



*9044 Handheld Programmer
Technical Information
7903777*

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1.0 COMMUNICATION

There are only three steps required to communicate with the Flash Technology Handheld programmer:

1. Use *Power-On Setup* to set the display contrast, baud rate and data format. Only needs to be done once to new terminals.
2. Connect to the 9044-01.
3. Program and/or get operating information with the handheld.

1.1 Power-On Setup

The *Power-On Setup* procedure is used to configure the Handheld's display contrast, baud rate and data format. You use three different keys to do this configuration:

- '1' - this is the *up* key
- '2' - this is the *down* key
- '3' - this is the *enter* key

To perform the Power-On Setup, follow these steps:

Disconnect the power supply to the terminal.

Hold down any key and apply power to the terminal

(You do not need to connect the transmit and receive lines).

The version of software in the terminal will be displayed for a few seconds, after which you can adjust the display contrast.

Set the desired display contrast using the *up* and *down* keys. When the display is at a contrast you like, press the *enter* key.

Set the desired baud rate using the *up* and *down* keys. When the desired baud rate is displayed, press the *enter* key. The baud rate should be 19200.

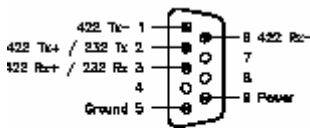
Set the desired data format using the *up* and *down* keys. Data format is 8N1.
When the desired data format is displayed, press the *enter* key.

1.2 Connecting the Handheld

Table 1-1 shows the connector pin assignments for the handheld. The receive and transmit directions shown in the table are with respect to the handheld. The DB9 connector is located at the top of the handheld programmer.

Table 1-1

DB9 Female	EIA-232 Function
3	Receive +receive
6	No connection -receive
2	Transmit +transmit
1	No connection -transmit
9	Power
5	Ground

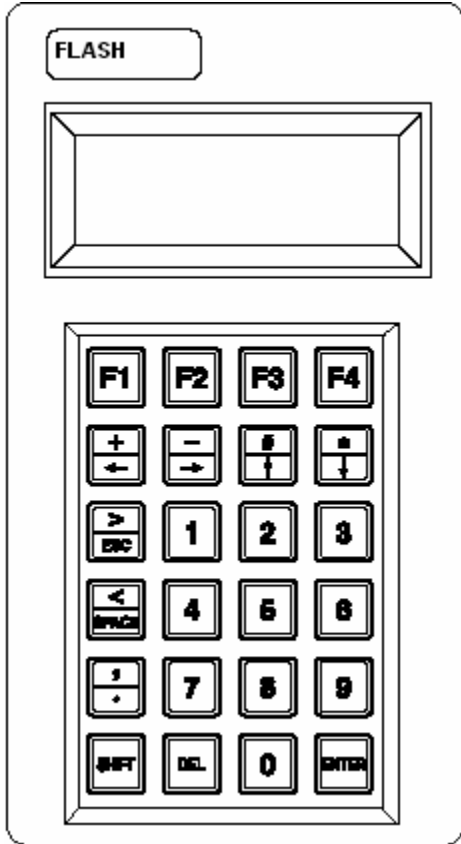


DB9 Female

A 9-pin RS-232 cable is used to connect the handheld to the 9044-01 controller board at connector J2 (9 pin Male connector). Power and ground is provided by this connector.

The same connector J2 on the 90044-01 is also used to connect a computer serial port for the enhanced user interface. This interface is used to set parameters, run production and vendor tests and display general operating information.

Figure 1.1 Handheld Programmer Layout



2.0 USING THE PROGRAMMER

The programmer has a four line LCD display and 24 keys as shown in fig. 1.1.

The following is a general discussion of how the programmer works. Each board type provides different setup parameters and information. See the board specific sections for more details.

In the discussions to follow the 4 line LCD display will be represented as shown:

L1: *****
L2: *****
L3: *****
L4: *****

All the messages displayed on the LCD will be in capital letters.

The display does not show the L1: etc. this is used to represent line 1, 2, 3 and 4 on the LCD.

