ARx Series

Air Cooled Active Resistance DC Electronic Load



- Number of Models **18**
- Power Levels **7.5 kW to 45 kW+**
- Max. Voltage Levels **From 200 Vdc to 1,000 Vdc**
- Max. Current Levels **From 15 Adc to 900 Adc**
- Size **Various**

MAGNA-POWER

Datasheet Version 0.9

ARx Series
Active Resistance DC Electronic Load

MAGNALOAD

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[1], 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.

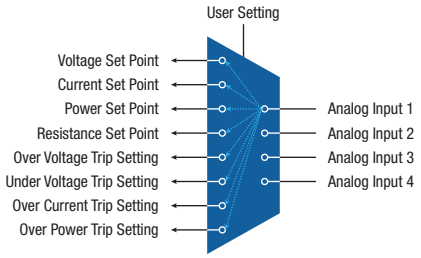
Configurable External User I/O

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.

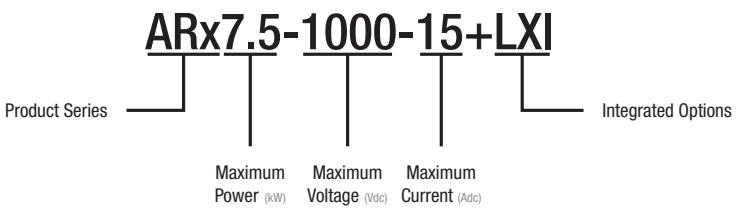
Feature Highlights

- MagnaLINK™ Distributed DSP Architecture
- 16-bit digital programming and monitoring resolution
- Many control modes, including: voltage, current, power, resistance, rheostat
- 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[1]
- Integrated arbitrary waveforms with up to 100 steps per stored function[1]
- Configurable external analog-digital user I/O
- Designed and manufactured in the USA



Models

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



Power	Size (H x W x D)
7.5 kW	10½" x 19" x 24" (26.67 x 48.26 x 60.96 cm)
15 kW	30.7" x 24" x 31.5" in (78.0 x 61.0 x 80.0 cm)
22.5 kW	58¼" x 24" x 31.5" in (148.0 x 61.0 x 80.0 cm)
30 kW	58¼" x 24" x 31.5" in (148.0 x 61.0 x 80.0 cm)
37.5 kW	74" x 24" x 31.5" in (188.0 x 61.0 x 80.0 cm)
45 kW	74" x 24" x 31.5" in (188.0 x 61.0 x 80.0 cm)

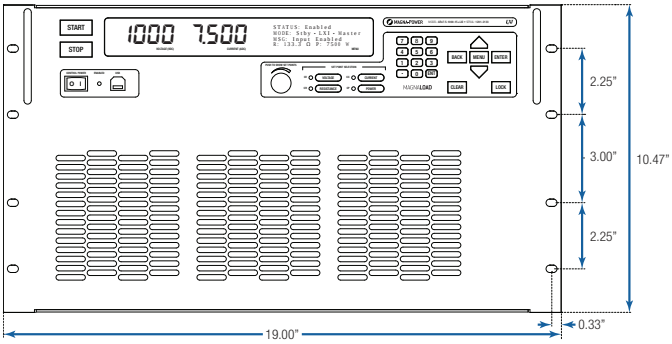
Model	Maximum Power	Maximum Voltage	Maximum Current	Package Type
ARx7.5-200-75	7.5 kW	200 Vdc	75 Adc	Rack-mount
ARx7.5-500-30	7.5 kW	500 Vdc	30 Adc	Rack-mount
ARx7.5-1000-15	7.5 kW	1000 Vdc	15 Adc	Rack-mount
ARx15-200-150	15 kW	200 Vdc	150 Adc	Floor-standing
ARx15-500-60	15 kW	500 Vdc	60 Adc	Floor-standing
ARx15-1000-30	15 kW	1000 Vdc	30 Adc	Floor-standing
ARx22.5-200-225	22.5 kW	200 Vdc	225 Adc	Floor-standing
ARx22.5-500-90	22.5 kW	500 Vdc	90 Adc	Floor-standing
ARx22.5-1000-45	22.5 kW	1000 Vdc	45 Adc	Floor-standing
ARx30-200-300	30 kW	200 Vdc	300 Adc	Floor-standing
ARx30-500-120	30 kW	500 Vdc	120 Adc	Floor-standing
ARx30-1000-60	30 kW	1000 Vdc	60 Adc	Floor-standing
ARx37.5-200-375	37.5 kW	200 Vdc	375 Adc	Floor-standing
ARx37.5-500-150	37.5 kW	500 Vdc	150 Adc	Floor-standing
ARx37.5-1000-75	37.5 kW	1000 Vdc	75 Adc	Floor-standing
ARx45-200-450	45 kW	200 Vdc	450 Adc	Floor-standing
ARx45-500-180	45 kW	500 Vdc	180 Adc	Floor-standing
ARx45-1000-90	45 kW	1000 Vdc	90 Adc	Floor-standing

