

μ Linc™ Processor



Operator's Manual



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Read Me First: Safety and Electromagnetic Compatibility

This chapter contains safety instructions and electromagnetic compatibility (EMC) information for the hardware it accompanies. This chapter is a supplement to the hardware documentation. Read this chapter before installing and using the μ Linc.

Safety Information

This section contains important safety information that you **must** follow when installing and using the hardware.

Do not operate the hardware in a manner not specified in this document and in the user documentation. Misuse of the hardware can result in a hazard. You can compromise the safety protection if the hardware is damaged in any way. If the hardware is damaged, return it to LaserLinc for repair.

Do not substitute parts or modify the hardware except as described in this document. Use the μ Linc only with the accessories and cables specified in the installation instructions or specifications. You must have all covers installed during operation of the μ Linc.

Do not operate the μ Linc in an explosive atmosphere or where there may be flammable gases or fumes.

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μLinc—Theory of Operation

LaserLinc designed the μLinc™ processor specifically for integration with laser and ultrasonic measurement systems. Connectors for all system I/O are located on the back of the unit (this includes connectors for scanning laser micrometers, alarms, control, encoder input, and an UltraGauge+™ wall thickness system).

Additionally, the μLinc includes detachable screw terminals for digital I/O, control, and analog I/O. The unit uses standard computer components and runs LaserLinc's [Total Vu™ software](#).

Other options include dual-video output, dual-LAN ports (with UltraGauge+ installations), internal 24 VDC power, and redundant, fault-tolerant storage. The μLinc has a variety of mounting kits: rack, DIN-rail, handles, and rubber feet.

The μLinc can also be configured to work with laser micrometers from other manufacturers, using the [TLAser400™ micrometer interface card](#). With the TLAser400 card, you can eliminate processors that are costly to buy and repair, allowing you to minimize capital investment while bringing the latest measurement/data processing and control technology to the plant floor.

Intended Use of the Equipment

μLinc Processor is intended for use in data acquisition, processing, and storage, in conjunction with measuring devices such as laser scan micrometers and ultrasonic measurement devices for industries including (but not limited to) wire, cable, fiber, hose, tube, pipe, and centerless grinding.

Safety Considerations

When the μ Linc Processor is used in conjunction with laser micrometers, be sure to avoid direct exposure of human eyes to laser beams emitted from laser diodes. Even though barely visible and/or invisible to the human eye, they can be quite harmful. In particular, avoid looking directly into a laser diode or collimated beam along its optical axis when the diode is activated.

LaserLinc, Inc. certifies compliance with U.S. safety regulations (21 CFR Chapter I, Subchapter J) on laser products, as stipulated by the U.S. Department of Health and Human Services. LaserLinc, Inc. laser measurement products correspond to the category CLASS II LASER PRODUCT in the regulation.



– This icon denotes a caution, which advises you of precautions to take to avoid injury, data loss, or a system crash. When this symbol is marked on the product, refer to the [Read Me First: Safety and Electromagnetic Compatibility](#) chapter for precautions to take.

Installation and Operation

This chapter describes how to install and operate the μ Linc. Before connecting the μ Linc to a power source, read this chapter and the [Read Me First: Safety and Electromagnetic Compatibility](#) chapter.

Your μ Linc will be pre-configured to include all purchased options, laser micrometers and Ultra Gauge+ hardware. Once all hardware is connected, Total Vu is ready to run.

Safety Information



– **Caution** Before undertaking any maintenance carefully read the following caution notices.

This equipment contains voltage hazardous to human life and safety, and is capable of inflicting personal injury.

