

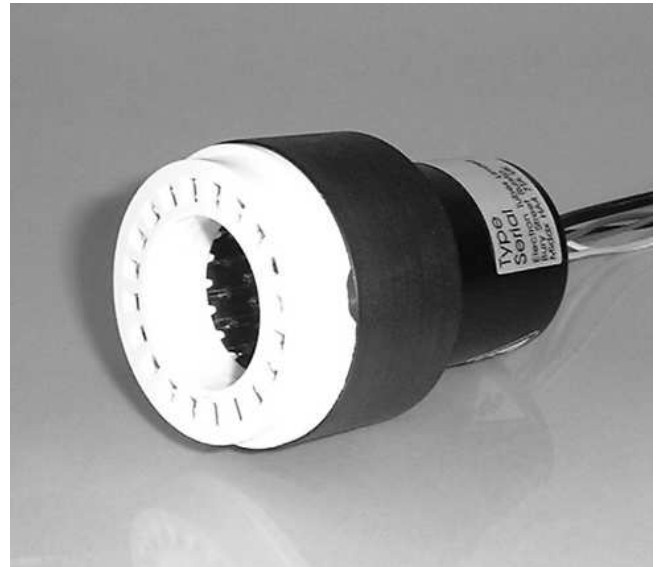
DESCRIPTION

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 450 mm long insulated leads, and the anode output is via a 450 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 the programming options section**.



APPLICATIONS

The PS1816 is suitable for the following applications:

- Analogue
- Pulsed light
- Photon counting

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

PS1816 DATA SHEET

PHOTOMULTIPLIER POWER BASE (NEGATIVE)



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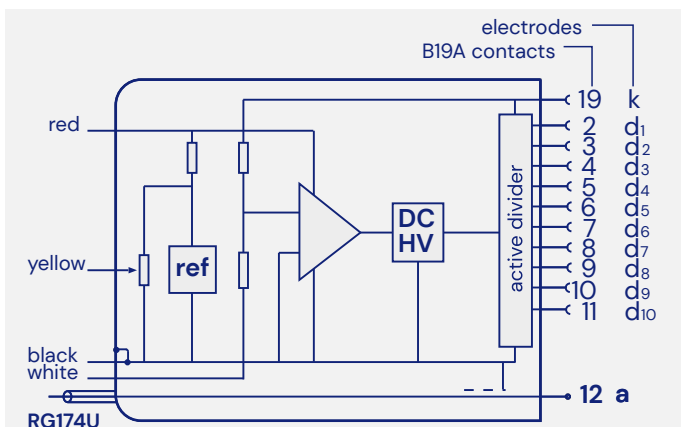
SPECIFICATION

INPUT POWER AT V MAX = +1800 V +5 V, 65 mA +12 V, 20 mA	WARM UP TIME TO 0.3 % OF FINAL O/P < 2 s
POWER CONVERSION EFFICIENCY, P_o/ P_{in} 40 % for +5 V 50 % for +12 V	DISCHARGE TIME TO <40 V WITH NO LOAD < 2 s
OUTPUT VOLTAGE RANGE +100 V to +1800 V	MAXIMUM ANODE CURRENT, CONTINUOUS 100 μA
LINE REGULATION 0.05 % /V	ANODE RIPPLE WITH 100 KΩ // 5 PF LOAD 100 μV
TEMPERATURE COEFFICIENT <0.02 % °C ⁻¹	WEIGHT 80g

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

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	-200			

nc - no connection

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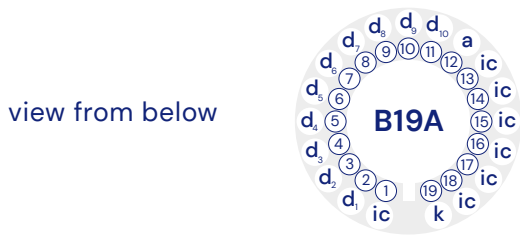
PHOTOMULTIPLIER POWER BASE (NEGATIVE)



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VOLTAGE DISTRIBUTION

The photomultiplier pin configuration compatible with this power base is given below. Note that an anode load resistor is not included.



k	d ₁	d ₂	d ₁₀	d ₁₁	a
3/13 V	1/13 V	1/13 V	1/13 V	

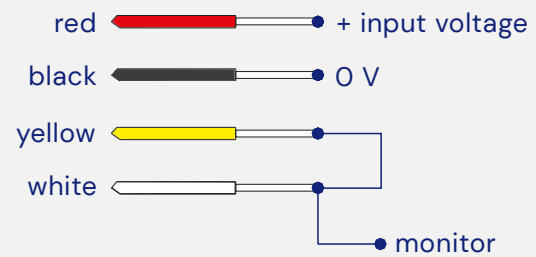
note: V is the high voltage, HV

SLEEP MODE

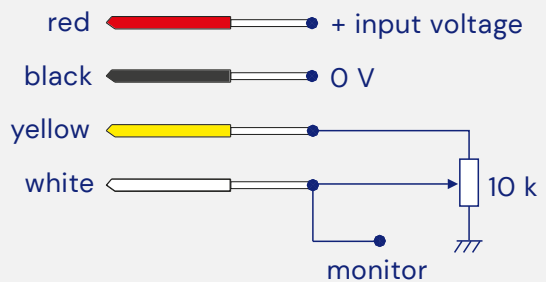
The power consumption can be reduced by half to one third of its normal level by activating the sleep mode. This is done by taking the control voltage (white) to 0 V.

