

Troubleshooting

Contacting Technical Help

If you experience difficulty with your Dynalab XL Series Analyzer, please use this chapter to help find and/or solve the problem. If you still have questions, please contact us by:

- Calling 614-866-9999 and asking for Analyzer Technical Support
- Faxing a description of your problem to 614-866-9946
- Sending a descriptive email to Engineering@Dynalab-Inc.com

Return Materials Authorization Policy

Dynalab Circuit Analyzers have been designed to survive a rough production environment. Despite our design precautions, failures still occur. For this, Dynalab offers an RMA service to quickly repair and return Analyzers to operation.

If a Dynalab product is not satisfactory working, please follow these instructions.

- Contact Dynalab technical support to determine if the problem can be solved at your facility or with the purchase of a replacement part. If not, an RMA number will be assigned to return the product.
- Print out and complete the RMA Return Form (this can be downloaded from www.DynalabTesters.com) and then send the form and product to:
ATTN: RMA Number: _____
Dynalab, Inc.
555 Lancaster Ave.
Reynoldsburg, OH 43068
- Once the product is received, Dynalab will assess the problem and cost to repair the product. We will then contact you with this information. This typically takes 1 to 4 days.
- If the product is within the warranty period, the product will be returned immediately. If not, the product will be shipped the day after we receive your purchase order.

Recommended Maintenance

- Keep free of excessive amounts of dirt, especially on contact areas
- Clean the DynaCard interface connector and DynaCards approximately every 6-12 months, more or less depending on usage and the environment. Use the DynaCard Cleaning Kit, part number 7200030.

Analyzer Components

The XL Series Analyzer is comprised of four main components: CPU Board, Back Plane Assembly, Test Point Boards and the Power Supply Assembly. Use the figure below to help define where a specific problem may be located. We recommend swapping out these four main component with known good assemblies to narrow the origin of the problem. Each of these assemblies can be purchased separately from Dynalab.

Power Supply Assembly

7200026 (256XL)
7200036 (1024XL)
7200037 (1536XL)
241-1001 (2048XL)

Failure Symptoms

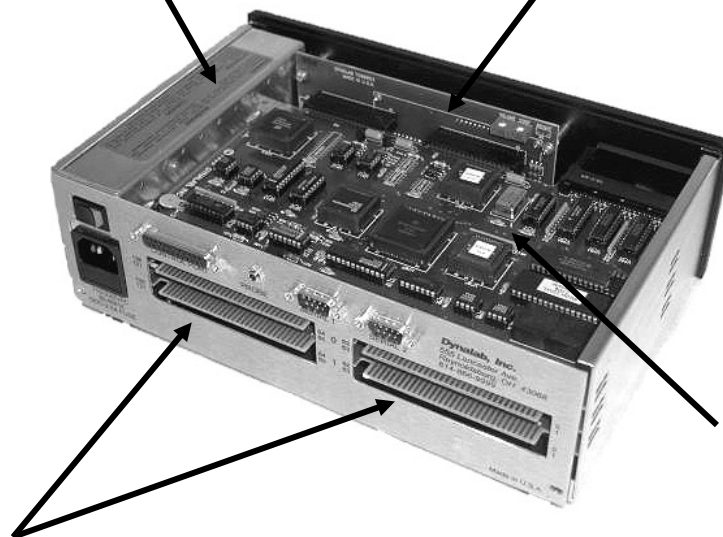
- > No display
- > Erratic performance

Back Plane Assembly

7500053 (256XL)
7500054 (1024XL)
7500055 (1536XL)
7500057 (2048XL)

Failure Symptoms

- > No display
- > No sound
- > Buttons Inoperative



Test Point Boards

7500031 (All XL Series)

Failure Symptoms

- > Test scan errors

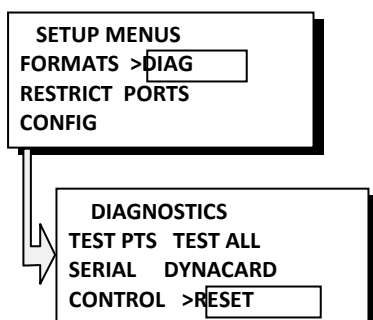
CPU Board

7500052

Failure Symptoms

- > No display
- > No sound
- > Buttons Inoperative
- > Test-scan errors
- > DynaCard failures
- > Serial port failures
- > Control port failures
- > Erratic performance

RESET Function



If the Analyzer is experiencing any form of problem, it is recommended to always first RESET the Analyzer. This is accomplished by turning the Analyzer OFF and inserting a DynaCard, then turning the Analyzer back ON while depressing the {STOP} button. Then executing the RESET function located in the Diagnostic Menu.

