

DA Series

PCB mount ultra compact, regulated, high voltage DC-DC converter



- 64 standard products
- ◇ Reference: see chart for complete reference
- ◇ Vin: 15Vdc or 24Vdc
- ◇ Vout: 0 to 1kV, 2kV or 4kV
- ◇ Pout: 1W, 2W or 4W



General Description

◇ The DA Series is particularly adapted to controlling photonic detectors that need high bias voltages and currents. Industrials, integrators and researchers will benefit from the units small size, lightweight design, excellent voltage regulation and reduced residual undulation.

Small height and lightweight	Tight line / load regulation	Low ripple (0.005% p. to p.)
PCB flat mounting	Output current limit protection	Low noise due to metal shielding
Adjustable from 0 to full output	Low ripple (<0,003% p. to p.)	Voltage and current buffered monitoring

Parameters	Specifications
Input voltage Vin (pins 2 & 3)	15Vdc ±1.5Vdc or 24Vdc ±2Vdc, according to type
Input current	Example for a 15Vdc, output 6000V,1mA model: inhibition mode: 27mA at no load & HV=1500V: 46mA at full load: 260mA
HV output Vout (pin 8)	0 to 1000V through 0 to 4000V according to type
Polarity	Fixed positive [DAP] or negative [DAN]; refer to the Selection Guide
HV setting (pins 4 & 6)	<ul style="list-style-type: none"> • Option 1: via external voltage source 0/ 5V ±0.1 % at full scale, and input impedance = 94kΩ • Option 2: via external voltage source 0/10V ±0.1 % at full scale, and input impedance = 187kΩ
Max. output current Iout	Limited to 110 % of nominal current; refer to the Selection Guide
Load voltage regulation	±0,01 % of full output voltage for no load to full load
Line voltage regulation	±0,01 % of full output voltage over specified input voltage range
Residual ripple	0,005 % peak-to-peak at full load
Temperature coefficient	100ppm/°C
Output HV monitoring (pin 7) (still operating in inhibition mode)	<ul style="list-style-type: none"> • Option 1: analog 0/+ 5V buffered output signal, accuracy ±0.2 % • Option 2: analog 0/+10V buffered output signal, accuracy ±0.2 % Output impedance = 1kΩ Temperature coefficient: 100ppm/°C



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Parameters	Specifications
Output current monitoring (pin 5) (still operating in inhibition mode)	<ul style="list-style-type: none">• Option1: analog 0/+ 5V bufferised output signal, accuracy $\pm 2\%$• Option2: analog 0/+10V bufferised output signal, accuracy $\pm 2\%$ Output impedance = $1k\Omega$ Temperature coefficient : $100\text{ppm}/^\circ\text{C}$
HV power ON/OFF	To disable (opened remote interlock) or enable (closed remote interlock)
Operating temperature	Refer to Derating Curve
Storage temperature	-10°C to $+70^\circ\text{C}$
Safeguards	<ul style="list-style-type: none">• Protected against reverse V_{in}• Soft start feature : the start is guaranteed with no overshoot• Auto inhibition if $T_{case} > 75^\circ\text{C}$• HV setting internally limited to 10.6V for the 10V version and to 5.3V for the 5V version

Main Applications

- Avalanche Photo Diodes (APD)
- Electrostatic Chuck (E-chuck)
- Gas Chromatography
- Geiger-Müller Tubes (GM Tubes)
- Image Intensifiers (II)
- Microchannel Plates (MCP)
- Photodiodes (PD)
- Photomultiplier Tubes (PMT)

Package Configuration

Case material	Tin steel plate Thickness 0.5 mm
Case dimensions LxHxW	63.5 x 13.0 x 44.0 mm
Pins	0.63 x 0.63 mm square pins, Length : > 6 mm, Spacing: 2.54 mm
Weight	72 g
Insulation	Fully potted in an epoxy resin

Pin Connections

Inhibition input	1. ON/OFF
Line input	2. 0V supply 3. V_{in}
HV setting	3. 0V signal 4. Control input
HV monitoring	5. Current monitoring 6. Voltage monitoring
HV output	7. V_{out}



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Marking

1: Input inhibit
 2: Supply 0V
 3: Supply +24V

RoHS Compliant Product
 Electronics and Power Conversion
 MADE IN FRANCE

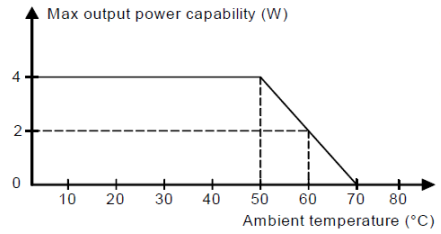
Systems Developments & Solutions
 5 Bvd de Créteil 94100
 St Maur des Fossés
 France
 33 (0)1 43 97 65 04
 http://www.sdshv.com