- **μ Linc Grounding**—The μ Linc requires a connection from the premise wire safety ground to the chassis ground. The earth safety ground must be connected during use of this equipment to minimize shock hazards. Refer to the [Connecting Safety Ground](#) section for instructions on connecting safety ground.
- **Live Circuits**—Operating personnel **must not** remove protective covers when operating the μ Linc. Adjustments and service to internal components must be undertaken **only** by LaserLinc personnel.
- **Explosive Atmosphere**—**Do not** operate the scanner in conditions where flammable gases are present. Under such conditions, this equipment is unsafe and may ignite the gases or gas fumes.
- **Part Replacement**—Only service this equipment with parts that are exact replacements, both electrically and mechanically. Contact LaserLinc for replacement part information. Installation of parts with those that are not direct replacements may cause harm to personnel operating the scanner. Furthermore, damage or fire may occur if replacement parts are unsuitable.

- Modification—Do *not* modify any part of the μ Linc from its original condition. Unsuitable modifications may result in safety hazards.

Connecting Safety Ground



– Caution: The μ Linc is designed with a 3-position inlet that connects the processor ground line to the chassis ground. To minimize shock hazard, make sure the electrical power outlet you use to power the processor has an appropriate earth safety ground.

Connecting to Power Source



– Caution: To deactivate power completely, you **must** disconnect the data and power port cable.

Attach input power through the power port inlet using the cable supplied.

Mounting /Installation

The μ Linc may be table-mounted (default), rack-mounted or rail-mounted. Please contact LaserLinc for custom installations. Orientation—any orientation is acceptable, as long as the mounting is secure and free from vibration and away from liquids.

