ORTEC®

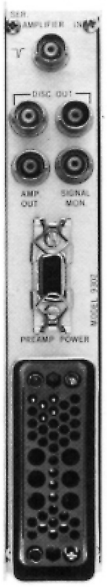
AMETEK®

9302
Amplifier Discriminator

- **Fast amplifier and discriminator for photon, electron, or ion counting applications**
- **100-MHz counting rate capability**
- **Includes rate monitor facility**

The ORTEC Model 9302 is a fast Amplifier and Discriminator in a single-wide NIM-standard module designed for use with photomultiplier or electron multiplier tubes in photon, ion, or electron counting applications. Features of the Model 9302 include a wideband, high-gain amplifier and an integral discriminator capable of counting rates up to 100 MHz.





Incorporated into the module is a rate monitor system. This facility can be used to perform external switching when the pulse counting rate is modulated. At counting rates equal to or above those selected by the monitor rate discriminator, a voltage of >+2 will be present at the signal monitor connector. At counting rates below the rate selected, 0 V will be present at the connector. The threshold value is selected by the front-panel switch.

The amplifier section of the Model 9302 is AC-coupled with input and output impedances of 50 Ω. The amplifier has a rise time of typically 3 ns at a gain setting of 200 and <2 ns when the gain is set at 20.

The discriminator section of the Model 9302 is a leading-edge discriminator whose level can be adjusted through a range from 50 mV to 1 V.

Specifications

PERFORMANCE

Amplifier

RISE TIME Typically 3.0 ns.

NOISE ≤10 μV for maximum gain setting.

OUTPUT VOLTAGE RANGE 0 to –500 mV, on a 50-Ω load.

GAIN X20 or X200, noninverting.

NONLINEARITY ≤±1%.

TEMPERATURE INSTABILITY
Gain <±0.1%/°C.
DC Level <±50 μV/°C, referred to input.

Discriminator

THRESHOLD RANGE 50 mV to 1 V.

PULSE PAIR RESOLUTION <10 ns; typically 9 ns.

WALK ≤2.0 ns from X2 to X20 threshold.

CONTROLS

GAIN 2-position slide switch on front panel for selecting amplifier gain of 20 or 200.

DISC LEVEL Front-panel potentiometer for selecting discriminator level, ranging from 50 mV to 1 V.

MONITOR RATE DISC Front-panel rotary switch for selecting pulse-rate discriminator threshold with settings of 1 kHz, 10 kHz, 100 kHz, and 1 MHz.

INPUT

AMPLIFIER IN Rear-panel BNC connector accepts negative input signals; protected to ±100 V at 10% duty factor; Z_{in} = 50 Ω.

OUTPUTS

AMP OUT Rear-panel BNC connector provides linear analog output; Z_o = 50 Ω.

DISC OUT Two independent rear-panel BNC connectors provide negative current pulse of 16 mA into 50 Ω; width ≤5 ns; rise time 1.5 ns.

SIGNAL MONITOR Rear-panel BNC connector provides 0 ±0.2 V when discriminator count rate is below threshold and ≥+2 V when it is above threshold.

PREAMP POWER Amphenol 17-10090 rear-panel connector provides necessary power for 9301 Fast Preamplifier.

ELECTRICAL AND MECHANICAL

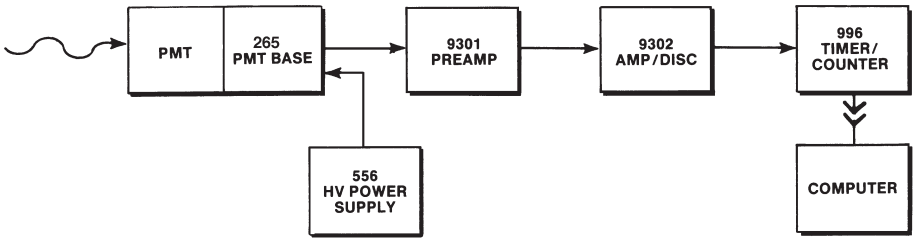
POWER REQUIRED +12 V, 140 mA; –12 V, 205 mA; +24 V, 85 mA; –24 V, 90 mA.

WEIGHT
Net 0.9 kg (2.0 lb).
Shipping 2.25 kg (5.0 lb).

DIMENSIONS NIM-standard single-width module 3.43 x 22.13 cm (1.35 x 8.714 in.) per DOE/ER-0457T.

Ordering Information

Model	Description
9302	Amplifier Discriminator



ORTEC®
AMETEK®

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