DA Series Power Supply
DA24N402102
 Serial Nr: 03062543

4: 0V Signal
 5: Current Monitoring (1mA/10V)
 6: Control input (0 to 10V)
 7: Voltage Monitoring (- 4000/10V)

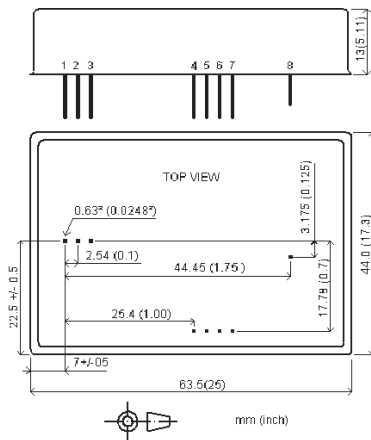
8: HV
 - 4000V

Derating Curve

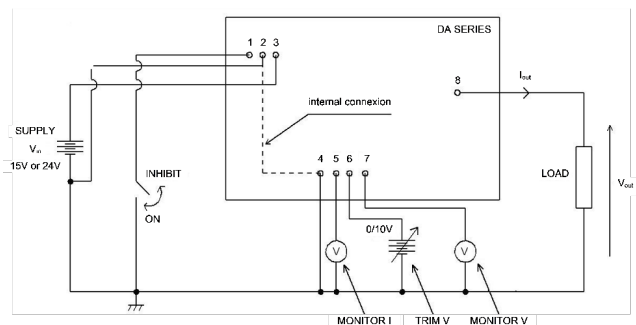


Under certain environmental conditions, and for some configurations, the installation of a heatsink might be necessary

Mechanical dimensions



Functional diagram



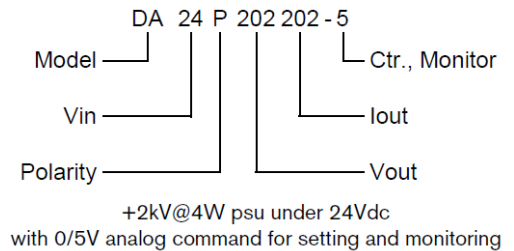
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Ordering information

Model	Name of the series	DA
Vin	15Vdc nominal	12
	24Vdc nominal	24
Polarity	Positive output voltage	P
	Negative output voltage	N
Vout	Output voltage	See ordering code
Iout	Output current	See ordering code
Ctr., Monitor	5Vdc	5
	10Vdc	10

Example



Ordering voltage and current code

- The power supply units have a 6-digit ordering code;
- The first 3 digits concern the output voltage in V
 - The first 2 digits indicate the output voltage value
 - The last digit indicates the multiplier
- The last 3 digits concern the output current in μA
 - The first 2 digits indicate the nominal output current value
 - The last digit indicates the multiplier

Ordering example

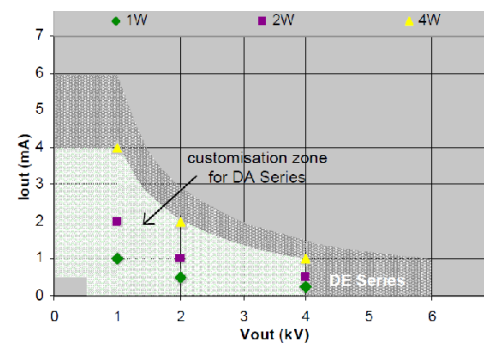
The ordering code of a +2kV@4W psu under 24Vdc and with 0/5V controls is: DA24P202202-5

DA Series overview

		Pout (W)		
		1	2	4
Vout (Vdc)	1000	DAxx102102-x	DAxx102202-x	DAxx102402-x
	2000	DAxx202501-x	DAxx202102-x	DAxx202202-x
	4000	DAxx402251-x	DA24x402501-x**	DA24x402102-x**

* Other output voltages and currents are available upon request

** 4kV@2W and 4kV@4W are available only under 24Vdc



Other output voltages and output currents are available upon request.

Do not hesitate to ask us about any parameter you would like to see changed for your application.



