



# State of Health Preamplifier (SHP)

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(for HPGe detectors)



## DESCRIPTION

State of Health Preamplifier (SHP) is a low noise and fast resistive-feedback preliminary amplifier intended for operation within gamma- and X-ray Detection Unit based on HPGe detector.

SHP module allows to perform monitoring of detection unit basic parameters in real-time mode or per request of the operator. Analysis of the performance in the long run allows to predict possible failure of the detector and to perform timely preventive maintenance.

SHP module is specially designed to operate together with BSI HPGe detectors via USB interface. Adjustment of SHP parameters is performed through the software package developed specially for preventive maintenance and service activities

## FEATURES

SHP module provides information:

- Preamplifier serial number
- Detector serial number
- Detector type
- Cryostat model
- Recommended HV value
- HV polarity
- Output signal polarity
- Shaping time recommended value
- Flat top time recommended value
- ADC parameters
- Recommended cooling time

Measuring and display preamplifier's parameters in real-time:

- FET voltage
- FET current
- FET drain voltage
- Preamplifier output voltage
- Resistive-feedback output voltage of the preamplifier
- Preamplifier power supply voltage
- Detector leakage current
- HPGe crystal temperature
- SHP module internal temperature
- SHP module internal humidity
- SHP module internal vacuum pressure

Parameter	Value
Energy range	from 3 keV to 10 MeV
Output signal polarity	negative
Output signal Rise time ( $\mu$ S)	$\leq 0.15$
Output signal fall time ( $\mu$ S)	$\geq 50$
Conversion Gain mV/MeV	220-250
Output Impedance (ohm)	50
Max constant input count rate Co-60	2x10E5 cps

\*Indicator warns of excessive counting rate

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**Gamma-rays**