



4. Press [F9] to save the screen.

IMPORTANT

You can't link screens to a menu until all of the application screens have been created. Chapter 11 describes how to link screens to a menu.

Creating Data Display Screens

Chapter Objectives

This chapter describes how to create data display screens.

Section	Page
Data Displays	7-1
Scaling	7-1
Data Display Screen Builder	7-2
Creating a Display Screen	7-3
Display Register Format Selections	7-6

Data Displays

Data display screens allow you to monitor the value of registers in the controller. The MicroView continuously reads the registers to update (at a user-defined rate) the displayed values.

This is how a data display screen may appear:

Tank #1 = 33 Gal 10% Full
--

To construct data display screens, you need to specify:

- The type of screen as data display
- The type of data stored in the controller register
- The register to access (address)
- Any data format and display information
- The display position for the data
- Any additional text information that you want to display

Scaling

Data in controller data files can be scaled to standard engineering units such as gallons, pounds, feet, etc. Data is scaled by setting up a proportion between the controller register data limits and the MicroView data display limits. Refer to the description of scaling in Chapter 3.

Data Display Screen Builder

The screen for creating data display screens has a maximum display size of 2 lines of 16 characters.

EDIT FILE -- SCREEN BUILDER		USER SCREEN #002: DATA DISPLAY	
SCREEN LINKAGE		<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>	
NEXT SCREEN IS UNLINKED. PREVIOUS SCREEN IS UNLINKED.		<pre> row 1, col 1 ' ', 20h, 32d F1 DISPLAY REG F2 F3 MAP SCREEN F4 COPY SCREEN F5 F6 F7 CLEAR SCREEN F8 CHANGE SCREEN F9 SAVE F10 EXIT USE CURSOR KEYS TO MOVE AROUND SCREEN PRESS 'INS' TO TOGGLE INSERT MODE PRESS 'DEL' TO DELETE CHARACTER USE FUNCTION KEYS WHERE APPROPRIATE PRESS 'ESC' WHEN DONE. </pre>	

Data Display Screen Builder Function Keys

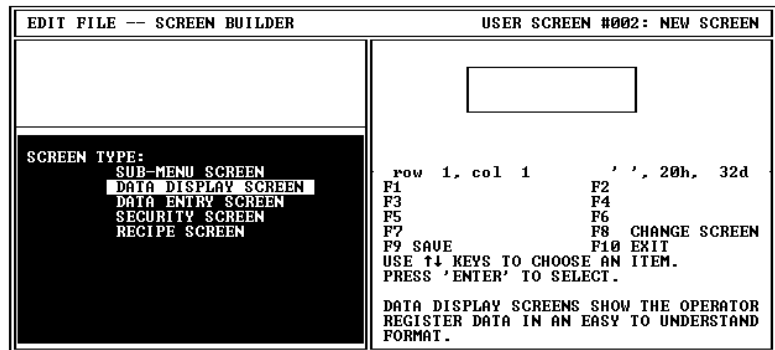
Function Key	Designation	Function
[F1]	DISPLAY REG	Inserts data display field at the cursor point. Accesses the display register information.
[F3]	MAP SCREEN	Accesses screen mapping functions that link application screens in a logical sequence. Link screens only after all of the screens have been created.
[F4]	COPY SCREEN	Copies an existing screen to or from the current display window. Both the source and destination screens must be of the same type (Data Display screens).
[F7]	CLEAR SCREEN	Clears the current screen. You have the option of clearing only the screen text or deleting the entire screen including any linking you may have established.
[F8]	CHANGE SCREEN	Selects another operator screen.
[F9]	SAVE	Saves the application without exiting the Screen Builder function.
[F10]	EXIT	Prompts you to save the application to the current file and exits the DPS software.

Creating a Display Screen

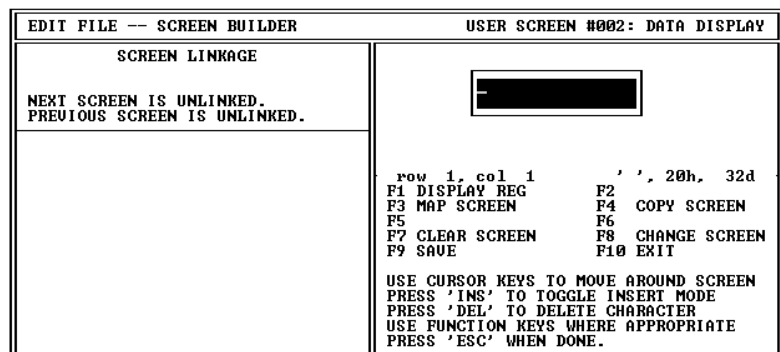
The display register data field may be inserted anywhere on the screen. The number of positions required for the data field depends upon the register information you provide. You can insert the display data while you are entering the screen text or you can leave spaces and insert the data field later.

To create a data display:

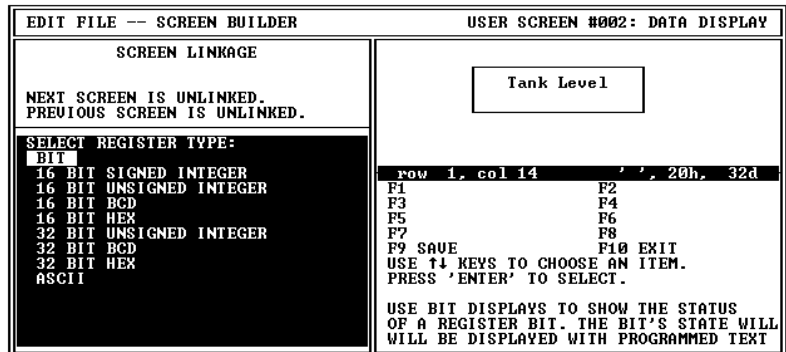
1. Select Screen Builder from the Edit File - Option Selection menu.
The Screen Builder for the main menu (screen #1) is displayed.
2. Press [F8] and enter the display screen # or press [F6] for the next unused screen.
3. You are then prompted to choose a screen type. Select Data Display Screen and press [Return].



The Screen Builder for a data display screen appears.



- Enter the screen text to the point where you want the data display field to be inserted. You can either leave spaces for the display field or enter the display field at this time. Position the cursor where you want to insert the data display.
- Press [F1] to insert a display register.

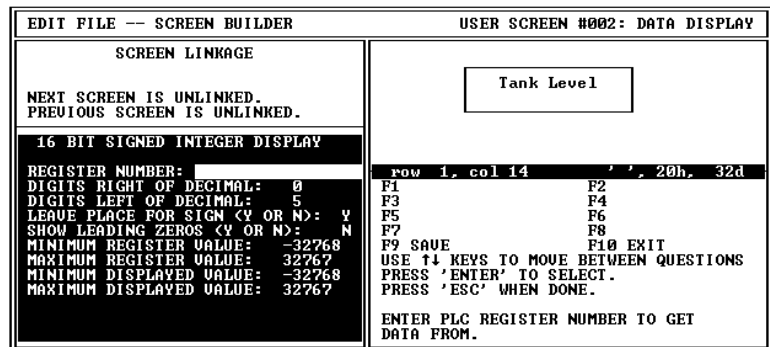


IMPORTANT

32 Bit Register Types appear in the list but are not available.

You are prompted to select a register type. Refer to Chapter 3 for a list of the applicable file types for MicroLogix DF1 protocol.

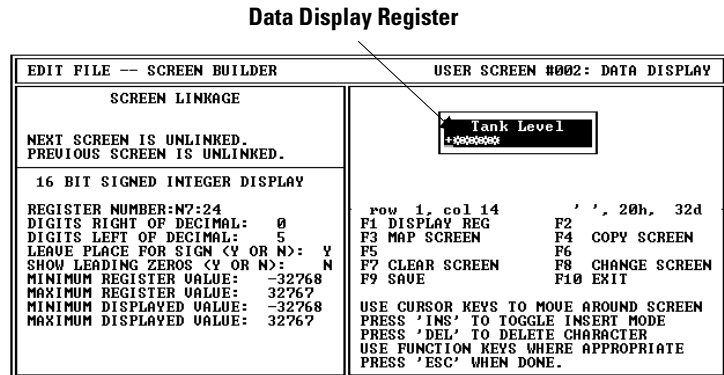
- Select a register type. You are prompted for data specific to the selected register type:



16 Bit Signed Integer Shown

- Enter the register data. Refer to the next section Display Register Format Selections.

- After entering the register data, press [Esc] to save the data and return to the screen editing. The data display register field is indicated by a series of asterisks ****. The number of asterisks and format (decimal point and sign) is determined by the register data you entered.



- Enter the remainder of the screen text or additional display registers and press [F9] to save the screen.

Move the cursor off the data display field using the arrow keys before entering additional screen text. If you attempt to enter text over a display field you will be prompted:

WARNING! You are about to delete a register definition.
 PRESS 'Y' to proceed.
 PRESS 'N' to abort.

Display Register Format Selections

When inserting a data display field, you must provide register information that determines the address and format of the data being displayed. This section describes options available for data display registers.

Bit

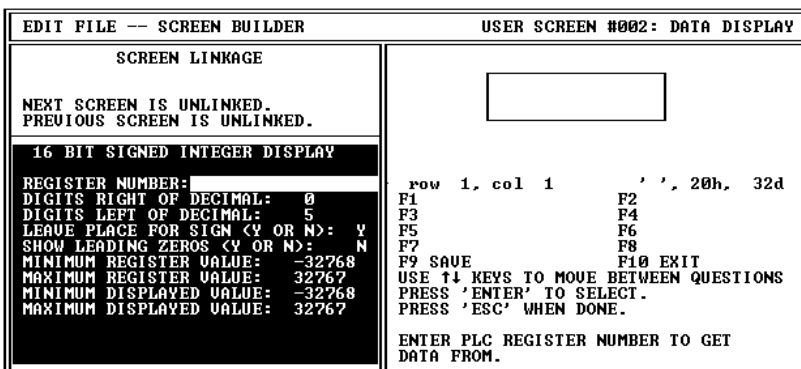
The register information for a Bit display is shown below.

See Appendix C for default Bit text.

Format Selection	Description
Register Number	The controller address from which the bit will be monitored.
Bit Number	The Bit number of a multiple bit address which will be monitored for status if the register number designates a multiple bit address (a 16 bit data address, for example). This selection is unavailable if the register number refers to a Bit type address.
Text when Bit is OFF (0)	The text description (16 character maximum) to be displayed when the bit is in an OFF (0) state.
Text when Bit is ON (1)	The text description (16 character maximum) to be displayed when the bit is in an ON (1) state.

16 Bit Signed Integer, 16 Bit Unsigned Integer, 16 Bit BCD (Binary Coded Decimal)

The screen for a 16 Bit Unsigned Integer format is shown below. The screens for 16 Bit Signed Integer and 16 Bit BCD formats are similar.



Format Selection	Description
Register Number	The controller address from which the integer will be monitored.
Digits Right of Decimal	The number of digits to be placed to the right of the decimal.
Digits Left of Decimal	The number of digits to be placed to the left of the decimal.
Leave Place for Sign (Y or N)	Provides for a one character place for the polarity sign (+ or -) when the data is displayed, if desired.
Show Leading Zeros (Y or N)	Provides for any zeros to the left of the data, if desired.
Minimum Register Value	The minimum data value of the controller address being monitored.
Maximum Register Value	The maximum data value of the controller address being monitored.
Minimum Displayed Value	The minimum data value to be displayed. This value is displayed when the data in the controller address is equal to the minimum register value and scaling is enabled.
Maximum Displayed Value	The maximum data value to be displayed. This value is displayed when the data in the controller address is equal to the maximum register value and scaling is enabled. The range defined by the Minimum Displayed Value and the Maximum Displayed Value is proportionally scaled to the range of the minimum and maximum register values. If both ranges are equal then the scaling ratio is 1:1.

16 Bit HEX (Hexadecimal)

The screen for a 16 Bit Hex format is shown below.

EDIT FILE -- SCREEN BUILDER		USER SCREEN #002: DATA DISPLAY	
<p>SCREEN LINKAGE</p> <p>NEXT SCREEN IS UNLINKED. PREVIOUS SCREEN IS UNLINKED.</p>		<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>	
<p>16 BIT HEX DISPLAY</p> <p>REGISTER NUMBER: <input type="text"/></p>		<p>row 1, col 1 ' ', 20h, 32d</p> <p>F1 F2</p> <p>F3 F4</p> <p>F5 F6</p> <p>F7 F8</p> <p>F9 SAVE F10 EXIT</p> <p>USE ↑↓ KEYS TO MOVE BETWEEN QUESTIONS</p> <p>PRESS 'ENTER' TO SELECT.</p> <p>PRESS 'ESC' WHEN DONE.</p> <p>ENTER PLC REGISTER NUMBER TO GET DATA FROM.</p>	

Format Selection	Description
Register Number	The controller address to be monitored.

IMPORTANT The scaling of data is not supported for the hexadecimal selections.

ASCII

The screen for an ASCII format is shown below:

EDIT FILE -- SCREEN BUILDER		USER SCREEN #002: DATA DISPLAY	
SCREEN LINKAGE		<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>	
NEXT SCREEN IS UNLINKED. PREVIOUS SCREEN IS UNLINKED.			
ASCII DISPLAY			
REGISTER NUMBER:	1	row 1, col 1	', ', 20h, 32d
CHARACTER COUNT:	1	F1	F2
FIRST CHARACTER IN		F3	F4
LSB OR MSB:	MSB	F5	F6
		F7	F8
		F9 SAVE	F10 EXIT
		USE ↑↓ KEYS TO MOVE BETWEEN QUESTIONS	
		PRESS 'ENTER' TO SELECT.	
		PRESS 'ESC' WHEN DONE.	
		ENTER PLC REGISTER NUMBER TO GET DATA FROM.	