[1] Planned featured to be supported via future firmware update

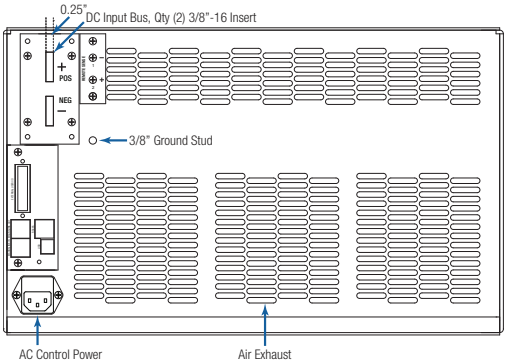
Note: Specifications and features are subject to change at any time without notice.



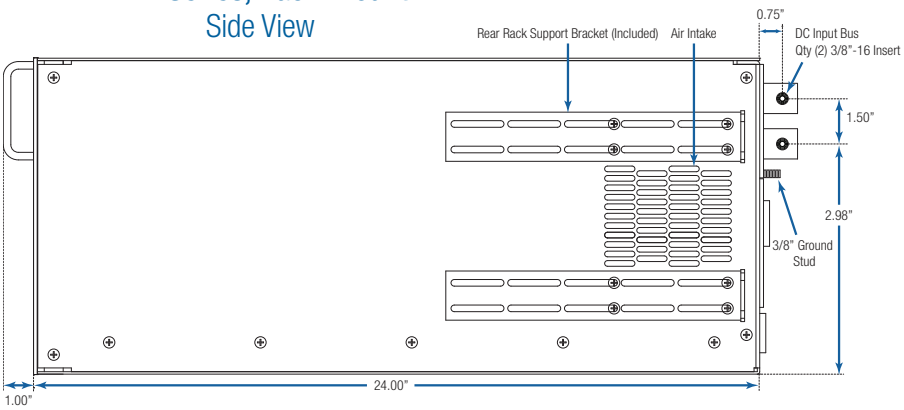
ARx Series, Rack-mount
Front View



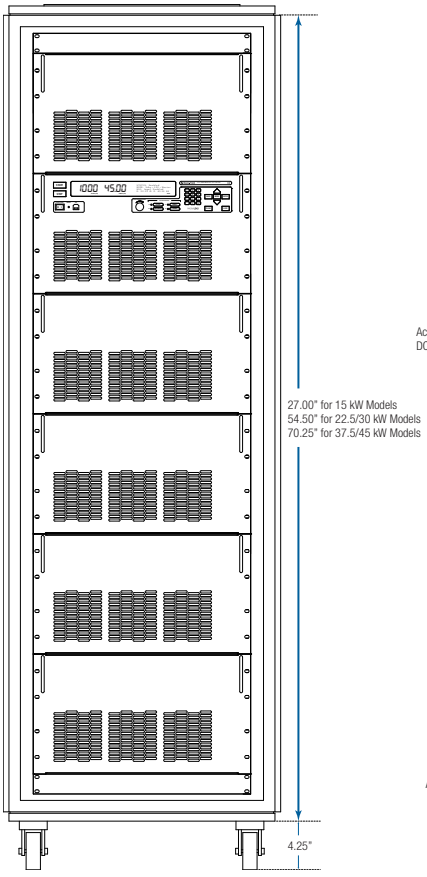
ARx Series, Rack-mount
Rear View



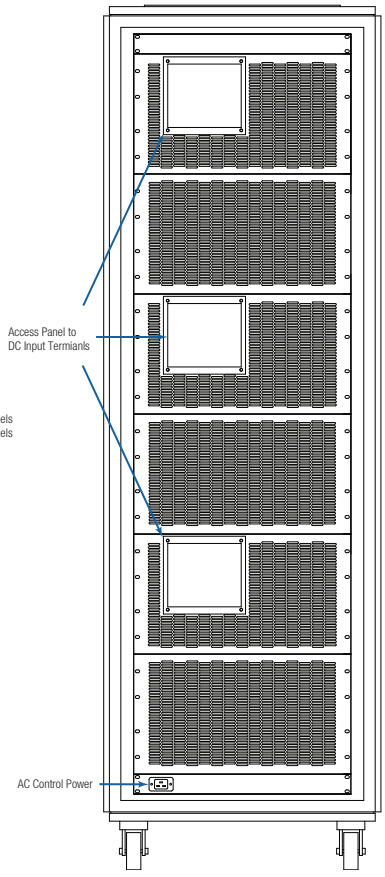
ARx Series, Rack-mount
Side View



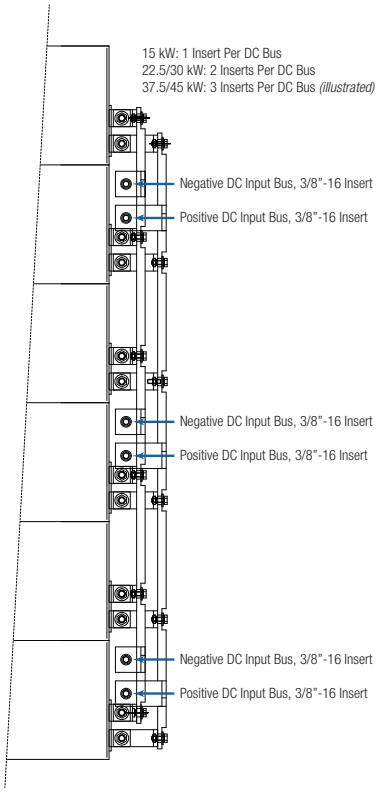
ARx Series, Floor-standing
