

FPB Series

compact photomultiplier power base incorporating a SDS high voltage supply and a voltage divider for Ø25mm, Ø28mm, and Ø51mm PMTs



SYSTEMS DEVELOPMENT
& SOLUTIONS



made to order product

Vin : 5Vdc, 12Vdc, 15Vdc or 24Vdc
Vout : 0 to 100V through 0 to 1500V
Pout : 0.1W to 1W

SDS manufactures complete power bases upon request to match your photomultipliers of tube diameters of 25mm (1 inch), 28mm (1^{1/8} inch), and 51mm (2 inch).



For an easy use of photomultiplier tubes, SDS designs socket assemblies consisting of a high quality socket, a voltage divider circuit, and a high voltage converter integrated into a compact and lightweight housing. They operate from 5, 12, 15 or 24Vdc inputs, providing single outputs of up to 1500Vdc.

The voltage-divider network is designed according to the application measurement or counting. Voltage monitoring is available upon request. These products are fully encapsulated.

Below are the general characteristics of our whole line of power base assemblies. Different power base designs are possible according to the types of photomultipliers and their mode of operation.

- lightweight
- compact design
- good stability
- low noise due to metal shielding
- continuous short circuit and arc protection
- output voltage monitoring as an option
- tight line/load regulation
- output current limit protection
- extremely low ripple ($\pm 0,005\%$ p. to p.)

Parameters	Specifications
Input voltage Vin	5Vdc, 12Vdc, 15Vdc or 24 Vdc ± 1 Vdc depending on the model
Input current	at no load: 20mA at full load: 90mA
HV output Vout	adjustable from 0 to 1500Vdc max. depending on the model
Polarity	fixed positive or negative depending on the model
HV setting	via external voltage source 0/5V, input impedance >1M Ω or via external potentiometer, minimum resistance 10k Ω $\pm 1\%$ accuracy: $\pm 0.1\%$ at full scale
Max. output current Iout	depending on the model
Load voltage regulation	$\pm 0,01\%$ of full output voltage for no load to full load
Line voltage regulation	$\pm 0,01\%$ of full output voltage over specified input voltage range
Residual ripple	$\pm 0,005\%$ peak-to-peak at full load
Temperature coefficient	200ppm/ $^{\circ}$ C for the maximum output voltage after starting and over temperature range 0 to 50 $^{\circ}$ C
Output reference voltage	5V, accuracy: 0.5%, temperature coefficient: 50ppm/ $^{\circ}$ C
HV power ON/OFF	to disable: opened remote interlock or enable: closed remote interlock
Operating temperature	0 $^{\circ}$ C to +50 $^{\circ}$ C
Storage temperature	-20 $^{\circ}$ C to +70 $^{\circ}$ C
Safeguards	arc and short circuit protection
Option	HV monitoring : 1V for 1000V, output impedance 200k Ω

Main Application
<ul style="list-style-type: none"> ▪ Photomultiplier Tubes (PMTs)

Flying Leads	
<i>Standard</i>	
Brown:	supply 0V, GND
Red:	supply Vin
Orange:	HV control input
Yellow:	Vref output
coax RG174:	Vout; anode output
<i>Option</i>	
Green:	high voltage monitor

Package Configuration	
Case material	brass or copper with chemical nickel-plating
Tube dimensions	(inner diameter/external diameter/length), socket non included <ul style="list-style-type: none"> ▪ for Ø25mm PMTs: 25/26/65 mm ▪ for Ø28mm PMTs: 28/30/65 mm ▪ for Ø51mm PMTs: 56/62/65 mm
Weight	110g
Input / Output connections	<ul style="list-style-type: none"> ▪ AWG26 wires ▪ anode output: RG174 coaxial cable
Insulation	internal socket, divider and HVPS entirely potted in a resin

