

# 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 generation<sup>1</sup>, 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 Generation<sup>1</sup>

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

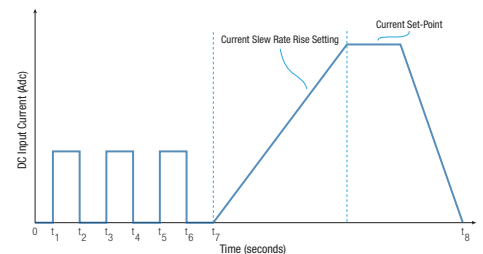
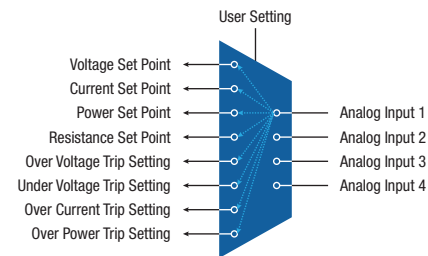
To accommodate a variety of DC sources, all ALx Series MagnaLOADs come with many distinct control modes, including: Voltage Mode, Current Mode, Power Mode, and Resistance Mode. Preference for DC regulation is given to the parameter in the selected mode within the programmed set-points. Using the MagnaLOAD's 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.

<sup>1</sup> Planned featured to be supported via future firmware update

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

## Feature Highlights

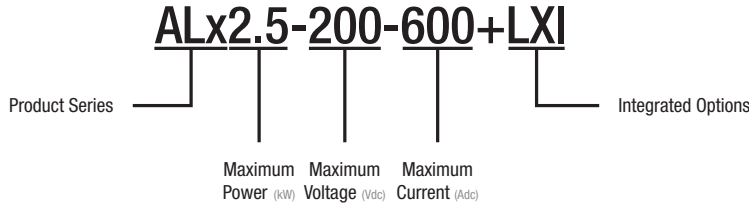
- MagnaLINK™ Distributed DSP Architecture
- 16-bit digital programming and monitoring resolution
- Many control modes, including: voltage, current, power, resistance
- Wide voltage-current-power operating profile
- Integrated front and rear full control (host) USB ports, RS485, and dual MagnaLINK™ ports, with LXI TCP/IP Ethernet and IEEE-488 GPIB available.
- Digital master-slaving capability<sup>1</sup>
- Integrated arbitrary waveforms with up to 100 steps per stored function<sup>1</sup>
- 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.



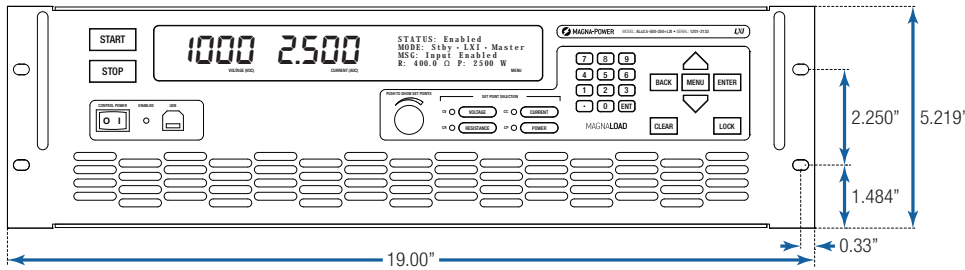
The following table details the available standard ALx Series models. Refer to the Operating Profile for the product's available operating region over a given model's maximum power, voltage and current specifications.

| 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   |
| ALx1.25-1000-60 | 1.25 kW       | 1000 Vdc        | 60 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   |
| ALx2.5-1000-120 | 2.5 kW        | 1000 Vdc        | 120 Adc         | Rack-mount   |

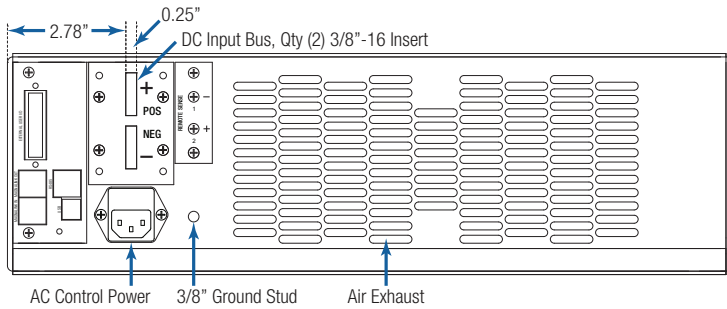
| Power   | Size (H x W x D)                           |
|---------|--|
| 1.25 kW | 5¼" x 19" x 24" (13.34 x 48.26 cm x 60.96) |
| 2.5 kW  | 5¼" x 19" x 24" (13.34 x 48.26 cm x 60.96) |