PROGRAMMING OPTIONS

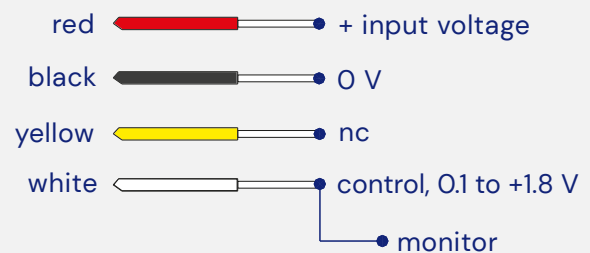
Internal potentiometer
(access from back of power supply, clockwise to increase HV)



External potentiometer



External voltage



nc: no connection – isolated lead

Voltage monitor: 1/1000 of the HV applied to photomultiplier

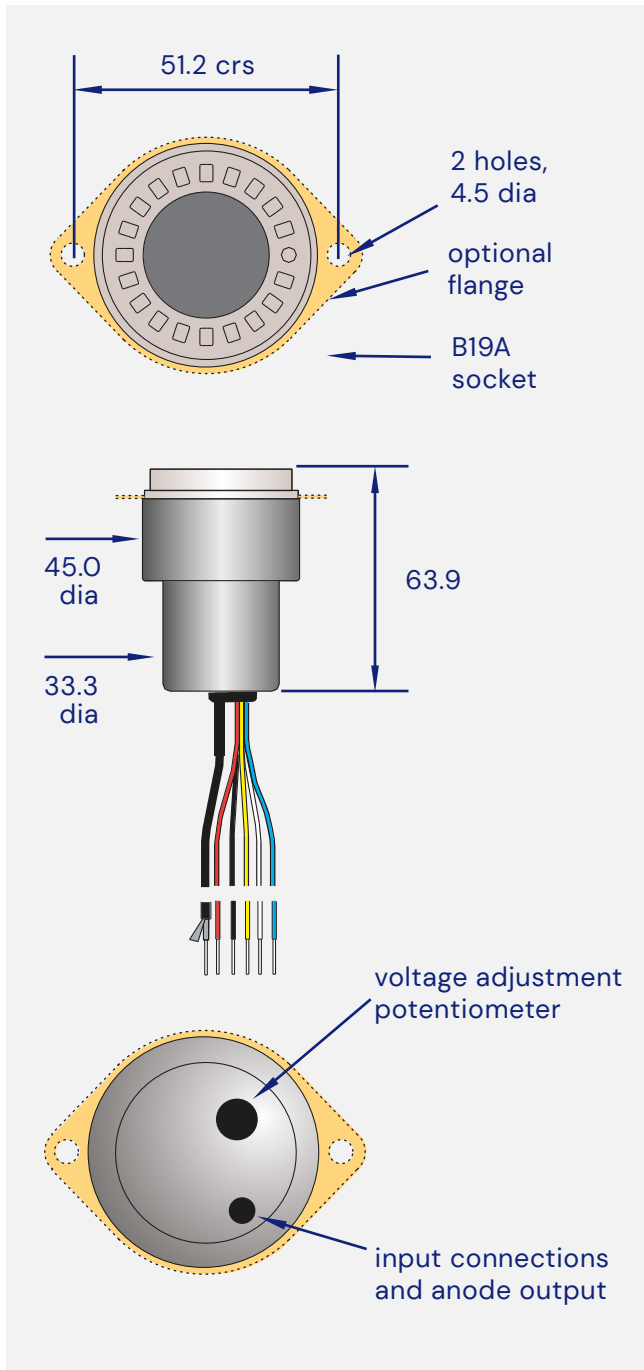
PS1816 DATA SHEET

PHOTOMULTIPLIER POWER BASE (NEGATIVE)



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OUTLINE DRAWING MM



ORDERING INFORMATION

ITEM	ORDERING CODE
PS1816, +6 V	PS1816/6
PS1816, +6V, flange	PS1816/6F
PS1816, +12 V	PS1816/12
PS1816, +12V, flange	PS1816/12F

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 PS1816 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 PS1816. Do not exceed the ratings of the photomultiplier as this may damage the photomultiplier and the power supply.