photomultiplier power base (positive)
PS1819 data sheet

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1 description

The PS1819 is a compact photomultiplier power base incorporating a positive high voltage supply and a CW voltage divider. It is suitable for use with all 10 stage, 52 mm diameter, capped photomultipliers with an overall voltage range of +100 to +1800 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.

Dynode potentials are generated directly on the pins of a B14A 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 PS1819 is suitable for the following applications:

- pulsed light
- photon counting

3 features

- compact design
- freedom from high voltage cables
- low ripple
- exceptional voltage divider stability with varying anode current
- pulse height linearity up to 30 mA peak currents
- sleep mode

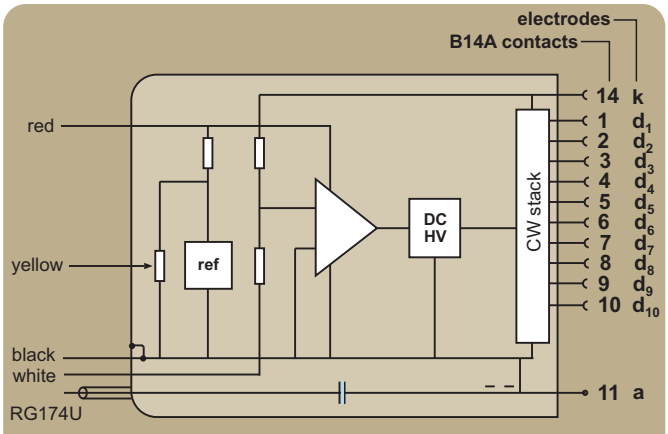
4 specification

input power at V_{max} = +1800 V	+5 V, 10 mA
full load condition	+5 V, 15mA
output voltage range	+100 V to +1800 V
line regulation	0.05 % /V
temperature coefficient	<0.02 % $°C^{-1}$
warm up time to 1 % of final o/p	< 1 s
maximum anode current, continuous	100 µA
anode ripple with 10 k //20 pF 1 kV	5 mV p-p
weight	150 g

5 ratings

input voltage (PS1819/5)	**+4.75 V to +6.0 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

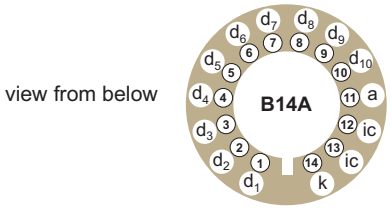
contact	electrode	voltage	contact	electrode	voltage
1	d_1	+300	8	d_8	+1000
2	d_2	+400	9	d_9	+1100
3	d_3	+500	10	d_{10}	+1200
4	d_4	+600	11	a	+1300
5	d_5	+700	12	nc	-
6	d_6	+800	13	nc	-
7	d_7	+900	14	k	0V

nc - no connection

anode load 100 k

7 voltage distribution

The photomultiplier pin configuration compatible with this power base is given below. Note that an anode load resistor of 100 k is included.



k	d_1	d_2	d_9	d_{10}	a
3/13 V	1/13 V	.....	1/13 V	1/13 V	

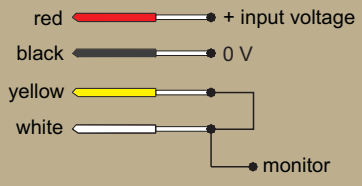
note: V is the high voltage, HV

8 sleep mode

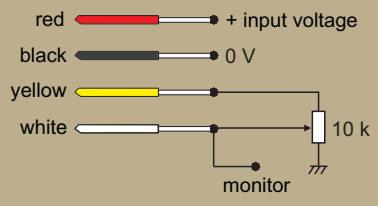
The power consumption can be reduced by half to one third of its normal level by activating the sleep mode. This is done by taking the control voltage (white) to 0 V.

9 programming options

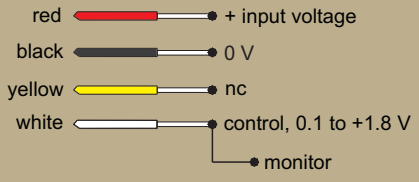
internal potentiometer
(access from back of power supply, clockwise to increase HV)



external potentiometer



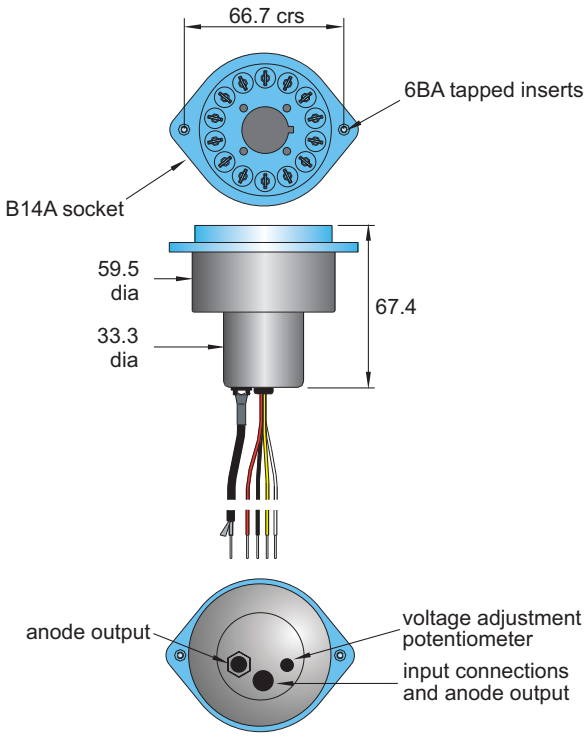
external voltage



nc: no connection - isolated lead
voltage monitor: 1/1000 of the HV applied to photomultiplier

10 outline drawing (mm)

All input connections are 7/0.2 PVC covered, 0.5 m in length. The anode lead is RG174U, also 0.5 m in length.



11 ordering information

item	ordering code
PS1819, +5 V	PS1819/5
PS1819, +5 V, flange	PS1819/5F

12 warning

High voltages generated by these products present an electrical shock hazard and appropriate precautions must be taken. They must be installed by qualified personnel and operated within the specified ratings.

The PS1819 is despatched with the internal potentiometer set to zero.

Do not operate outside the ratings limits. This may result in loss of performance or permanent damage to the PS1819. Do not exceed the ratings of the photomultiplier as this may damage the photomultiplier and the power supply.

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