

## Features

- Digital High Voltage Power Supplies
- Digital or Analog Remote Control
- Software Configurable Features and Performance
- Serial Communications with SDK
- Available GPIO Pins
- Over Current and Over Voltage Protection
- Output Voltage and Current Monitors
- Data Logging of Power Supply Parameters
- User Programmable Fault Handling
- UL/cUL Recognized Component; CE Mark (LVD and RoHS)



## Specifications<sup>1</sup>

Conditions		Value			Units
Input		4W	20W	30W	
<b>Voltage</b>	Nominal	+24	+24	+24	VDC
<b>Voltage Range</b>	Full Power	+23 to 31	+23 to 31	+23 to 31	VDC
<b>Voltage Range</b>	Derated Power Range	+12 to 32	+12 to 32	+12 to 32	VDC
<b>Current</b>	Standby/Disable	<60	<60	<60	mA
<b>Current</b>	No Load, Max V <sub>OUT</sub>	<175	<175	<175	mA
<b>Current</b>	Full Load, Max V <sub>OUT</sub>	<385	<1180	<1650	mA
<b>AC Ripple Current</b>	Nominal Input, Full Load	<120	<120	<140	mAp-p
<b>Output</b>					
<b>Static Load Regulation</b>	No Load to Full Load, Max V <sub>OUT</sub>	<0.01			%VDC
<b>Line Regulation</b>	Nominal Input, Max V <sub>OUT</sub> , Full Power	<0.08			%VDC
<b>Stability</b>	30-minute warmup, per 8h/per day	<0.01 / <0.02			%VDC
<b>Programming &amp; Controls</b>					
<b>Input Impedance</b>	Nominal Input	1.5 to Signal Ground			MΩ
<b>Adjust Resistance</b>	Typical Potentiometer Values	100K (Pot Across V <sub>REF</sub> and Signal Ground, Wiper to Adjust)			Ω
<b>Adjust Logic (V<sub>ADJ</sub>)</b>	0 to +5VDC (-5 Option)	+4.5 = 0 to 100% Rated Output			VDC
	0 to +10VDC (-10 Option)	+9.0 = 0 to 100% Rated Output			
<b>Reference Voltage (V<sub>REF</sub>)</b>	0 to +5VDC, +25°C (-5 Option)	+5 ± 0.5%, Z <sub>OUT</sub> = 499Ω ± 1%			VDC
	0 to +10VDC, +25°C (-10 Option)	+10 ± 0.5%, Z <sub>OUT</sub> = 1000Ω ± 1%			
<b>General Purpose Voltage</b>	At +25°C (Pin 8)	+5 ± 2%, Z <sub>OUT</sub> = 49Ω ± 1%			VDC
<b>Enable/Disable HV<sub>OUT</sub></b>	Default HV Enabled (-L Option)	0 to +1.5 Enable, +2.5 to 32 Disable			VDC
	Default HV Disabled (-H Option)	0 to +1.5 Disable, +2.5 to 32 Enable			
<b>Environmental</b>					
<b>Operating Temperature</b>	Ambient – Full Load, Max V <sub>OUT</sub>	-20 to +60			°C
<b>Operating Temperature</b>	Case Temperature, Full Load, Max V <sub>OUT</sub>	-20 to +80			°C
<b>Temperature Coefficient</b>	Over the Specified Temperature	±50			PPM/°C
<b>Storage Temperature</b>	Non-Operating, Case Temperature	-55 to +105			°C
<b>Humidity</b>	All Conditions, Standard Package	0 to 95% Non-Condensing			-
<b>Altitude</b>	All Conditions, Standard Package	Sea Level through Vacuum			-

<sup>1</sup>Specifications based on a 30-minute warmup unless indicated otherwise.



