

ALx Series

Air Cooled Linear DC Electronic Load



Number of Models	6
Power Levels	1.25 kW to 2.5 kW+
Max. Voltage Levels	From 200 Vdc to 1,000 Vdc
Max. Current Levels	From 60 Adc to 600 Adc
Size	3U

Key Features

MagnaLINK™ Distributed DSP Architecture

Magna-Power's MagnaLINK™ technology provides distributed Texas Instrument DSP control across power processing stages inside the MagnaLOAD DC electronic load. This technology follows a significant internal development cycle from Magna-Power to provide a unified digital control platform across its electronic loads and power supplies, featuring fully digital control loops, adjustable control gains, programmable slew rates, function generation¹, and many new advanced control technologies.

Extensive Programming Support

All ALx Series MagnaLOADs come with a dedicated National Instruments LabVIEW™ driver, Interchangeable Virtual Instrument (IVI) driver, and support for a wide range of Standard Commands for Programmable Instrumentation (SCPI). These programming interfaces support full control, measurement, and monitoring of the MagnaLOAD. All of the MagnaLOAD's available communication interfaces are supported by these drivers and command sets, including: USB, RS485, LXI TCP/IP Ethernet, and IEEE-488 GPIB.

Configurable External User I/O

Beyond the front panel and computer controls, all MagnaLOADs come standard with a 25-pin D-Sub connector designated as the External User I/O. This connector provides: 8 Digital Outputs, 4 Digital Inputs, 4 Analog Outputs, 4 Analog Inputs.

The analog-digital I/O pins are configurable, allowing the user to select which parameters they want to control and monitor. Nearly all of the MagnaLOAD's parameters are selectable. This configurable I/O scheme reduces complexity, eases PLC integration and allows control parameters from various interfaces simultaneously. 0-10V is used for analog I/O, while and 5V is used for digital I/O; both +10V and +5V reference signals are provided.

Integrated Arbitrary Waveform Generation¹

MagnaLOADs provide user programmable arbitrary waveforms. Each arbitrary waveform can consist many points with the following settings available:

- Voltage, Current, Power, and Resistance Set Points
- Time Period
- Rise and Fall Slew Rates
- Stop, Loop, or Jump-to-Point Setting

With the integrated arbitrary waveform generation, the MagnaLOAD can easily be used to provide a wide range of user-generated waveforms including step load transitions or pulsed DC loading.

Many Control Modes

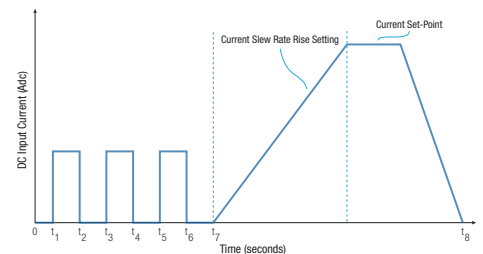
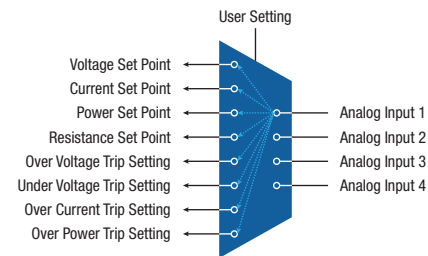
To accommodate a variety of DC sources, all ALx Series MagnaLOADs come with many distinct control modes, including: Voltage Mode, Current Mode, Power Mode, and Resistance Mode. Preference for DC regulation is given to the parameter in the selected mode within the programmed set-points. Using the MagnaLOAD's set-points and trip settings, the product can be configured to either trip with a fault when a limit is exceeded or to cross-over into a different regulation state.

¹ Planned featured to be supported via future firmware update

Note: Specifications and features are subject to change at any time without notice.

