

Xitron 1500 Family Load System

1500 Series Load Modules: 12 slots per chassis for most combinations of the following:

- Line switches, programmable from 0-360° turn on.
- Fixed Resistance Tube Load Cards, 100W, 200W, 300W, 400W.
- Variable Resistance Load Cards, 60W
- Fixed Triple Resistance Load Cards, 60W
- Conduction Angle Controller, programmable from 0-360° conduction.
- Tube Load Card allows user to connect actual tubes or custom loads.

Xitron's 1500 series of load system chassis and modules allows for the creation of a comprehensive line and load switching system for testing ballasts or lamp/LED drivers. The system may be used with either a 257xR or in combination with any other test system with manual or IEEE488 control.

Up to 8 chassis may be controlled and programmed by a single 257xR, up to 15 by a single IEEE488 bus, or a virtually unlimited number using it manually

Each chassis contains one controller module and up to 12 switch modules that can be any combination of line and load switches. Five basic components make up any Ballast System:

1. Chasis
2. Option for Controller
3. Live switch
4. User Defined resisted load
5. AC live switch

Each module fitted is automatically identified and selected. If a switch module is requested but not found, an error is automatically raised. Modules may be changed on the fly without removal of power from the system.

When used with the 2574R, automatic detection of failed modules is possible with the automatic selection of an identical "backup" module if able. This can also be achieved with user software when using the IEEE488 interface.

Each module is pre-programmed by Xitron to identify itself to the host chassis and controller. This information contains the digital code (12 bit) and name (32 characters) of the module, any cooling requirements, any timing requirements, and codes indicating other capabilities.

The chassis and controller modules each have a 2-year warranty. The switch modules each have a 30-day warranty, and may be exchanged (in any condition) for a rebuilt module (with 30-day warranty) for 50% of the current purchase price (exclusive of shipping costs).

1500 Chassis

The 1500 Chassis is the basis of the load family. It contains a 240x64-pixel graphics display panel and keyboard, power supply and fan cooling system for the modules fitted. One controller module is required and up to 12 switch modules (any combination of line and load switches) may be fitted.

Up to 500W continuous (1000W for <15 seconds, 50% duty cycle) may be dissipated in the chassis when fully ventilated (requires at least 2U free area space above and below the chassis and at least 5" of free air space behind the rear panel, reduce maximum power by 50% if air flow to/from the top and bottom is restricted).

All modules may be field installed through the rear panel of the chassis, and all switch modules may be inserted or removed without removal of power from the 1500—although test signals should be removed.

The chassis is a 3U high 19" rack enclosure, approx. 12.5" rack depth.

The rear panel contains LED status indicators, illuminated when the filament/tube is engaged.

1500 Basic Specifications:

Resistance values have a tolerance of 5%.

Maximum voltage across filament is 1000Vpk when not engaged, limited by power (5W) when engaged.

Maximum voltage across tube is 5000Vpk when not engaged limited by power when engaged.

Filament switching is within 7.5ms; tube switching is within 3ms of command. Pin to ground capacitance for 1524 modules is <2pF (all disengaged), <5pF (filament only engaged), <12pF (filament and tube engaged).

Pin to ground, capacitance for 1522 modules is <1pF (disengaged), <4pF (engaged).

Estimated life of these modules in typical operation is 5 million operations.

1510 and 1512 Controllers

The 1510 and 1512 are the controller options for the 1500 chassis; one controller must be fitted. All of the controllers allow the system to be fully controlled manually. The 1510 allows the system to be controlled by a 2574R the 1512 allows the system to be controlled by an IEEE488 bus.

The 1510 (2574R) and 1512 (IEEE488 control) modules allow independent control of each module fitted.

Fitted line and load switch modules are automatically identified, and the internal cooling system is automatically adjusted to the requirements of the modules fitted. The status of the modules is available via the front panel display.

1520 Series Load Switches

The 1520 modules take up one position of the 12 positions that are available in the 1500 chassis, and contain either a full 4-pin switched, load (1524), or a 2-pin switched load (1522). Many modules are available, ordered, built and identified in the 1500 system by the name of the tube being simulated. Contact Xitron Technologies Inc. for a complete list of presently available modules. Each available type is optionally available with an unswitched "glow" resistance fitted (option G), simulating an approximate 20Kohm tube load when only the filament is engaged.

A base 1520 is also available which contains just the switch, allowing the user to switch any type of external load (within the 5KV, 3A switch limit of the module). This module accommodates tubes of up to 100W continuous or 150W for 3 seconds maximum (100W average power). Connections are made via a pair of 2-pin, 0.156" connectors on the rear panel of the module.