Format Selection	Description
Register Number	The controller address to be monitored.
Character Count	The number of characters (2 characters for each 16 bit data address) to be displayed, up to a maximum of 2 characters. The initial byte of the address identified by the register number is displayed first, then the second byte, the first byte of the next higher sequential address, and so on. To display 16 characters, a sequential block of eight 16 bit addresses is read by the MicroView.
First Character in LSB or MSB	Indicates placement of first ASCII character to be read. If LSB, the first character is in bits 0 to 7 of the register. If MSB, the first character is in bits 8 to 15 of the register

Each data display can only be 16 bit data or 2 characters. Multiple data entries can be created in sequence up to 28 total.

Creating Data Entry Screens

Chapter Objectives

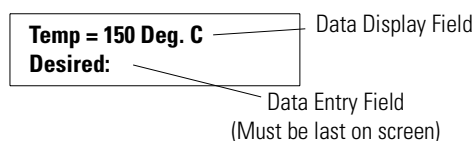
This chapter describes how to create data entry screens

Section	Page
Data Entry Displays	8-1
Scaling	8-1
Data Entry Screen Builder	8-2
Creating a Data Entry Screen	8-3
Data Entry Register Format Selections	8-6

Data entry screens allow an operator to directly enter values into MicroView registers. Data entry screens can also contain data display fields.

Data Entry Screens

This is how a data entry screen may appear:



To construct data entry screens, you need to specify:

- The type of screen as data entry
- Any additional text information that you want to display
- The type of data stored in the controller register
- The register to access (address), and if used, a display register
- Any data format and display information
- The display position for the entry field

Scaling

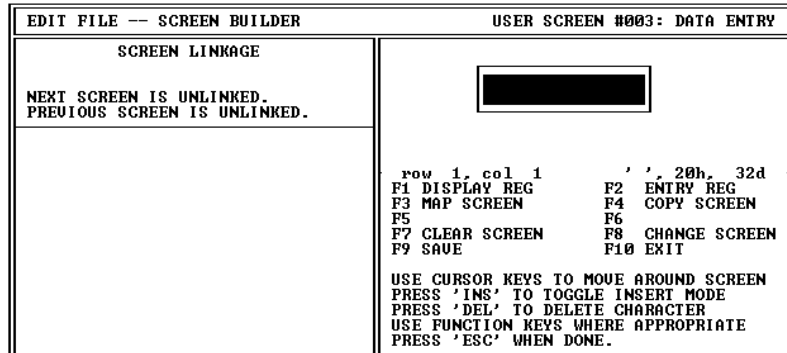
Data entered in standard engineering units such as gallons, pounds, feet, etc. can be scaled to machine control values. Data is scaled by setting up a proportion between the MicroView data entry limits and the controller register data limits. Refer to the description of scaling in Chapter 3.

IMPORTANT

The 16 bit data format cannot be scaled.

Data Entry Screen Builder

The screen for creating data entry screens has a display size of 2 lines of 16 characters.



Data Entry Screen Builder Function Keys

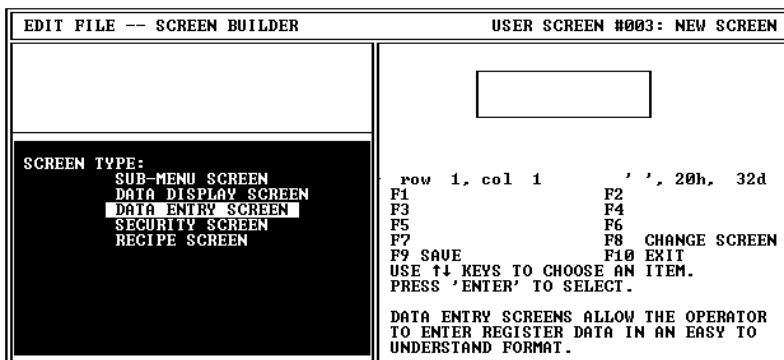
Function Key	Designation	Function
[F1]	DISPLAY REG	Inserts data display field at the cursor point. Accesses the display register information. Note: Display values must be positioned before the data entry field.
[F2]	ENTRY REG	Inserts data entry field at the cursor point. Accesses the entry register information.
[F3]	MAP SCREEN	Accesses screen mapping functions that link application screens in a logical sequence. Link screens only after all of the screens have been created.
[F4]	COPY SCREEN	Copies an existing screen to the current window. Both the source and destination screens must be of the same type (Data Entry screens).
[F7]	CLEAR SCREEN	Clears the current screen. You have the option of clearing only the screen text or deleting the entire screen including any linking you may have established.
[F8]	CHANGE SCREEN	Selects another operator screen.
[F9]	SAVE	Saves the application without exiting the Screen Builder function.
[F10]	EXIT	Prompts you to save the application to the current file and exits the DPS software.

Creating a Data Entry Screen

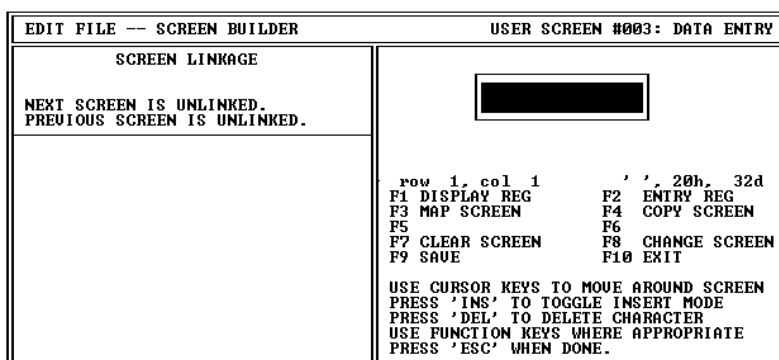
The entry register data field may be inserted anywhere on the screen, however, no text may follow the data entry field. This means that you must insert any text or a display field before the data entry field. The number of character positions required for the data entry field depends upon the register information you provide.

To create a data entry screen:

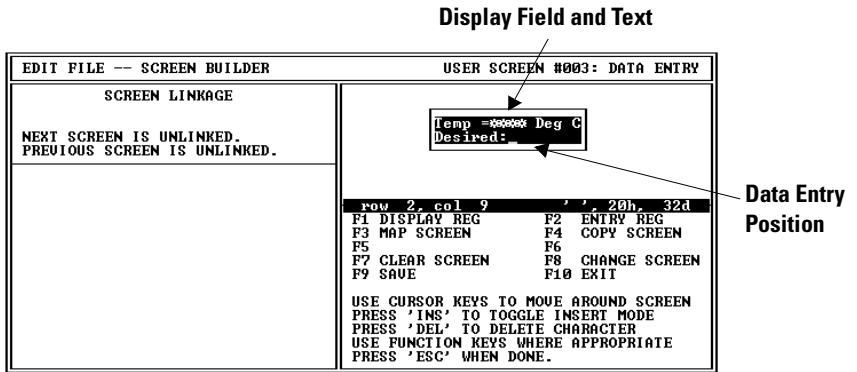
1. Select Screen Builder from the Edit File – Option Selection menu.
The Screen Builder for the main menu (screen #1) is displayed.
2. Press [F8] and enter the display screen # or press [F6] for the next unused screen.
You are then prompted to choose a screen type.
3. Select Data Entry Screen and press [Return].



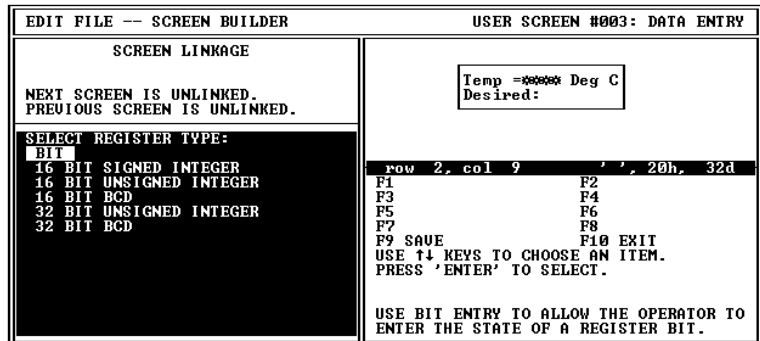
The Screen Builder for a data entry screen appears.



4. Create all of the screen text and, if used, a data display field. Refer to Chapter 7 for information on how to insert a data display field. The same procedures apply to a data display on the data entry screen.
5. Position the cursor where you want to insert the data entry field.



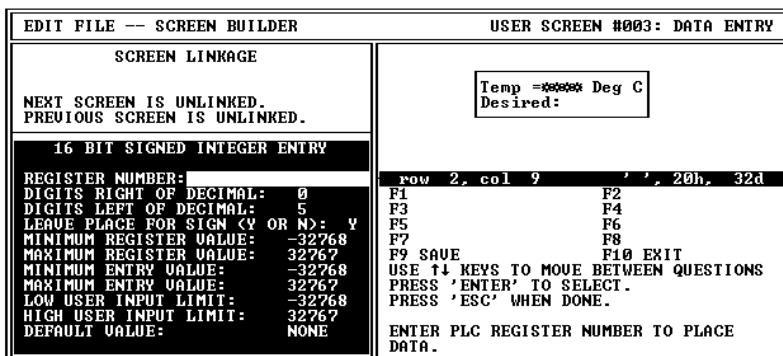
6. Press [F2] to insert a data entry register.



You are prompted to select a register type. Refer to Chapter 3 for a list of the applicable register types for each.

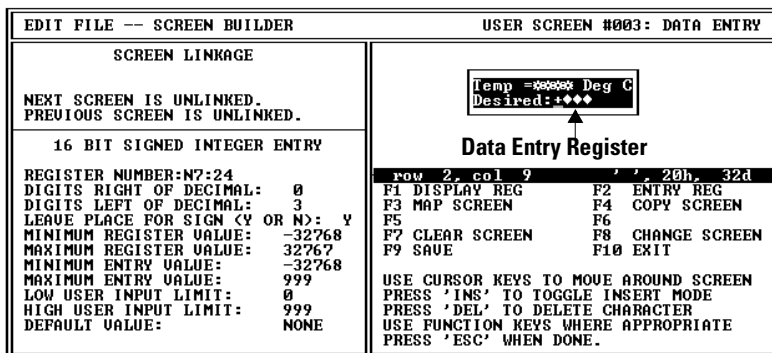
7. Select a register type.

You are prompted for data specific to the selected register type:



8. Enter the register data. Refer to the next section Data Entry Register Format Selections.

9. After entering the register data, press [Esc] to save the data and return to the screen editing. The data entry register field is indicated by a series of diamonds. The number of diamonds and format (decimal point and sign) is determined by the register data you entered.



10. Press [F9] to save the screen, any text entered after the data entry field will not be displayed.

Data Entry Register Format Selections

When inserting a data entry field, you must provide register information that determines the address and format of the data storage location. This section describes options available for data entry registers.

Bit

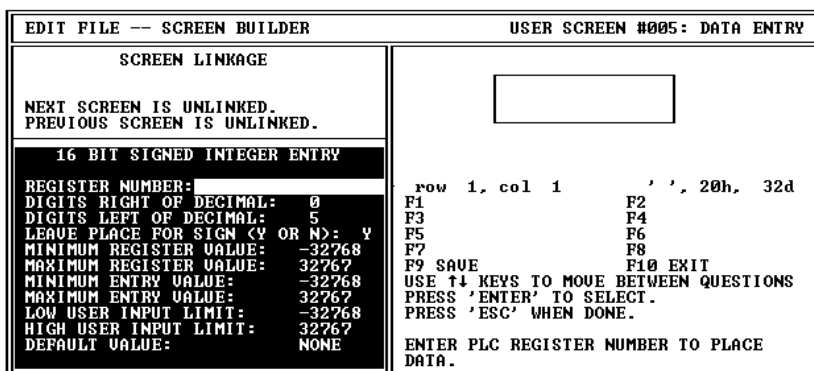
The screen for a Bit format is shown below

EDIT FILE -- SCREEN BUILDER		USER SCREEN #004: DATA ENTRY	
SCREEN LINKAGE		<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>	
NEXT SCREEN IS UNLINKED. PREVIOUS SCREEN IS UNLINKED.			
BIT ENTRY			
REGISTER NUMBER: _____		row 1, col 1	' ', 20h, 32d
BIT NUMBER: _____		F1	F2
DEFAULT VALUE?		F3	F4
Z = NO DEFAULT		F5	F6
<ENTER 1,0,Z>: _____	NONE	F7	F8
		F9 SAVE	F10 EXIT
		USE ↑↓ KEYS TO MOVE BETWEEN QUESTIONS	
		PRESS 'ENTER' TO SELECT.	
		PRESS 'ESC' WHEN DONE.	
		ENTER PLC REGISTER NUMBER TO PLACE DATA.	

Format Selection	Description
Register Number	The controller data address to be monitored.
Bit Number	The Bit number if the register number designates a multiple bit address (a 16 bit data address, for example). This selection is unavailable if the register number refers to a Bit type address.
Default Value ? Z = No Default (Enter 1,0,Z)	This parameter defines the default value that is displayed at the data entry position of the MicroView display. If a default value of 1 is entered, a 1 is displayed, and the operator is only required to press ENTER to set the bit address. An entry of Z defines no default value. NONE appears in the window when Z is entered.

