

# USER MANUAL



## AT93000 Diagnostic Kit User Manual

For debugging MultiLane AT93000 Instruments used on the Advantest V93000

Revision 0.4



## Notices

Copyright © MultiLane Inc. All rights reserved. Licensed software products are owned by MultiLane Inc. or its suppliers and are protected by United States copyright laws and international treaty provisions.

Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013, or subparagraphs (c)(1) and (2) of the Commercial Computer Software -- Restricted Rights clause at FAR 52.227-19, as applicable.

MultiLane Inc. products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specifications and price change privileges reserved.

### General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of the system. Read the General Safety Summary in other system manuals for warnings and cautions related to operating the system.

### To Avoid Fire or Personal Injury

**Use Proper Power Cord.** Only use the power cord specified for this product and certified for the country of use.

**Observe All Terminal Ratings.** To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

Do not apply a potential to any terminal, including the common terminal that exceeds the maximum rating of that terminal.

### Do Not Operate Without Covers.

Do not operate this product with covers or panels removed.

**Avoid Exposed Circuitry.** Do not touch exposed connections and components when power is present.

### Do Not Operate with Suspected Failures.

If you suspect there is damage to this product, have it inspected by qualified service personnel.

### Do Not Operate in Wet/Damp Conditions. Do Not Operate in an Explosive Atmosphere. Keep Product Surfaces Clean and Dry



*Caution statements identify conditions or practices that could result in damage to this product or other property.*

## CONTENTS

---

<b>CONTENTS</b> .....	<b>3</b>
<b>INTRODUCTION</b> .....	<b>4</b>
Diagnostic Kit Pieces .....	4
Tools Required.....	4
Stiffener Bracket .....	5
Stiffener Bracket Hole Locations.....	6
POGO blindmate connectors .....	7
Connecting cables to the POGO blindmate connectors .....	7
(Optional) Cable Strain Relief .....	8
Choosing the correct cassette locations .....	9
Ordering Information .....	9
Figure 1. AT93000-SMPM-TOOL.....	4
Figure 2. Diagnostic Stiffener Bracket.....	5
Figure 3. Diagnostic Stiffener Hard Docked .....	5
Figure 4. Stiffener Bracket Hole Locations .....	6
Figure 5. Stiffener Application Space Area Dimensions.....	6
Figure 6. Two POGOs attached to the Diag Stiffener.....	7
Figure 7. Inserting Cables. Nuts on backside.....	7
Figure 8. Strain Relief (Side View) .....	8
Figure 9. Strain Relief (Front View).....	8
Figure 10. Part Number Table .....	9

## INTRODUCTION

---

This is the user manual for the **AT93000 Diagnostic Kit**. The diagnostic kit is used to debug failing channels on MultiLane AT93000 ATE instruments. It can be used with the AT93000 Diagnostic GUI which also has its own user manual available for each instrument

### Diagnostic Kit Pieces

The diagnostic kit is made up of the following pieces:

- Stiffener bracket
  - The bracket is laid over the instrument cage and then it is hard docked in a similar fashion to hard docking a DUT loadboard
- POGO blindmate connectors with cable strain reliefs
  - For maximum flexibility, the POGO connectors can be attached to be located over any cassette. They can also be rotated 180 degrees
  - Cable strain reliefs help secure the Male and Female coax cables
- Cables with Male and Female 1.85mm mating connectors
  - These connectors insert into the POGO connectors and can be hand tightened. This way, the cables can be moved around to different POGO connector locations, if necessary

### Tools Required

- M4 socket head screwdriver
  - Standard metric catalog item
  - Used to attach POGO blindmate connectors to stiffener
- AT93000-SMPM-TOOL:
  - Multilane custom tool. Order through Multilane
  - Used to attach SMPM cables to POGO blindmate connectors
  - SMPM nuts can be finger tightened; however, this tool makes the job quicker



