
Direct RP240 Control

Chapter Objectives

The information in this chapter will enable you to:

- ❑ Control the RP240 without the use of an Extended X or 6000 Series product

PROGRAMMING NOTE

The information provided in this chapter is intended for users of the RP240 that do not have an Extended X or 6000 Series product. If you are using a Extended X product (SX, ZX, or 500), refer to *Chapter ④ Extended X Command Summary and Application Design*. If you are using a 6000 Series product (6200 or 6250) refer to *Chapter ⑤ 6000 Series Command Summary and Application Design*.

RP240 Overview

The RP240 uses a Intel 8051 microprocessor to respond to keypress information and to display data on the LCD. The microprocessor receives commands via RS-232C (9600 baud, 8 data bits, 1 stop bit, no parity) from a "master" controller. The RP240 acts as a "slave" to the "master". There is no program storage and no program execution capability in the RP240. The RP240 can only parse and execute the commands summarized below.

Command Summary

There are two modes of operation for the RP240. The default mode is the Extended X mode. In this mode, the function keys, numeric keypad, stop key, and pause and continue keys must all be enabled before they can be used. The RP240 will not report any keystrokes until the corresponding key or group of keys has been enabled.

The other mode of operation for the RP240 is the 6000 mode. In this mode, the RP240 will report back every key that was pressed and every key that was released.

If the desired mode of operation is Extended X, simply use the commands listed below. If the desired mode of operation is 6000, then the command ***B<cr>** must be issued to the RP240.

The commands below only require sending an asterisk, followed by a letter, and a carriage return. All the commands below are valid with Extended X mode.

Command	Description	Valid in 6000 Mode
*B<cr>	Enable 6000 mode	Yes
*C<cr>	Report # of RP240 display lines	Yes
*D<cr>	STOP key enable	-
*E<cr>	STOP key disable	-
*F<cr>	PAUSE and CONTINUE key enable	-
*G<cr>	PAUSE and CONTINUE key disable	-
*H<cr>	Beeper on	Yes
*I<cr>	Beeper off	Yes
*J<cr>	Cursor on, not blinking	Yes
*K<cr>	Turn LCD display off	Yes
*L<cr>	Turn LCD display on	Yes
*M<cr>	Clear display	Yes
*N<cr>	Test display	Yes
*O<cr>	Cursor on, blinking	Yes
*Q<cr>	Cursor off	Yes
*R<cr>	Clear line 1	Yes
*S<cr>	Clear line 2	Yes
*W<cr>	Report back current revision	Yes
*X<cr>	Enable numeric keypad	-
*Y<cr>	Enable function keys	-
*^<cr>	Move line 1 to line 2	Yes
*a<cr>	Move line 2 to line 1	Yes

The following commands require more detailed command parameters.

Command	Description	Valid in 6000 mode
*A<data><cr>	Update LEDs	Yes
*P<data><cr>	Position cursor	Yes
*V<data><cr>	Display text string	Yes

*A Command

The Update LEDs command (***A**) requires a hexadecimal value to indicate which LEDs will be **off**. The format of the command is ***A**, followed by the 1 byte (1 character) hexadecimal value, followed by a carriage return (<cr>). From top to bottom, the LEDs correspond to the following hexadecimal values:

LED #	Hexadecimal Value	Decimal Value
1	80	128
2	40	64
3	20	32
4	10	16
5	08	8
6	04	4
7	02	2
8	01	1

To turn off LED 3 and leave LEDs 1,2,4,5,6,7, and 8 on, issue ***A<sp><cr>**. The space key corresponds to ASCII 32.

*P Command

The Position Cursor command (***P**) requires 3 ASCII characters to indicate which location to move the cursor. The format of the command is ***P**, followed by 3 characters representing the line and column number, followed by a carriage return. The first of the three characters is the line number, the next two characters are the column number. Line 1, column 15 would correspond to ***P115<cr>**. Line 2, column 26 would correspond to ***P226<cr>**. The columns are numbered from 00 to 39, not 01 to 40.

*V Command

The Display Text String command (***V**) requires a text string to be displayed. The format of the command is ***V**, followed by the text string, followed by a carriage return. (i.e., ***VThis is a demo!<cr>**) The display text string (***V**) command cannot display the underscore (**_**) character.

RP240 Response—Extended X Mode

The commands below enable the RP240 for specific functions in Extended X mode (default) only. Once these functions are enabled, the RP240 will respond with the information provided below.

*D<cr> STOP key enable
*F<cr> PAUSE and CONTINUE key enable
*X<cr> Enable numeric keypad
*Y<cr> Enable function keys

When pressed, the STOP key will return a **space**, followed by a κ , followed by a **line feed and carriage return**.

When pressed, the PAUSE key will return a **space**, followed by a s , followed by a **line feed and carriage return**.

When pressed, the CONTINUE key will return a **space**, followed by a c , followed by a **line feed and carriage return**.

The numeric keypad will return an **exclamation point (!)** when enabled with the *X<cr> command. As the number keys, decimal key, or plus/minus key are pressed, the corresponding character will be transmitted. When the ENTER key is pressed, a **line feed and carriage return** will be transmitted. If the C/E key is pressed, a single quote('), followed by a **line feed and carriage return**, followed by an **exclamation point (!)** will be returned.

The function keys will return an **exclamation point (!)** when enabled with the *Y<cr> command. The number of the function key (\emptyset for MENU RECALL, 1 for F1, 2 for F2, etc.) will be returned, along with a **line feed and carriage return**, when the function key is pressed.

Key Press Response of RP240—6000 Mode

Once 6000 mode has been enabled with the *B<cr> command, each key pressed on the RP240 will return a 1 byte hexadecimal value. When the key is released, another 1 byte hexadecimal value will be returned.

Key	Key Press Hexadecimal	Key Release Hexadecimal
STOP	5B	DB
PAUSE	5C	DC
CONTINUE	5D	DD
C/E	2F	AF
ENTER	3D	BD
0	30	B0
1	31	B1
2	32	B2
3	33	B3
4	34	B4
5	35	B5
6	36	B6
7	37	B7
8	38	B8
9	39	B9
+/-	2D	AD
.	2E	AE
F1	21	A1
F2	22	A2
F3	23	A3
F4	24	A4
F5	25	A5
F6	26	A6
MENU RECALL	2C	AC