

DESCRIPTION

The PS1813 is a compact photomultiplier power base, operating at positive high voltage. The CW principle of operation provides the lowest power consumption within our range of power bases. This is particularly relevant to battery operated equipment. It is suitable for use with 10 stage, 38 mm diameter, photomultipliers with an overall voltage range of +300 to +1800 V. It is available in two versions: the PS1813/5 which operates from a +5 V supply and the PS1813/12 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 dynode potentials are provided directly to the socket contacts.

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**. A 100kΩ anode load resistor is included in the power supply.



APPLICATIONS

The PS1813 is suitable for the following applications:

- Pulsed light
- Photon counting

FEATURES

- Extremely low power consumption
- Compact design
- Freedom from high voltage cables
- Low ripple
- Exceptional voltage divider stability with varying anode current
- Excellent pulse height linearity
- Sleep mode

PS1813 DATA SHEET

PHOTOMULTIPLIER POWER BASE (POSITIVE)



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SPECIFICATION

OUTPUT VOLTAGE RANGE +300 V to +1800 V	ANODE CURRENT AT 1800 V 200 μ A
INPUT CURRENT, FULL LOAD (PS1813/5) <25 mA	INPUT CURRENT, FULL LOAD (PS1813/12) <10 mA
INPUT CURRENT, IDLING (PS1813/5) <20 mA	INPUT CURRENT, IDLING (PS1813/12) <7 mA
LOAD REGULATION 0.005% (0-100%)	DISCHARGE TIME TO <40 V WITH NO LOAD < 60 s
LINE REGULATION 0.005 % V^{-1}	WARM UP TIME TO 0.3 % OF FINAL OUTPUT < 10 s
TEMPERATURE COEFFICIENT <0.03 % $^{\circ}C^{-1}$	EXTERNAL VOLTAGE CONTROL 0.3 V - 1.8 V (0-100%)
ANODE RIPPLE WITH 10 KΩ /20 PF 1 KV <5 mV p-p	WEIGHT 80g

RATINGS

INPUT VOLTAGE (PS1813/5) +5 V to +8 V	CONTROL VOLTAGE 0 to +1.6 V
INPUT VOLTAGE (PS1813/12) +12 V to +15 V	TEMPERATURE (OPERATING) + 5 $^{\circ}C$ to +55 $^{\circ}C$

