CANBERRA

Model 1457 Delay Amplifier

Features

- Adjustable linear or logic delay from 0.25 to 4.75 µs
- Inverted or non-inverted output selection
- Output range control: 3 V, 5 V or 10 V
- Gain normalizing control
- DC offset control

Description

The Model 1457 Delay Amplifier can delay logic or linear signals up to 4.75 µs in 0.25 µs steps. The Delay Amplifier has a gain of unity, adjustable by front panel control. The input signal may be of either polarity and an inverted or non-inverted output may be selected by means of a front panel switch.

The output full scale signal range is selected by front panel control to be 3, 5, or 10 V for a 10 V input signal. The amount of delay is selected by adding any combination of the five delay lines. The Model 1457 is dc coupled to give optimum performance at high count rates. The output dc level is adjustable by front panel control.

Specifications

INPUTS

INPUT - Accepts 0 to ±10 V signal; $Z_{in} \approx 1$ kΩ; dc coupled; front panel BNC connector.

OUTPUTS

OUTPUT - Provides positive or negative signal; polarity, amplitude and delay determined by front panel switch settings; $Z_{out} \leq 1$ Ω; dc coupled; front panel BNC connector.

CONTROLS

DELAY - Five pushbuttons select any combination of 0.25, 0.5, 1.0, 1.0 and 2.0 µs

delay.
RANGE - Three-position toggle switch selects output range for 3, 5, or 10 V full scale for 10 V input.
POLARITY - Toggle switch to select an output which is either inverted (NEG) or non-inverted (POS) with respect to the INPUT.
DC OFFSET - Single-turn screwdriver adjustment offsets the dc level of the OUTPUT signal; range = ±2 V.
GAIN - Single-turn screwdriver adjustment varies gain to obtain unity gain for all ranges of input shaping.

PERFORMANCE

LINEAR DELAY - Any combination of 0.25, 0.5, 1.0, 1.0 and 2.0 μs.
GAIN CONSTANCY - ≤±4% for any combination of delays (2 μs near-Gaussian shaped pulse).
FEEDTHROUGH AND DELAY RIPPLE - <±1% (1 μs near-Gaussian shaped pulse).
MINIMUM DELAY - 150 ns (residual).
DELAY LINE TOLERANCES - ≤±5%.
RISE TIME AS A FUNCTION OF DELAY:

Delay (μs)	**Rise Time (ns)**
0	≈ 200
0.5	≈ 400
1.0	≈ 420
2.0	≈ 450
4.0	≈ 500

GAIN STABILITY - ≤± 0.003%/°C/μs delay, 0 to 50 °C.
NONLINEARITY - ≤±0.05% from 0.1 to 10 V.
DC LEVEL STABILITY - ≤±0.5 mV/°C at nominal, 0 V dc, 0 to 50 °C.

CONNECTORS

Signal connectors are front panel mounted BNC types.

POWER

+24 V dc – 35 mA
–24 V dc – 45 mA
+12 V dc – 15 mA
–12 V dc – 15 mA

PHYSICAL

SIZE - Standard single-width NIM module 3.43 x 22.12 cm (1.35 x 8.71 in.) per DOE/ER-0457T.
NET WEIGHT - 1.0 kg (2.2 lb).
SHIPPING WEIGHT - 1.8 kg (4.0 lb).

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