http://www.laserlinc.com/Mounting_drawings/LaserLinc-microLinc_mount.pdf

μLinc Front And Back Panels

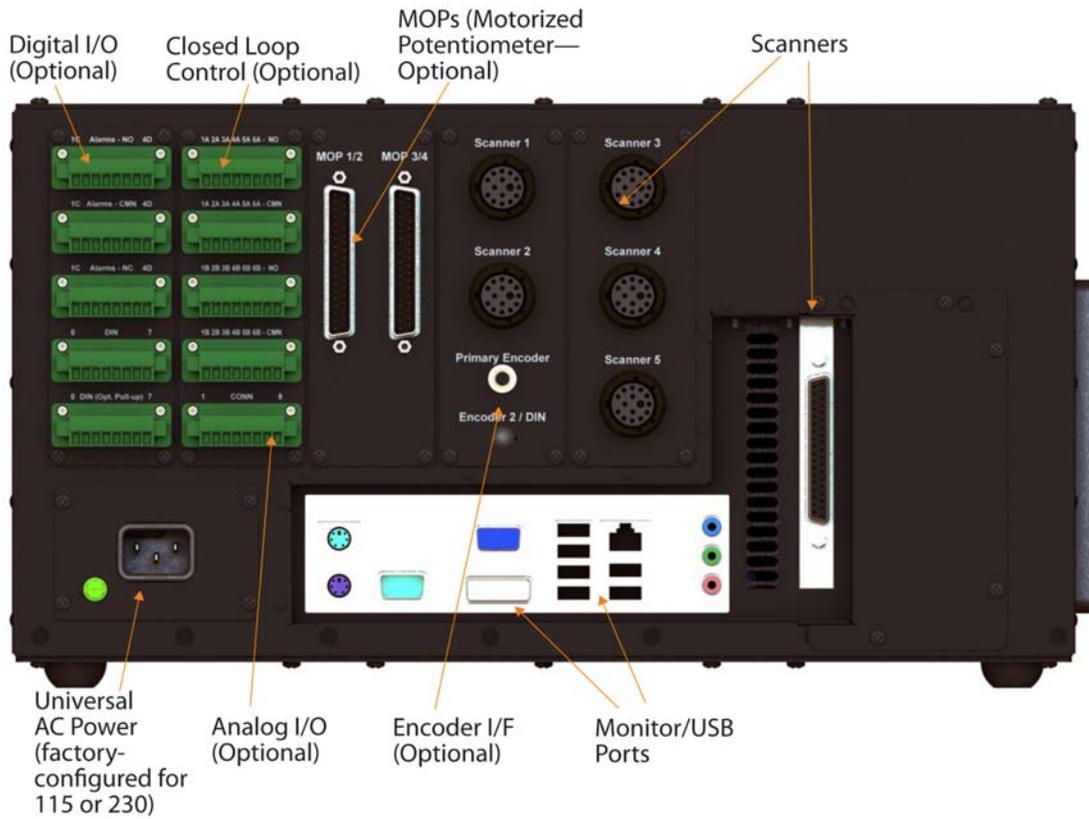
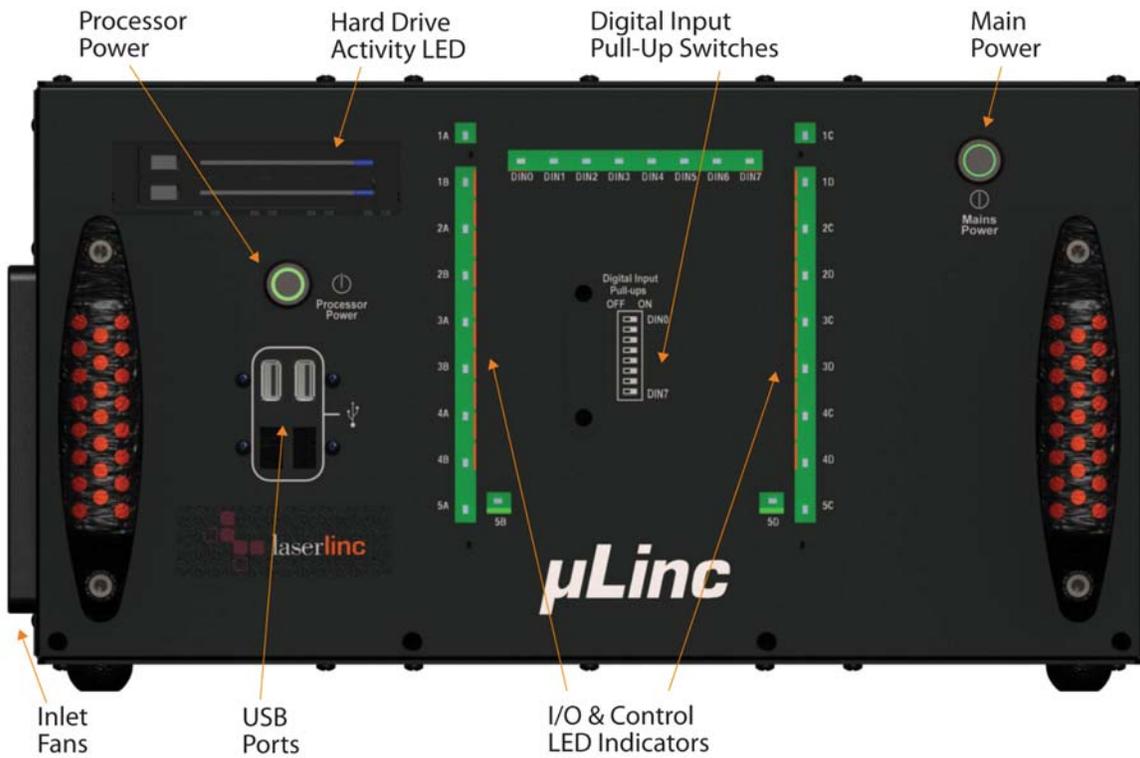


Figure 2 μ Linc front (top) and back (bottom).

Connections and Cabling

Your μ Linc comes with an IEC molded power cord of approximately 6' (2 meters). The wall plug will have the connector appropriate to your locale. The AC mains supply cords used with the μ Linc must meet the requirements of ANSI/UL817 for use in the United States, CSA C22.2 21 and 49 for use in Canada, and IEC 60799 for use in the European Union. AC mains power supply cords used with the μ Linc in other countries must be approved by the authority having jurisdiction in that country. Any power cord used must be no longer than 3 meters.

