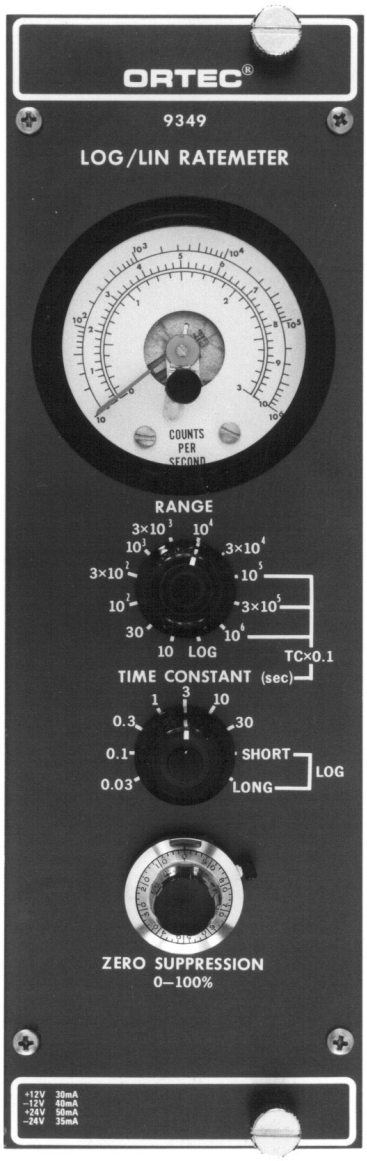
ORTEC®

AMETEK®

9349
Log/Lin Ratemeter

- **For counting rate measurements with photons or ion beams**
- **10^6 counts/s full scale**
- **Linear or logarithmic operation**
- **Fast negative NIM input**



Designed for photon or ion beam applications, the ORTEC Model 9349 Log/Lin Ratemeter provides two modes of operation: linear and logarithmic. The linear mode has 11 full-scale ranges from 10 to 10^6 counts/s in 1-3-10 steps. The 5-decade log mode covers the range 10 to 10^6 counts/s in a single span. These choices permit optimum measurement of low, medium, or high steady pulse rates or monitoring of rates that vary through a wide range.

The input signal to the Model 9349 is normally obtained from a discriminator having a NIM-standard, fast-negative logic output signal.

Because of the longer effective scale inherent in its 240° movement and its high accuracy, the unique circular front-panel meter provides excellent readability for both modes.

Zero suppression is provided for up to 100% of any linear range. Any relatively constant background in the counting rate can be subtracted from the data by adjustment of this control. Also, a suppressed zero permits rates that are beyond the nominal full-scale limit to be observed with greater accuracy than could be obtained by switching to a higher range. The choice between 7 linear and 2 log time constants is a further aid to accurate reading of the rate of incoming signals.

In addition to the front-panel meter indications, outputs are provided for both current and voltage recorders, as well as a high-level voltage output for control or monitor applications.

Specifications

PERFORMANCE

LINEAR RANGES 11 ranges from 10 to 10^6 counts/s full scale in 1-3-10 steps.

DEAD TIME <100 ns on the 10^6 range; <0.3% of average pulse spacing up to the 3 X 10^4 range; ≤1% on the 10^5 and 3 X 10^5 ranges.

RATED OVERLOAD Maintains full-scale output for X300 overload or 10^7 counts/s, whichever is smaller.

TEMPERATURE INSTABILITY ≤±0.05%/°C.

NONLINEARITY ≤±0.15% from 10 to 3 X 10^4 counts/s range; ≤±1.5% from 10^5–10^6 counts/s.

TIME CONSTANTS 7 selectable time constants, 0.03 to 30 s in 1-3-10 steps.

ZERO SUPPRESSION 0 to 100% of full scale, nonlinearity ≤±0.25%.

LOGARITHMIC RANGE One 5-decade range for 10 to 10^6 counts/s.

TEMPERATURE INSTABILITY ≤±0.25% of full scale per °C.

ANALOG OUTPUT ERROR ≤±2.5% of full scale.

STANDARD DEVIATION ~15% with Log Short time constant; ~5% with Log Long time constants.

SLEWING RATE Dependent upon input rate; for any rate change, Log Short time constant provides 10 times faster response than Log Long time constant.

CONTROLS

RANGE 12-position switch selects the full-scale range and either linear or logarithmic mode; linear ranges are 0–10 counts/s through 0–10^6 counts/s in 1-3-10 steps; log range is 10–10^6 counts/s.

TIME CONSTANT 9-position switch selects the time constant for the integrating network; 0.03 to 30 s in a 1-3-10 series for all linear ranges; Short and Long for the log range.

ZERO SUPPRESSION 10-turn precision potentiometer to suppress the zero-reference level for any linear range from 0 to 100%; the same full-scale span is effective above the preselected zero-reference level.

INPUT

INPUT Rear-panel BNC connector accepts NIM-standard, fast-negative logic signals, –600 to –1800 mV. Z_{in} = 50 Ω. Minimum pulse width is 4 ns FWHM.

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OUTPUTS

PANEL METER 240° circular movement with 8.9 cm (3.5 in.) deflection; accuracy, 2% of full scale; 3 scale markings; 0–1 and 0–3 for linear ranges and 10–10^6 in 5 decades for log range.

ANALOG OUTPUTS BNC connector on rear panel provides 0 to 10 V full scale, DC-coupled with 100-Ω output impedance.

RECORDER OUTPUTS Binding post connectors on rear panel:

100 mV Provides voltage output with 100 mV full scale; DC-coupled with 100-Ω output impedance.

1 mA Provides current output of 1 mA full scale; DC-coupled with 10 kΩ output impedance.

ELECTRICAL AND MECHANICAL

POWER REQUIRED +24 V, 50 mA; –24 V, 35 mA; +12 V, 30 mA; –12 V, 45 mA.

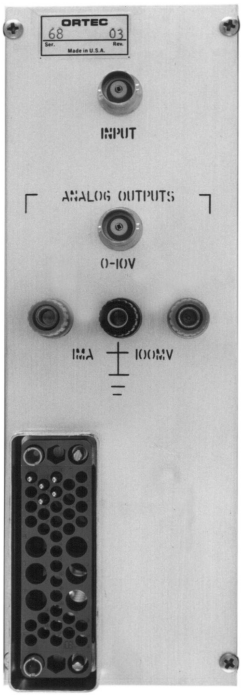
WEIGHT

Net 1.5 kg (3.5 lb).
Shipping 2.5 kg (5.5 lb).

DIMENSIONS NIM-standard double-width module 6.90 X 22.13 cm (2.70 X 8.714 in.) per DOE/ER-0457T.

Ordering Information

Model	Description
9349	Log/Lin Ratemeter



ORTEC®
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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
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