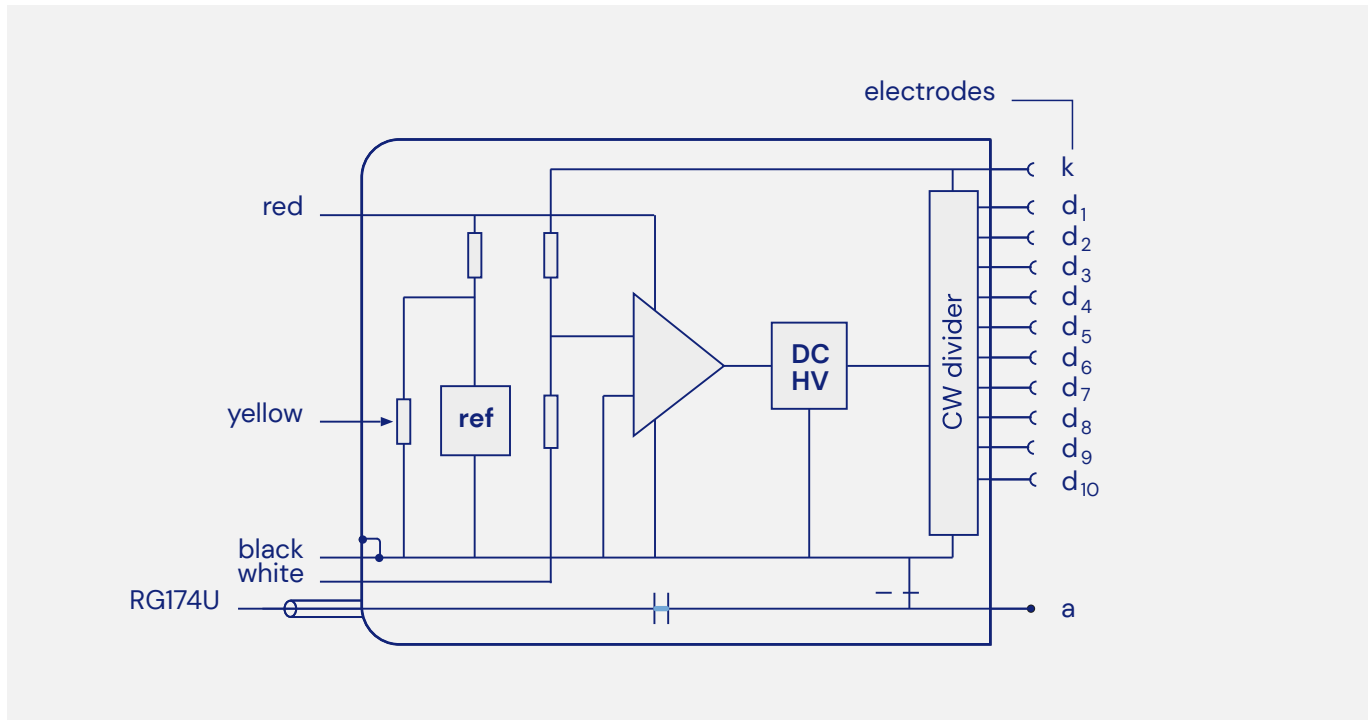
PS1813 DATA SHEET

PHOTOMULTIPLIER POWER BASE (POSITIVE)



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SCHEMATIC DIAGRAM



Example of output voltage with 1.3 volts applied to control (white) wire

CONTACT	ELECTRODE	VOLTAGE	CONTACT	ELECTRODE	VOLTAGE
1	d ₁	+300	4	d ₇	+900
11	d ₂	+400	8	d ₈	+1000
2	d ₃	+500	5	d ₉	+1100
10	d ₄	+600	7	d ₁₀	+1200
3	d ₅	+700	6	a	+1300
9	d ₆	+800	13	k	0V

PS1813 DATA SHEET

PHOTOMULTIPLIER POWER BASE (POSITIVE)

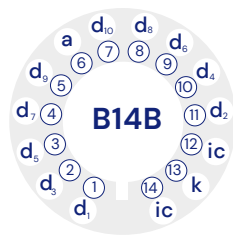


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VOLTAGE DISTRIBUTION

The photomultiplier pin configuration compatible with this power base is given below.

view from below



'ic' indicates an internal connection

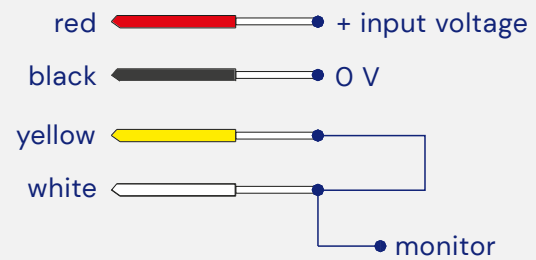
k	d ₁	d ₂	d ₉	d ₁₀	a
3/13 V	1/13 V	1/13 V	1/13 V	
note: V is the high voltage, HV					

SLEEP MODE

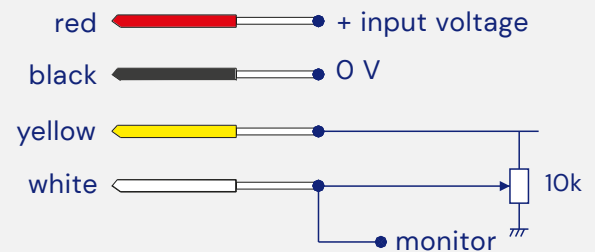
The power consumption can be reduced by half to one third of its normal level by activating the sleep mode. This is done by taking the control voltage (white) to 0 V.