16 Bit Signed Integer, 16 Bit Unsigned Integer, 16 Bit BCD Binary Coded Decimal)

The screen for a 16 Bit Unsigned Integer format is shown below. The screens for 16 Bit Signed Integer and 16 Bit BCD formats are similar.



Format Selection	Description
Register Number	The controller data address to be monitored.
Digits Right of Decimal	The number of digits to be placed to the right of the decimal.
Digits Left of Decimal	The number of digits to be placed to the left of the decimal.
Leave Place for Sign (Y or N)	Provides for a one character place for the polarity sign (+ or -) when the data is displayed, if desired.
Minimum Register Value	The minimum data value of the controller address being monitored.
Maximum Register Value	The maximum data value of the controller address being monitored.
Minimum Entry Value	The minimum data value to be entered. When this value is entered the minimum register value is entered to the defined controller address when scaling is enabled.
Maximum Entry Value	The maximum data value to be entered. When this value is entered the maximum register value is entered to the defined controller address when scaling is enabled. The range defined by the minimum entry value and the maximum entry value is proportionally scaled to the range of the minimum and maximum register values. If both ranges are equal then the scaling ratio is 1:1.
Low User Input Limit	The minimum entry value that an operator may enter. If a value lower than this limit is entered the MicroView will display an "Input Error" screen displaying the minimum and maximum entry limits.
High User Input Limit	The maximum entry value that an operator may enter. If a value higher than this limit is entered the MicroView will display an "Input Error" screen displaying the minimum and maximum entry limits.
Default Value	This parameter defines a default value that is displayed at the entry address of the display. An entry of Z defines no default value. NONE appears in the window when Z is entered.

Creating Security Screens

Chapter Objectives

This chapter describes how to create security screens.

Section	Page
Security Screens	9-1
Security Screen Builder	9-2
Creating a Security Screen	9-3

Security Screens

Security screens use numeric codes to restrict access to any associated information or processes. For ease of programming, security screens are provided with default text:

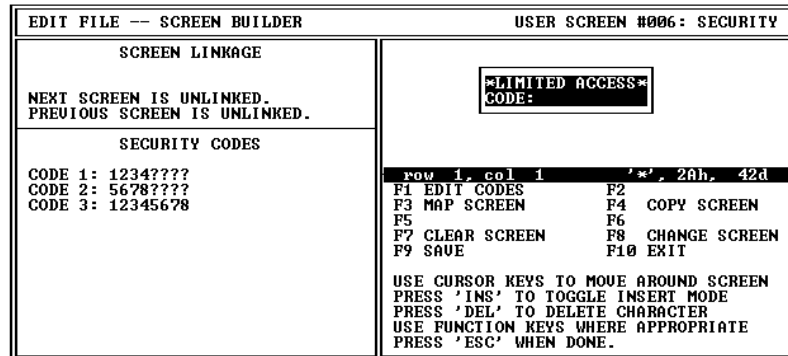
LIMITED ACCESS
CODE:

If a different message is required, the security screen text can be edited. Constructing a security screen usually consists of assigning the security code(s).

As an operator enters a security code, an asterisk (*) is displayed on the MicroView for each character input on the keyboard. If a valid security code has been entered, the next linked screen is displayed. If an invalid security code is entered, an error message appears. Once the error condition is acknowledged, the operator can re-enter the code or return to the Main Menu.

Security Screen Builder

This is the Security Screen Builder display.



Security Screen Builder Function Keys

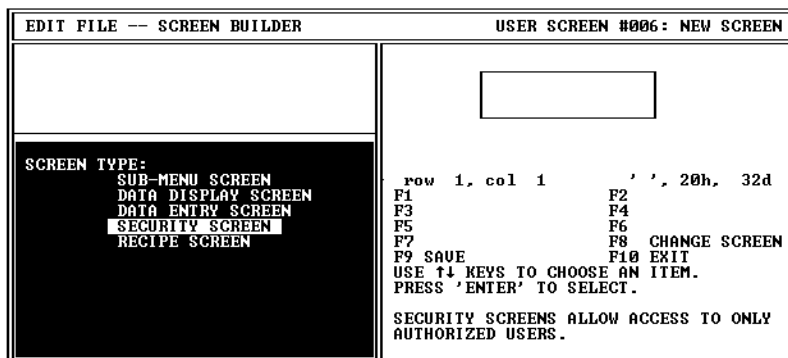
Function Key	Designation	Function
[F1]	EDIT CODES	Allows previously entered codes to be edited.
[F3]	MAP SCREEN	Accesses screen mapping functions that link application screens in a logical sequence. Link screens only after all of the screens have been created. Refer to Chapter 11.
[F4]	COPY SCREEN	Copies an existing screen to or from the current display window. Both the source and destination screens must be of the same type (Security screens).
[F7]	CLEAR SCREEN	Clears the current screen. You have the option of clearing only the screen text or deleting the entire screen.
[F8]	CHANGE SCREEN	Selects another operator screen.
[F9]	SAVE	Saves the application without exiting the Screen Builder function.
[F10]	EXIT	Prompts you to save the application to the current file and exits the DPS software.

Creating a Security Screen

You can specify up to three separate codes for each Security Screen. An operator is allowed access by entering any of the assigned security codes.

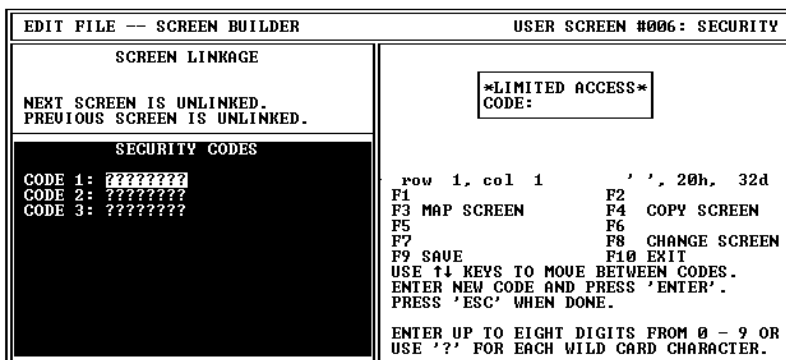
To create a security screen:

1. Select Screen Builder from the Edit File - Option Selection menu. The Screen Builder for the main menu (screen #1) is displayed.
2. Press [F8] and enter the display screen # or press [F6] for the next unused screen.
3. You are then prompted to choose a screen type. Select Security Screen and press [Return].



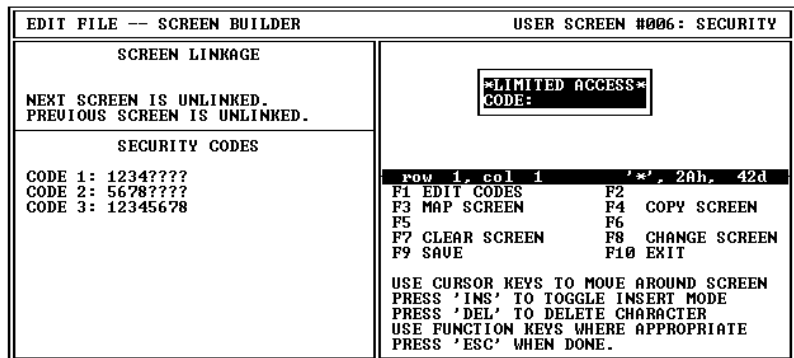
The Screen Builder for a security screen appears.

4. If no security codes have been previously defined, you are prompted to enter a code(s).



If you are editing a screen with a previously defined security code(s), you must press [F1] to edit the code(s).

5. Enter at least one digit at each prompt. You can enter up to eight digits. If less than eight digits are entered, each remaining digit is displayed as a question mark (?). The question mark is a wildcard character, designating any character entry as acceptable.
6. To modify a security code, highlight the value and overwrite the old code.
7. To save the security code(s), press [F9] or [Esc]. The cursor is then returned to the display window where you can edit the screen text.



8. Press [Esc] to save the screen and return to the Edit File - Option Selection menu.

Creating Recipe Screens

Chapter Objectives

This chapter describes how to create recipe screens.

Section	Page
Recipe Screens	10-1
Recipe Screen Builder	10-2
Creating a Recipe Screen	10-3

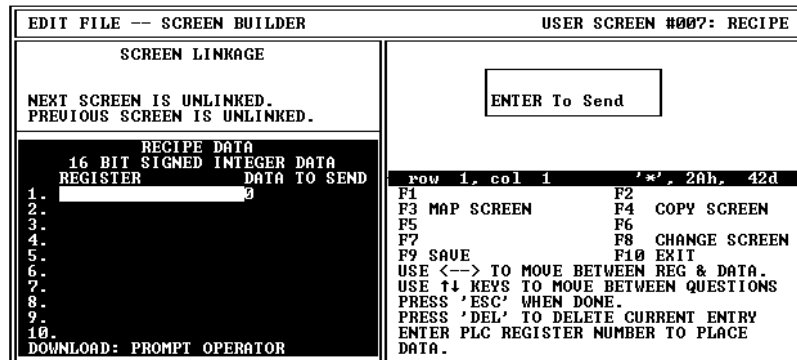
Recipe Screens allow an operator to download a block of data for up to 10 register addresses. These addresses can be in any order. Multiple recipe screens may be linked together in sequential order to download more than 10 register addresses, or to download more than one data format. You can choose to initiate the download automatically or manually (with a prompt).

Recipe Screens

If recipe screens are linked together, successive screens linked to the first recipe screen are downloaded immediately following the first screen. The operator prompt enabled for the first screen prompts the operator to acknowledge the recipe download. If the other linked recipes do not have the operator prompt enabled they are sent automatically. This appears to the operator as though all recipes were sent as one large recipe.

Recipe Screen Builder

The screen for creating recipe screens is shown below:

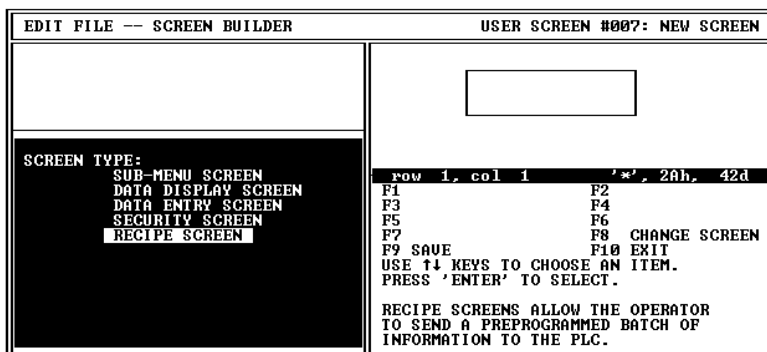


Recipe Screen Builder Function Keys

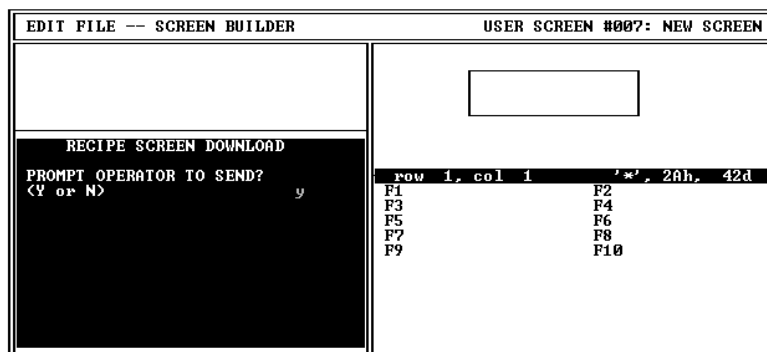
Function Key	Designation	Function
[F3]	MAP SCREEN	Accesses screen mapping functions that link application screens in a logical sequence. Link screens only after all of the screens have been created. Refer to Chapter 11.
[F4]	COPY SCREEN	Copies an existing screen to or from the current display window. Both the source and destination screens must be of the same type (Recipe screens).
[F8]	CHANGE SCREEN	Selects another operator screen.
[F9]	SAVE	Saves the application without exiting the Screen Builder function.
[F10]	EXIT	Prompts you to save the application to the current file and exits the DPS software

Creating a Recipe Screen To create a recipe screen:

1. Select Screen Builder from the Edit File - Option Selection menu. The Screen Builder for the main menu (screen #1) is displayed.
2. Press [F8] and enter the display screen # or press [F6] for the next unused screen.
3. You are then prompted to choose a screen type. Select Recipe Screen and press [Return].

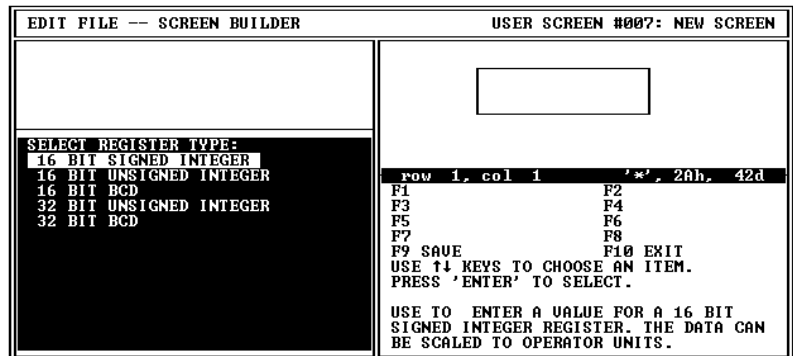


The Screen Builder for a recipe screen appears. You are asked whether the operator is to be prompted before the recipe data is downloaded (manual or automatic operation).