Part Number <sup>2</sup>	Output Voltage VDC	Output Current mA	Low Freq. Ripple <sup>3</sup> %Vp-p	High Freq. Ripple <sup>4</sup> %Vp-p	Output Capacitance $\mu$ F	I <sub>MON</sub> Scaling <sup>5,6</sup> mA/V	V <sub>MON</sub> Scaling <sup>5</sup> V/V
<b>4W Models</b>							
SPS-24-250*-4	25 to 250	16.00	0.152	0.015	1.0000	12.00	25
SPS-24-500*-4	25 to 500	8.00	0.137	0.008	0.5000	6.00	50
SPS-24-1000*-4	50 to 1000	4.00	0.095	0.011	0.3300	3.00	100
SPS-24-2000*-4	100 to 2000	2.00	0.053	0.006	0.0068	1.50	200
SPS-24-4000*-4	200 to 4000	1.00	0.026	0.008	0.0034	0.75	400
SPS-24-6000*-4	300 to 6000	0.67	0.016	0.011	0.0023	0.50	600
<b>20W Models</b>							
SPS-24-250*-20	0 to 250	80.0	0.147	0.017	1.0000	12.00	25
SPS-24-500*-20	0 to 500	40.0	0.126	0.013	0.5000	6.00	50
SPS-24-1000*-20	0 to 1000	20.0	0.116	0.007	0.3300	3.00	100
SPS-24-2000*-20	0 to 2000	10.0	0.105	0.011	0.0068	1.50	200
SPS-24-4000*-20	0 to 4000	5.0	0.095	0.015	0.0034	0.75	400
SPS-24-6000*-20	0 to 6000	3.3	0.080	0.019	0.0023	0.50	600
<b>30W Models</b>							
SPS-24-250*-30	0 to 125	120.0	0.252	0.025	1.0000	12.00	25
SPS-24-500*-30	0 to 250	60.0	0.210	0.015	0.5000	6.00	50
SPS-24-1000*-30	0 to 500	30.0	0.164	0.013	0.3300	3.00	100
SPS-24-2000*-30	0 to 1000	15.0	0.118	0.013	0.0068	1.50	200
SPS-24-4000*-30	0 to 2000	7.5	0.092	0.013	0.0034	0.75	400
SPS-24-6000*-30	0 to 4000	5.0	0.080	0.021	0.0023	0.50	600

<sup>2</sup>For "\*", substitute "P" for positive output or "N" for negative output

<sup>3</sup>1Hz to 1kHz, <sup>4</sup>1kHz to 1MHz

<sup>5</sup>Full Scale Signal, values listed are for -10 Option, double for -5 Option.

<sup>6</sup>I<sub>MON</sub> Scaling for -10 Option, at maximum output current will read 1.33V on 4W models, 6.67V on 20W models, and 10.0V on 30W models. Half for reference options.

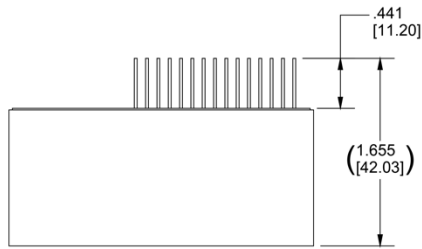
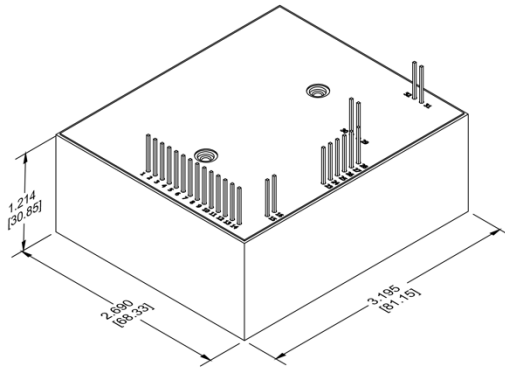
## Options

Append to Part #	Option Description	Not Compatible With
<b>Standard Options (Choose One)</b>		
-5L	+5VDC Reference, Default HV Enable	-
-5H	+5VDC Reference, Default HV Disable	-
-10L	+10VDC Reference, Default HV Enable	-
-10H	+10VDC Reference, Default HV Disable	-
<b>Additional Options</b>		
-W	Flying High Voltage Lead (Approximately 18")	-
-M	Mu-Metal Shielding Over Case	-
-E	Eared Mounting Plate	H
-H	Aluminum Heat Sink	E

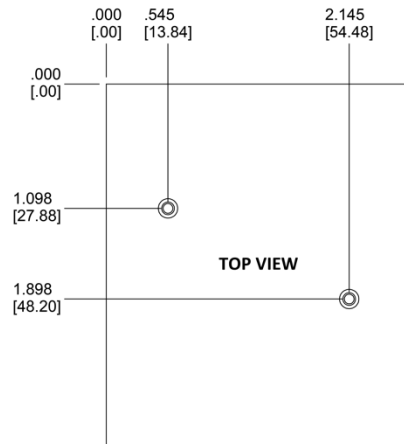
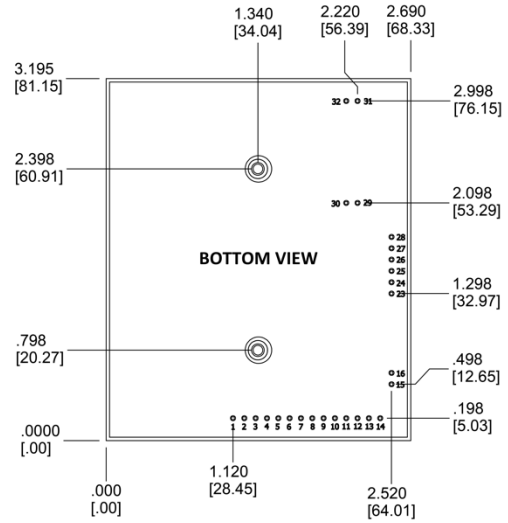
### Accessory List

<b>USB Cable</b>	SPS-USB Cable	Standard USB-A Male Cable with pin connector for connecting to SPS power supply.
<b>USB Isolator</b>	SPS-USB-Isolator	Provides isolation between USB host and peripheral, helping to protect PC when connected to SPS power supply.

