

ADD-ON ACCESSORIES

CUBE527 CHARGE SENSITIVE AMPLIFIER

The Cube527 charge sensitive amplifier (PA) is designed to interface the Cube527 MCA directly to a bare radiation detector, such as a Ritec CZT500 or a He3 neutron detector tube. But also other charged particle detectors may be used. It is supplied directly by the Cube527. For lowest noise level, it is recommended to keep the cable to the detector as short as possible, or use no cable at all.



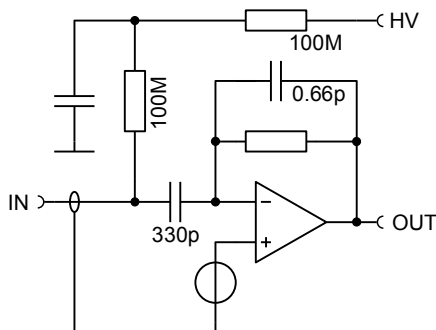
Cube527 charge sensitive amplifier with SHV connector

Cube527 with BNC charge sensitive amplifier and CZT500 detector

Technical Data

Amplifier

Charge sensitive amplifier, AC coupled



Principal schematic of preamplifier

Gain	1.5 mV/fC
Maximum charge detectable	260fC, corresponding to 380 mV max. accepted amplitude at the Cube527 input. Corresponds to 1.6E6 electrons or 7.7 MeV with a CZT detector
Noise	about 0.06fC RMS (about 400 electrons or 1.8keV with a CZT detector connected)
Rise time	<0.3 μ s
Decay time constant	~60 μ s
Bias	2000V max., delivered by Cube527
Power supply	3.5 V ... 5.25 V, 4.5mA in idle mode, delivered by Cube527

The charge sensitive amplifier is well suited to room temperature semiconductor detectors as CZT or Si, which deliver charges in the order of 30-50 fC/MeV, but also for He3 neutron detectors (up to 90 fC typical) and other similar detectors.

Mechanical

25mm x 25mm x 38.5mm (BNC version)

25mm x 25mm x 45mm (SHV version)

Weight: 22g

Connectors:

- BNC connector, typically used for CZT 500, recommended for voltages up to 500V.
- SHV connector, up to 2 kV.

Connector to Cube527 is special, for details check the complete documentation of the Cube527.

Ordering

Cube527-PA-SHV (for amplifier with SHV connector)

Cube527-PA-BNC (for amplifier with BNC connector)

Other connectors on request.