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, $2\tau$, 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.

Specifications

**PERFORMANCE**

**PULSE PAIR RESOLUTION**

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

**RESOLVING TIME ($2\tau$)**

Continuously variable from 10 to 110 ns for coincidence signals; set by the width of the input pulse for the anticoincidence signal.

**TEMPERATURE INSTABILITY**

$2\tau$ changes $<\pm 0.2\%/{}^\circ\text{C}$ from 0 to 50°C.

**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.