Executing this function will reset all Analyzer settings back to the factory default settings.

Diagnostic Guide

The following section describes different types of potential failures and the corrective action to be taken. This section refers to the different some of the part numbers that are in an Analyzer. Contact Dynalab for a complete spare parts price list.

Troubleshooting Safety

- Always disconnect the AC power cord before attempting to service the Analyzer
- Follow ESD-safe procedures when making repairs. When handling circuit boards or touching internal components, place the analyzer on a properly grounded antistatic mat and use a grounded wrist strap.

No Sound

Possible Cause	Corrective Action / Probable Solution	Replacement Components
Defective Speaker	Replace speaker assembly	7200027, Speaker Assy.
CPU Failure	Replace components related to the speaker function	5290041, IC, U210 5290042, IC, U314 5290040, IC, U207
Backplane Failure	Replace components related to the speaker function	5200206, IC, U2

No Display

Possible Cause	Corrective Action / Probable Solution	Replacement Components
Defective external fuse	Inspect the fuse located below the Power Switch on the rear of the Analyzer by viewing for a broken wire in the glass tube or using an ohmmeter to verify continuity. If it has failed, replace the fuse. Note: It is very unusual for this fuse to fail.	9600012, Fuse
Defective Power Supply	Remove the CPU Board and Test Point Boards. Then using a multi-meter, verify the following voltages on the connector in the lower left corner of the Backplane Assembly. If the voltages are out of the specified range, replace the power supply. +5Vdc \pm 0.1Vdc +15Vdc \pm 0.5Vdc -15Vdc \pm 0.5Vdc	7200026, 256XL Power Supply 7200036, 1024XL Power Supply 7200037, 1536XL Power Supply 241-1001, 2048XL Power Supply
Defective Display	Replace defective display or Backplane assembly	7500053, 256XL Backplane 9600024, 1024/1536/2048XL Display
CPU Failure	Replace components related to the display function	5200062, IC, U216 5290042, IC, U314

Buttons Inoperative

Possible Cause	Corrective Action / Probable Solution	Replacement Components
Defective Buttons	All 4 buttons (START, STOP, UP, DOWN) use the same pushbutton switch. These switches are soldered to a PCB, if they are replaced, it is important to mount them flat on the board, otherwise the keycaps will bind in the front panel.	5600015, Pushbutton Switch
Backplane Failure	Replace components related to the buttons function	5200161, IC, U1
CPU Failure	Replace components related to the buttons function	5290042, IC, U314 5290041, IC, U210 5290040, IC, U207

DynaCard Problems

Also see Self-Diagnostic Test Section

Possible Cause	Corrective Action / Probable Solution	Replacement Components
Contaminated contacts	It is common for the contact area of both the DynaCard and the DynaCard header to become contaminated. We recommend using the DynaCard Cleaning Kit (7200030) approximately every 6-12 months, more or less depending on usage and the environment.	
Defective DynaCard Header	Replace the header located on the CPU board and replace DynaCard if bad.	5500041, DynaCard Header
CPU Failure	Replace components related to the DynaCard function	5200019, IC, U402 and U403 5200017, IC, U404 5280185, IC, U205 5200002, IC, U401

Serial Port Problems

Also see Self-Diagnostic Test Section

Possible Cause	Corrective Action / Probable Solution	Replacement Components
Incorrect Serial Port Setting	The Serial Ports can be configured in three different modes and each mode has multiple setting. If the wrong mode or setting is selected for the application, problems will occur. Double check these settings first, especially the baud rate before concluding the Analyzer has failed. See the Ports Chapter for more information.	
CPU Failure	Replace components related to the Serial Port function	5200163, IC, U110 5400018, IC, X1 5290041, IC, U210 5290040, IC, U207