Figure 1. AT93000-SMPM-TOOL

## Stiffener Bracket



Figure 2. Diagnostic Stiffener Bracket

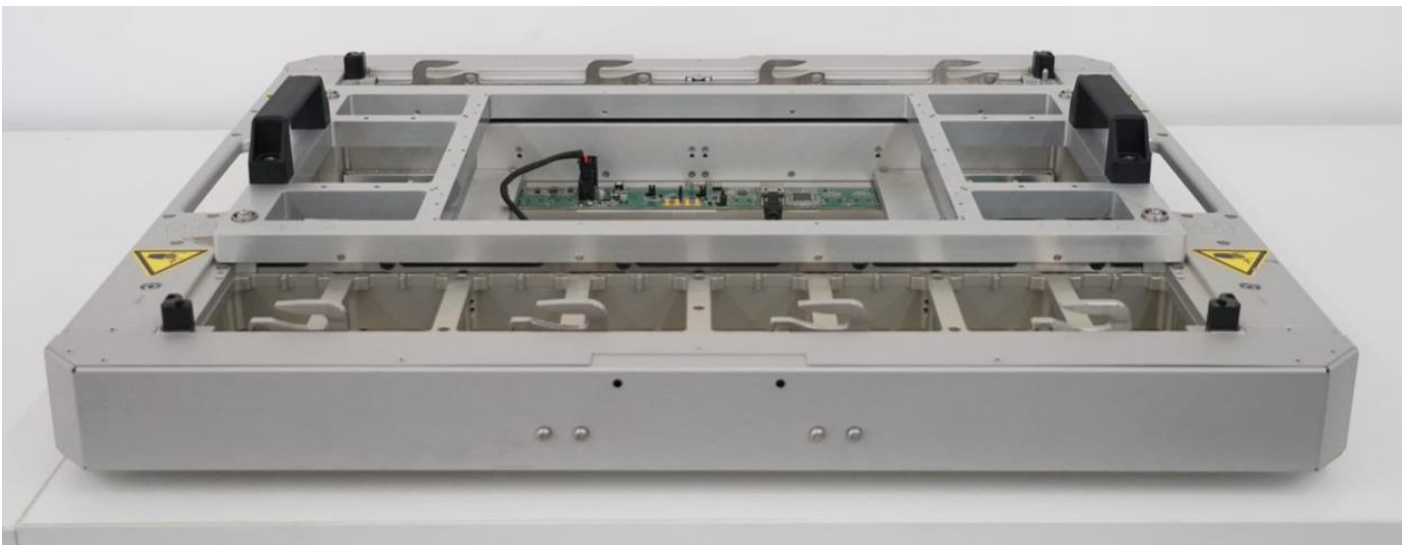


Figure 3. Diagnostic Stiffener Hard Docked

## Stiffener Bracket Hole Locations

While the loadboard stiffener was designed for diagnostics, it can also be used to anchor evaluation boards and other objects that you might want to blindmate-connect over to the MultiLane instruments. The hole locations can also be found in this DXF file [HERE](#).

