

photomultiplier power base (negative) PS1816 data sheet

1 description

The PS1816 is a compact photomultiplier power base incorporating a negative high voltage supply and an active voltage divider. It is suitable for use with 10 stage, 52 mm diameter, hardpin photomultipliers with an overall voltage range of -100 to -1800 V. It is available in two versions: the PS1816/5 operates from a +5 V supply and the PS1816/12 requires +12 V.

It is housed in a cylindrical metal enclosure to provide electrical screening. Low voltage connections are by 500 mm long insulated leads, and the anode output is via a 500 mm long RG174U screened coaxial cable.

The internal high voltage provides power to an active divider, comprising a series of lower power FETs. Dynode potentials are generated directly on the pins of a B19A photomultiplier tube socket.

The overall operating voltage for the photomultiplier can be precisely set using any one of the three programming options shown in section 9.



2 applications

The PS1816 is suitable for the following applications:

- analogue
- pulsed light
- photon counting

3 features

- compact design
- freedom from high voltage cables
- extremely low ripple
- exceptional voltage divider stability with varying anode current
- excellent pulse height linearity
- sleep mode

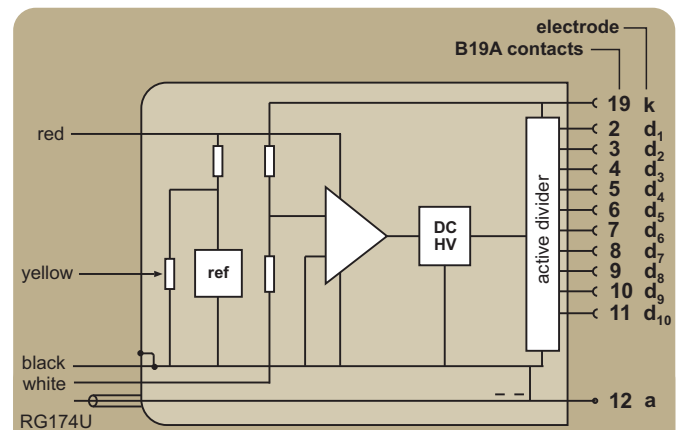
4 specification

input power at $V_{max} = -1800$ V	+5 V, 65 mA
power conversion efficiency, P_o / P_{in}	40 % for +5 V
input power at $V_{max} = -1800$ V	+12 V, 20 mA
power conversion efficiency, P_o / P_{in}	50 % for +12 V
output voltage range	-100 V to -1800 V
line regulation	0.05 % / V
temperature coefficient	<0.02 % °C ⁻¹
warm up time to 0.3 % of final o/p	< 2 s
discharge time to <40 V with no load	< 2 s
maximum anode current, continuous	100 µA
anode ripple with 100 k //5 pF load	100 µV
weight	80 g

5 ratings

input voltage (PS1816/5)	+4.75 V to +6.0 V
input voltage (PS1816/12)	+12 V to +15 V
control voltage	0 to +1.8 V
temperature (operating)	+ 5 °C to +55 °C

6 schematic diagram



example of output voltage with 1.300 V applied to control (white) wire

contact	electrode	voltage	contact	electrode	voltage
1	nc	-	11	d ₁₀	-100
2	d ₁	-1000	12	a	floating
3	d ₂	-900	13	nc	-
4	d ₃	-800	14	nc	-
5	d ₄	-700	15	nc	-
6	d ₅	-600	16	nc	-
7	d ₆	-500	17	nc	-
8	d ₇	-400	18	nc	-
9	d ₈	-300	19	k	-1300
10	d ₉	-200			

nc - no connection