Front View



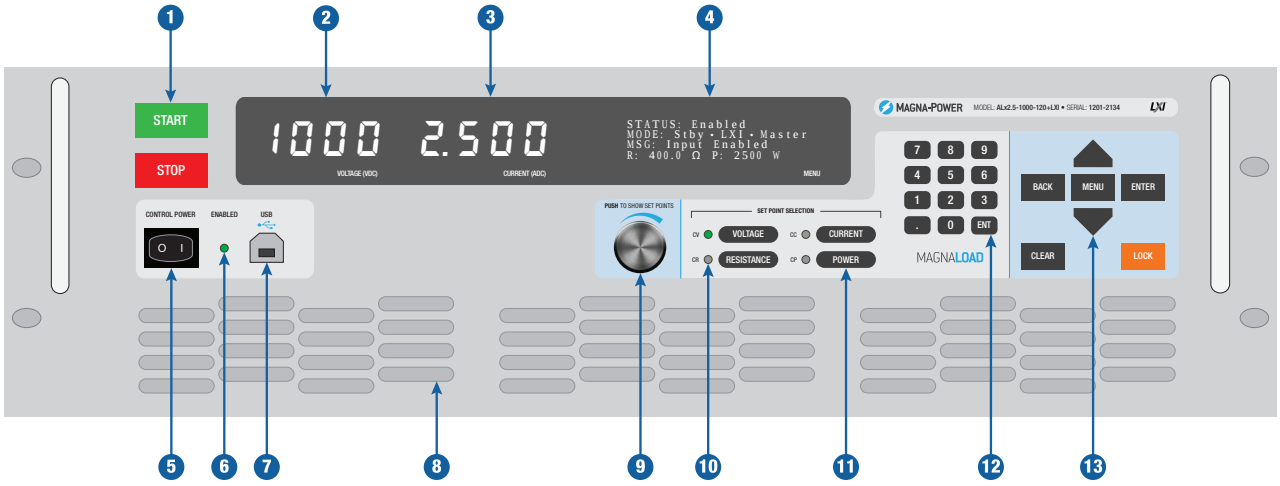
ARx Series, Floor-standing
Rear View



ARx Series, Floor-standing
Internal Bus Bar Configuration



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 combination of resistor and linear elements, the ARx Series MagnaLOAD has a unique operating profile as indicated in the figure below. This operating profile figure applies to all ARx Series models, normalized about the model's maximum voltage, current, and power ratings.