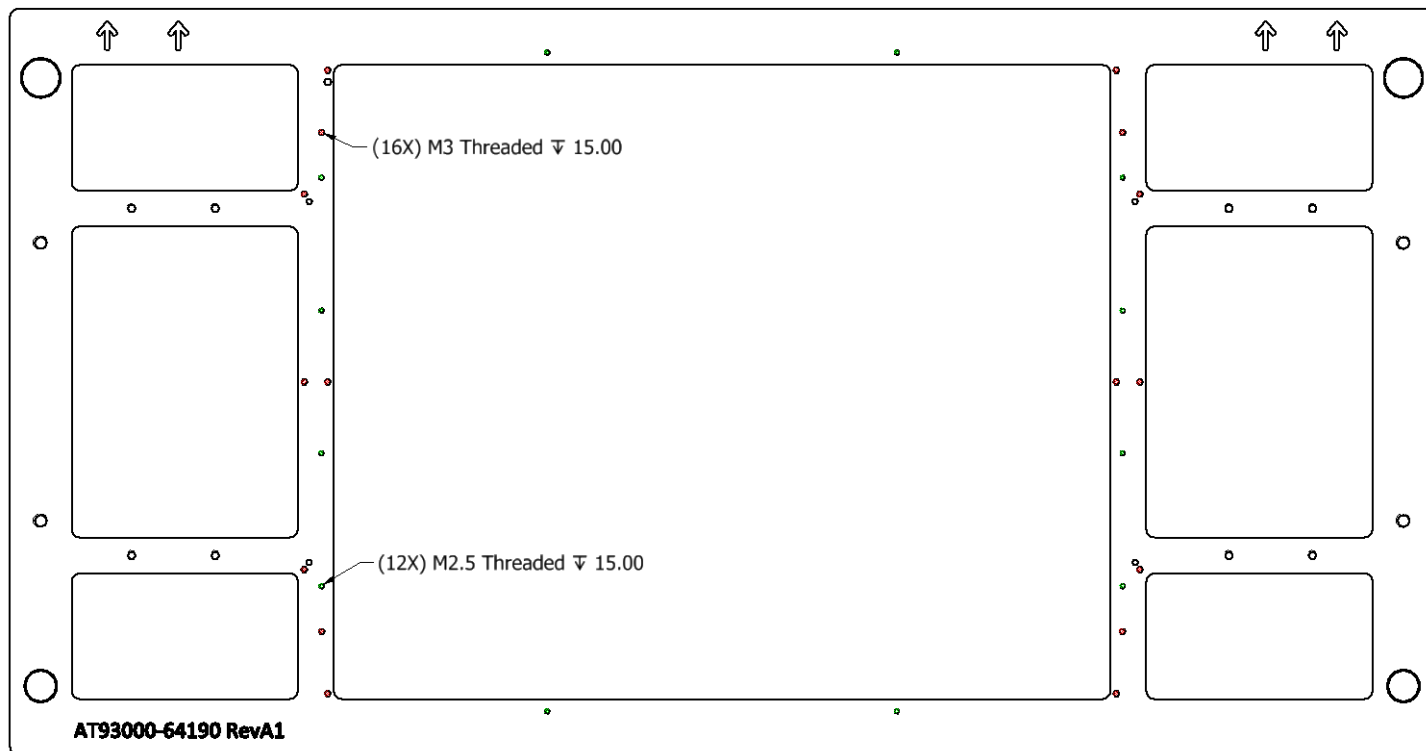


Figure 4. Stiffener Bracket Hole Locations

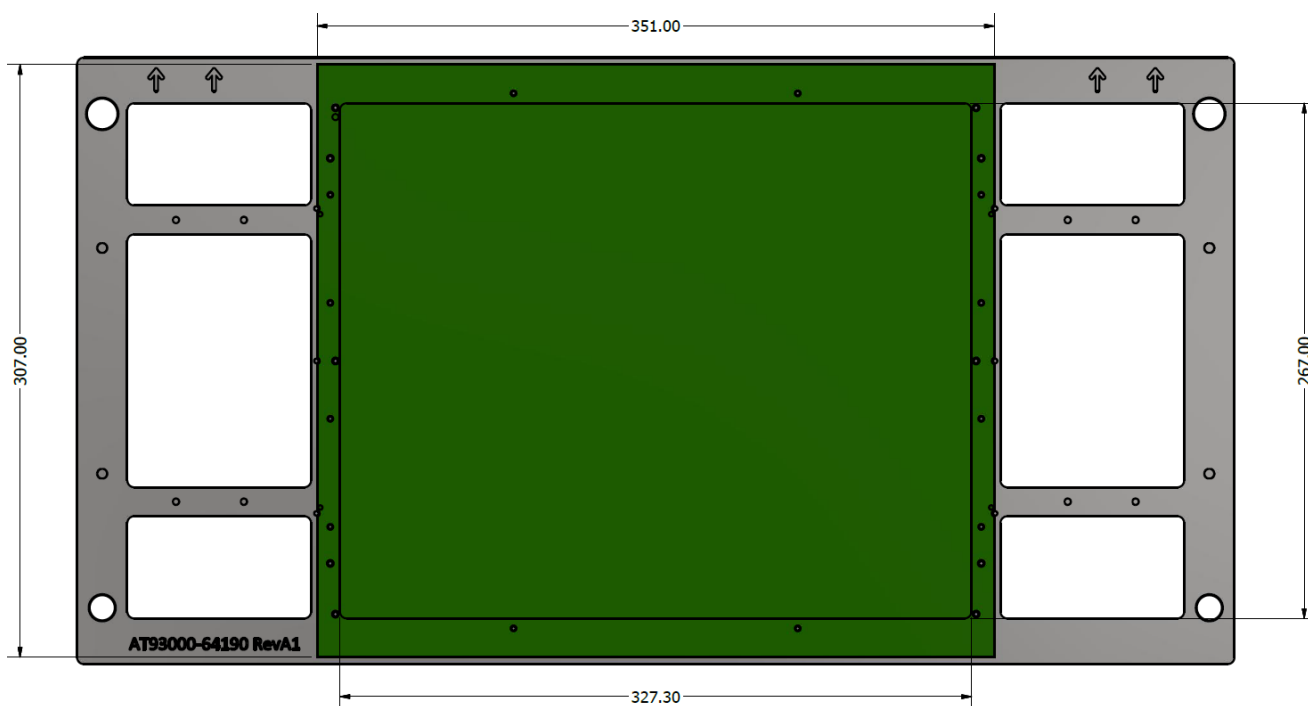


Figure 5. Stiffener Application Space Area Dimensions

## POGO blindmate connectors

The POGO blindmate connectors are connected to the diagnostic stiffener using two socket head M4 x 6 mm screws. This allows you to easily move the POGO to a different cassette location to diagnose another M4 x 6 mm screws instrument. **Figure 