



Features:

- Switch controlled time delays
- 0 to 63.5 ns delay range
- 0.5 ns resolution
- Low reflections and feed-through

Description:

The CFP Model 2019 Coax Delay Box provides switch-controlled delays from 0 to 63.5 ns with 0.5 ns resolution. Applications include the timing of photomultiplier coincidences, set-up of time-to-amplitude converters, adjustment of signal phase, or any application which requires an adjustable, high-bandwidth analog delay.

The interchangeable inputs/outputs are on BNC connectors. Internally, the delay line segments consist of accurate lengths of RG58A/U coax cable with 50 Ω characteristic impedance. DPDT switches are used to insert or remove delay segments. Careful component selection, mechanical design, and PCB layout ensure low reflections and low switch feed-through for high speed signals

Specifications:

INPUTS

SIGNAL INPUT Accepts positive or negative Slow/Fast NIM logic or linear pulses, ± 700 volts maximum; $Z_{in} = 50 \Omega$; isolated front panel BNC connector.

OUTPUTS

SIGNAL OUTPUT Provides delayed pulse, amount of delay being equal to sum of DELAY IN switches; $Z_{out} = 50 \Omega$; isolated front panel BNC connector.

CONTROLS

DELAY IN/OUT – Seven front panel toggle switches to select delay of 0.5, 1, 2, 4, 8, 16 or 32 ns; may be added in any combination up to 63.5 ns beyond minimum delay of 2.5 ns.

PERFORMANCE

CONNECTORS: BNC

CHARACTERISTIC Impedance: 50 Ω

DELAY LINE CABLE: RG58A/U (Belden 8259)

INSERTION DELAY: 2.5 ns

DELAY RANGE: 0 to 63.5 ns

DELAY RESOLUTION: 0.5 ns

DELAY ERROR: $< 100\text{ps} + 0.5\%$ of delay

SIGNAL REFLECTION: $< 3\%$

SWITCH FEED Through: $< 0.8 \text{ pF}$

MAXIMUM Voltage: 250Vrms

MAXIMUM Current: 2 A

TEMPERATURE OPERATING RANGE: 0-50 $^{\circ}\text{C}$.

ELECTRICAL AND MECHANICAL POWER REQUIRED

POWER REQUIRED No power required for operation.

WEIGHT

Net 1.1 kg (2.5 lb).

Shipping 2.25 kg (5.0 lb).

DIMENSIONS 8.3" \times 1.5" \times 8.0" (WHL)

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PERFORMANCE

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CHARACTERISTIC Impedance: 50 Ω

DELAY LINE CABLE RG58A/U (Belden 8259)

INSERTION DELAY: 2.5 ns

DELAY RANGE: 0 to 63.5 ns

DELAY RESOLUTION: 0.5 ns

DELAY ERROR: <100ps + 0.5 % of delay

SIGNAL REFLECTION: <3 %

SWITCH FEED Through: <0.8 pF

MAXIMUM Voltage: 250Vrms

MAXIMUM Current: 2 A

TEMPERATURE OPERATING RANGE: 0-50 °C.

ELECTRICAL AND MECHANICAL POWER REQUIRED

POWER REQUIRED No power required for operation.

WEIGHT

Net 1.1 kg (2.5 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.

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