4. Enter [Y] or [N] and press [Return]. If you select [Y], the operator is prompted to acknowledge the screen. The operator must press [←] on the MicroView. If you select [N], the download occurs automatically when the screen is selected. The operator in most cases will not even see the screen, only the message that data is being downloaded.

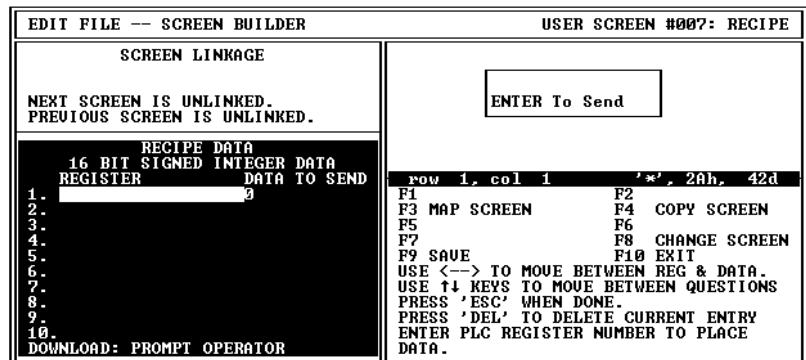
You are prompted for a register type.



IMPORTANT

32 Bit Register Types appear in the list but are not available.

5. Select a register type and press [Return]. You are prompted to enter the registers and the values you want to write.



6. Enter the register address and press [Return]. Enter the value to send and press [Return]. Repeat for up to 9 more addresses that you want to write at download.
7. After entering the download data and addresses, press [Esc] to accept the data.
8. Enter the screen text.
9. Press [F9] to save the screen or press [Esc] to save the screen and return to the Edit File - Option Selection menu.

Linking Menu and Application Screens

Chapter Objectives

This chapter describes how to link the application screens so that an operator is presented with a logical flow of information.

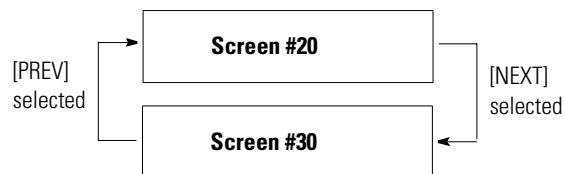
Section	Page
Linking Application Screens	11-1
Linking Menu Screens	11-2
Screen Linking Guidelines	11-2
Application Screen Linking Function Keys	11-3
Menu and Sub-Menu Linkage Display	11-4
Linking a Menu	11-4
Linking Example	11-5

Linking Application Screens

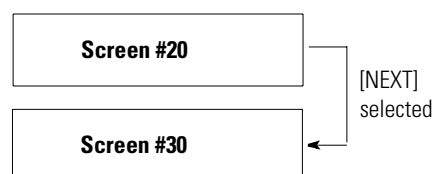
After you have developed all of the screens necessary for an application, you need to decide how to link them. It is very helpful to create a flowchart of the screens to use as a map before you begin to define the links.

The [PREV] and [NEXT] keys of the MicroView use the linking information to move between screens. Not all links need to have a “next” and “previous” screen. A screen link may create a two-way or one-way relationship.

Two-way links utilize a **Link** function:

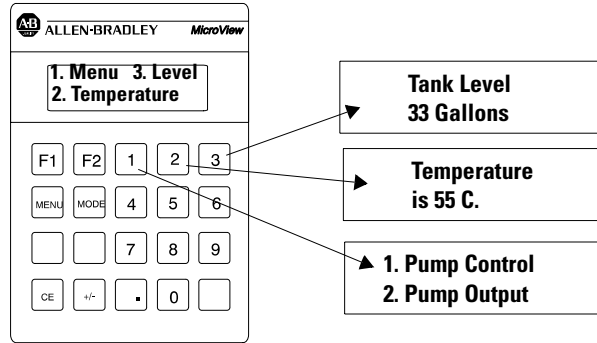


One-way links only use a **Goto** function:



Linking Menu Screens

Menu and sub-menu links provide one way links with up to 8 application screens or sub-menus. An operator selects a menu item by pressing the numeric key corresponding to the menu item. When you link the main menu and sub-menu items you are linking screens to the keys on the numeric keypad.

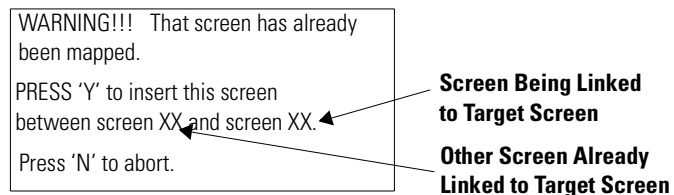


Screen Linking Guidelines

The following rules apply to linking screens:

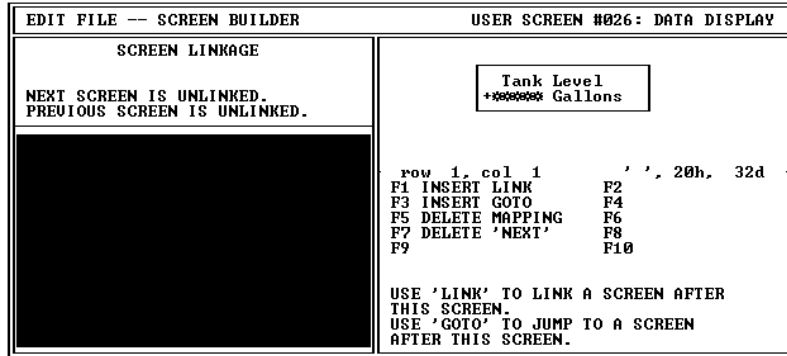
- Only screens that are already defined can be linked.
- Wait until you have developed all of your screens and menus before establishing links. It is much easier to create your links once, rather than change them whenever you change the order of screens.
- A non-menu screen cannot be linked back to a menu screen, use a Goto (one way) link instead.
- A link is a one-to-one relationship between the current screen and the target screen. You cannot establish more than a single one-way link to any particular screen.

If you attempt to link to a destination screen that is already linked, you have the option of inserting the screen (changing the current link) or aborting the operation.



Application Screen Linking Function Keys

When you press [F3] MAP Screen on a non-menu screen, the screen linking function keys are active. Shown below is an example using a data display screen, the other screen types are similar.

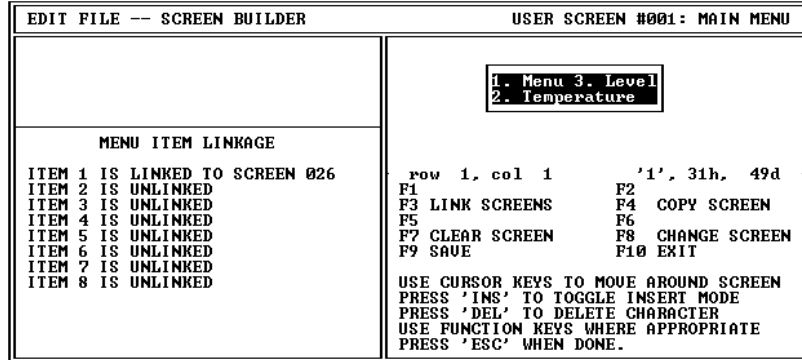


Screen Linking Function Keys

Function Key	Designation	Function
[F1]	INSERT LINK	Inserts a link between two screens. This link is bi-directional, an operator can toggle between the screens using the [NEXT] and [PREV] keys.
[F3]	INSERT GOTO	Inserts Goto link between two screens. This is a one way link, an operator cannot return to the previous screen by pressing [PREV].
[F5]	DELETE MAPPING	Deletes all links to the current screen.
[F7]	DELETE NEXT	Deletes the link established for the next screen only. On two-way links this also deletes the link to the screen previous to the current screen.

Menu and Sub Menu Linkage Display

When you press [F3] MAP Screen on a main or sub-menu screen, the current screen links are displayed. Items 1 through 8 correspond with keypad keys [1] through [8]. Screens are linked by entering a screen number.

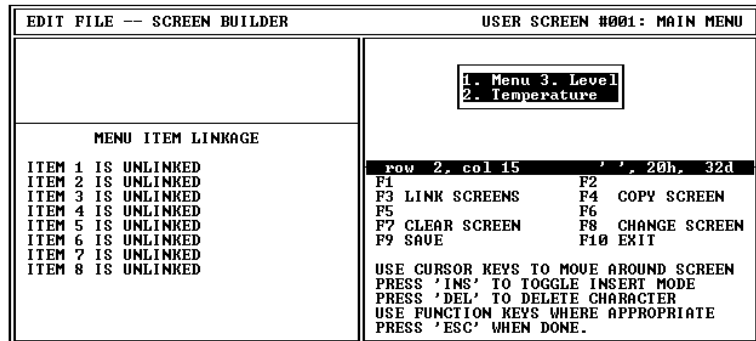


Linking a Menu

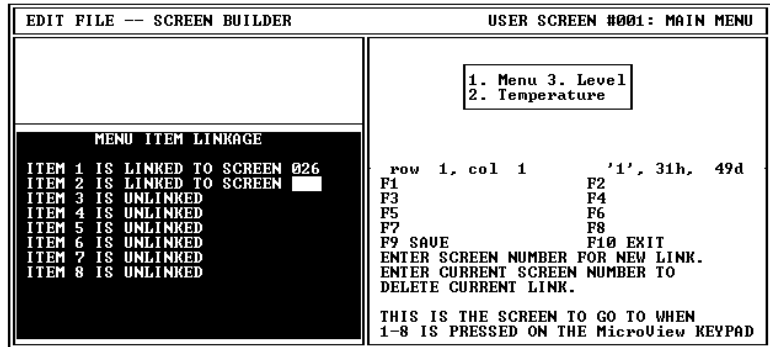
The following is a typical example of how to link items to a main menu. Links to a sub-menu are done in the same manner.

To link screens to a menu:

1. Open the menu or sub-menu screen.



2. Press [F3] to select the link screens function.
You are prompted to enter a screen number.



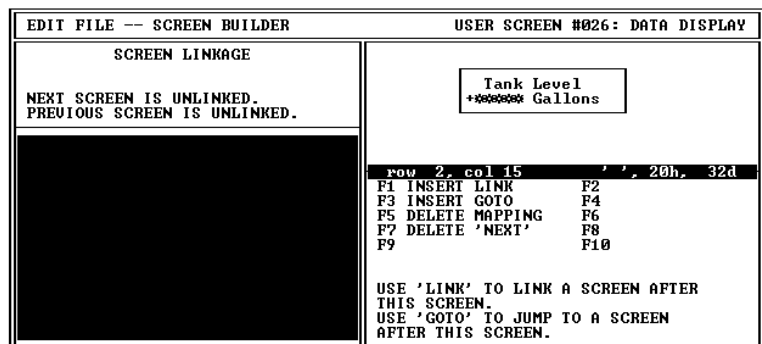
3. Enter the screen # you want linked to numeric entry key [1] and press [Return].
You are prompted to enter the screen linked to the MicroView numeric key [2].
4. Continue entering the screen links for up to eight MicroView numeric entry keys.
5. Press [F9] to save the menu edits.

Linking Example

The following example shows how to create one way or bidirectional screen links.

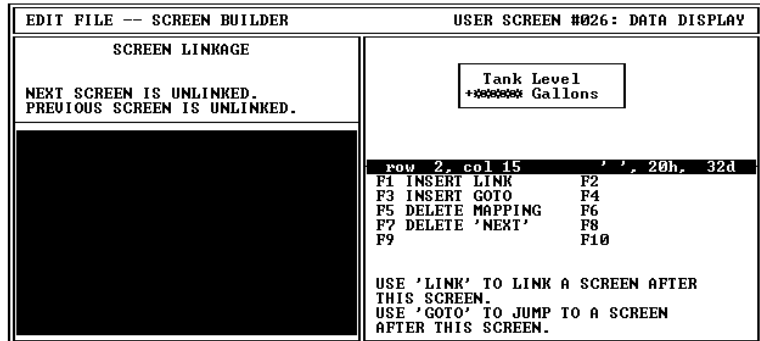
To link application screens:

1. Open the screen you want to link. In this example, we are linking screen #26 (data display) to screen #33 (data entry screen).



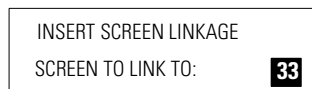
2. Press [F3] to select the MAP Screen function.

The current screen links are displayed along with the screen linking function key operation.

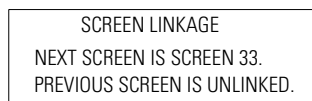


3. Press [F1] to create a bidirectional link (operator can move between screens) or [F3] to create a Goto (one way link, this screen to specified screen).

You are prompted to enter a screen number.

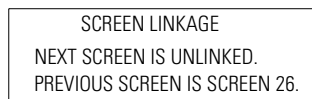


4. Enter a screen number (in this example, screen #33) and press [Return]. The screen link is shown in the Screen Linkage description.



5. Press [F9] to save the screen edits.

When you open the screen that was just linked (screen #33), the Screen Linkage description will show that there is now a previous screen link to that screen.



Entering MicroView Configuration Data

Chapter Objectives

This chapter describes how to set the configuration parameters of the MicroView.

Section	Page
Configuration Parameters	12-1
Accessing Configuration Data	12-2
Update Interval	12-3
MicroView Advisor	12-4
Advisor Operation	12-5
Setting Master Security Code	12-6
Special Security Screen	12-7
MicroLogix Hardware Parameters	12-9

Configuration Parameters

The following configuration parameters can be set. These parameters are downloaded with the application and override any settings that are currently used by the MicroView.