6** shows a POGO attached. You can see the two M4 x 6 mm screws connecting each POGO to the stiffener.

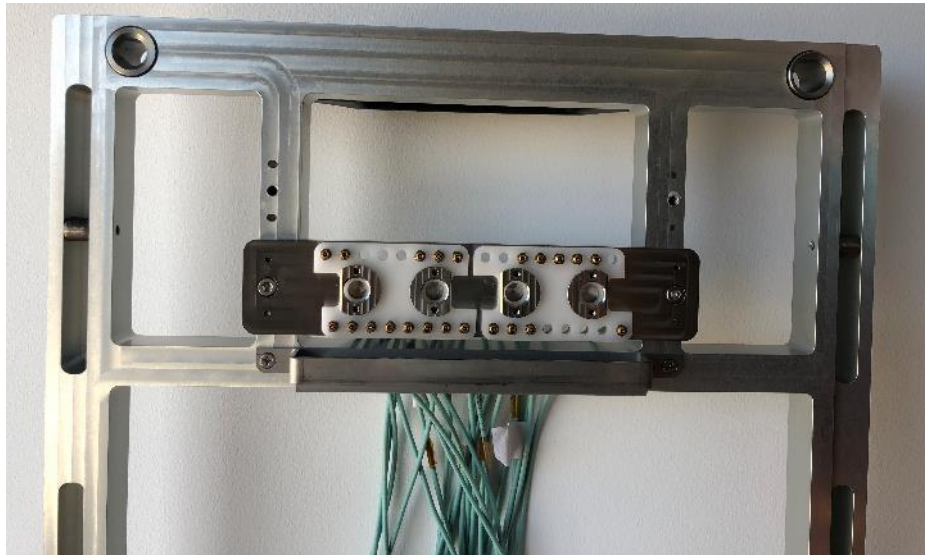


Figure 6. Two POGOs attached to the Diag Stiffener

## Connecting cables to the POGO blindmate connectors

The cables have SMPM connections that are inserted into the POGO holes. The cables have nuts that are attached on the opposite side of the POGO and are hand tightened. Don't over tighten the nuts

