APPENDIX A
SLU DIAGNOSTIC ALARMS

Table A-1. SLU Diagnostic Alarms

Diagnostic Alarm	Possible Cause	Action to be Taken
1 Not Used		
2 Checksum error, main memory	a. Main memory contains bad data b. Defective SLU.	a. Reconfigure main memory. b. Replace and repair SLU.
3 Error, main memory	Defective SLU.	Replace and repair SLU.
4 Checksum error, memory module	a. Memory module contains bad data. b. Defective memory module.	a. Reload memory module. b. Replace and repair memory module.
5 Analog output 1 outside tolerance range	a. Open output circuit. b. Defective SLU.	a. Check output circuit. b. Replace and repair SLU.
6 Output holder 1 outside tolerance range	a. Open output circuit. b. Defective output holder. c. Defective SLU.	a. Check output circuit. b. Replace and repair output holder. c. Replace and repair SLU.
7 Analog output 2 outside tolerance range	a. Open output circuit. b. Defective SLU.	a. Check output circuit. b. Replace and repair SLU.
8 Output 2 outside tolerance range	a. Open output circuit. b. Defective output holder.	a. Check output circuit. b. Replace and repair output holder
9 Replace main battery	Weak battery in SLU.	Replace battery.
10 Replace memory module battery	Weak battery in memory module.	Replace battery.

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
11 thru 16 Analog input 1 thru 6 out of range	a. No power to transmitter.	a. Check transmitter.
	b. Defective transmitter.	b. Replace and repair transmitter.
	c. Open or shorted input circuit.	c. Check input circuit.
	d. Transmitter overranged on either high or low side.	d. Check transmitter.
	e. Defective SLU.	e. Replace and repair SLU.
17 ICN fault, access timeout	a. An instrument on ICN was disconnected.	a. Acknowledge alarm and continue operating.
	b. Two instruments have their ICN switches set at the same number (will usually be accompanied by additional errors such as 31, 32 or 75).	b. Check ICN address switches on all instruments connected to ICN.
	c. SLU failed to pass token to next instrument.	c. Replace and repair SLU.
18 ICN fault, restart failure	a. ICN load resistors are missing.	a. Install load resistors.
	b. Two instruments have their ICN switches set at same number.	b. Check ICN switches on all instruments connected to ICN.
	c. ICN wires are shorted together.	c. Check and fix wiring fault.
	d. Defective SLU.	d. Replace and repair SLU.
19 ICN fault, invalid message received	a. Single message failure.	a. Acknowledge alarm and continue operating.
	b. Link is sending a message that this SLU doesn't know how to respond to.	b. Check for incompatible versions of software between the link and SLU.
20 ICN fault, message data invalid	a. An instrument on the ICN was disconnected or plugged in.	a. Acknowledge alarm and continue operating.
	b. Single message failure.	b. Acknowledge alarm and continue operating.
21 thru 30 Not Used		

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
31 ICN fault, framing error	a. An instrument on the ICN was disconnected or plugged in.	a. Acknowledge alarm and continue operating.
	b. Single message failure.	b. Acknowledge alarm and continue operating.
	c. Two instruments on ICN have their ICN address switches set at the same number (will usually be accompanied by additional errors, such as 17, 32 or 75).	c. Check ICN address switches on all instruments connected to ICN.
	d. Defective SLU.	d. Replace and repair SLU.
32 ICN fault, invalid message size	a. An instrument on the ICN was disconnected or plugged in.	a. Acknowledge alarm and continue operating.
	b. Single message failure.	b. Acknowledge alarm and continue operating.
	c. Two instruments on ICN have their ICN address switches set at the same number (will usually be accompanied by additional errors, such as 17, 31 or 75).	c. Check ICN address switches on all instruments connected to ICN.
33 ICN fault, excess messages received	Links and/or sequencers have sent too many messages to the SLU. The excess messages will be ignored.	Acknowledge alarm and continue operating.
34 ICN fault, excess messages transmitted	SLU has accumulated too many responses to link/sequencer messages. The excess responses will be ignored.	Acknowledge alarm and continue operating.
35 Main memory over configured	SLU configuration is too complex.	Change configuration of SLU.
36 thru 48 Not Used		
49 Memory module missing	Memory Loading switch is set at MODULE LOAD and memory module is not connected.	Set Memory Loading switch at NORMAL or connect memory module to SLU.