## Diagrams

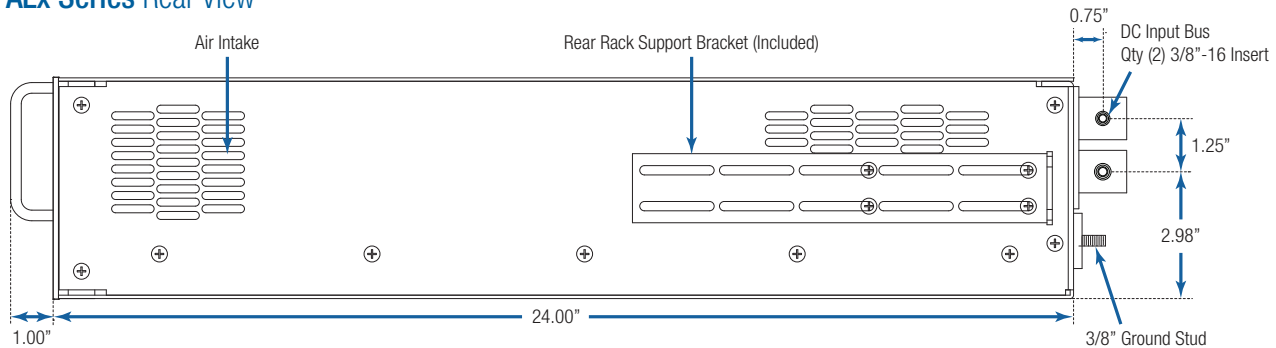
### ALx Series Front View



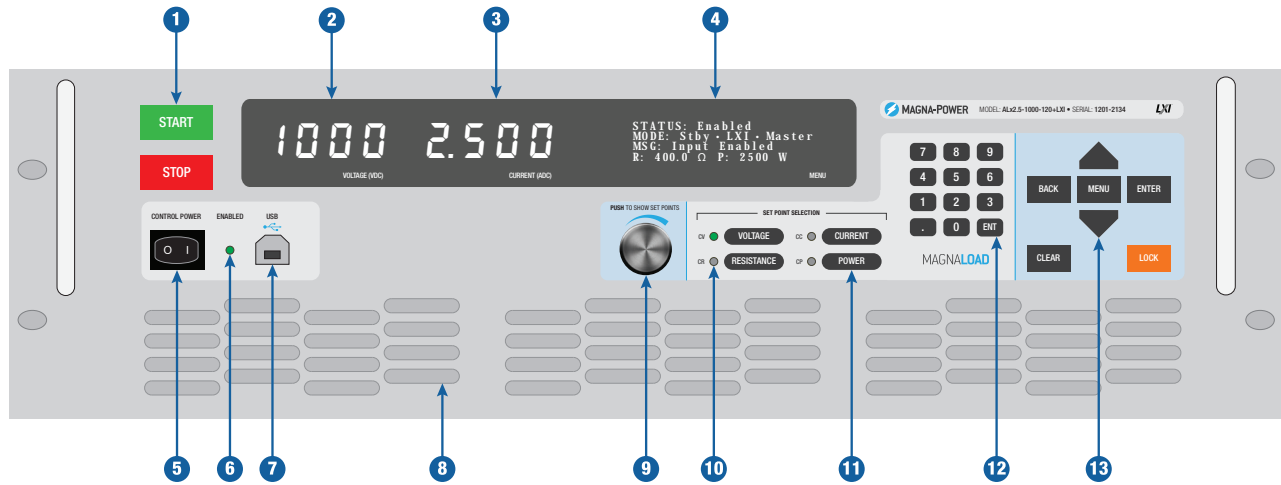
### ALx Series Rear View



### ALx Series Rear View



# MagnaLOAD Front Panel



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

## 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