Control Port Problems

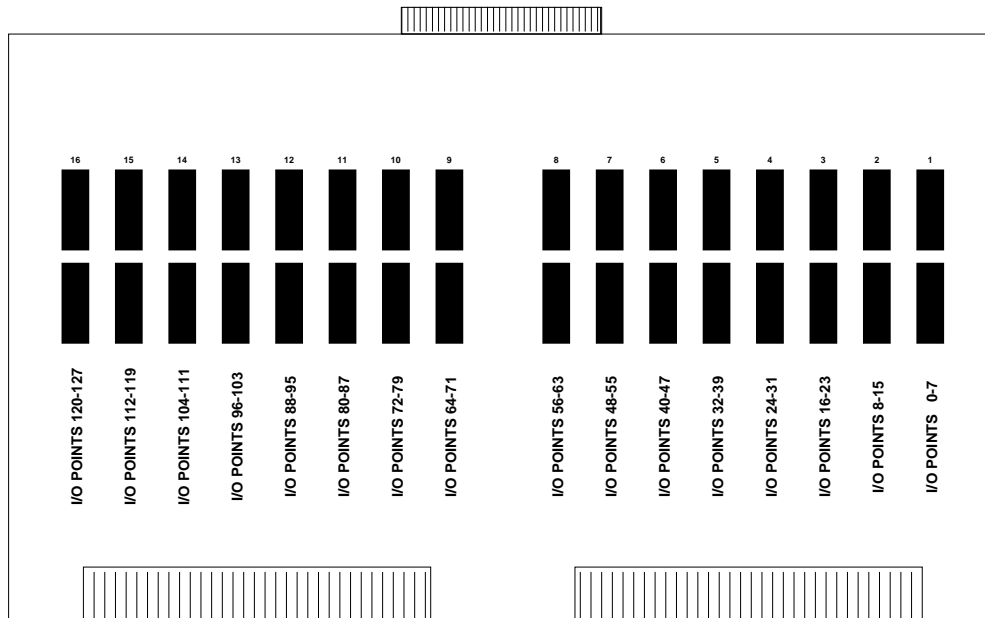
Also see Self-Diagnostic Test Section

Possible Cause	Corrective Action / Probable Solution	Replacement Components
Defective Control Port Driver	The Control Port driver component is the most common part to fail related to the Control Port. This device will fail if over .5 amps is applied to a single bit.	5200031, U114
CPU Failure	Replace components related to the Control port function	5290042, IC, U314 5200062, IC U216 5700219, POLYSWITCH, F1 5290040, IC, U207

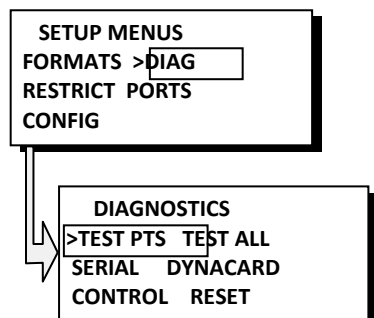
Test Scan Problems

Also see *Self-Diagnostic Test Section*

Possible Cause	Corrective Action / Probable Solution	Replacement Components
Test Point Board Failure	Replace complete Test Point Board	7500031, Test Point Board
CPU Failure	Replace components related to the Test Point Board	5280183, IC, U407 5200032, IC, U511 5400017, IC, Q3 5200037, IC, U411/412 5200162, IC, U213 5200164, IC, U113 5200207, IC, U212 5200063, IC, U112 5290040, IC, U207
Test Point Board Failure	Replace 5200010 from data provided by the Test Point Self-Diagnostic Scan. Replace both components that correspond to the diagram below.	5200010, IC, U301-U416



Self-Diagnostics Tests



Test Point Scan

The Test Point diagnostic test verifies each Analyzer test point is functioning. When the function is executed the display scrolls through each test point as it is scanned

IMPORTANT: No test point can have continuity to another test point during this test, otherwise the test will fail.