Feature Highlights

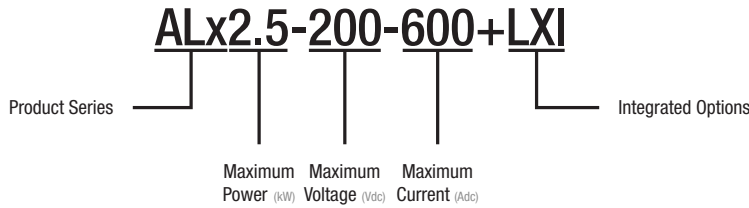
- MagnaLINK™ Distributed DSP Architecture
- 16-bit digital programming and monitoring resolution
- Many control modes, including: voltage, current, power, resistance
- Wide voltage-current-power operating profile
- Integrated front and rear full control (host) USB ports, RS485, and dual MagnaLINK™ ports, with LXI TCP/IP Ethernet and IEEE-488 GPIB available.
- Digital master-slaving capability¹
- Integrated arbitrary waveforms with up to 100 steps per stored function¹
- Configurable external analog-digital user I/O
- Designed and manufactured in the USA



Models

Model Ordering Guide

There are many possible configurations for the ALx Series product. Using the following ordering guide and models chart to define the best model for your application.



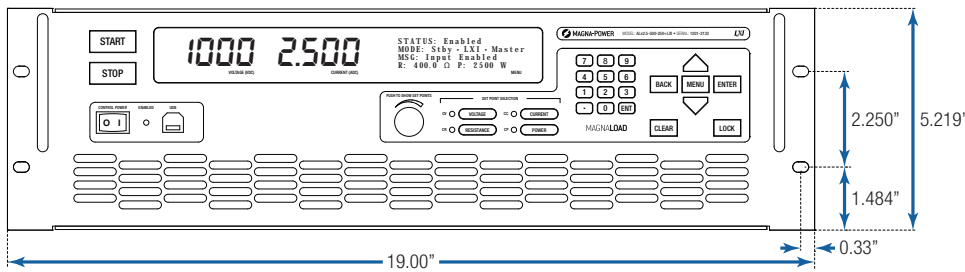
The following table details the available standard ALx Series models. Refer to the Operating Profile for the product's available operating region over a given model's maximum power, voltage and current specifications.

Model	Maximum Power	Maximum Voltage	Maximum Current	Package Type
ALx1.25-200-300	1.25 kW	200 Vdc	300 Adc	Rack-mount
ALx1.25-500-125	1.25 kW	500 Vdc	125 Adc	Rack-mount
ALx1.25-1000-37.5	1.25 kW	1000 Vdc	37.5 Adc	Rack-mount
ALx2.5-200-600	2.5 kW	200 Vdc	600 Adc	Rack-mount
ALx2.5-500-250	2.5 kW	500 Vdc	250 Adc	Rack-mount
ALx2.5-1000-75	2.5 kW	1000 Vdc	75 Adc	Rack-mount

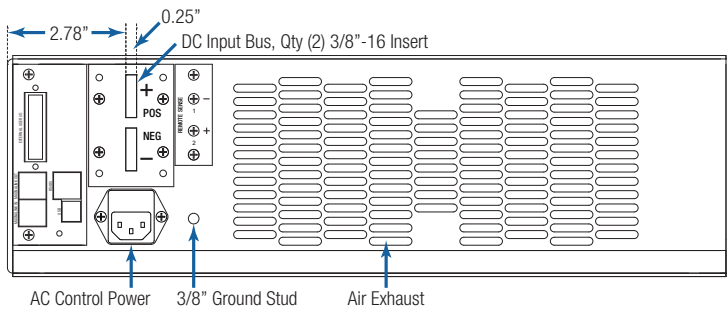
Power	Size (H x W x D)
1.25 kW	5¼" x 19" x 24" (13.34 x 48.26 cm x 60.96)
2.5 kW	5¼" x 19" x 24" (13.34 x 48.26 cm x 60.96)

