

# **Appendix B - Error Codes**

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**On Screen Messages**

**984A/B/X System STOP States**

**J812/J892 ASCII Error Status**

## On Screen Messages

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Several information or error messages may appear on your programmer screen. These messages supply you with instructions/information about the process you are programming, or alert you to errors in the program or operation. The messages are listed here alphabetically with descriptions. If a message warrants an action on your part, the suggested action is given in the far right column.

Message	Description	Suggested Action
Address Limit	The number of I/O addresses assigned exceeds the available space.	Reassess I/O allocations. Reduce the number of I/O addresses.
AR not decimal	The information being entered must be decimal, as in the case of reference numbers.	Clear the assembly register (AR) and enter decimal data.
Bad length received	Communications error in message received from the controller.	Clear error, reset, and re-attempt the operation.
Cannot login - unit has programmer attached	Only one programmer at a time may be attached to a controller.	Attach to a 984 PLC as a monitor (with keylock locked) or wait until the other programmer logs out or detaches.
Coil not disabled	The coil can not be forced because it has not been disabled.	Disable the coil. It can then be forced.
Coil not in network	The requested coil has not yet been used.	
Coil used	The requested coil has already been programmed and may not be used again..	Select a new coil number.
Coils not allowed here	A coil may not be placed in this position, e.g., between two contacts.	Move cursor to appropriate area and coil.
Compress not allowed	There are no nodes beneath the cursor to compress horizontally or vertically.	
Controller in dim awareness, attach not allowed	The controller has not been configured and cannot fully communicate with the programmer.	Configure the controller using the 984 Configurator Tape and retry. Make sure the correct PLC has been addressed.
Controller running	The attempted action cannot be performed because the controller is running.	Stop controller then perform action.
CRC failure	Indicates a communications error picked up by the error checking. CRC = cyclical redundancy check.	Clear error, reset, and re-attempt the operation.

Message	Description	Suggested Action
End of logic memory	There are no more networks started or programmed into logic memory.	If another network is desired, press START NETWORK>
Expand not allowed	Network expansion, either vertical or horizontal is not allowed due to space.	
Fatal I/O error must initiate reset sequence	Communication error message has been cleared from screen.	Reset, and re-attempt operation.
Function not allowed	The requested function may not be performed at this time.	
Illegal baud rate	Occurs when configuring a 984 PLC. The baud rate selected is not allowed.	Select a legal baud rate.
Illegal channel number	Occurs during Traffic Copping. The number entered is not legal for the channel.	Clear the AR and enter a legal channel number.
Illegal configuration	Displayed when you attempt to program a 984 PLC when the configuration has not been properly set.	Check the accuracy and completeness of the configuration.
Illegal device address	The device address given is less than 1 or greater than 25 decimal. This message appears during configuration.	Select a legal device address (1 through 255)
Illegal replacement	This message is displayed if you attempt to replace one type of node with another that is not legal in that position - e.g., attempting to replace a contact with a coil.	Select a legal replacement.
Illegal 984 memory configuration	The 984 configuration is not valid at start-up time.	Reload tape. If error recurs, obtain new dump tape and reload.
Invalid address	The address requested is not within the range specified by the configuration.	Clear AR and re-enter address in the valid range.
Invalid command	Communications error. Message not received correctly due to an invalid field.	Clear error and re-attempt operation.
Invalid date	Occurs when including a date on a dump tape.	Clear error and re-enter date in valid format.
Invalid network number	The network number given does not correspond to any network in the PLC configuration.	
Invalid node		Clear error and re-attempt operation.
Invalid parameter		Clear error and re-attempt operation.
Invalid reference number	The reference number is not valid for the type of node or operation used - e.g., trying to place a 1XXXX number in the bottom of a timer.	Enter a valid reference number: 0XXXX for a coil, 0XXXX or 1XXXX for a contact, 4XXXX for a DX destination.