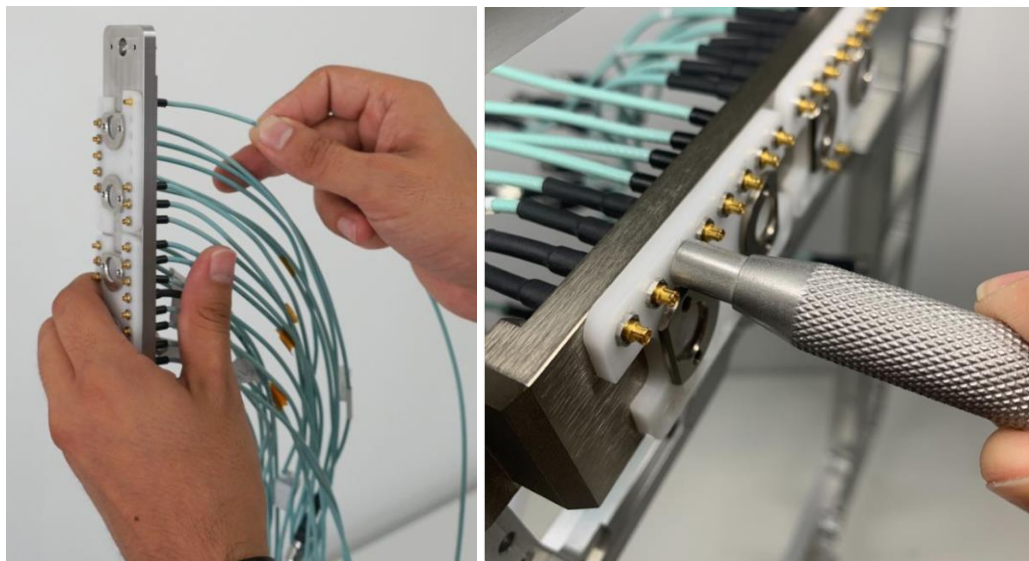


Figure 7. Inserting Cables. Nuts on backside

## (Optional) Cable Strain Relief

An optional cable strain relief is screwed into the stiffener using hex head M4 x 16 bolts.

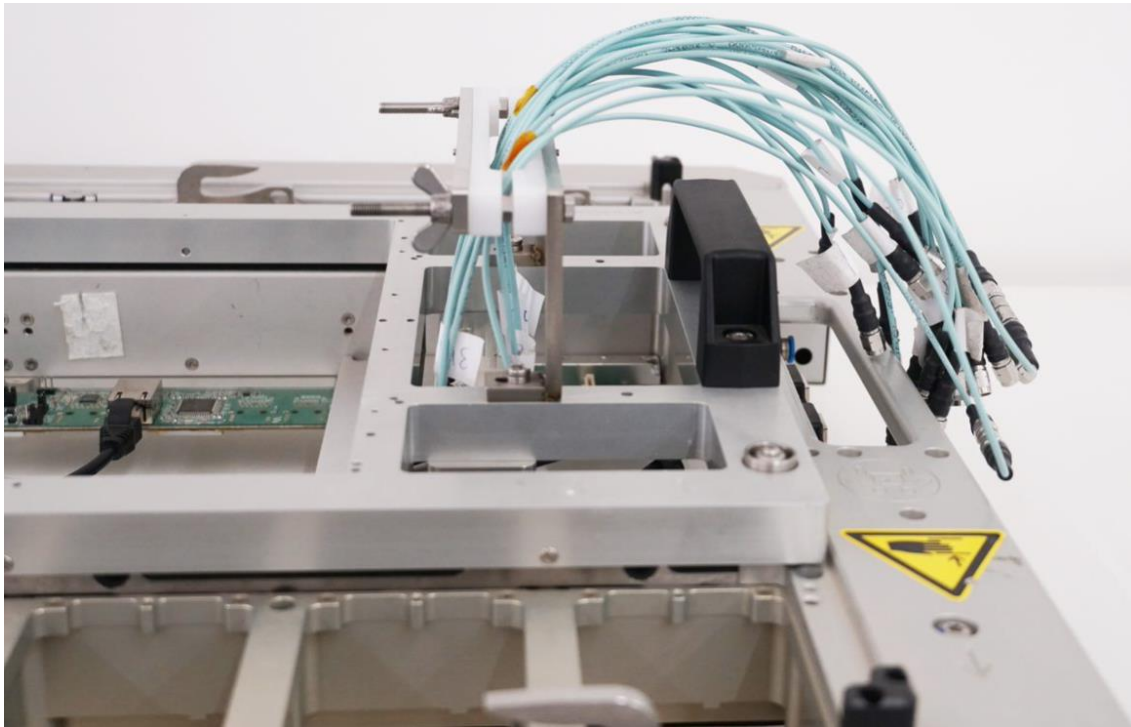


Figure 8. Strain Relief (Side View)

