



INSTRUCTION MANUAL
3-6 POSITION AUTO INDEXER



Version 2

SERIAL # _____

2024
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Introduction

The model AMLI Linear Indexer is designed to provide the required drive to gear motor that changes pockets on a linear electron beam gun. The Linear Indexer can operate manually with front panel selection switch or automatically by input into the rear panel mounted I/O connector. The front toggle switch allows selection between the “Manual” and “Auto” modes.

MECHANICAL SPECIFICATIONS

Panel dimensions: 3.5” height x 9.5” (half rack) wide.

Chassis dimensions: 3.0” height x 8.25” wide x 4.0” depth.

Weight: 3 lbs

ELECTRICAL SPECIFICATIONS

Input power: 85 - 250 VAC, 50/60 hertz.

Output power: 24 VDC 1.0 Amps

Safety interlock: Can be used to turn off high voltage if pocket is moved during evaporation.

CONTROL SPECIFICATIONS

A closure applied to pins on the rear panel I/O connector allow pocket position control using a programmable logic controller or the relay outputs of a deposition rate controller. See table 1.

User interface: front panel LED indicators with mode select and position select switches.

INSTALLATION

Refer to Figures 1 & 2 on the next page.

The Auto/Manual Linear Indexer is designed for mounting into a nineteen-inch rack. It can be connected to another device such as a deposition rate controller or optional 3.5” H x 9.5” W blank filler panel. Applying a source of universal AC voltage to the rear panel fused inlet {8} connects input power. Connection of the electron beam gun is via 25 Pin D-Sub connector {7} and cable provided.



Figure 1

Operation

Manual Mode

1. Set mode switch {2} to “Manual”. Observe position as indicated {4}.
2. Turn selector knob {3} to desired position. Example; in position 1, allow indexer to move until position 1 indicator LED lights.
3. Repeat the above procedures for all additional crucible pockets.



Figure 2

AUTO MODE

1. Set mode switch {2} to “Auto”.
2. Select desired pocket by providing a contact closure to the appropriate pins on the rear panel I/O connector {5}. Note, when in the “Auto” mode, the e-Gun™ drive unit will travel in and out continuously until a pocket location is selected.

1	15 VDC	8	Pocket 4 Select
2	Pocket 1 Select	9	15VDC
3	15 VDC	10	Pocket 5 Select
4	Pocket 2 Select	11	15 VDC
5	15 VDC	12	Option “Auto” Mode Select
6	Pocket 3 Select	13	15 VDC
7	15 VDC	14	Pocket 6 Select

Table 1 I/O Connector J4 pin out

When the mode switch is placed in the “Auto” position the drive unit will search for a selected pocket location. J4 is a 15-pin sub “D-sub” connector for access to the control features of the unit. The I/O provides a 15 VDC output that returned to the proper pin will command the drive unit to seek the selected pocket. Example, pin 1 output 15VDC can be connected through a relay closure back to pin 12 commanding the unit to seek pocket one location. When the pocket is reached the rack mounted control unit LED will indicate the pocket is in position. Additionally, when the key is in the “Manual” mode the I/O connector Pin 11 output (15VDC) when returned to pin 12 selects the Auto mode allowing a start, stop feature. NOTE: When the control unit is placed in the “Auto Mode” the drive unit will travel until a pocket is selected.

Select pocket 1

Connect pin 1 (15VDC) to pin 2 - pocket 1 select. This is typically done by a relay closure (such as provided by a crystal rate control unit).

Status: Pin 1 and 2 are connected. Drive unit will index until pocket 1 optical switch is made. Once reaching pocket 1 location LED position 1 will light indicating pocket 1 has been reached.

Select pocket 2

With pin 1 and 2 released

Connect pin 3 (15VDC) to pin 4 pocket 2 select. This is typically done by a relay closure (such as provided by a crystal rate control unit).

Status: Pin 3 and 4 are connected. Drive unit will index until pocket 2 optical switch is made. Once reaching pocket 2 location LED position 2 will light indicating pocket two has been reached.

Select pocket 3

With pin 5 and 6 released

Connect pin 5 (15VDC) to pin 6 pocket 3 select. This is typically done by a relay closure (such as provided by a crystal rate control unit).

Status: Pin 5 and 6 are connected. Drive unit will index until pocket 3 optical switch is made. Once reaching pocket 3 location LED position 3 will light indicating pocket 3 has been reached.

Select pocket 4

With pin 7 and 8 released

Connect pin 7 (15VDC) to pin 8, pocket 4 select. This is typically done by a relay closure (such as provided by a crystal rate control unit).

Status: Pin 7 and 8 are connected. Drive unit will index until pocket 4 optical switch is made. Once reaching pocket 4 location LED position 4 will light indicating pocket 4 has been reached.

Select pocket 5

With pin 9 and 10 released

Connect pin 9 (15VDC) to pin 10 pocket 5 select. This is typically done by a relay closure (such as provided by a crystal rate control unit).