Your μ Linc will be factory configured for the proper AC mains voltage.

- 1 Connect AC power cord to AC power inlet on rear of μ Linc.
- 2 Connect scanner to appropriate back panel scanner interface, typically **Scanner 1**, **Scanner 2**, etc.
 - 2.1 For specific scanner type and target connector information, consult your μ Linc Quick Start Guide.
- 3 Connect the video monitor (optional) to either the VGA or DVI monitor input ports.

The processor will self-configure to the selected output.

- 4 Connect provided keyboard mouse.
- 5 Connect alarms and/or control.

These connections may be defined later. Refer to I/O maps in Figure 3.

- 6 Press main power button on front panel.

The green ring should illuminate.

- 7 Press processor power button on front panel.

The green ring should illuminate and the monitor should display the boot-up process into Windows.

- 8 After Windows finishes the boot-up process, start Total Vu by double-clicking the Total Vu icon on the desktop.

Total Vu should start up.

μLinc Back Panel – Digital I/O Map

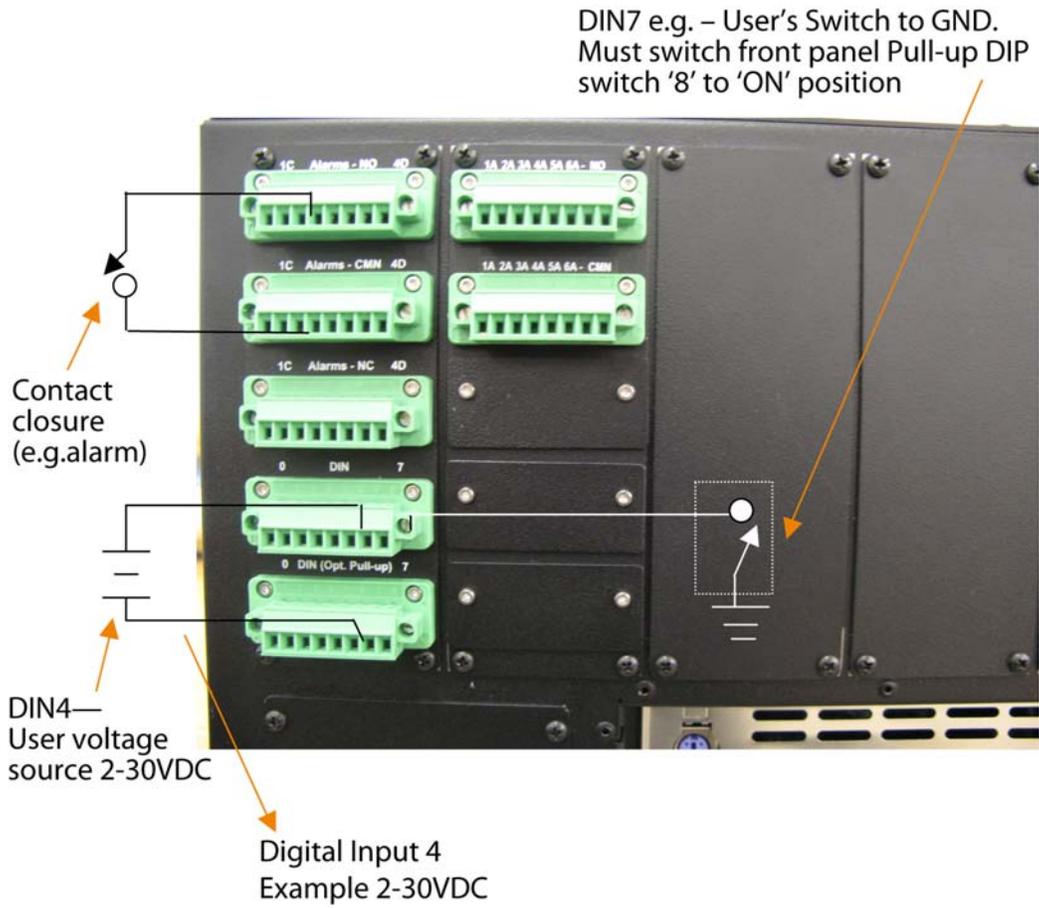


Figure 3 example: Normally Open (NO) contact closure 1D

μLinc Back Panel – Control I/O Map

	RELAYS	INTERFACE	
		CTR05/4302	CTR10/4304
Loop 1	1A/1B	—	PW
Loop 2	2A/2B	—	PW
Loop 3	3A/3B	—	PW
Loop 4	4A/4B	—	PW
Loop 5	5A/5B	—	PW
Counter	2A/3A	PW	PW
Counter	4A/5A	PW	PW
Counter	2B/3B	—	PW
Counter	4B/5B	—	PW
Counter	3A/5A	PC	PC
Counter	3B/5B	—	PC

PW: Pulse Width Interface
PC: Pulse Count Interface

Table 1 example: (Jog-Up) using Relay 2A. Define function in ACTIONS in Total Vu software. Use relay 2A (Jog-Up) in conjunction with relay 3A for Jog-Down function.

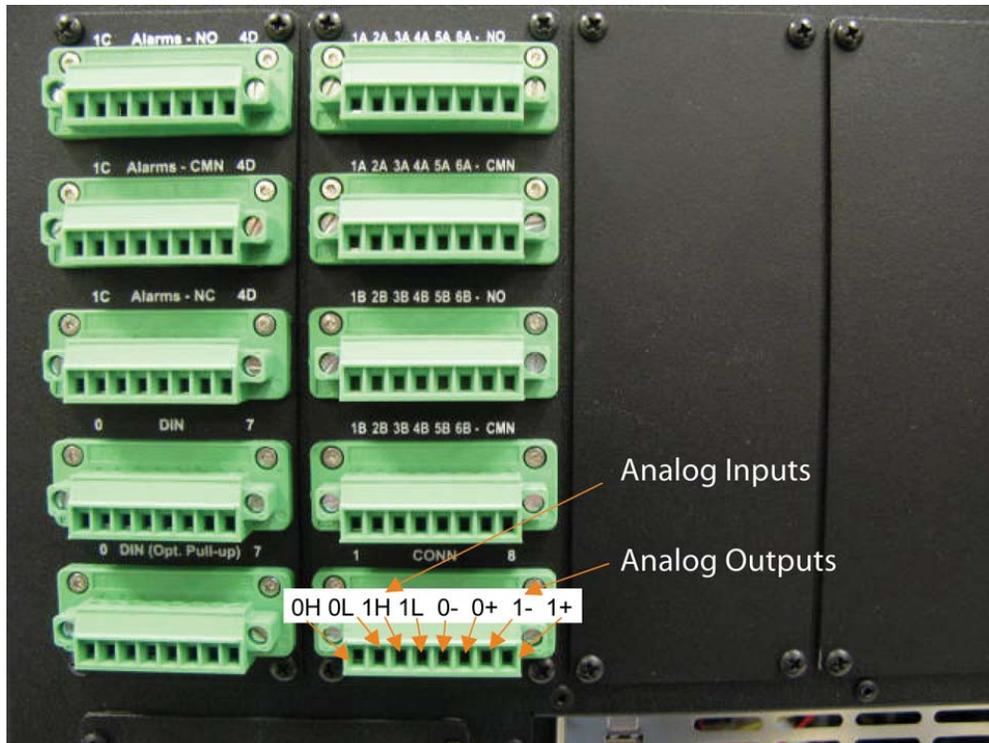


Figure 4 μLinc connectors.

Appendix 1 Preventive Maintenance And Troubleshooting

This chapter describes basic maintenance procedures you can perform on the μ Linc Processor.

Read the [Read Me First: Safety and Electromagnetic Compatibility](#) section before attempting any of the procedures in this chapter.

