PerkinElmer instruments.
ORTEC Products

414A
Fast Coincidence

- Provides fast coincidence determinations with adjustable resolving time
- Three selectable, positive-polarity coincidence inputs
- One selectable, positive-polarity anticoincidence input
- Adjustable 10 to 110 ns resolving time

The ORTEC Model 414A Fast Coincidence is a modular threefold coincidence unit that allows fast coincidence determination between any two or three input signals. The term "fast" indicates the general nature of the coincidence circuit; that is, input pulses are reshaped, and the actual coincidence determination is made on the leading edge, or leading portion, of the pulses. A dc-coupled anticoincidence input is provided to inhibit the coincidence output by a dc voltage or a pulse that overlaps the period of coincidence of the coincident pulses. The coincidence inputs are ac-coupled, and all four inputs are controlled by In/Out toggle switches.

The resolving time, 2 τ, of the fast coincidence unit may be varied over a 10- to 110-ns range by a 10-turn control for accurate resettability of the resolving time. The resolving time of the anticoincidence circuit is set by the width of the input pulse.

PERFORMANCE

PULSE PAIR RESOLUTION <100 ns on any single input; for coincidence events, <1 µs on the coincidence output.

RESOLVING TIME (2τ) Continuously variable from 10 to 110 ns for coincidence signals; set by the width of the input pulse for the anticoincidence signal.

TEMPERATURE INSTABILITY 2τ changes <±0.2%/°C from 0 to 50°C.

ELECTRICAL AND MECHANICAL

POWER REQUIRED The Model 414A derives its power from a standard NIM bin/power supply. The power required is +24 V, 30 mA; –24 V, 30 mA; +12 V, 120 mA; and –12 V, 85 mA.

WEIGHT
Net 1.09 kg (2.4 lb).
Shipping 2.0 kg (4.4 lb).

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

CONTROLS

RESOLVING TIME (10–110 ns) Front-panel 10-turn locking potentiometer for controlling resolving time for inputs A, B, and C over a range from 10 to 110 ns.

INPUT CONTROLS Toggle switches for using any input combination desired and for disabling input signals to the coincidence and anticoincidence circuits without input coaxial cables having to be removed.

INPUTS

COINC Front-panel BNC connectors provide 3 ac-coupled coincidence inputs (A, B, C) of positive polarity; 2-V threshold, 20-ns minimum width required; absolute maximum input 50 V; impedance >3000 Ω.

ANTICOINC Front-panel BNC connector provides one dc-coupled anticoincidence input (D) for inhibiting coincidence output; +2 V threshold, 20-ns minimum width required; absolute maximum input 50 V; impedance >3000 Ω.

OUTPUTS

OUTPUT Two separate buffered coincidence output signals through front-panel BNC connectors provide positive pulses ≥500 ns wide with 5-V minimum amplitude; ac-coupled with <10-Ω impedance; monitored through oscilloscope test points on front panel.