



TECHNICAL SPECIFICATIONS

bPAD-422 — a compact Single Channel Analyzer with RS422 interface

DESCRIPTION

bPAD-422 is an advanced, microprocessor-based, compact electronic device that integrates a charge-sensitive preamplifier, a variable-gain amplifier and a window discriminator; all in a 14-pin photomultiplier tube base. This type of device is also often referred to as a Single Channel Analyzer (SCA). The bPAD also includes its own high voltage power supply for operating standard 14-pin photomultiplier tubes, which are commonly used with scintillator-type radiation detectors (e.g. PVT, NaI(Tl), CsI(Tl), LaBr₃, CeBr₃, BGO, etc). The detected signal is output as a TTL pulse, making it compatible with most industrial, environmental and laboratory counting systems. This model incorporates a RS422/485 data interface. The device is therefore useful as a compact system to monitor the count rate in an energy region of interest

Since the bPAD is a microprocessor-controlled device, it benefits from being easy to setup. The device connects to a PC via its RS422/485 interface, and by using the provided software all the operational settings can be configured and fine-tuned for any kind of scintillator detector. Once the setup is complete, all the settings are saved into the device's non-volatile memory.

The PC software also comes with a "pseudo-PHA" acquisition mode. In this mode, the software slides the single-channel window over the whole input range, constructing in such a way an energy spectrum. By using this spectrum, the user can visually identify the energy range of interest and immediately set the boundaries of the bPAD discriminator window. This represents a large improvement over the traditional "blind" method used with most other SCAs.

bPAD has two modes of operation:

- Integral, where counts are output for signals above a single energy threshold level
- Differential, where counts are output for signals within a defined energy window (SCA)

The output pulses correspond to counted events in the energy window of interest. They are 5 volt TTL signals with 2.5 μ sec duration. The bPAD can be ordered to output pulses with a duration of 10 μ sec instead.

The bPAD can be powered via the USB connection or by an external DC power supply of 6 to 36 volts. Three color LEDs are used for status indications: Red for detector high voltage, Yellow for incoming count rate (ICR) and Green for power and communication status.

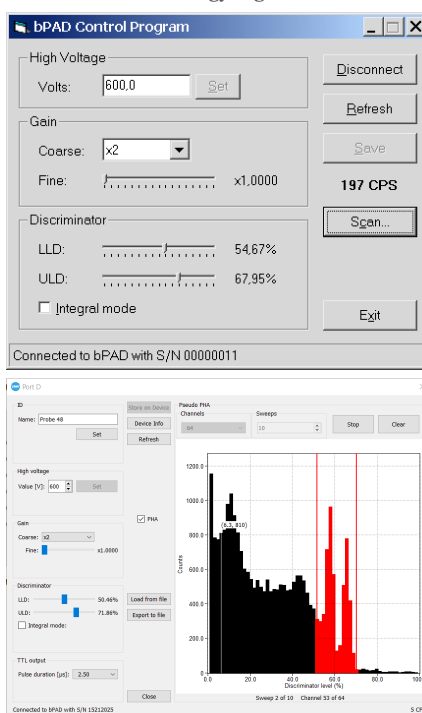
The bPAD is a compact device with a size of 65 mm diameter by 71 mm high (60 mm not counting the TTL output connector). bPAD weights less than 80 grams.

All the above-mentioned features make the bPAD a very attractive component for industrial and automated applications involving photon detection and counting.



FEATURES

- Compact Single Channel Analyzer with microprocessor control on a 14-pin photomultiplier tube base
- Integrates Preamplifier-Amplifier-Discriminator and HV power supply
- TTL (optional) and RS422 pulse output
- RS422/485 communications
- Device can be powered from an external supply of 9 to 36 Volts via a pluggable terminal block
- Compact size of 56mm (D) x 71mm (H)
- Very low power consumption, 1 watt maximum.
- Miniature and efficient high voltage power supply
- Configuration software for easy setup and visualization of device operation, also implements a "pseudo-PHA" mode of operation
- LED indicators for communication status and device power, HV power and incoming count rate (ICR)



BRIGHTSPEC

is a dynamic technological and engineering company with novel designs and innovative solutions in the field of nuclear electronics and software development for radiation detection.



BrightSpec NV/SA

Sciencepark
Galileilaan 15 (Darwin)
B-2845, Niel
BELGIUM

Phone: +32-(0)3-844 95 86
E-mail: sales@brightspec.be

www.brightspec.be



TECHNICAL SPECIFICATIONS

Device and digital settings

- ◆ Acquisition modes: Integral and differential.
- ◆ Coarse gain: x1, x2, x4, x8 (optionally also x16, x32, x64, x128)
- ◆ Fine gain: x1...x2 in 4096 steps
- ◆ Upper and Lower Level discriminator resolution: 2048 steps
- ◆ Output: 5 Volts TTL signal of programmable (0.25 to 20 μ sec) duration.

High Voltage Power Supply

- ◆ Miniature HV power supply embedded into the device assembly
- ◆ Voltage: 0 to +1 500 Volts in 4096 steps

Data communication

- ◆ RS422/485.
- ◆ SCA pulse via RS422
- ◆ TTL output via SMA connector (optional).

Physical

- ◆ RS422 connector: 2.5mm pluggable terminal block, used for PC communications and pulse output, plug included.
- ◆ Power connector: 3.81mm pluggable terminal block, 9 to 36 Volts, plug included.
- ◆ Power consumption: 1 watt maximum
- ◆ Size: Height 71 mm, Diameter 56 mm
- ◆ Weight: Approximately 80 grams

Indicators:

- ◆ Red LED for detector high voltage
- ◆ Yellow LED for incoming count rate (ICR)
- ◆ Green LED for power and communication status

Other

- ◆ The device is supplied with Windows™ PC software for setup and pseudo-PHA, the software can also display the CPS value for the defined SCA region
- ◆ Recommended to operate with BrightSpec Digital Acquisition System (DAS)

Certifications

- ◆ The device is CE compliant

CE
CERTIFIED