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DA Series selection guide

Vout	Iout/Pout	Vin	Polarity	Ctrl. Monitor	Model
4000V	1.00mA/4W	24V	+	0/10V	DA24P402102-10
				0/5V	DA24P402102-5
			-	0/10V	DA24N402102-10
				0/5V	DA24N402102-5
	0.50mA/2W	24V	+	0/10V	DA24P402501-10
				0/5V	DA24P402501-5
			-	0/10V	DA24N402501-10
				0/5V	DA24N402501-5
	0.25mA/1W	15V	+	0/10V	DA15P402251-10
				0/5V	DA15P402251-5
			-	0/10V	DA15N402251-10
				0/5V	DA15N402251-5
24V		+	0/10V	DA24P402251-10	
			0/5V	DA24P402251-5	
		-	0/10V	DA24N402251-10	
			0/5V	DA24N402251-5	
2000V	2.00mA/4W	15V	+	0/10V	DA15P202202-10
				0/5V	DA15P202202-5
			-	0/10V	DA15N202202-10
				0/5V	DA15N202202-5
		24V	+	0/10V	DA24P202202-10
				0/5V	DA24P202202-5
			-	0/10V	DA24N202202-10
				0/5V	DA24N202202-5
	1.00mA/2W	15V	+	0/10V	DA15P202102-10
				0/5V	DA15P202102-5
			-	0/10V	DA15N202102-10
				0/5V	DA15N202102-5
		24V	+	0/10V	DA24P202102-10
				0/5V	DA24P202102-5
			-	0/10V	DA24N202102-10
				0/5V	DA24N202102-5
	0.50mA/1W	15V	+	0/10V	DA15P202501-10
				0/5V	DA15P202501-5
			-	0/10V	DA15N202501-10
				0/5V	DA15N202501-5
24V		+	0/10V	DA24P202501-10	
			0/5V	DA24P202501-5	
		-	0/10V	DA24N202501-10	
			0/5V	DA24N202501-5	

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Vout	Iout/Pout	Vin	Polarity	Control	Case	Model
1000V	1.00mA/1.0W	24V	+	0/10V	Raised	MT24P102102-10R*
					Flat	MT24P102102-10F*
				0/5V	Raised	MT24P102102-5R*
			Flat		MT24P102102-5F*	
			-	0/10V	Raised	MT24N102102-10R*
					Flat	MT24N102102-10F*
	0/5V	Raised		MT24N102102-5R*		
		Flat	MT24N102102-5F*			
	0.80mA/0.8W	15V	+	0/10V	Raised	MT15P102801-10R*
					Flat	MT15P102801-10F*
				0/5V	Raised	MT15P102801-5R*
			Flat		MT15P102801-5F*	
-			0/10V	Raised	MT15N102801-10R*	
				Flat	MT15N102801-10F*	
	0/5V	Raised	MT15N102801-5R*			
Flat		MT15N102801-5F*				
0.50mA/0.5W	12V	+	0/5V	Raised	MT12P102501-5R*	
				Flat	MT12P102501-5F*	
		-	0/5V	Raised	MT12N102501-5R*	
				Flat	MT12N102501-5F*	
600V	1.67mA/1.0W	24V	+	0/10V	Raised	MT24P601172-10R*
					Flat	MT24P601172-10F*
				0/5V	Raised	MT24P601172-5R*
			Flat		MT24P601172-5F*	
			-	0/10V	Raised	MT24N601172-10R*
					Flat	MT24N601172-10F*
	0/5V	Raised		MT24N601172-5R*		
		Flat	MT24N601172-5F*			
	1.33mA / 0.8W	15V	+	0/10V	Raised	MT15P601132-10R*
					Flat	MT15P601132-10F*
				0/5V	Raised	MT15P601132-5R*
			Flat		MT15P601132-5F*	
-			0/10V	Raised	MT15N601132-10R*	
				Flat	MT15N601132-10F*	
	0/5V	Raised	MT15N601132-5R*			
Flat		MT15N601132-5F*				
0.83mA/0.5W	12V	+	0/5V	Raised	MT12P601831-5R*	
				Flat	MT12P601831-5F*	
		-	0/5V	Raised	MT12N601831-5R*	
				Flat	MT12N601831-5F*	

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DA Series selection guide (continued)

Vout	Iout/Pout	Vin	Polarity	Ctrl. Monitor	Model
1000V	4.00mA/4W	15V	+	0/10V	DA15P102402-10
				0/5V	DA15P102402-5
			-	0/10V	DA15N102402-10
				0/5V	DA15N102402-5
		24V	+	0/10V	DA24P102402-10
				0/5V	DA24P102402-5
			-	0/10V	DA24N102402-10
				0/5V	DA24N102402-5
	2.00mA/2W	15V	+	0/10V	DA15P102202-10
				0/5V	DA15P102202-5
			-	0/10V	DA15N102202-10
				0/5V	DA15N102202-5
		24V	+	0/10V	DA24P102202-10
				0/5V	DA24P102202-5
			-	0/10V	DA24N102202-10
				0/5V	DA24N102202-5
	1mA/1W	15V	+	0/10V	DA15P102102-10
				0/5V	DA15P102102-5
			-	0/10V	DA15N102102-10
				0/5V	DA15N102102-5
		24V	+	0/10V	DA24P102102-10
				0/5V	DA24P102102-5
			-	0/10V	DA24N102102-10
				0/5V	DA24N102102-5

* Specify "W" at the end of the ordering code for collecting the HV output on a flying wire instead of a pin. Other output voltages and output currents are available upon request. Do not hesitate to ask us about any parameter you would like to see changed for your application.



This High Voltage power supply satisfies the requirements of EC Directives Safety.

Non contractual document.

All specifications are subject to change without notice.

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