

Fast Scintillation Preamplifier

APG1500

Instruction Manual

Version 1.3.0

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Safety Precautions / Disclaimer

Thank you very much for purchasing this product from TechnoAP Co., Ltd. Before using this product, please read this "Safety Precautions and Disclaimer" and be sure to observe the contents and use the product properly.

We are not responsible for any damage caused by abnormality of device, detector, connected device, application, damage to failure, other secondary damage, even if accident caused by using this device.



Prohibited matter

- This device cannot be used for applications requiring special quality and reliability related to human life, accident.
- This device cannot be used in places with high temperature, high humidity, and high vibration.
- Do not apply a power supply that exceeds the rating.
- Do not turn the power on while other metals are in contact with the board surface.



Note

- If there is smoking or abnormal heat generation in this device, turn off the power immediately.
- This board may not work properly in noisy environments.
- Be careful with static electricity.
- The specifications of this board and the contents of the related documents are subject to change without notice.

Warranty policy

The warranty conditions of "our product" are as follows.

Warranty period: One year from date of purchase.

Guarantee contents: Repair or replacement will be carried out in case of breakdown even though you have used correctly according to this instruction manual within the warranty period.

Out of warranty: We do not warranty if the cause of the failure falls under any of the following.

1. Failure or damage due to misuse or improper repair or modification or disassembly.
2. Failure and damage due to falling etc.
3. Consumables.

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1. Overview

The APG1500 is a charge-sensitive preamplifier featuring a fast response with an output pulse rise time of 20ns or less.

2. Specifications

- Rise-time < 20ns
- Noise characteristic < 100 μ Vrms
- Input capacity 220pF、1000pF、2200pF
Switching by rotary switch, 220pF at delivery.
- Time constant < 100 μ s
- Output connector LEMO 00.250 compatible connector
- Output impedance 50 Ω
- Input connector LEMO 00.250 compatible connector
- Power supply D-sub 9-pin connector, NIM standard
 \pm 12V、30mA or less
- Dimensions 75 (W) \times 52.6 (D) \times 20 (H)
*Connector, screws, and rubber feet are not included.
- Weight 138g

3. Appearance



Picture 1 APG1500

NOTE: Preamplifier power cable (model: CBL-DSUB9-DSUB9-3) is sold separately.



Picture 2 Preamplifier power cable (model: CBL-DSUB9-DSUB9-3)

4. Connection

- Input Connect a signal source such as the anode output of a photomultiplier tube to the INPUT connector on the front panel of the device; a signal from a pulse generator, etc. can be input to the TEST connector.



Picture 3 INPUT connector and TEST connector

- Output Connect a measurement device such as an oscilloscope to the OUT connector on the rear panel of the instrument. Use a coaxial cable with a characteristic impedance of 50 Ω for connection to the measurement device and terminate the cable with a 50 Ω termination on the observation device side.



Picture 4 POWER connector and OUT connector

- Power supply Connect the supplied preamplifier power cable to the POWER connector on the rear of this device to supply $\pm 12V$. Pin assignments are in accordance with the NIM standard.

Table 1 Pin assignment of power supply connector

1	GND	6	NC
2	GND	7	NC
3	NC	8	NC
4	+12V	9	-12V
5	NC		

NOTE: Be sure to turn off the power to the product and connected devices before connecting cables. Failure to do so may result in damage to the equipment.

5. Example of output signal

Example: Using LaBr₃(Ce) and a photomultiplier tube, connect the anode output signal from the photomultiplier tube to the INPUT connector of the APG1500, and measure the output signal from the OUTPUT connector with an oscilloscope.