Diagrams

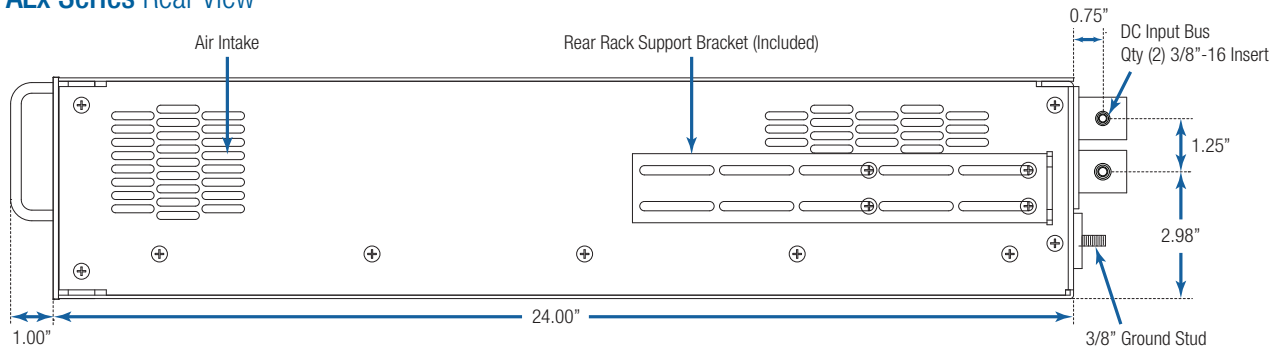
ALx Series Front View



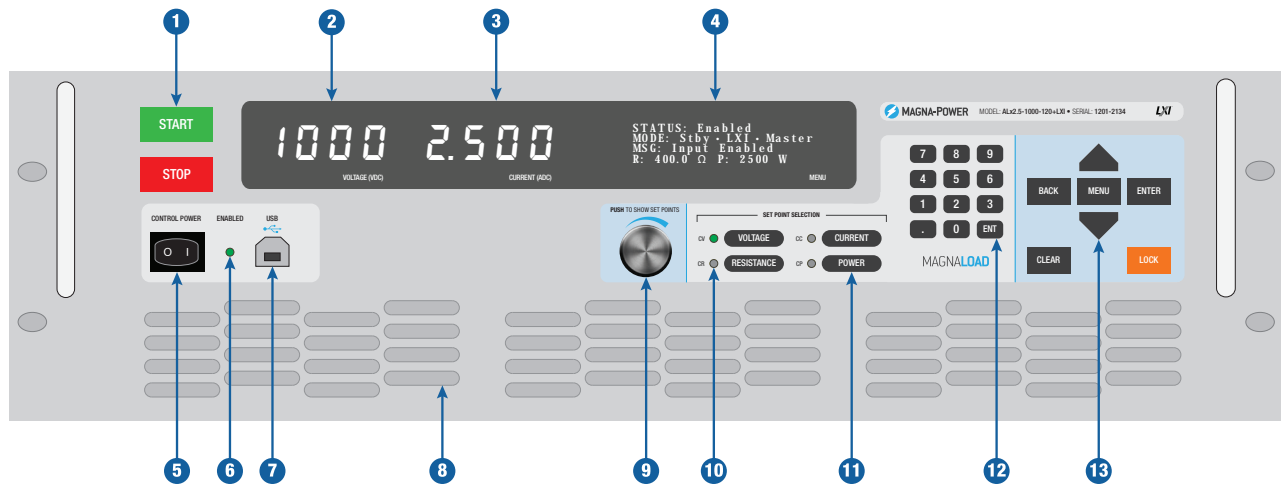
ALx Series Rear View



ALx Series Rear View



MagnaLOAD Front Panel

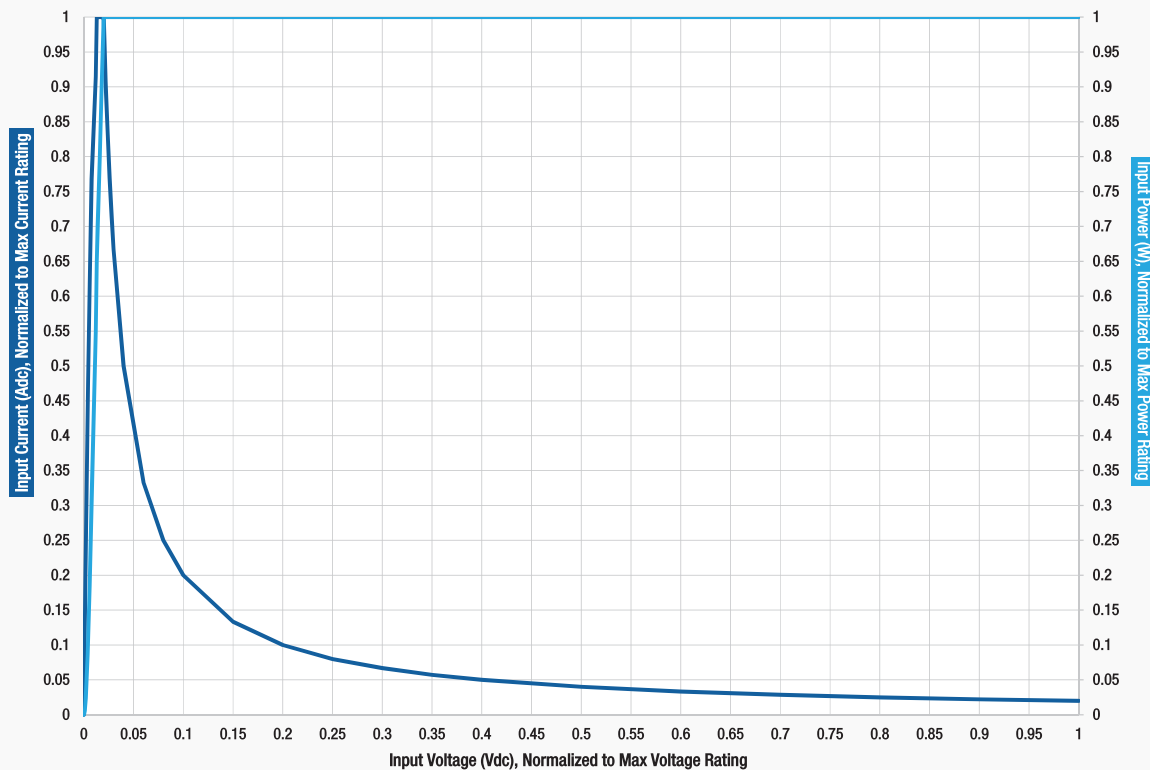


- 1** Start Button: Enables the DC input bus
Stop Button: Disable the DC input bus
- 2** Voltage measurement display
- 3** Current measurement display
- 4** 4-line character display featuring a menu system, operating status and modes, product messages with diagnostic codes, resistance measurement display, and power measurement display
- 5** Control power switch, energizes the control circuits without engaging DC bus
- 6** LED indicator that the DC input is enabled
- 7** Full control (host) front panel USB port
- 8** Clean air intake, with integrated fans
- 9** Aluminium digital encoder knob for programming set-points
- 10** LED indicator of the MagnaLOAD's present regulation state, which can include: constant voltage (CV), constant current (CC), constant power (CP), or constant resistance (CR)
- 11** Selector buttons to choose which set-point the digital encoder knob and digital keypad buttons will modify.
- 12** Menu Button: Enters the menu system on the 4-line display
Back Button: Moves back one level in the menu
Enter Button: Selects the highlighted menu item
Clear Button: Removes the product from a faulted state
Lock Button: Locks the front panel, with password protection

Operating Profile

With its sole use of linear elements for heat dissipation, the ALx Series has the widest operating profile of the MagnaLOAD products. This operating profile figure applies to all ALx Series models, normalized about the model's maximum voltage, current, and power ratings.

