NCB231 - QUAD TIMING FILTER AMPLIFIER

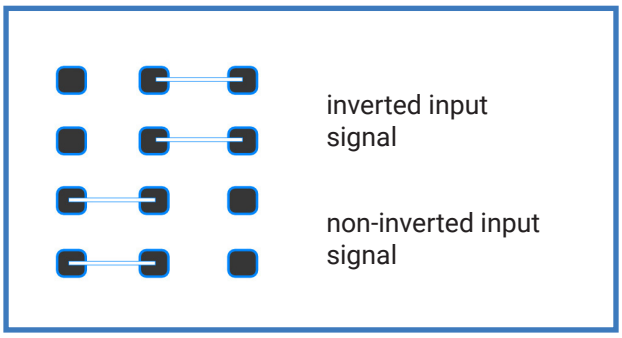
The single-width NIM module NCB231 has four separate timing filter amplifiers. This design can provide optimum timing for up to four germanium detectors or also be used for timing with other solid-state detectors, or operate as a general-purpose wideband amplifier with selectable bandwidth.
The Gain can be selected and is adjustable over the nominal range from 10 to 2500. The Gain is adjustable from 10 to 500 using a front-panel screwdriver potentiometer (FG) and Gain Switch (GAIN).
Internal jumper selects a Coarse Gain of x1 or x5. Front-panel screwdriver adjustment to compensate for the preamplifier decay time constant from 25µs to ∞ (B/L). Front-panel screwdriver adjustment to compensate output offset in range ± 100mV.

PERFORMANCE

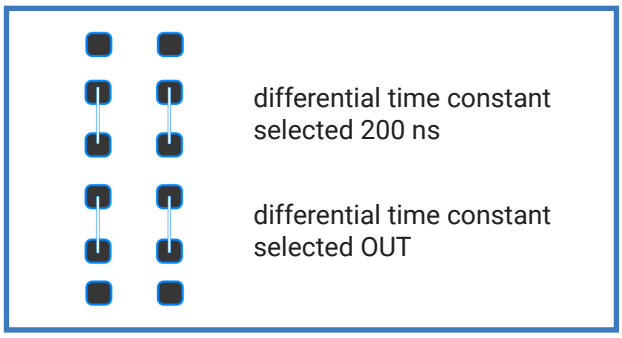
Input signal amplitude range	0 to ±1,0 V AC signal; 0 to ±2 V DC offset; maximum input ±5 V
Output amplitude range	0 to ±5 V linear into a 100-Ω load. Output DC-coupled with DC regulated offset <±1 mV
Rise time	<10 ns with Integration and Differentiation time constants set to OUT. (See note 2,4)
RMS noise	(Maximum gain, Integration and Differentiation set to OUT) referred to the input <50 µV
Integral nonlinearity	<±0,5% over ±5 V into a 100-Ω load
Temperature sensitivity	DC level <±10 µV/C referred to the output
Controls	Each section of the Model NCB231 has separate controls for Coarse Gain, Fine Gain, P/Z, Differentiation, and Integration time constant.
Internal coarse gain	Jumpers selectable for nominally x1 or x5 (see note 3)
Coarse gain	Selectable by 10 positions switch for nominally x10, x15, x20, x30, x45, x60, x80, x120, x160, and x250
Fine gain	Front-panel screwdriver potentiometer adjustable from 1 to 2
B/L	Front-panel potentiometer used to adjust pole-zero cancellation for decay time constants from 25 µs to ∞.
Invert/noninvert	Jumpers selectable to invert or Non-invert the Output signal relative to the Input signal (see note 1).
Differentiation	Time constant jumper selectable as OUT (equivalent to 0,1 ms) or 200 ns. A third position is available for custom modification. The Model NCB231 is shipped with this jumper in the OUT position (see note 2).
Integration	Time constant jumper selectable as OUT or 50, 35, 20 ns. The Model NCB231 is shipped with this jumper in the OUT position (see note 4).

Input	Positive or negative polarity selectable with a jumper; amplitude 0 to ±1 V ac signal; 0 to ±2 V dc offset; maximum input ±2 V signal plus offset. Input impedance is 50 Ω, protected to ±6 V.
Output	Front-panel LEMO connector with Zo = 100 Ω furnishes the shaped and amplified signal up to ±5 V with 100 Ω termination.

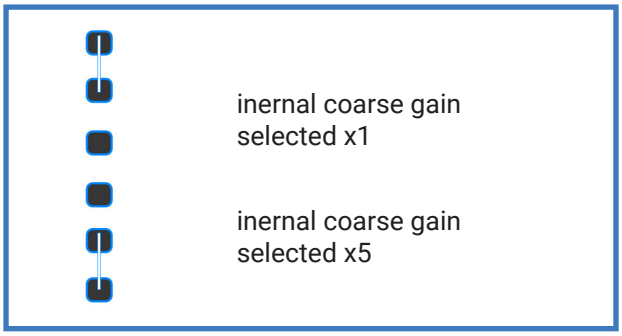
Note 1 - set 1 jumpers



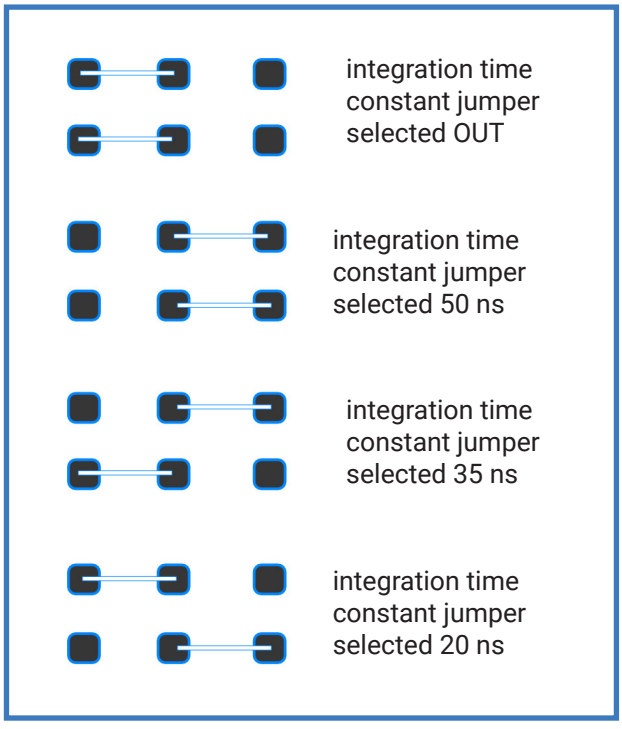
Note 2 - set 2 jumpers



Note 3 - set 3 jumpers



Note 4 - set 4 jumpers



POWER SUPPLY REQUIREMENTS

The module has NIM standard power supply.

P. Voltage (V)	Current/ch (mA)
+12	350
-12	350

DIMENSIONS

dimensions	3,43x22,13 cm per DOE/ER-0457T
weight	0,78 kg