9305
Fast Preamplifier

- **Used with photomultiplier tubes, electron multipliers, etc., in photon or ion counting applications**
- **<3-ns rise and fall times**
- **DC-coupled, with excellent DC and gain stability**
- **Voltage gain adjustable from 5 to 10**
- **Output of ±5 V into 50 Ω**
- **Input protection**
- **<5-ns overload recovery time**

The ORTEC Model 9305 Fast Preamplifier contains a direct-coupled wideband hybridized amplifier suitable for use with photomultipliers, electron multipliers, and other detectors used in photon counting, ion counting, or fast-timing applications.

In addition to the fast rise time (<3 ns), Model 9305 has a variable voltage gain of 5–10 and can drive ±5 V into a 50-Ω load. The 9305 also features excellent dc and gain stability along with low noise and <5 ns overload recovery time. Overload input protection is provided also.



Hybrid circuit technology gives the Model 9305 high performance and reliability. For operator convenience independent bandwidth (BDW), output DC offset (DC), and fine gain (GAIN) adjustments are included.

Because of its compact size and light weight, the Model 9305 is ideal for mounting directly on or close to a detector. Consequently, low-level signals which would otherwise be susceptible to distortion by noise or interference are amplified to a suitable level for cable connection to the main amplifier. Connection to a power supply is through a 10-ft cable furnished with the Model 9305.

Specifications

PERFORMANCE

NOMINAL VOLTAGE GAIN 5–10, non-inverting.

RISE TIME <3 ns to ±5 V into 50 Ω; bandwidth >120 MHz.

NOISE <25 µV referred to the input measured with an HP3400A true rms voltmeter. Wideband noise (200 MHz) <30 µV referred to the input.

INTEGRAL NONLINEARITY Typically ≤±1% for output to ±5 V.

PULSE OVERLOAD RECOVERY Typically ±5 ns for a X10 overload.

GAIN INSTABILITY Typically ≤±0.05%/°C.

DC INSTABILITY Typically ≤±150 µV/°C referred to the output.

INPUT IMPEDANCE 50 Ω, DC-coupled.

OUTPUT IMPEDANCE <1 Ω, DC-coupled.

OUTPUT LINEAR RANGE ±5 V into 50 Ω.

OPERATING TEMPERATURE RANGE 0 to 50°C.

CONTROLS

BDW 20-turn potentiometer adjusts the output bandwidth and overshoot. Front-panel mounted.

DC 20-turn potentiometer adjusts the output DC offset. Front-panel mounted.

GAIN 20-turn potentiometer adjusts the voltage gain from typically 5 to 10. Front-panel mounted.

ELECTRICAL AND MECHANICAL

POWER REQUIRED +12 V, 67 mA; –12 V, 67 mA.

WEIGHT
Net 0.32 kg (12 oz).
Shipping 1.25 kg (2 lb 12 oz).

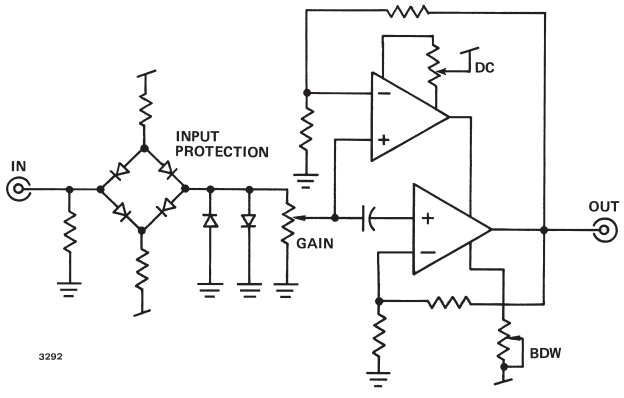
DIMENSIONS 3.81 x 6.1 x 8.89 cm (1.5 x 2.4 x 3.5 in.).

Ordering Information

Model	Description
9305	Fast Preamplifier

Suggested cable accessories:

C-25-1/2	RG-58A/U 50-Ω Cable with two BNC male plugs; 6-in. length
C-25-12	RG-58A/U 50-Ω Cable with two BNC male plugs; 12-ft length



www.ortec-online.com
Tel. (865) 482-4411 ortec.info@ametek.com
801 South Illinois Avenue, Oak Ridge, TN 37830 U.S.A.
Visit Our Website For International Office Locations

Specifications subject to change
25-0801