



Innovator In Spectroscopy Equipment

# GATE & DELAY GENERATOR MODEL G&D2214



NUCLEAR INSTRUMENTS MODULE



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## GATE & DELAY GENERATOR MODEL G&D2214

### Features:

- Accepts either polarity of input pulse
- Allows time delays up to 110  $\mu\text{sec}$
- Provides output pulses of selectable polarity, amplitude, and width
- Excellent time delay stability
- Delay Nonlinearity  $< \pm 2\%$ .
- Delay Temperature Instability  $< +0.03\%$  of adjusted Delay per  $^{\circ}\text{C}$
- Delay Generator Dead Time Adjusted Delay plus 200 ns on 1.1  $\mu\text{s}$  range, 300 ns on 11  $\mu\text{s}$  range, and 1  $\mu\text{s}$  on 110  $\mu\text{s}$  range
- Output Generator Dead Time Adjusted Width plus 0.2  $\mu\text{s}$
- Delay Jitter  $< 0.02\%$  of selected range

### Description:

The CFP 2214 Gate and Delay Generator is a single-width module that conforms to DOE/ER-0457T. It accepts either polarity of logic pulses, provides an adjusted delay for each input pulse, and generates output pulses with both polarities that have an adjusted amplitude and width. It serves as a convenient interface between logic pulse origin and its end use.

Typical applications for the 2214 include gating multichannel analyzers for either coincidence or anticoincidence control, alignment of coincidence timing between two channels of information that use dissimilar pulse-shaping modes, and start and/or stop logic pulses for a time to pulse height converter. The logic pulse delay is adjustable from 0.1 through 110  $\mu\text{s}$  in three overlapping ranges. The amplitude of both polarities of output pulses is adjustable within the range of 2 to 10 V. The output pulse width can be adjusted within the range of 400ns through 4  $\mu\text{s}$ .

Operation is simple and reliable. The flexibility of the 2214 permits it to be normalized to the input requirements of all currently available nuclear instruments and to many other applications.

### Specifications:

#### Inputs

- Pos Front- and rear-panel BNC connectors; +2 V pulse minimum, 12 V maximum; 100-ns minimum width, dc-coupled; impedance 1000  $\Omega$
- Neg Front-panel BNC connector accepts NIM standard fast negative logic pulses; -250 mV pulse minimum; 5 ns minimum width, dc-coupled; impedance 50  $\Omega$

#### Outputs

- Delayed Out, Pos/Neg Front- and rear-panel BNC connectors, with test points, provide simultaneous output pulses with identical characteristics except for opposite polarity; impedance  $< 10 \text{ S}$ .







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- Delayed Period Rear-panel BNC connector, with test point, provides positive pulse width equal to the adjusted Delay; amplitude +5 V; rise time < 50 ns; impedance < 10 S.
- Delay Marker Front-panel BNC connector, with test point, provides NIM-standard fast negative logic pulse at the end of delay time. Amplitude, -0.6 V into 50 S load; rise time < 10 ns; width < 25 ns; impedance < 10 S.
- **Controls**
  - Delay 10-turn locking potentiometer with direct reading duo-dial for continuous adjustment within the range selected by the locking 3-position toggle switch
  - A 1.1  $\mu$ s mode achieves the range of 0.1 to 1.1  $\mu$ s for the Delay potentiometer
  - A 11  $\mu$ s mode achieves the 1 to 11  $\mu$ s range
  - A 110  $\mu$ s mode achieves the 10 to 110  $\mu$ s range
- Amplitude Front-panel screwdriver control permits the output pulse amplitude to be adjusted within the range of 2 to 10 V, both polarities (i.e., +2 to +10 V and -2 to -10 V).
- Width Front-panel screwdriver control permits the width of output pulses to be adjusted within the range of 400 ns to 4  $\mu$ s.

### Electrical and Mechanical Power Required:

- **Typical Power Requirements**
  - Standard version +12V, 85mA; -12V, 85mA; +24V, 60mA; -24V, 60mA
- **Physical**
  - Size: NIM-standard single-width module 3.43 X 22.13 cm (1.35 X 8.714 in.) per DOE/ER-0457T.
  - Weight: Net Weight 1.3 kg (2.8 lb), Shipping Weight 2.2 kg (4.8 lb).
- **G&D 2214 REV 1.0 140220**





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