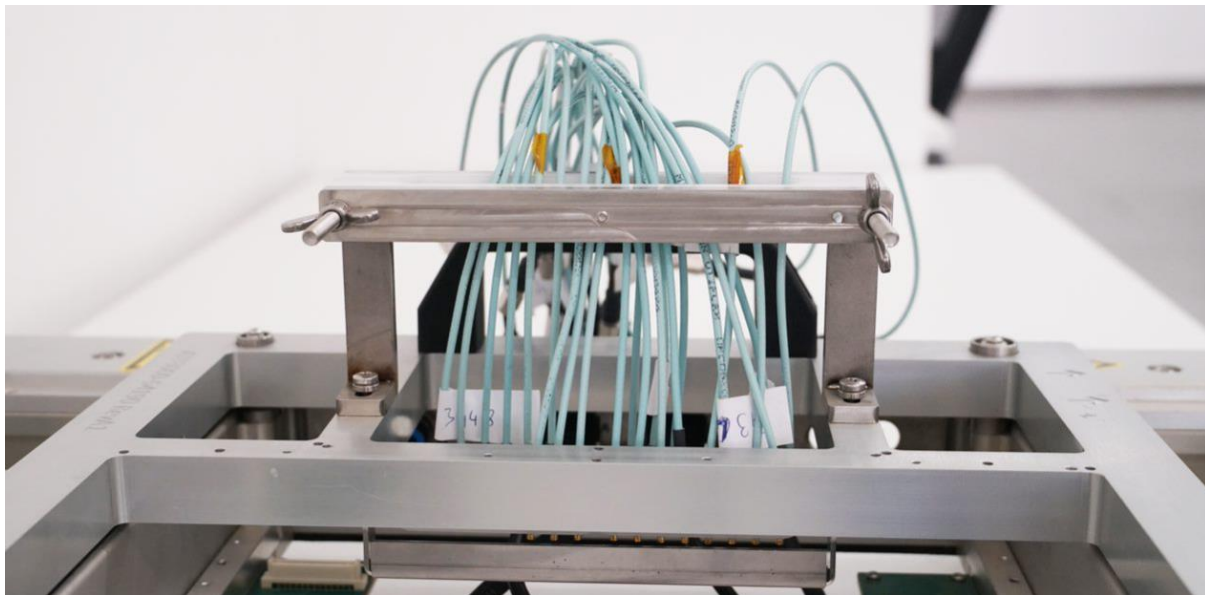


Figure 9. Strain Relief (Front View)



## Choosing the correct cassette locations

Run the diag GUI and browse the concerned model file depending on the particular application. It will tell you which instruments are being used by the device test program.

Knowledge of which instruments can transmit (TX) and which instruments can receive (RX) is required. You will connect transmit channels to receive channels to test the instruments in a loopback configuration. For example, a BERT has TX and RX channels. So, you can connect BERT ch1-4 TX channels to BERT ch1-4 RX channels and then run the diagnostic GUI on these input/output channels

Because the POGOs can be moved to different cassette locations and because the POGOs can be rotated 180 before being attached to a cassette location, a clever plan will minimize how many times the cables need to be inserted into different locations. For example, if 2 DSO's are installed and they are in cassette locations such that DSO #1 is rotated 180 degrees with respect to DSO #2, then the POGO can be unscrewed and rotated to accommodate the 2<sup>nd</sup> DSO without having to rewire the coax wires.

## Ordering Information

Product	Quote Description
AT93000-DIAG_STIFF	Diagnostic Kit Stiffener + Plexiglass top
AT93000-DIAG_POGO	POGO for Diagnostic Loadboard
AT93000-DIAG_RELIEF	Strain Relief for Diagnostic Pogo
TM40-0200-00	Cable: 1x1 30cm, SMPM-BM(f) <-> 1.85mm(m) (ship as matched pairs)
TM40-0430-00	Cable: 1x1 30cm, SMPM-BM(f) <-> 1.85mm(f) (ship as matched pairs)
AT93000-DIAG2P16C	Diag Kit Stiffener bundled with 2 POGO + 8M/8F COAX
AT93000-SMPM-TOOL	SMPM nut extraction tool

Figure 10. Part Number Table