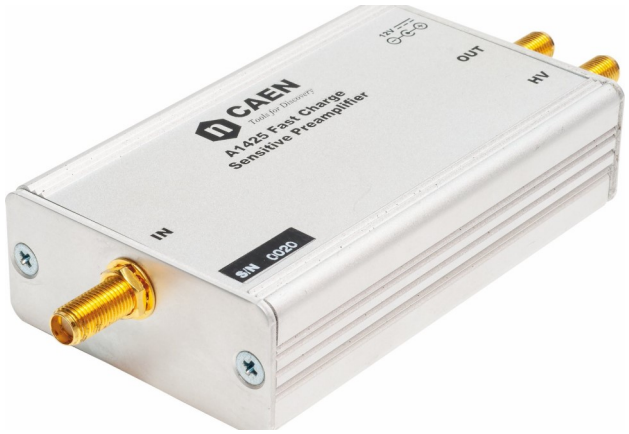
A1425
Fast Charge Sensitive Preamplifier
Data Sheet

The **A1425** is a fast and low noise preamplifier with AC coupled input. The fast rise time makes it suited for amplifying the signals from detectors as fast silicon sensors and diamond detectors.

It has been designed for **spectroscopy applications**, and can be combined with sub-nanosecond measurements of particle time-of flight. It is optimized for high-speed single MIP particle detection with diamond detectors, where the signal integrated change is extremely small. It integrates a high voltage input for detector bias **up to 1 kV**.

- **Fast, inverting preamplifier**
- **Sensitivity of 3.6 mV/fC**
- **ENC of 0.16 fC (1000 e)**
- **Output impedance of 50 Ω**
- **Output range 0 to 1 V**
- **Up to 1 kV detector bias voltage**



Specification

Polarity
Negative input signals, positive inverting output

Sensitivity
3.6 mV/fC

Output Type
Shaped, 12 ns FWHM

Output voltage range
0 ÷ 1 V (50 Ω termination)

Noise
ENC of 0.16 fC (1000 e)
measured with no input signal

Packaging
Shielded Box
Dimensions (WxHxD):
65 x 24 x 95 mm^3 (without connectors)
65 x 24 x 110 mm^3 (including connectors)
Weight: 134 g

Inputs

IN(*)
Detector input (AC coupled)
SMA 142-0711-811 Johnson connector.

HV
HV BIAS input / Detector bias voltage
Range: ±1000 V
SMA 142-0711-811 Johnson connector.

12 V
Power supply input connector
Power supply voltage: + 12 V DC
2.0 mm Center Pin Diameter
DC Power Jack Locking Type
KLDX-0202-A-LT KYCON connector

(*)Safety and Operation requirements
Care must be taken in the use of A1425 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: 0 ÷ 1 V (50 Ω termination)
Output impedance: 50 Ω
SMA 142-0711-811 Johnson connector

Power Requirements
+12 V 30 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:
The power jack is a 2mm type, Recommended to be used with KYCON locking plug: KLDX-PA-0202-A-LT
A suitable cable is the RS 656-3816 type (or similar).

Ordering Option

Ordering code	Description
WA1425XAAAAA	A1425 - Fast Charge Sensitive Preamplifier

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