Message	Description	Suggested Action
Invalid unit number	The unit number (device address) is not in the valid range - 1 through 246.	Enter a unit number from 1 to 246.
Memory full	The limit for user logic space has been reached.	Review program for best use of memory.
Memory protect on	The desired action may not be performed because the 984 memory protect is ON.	Memory protect must be unlocked to perform the desired action.
Network not found highest # _____	The requested network was not found in user logic. The last network number found is given.	
Network not found	The 984 user logic has been altered by another device.	Logout and reattach.
No element at cursor	To perform the operation requested the cursor must be on an element.	Place the cursor on the appropriate element and perform the operation.
No element to compress	The compress function, vertical or horizontal, cannot be performed because the cursor is not on any elements.	Place the cursor on the appropriate element and perform the operation.
No empty spaces	Occurs during the TRACE/RETRACE function. Indicates there is no room to display traced references in the reference area.	Erase displayed references to make room, or change screen to allow display on alternate screen.
No function attached to key	The selected key does not have a function assigned to it.	Select another key.
No network in controller	The controller has no networks programmed into memory.	
No network on screen	The selected operation cannot be performed because no network is displayed.	
No other disabled coil	Appears during search procedures when all disabled coils or inputs have been found and another "Continue Search" command is given.	
No reference present	Occurs when you want to erase, get previous, or get next reference but no reference is present at the cursor.	Reposition cursor on the desired reference.
No search parameters	This message appears if you try to search when no parameters (type of node, reference number) have been set.	Move cursor to set search area of CRT screen and choose parameters.
Not attached to the controller	The selected operation cannot be performed because the programmer is not attached to the controller.	Attach to controller and perform operation.

<b>Message</b>	<b>Description</b>	<b>Suggested Action</b>
Not enough memory	This message appears during configuration, indicating that the memory size of the machine cannot support the configuration parameter chosen.	Choose parameter within system capabilities.
Not enough room	Occurs when an attempt is made to enter a two or three node function in the last row of a network.	Re-design network or go to the next network.
Not enough room to compress	Indicates the network cannot be compressed, vertically or horizontally, due to a lack of space.	
Not in program mode	The selected function or key is only operative when the programmer is running as a programmer, i.e. its keylock is unlocked.	Unlock programmer keylock and perform operation.
Not logged in	The selected function or key is not operative because the programmer is not attached to the 984 controller.	Attach programmer to controller and perform operation.
Not logic screen	The function selected -- i.e. START NEXT -- can be performed only on the logic screen.	Access logic screen.
Only decimal or hexadecimal characters allowed in AR	Special characters -- i.e., /, ?, ; -- are not allowed in the AR. Only decimal (0-9) or hexadecimal 0-9, A-F) are allowed.	Re-enter valid data.
Port empty or unattached	Communication is not possible through the selected port because there is no connection, either to a printer or a 984 PLC.	Check connections at programmer port 2 and at the peripheral device.
Port 2 not connected	Peripheral port 2 (used to communicate with the 984 PLC) is not connected; communications are not possible.	Check connections at programmer port 2 and at the peripheral device.
Port 2 transmit time-out	Occurs during print operations. Indicates that communication has been interrupted.	Clear error and retry operation.
Port 2 UART status error	Communications error.	Clear error and retry operation.
Power display invalid -- network skipped	The network displayed has been bypassed using the SKP function or the segment has been deleted from the solve table. Disregard the power flow display.	
Programming going on	Indicates to a programmer being used as a monitor that changes have been made to memory using another programmer.	To make sure display of memory is current, logout and reattach.