ALx Series MagnaLOAD Normalized Operating Profile



Specifications

AC Input Specifications

AC Input Voltage	85-265 Vac, 1-phase
AC Input Current	## Aac
AC Input Frequency	45-66 Hz

External User I/O Specifications

Digital Input Voltage	5V
Digital Input Impedance	## kΩ
Digital Monitoring Voltage	5V, # mA capacity
Digital Monitoring Impedance	5V, # mA capacity
Digital Reference Voltage	5V, # mA capacity
Analog Sampling Rate	## kHz
Analog Programming Voltage	0-10V
Analog Programming Accuracy	± 0.## %
Analog Programming Resolution	12-bit, 0.025%
Analog Monitoring Voltage	0-10V, # mA capacity
Analog Monitoring Impedance	## kΩ
Analog Reference Voltage	10V, # mA capacity
Provided Reference Voltages	5V, 10V
Interlock Input	5V

Connectivity Specifications

USB Host (Front)	Standard, Type B
USB Host (Rear)	Standard, Type B
RS485 (Rear)	Standard, RJ-45
LXI TCP/IP Ethernet (Rear)	Optional, RJ-45
IEEE-488 GPIB (Rear)	Optional
MagnaLINK™	Standard, RJ-25 x 2
External User I/O	Standard, 25-pin D-sub

Environmental Specifications

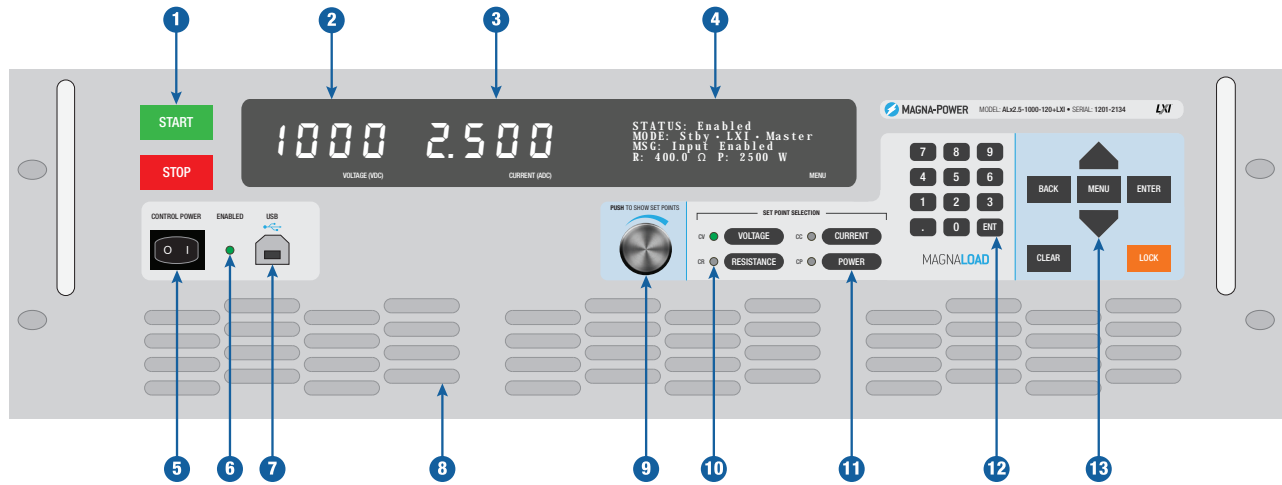
Operating Temperature	0 to 50 °C
Storage Temperature	-25 to 85 °C
Humidity (Non-Condensing)	≤ 95%
Altitude	Up to 10,000 ft (3,000 m)
Air Intake (All Models)	Front
Air Exhaust	Rear

Programming Specifications

Current Resolution	16-bit, 0.0015%
Current Programming Accuracy	± 0.## %
Current Measurement Accuracy	± 0.## %
Current Slew Rate	##
Voltage Resolution	16-bit, 0.0015%
Voltage Programming Accuracy	± 0.## %
Voltage Measurement Accuracy	± 0.## %
Voltage Slew Rate Range	##
Power Resolution	16-bit, 0.0015%
Power Programming Accuracy	± 0.## %
Power Measurement Accuracy	± 0.## %
Power Slew Rate Range	##
Resistance Resolution	16-bit, 0.0015%
Resistance Programming	± 0.## %
Resistance Measurement	± 0.## %
Resistance Slew Rate Range	##



MagnaLOAD Front Panel



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|--|---|---|
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