

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 |
|--------------------------------|
| ▪ 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 ▪ 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 | ▪ AWG26 wires ▪ anode output: RG174 coaxial cable |
| Insulation | internal socket, divider and HVPS entirely potted in a resin |