Parameter	Description
Update Interval	Defines the rate at which the screen display is updated.
MicroView Advisor	Assign advisor register data allowing screen changes by a controller.
Set Master Security Code	Sets the master security code allowing an operator access to security screens and codes.
Special Security Screen	Restricts access to the Mode Menu of the MicroView to prevent unauthorized access to controller functions.
PLC Hardware Parameters	Defines the communication parameters between a controller and the MicroView.

Accessing Configuration Data

The following shows how to access MicroView configuration data.

1. Select Edit Program File from the Opening menu.
You are prompted for a file name.

2. Enter the file name of the application.

The Edit File - Option Selection menu displays.

EDIT FILE - OPTION SELECTION		
MicroView CONFIGURATION DATA SCREEN BUILDER FUNCTION KEY BUILDER		
USE ↑↓ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT. PRESS 'ESC' WHEN DONE.	F1 F3 F5 F7 F9 SAVE	F2 F4 F6 F8 F10 EXIT
MicroView CONFIGURATION DATA USE TO SETUP MicroView CONFIGURATION OPTIONS. OPTIONS INCLUDE: PLC PROTOCOL, PLC SPECIFIC OPTIONS AND COMMUNICATION BAUD RATES.		

3. Select MicroView Configuration Data.

The Configuration - Option Selection menu displays.

CONFIGURATION - OPTION SELECTION		
UPDATE INTERVAL MicroView ADVISOR SET MASTER SECURITY CODE SPECIAL SECURITY SCREEN PLC HARDWARE PARAMETERS		
USE ↑↓ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT. PRESS 'ESC' WHEN DONE.	F1 F3 F5 F7 F9 SAVE	F2 F4 F6 F8 F10 EXIT
UPDATE INTERVAL USE TO SET THE DISPLAY UPDATE RATE OF THE MicroView.		

4. Select the configuration item you want to modify. Refer to the appropriate section in this chapter for additional information.

Update Interval

The update interval specifies the display update rate of the MicroView. The Update Interval is the period of time between read and write requests to the controller. This is not the rate at which data is read from or written to a controller.

When you select Update Interval from the Configuration – Option Selection menu, the following is displayed:

UPDATE INTERVAL	
CURRENT UPDATE SETTING:	0.50
ENTER UPDATE TIME:	█
ANSWER QUESTION. PRESS 'ESC' WHEN DONE.	
THE UPDATE TIME IS USED TO SPECIFY THE DISPLAY UPDATE RATE OF THE MicroView. VALID RATES ARE FROM 0.05 TO 12.50 SECONDS WITH A RESOLUTION OF 0.05 SECONDS.	

To assign a new update interval, enter a valid number from 0.05 to 12.50 seconds in any increment of 0.05 seconds and press [Return].

To save the new update interval, press [Esc]. You are then returned to the Configuration – Option Selection menu.

MicroView Advisor

The Advisor function allows screen changes to be made by the logic controller. The advisor consists of a controller address monitored by the MicroView. When the advisor address contains a screen number, the corresponding screen is displayed.

When you select MicroView Advisor from the Configuration – Option Selection menu, the following is displayed:

ADVISOR		
SCREEN READ ENABLED (Y OR N):		Y
SCREEN READ REGISTER NUMBER:		
ACK/NAK WRITE REGISTER NUMBER:		
ACK BIT:		0
ACK/NAK BIT POLARITY:		0
SCREEN WRITE ENABLED (Y OR N):		N
SCREEN WRITE REGISTER NUMBER:		
USE ↑↓ KEYS TO CHANGE QUESTIONS.	F1	F2
PRESS 'DEL' TO DELETE ITEM.	F3	F4
ANSWER QUESTION AND PRESS 'ENTER'.	F5	F6
PRESS 'ESC' WHEN DONE.	F7 CLEAR DATA	F8
	F9 SAVE	F10 EXIT
ENTER 'Y' IF YOU WANT THE MicroView TO MONITOR THE PLC FOR SCREEN NUMBERS.		

The MicroView Advisor consists of six items:

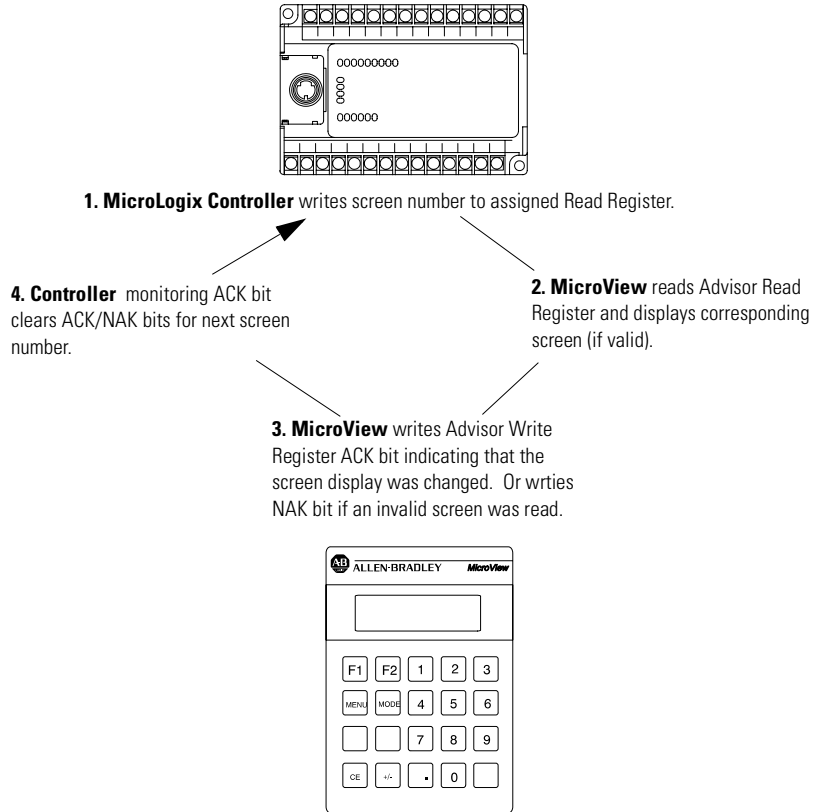
Item	Purpose
Screen Read Register Number	The controller address (16 bit) that the MicroView reads for the current screen number.
ACK/NAK Write Register Number	The controller address (16 bit or bit type) that contains the ACK and NAK bits which are written to and monitored by the MicroView and controller. The write register is updated at the Update Interval not the Advisor update rate.
ACK Bit*	The bit number within the ACK/NAK write register that will be used as an acknowledgement bit. If a bit type address was assigned for the write register, this field will be filled in using the bit address specified. ACK/NAK bits are used only to indicate that the MicroView has received a message.
ACK/NAK Bit Polarity	Defines the polarity (0 or 1) ACK/NAK bits: When set to 1, a value of 1 for the ACK bit indicates a valid screen and a value of 1 for the NAK bit indicates an invalid number. When set to 0, a value of 0 for the ACK bit indicates a valid screen and a value of 0 for the NAK bit indicates an invalid number.
Screen Write Enable **	When enabled, the MicroView writes the current screen number to the controller.
Screen Write Register Number	The controller address that is written by the MicroView when screen write is enabled. The MicroView writes the current screen number in this register.

* NAK bit is always the next sequential bit after the ACK bit.

** If Mode Menu is the current screen, the MicroView assigns it to screen number 255.

Advisor Operation

The following shows how the Advisor function operates. The controller program must reset the ACK and NAK bits after writing a screen number.



If the controller sends an invalid screen number (not a programmed screen) the MicroView writes the write register NAK bit (always next sequential bit following ACK bit). The NAK bit indicates to the controller that the screen number is incorrect. The master security code is used by an operator to access and/or change the security codes of the security screens.

Setting Master Security Code

When you select Master Code from the Configuration - Option Selection menu, the following is displayed:

MASTER SECURITY CODE EDITOR	
CURRENT MASTER CODE:	00000000
ENTER NEW MASTER:	00000000
ENTER MASTER CODE. PRESS 'ESC' WHEN DONE.	
THE MASTER CODE IS USED BY AN OPERATOR TO CHANGE THE SECURITY CODES OF THE SECURITY SCREENS. IF THE MASTER CODE IS 0, ANY CODE WILL BE ACCEPTED. IF THE MASTER CODE IS 99999999, NO MASTER CODE WILL BE ACCEPTED.	

Enter a new security code. There are two codes that perform special functions:

- **00000000** disables the security function. This allows an operator to enter any number as a valid access code.
- **99999999** disables the master security code(s). When used, only the security code(s) assigned to individual screens are valid. Use this code when you do not want to provide an operator the ability to override or change security codes for security screens.

The security code must be an 8 digit number, if you enter less than 8 digits, the remaining values are set to 0. The operator must enter all eight numbers (including zeroes) for a valid code.

To save the new security code, press [Esc]. You are returned to the Configuration - Option Selection menu.

ATTENTION



Keep a record of the Master Security Code. If you or another user does not remember the Master Security Code, the unit is disabled. You must return the unit to the factory for repair.

Special Security Screen

The special security screen restricts access to the MicroView Mode Menu. The MicroView Mode Menu allows an operator to directly access controller data files and other controller functions. Providing a security screen protects against unintended use of these functions. If you don't provide a special security screen, the Mode Menu is available to any operator when they press [Mode] on the MicroView.

When you select Special Security Screen from the Configuration – Option Selection menu, the first security screen is displayed:

SPECIAL SECURITY SCREEN	
LIMITED ACCESS CODE:	
SECURITY CODES CODE 1: 23456789 CODE 2: ?????????? CODE 3: ??????????	F1 F2 F3 F4 COPY SCREEN F5 F6 F7 F8 F9 SAVE F10 EXIT USE ↑↓ KEYS TO MOVE BETWEEN CODES. ENTER NEW CODE AND PRESS 'ENTER'. PRESS 'ESC' WHEN DONE. ENTER UP TO EIGHT DIGITS FROM 0 - 9 OR USE '?' FOR EACH WILD CARD CHARACTER.

To enter new security codes:

1. Enter an eight digit code. Press [Return] to advance to the next security code. Enter up to three eight digit codes.

TIP

Use a question mark ? to specify a wild card character. A wild card character matches with any character input by the operator.



2. Press [F9] to save the new security codes and advance to the next screen. If you do not wish to edit the security message, Press [Esc] to exit the Special Security Screen. You are returned to the Configuration - Option.

SPECIAL SECURITY SCREEN	
	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Enter Your Message:</div>
SECURITY CODES CODE 1: ????????? CODE 2: ????????? CODE 3: ?????????	<pre> row 2, col 3 ':', 3Ah, 58d F1 EDIT CODES F2 F3 F4 COPY SCREEN F5 F6 F7 CLEAR SCREEN F8 F9 SAVE F10 EXIT USE CURSOR KEYS TO MOVE AROUND SCREEN PRESS 'INS' TO TOGGLE INSERT MODE PRESS 'DEL' TO DELETE CHARACTER USE FUNCTION KEYS WHERE APPROPRIATE PRESS 'ESC' WHEN DONE. </pre>

To edit the screen text:

You can edit the screen text from the second security screen. The default text is shown in the example.

1. Press [F7] to clear the display window.
2. Enter the new message of up to 21 characters.
3. Press [F9] to save the new message.
4. Press [Esc] to exit the Special Security Screen. You are returned to the Configuration – Option Selection menu.

IMPORTANT

You cannot link the Special Security Screen. This screen only restricts access to the Mode Menu and is not assigned a screen number.

IMPORTANT

The security screen protects against unauthorized entry into the (MODE MENU) of the MicroView. Keep a record of all security codes used. If the user forgets the security code and the DPS application program is not available, there will be no way for the user to place the MicroView into the program mode in order to change or update an application.

MicroLogix Hardware Parameters

When using DF1 protocols, you must specify the operating parameters that allow the MicroView to communicate with the controller. The MicroView settings must match the settings of the controller.

When you select PLC Hardware Parameters from the Configuration - Option Selection menu, the following is displayed:

PLC HARDWARE PARAMETERS - OPTION SELECTION		
COM PORT SETUP ADVISOR UPDATE RATE		
USE ↑↓ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT. PRESS 'ESC' WHEN DONE.	F1 F3 F5 F7 F9 SAVE	F2 F4 F6 F8 F10 EXIT
COM PORT SETUP USED TO SET THE MicroView COMMUNICATION PORT PARAMETERS TO THE VALUES USED BY THE PLC.		

Hardware Parameter	Purpose
Com Port Setup	Defines the baud rate used for communication with the controller.
Advisor Update Rate	Sets the rate at which the MicroView reads the advisor register.

To save the new hardware parameters, press [F9]. To exit the screen, press [Esc]. You are returned to the Configuration - Option Selection menu.

Com Port Setup

Selecting Com Port Setup displays:

PLC COM PORT COMMUNICATION PARAMETERS		
BAUD RATE		
USE ↑↓ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT.	F1 F3 F5 F7 F9	F2 F4 F6 F8 F10
PRESS 'ESC' WHEN DONE.		
CURRENT SETTINGS: BAUD RATE: 9600 PARITY: NONE DATA BITS: 8		

The Communications Port parameters have the following default values for the MicroView:

Baud Rate: 9600
Parity: None
Data Bits: 8

Baud Rate

Default is 9600 baud. Baud rate options are 19200, 9600, 2400, 1200, and 300.

Parity

Parity of the MicroView's communications port is fixed at (None) and it can not be changed.

Data Bits

Defines the data length. The number of data bits of MicroView's communication port is fixed at eight bits.

If you wish to change the baud rate of the MicroView, press [Return] to display the second screen.

