

1500W

BENCH POWER SUPPLIES

The PLS1500 is a programmable DC power supply with a single output that offers output power to 1500 watts. With 12-bit D/A & A/D converters embedded, the power supplies come with the capability of reporting voltage and current very accurately.

The PLS1500 series provides convenient digital rotary controls for voltage and current adjustment. The power supplies also come with rear ports that allow remote control via USB, Ethernet, and analog control inputs. The USB and Ethernet inputs are SCPI compliant and have LabView drivers available on the National Instruments website. The PLS1500 series is LXI certified, details for using this interface can be found in the Programming Manual.



Applications



Industrial
Electronics



Technology



Laboratory

Resource Links

[Click Here for the Programming Manual](#)

[Click Here for the User Manual](#)

Features

Output Voltage & Current

| Model Number ⁽¹⁾ | Voltage | Current | Power |
|-----------------------------|---------|---------|-------|
| PLS15003070 | 30V | 70A | 1500W |
| PLS15005040 | 50V | 40A | |
| PLS150010010 | 100V | 20A | |
| PLS15002005 | 200V | 10A | |
| PLS15004002.5 | 400V | 5A | |

(1) PLS1500 series product are shipped without a mains lead. For mains lead order please consult sales.

Rotary controls

The digital rotary controls allow both fine and rapid adjustment of the output voltage and current. They are velocity sensitive so that a slow turn allows fine adjustment of voltage or current and rapid turning quickly adjusts voltage or current over a large range.

Precise voltage and current measurement

Besides the precise output, the PLS1500 series also offers the capability to measure voltage & current accurately (read back), saving users the extra expense and space for extra measuring instruments. This capability is available from the display or the readings may be read into the controlling device.

OVP (over voltage protection), OCP (over current protection) and OPP (over power protection) functions

The over voltage protection (OVP), over current protection (OCP) and over power protection (OPP) features limit the maximum output current and voltage to avoid damage to the unit under test (UUT).

Series and parallel capability

Up to 4 units can be connected in parallel (master/slave mode) and up to 2 units can be connected in series.

Specification

Unless otherwise noted, specifications are warranted over the ambient temperature range of 0 to 40 °C.

| | | PLS15003070 | PLS15005040 | PLS150010020 | PLS150020010 | PLS15004005 |
|--|-----------------------|-------------|-------------|--------------|--------------|-------------|
| DC Output Ratings ⁽¹⁾ | Voltage | 30V | 50V | 100V | 200V | 400V |
| | Current | 70A | 40A | 20A | 10A | 5A |
| | Power | 1500W | 1500W | 1500W | 1500W | 1500W |
| Output Ripple & Noise | CV p-p ⁽³⁾ | 60mV | 100mV | 100mV | 100mV | 200mV |
| | CV rms ⁽⁴⁾ | 20mV | 100mV | 150mV | 150mV | 50mV |
| Load Regulation (change from 10%-90% load) | Voltage | 15mV | 25mV | 50mV | 100mV | 200mV |
| | Current | 15mA | 15mA | 15mA | 15mA | 15mA |
| Line Regulation (change from 100-132 or 180-260 VAC input) ⁽⁶⁾ | Voltage | 15mV | 25mV | 50mV | 100mV | 200mV |
| | Current | 15mA | 15mA | 15mA | 15mA | 15mA |
| Programming Accuracy ^(1,2) | Voltage 0.1%+ | 15mV | 25mV | 50mV | 100mV | 200mV |
| | Current 0.1%+ | 15mA | 15mA | 15mA | 15mA | 15mA |
| Measurement Accuracy | Voltage 0.1%+ | 15mV | 25mV | 50mV | 100mV | 200mV |
| | Current 0.1%+ | 15mA | 15mA | 15mA | 60mA | 60mA |
| Transient Recovery Time ⁽⁵⁾ | Time | ≤1ms | ≤1ms | ≤1ms | ≤1ms | ≤1ms |
| Supplemental Characteristics (supplemental characteristics are not warranted but are descriptions of typical performance determined either by design or type testing) | | | | | | |
| Output Response Time (settle to within ±1% of the rated output, with resistive load) | Up, Full Load | 0.08s | 0.08s | 0.08s | 0.08s | 0.08s |
| | Down, Full Load | 0.08s | 0.08s | 0.08s | 0.08s | 0.08s |
| | Down, No Load | 0.5s | 0.5s | 0.5s | 0.5s | 0.5s |
| Command Response Time ⁽⁷⁾ | Time | 50ms | 50ms | 50ms | 50ms | 50ms |
| Data Readback Transfer Time ⁽⁸⁾ | Time | 5ms | 5ms | 5ms | 5ms | 5ms |
| Remote Sense Compensation | Volts/Load Lead | 1V | 1V | 2V | 4V | 4V |
| Over-voltage Protection | Range | 0.5-33V | 0.5-55V | 0.5-110V | 0.5-220V | 0.5-440V |
| | Accuracy | 0.3V | 0.5V | 1V | 2V | 14V |
| Output Ripple & Noise ⁽³⁾ | CC rms | 7mA | 5mA | 5mA | 5mA | 10mA |
| Programming Resolution Measurement Resolution | Voltage 0.05%+ | 10mV | 25mV | 50mV | 100mV | 200mV |
| | Current 0.05%+ | 20mA | 20mA | 10mA | 5mA | 2.5mA |
| Front Panel Display Accuracy | Voltage 0.1%+ | 10mV | 25mV | 50mV | 100mV | 200mV |
| | Current 0.1%+ | 33mA | 20mA | 10mA | 5mA | 2.5mA |

