

Current Preamplifiers CPA

The current preamplifier is necessary to realize a power measurement of the incoming radiation. The amplifier consists of an IC as transimpedance amplifier at the input side and two further voltage amplifier stages. There are some additional components for a noise reduction and offset regulation. In praxis the maximum amplification is limited by the cut off-frequency. Highest amplification can only be realized for small frequency intervals. For THz detectors in combination with a chopper often the upper frequency is limited to values less than 50 Hz. For such amplifiers conversion factors between 10^7 V/W and 10^{10} V/W can be realized.

The sensitivity of the combination detector and preamplifier is determined by multiplication of the current sensitivity of the detector and the amplification of the current amplifier (e.g. detector 10^{-6} A/W and CPA 10^9 V/A leads to a total sensitivity : 10^{-6} A/W* 10^9 V/A= 1000 V/W). The amplification can be set by a switch.

The CPA needs an operating voltage 5 V from an included separate power supply.

Specifications:

Connectors:	BNC
Amplification:	10^7 , 10^8 , 10^9 , 10^{10} V/A
Bandwidth:	50 Hz - 250 Hz, switchable
Power supply:	5 V, Micro-USB



The amplification can be set by a 4-step switch: e.g. 10^7 ... 10^{10} V/A ; the bandwidth is fixed* to e.g. 50Hz or 250 Hz. The detection limit depends on the amplification, the bandwidth and detector diameter.

Amplification and bandwidth can be adapt on your requests.

Voltage Preamplifiers VPA

For many application the pyroelectric sensors can be used directly in combination with an oscilloscope ($R_i = 1$ M Ω). For these conditions the parameters (min. detectable energy and the max. rep. rate) are limited. In combination with a preamplifier these parameters can be extended. In combination with a preamplifier sensitivities up to 10^6 V/J can be reached and the minimum detectable energy is in the order of 50 nJ.

Specifications:

Connectors:	BNC
Amplification:	10, 100, 1000 or 10000
Bandwidth:	5 kHz
Input Impedance:	1 M Ω
Power supply:	5 V, Micro-USB