Once the handheld programmer is connected to the 9044-01 and power is applied the 9044-01 will automatically recognize that the terminal is connected to it and will display the sign on message for the type of board (4063, 4988, 4990, and 5978) that the 9044-01 is configured for. The 9044-01 does this by requesting an ID message from the terminal every 5 seconds. Only terminals provided by Flash Technology will work with the 9044-01.

The general format of the sign on message is:

L1: FLASH TECHNOLOGY
L2: BOARD 4063
L3: (Blank or further information)
L4: ENTER TO CONTINUE

Once enter is pressed the first menu is displayed as follows:

L1: PRESS A FUNC KEY
L2: F1. SETUP F2. INFO
L3: F3. SHORTTEST
L4: F4. MODE CHANGE

To continue further a function key must be pressed. The function keys are on the top row of the terminal. See fig. 1.1.

F1: Enters the setup menus, used to configure the 9044-01.
F2: Enters the information menu, used to show a limited amount of useful operating info.
F3: Causes the 9044-01 to perform the short test.
F4: Enters the mode change menu, used to manually change the operating mode (DAY, TWI, and NITE).

Note: The handheld terminal will return to the sign on message from any other menu if no key is pressed within two minutes. The 9044-01 does this to take the serial port out of the handheld terminal mode if the terminal has been removed to allow the serial port to be used for the enhanced user interface. This means that if you remove the handheld terminal and connect a computer to use the enhanced interface you must wait at most two minutes before pressing any key on the computer. You can cycle the power to the 9044-01 for faster access to the computer interface.

2.1 SETUP

The information provided in this section applies to every board configuration and explains how to navigate the menus and enter or select various parameters. It does not explain every parameter for a particular board type. See the board specific sections for more details.

The setup menu has the following format:

L1: SETUP
L2: 0-1-2-.....
L3:
L4: OK NEXT BACK EXIT

The first line displays the current menu. The second line displays the current setup. The numbers correspond to the selected parameters. Some parameters have only two choices and other have more. The third line is blank. The fourth line displays what functions the keys F1 thru F4 will perform if pressed; the words are spaced to be over the corresponding function key. So, to move to the next menu you would press F2 (NEXT).

F1: OK- is used to enter data.
F2: NEXT- moves to the next item.
F3: BACK- moves to the previous item.
F4: EXIT- exits the setup menu.

2.1.1 Parameters

Pressing the NEXT or BACK function key takes you to the parameters. The general format is:

L1: SETUP
L2: Parameter name such as SYSTEM
L3: The options such as 0- Standard 1- Cat.
L4: OK NEXT BACK EXIT

The currently selected option will have the cursor under it. For example:
0-Standard 1- Cat shows that the currently selected option for the parameter is zero (0) which in this case means standard.

To change a parameter, press a number corresponding to the desired option and press F1 (OK). For example to change the SYSTEM parameter from 0 (Standard) to 1 (Catenary), press the number 1 on the terminal and then press F1. If it is accepted the cursor will move to the selected parameter for example the LCD will display:

L1: SETUP
L2: SYSTEM
L3: 0- Standard 1- Cat.
L4: OK NEXT BACK EXIT

In some cases when further information is required because of the option selected the display will automatically move to the parameter(s) required to be selected. For example, selecting Cat as shown above requires that you also select the tier. Therefore, after selecting option 1 the display will automatically change to:

L1: SETUP
L2: CAT TIER
L3: 0- BOT 1- Mid 2-TOP
L4: OK NEXT BACK EXIT

From here you can select the appropriate tier option. Options like this will only appear when a previous option that requires further parameters be configured is selected. This means that if you want to change one of these parameters you must reselect the option from the top parameter that requires additional configuration. For example, if you have selected the catenary tier to be BOT (Bottom) but wish to change it to MID (Middle) after you have left the CAT TIER parameter, then you must go back to the SYSTEM parameter and press 1 and then F1 (OK) again even though Cat is already shown to be selected on the display.

For parameters that do not require further configuration the display will stay at the current parameter until the NEXT, BACK, or EXIT function keys are pressed.