1. Minimum voltage is guaranteed at greater than 1% of the rated output voltage.
2. Minimum current is guaranteed at greater than 1% of the rated output current.
3. Measured with 20MHz bandwidth and excluding line frequency ripple.
4. Line frequency ripple measured with 20MHz bandwidth.
5. Time for output voltage to recover within 0.5% of its rated output for a load change from 10 to 90% of its rated output current.
6. Voltage set point from 10% to 100% of rated output up to 20MHz.
7. Add this to the output response time to obtain the total programming time.
8. Time to provide data back to the controller using LAN interface (does not include A/D conversion time).

Supplemental Characteristics for all Models

DC output terminals

PLS1500PS3070

Bus Bars (CN1)

All other models

Phoenix Contact 1709681 (CN2)

Output terminal isolation

No output terminal may be more than 600 VDC from any other terminal or chassis ground

Analog connection

Analog connector (CN3)

See connection table.

Analog programming output voltage and current

Input signal

Selectable; 0 to 3V, 0 to 5V or 0 to 10V full scale

Input impedance

0 to 10kΩ full scale

Interfaces

USB 2.0 (CN5)

10/100 LAN (CN4)

Web server

Built-in Web server requires Internet Explorer 5+ or Firefox, or Chrome

AC input

Input connector

IEC Inlet (CN6)

Input range

100 – 240VAC; 47–63Hz.

Input current

16A @ 100VAC nominal

8A @ 200VAC nominal

Power factor

>0.95 at nominal input and rated output power

Efficiency

>85% for 1500W units at full power out

Inrush current

<35A for 1500W units

Regulatory compliance

EMC

European EMC directive 89/336/EEC for Class A products.
This ISM device complies with Canadian ICES-001.

Safety

European Low Voltage Directive IEC60950-1 and IEC62368-1
US and Canadian safety standards

Any LEDs used in this product are Class 1 as per IEC 825-1

Acoustic noise declaration

Emission directive: Sound pressure L_p <75 dB(A),

At operator position,

*Normal operation,

*According to EN 27779 (Type Test).

Environmental conditions

Environment

Indoor use, installation category II (AC input), pollution degree 2

Operating temperature

0°C to 40°C @ 100% load

Storage temperature

-20°C to 70°C

Operating humidity

30% to 90% relative humidity (no condensation)

Storage humidity

10% to 95% relative humidity (no condensation)

Altitude

Up to 3000m. Derate the output current by 2%/100m above 2000m.

Derate the maximum ambient temperature by 1°C/100m above 2000m.

Dimensions

Excluding connectors, rotary controls and feet.