Message	Description	Suggested Action
P190 UART status error	Communications error.	Clear error and reset.
Reference on alternate screen	Alerts you that a reference retrieved by the TRACE function is on the alternate screen. This message appears only if the reference area is full.	Change to alternate screen, if desired.
Running 984	The 984 PLC attached to the programmer is running.	
Search failed	No node and/or reference number specified in the search parameters was found.	
Segment boundary crossed	Informs you that a segment boundary has been crossed, either forward or backward.	
Start of logic memory	The first network is shown. There is no previous network.	
Stopped 984	The 984 PLC connected to the programmer is not running.	
System Error: XXXX	Four-digit number indicating a single error or a hexadecimal, no-carry sum of several errors. For example: Peripheral Port Stop 8000 CPU diagnostic failure 0020 Invalid node type 0008 Logic checksum error 0004 System error: 802C	Error codes sometimes appear after a tape is loaded and before the PLC is configured. In most cases these are caused by loading and may be ignored. If communications are interrupted, reload the tape.
System Error Code Numbers:	Since there is no carry, each set of errors produces a unique system error code:	
0001	Illegal configuration.	
0002	Backup checksum error.	
0004	Logic checksum error.	
0008	Invalid node type.	
0010	Invalid traffic cop type.	
0020	CPU diagnostic failure	
0040	Real-time clock failure	
0080	Watchdog timer (WDT) failure.	
0100	No end-of-logic (EOL) or bad number of segments.	
0200	State RAM test failure.	
0400	Start-of-network (SON) node did not start segment.	
0800	Bad multi-rate table.	
1000	Illegal panel or host CPU intervention.	
2000	Illegal minicode instruction.	
4000	(reserved)	
8000	Peripheral port stop	
Time-out error - communications down	Communications error in message from the 984 PLC.	Clear error and reset.

Message	Description	Suggested Action
Too many DX's loaded	No DX functions can be loaded due to a lack of memory.	Reload tape. Reconfigure if necessary.
Total # of segments = 0 or 16	984 PLC appears to have an illegal number of segments.	Check configuration, reload dump tape.
Trace stack empty	You have traced back to the original network in the trace operation.	
Verticals not allowed	Appears if you attempt to insert a vertical short in row 7 of a network.	
9999 Overflow	Value in register is too large to display in decimal with four digits. This message appears in the reference area, next to the reference number.	Display register data in hexadecimal or binary if the data is significant.
# of coils must be multiple of 16	Coils may be specified only in multiples of 16.	Enter correct number.

## 984A/B/X System STOP States

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The following codes can be displayed on a P190 Programming Panel or found in location 300105 on a P964 or P965 Data Access Panel:

<b>Bit 0</b> <b>(1 BCD)</b>	<b>Illegal Configuration</b> Someone or something has most probably been modifying memory through the MODBUS ports or through the DAP. It may also be caused by a bad memory board or executive pack.
<b>Bit 1</b> <b>(2 BCD)</b>	<b>Backup Checksum Error</b> Information saved in coil or register area has been corrupted; recovery requires that the program be reloaded. It may also be caused by a bad memory board.
<b>Bit 2</b> <b>(4 BCD)</b>	<b>Logic Checksum Error</b> The calculated user logic checksum does not agree with the stored checksum. It can also be caused by an illegal change of memory or by a bad memory board. Try reloading the tape; if that does not work, replace the memory board.
<b>Bit 3</b> <b>(8 BCD)</b>	<b>Invalid Node Type</b> This error usually occurs when loading tapes to the 984. It may be caused by loading or relocating a tape from a machine supporting DX instructions not supported or configured in the target machine -- e.g., relocating a tape with a HSBY block to a 984 not configured for Hot Standby functionality. It may also be caused by loading a tape made on a 24 bit machine to a 16 bit machine -- e.g., specifying a constant greater than 999.
<b>Bit 4</b> <b>(10 BCD)</b>	<b>S908 RIO Head Failure</b> The most likely cause is failed S908 RIO board, in which case the board should be replaced. It may also be caused by an illegal board configuration in the 984 -- e.g., the wrong PROM pack.
<b>Bit 5</b> <b>(20 BCD)</b>	<b>CPU Diagnostic Failure</b> The CPU board is bad; replace it.
<b>Bit 6</b> <b>(40 BCD)</b>	<b>Real Time Clock Failure</b> Again, replace the CPU.
<b>Bit 7</b> <b>(80 BCD)</b>	<b>Watchdog Timer Expired</b> This bit is usually set in conjunction with another. It often signals a DX program that is too large.
<b>Bit 8</b> <b>(100 BCD)</b>	<b>No EOL Detected or Bad Number of Segments</b> This error usually occurs when a startup is attempted after the incomplete loading of a program. Reload or try another tape.
<p>NOTE You may receive this system error when you first configure the system, before you have programmed any logic. This is not a fatal error; the system cannot find EOL (end-of-logic) because there is no logic programmed.</p>	
<b>Bit 9</b> <b>(200 BCD)</b>	<b>State RAM Test Failure</b> The continuously running diagnostics have failed. Replace the RIO processor.
<b>Bit 10</b> <b>(400 BCD)</b>	<b>SON Did Not Start Segment</b> A failure of the start-of-node is usually caused by improper programming from a MODBUS host.