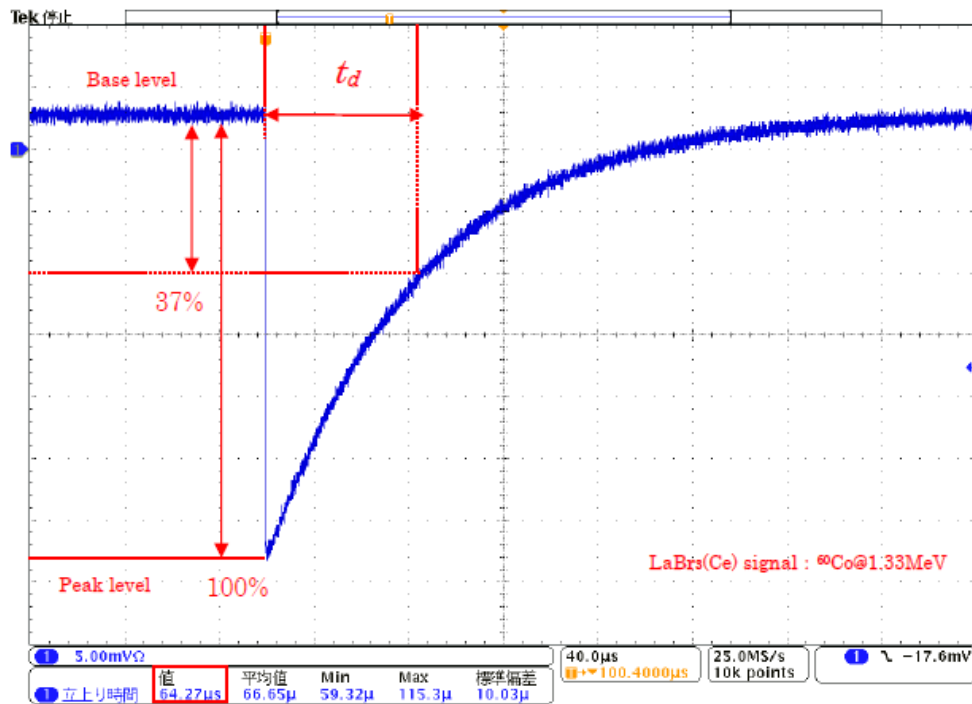


Figure 1 Time constant: 64.27μs

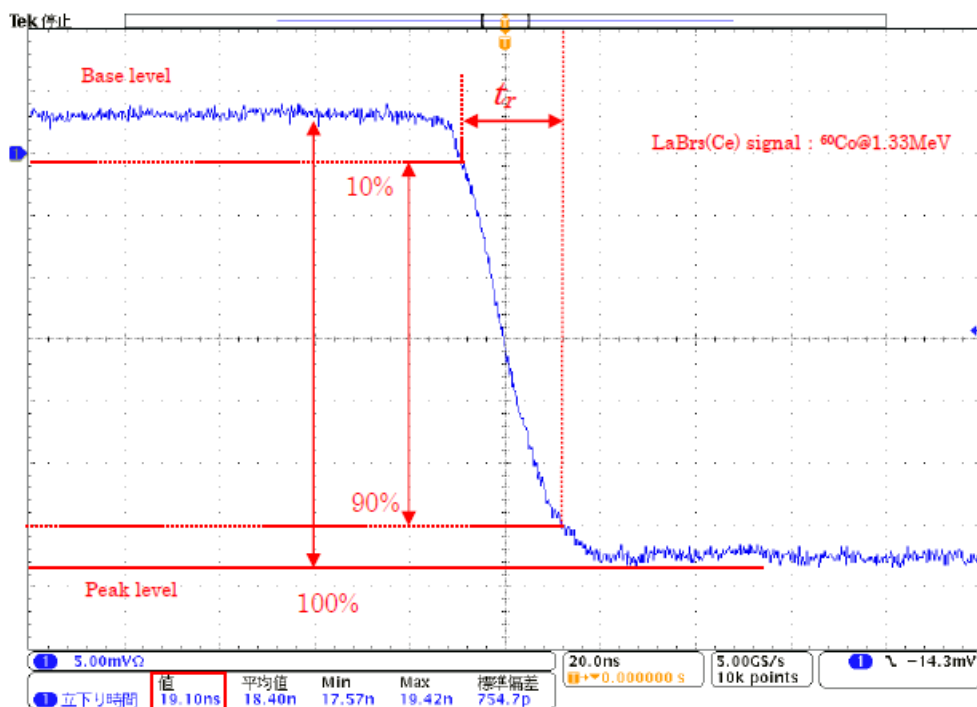


Figure 2 Fall time: 19.10ns

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