

# photomultiplier power base (negative) PS1806 data sheet

## 1 description

The PS1806 is a compact photomultiplier power base incorporating a negative high voltage supply and an active voltage divider. It is suitable for use with 11 stage, 30 mm diameter, hardpin photomultipliers with an overall voltage range of -100 to -1800 V. It is available in two versions: the PS1806/5 operates from a +5 V supply and the PS1806/12 requires +12 V.

It is housed in a cylindrical metal enclosure to provide electrical screening. Low voltage connections are by 500 mm insulated leads. 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. 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 section 9.



Examples of the Sens-Tech's range of power bases

## 2 applications

The PS1806 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

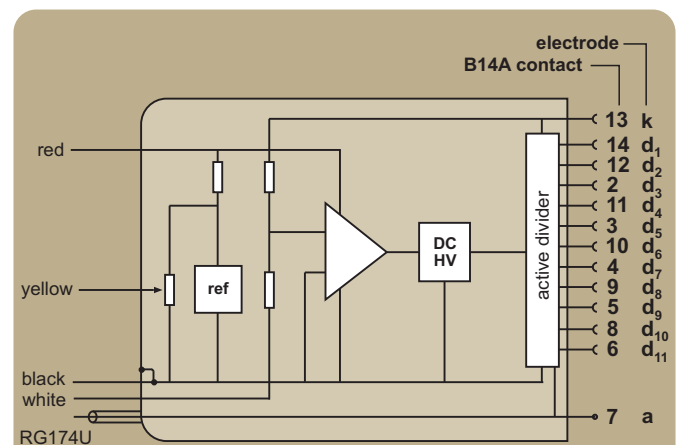
## 4 specification

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 <sup>-1</sup>
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	60 g

## 5 ratings

input voltage (PS1806/5)	+4.75 V to +6.0 V
input voltage (PS1806/12)	+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 volts applied to control (white) wire

contact	electrode	voltage	contact	electrode	voltage
1	nc	-	8	d <sub>10</sub>	-200
2	d <sub>3</sub>	-900	9	d <sub>8</sub>	-400
3	d <sub>5</sub>	-700	10	d <sub>6</sub>	-600
4	d <sub>7</sub>	-500	11	d <sub>4</sub>	-800
5	d <sub>9</sub>	-300	12	d <sub>2</sub>	-1000
6	d <sub>11</sub>	-100	13	k	-1300
7	a	floating	14	d <sub>1</sub>	-1100

