NCB226 - TIMING FILTER AMPLIFIER

The Module NCB226 fast filter amplifier is especially designed to shape pulses and permit optimizing the signal to noise ratio for timing measurements. This module can receive input signal directly from the preamplifier output.
The fast rise time, high output drive, and high gain capabilities of the module NCB226 make it useful for other applications utilizing low-gain photomultiplier tubes. The parameters the pole-zero cancellation and the time-invariant baseline restorer (only in optional version NCB226B) permit use this module in energy spectroscopy with scintillation detectors and Si charged particle detectors at ultra-high count rates.

PERFORMANCE

Input amplitude range	0 to ±1 V signal, 0 to ±5 V DC offset; maximum input ±5 V total
Output amplitude range	0 to ±5 V with a 100-Ω load
Noise RMS (maximum gain, with filter out)	referred to the input is ≤30 μV; Input RMS noise referred to input with 200 ns integration and differentiation is less then 6 μV (positive switch position), 8 μV (negative switch position)
Rise time	≤10 ns with filter Out or x2,2 τ for other selections
Nonlinearity	≤±0,05% not over ±5 V range. Variation of nonlinearity in over range signal is less then 0,1%.
Temperature instability	Level ≤±25 μV/C referred to the output (in range 0 to 50°C)
Coarse gain	Front-panel 6-position switch for selection of x10, x20, x40, x60, x100, or x200.
Gain stability	< 0,04 %/C in full range.
Fine gain	Front-panel 10-turn potentiometer, continuous from x0,9 to x2
Pole zero ADJ (PLR)	Front-panel screwdriver adjustment to compensate for the preamplifier decay time constant from 25μs to ∞.
Time constant	Two 6-position switches on front panel: Integrate RC time constants: Out (about 7 ns), 20, 50, 100, 200, and 500 ns. Differentiate RC time constants: Out (about 0,2 ms), 20, 50, 100, 200, and 500 ns. Pos./Neg. Selects inversion or non-inversion of the input signal.

INPUT/OUTPUT

Input	Positive or negative polarity selectable by front-panel switch; amplitude 0 to ±1V; protected to ±6 V dc; impedance 50 Ω, dc-coupled; front-panel BNC connector. Accepts a ±5 V dc maximum input signal.
Outputs	Front-panel BNC connector. Amplitude 0 to ±10 V (without termination); rise time ≤10 ns for filter out (2,2 τ filter selections).
Outputs zero ADJ (Vos)	Front-panel screwdriver adjustment to compensate output offset in range ±100 mV. In optional version this front panel screwdriver adjustment regulate automatic base line restorer threshold (BLZ).
Preamp power	Rear-panel standard power connector.

POWER SUPPLY REQUIREMENTS

The module has NIM standard power supply.

P. Voltage (V)	Current/ch (mA)
+12	96
-12	96

Module provide DSUB 9 connector for connection one preamplifier.
Connector has standard pin out and provide ±24V, ±12 V.

Power supply pin out:

Pin number	
7	+24 V
6	-24 V
4	+12 V
9	-12 V
1	Ground
2	Ground

DIMENSIONS

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