Cleaning

Exterior Cleaning

Clean dust and dirt from the μ Linc exterior as needed, based on the operating environment. Periodic cleaning increases reliability and cooling performance.



– **Caution:** **Do not** wash the connectors. Cover these components while cleaning the scanner.

Do not use harsh chemical cleaning agents; they may damage the μ Linc's finish. Avoid chemicals that contain benzene, toluene, xylene, acetone, or similar solvents.

Clean the exterior surfaces of the scanner with a dry lint-free cloth or a soft-bristle brush. If any dirt remains, wipe with a cloth moistened in a mild soap solution or a cleaning agent such as Fantastic or Krud Kutter. Remove any soap residue by wiping with a cloth moistened with clear water. **Do not** use abrasive compounds on any part of the scanner.

Fan Filter Cleaning – Monthly or as needed

The fans filters of the μ Linc must always be clean to ensure the proper cooling. Depending on your environment, your filters may require more or less frequency of cleaning. Visually inspect for blockage.

1. To clean the fan filters:
 - 1.1. Power down μ Linc.

- 1.2 Remove AC power cord.
- 1.3 Gently remove fan cover using small flat-blade screw driver.
- 1.4 Remove foam filter material and wash in hot soapy water.
- 1.5 Dry, and re-install.

Note: There are **NO** user-serviceable parts inside the μ Linc—removing the cover will **VOID** your warranty.

Troubleshooting

Problem: Won't power-on or no video

Possible Causes:

- AC power cord not connected.
- Mains button not engaged—push to illuminate.
- Processor button not engaged—push to illuminate.
- Video cable not connected or loose—ensure connectivity at both ends.
- Monitor not working—power-on monitor.

Please contact LaserLinc for further help.

Electrical Specifications

Operating voltage range 115 VAC model ¹	104–132 VAC
Operating voltage range 230 VAC model ¹	207–264 VAC
Input frequency	50/60 Hz
Operating frequency range ¹	47–63 Hz
Input current rating 115 VAC Model	400W
Input current rating 230 VAC Model	200W
Over current protection	Internally Fused. Not user serviceable
Power disconnect	The AC power cable provides main power disconnect.

¹The operating range is guaranteed by design.

Environment Specifications

Dimensions (H x W x D (221mm x 406mm x 320mm)	8.7" x 16" x 12.6"
Approx. Weight	30lbs (13.6kg)
Environmental	
Operating Temperature	41F ° to 104 F ° (5 ° C – 40 ° C)
Operating relative humidity	Maximum 80% relative humidity for temperatures up to 31° C, decreasing linearly to 50% at 40° C
Installation category	II
Pollution degree	2
Protection Class	Class 1 grounded
Operating location	Indoor use only
Maximum Altitude	2000 m (at 25° C ambient)

Connectivity Specifications

Maximum Scanners (LaserLinc)	(12) :122/130/160/1120/2120/230/260/331/ (6) 222/203 (3) 312/330
Maximum Scanners (Others)	(12) Beta LaserMike / Accuscan / Zumbach / Keyence / Aereol / Takikawa / Mitutoyo
Encoders / ZL DIN	1/1
LAN 10/100/1000	2
Internal 12/24 VDC	Yes—optional
I/O Connections	Detachable screw terminals
Digital I/O	8 Inputs / 8 Outputs Additional available—contact LaserLinc
Control Loops	Up to 10 Pulse Width / 5 Pulse count
Analog I/O	16 inputs / 8 Outputs—up to 16 bits resolution
UltraGauge+	(2) DSP unit / 16 channels

Specifications—Software / Total Vu

Operating System	Windows 7 / 32-bit / 64-bit
Applications	Total Vu software
Hard Disk	160MB
Memory	Up to 8 GB
Video VGA/DVI/HDMI	(2x) 1600 x 1024
USB	2.0 compliant
Audio	standard