BAUD RATE		
19200 9600 2400 1200 300		
USE ↑ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT. PRESS 'ESC' WHEN DONE.	F1 F3 F5 F7 F9	F2 F4 F6 F8 F10
CURRENT SETTINGS: BAUD RATE: 9600 PARITY: NONE DATA BITS: 8		

Select a baud rate that matches your controller.

To save the new Baud Rate, press [Esc]. You are returned to the PLC Hardware Parameter - Option Selection menu.

Advisor Update Rate

Selecting Advisor Update Rate from the PLC Hardware Parameters – Option Selection menu, displays the following:

UPDATE INTERVAL	
CURRENT UPDATE SETTING:	2.00
ENTER UPDATE TIME:	█
ANSWER QUESTION. PRESS 'ESC' WHEN DONE.	
THE ADVISOR UPDATE RATE IS USED TO SET THE FREQUENCY THAT THE MicroView READS THE ADVISOR REGISTER. THE DEFAULT FOR THIS VALUE IS 2 SECONDS. VALID RATES ARE BETWEEN 1 & 12.5 SECONDS. CHANGING THIS VALUE TO A LARGER NUMBER WILL HELP IMPROVE NETWORK PERFORMANCE.	

The Advisor Update Rate is the periodic rate at which the MicroView scans the Advisor register. For example a rate of 2.00 means the MicroView reads the advisor register once every 2 seconds.

To assign a new Advisor Update Rate, enter a valid decimal number and press [Return]. The valid range is from 1 to 12.5 seconds. The default is 2 seconds. Entries are rounded up to the next higher 0.1 second.

To save the new Advisor Update Rate, press [Esc]. You are returned to the PLC Hardware Parameter - Option Selection menu.

Note: Because the advisor adds to the network communication traffic, the rate should be set to the highest possible value that is acceptable for your application.

MicroView Function Key Builder

Chapter Objectives

This chapter describes how to use the Function Key Builder to assign screen selection or bit write operations to function keys. The chapter contains these sections:

Section	Page
Function Key Options	13-1
Bit Write Mode	13-3
Function Key Builder	13-4
Linking Screens to Function Keys	13-5
Assigning Bit Write Functions	13-6

Function Key Options

You can link the MicroView function keys, F1 and F2, to the following screens depending upon whether or not Auto Return is enabled.

Auto Return Enabled?	Function keys can be assigned to these screens:
Yes	Data Display, Data Entry, Recipe
No	Menu, Sub-Menu, Data Display, Data Entry, Security, Recipe

Pressing an assigned function key displays the function key number for approximately 0.5 seconds and then the assigned screen. There are two function key modes:

- Auto Return
- Continue

Auto Return

Auto return function keys return to the initial display after the linked screen is executed. For example, assume that an application is displaying screen #6 and an auto return function key F2 is linked to a recipe screen #10. When F2 is pressed, the recipe screen #10 is displayed. After the operator downloads a new recipe on screen #10, the initial screen #6 will be again displayed.

The following table describes when the return to the initial screen occurs.

Function Key Linked To:	Returns to Initial Screen After:
Data Display Screen	[←], [PREV] or [NEXT] keys are pressed
Data Entry Screen	A value is entered or [PREV] or [NEXT] keys are pressed *
Recipe Screen	Recipe data is downloaded or [PREV], or [NEXT] keys are pressed *

* [PREV] and [NEXT] abort the operation.

Continue

Continue function keys do not return to the initial display but remain at the linked screen. For example, assume that an application is displaying screen #3 and a continue function key F1 is linked to a data entry screen #5. When F1 is pressed, the data entry screen #5 is displayed. The application continues from screen #5.

Bit Write Mode

The function keys of the MicroView can also set or clear bits in the logic controller. The bit write mode may be enabled with or without screen links being assigned to the same function keys (if bit write is enabled, both function keys will write to the corresponding registers). The function keys are assigned to 2 contiguous 16 bit addresses such as N7:20 and N7:21.

Depending upon how a bit write is configured (clear or set), a function key will either:

- send the corresponding value (F1 = 1, F2 = 2)
- clear the register

The following chart shows the set and clear values for each function key. The register location for F1 is specified on the Function Key Builder screen. The remaining function key is automatically assigned to the next consecutive register.

MicroView Function Key	Set Value	Clear Value	Register Location
F1	00000000 00000001	00000000 00000000	1
F2	00000000 00000010	00000000 00000000	2

TIP

The entire word register (16 bits) is written when a bit write is initiated. Bit write does not change individual bits.



If a function key is used for bit write mode as well as screen navigation, the bit pattern will not be written if the MicroView cannot go to the mapped screen.

Function Key Builder

The screen for assigning MicroView function key options is shown below:

EDIT FILE -- FUNCTION KEY BUILDER		
FUNCTION KEY REGISTERS NO REGISTERS DEFINED.		
<input type="text"/>		
FUNCTION KEYS		
FUNCTION KEY F1 : F2 :	SCREEN NUMBER [] NOT LINKED	AUTO RETURN F1 PREV SCREEN F2 NEXT SCREEN F3 F4 F5 BIT WRITE REG F6 F7 CLEAR F KEYS F8 F9 SAVE F10 EXIT USE CURSOR KEYS TO MOVE BETWEEN F KEY OPTIONS. PRESS 'ESC' WHEN DONE. PRESS 'DEL' TO DELETE F KEY LINK. ENTER SCREEN NUMBER TO LINK TO THIS FUNCTION KEY.

Function Key Builder Function Keys

Function Key	Designation	Function
[F1]	PREV SCREEN	Displays next programmed screen in display window. Use this display as a reference when assigning screen numbers to function keys.
[F2]	NEXT SCREEN	Displays previous programmed screen in display window. Use this display as a reference when assigning screen numbers to function keys.
[F5]	BIT WRITE REG	Prompts you for a base register location.
[F7]	CLEAR F KEYS	Clears all screen and bit write mode operations assigned to the function keys.
[F9]	SAVE	Saves the application without exiting the Function Key Builder screen.
[F10]	EXIT	Prompts you to save the application to the current file and exits the DPS software.

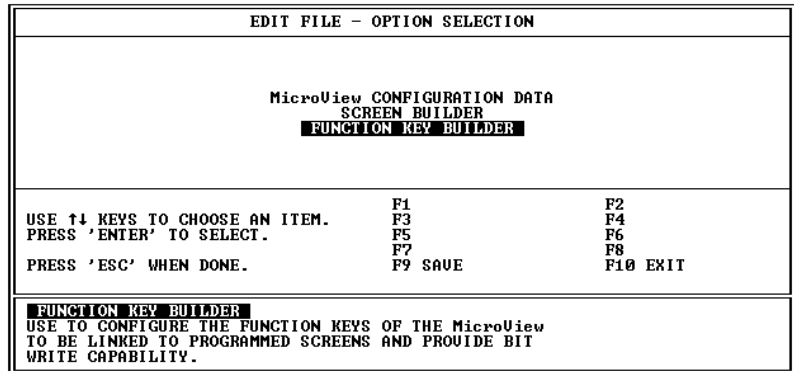
Linking Screens to Function Keys

You can link function keys [F1] and [F2] to individual screens.

To link screens to function keys:

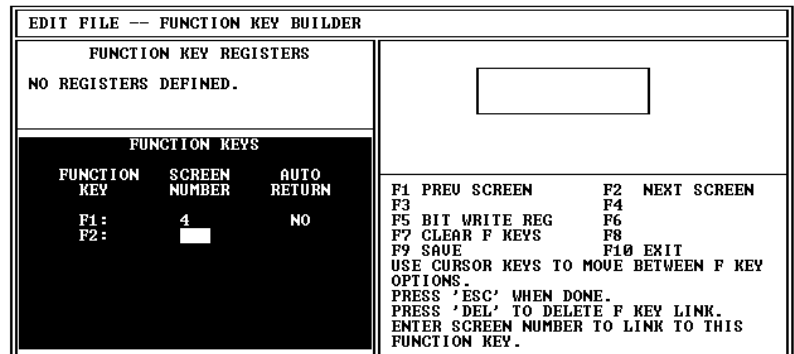
1. At the Opening menu select Edit Program File and enter a file name.

The Edit File - Option Selection menu is displayed.



2. Select Function Key Builder.

The Function Key Builder screen appears.

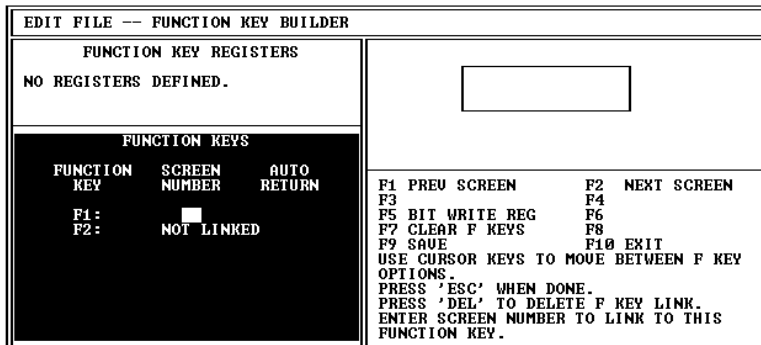


3. Use the arrow keys to highlight the function key you want to assign.
4. Enter a screen number for the function key and press [Return]. To see the screen you are assigning, press [F1] and [F2]. You are prompted if you want the key to auto return.
5. Enter [Y] for Auto Return Mode or [N] for Continue Mode and press [Return].
6. Assign the other function key using the same procedure. To assign bit write mode functions, refer to the next section.
7. Press [F9] to save the screen.

Assigning Bit Write Functions

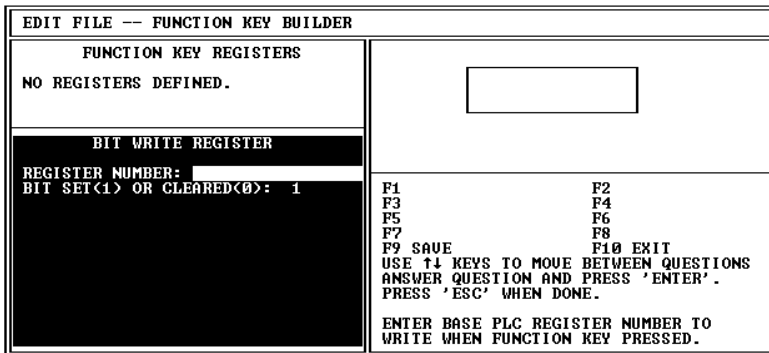
To assign bit write mode functions:

1. Open the Function Key Builder screen, refer to previous section.



2. Press [F5] to assign the bit write mode register.

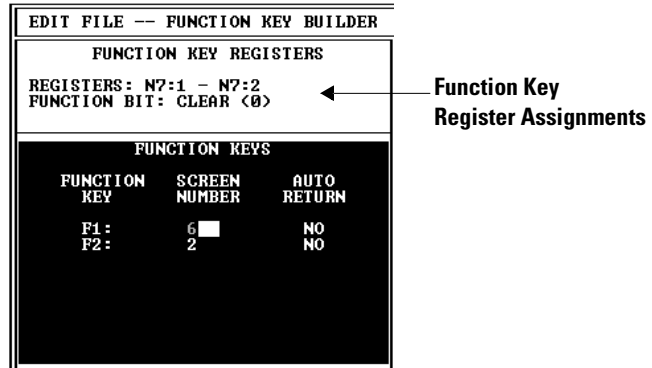
You are prompted to enter a base register.



3. Enter the base register number (for function key F1) and press [Return], the next register will automatically be assigned to function key F2.

You are prompted to clear or set a bit when the operator presses the function key.

- Enter [1] or [0] and press [Return]. Press [Esc] when done.
The function key register assignments are displayed (partial screen shown).



- Press [F9] to save the screen.

Transferring / Printing Application Files

Chapter Objectives

This chapter describes how to transfer application files between a MicroView and a personal computer. Also provided is a description of how to print out an application file.

Section	Page
Program Mode Setting	14-1
Communication Cables	14-1
Power Supply	14-1
Computer Setup	14-1
Downloading an Application	14-2
Uploading an Application	14-5
Printing Application Files	14-8

Program Mode Setting

Before you can upload or download an application, you must set the MicroView to the Program Mode. Refer to the MicroView User Manual for information on how to access the Program Mode.

Communication Cables

You will need a programming cable, Catalog No. 2707-NC8. If you need to construct your own cable, refer to the cable diagrams provided in the MicroView User Manual.

Power Supply

You will also need a MicroView Power Supply (Catalog No. 2707-PS120 or 2707-PS220) to power the MicroView during the program transfer.

Computer Setup

Upload and download functions are initiated from a personal computer running the programming software DPS. All transfer functions occur at 9600 baud.

After the transfer is complete, the MicroView baud rate is set to the parameters defined by the application program residing in the MicroView.

Downloading an Application

This section shows how to download an application from a computer running DPS software to the MicroView.

1. Apply power to the MicroView and set the MicroView to the Program Mode.
 - Press the[**MODE**] key
 - [3] for Special,
 - [3] for Program,
 - [1] for Upload (Download).
2. The following message will appear in the window of the MicroView.

If you do not see this message, consult the MicroView User Manual (Publication No. 2707-UM005B-EN-P) for information on how to access the Program Mode.