**Bit 11**  
**(800 BCD)**

**Bad Segment Scheduler Table**  
The Segment Scheduler has programmed improperly.

**Bit 12**  
**(1000 BCD)**

**Illegal Peripheral Intervention**  
This error is caused by an attempt to clear the System Stop State word. Someone or something has altered memory.

**Bit 13**  
**(2000 BCD)**

**Dim Awareness**  
The 984 has not been configured successfully. This bit can be set in conjunction with other flags.

**Bit 14**  
**(4000 BCD)**

**Extended Memory Parity Error**  
This error indication pertains to the 984B only. Try reloading the memory from tape, if that fails replace the memory board.

**Bit 15**  
**(8000 BCD)**

**Peripheral Port Stop**  
This bit simply indicates the PLC has stopped. This bit is usually set in conjunction with another bit.

Error bits are usually set in combinations of two or more:

System STOP Error 8020 (1000000000100000)  
8000 Peripheral Port STOP  
0020 CPU Failure  
8020

## J812/J892 ASCII Error Status

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When an ASCII message is aborted because of a communication error, an error code is stored in the 984. To retrieve the error code for an aborted ASCII block, use your programming panel or DAP to display the contents of the register holding the error word. To retrieve an aborted READ block, go to the first register of the source node; to retrieve an aborted WRIT block, go to the first register of the destination node.

### Bits 15-12

### Controller Error (displayed in hex)

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|---|--|
| 1 | An error has been detected in the input to the RIO interface from the ASCII device.                                    |
| 2 | An exception response from the RIO interface indicates bad data.   |
| 3 | A sequenced number from the addressed RIO interface differs from the expected value.                                   |
| 4 | There is a user register checksum error. It is often caused by altering READ/WRIT registers while the block is active. |
| 5 | An invalid port or message number has been detected.   |
| 6 | A user-initiated abort is indicated; the bottom input of the READ/WRIT block is energized.                             |
| 7 | No response from the drop indicates a communication error.   |
| 8 | A node has aborted because of the use of the SKP function.   |
| 9 | The ASCII message area has been scrambled. Reload memory from tape.  |
| A | A port has not been configured in the Traffic Cop (J892 only)  |
| B | This error indicates an illegal ASCII request (J892 only).   |
| C | An unknown response has been received from the ASCII port (J892 only).   |
| D | An illegal ASCII element has been detected in user logic - e.g., Duplicate Block.                                      |
| F | The RIO processor in the 984 controller is down.   |

### Bits 11-16

### J812/892 Drop Error

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| 11 | The input from the ASCII device is not compatible with the specified format.   |
| 10 | There is an input buffer overrun - data is being received too quickly at the RIO interface.  |
| 9  | A USART error has been detected - a bad byte has been received at the RIO interface.   |
| 8  | An illegal format has been processed - the format has not been received properly by the RIO interface.   |
| 7  | The ASCII device is off-line -- it has been turned off, disconnected, put into off-line operation, or has activated normal handshaking. Check the cabling to the device. |
| 6  | An ASCII message has terminated early (keyboard mode only).  |

### Bits 5-0

### Port Numbers

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These bits indicate the port number assigned to the particular ASCII block. The range is from 1-32.