Status: Pin 9 and 10 are connected. Drive unit will index until pocket optical switch is made. Once reaching pocket 5 location LED position 5 will light indicating pocket 5 has been reached.

Select pocket 6

With pin 9 and 10 released

Connect pin 9 (15VDC) to pin 10 pocket 5 select. This is typically done by a relay

closure (such as provided by a crystal rate control unit).

Status: pin 9 and 10 are connected. Drive unit will index until pocket 6 optical switch is made. Once reaching pocket 6 location LED position 6 will light indicating pocket 6 has been reached.

Important

Do not select more than 1 pocket at a time.

Interlock Output

The interlock output connector {6} on the rear panel provides a contact closure when the e-Gun™ is at a static pocket location. This contact opens when the e-Gun™ carriage is in motion. It can be connected to a high voltage power supply interlock to prevent damage if the pocket location is changed during emission.

Standard Warranty

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Standard and Tailored Products are guaranteed to be free of material and workmanship defects for a period of one (1) year. Custom Projects and electronic components are guaranteed for a period of one (1) year.

Expendable component parts are guaranteed for their expected service life. If, for any reason, you are not completely satisfied with our products, let us know. We want to address your concerns.

Our relationship with the user does not end with the delivery of the equipment. We have a large stake in your equipment operating up to your expectations. Our goal is to be part of your success.

WARRANTY

1.0. THERMIONICS VACUUM PRODUCTS (HEREIN CALLED THERMIONICS) WARRANTS TO THE ORIGINAL PURCHASER:

1.1. Standard catalog products manufactured by Thermionics against defects in workmanship for a period of one (1) year from the date goods are received at the customer's facility.

1.2. Special products and electronic components are covered for one (1) year from the date goods are received at the customer's facility.

2.0. SCOPE

2.1. Liability under this warranty is expressly limited to repair or replacement of defective parts. THERMIONICS, at its sole option, may at any time discharge its warranty as to any of its products by refunding the purchase price and taking back the product(s).

2.2. This warranty applies only to parts manufactured and labor provided by THERMIONICS.

2.3. Valid warranty claims must be received by THERMIONICS within the warranty period and are subject to the terms and conditions hereon.

2.4. All warranty replacement or repair of parts shall be limited to equipment malfunctions, which, at the sole discretion of THERMIONICS, are due or traceable to defects in original materials or workmanship.

2.5. Malfunctions, which in the sole opinion of THERMIONICS, are caused by abnormal wear and tear, lack of maintenance, abuse, operation, maintenance or care inconsistent with the product manual, accident, or neglect of equipment are expressly not covered by this warranty. It is the responsibility of the user to operate the equipment in a reasonable and prudent manner, consistent with the stated intended use.

2.6. In-warranty repaired or replaceable parts are warranted only for the remaining portion of the original warranty period, applicable to the parts which have been repaired or replaced, and the total equipment is warranted for the balance of the five (5) year period. After expiration of the applicable warranty period, the buyer shall be charged at THERMIONICS' current prices for parts and labor, plus freight and per diem, when applicable.

2.7. Expendable component parts, including, but not limited to, pump elements, cold cathode gauges, bellows, thermocouple gauges, hot cathode gauges, sublimator filaments, emissive filaments, heater, elastomers, bearings, and gaskets, etc., are guaranteed for their expected service life. If the expendable component parts fail to give reasonable service, as determined solely by THERMIONICS, they will be repaired or replaced at our discretion.

2.8. CONDITIONS

2.9. THERMIONICS expressly disclaims responsibility for any loss or damage caused by the use of its products, when not used in accordance with proper operating and safety procedures in accordance with specifications, or if the equipment is used without the proper recommended maintenance. Reasonable care must be taken by the user to avoid hazards.

3.0. Except as stated herein, THERMIONICS makes no warranty, express or implied, either in fact or by operation of law; and, as stated herein, THERMIONICS shall have no liability under any warranty, express or implied, either in fact or by operation of law.

3.1. THERMIONICS shall have no liability for special or consequential damages of any kind, or from any cause arising out of the sale, installation, or use of any of its products. Statements made by any person, including representatives of THERMIONICS, which are inconsistent or in conflict with the terms of this warranty shall not be binding upon THERMIONICS unless reduced to writing and approved by an authorized officer of THERMIONICS.

3.2. This warranty does not cover normal maintenance requirements, which are the customer's responsibility.

3.3. This warranty does not extend to equipment that (1) someone other than Thermionics approved personnel have disassembled or attempted to repair, (2) has been modified or altered, or (3) has been contaminated with hazardous material or induced activation.

3.4. PROCEDURES

3.5. If you wish to return equipment for repair, contact the THERMIONICS DIVISION which sold you the product in question. You will be given an RMA Authorization Number and instructions on how and by what means to ship the product to the factory. NO SHIPMENT WILL BE ACCEPTED WITHOUT PRIOR APPROVAL and completed RMA Authorization Form.

3.6. In the first year, goods must be returned, freight prepaid, to the factory and will be returned prepaid to the customer. After the first year, the customer must pay all freight costs.