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
50 Upload/Download fail, memory not configured	a. Memory Loading switch is set at NORMAL and memory module has not been configured.	a. Check configuration.
	b. Contents of memory module not compatible with SLU. For example, memory module containing controller data base connected to the SLU.	b. Use memory module containing correct data base.
	c. Memory Loading switch is set at MODULE LOAD and SLU memory has not been configured.	c. Configure SLU memory.
51 Replace both batteries	a. Weak batteries in both SLU and memory module.	a. Replace both batteries.
	b. Defective SLU.	b. Replace and repair SLU.
52 Upload/download failed	a. Upload or download did not pass verification check that determines if data was transferred correctly.	a. Acknowledge alarm and try again.
	b. Diagnostic Alarm No. 52 repeats.	b. Replace and repair SLU or memory module.
53 Download Failure, memory module	Memory module contains bad data. Checksum calculation before download did not compare to stored checksum values.	Reload memory module with known good data. If Diagnostic Alarm No. 53 repeats, replace and repair memory module.
54 Main and memory module checksums disagree	Memory module was not configured when it was connected to SLU and the user later tried to take SLU to configured state.	Perform memory upload.
55 thru 71 Not Used		

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
72 Input Communications, receiving unexpected data	a. Another instrument on the ICN is transmitting data to the wrong place. (If the receiving instruments on ICN are correctly configured, this will also result in one of the errors, 21-30, occurring in one of the receiving instruments.) b. This SLU is expecting data from the wrong place. (If transmitting instrument is correctly configured, this will also result in one of the errors, 90-1 thru 90-32, to occur in the SLU.	a. Check the configuration of the Output Communication Blocks in instruments that are transmitting data. (Start with the instrument that is supposed to be sending data to the instrument that is reporting the error in the 21-30 range.) b. Check the configuration of this SLU's input Communication Block. (Start with the input that corresponds to the error in the 90-1 thru 90-32 range.)
73 Not Used		
74 Memory module write protected	Data in memory module is protected against accidental change.	Don't try to change data base in memory module. Use another memory module that is not write protected.
75 ICN overloaded	a. Two instruments on the ICN have their ICN address switches set at the same number. This will usually be accompanied by additional errors like 17, 31 or 32. b. Token transmit time between all instruments on the ICN has exceeded 0.25 seconds.	a. Check ICN address switches on all instruments connected to the ICN. b. Acknowledge alarm and continue operating. If error occurs continuously, reconfigure instruments on the ICN so that the total configuration load on the ICN is reduced.
76 Not Used		
77 Invalid diagnostic error	A mistake in the SLU's error reporting software.	Acknowledge alarm and continue operating. Contact Taylor.
78 and 79 Not Used		
80 Illegal interrupt	Some sort of noise spike glitched the hardware (SLU will go through its power up cycle).	Acknowledge alarm and continue operating. If alarm repeats, replace and repair SLU.

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
81 thru 86 Not Used		
87 EXP Communications Failure	Discrete I/O Termination Panel (panel no. 2, 3, 4 or 5) is off-line (probably due to loss of power) and sequencer has consequently gone unconfigured.	Bring panel back on-line and redownload data base to sequencer.
88-1 Not Used		
88-2 thru -5 Panel Configuration Lost - Panel No. 2 thru 5	Discrete I/O Termination Panel (panel no. 2, 3, 4 or 5) went off-line temporarily (probably due to temporary loss of power) and sequencer redownloaded data base to the panel.	If alarm reoccurs frequently, check power wiring to panel or some other reason for temporary loss of power.
89-1 Not Used		
89-2 thru -5 REN Transmission Error - Panel No. 2 thru 5	Discrete I/O Termination Panel (panel no. 2, 3, 4 or 5) off-line during attempted REN Transmission	If alarm reoccurs frequently, check power wiring to panel or some other reason for temporary loss of power.
90-1 thru -32 Input Communications, Not Receiving Data - Input Communications Block No. 1 thru 32	a. Instrument transmitting data to this sequencer is off-line. For example, unconfigured, in Service Manual mode or unpowered.	a. Bring transmitting instrument back on line.
	b. Instrument transmitting data to this sequencer is incorrectly configured. (This will sometimes result in diagnostic error 72 occurring in some instrument on the ICN.)	b. Check configuration of Output Block in instruments transmitting data to this sequencer.
	c. Sequencer is expecting data from the wrong place. (If the transmitting instrument is correctly configured, diagnostic error 72 will also occur in this sequencer.)	c. Check configuration of Input Communications Block in this sequencer.
	d. Transmitting instrument is on different ICN than this controller.	d. Rewire ICNs so that instruments are on the same ICN.

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
91-1 thru -64 Supervisory Message Incomplete - Supervisory Message Block No. 1 thru 64	a. Receiving instrument is OFF LINE. For example, unconfigured, in service manual or unpowered.	a. Bring receiving instrument back on line.
	b. Receiving instrument is incorrectly configured. The block and byte or variable source does not exist in the configuration of the receiving instrument.	b. Reconfigure instruments.
	c. This alarm only applies when the receiving instrument is another sequencer. It indicates that the sending instrument is not an authorized computer source for the receiving instrument.	c. Change configuration in receiving instrument so the SLU is authorized.
	d. Receiving instrument is in the computer LOCKED STATE.	d. Remove instrument from the LOCKED state.
92-1 thru -78 Discrete I/O Error - Discrete I/O Error Block No. 1 thru 64	State read on corresponding input channel does not match state which was outputted.	
	a. Improper field wiring, such that a field input device is connected to a configured output channel.	a. Check wiring.
	b. Defective SLU channels 1 thru 14.	b. Replace and repair SLU.
	c. Defective MUX board channels 15-30, 31-46, 47-62, 63-78 or discrete I/O termination panel.	c. Replace and repair MUX board on the appropriate discrete I/O termination panel.
	NOTE These diagnostic alarms are only applicable for digital output blocks.	
93 Bad Data Detected	Defective instrument.	Replace and repair instrument.
94-1 thru -32 Math Algo Calculation	a. Tried divide by zero calculation.	a. Application dependent.
	b. Numerical overrange condition exists.	b. Application dependent.