**Programming Mode
"MENU" to Exit**

3. On your computer, move to the /MDPS subdirectory where the software resides.

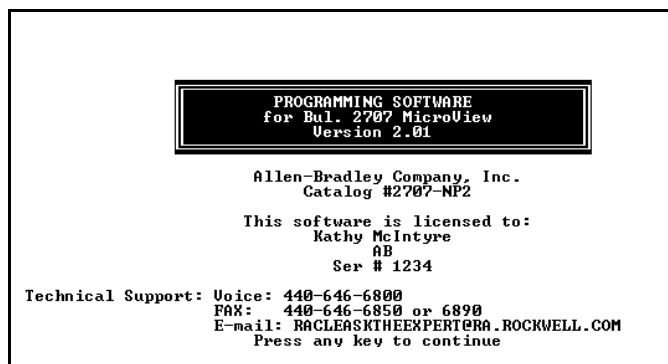
```
C:\MDPS>
```

4. Type **dps** and press [Return] to start the program.

```
C:\MDPS>dps [Return]
```

5. Specify whether you are using a color monitor. Enter [Y] or [N]. You will not see this prompt if a monitor was selected during installation.

The startup screen displays:



6. Press any key to continue.

The MicroView Operating Menu appears.

MicroView OPENING MENU
EDIT PROGRAM FILE DOWNLOAD FILE TO MicroView UPLOAD FILE FROM MicroView OUTPUT HARD COPY OF FILE UPGRADE OPERATING SYSTEM
USE ↑↓ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT. PRESS 'ESC' TO EXIT.
DOWNLOAD FILE TO MicroView USE TO PROGRAM A MicroView WITH A COMPLETED PROGRAM FILE.

- Highlight Download File to MicroView and press [Return].

The Communication Port Selection screen appears. You will not see this screen if a communication port was specified during DPS installation.

COMMUNICATION PORT SELECTION
COMM 1 COMM 2
USE ↑↓ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT. PRESS 'ESC' WHEN DONE.
COMM 1 THIS WILL BE THE HARDWARE PORT THAT WILL BE USED TO COMMUNICATE WITH THE MicroView

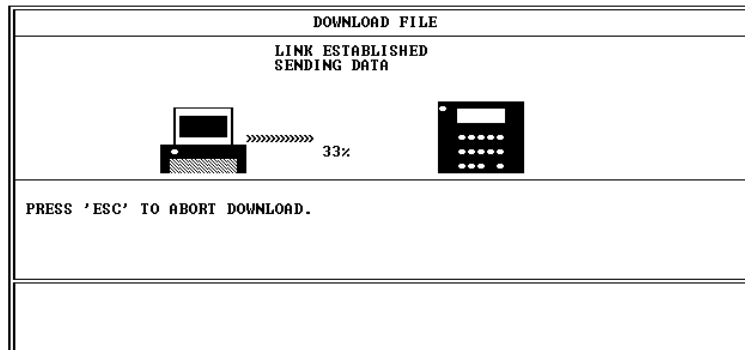
- Highlight the serial port on your computer that is connected to the MicroView (COMM1 or COMM2) and press [Return].

The DPS software establishes a communications link with the MicroView. If a communication link does not occur in 90 seconds you will get an error message. Check the Mode setting and cable connections.

- Select the application program you want to transfer and press [Return].

FILE NAME? DEMO1
FILES IN PATH -- G:\OLP\TEMP DEMO1 - UUIEW DF1 TEST1 - UUIEW DF1 TEST2 - UUIEW DF1 TEST3 - UUIEW DF1
ENTER FILE NAME OR USE ↑↓ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT. PRESS 'ESC' WHEN DONE.
F1 F3 F5 F7 F9
F2 F4 F6 F8 F10 EXIT

The download begins and the following screen shows the progress of the download operation.



During the download, the MicroView alternately displays:

**Programming Mode
Data Transfer**

**Programming Mode
Verifying Memory**

**Programming Mode
Copying to Memory**

**Programming Mode
Cmd Complete**

When the download is complete, you are returned to the Opening menu and the MicroView displays.

**Programming Mode
"MENU" to Exit**

10. Press [Esc] to exit the software.

11. Press [Y] to return to DOS.

The application is now loaded into the MicroView.

Uploading an Application

This section shows how to upload an application from the MicroView to a computer running DPS software.

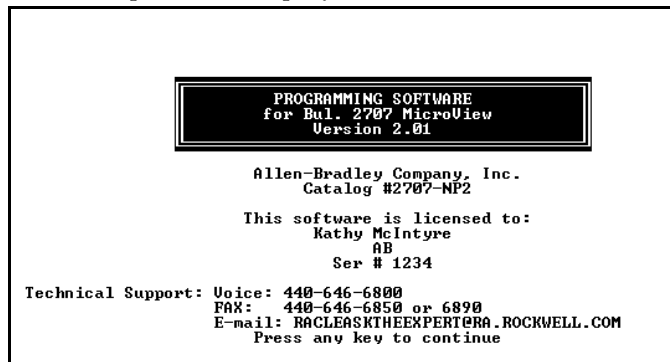
1. Apply power to the MicroView and set the MicroView to the Program Mode.
 - Press the **[MODE]** key
 - **[3]** for Special,
 - **[3]** for Program,
2. **[1]** for Upload (Download).
3. The following message will appear in the window of the MicroView.

Programming Mode
"MENU" to Exit

If you do not see this message, consult the MicroView Users Manual (Publication No. 2711-UM005B-EN-P) for information on how to access the Program Mode.

4. On your computer, move to the /MDPS subdirectory where the software resides.
C:\MDPS>
5. Type **dps** and press [Return] to start the program.
C:\MDPS>**dps** [Return]
6. Specify whether you are using a color monitor. Enter [Y] or [N].
You will not see this prompt if a monitor was specified during installation.

The startup screen displays.



7. Press any key to continue.

The MicroView Opening Menu Appears.

MicroView OPENING MENU
EDIT PROGRAM FILE DOWNLOAD FILE TO MicroView UPLOAD FILE FROM MicroView OUTPUT HARD COPY OF FILE UPGRADE OPERATING SYSTEM
USE ↑↓ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT. PRESS 'ESC' TO EXIT.
UPLOAD FILE FROM MicroView USE TO GET THE PROGRAM INFORMATION FROM A MicroView. THIS WILL BE A COMPLETE FILE THAT CAN MODIFIED OR SENT TO OTHER MicroView UNITS.

8. Highlight Upload File From MicroView and press [Return].

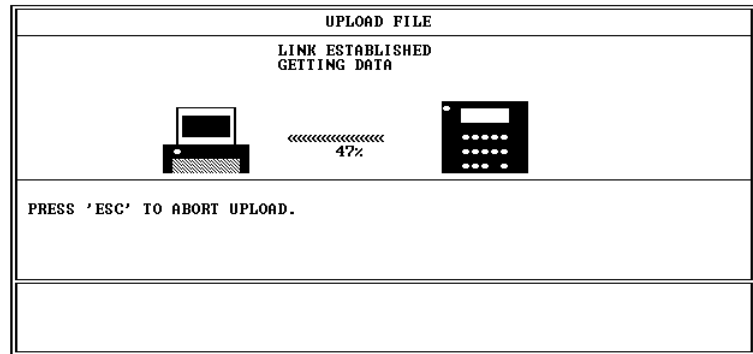
The Communication Port Selection screen appears. You will not see this screen if a communication port was specified during DPS installation.

COMMUNICATION PORT SELECTION
COMM 1 COMM 2
USE ↑↓ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT. PRESS 'ESC' WHEN DONE.
COMM 1 THIS WILL BE THE HARDWARE PORT THAT WILL BE USED TO COMMUNICATE WITH THE MicroView

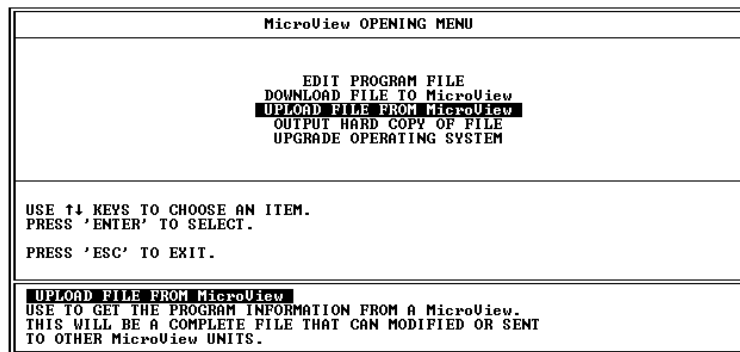
9. Highlight the serial port on your computer that is connected to the MicroView (COMM 1 or COMM 2) and press [Return].

The DPS software establishes a communications link with the MicroView. If a communication link does not occur in 90 seconds you will get an error message. Check the Mode setting and cable connections.

The upload begins and the following screen shows the progress of the upload operation.



10. When the upload is done, you are asked to enter a file name for the application. Enter a file name application and press [Return]. You are returned to the Opening menu.



11. Press [Esc] to exit the software.
12. Press [Y] to return to DOS.

The application is now loaded into the DPS software and can be edited like any other application file.

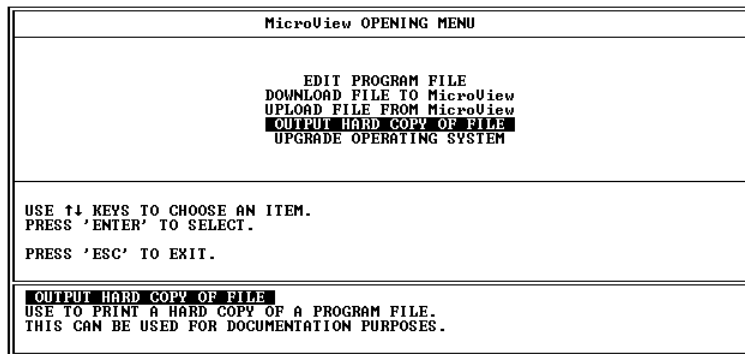
Printing Application Files

This section describes how to output a copy of an application program file to provide a hard copy for your records.

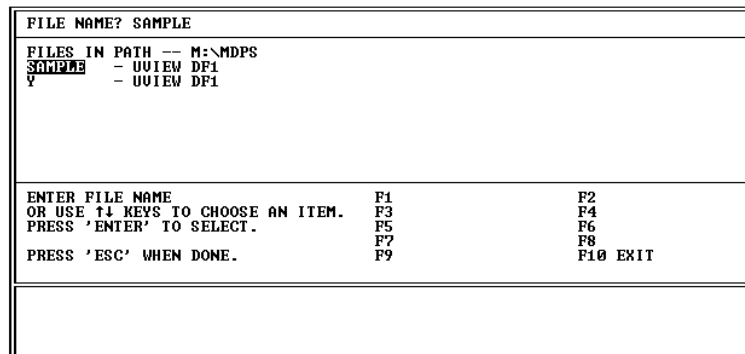
To send the program file to:

- the attached printer
- the computer screen
- another file (using the current file name with a .LST extension)

1. Select Output Hard Copy of File on the Opening menu.



2. You are then prompted to select the application file to print. Enter the name of the application file you want to print and press [Return].



3. You are then prompted for the type of output device. Select the device type and press [Return].

HARD COPY DEVICE OPTIONS
PRINTER SCREEN DISK FILE
USE ↑↓ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT. PRESS 'ESC' WHEN DONE.
PRINTER THE OUTPUT WILL BE DIRECTED TO THE PRINTER.

4. You are prompted for the screens you want printed. You have the option of printing all screens, a summary only, or selected screens.

HARD COPY PRINT OPTIONS
ALL SCREENS SUMMARY ONLY SELECTED SCREENS
USE ↑↓ KEYS TO CHOOSE AN ITEM. PRESS 'ENTER' TO SELECT. PRESS 'ESC' WHEN DONE.
ALL SCREENS ALL FILE INFORMATION WILL BE PRINTED.

5. If you specified more than one screen, you will see the following prompt:

COMPACT OUTPUT?

This prompt allows as many screens to be printed on one page as possible.

6. Enter [Y] to compact output or [N] for standard format. You are prompted to start the hard copy printout by pressing any key. After the printout has begun, the following function keys are available:
- Press the [Space Bar] to pause the printout. Pressing the [Space Bar] again resumes printing.
 - Press [Esc] key to abort the printout and return to the Opening Menu.

Upgrading the Operating System

Chapter Objectives

This chapter describes how to update the MicroView operating system while maintaining the current application file.

Steps to Upgrade the Operating System

To upgrade the Operating System currently installed in the MicroView without changing the application file.

1. Apply power to the MicroView and set the MicroView to the Program Mode.

The following message will appear in the window of the MicroView.

**Programming Mode
"MENU" to Exit**

If you do not see this message, consult the MicroView Users Manual (Publication No. 2707-UM005B-EN-P) for information on how to access the Program Mode.

2. On your computer, move to the /MDPS subdirectory where the software resides.

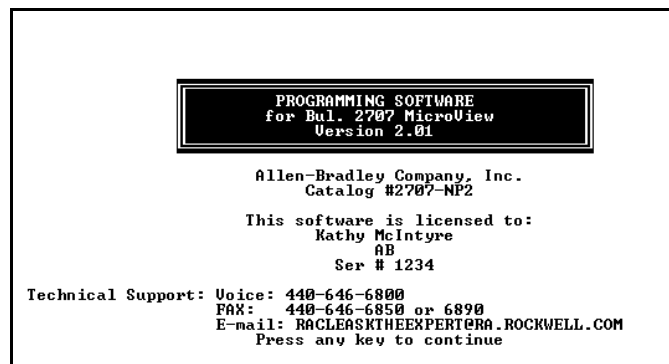
```
C:\MDPS>
```

3. Type **dps** and press [Return] to start the program.

```
C:\MDPS>dps [Return]
```

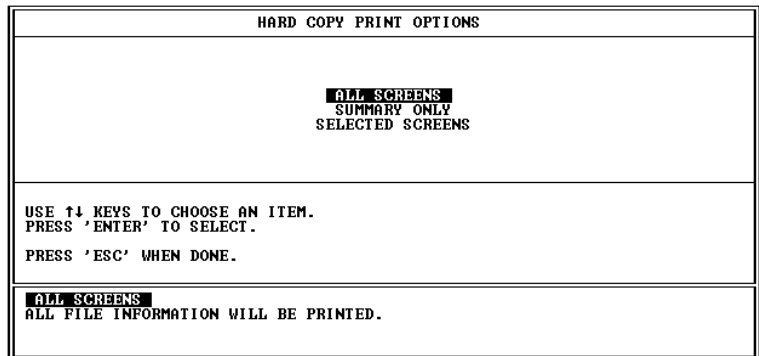
4. Specify whether you are using a color monitor. Enter [Y] or [N].