**CHECKING TEST POINT
0-099**

If no problems are detected, the Analyzer displays the total number of point found. This does not necessarily mean that there are no problems with the Analyzer. Verify the total number of points found is the total number of test points installed in the Analyzer. If the points checked are less than the total number of boards installed, the problem is either with the board that contained the highest point found (i.e., 455 Points Checked is a failure with Board 3) or the next board if the points checked is an increment of 128 (i.e., 512 Points Found with 640 total points installed is a failure with Board 4). See chart to the left.

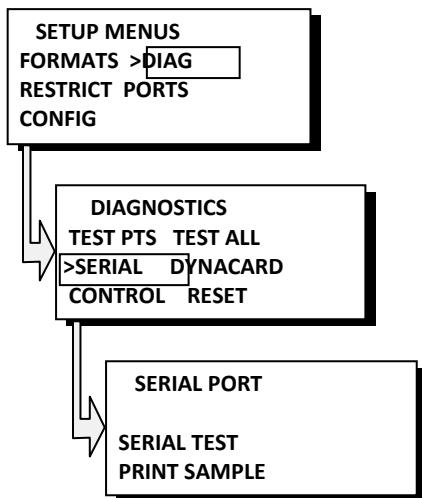
Board#	Test points
0	1-128
1	129-256
2	257-384
3	385-512
4	513-640
5	641-768
6	769-896
7	897-1024
8	1025-1152
9	1153-1280
10	1281-1408
11	1409-1536
12	1537-1664
13	1665-1792
14	1793-1920
15	1921-2048

256 POINTS CHECKED

If not enough points are found or errors are found, the Analyzer displays either an OPEN or a SHORT and the associated test points. We first recommend swapping the failed Test Point board (i.e., SHORT [3-121] to [3-032] is Board Number 3) with a known good board. If the problem still occurs with a known good board, the problem is probably with the CPU board or Back Plane Assembly.

**SHORT:
[0-092]
[0-093]**

If the problem is with the Test Point Board, reference the Test Scan Problems section on the previous page.



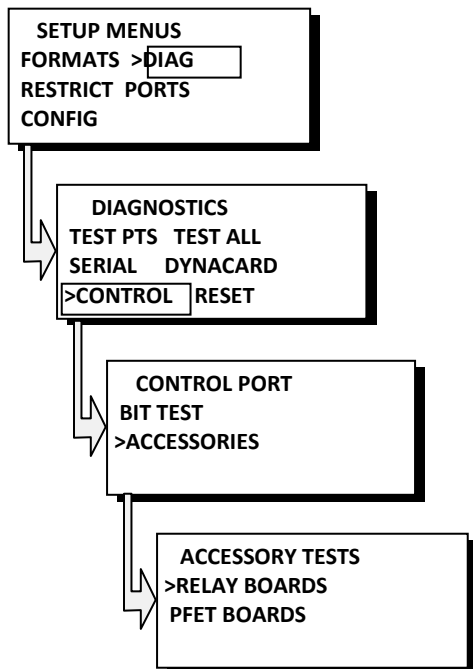
Serial Port Tests

Serial Port

First, connect a Dynalab download cable (7200001) between Serial Port 1 and Serial Port 2. Then execute the SERIAL TEST function. If no problems are found a "SERIAL PORT PASSED" message will be displayed. If errors were found, a "SERIAL PRT FAILED" message will be displayed.

Print Test

The Print Test function will print a sample to a Dynalab label printer.



Control Port Tests

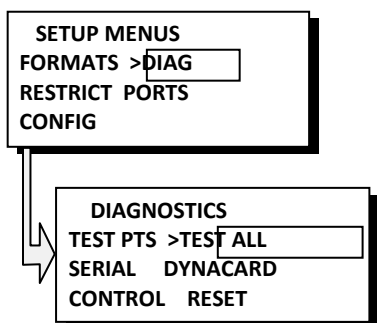
Bit Test

The Bit Test activates the Control Ports bits sequentially, 0 through 7 with a 1 second delay between activations. If a Control Port Diagnostic Module (part number 212-2002) is connected during this test, the 8 LED's will sequentially light.