PROGRAMMING OPTIONS

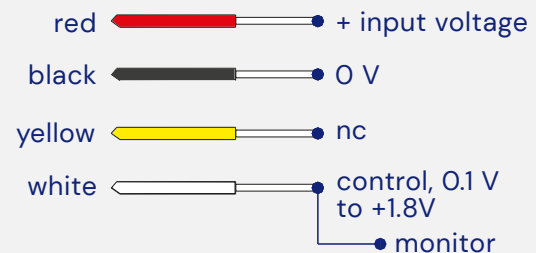
Internal potentiometer
(access from back of power supply, clockwise to increase HV)



External potentiometer
(the internal potentiometer must be set fully clockwise)



External voltage



nc: no connection - isolated lead

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

PS1813 DATA SHEET

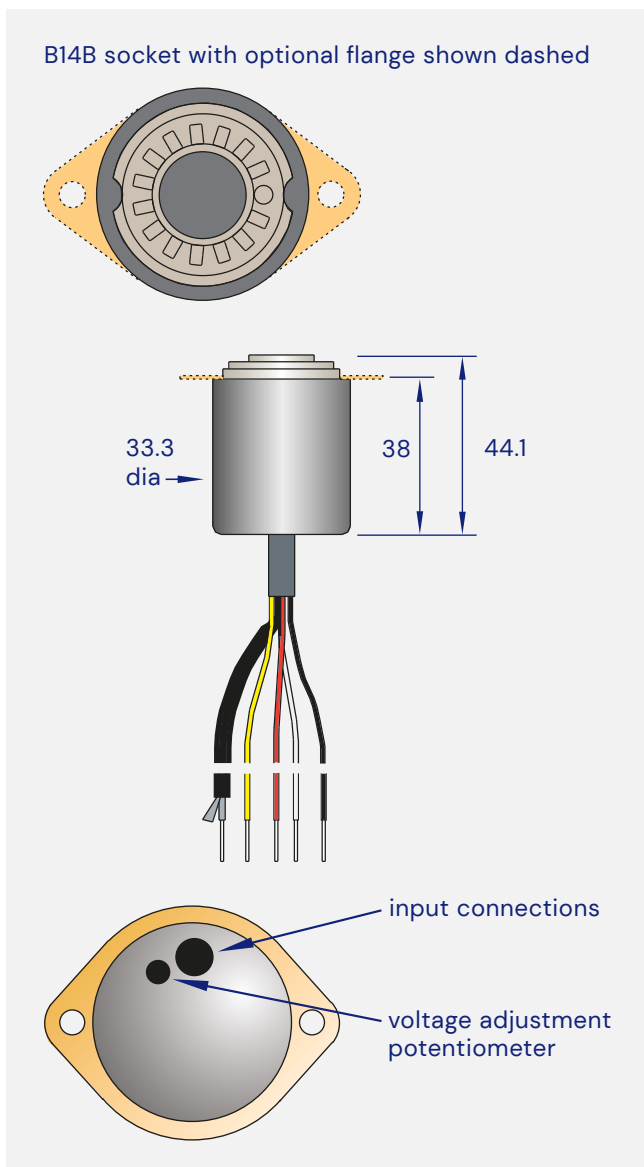
PHOTOMULTIPLIER POWER BASE (POSITIVE)



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OUTLINE DRAWING MM

All input connections are 7/0.2 PVC covered, 0.45m in length. The anode lead is RG174U, also 0.45m in length.



ORDERING INFORMATION

ITEM	ORDERING CODE
PS1813, +5 V	PS1813/5
PS1813, +5 V, flange	PS1813/5F
PS1813, +12V	PS1813/12
PS1813, +12V, flange	PS1813/12F

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 PS1813 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 PS1813. Do not exceed the ratings of the photomultiplier as this may damage the photomultiplier and the power supply.