

Technical information

Last changed on: 12.09.2018

PHQ 9420

Integrated HV supplies for Photomultiplier Tubes (PMT) Hamamatsu R9420

- DC/DC HV supply compactly integrated in PMT socket
- low ripple and noise, low EMI
- low power consumption
- high linearity even at high pulse load and rates by stabilized dynode voltages
- control- and monitor capabilities
- custom design possible on all kinds of PMTs



Document history

Version	Date	Major changes
1.0	11.04.2016	Initial version
1.1	12.09.2018	Hardware revision

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1. General description

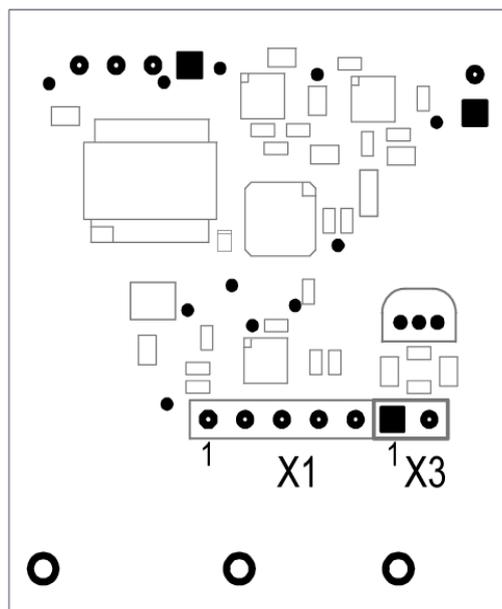
The PHQ´s 9420 are High Voltage Power Supplies that are mounted in the base of the Photo Multiplier Tube (PMT) Hamamatsu R9420. These devices generate all needed voltages for anode and dynodes. The voltages on last 3 dynodes are actively stabilized. That the voltages of these dynodes still remain constant under high load conditions.

2. Technical Data

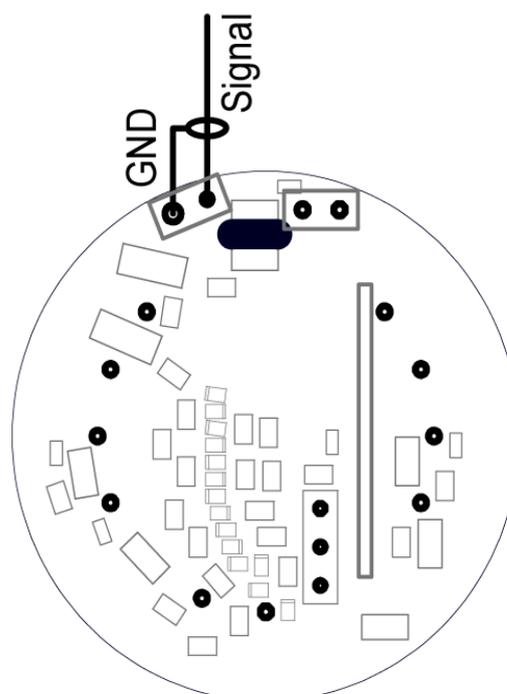
Anode voltage V_{OUT}	0 to 1500 V	
Stability DV_{OUT}	$<1 * 10^{-4}$	
Temperature coefficient	$<5 * 10^{-5}$	
Ripple and noise	$<20 \text{ mV}_{P-P}$	
Signal output	$C_k = 4,7\text{nF @ GND (via } 100 \text{ kOhm)}$	
Power Dissipation P_V	$0,3 \text{ W}^{1)}$ at $V_{OUT} = 1500 \text{ V}$	
Power requirements	+12 V ($V_{OUT} = 0\text{V} \leq 5 \text{ mA} / V_{OUT} = 1.5\text{kV} \leq 15 \text{ mA}$)	
Analog control	Input voltage V_{SET}	0 ... $2,5 \text{ V} \pm 1\%$ ($V_{OUT} \Rightarrow 0 \text{ to } 1500 \text{ V}$)
	Monitor voltage V_{MON}	0 ... $3,75 \text{ V} \pm 1\%$ ($V_{OUT} \Rightarrow 0 \text{ to } 1500 \text{ V}$, $R_f = 10 \text{ k}\Omega$)
	Monitor voltage I_{MON}	$0,1\text{V} = 1\mu\text{A}$
¹⁾ : I_{PMT} is generated at V_{OUT} with a efficiency at $\sim 75\%$. The Total Power Dissipation can increased by 20 to 50 mW according to I_{PMT} .		

Table 1: Technical data: Specifications

3. Dimensional drawing



B-Board



H-Board

Figure 1: dimensional drawing

4. PIN assignment

Label	+12 V	V _{MON}	V _{SET}	GND	I _{MON}
PIN board	1 (<input type="checkbox"/>)	2	3	4	5

X1 (B-Board)

X3 (B-Board)	N2:1	N2:2
	1	2

X1 (H-Board)	GND	Signal
	1	2

Table 2: PIN Assignment

We reserve all rights and the right to change the product design!

5. Warranty & Service

This device is made with high care and quality assurance methods. The factory warranty is up to 12 months, starting from date of issue (invoice). Within this period a 5 years warranty extension can be ordered at additional charge. Please contact iseg sales department.

ATTENTION



Repair and maintenance may only be performed by trained and authorized personnel.

For repair please follow the RMA instructions on our website: www.iseg-hv.com/en/support/rma

6. Manufacturer's contact

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