

The **A1423B** is an inverting Wideband Amplifier designed for fast detectors, as SiPMs and Diamonds, having a bandwidth of ~ 1.5 GHz (-3 dB). The gain ranges from **+18 dB** to **+54 dB** and it is locally controlled through a rotary switch.

The amplifier accepts both positive and negative input pulses and can provide an energy output in the ± 1 V range across a 50Ω load. The amplifier is AC decoupled with an input and output impedance of 50Ω ($SWR < 1.5:1$) and can carry a bias voltage for the detector up to ± 750 V.

The **A1423B** is implemented in a shielded box and features SMA connectors for the HV BIAS, IN and OUT.

- Bandwidth: ~ 1.5 GHz (-3 dB)
- Positive or negative input signals
- Gain range: from **+18 dB** to **+54 dB**
- Output voltage: ± 1 V
- Input and output impedance: 50Ω , $SWR < 1.5:1$
- Noise Figure: 7dB @ 1GHz
- Up to 750 V (positive or negative) detector bias voltage



Specification

Gain

18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 39, 42, 45, 48, 51, 54 dB selectable via 16 position Rotary Switch.

Polarity

Positive or negative input signals

Bandwidth

~ 1.5 GHz (-3 dB)

Noise Figure

7dB @ 1 GHz

Packaging

Shielded Box

Dimensions (WxHxD connector excluded):

55 x 25 x 95 mm³

Weight: 134 g

Ordering Option

Ordering code	Description
WA1423XBAAAA	A1423B - Wide Band Preamplifier

Inputs

IN^(*)

Detector input (AC decoupled)
Input impedance: 50Ω ($SWR < 1.5:1$),
SMA 142-0711-811 Johnson connector.

HV

HV BIAS input / Detector bias voltage
Range: ± 750 V
SMA 142-0711-811 Johnson connector.

+12

Power supply input connector
Power supply voltage: $+12$ V
DC 2.1mm Power Socket connector

(*) Safety and Operation requirements

The input circuit includes a protection network to prevent damage to the input circuit from transient generated in the IN/HV network (up to ± 500 V).

Anyway care must be taken in the use of A1423B with high voltage detectors. Please remember to:

- Turn down gradually bias voltage prior to connect or disconnect preamp input
- Avoid fast changes in bias voltage
- Avoid Detector breakdown or discharge

Outputs

OUT

Amplifier Out (AC decoupled)
Dynamics: ± 1 V (2V absolute)
Output impedance: 50Ω ($SWR < 1.5:1$)
SMA 142-0711-811 Johnson connector

Power Requirements

$+12$ V 250 mA (typical)

The module is powered by an external AC-DC stabilized power supply provided with the amplifier and included in the delivered kit.

Note:

Using a different power supply source, like battery or linear type, it is recommended to provide $+12$ V and, at least, 500mA.

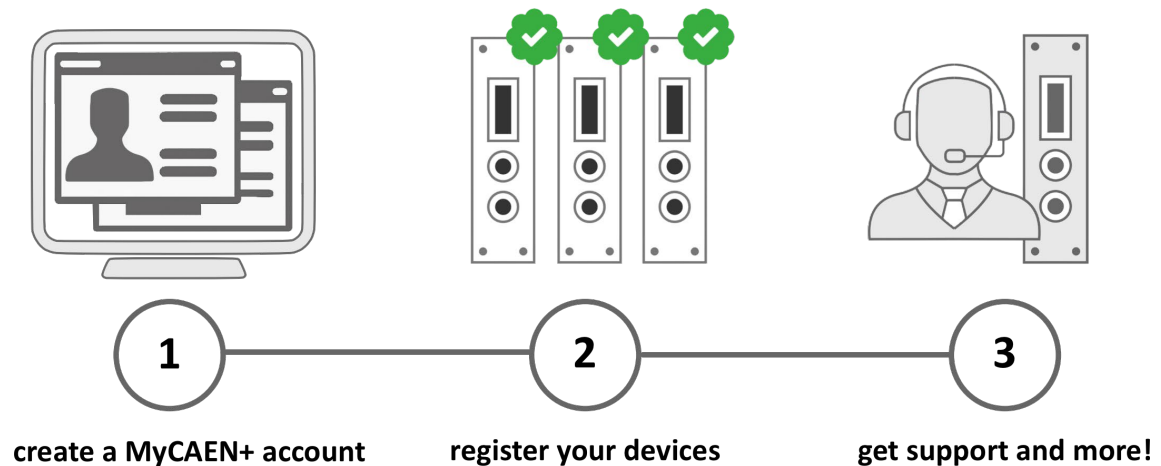
The power jack is a 2.1mm type, a suitable cable is the RS 656-3816 type (or similar).



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