2.2 **INFO**

The info menu has the following format:

L1: INFO
L2: BOARD 4063
L3:
L4: NEXT BACK EXIT

This menu is used to show a limited amount of information about the current 9044-01 operation and configuration.

The first line displays the current menu. The second and third lines display board information. The fourth line displays what functions the keys F2 thru F4 will perform if pressed; the words are spaced to be over the corresponding function key. So, to move to the next item you would press F2 (NEXT).

F2: NEXT- moves to the next item.
F3: BACK- moves to the previous item.
F4: EXIT- exits the setup menu.

Things like energy, trigger voltage, flash rate and operating mode are available.

2.3 **SHORT TEST**

The short test menu does not have any menu selections. Instead it starts a short test of the board. The short test runs the board in each mode that is appropriate for the type of board the 9044-01 is configured for. For example, when configure for a 4063 the short test puts the board in DAY mode for five flashes and NIGHT mode for five flashes but when configured for a 4988 the short test puts the board in DAY, NIGHT and TWI Modes for 5 flashes.

After pressing F3 from the main menu to start the short test the terminal will display:

```
L1: SHORT TEST RUNNING
L2:
L3:
L4:                EXIT
```

F4: EXIT- is used to exit from the short test menu once the results are displayed. During the short test L2 and L3 will display the test results. For example:

```
L2: DAY MODE PASSED
```

When the tests are done the terminal will display the results. For example:

```
L1: DONE: ENERGY RESULTS
L2: DAY 12000 TWI 4500
L3: NIGHT 500
L4:                EXIT
```

2.4 **MODE CHANGE**

The mode change menu has the following format:

```
L1:  MODE CONTROL
L2: CURRENT DAY
L3:
L4: DAY TWI NITE EXIT
```

F1: DAY- Changes the mode to DAY.

F2: TWI- Changes the mode to TWI.

F3: NITE- Changes the mode to NITE.

F4: EXIT- exits the mode change menu and returns the mode to automatic.

This menu item is used to manually change the operating modes and functions just like the test jumpers on the board.

3.0 BOARD SPECIFIC INFORMATION

Each board type that the 9044-01 can be configured for has its own set of parameters. The sections that follow detail these.

3.1 Board Type 4063 Menu Tree

The item listed first for each parameter is the default.

Setup Menu

1. System
 - 0-Standard
 - 1- Catenary (must enter a 1 to get here)
 - 0-Bot
 - 1-Mid
 - 2-Top
2. FPM
 - 0-40
 - 1-60
3. Flick
 - 0-Single
 - 1-Double
4. Dual Mode
 - 0-No
 - 1-Yes
5. Isolated
 - 0-Not Isolated (alarms)
 - 1-Isolated (alarms)
6. White Backup
 - 0-Enabled
 - 1-Disabled
7. System Operates
 - 0-Day/Night
 - 1-Night

8. Primary Backup

- 0-No
- 1-Yes

9. Photocell Alarm

- 0-Enable
- 1-Disable

3.2 Board Type 4988 Menu Tree

The item listed first for each parameter is the default.

Setup Menu

1. System

- 0-Standard (must enter a 0 to get here)
 - Enter Tier #
 - Enter Beacon #
- 1- Air (must enter a 1 to get here)
 - Enter Light #
 - Enter Confirm #
- 2-Cat (must enter a 2 to get here)
 - 0-Bot
 - 1-Mid
 - 2-Top

2. FPM

- 0-40
- 1-60
- 2-30
- 3-20
- 4-100
- 5-120

3. Flick

- 0-Single
- 1-Double

3.3 Board Type 4990 Menu Tree

This is the only board type that uses dash numbers to setup the parameters.

Setup Menu

1. Enter Dash #
2. Enter Tier #
3. Enter Beacon #

3.4 Board Type 5978 Menu Tree

1. System
 - 0-Bec. (Omni Airport Beacon)
 - 1- Air (must enter a 1 to get here)
 - Enter Light #
 - 2-Hel. (Heliport Beacon)
2. FPM
 - 1-60
 - 2-30
 - 3-20
 - 4-100
 - 5-120
3. Flick
 - 0-Single
 - 1-Double