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
95 Not Used		
96-2 thru -5 Panel Configuration Change Failure	Unsuccessful attempt to change configuration of a channel on a discrete I/O termination panel. Error is caused by the panel's firmware revision not supporting the ability to change a channel's configuration.	Update MUX board firmware.
97-7 thru -70 Analog input 7 thru 70 out of range	a. No power to transmitter. b. Defective transmitter. c. Open or shorted input circuit. d. Transmitter overranged on either high or low side. e. Defective instrument.	a. Check transmitter. b. Replace and repair transmitter. c. Check input circuit. d. Check transmitter. e. Replace and repair instrument
200 Bad States Table	Diagnostic alarm no. 200-1 indicates a configuration error exists in one of the data base blocks. After this alarm is acknowledged, momentarily pressing ALARM ACKNOWLEDGE will cause three numbers representing three data base blocks to be displayed. For instance; 213-5, 209-1, and 211-12 would represent counter block occurrence 5, analog input block occurrence 1, and input communication occurrence 12, respectively. This indicates that the configuration error either exists in one of these blocks or the next block in the execution order.	Before acknowledging diagnostic alarm 200-1, it is advisable to be prepared to record the numbers for the applicable data base blocks. Acknowledge alarm and record three numbers that are displayed.
201 Not Used		
202 Too Much Foreground Configured	Too many variables configured as foreground in loop blocks	Reduce number of variables configured as part of foreground.
203-1 thru -5 Panel Not Present - Panel No. 1 thru 5	SLU's configuration requires a discrete I/O termination panel that is not present.	Connect appropriate discrete I/O termination panel

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
204-1 Not Used		
204-2 thru -5 Download Mismatch - Panel No. 2 thru 5	An SLU is plugged into a slot that it is not configured to match the termination panels that are connected to it.	Remove SLU and get required configuration, or reset panels and download desired configuration, or reset panels and plug in SLU with required configuration.
205 End of Configuration Error - Interface Block	Configuration error in Interface Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
206-1 thru -64 End of Configuration Error - Loop Block No. 1 thru 64	Configuration error in Loop Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
207 End of Configuration Error - Alarm Block	Configuration error in Alarm Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
208-1 thru -78 End of Configuration Error - Discrete I/O Block No. 1 thru 78	Configuration error in Discrete I/O Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
209-1 thru -6 End of Configuration Error - Analog Input Block No. 1 thru 6	Configuration error in Analog Input Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
210-1 and -2 End of Configuration Error - Analog Output Block No. 1 and 2	Configuration error in Analog Output Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
211-1 thru -32 End of Configuration Error - Input Communications Block No. 1 thru 32	Configuration error in Input Communications Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
212-1 thru -32 End of Configuration Error - Output Communications Block No. 1 thru 32	Configuration error in Output Communications Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
213-1 thru -64 End of Configuration Error - Counter Block No. 1 thru 64	Configuration error in Counter Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
214-1 thru -64 End of Configuration Error - Timer Block No. 1 thru 64	Configuration error in Timer Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
215-1 thru -256 End of Configuration Error - Event Block No. 1 thru 256	Configuration error in Event Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
216-1 thru -64 End of Configuration Error - Channel Selector Block No. 1 thru 64	Configuration error in Channel Selector Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
217-1 thru -64 End of Configuration Error - Supervisory Message Block No. 1 thru 64	Configuration error in Supervisory Message Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
218-1 thru -128 End of Configuration Error - Notification/Request Message Block No. 1 thru 128	Configuration error in Notification/Request Message Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
219-1 thru -32 End of Configuration Error - Recipe Block No. 1 thru 32	Configuration error in Recipe Message Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
220-1 thru -128 End of Configuration Error - Process Alarm Block No. 1 thru 128	Configuration error in Process Alarm Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
221-1 thru -32 End of Configuration Error - Math Block No. 1 thru 32	Configuration error in Math Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
225-1 thru -64 End of Configuration Error - Totalizer Block No. 1 thru 64 (Does not apply to Controller)	Configuration error in Totalizer Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled	 a. Set block type b. Change configuration. c. Change configuration.
226-1 thru -32 End of Configuration Error - Drum Block No. 1 thru 32	Configuration error in Drum Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.

Table A-1. SLU Diagnostic Alarms (Cont'd)

Diagnostic Alarm	Possible Cause	Action to be Taken
227-1 thru -64 End of Configuration Error - Linearizer Block No. 1 thru 64 (Does not apply to Controller)	Configuration error in Linearizer Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.
228-1 thru -64 End of Configuration Error - Piecewise Block No. 1 thru 64 (Does not apply to Controller)	Configuration error in Piecewise Block a. Invalid block type. b. Source pointing to a variable in a block that does not exist. c. Source pointing to a variable that hasn't been enabled.	 a. Set block type b. Change configuration. c. Change configuration.