Height

1.73in (44mm)

Width

18.9in (480mm)

Depth

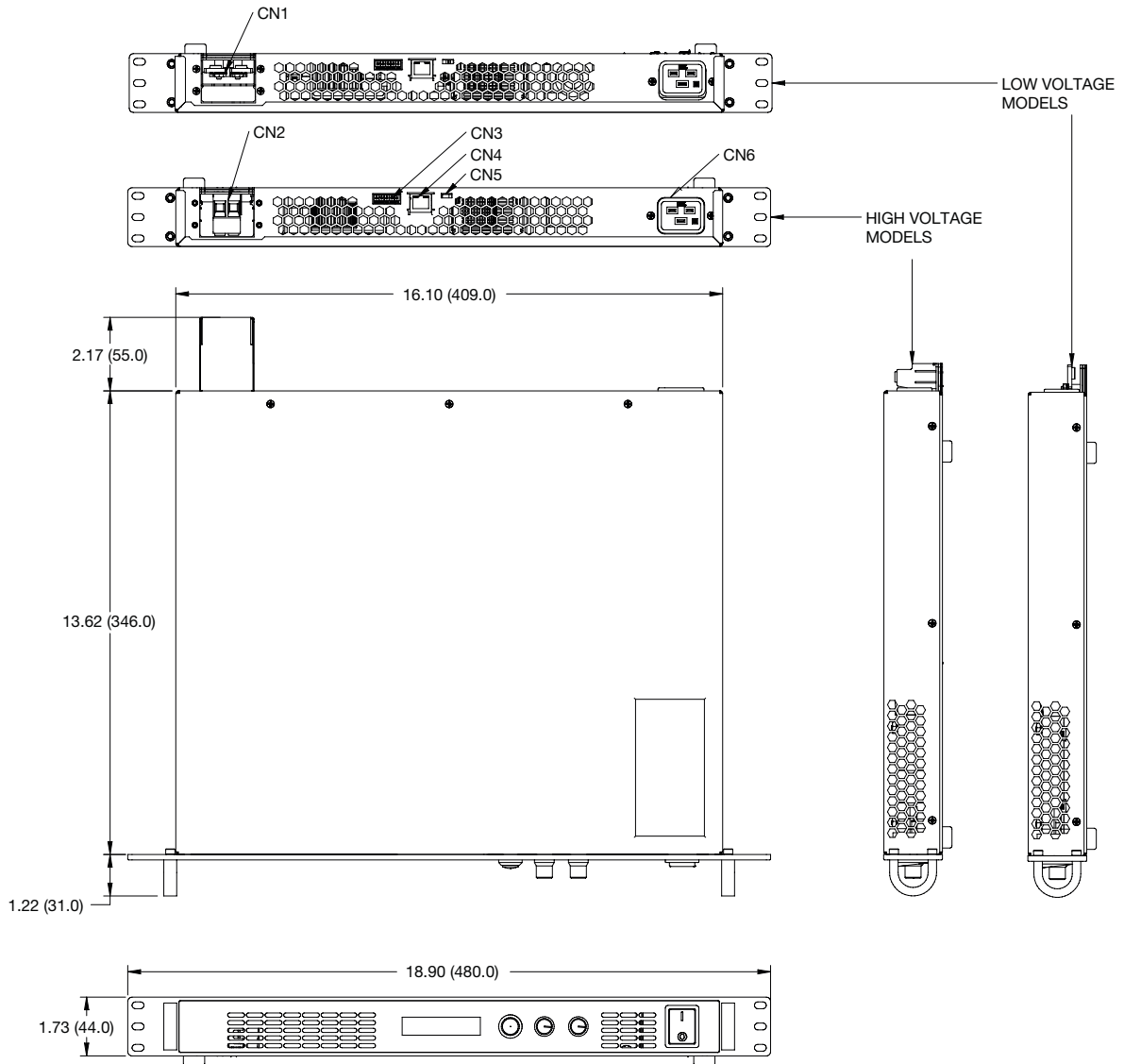
15.79in (401mm)

Weight

5.8kg (12.8lbs.)*

*When mounting in a 19" rack it is recommended to use side rails or a tray to support the unit.

Mechanical Details



| CN3 Analog Connector Connections | |
|----------------------------------|-----------------------|
| Pin | Function |
| 1 | 3.0V Reference |
| 2 | Ground |
| 3 | Voltage Control Input |
| 4 | Current Control Input |
| 5 | Sharing Output |