**Mechanical Drawings and Pin Assignments**



Dimensions in inches [mm]



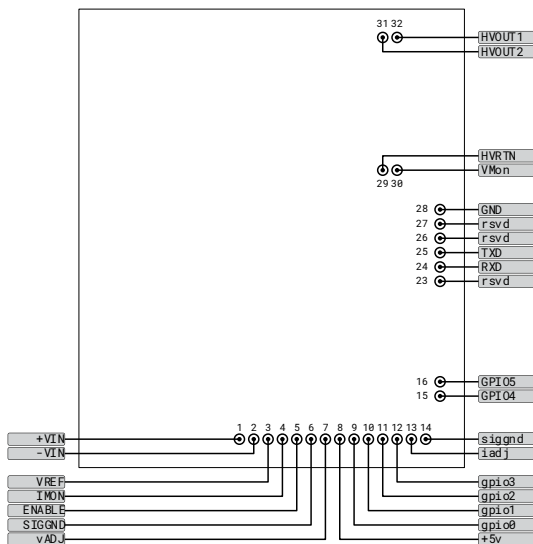
Mechanical Specifications	
<b>Volume</b>	10.5in <sup>3</sup> [172cm <sup>3</sup> ]
<b>Weight</b>	10.4oz [295g]
<b>Case</b>	DAP case certified to ASTM-D-5948
<b>Pins</b>	0.100in Spacing

Tolerances	
<b>Overall</b>	0.050in [±1.27mm]
<b>Pin to Pin</b>	0.015in [±0.38mm]
<b>Mounting</b>	0.025in [±0.64mm]

## Software and Configuration Options

A Windows GUI application designed to aid in development using the SPS Series, and a full Software Development Kit (SDK) with essential libraries and documentation are available at [www.hvproducts.de](http://www.hvproducts.de)

For a list of configuration options and default values see the SPS User Settable Parameters document. Virtually limitless configuration options as well as performance and feature customizations are possible through software changes. Contact the factory or authorized sales partner to discuss specific needs.



### Pin Assignments & Connections

			Minimum	Maximum
Pin 1	+VIN	Positive Power Input	12.5V	32V
Pin 2	-VIN	Input Power Ground Return	-	-
Pin 3	VREF	Voltage Reference	5V or 10V	5V or 10V / 10mA
Pin 4	IMON	Output Current Monitor	-	-
Pin 5	ENABLE	Enable Input (>2.5V)	-	-
Pin 6	SIGGND	Signal Ground Return	-	-
Pin 7	VADJ	Analog Voltage Adjust	0V	5V or 10V
Pin 8	+5V	General Purpose Voltage	5V	5V / 100mA
Pin 9	GPI00	GPIO (Default 1s Pulse)	0V	3.3V / 3.3mA
Pin 10	GPI01	GPIO (Default High if HV Enabled)	0V	3.3V / 3.3mA
Pin 11	GPI02	GPIO (Default High if in Fault)	0V	3.3V / 3.3mA
Pin 12	GPI03	GPIO	0V	3.3V / 3.3mA
Pin 13	IADJ	Analog Current Adjust	0V	5V or 10V
Pin 14	SIGGND	Signal Ground Return	-	-
Pin 15	GPI04	GPIO	0V	3.3V / 3.3mA
Pin 16	GPI05	GPIO	0V	3.3V / 3.3mA
Pin 23	N/C	N/C (Reserved for Factory)	-	-
Pin 24	RXD	TLL Receive Data	0V	3.3V
Pin 25	TXD	TLL Transmit Data	0V	3.3V
Pin 26	N/C	N/C (Reserved for Factory)	-	-
Pin 27	N/C	N/C (Reserved for Factory)	-	-
Pin 28	GND	Communication Ground	-	-
Pin 29	VMON	Output Voltage Monitor	-	5V or 10V
Pin 30	HVRTN	High Voltage Ground Return	-	-
Pin 31	HVOUT1	High Voltage Output	-	-
Pin 32	HVOUT2	High Voltage Output	-	-

## Certifications and Compliances



## Patents

The SPS Series is protected by numerous US and foreign patents. Visit <https://www.deantechnology.com/patents> for more information.