

Trouble Shooting on 8030A

Version 1.0 5/4/2004



The terminal display shown above is the interface to the EZAG 16 minicomputer. Key abbreviations are:

- - This is the enable, for turning on the T/L, S/R, I/E, S/C, and W/R keys.
- T/L, Terminal Keyboard or Line (line is rs232 out the back of the machine)
- S/R, Stop (led on) or Run (led off)
- I/E, Inhibit outputs (normally off), Inhibit (led on)
- S/C, Single step the macro code in the machine (normally off)
- W/R, Write enable to ram from keyboard (led on) or Read Only
- WRT, Write Data from keyboard to ram (W/R) key must be enabled
- DPC, Decrement Program Counter (address)
- RST, Reset the computer
- LPC, Load Program Counter with address in data field
- IPC, Increment Program Counter (address)
- STP, Step and execute the current instruction at the current address

Please note in the above picture, the P, S, F, I. This is the period point of the respective 7-segment display. The abbreviations are as follows:

- P, indicates that there was a parity error between the computer, and keyboard or RS232 device
- S, indicates the status bit from executing an instruction, on equals true, off equals false.
- F, is for flag bit, this indicates that the output (select code in the data window) has been set on. Please note, that this bit is held, even thru a reset of the computer. Usually used to remember what outputs were on in a previous operation of that output.
- I, indicates the current status of an input (select code in the data window). On equals input on, off indicates the input is off.

Below are examples of how to check individual inputs:

Turn on the T/L, S/R, and W/R led's. Press the RST switch. Using the hex keyboard, enter 0040 (input for the ALN button on the operators keyboard). Now press the ALN button on the operator's keyboard and notice the (I) led on the 7-segment display turn on and off.

To test outputs, we will use an example program; you can use this example, substituting the desire output, with our example.

Address	Data	Comment
FE00	4840	;command 4800 (output on)+ select 0040 to turn on ALN LED
FE01	3800	;timer command
FE02	01F4	;amount of time in hex
FE03	4040	;command 4000 (output off) + select code 0040 ALN LED
FE04	3800	;timer command
FE05	01F4	;amount of time in hex
FE06	5000	;command to jump to next address
FE07	FE00	;loop back to this address

All test programs, must be written in the user address space, from address FE00 thru FEFF.

To load the program, the T/L, S/R, and W/R led's must be on.

Enter FE00 into the data display, press the LPC button. The address display should show the address FE00 in the address display. Now enter the first data 4840, which will show in the data display, and press WRT. The address and data display should now show FE00 4840. Now we need to move to the next address, press IPC, the address now should show FE01. Continue to enter the data, then write the data, then increment the address till the entire program is entered. You can now verify your program by using the DPC (decrement program counter) and IPC increment program counter. If the program is correct, enter FE00 into the data display, and press LPC. The address should now show FE00 and 4840. Execute the program by either stepping using the STP key, or turning off the S/R by pressing S/R. The computer will continue to execute your service program until the S/R led is turned back on. To test other output substitute your desired output with the two locations, FE00 and FE03. Be sure to add it with the command 4800 for on, and 4000 for off.

The above program will work for setting single bit outputs but does not work with making motors move. Below is a test program to make the pickup motor move ½ revolution in each direction. Consult the assignment lists to change the motor select, high current select, and input for stepper motor run.

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FE00      9000  ;load next data to address
FE01      0190  ;steps to run motor
FE02      FEFF  ;store it in address FEFF
FE03      15C2  ;see if motor is running
FE04      5400  ;if it is
FE05      FE03  ;go back until it stops
FE06      49C2  ;command 4800 (output on) + select 01C2 HC PU Motor
FE07      3800  ;timer command
FE08      001E  ;Time to allow high current to rise
FE09      651E  ;6300 command + PU Motor Freq 2 (021E) CW
FE0A      FEFF  ;the number of steps in address FEFF
FE0B      15C2  ;see if motor is running
FE0C      5400  ;if it is
FE0D      FE0B  ;go back until it stops
FE0E      3800  ;timer command
FE0F      01F4  ;amount of time in hex before reversing direction
FE10      651F  ;6300 command + PU Motor Freq 2 (021E) CCW
FE11      FEFF  ;the number of steps in address FEFF
FE12      15C2  ;see if motor is running
FE13      5400  ;if it is
FE14      FE0B  ;go back until it stops
FE15      3800  ;timer command
FE16      01F4  ;amount of time in hex before reversing direction
FE17      41C2  ;shut off high current
FE18      5000  ;command to jump to next address
FE19      FE00  ;loop back to this address

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It is suggested, when using motor move programs, to step through at least one time, using the STP button, to verify the desired effect.

For further test programs, or examples, visit www.semiequipment.com in the download documentation section.