ACTIVATING BIT
5

Accessory Tests

The Accessory Tests are for testing the Relay Boards (part number 212-2006) and PFET Board (212-2005) that re controlled by the Control Port. When this function is executed the display allows the user to adjust a number. As this number is adjusted, the corresponding extended bit is activated on the device.



Test All

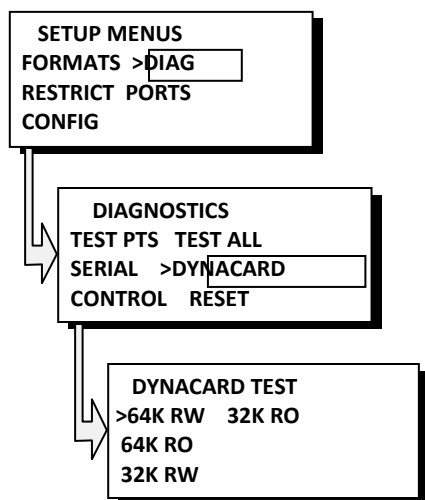
The Test All Function performs the following tests:

- Test Points
- Serial⇒Serial Test
- Control⇒Bit Test

DynaCard Tests

There are two different size DynaCards, 32K (7200018) and 64K (7200019).

NOTE: Executing this test on a DynaCard erases all programs resident on the DynaCard. Also, the DynaCard must be initialized (OPTIONS MENU⇒DYNACARD⇒FORMAT to use again.



Read-Write

The 32K_RW and 64K_RW options write a known pattern into the cartridge memory, then verify that the pattern has not changed by reading the information back. If the pattern read back matches the known pattern a "CARTRIDGE CHECKS OK" message will be displayed. If errors are found a "ADDR: 0001, WRITTEN 00 READ 01" message will be displayed, then by pressing the Stop key a "CARTRIDGE CHECKS BAD" message will be displayed.

Read-Only

The 32K_RO and 64K_RO options will only read the known pattern that had previously been written by the read/write tests. This test would only be performed on a cartridge after the 32K_RW or 64K_RW option had been executed and the cartridge removed from the Analyzer for a certain length of time. Failure of this test indicates a problem with the battery or voltage controller components.

Limited Warranty

The following is the LIMITED WARRANTY provided to original purchasers of Dynalab, Inc. products.

- 1) The equipment and the media on which the software is furnished are guaranteed against defects in material and workmanship for a period of 1 (one) year after delivery, subject to the limitations in Paragraph 2 below. Any warranted item failing to be in satisfactory working order during the warranty period, should be returned to Dynalab, Inc. freight prepaid, in a satisfactory shipping container, where it will be repaired at no additional charge, except as set forth in Paragraph 2 below. Dynalab, Inc., at its option, will repair or replace the defective item. All defective items, when replaced, become the sole property of Dynalab, Inc.
- 2) Dynalab, Inc. will not assume responsibility for an instrument or accessories that have not been installed or operated in accordance with the instrument's operation manual. This warranty does not extend to damage caused by accident, misuse, disaster, supplies, a nonsuitable operating environment, use for any non-intended purpose, or any alterations, options, attachments, parts, or repairs.
- 3) Except for the warranty in Paragraph 1 above, the Dynalab, Inc., products are furnished "AS IS" and THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE. DYNALAB, INC. DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. Any other service will be subject to Dynalab's then current charges and conditions.
- 4) THIS WARRANTY GIVES THE PURCHASER SPECIFIC LEGAL RIGHTS, AND THE CUSTOMER MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.
- 5) NO DYNALAB, INC. DISTRIBUTOR, DEALER, AGENT, OR EMPLOYEE IS AUTHORIZED TO MAKE ANY CHANGES, MODIFICATIONS, OR ADDITIONS TO ANY DYNALAB, INC., WARRANTY EITHER VERBALLY OR IN WRITING.
- 6) For service under this warranty contact:

DYNALAB, INC.
555 LANCASTER AVENUE
REYNOLDSBURG, OHIO 43068 USA
614-866-9999