

Model PCP-5

PROPORTIONAL COUNTER PREAMPLIFIER



FEATURES

- **Very low noise design: less than 260 ion pairs RMS at 20 pF**
- **High count rate capability: 1×10^{-5} Coulomb/s**
- **Fast risetime: less than 15 nsec at 0 pF, 60 nsec at 300 pF**

APPLICATIONS

- **Mössbauer Spectroscopy**
- **Low energy X-Ray analysis**
- **other general purpose use**

DESCRIPTION

The PCP-5 is a charge sensitive preamplifier for use with Proportional Counter Detectors. The PCP-5 converts the ionisation charge from the Proportional Counter to pulse whose amplitude is proportional to the charge collected by each event. The output of the PCP-5 is compatible to any Spectroscopy Amplifier available in the NIM line of modules.

SPECIFICATIONS

INPUTS

Detector input: positive or negative charge pulse up to 5×10^{-9} Coulomb (3×10^{10} Ionpairs) and provides HV bias to the detector

Test input: positive or negative pulse

High Voltage Input: For detector bias of up to +3kV

OUTPUTS

Energy Output: Inverted pulse with fast risetime and slow fall time, maximum amplitude +7.5V, impedance 50 Ohms.

(risetime 15 nsec at 0 pF, 60 nsec at 300 pF; falltime approx. 100 usec)

PERFORMANCE

Integral Nonlinearity: less than 0.1% for up to +-4V output.

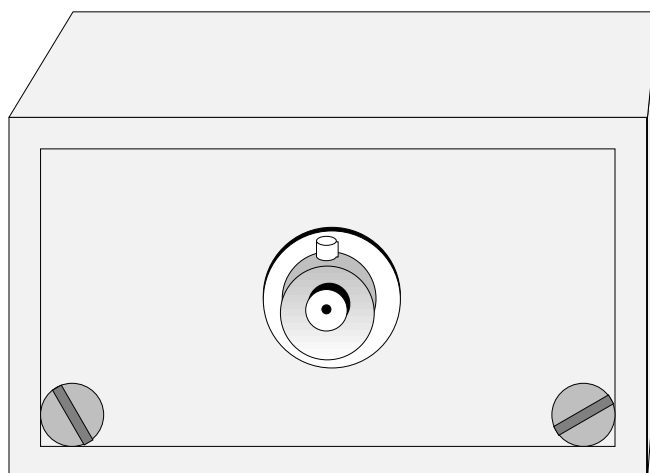
Stability: less than 0.01%/°C

Noise at 20 pF: $< 4 \times 10^{-17}$ Coulomb RMS (260 Ionpairs RMS)

Open loop Gain > 50.000

Sensitivity: approx. $1V/10^{-12}$ Coulomb/sec (0.16 uV/Ionpair)

Count rate capability: 1×10^{-5} Coulomb/sec (6×10^{13} Ionpairs/sec)



CONNECTORS

Detector Input: MHV (SHV on request)

Test Input, Energy Output: BNC

HV-Input: SHV

Power: 9-pin D-sub connector

A 3m power cable is supplied with the PCP-5

POWER REQUIREMENTS

+12V 30 mA, -12V 20 mA

PHYSICAL

Size: 11 x 6 x 3.4 cm

Net weight: 0.3 kg

Shipping weight: approx. 0.6 kg