1530 Series Load Switches

These modules take up two of the 12 positions that are available in the 1500 chassis, and contain either a full 4-pin switched load (1534) or a 2-pin switched load (1532). Many modules are available, ordered, built and identified in the 1500 system by the name of the tube being simulated. Contact Xitron Technologies Inc. for a complete list of presently available modules. Each available type is optionally available with an unswitched "glow" resistance fitted (option G), simulating an approximate 10Kohm tube load when only the filament is engaged.

This module accommodates tubes of up to 200W continuous or 300W for 3 seconds maximum (200W average power).

Connections are made via a pair of 2-pin, 0.156", connectors on the rear panel of the module. The rear panel contains LED status indicators, illuminated when the filament/tube is engaged.

Basic Specifications:

Resistance values have a tolerance of 5%.

Maximum voltage across filament is 1000Vpk when not engaged, limited by power (5W) when engaged.

Maximum voltage across tube is 5000Vpk when not engaged limited by power when engaged.

Filament switching is within 7.5ms; tube switching is within 3ms of command. Pin to ground capacitance for 1534 modules is <2pF (all disengaged), <5pF (filament only engaged), <12pF (filament and tube engaged).

Pin to ground capacitance for 1532 modules is <1pF (disengaged), <8pF (engaged).

Estimated life of these modules in typical operation is 3 million operations.

1540 Series Load Switches,

These modules take up three of the 12 positions that are available in the 1500 chassis, and contain either a full 4-pin switched load (1544) or a 2-pin switched load (1542). Many modules are available, ordered, built and identified in the 1500 system by the name of the tube being simulated. Contact Xitron Technologies Inc. for a complete list of presently available modules. Each available type is optionally available with an unswitched "glow" resistance fitted (option G), simulating an approximate 10Kohm tube load when only the filament is engaged. This module accommodates tubes of up to 300W continuous, or 450W for 3 seconds maximum (300W average power).

Connections are made via a pair of 2-pin, 0.156", connectors on the rear panel of the module. The rear panel contains LED status indicators, illuminated when the filament/tube is engaged.

Basic Specifications:

Resistance values have a tolerance of 5%.

Maximum voltage across filament is 1000Vpk when not engaged limited by power (7.5W) when engaged.

Maximum voltage across tube is 5000Vpk when not engaged limited by power when engaged.

Filament switching is within 7.5ms; tube switching is within 3ms of command. Pin to ground capacitance for 1544 modules is <2pF (all disengaged), <6pF (filament only engaged), <16pF (filament and tube engaged).

Pin to ground capacitance for 1542 modules is <1pF (disengaged), <12pF (engaged).

Estimated life of these modules in typical operation is 1 million operations.

1554 Load Switches

These modules take up one of the 12 positions that are available in the 1500 chassis, and contain either a full 4-pin switched, load (1554) or a 2-pin switched load (1552). The rear panel contains LED status indicators, illuminated when the filament/tube is engaged.

Basic Specifications:

Resistance values have a tolerance of 5%.

Maximum voltage across filament is 1000Vpk when not engaged, limited by power (5W) when engaged.

Maximum voltage across tube is 2500Vpk when not engaged limited by power when engaged.

Filament switching is within 7.5ms; tube switching is within 3ms of command. Pin to ground capacitance for 1554 modules is <2pF (all disengaged), <5pF (filament only engaged), <12pF (filament and tube engaged).

Estimated life of these modules in typical operation is 5 million operations.

1580 Series Line Switches

These modules take up one up one of the 12 positions that are available in the 1500 chassis, and contain a line switch enabling the supply to the ballast to be switched.

The 1580 allows the user to manually program the phase of line at which the initial application of power occurs—via the front panel, a 2574R (1510 controller) or IEEE488 (1512 controller). The rear panel contains an LED status indicator, illuminated when line is engaged.

Basic Specifications:

Maximum inrush current is 250Apk.

Maximum continuous current is 10Arms.

Maximum line voltage is 500Vrms.

Switching is by Combination of solid state (initial inrush) and relay contacts (sustained application).

1585 Conduction Angle Controller

These modules take up one of the 12 positions that are available in the 1500 and are used in series with a 1580 line switch that allows the user to manually program the phase of line at which the initial application of power occurs—via the front panel, a 2574R (1510 controller) or IEEE488 (1512 controller). The rear panel contains an LED status indicator, illuminated when line is engaged.

Basic Specifications:

Maximum inrush current is 250Apk.

Maximum continuous current is 10Arms.

Maximum line voltage is 500Vrms.

Switching is by combination of solid state (initial inrush) and relay contacts (sustained application).