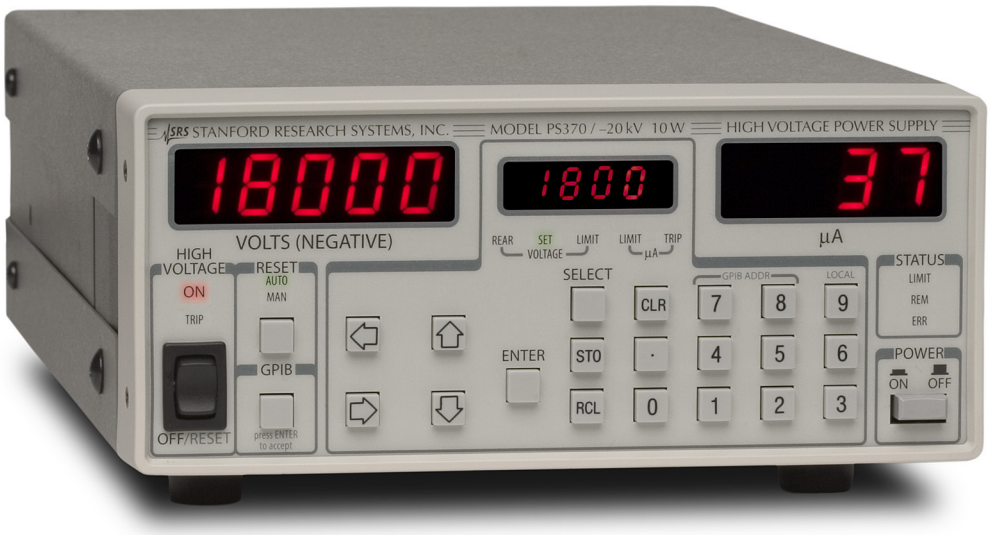
High Voltage Power Supplies

PS300 Series — DC high voltage power supplies to 20 kV



PS300 Series High Voltage Supplies

- Up to 20 kV (PS375)
- 1 V resolution
- 0.05 % accuracy
- Programmable limits and trips
- 0.0015 % ripple
- 0.001 % regulation
- GPIB interface
- RS-232 interface (10 W models)

- PS310 ... $2650
- PS325 ... $2650
- PS350 ... $2750
- PS355, PS365, PS370, PS375 ... $4695

The PS300 Series High Voltage Power Supplies — rugged, compact, reliable instruments for just about any high voltage application.

With up to 20 kV output capability, a GPIB computer interface, and 0.001 % voltage regulation, these high voltage power supplies have become the industry standard.

There are several models to choose from, with outputs ranging from 1.25 kV to 20 kV.

Model	*Output Voltage*	*Current*
PS310	±12 V to ±1.25 kV	20 mA
PS325	±25 V to ±2.5 kV	10 mA
PS350	±100 V to ±5 kV	5 mA
PS355	–100 V to –10 kV	1 mA
PS365	+100 V to +10 kV	1 mA
PS370	–100 V to –20 kV	0.5 mA
PS375	+100 V to +20 kV	0.5 mA

The PS310, PS325 and PS350 are dual-polarity, 25 W supplies, while the PS355, PS365, PS370 and PS375 are single-polarity, 10 W supplies. All of the instruments are arc and short-circuit protected with separate programmable hard and soft current limits, making it possible to use them as constant current sources.

The Right Features

Whichever model you choose, you'll appreciate the convenience and versatility of the PS300 Series. Two large LED displays monitor the output voltage and current being delivered to your load. Overload reset, limit and trip status, local/remote state, and high voltage enable are also displayed, so you can monitor the instrument status at a glance. A highly visible red LED always indicates when the high voltage is on.

Easy to Use

Operation is simple. The parameter being adjusted or set is displayed separately and can be entered without affecting the actual output voltage. Up to nine instrument configurations can be stored and recalled at any time, making it easy to run multiple tests.

High voltage cables

Remote Programming

Both GPIB and RS-232 computer interfaces are standard on all 10 W supplies. GPIB is available as an option on the 25 W instruments. All parameters can be set and read via the computer interfaces.

PS370 rear panel

Analog Monitoring and Control

A rear-panel analog input allows the high voltage output to be programmed by a 0 to 10 VDC signal. Two rear-panel analog outputs provide output voltage and current monitoring capabilities. These outputs drive up to 10 mA of current and have 1 Ω output impedance.

Performance and Value

The PS300 Series High Voltage Power Supplies are as useful in the R&D lab as they are in automated test applications. Wherever you are using them, the PS300 Series provide proven reliability and performance at a very affordable price.

PS310, PS325 & PS350 Specifications

Model	Output Voltage	Max. Current
PS310	±12 V to ±1.25 kV	20 mA
PS325	± 25 V to ±2.5 kV	10 mA
PS350	± 100 V to ±5.0 kV	5 mA

Output

Voltage set accuracy	0.01 % + 0.05 % of full scale, typ
Volt. display accuracy	Vset accuracy ± 1 V, typ. (± 2 V, max.)
Voltage resolution	1 V (set and display)
Voltage resettability	1 V
Voltage limit range	0 to 100 % of full scale
Voltage regulation(*)	0.001 % for ±10 % line change 0.005 % for 100 % load change
Output ripple (rms)	<0.002 % of full scale
Current limit range	0 to 105 % of full scale
Trip current range	10 µA to 105 % of full scale
Trip response time	<10 µs (excluding stored output charge)
Current set accuracy	0.01 % + 0.05 % of full scale
Current resolution	10 µA (PS310 and PS325) 1 µA (PS350)
Current display accuracy	±10 µA (typ.), ±20 µA (max.) (PS310 and PS325) ±1 µA (typ.), ±2 µA (max.) (PS350)

General

Stability	0.01 % per hr., <0.03 % per 8 hrs.
Temperature drift	50 ppm/°C, 10 to 40 °C (typ.)
Protection	Arc and short circuit protected (Programmable voltage limit, current limit, and current trip)
Recovery time	12 ms for 40 % step change in load current (typ.)
Discharge time	<6 s (to <1 % of full-scale voltage with no load, typ.)