The Startup Screen displays. You will not see this screen if a monitor was specified during installation of the software.



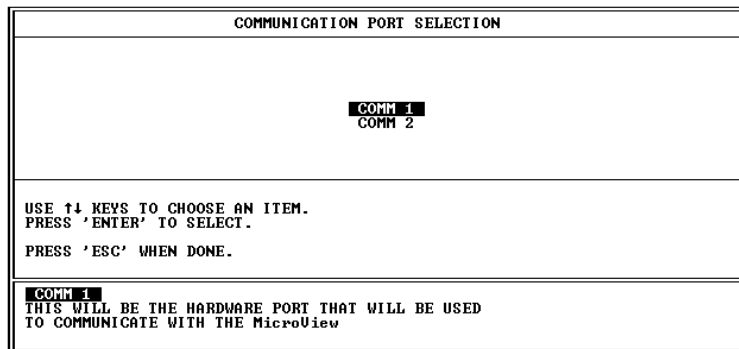
5. Press any key to continue.

The MicroView Opening Menu Appears.



6. Highlight Upgrade Operating System and press [Return].

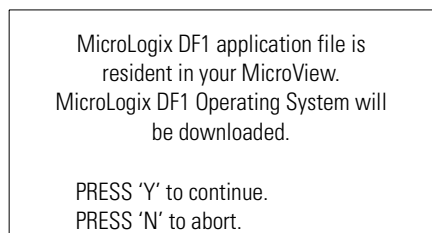
The Communication Port Selection screen appears. You will not see this prompt if a communication port was specified during the installation of the software.



7. Highlight the serial port on your computer that is connected to the MicroView (COMM 1 or COMM 2) and press [Return].

The DPS software establishes a communications link with the MicroView. If a communication link does not occur in 90 seconds you will get an error message. Check the Mode setting and cable connections.

8. A message is displayed indicating the Operating System in the MicroView and the Operating System of the application file. For example:



9. If you select [N], the download is aborted and the Opening menu is displayed.

If you select [Y], a screen shows the new operating system downloaded.

When the download is complete, the program returns to the opening menu.

10. Press [Esc] and [Y] to exit the DPS software.

ASCII Character Set

ASCII Table

When ASCII characters are downloaded to the MicroView, they may appear different than the standard ASCII character. Use the following ASCII table to determine what characters display for each decimal equivalent value entered. Do not use a standard ASCII table.

The MicroView is capable of displaying additional characters above the 96 standard ASCII characters (127 decimal / 80 Hex). To access characters above 127 decimal / 80 Hex using the programming software, you must enter a special sequence.

Programming Supported ASCII Characters

To program the desired character(s), you must be ready to create a screen. Position the cursor where you want the special character positioned and perform the following steps:

1. Identify the character in the ASCII character set table. As an example, we will use the 1 character.
2. Identify the equivalent decimal code of the character. For example, the 1 character is equivalent to 49 decimal.
3. Press and hold the [ALT] key and enter the decimal equivalent value. Use the separate numeric keypad, not the top row numeric keys on your keyboard.

A character will be displayed in the specified position. For example, press and hold the [ALT] key and enter **049** to enter a 1 character.

TIP

The displayed character may be displayed as an unexpected character on your computer monitor. When you download and display the character on the MicroView, the correct character will be displayed (for example 1 displays as _).

IMPORTANT

Values C0 through Cf are reserved for DPS functions and cannot be inserted into a screen display.

ASCII Display Character Set (DEC 32 - 103)

DEC	HEX	CHR
32	20	
33	21	!
34	22	"
35	23	#
36	24	\$
37	25	%
38	26	&
39	27	?
40	28	(
41	29)
42	2A	*
43	2B	+
44	2C	,
45	2D	-
46	2E	.
47	2F	/
48	30	0
49	31	1
50	32	2
51	33	3
52	34	4
53	35	5
54	36	6
55	37	7

DEC	HEX	CHR
56	38	8
57	39	9
58	3A	:
59	3B	;
60	3C	<
61	3D	=
62	3E	>
63	3F	?@
64	40	a
65	41	b
66	42	c
67	43	d
68	44	e
69	45	f
70	46	g
71	47	h
72	48	i
73	49	j
74	4A	k
75	4B	l
76	4C	m
77	4D	n
78	4E	o
79	4F	p

DEC	HEX	CHR
80	50	q
81	51	r
82	52	s
83	53	t
84	54	u
85	55	v
86	56	w
87	57	x
88	58	y
89	59	z
90	5A	[
91	5B	\
92	5C]
93	5D	^
94	5E	_
95	5F	`
96	60	{
97	61	
98	62	}
99	63	~
100	64	
101	65	
102	66	
103	67	

ASCII Display Character Set (DEC 104 - 191)

DEC	HEX	CHR
104	68	h
105	69	i
106	6A	j
107	6B	k
108	6C	l
109	6D	m
110	6E	n
111	6F	o
112	70	p
113	71	q
114	72	r
115	73	s
116	74	t
117	75	u
118	76	v
119	77	w
120	78	x
121	79	y
122	7A	z
123	7B	{
124	7C	
125	7D	}
126	7E	→
127	7F	←

DEC	HEX	CHR
160	A0	
161	A1	▣
162	A2	┌
163	A3	┐
164	A4	└
165	A5	┘
166	A6	㊦
167	A7	㊧
168	A8	イ
169	A9	ウ
170	AA	エ
171	AB	オ
172	AC	㊦
173	AD	ユ
174	AE	ヨ
175	AF	ツ
176	B0	ー
177	B1	㊦
178	B2	イ
179	B3	ウ
180	B4	エ
181	B5	オ
182	B6	カ
183	B7	キ

DEC	HEX	CHR
184	B8	ク
185	B9	ケ
186	BA	コ
187	BB	サ
188	BC	シ
189	BD	ス
190	BE	セ
191	BF	ソ

Application and Screen Worksheets

You can use the worksheet templates on the following pages when designing your application program. Make copies of these pages as needed.

MicroView Application Worksheet

MicroView Application Worksheet

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------

MicroView Screen Worksheet
2 Lines of 16 characters

Screen # _____

Screen # _____

Screen # _____

Screen # _____

MicroView Screen Worksheet
2 Lines of 16 characters

Screen # _____

Screen # _____

Screen # _____

Screen # _____

MicroLogix Mnemonics in DPS

The MicroView supports all MicroLogix mnemonics for logical addressing to the sub-element or bit level. The following table defines the default text for bit display fields when a bit display screen is specified.

In MicroView DPS these fields can be edited and may contain any text up to 16 characters. Default text is only applicable to mnemonic bit sub-elements where there is a corresponding definition of the bit 0/1 state.

File Type	Bit Sub-Element	0 State Default Text	1 State Default Text
O (Output)	-		
I (Input)	-		
S (Status)	-		
B (Bit)	-		
T (Timer)	.EN		ENABLED
	.TT		TIMING
	.DN		DONE
HSC (High Speed Counter)	.CU		UP COUNTER
	.CD		DOWN COUNTER
	.DN		DONE
	.OV		OVERFLOW
	.UN		UNDERFLOW
	.UA		UPDATE ACCUMULATOR
	.HP		HIGH PRESET
	.LP		LOW PRESET
	.IV		INTERRUPT OVERFLOW
	.IN		INTERRUPT UNDERFLOW
	.IH		INTERRUPT HIGH PRESET
	.IL		INTERRUPT LOW PRESET

File Type	Bit Sub-Element	0 State Default Text	1 State Default Text
	.PE		INTERRUPT PENDING
	.LS		INTERRUPT LOST
	.IE		INTERRUPT ENABLE
C (Counter)	.CU		UP COUNTER
	.CD		DOWN COUNTER
	.DN		DONE
	.OV		OVERFLOW
	.UN		UNDERFLOW
R (Control)	.EN		ENABLED
	.ER		ERROR
	.DN		DONE
	.FD		FOUND
	.IN		INHIBIT
	.EM		EMPTY
	.EU		ENABLE UPLOAD
	.UL		UNLOAD
N (Integer)	-		

MicroLogix Data Formats

The data selected for a controller address must reflect the same format as the data actually stored in that address. This is the only way you can ensure that correct, consistent information is displayed.

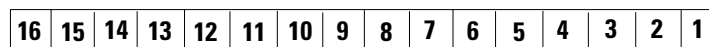
For example, selecting 16 Bit Signed Integer format for address N7:10 displays data one way and selecting 16 Bit BCD format for the same address displays data another way. It is important to understand each data format and its characteristics.

The following table illustrates all data formats supported by MicroLogix controllers including the point types and ranges applicable to each format, and whether the scaling may be used.

Data Format	MicroLogix Register Range	Scaling	User Input Range
Bit	0, 1	No	0, 1
16 Bit Signed Integer	-32,768 to +32,767	Yes	-32,768 to +32,767
16 Bit Unsigned Integer	0 to +65,535	Yes	-32,768 to +32,767
16 Bit BCD	0 to 9999	Yes	-32,768 to +32,767*
16 Bit Hex	0 to FFFF	No	NA
ASCII	16 characters, max.	No	NA

* 16 Bit BCD is 0-9999 on the MicroLogix, but data can be scaled to -32,768 to +32,768

Bit Format



16 Individual Bits
(One 16 Bit Address)

The controller stores a binary (0 or 1) status at each bit address. The MicroView reads a bit address and determines whether the operational status of the bit is ON (1) or OFF (0).

You can specify associated text to be displayed for either state of a specified bit. This description can be up to twenty characters.

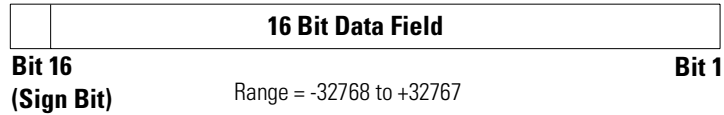
For example, the OFF(0) state of a bit might display “Pump is OFF”, and the ON(1) state “Pump is ON”. MicroView Programming Software allocates enough screen characters for the longest of the two text strings. In this example, 11 characters would be allocated to display “Pump is OFF”.

TIP



The fewer the characters used, the less memory is required. In the example above, displaying “OFF” (given the appropriate context) conveys the same information in 3 characters as “Pump is OFF” does with 11 characters.

16 Bit Signed Integer



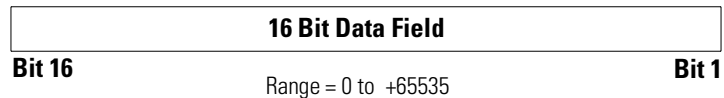
This data format displays a 16 bit register as a signed Integer (two’s complement) value. The 16th bit of the register is the sign bit and is set (1) for a negative and cleared (0) for a positive number.

TIP



The 16 bit signed integer values have a range of -32768 to +32767. This data format may also be scaled to different engineering units

16 Bit Unsigned Integer



This data format displays a 16 bit register as an unsigned integer value.

TIP



The 16 bit unsigned integer values have a range of 0 to +65,535. This data format may also be scaled to different engineering units.

16 Bit BCD

Digit 4		Digit 3		Digit 2		Digit 1
Bit	Bit	Bit	Bit	Bit	Bit	Bit
16	13	12	9	8	5	4
						1

Range = 0 to +9999

This data format displays a 16 bit register address as a 4 digit Binary Coded Decimal value.

TIP

The range for the 16 bit BCD selection is 0 to +9999. This data format may also be scaled to different engineering units.



16 Bit HEX (Hexadecimal)

Digit 4		Digit 3		Digit 2		Digit 1
Bit	Bit	Bit	Bit	Bit	Bit	Bit
16	13	12	9	8	5	4
						1

Range = 0 to FFFF

This data format displays two consecutive 16 bit register addresses as a 32 bit Hex value. It uses a memory register plus the next higher register to form the 32 bit address.

TIP

The range for the 32 bit HEX value is 0 to FFFFFFFF. This format can't be scaled to different engineering units. Use this data format for display-only (non-entry) operations.



ASCII

ASCII data formats are fields up to 16 characters long. Each 16 bit address may contain two ASCII characters (1 byte each). The lowest byte of the base address stores the first character, the highest byte stores the second character, the first byte of the next sequential address stores the third character, and so on. The data held in this range of addresses is expected to be ASCII data.

Note: The ASCII data format is very useful for controller applications.

ASCII Data Field
Maximum 16 Characters - Eight 16 addresses

address 1	
Char #2	Char #1
address 2	
Char #4	Char #3
address 3	
Char #6	Char #5
address 4	
Char #8	Char #7
address 5	
Char #10	Char #9
address 6	
Char #12	Char #11
address 7	
Char #14	Char #13
address 8	
Char #16	Char #15

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