Monitor Outputs

Output scale	0 to +10 V for 0 to full-scale output regardless of polarity
Current rating	10 mA (max.)
Output impedance	<1 Ω
Accuracy	±0.2 % of full scale
Update rate	8 Hz

External Voltage Set

Input scale	0 to +10 V for 0 to full-scale output regardless of polarity
Input impedance	1 MΩ
Accuracy	±0.2 % of full scale
Update rate	16 Hz
Output slew rate	<0.3 s for 0 to full scale (full load)

Mechanical

HV connector	
PS310/325/350	Kings type 1704-1
Mating connector	
PS310/325/350	Kings type 1705-1
Dimensions, weight	8.1" × 3.5" × 16" (WHD), 8 lbs.
Power	50 W, 100/120/220/240 VAC, 50 Hz/60 Hz
Warranty	One year parts and labor on defects in materials or workmanship

(*) Regulation specification applies for Vout >0.5% full scale (typ.) for full load & Vout >1% full scale (typ.) for no load. Below these values the unit may not regulate correctly.

All performance specifications apply after a one hour warm-up period, and are restricted to the specified voltage range for each model.

PS355, PS365, PS370 & PS375 Specifications

Model	Output Voltage	Max. Current
PS355	–100 V to –10 kV	1 mA
PS365	+100 V to +10 kV	1 mA
PS370	–100 V to –20 kV	500 µA
PS375	+100 V to +20 kV	500 µA

Output

Voltage set accuracy	0.06 % of full scale
Volt. display accuracy	Vset accuracy ± 1 V, typ. (± 2 V, max.)
Voltage resolution	1 V (set and display)
Voltage limit range	0 to 100 % of full scale
Voltage regulation	0.001 % for ±10 % line change 0.04 % for 100 % load change
Output ripple (rms)	<0.01 % of full scale (300 Hz to 300 kHz)
Current limit range	0 to 105 % of full scale
Current trip range	10 µA to 105 % of full scale
Trip response time	<10 ms (excluding stored output charge)
Output stored charge	<20 µC max (PS355 and PS365) <40 µC max (PS370 and PS375)
Current set accuracy	0.5 % of full scale
Current resolution	±1 µA
Current display acc.	±1 µA (typ.), ±2 µA (max.)

General

Temperature drift	50 ppm/°C, 10 to 40 °C (typ.)
Protection	Arc and short circuit protected (Programmable voltage limit, current limit, and current trip)
HV output slew rate	7,000 V/s typ (PS355 and PS365) 14,000 V/s typ (PS370 and PS375)
Recovery time	12 ms for 40 % step change in load current (typ.)
Discharge time	<6 s (to <1 % of full-scale voltage with no load, typ.)

Monitor Outputs

Output scale	0 to +10 V for 0 to full-scale output regardless of polarity
Current rating	10 mA (max.)
Output impedance	<100 Ω
Accuracy	±0.2 % of full scale
Update rate	87.5 Hz

External Voltage Set

Input scale	0 to +10 V for 0 to full-scale output regardless of polarity
Input impedance	1 MΩ
Accuracy	±0.2 % of full scale
Update rate	87.5 Hz

Mechanical

HV connector	
PS355/365	Kings type 1064-1
PS370/375	Kings type 1764-1
Mating connector	
PS355/365	Kings type 1065-1
PS370/375	Kings type 1765-1
Dimensions, weight	8.1" × 3.5" × 14" (WHD), 8 lbs.
Power	75 W, 100-240 VAC, 50 Hz to 60 Hz
Warranty	One year parts and labor on defects in materials or workmanship

All performance specifications apply after a one hour warm-up period, and are restricted to the specified voltage range for each model.

Ordering Information

PS310	±1.25 kV DC power supply	$2650
PS325	±2.5 kV DC power supply	$2650
PS350	±5.0 kV DC power supply	$2750
Option 01	GPIB interface	$595
/2D	Double rack mount kit	$100
/2S	Single rack mount kit	$100
/3A	SHV to SHV cable, 10 ft.	$395
/3B	SHV to MHV cable, 10 ft.	$395
PS355	–10 kV supply w/ GPIB & RS-232	$4695
PS365	+10 kV supply w/ GPIB & RS-232	$4695
/3C	10 kV-SHV to open cable, 10 ft.	$495
/3D	10 kV-SHV to 10 kV-SHV cable, 10 ft.	$995
O300RMS	Single rack mount kit	$100
O300RMD	Double rack mount kit	$100
PS370	–20 kV supply w/ GPIB & RS-232	$4695
PS375	+20 kV supply w/ GPIB & RS-232	$4695
/3E	20 kV-SHV to open cable, 10 ft.	$1395
/3F	20 kV-SHV to 20 kV-SHV cable, 10 ft.	$1995
O300RMS	Single rack mount kit	$100
O300RMD	Double rack mount kit	$100