

DCB215 - SPECTROMETRIC AMPLIFIER

The desktop module DCB215 is a general-purpose spectrometric amplifier for energy spectroscopy with all types of detectors. The module has unipolar output, low noise, wide-gain range and front-panel selectable time constant.

The Module DCB215 has active filter circuit to define a very symmetrical unipolar output with optimal signal-to-noise ratio over a wide range of time constants. The module DCB215 has good DC stability of the output.

PERFORMANCE

Gain range	Continuously adjustable from 1 to 1500
Pulse shape	Semi-Gaussian on all ranges
Integral nonlinearity	< $\pm 0,05\%$
Noise equivalent RMS	< 50 μV
Temperature instability	Gain $\leq \pm 0,01\%/^{\circ}\text{C}$, 0 to 50°C. DC Level $\leq \pm 50 \mu\text{V}/\text{C}$, 0 to 50°C.
Spectrum broadening	Typically <20% FWHM
Spectrum shift	Peak position shifts typically <0,03%

FRONT PANEL CONTROLS

Fine gain	10-turn precision potentiometer variable gain factor of x0,5 to x1,5
Coarse gain	6-position switch selects feedback resistors for gain factors of 20, 50, 100, 200, 500, and 1k.
Input polarity	Locking toggle switch selects either Pos or Neg input pulse polarity.
Shaping time	6-position switch selects time constants from 0.5, 1, 2, 3, 6, and 10 μs .
Pole zero ADJ (PLR)	Front-panel screwdriver adjustment to compensate for the preamplifier decay time constant from 25 μs to ∞ .
Output zero ADJ (Vo)	Front-panel screwdriver adjustment to compensate output offset level, $\pm 100 \text{ mV}$. Two trimmers on back side panel.
Output zero ADJ (BLZ)	Only in optional version one trimmer can be used for adjustment level threshold of automatic base line restorer threshold (BLZ).

INPUT/OUTPUT

Input	Back-panel LEMO connector accepts positive or negative pulses with rise times of 15 to 1000 ns and decay times of 30µs to ∞, Zin ≅1 KΩ dc-coupled; maximum ±10 V; absolute maximum ±12 V
Outputs	UNIPOLAR back-panel LEMO connector with Zo = 100 Ω, short-circuit proof; prompt with full scale linear range of 0 to ±10 V (Zo = 50 Ω - ± 3,49 V, output resistor 93 Ω); active filter shaped; DC-restored; output DC-level adjustable to ±50 mV.
Preamp power	Rear-panel standard D9 female power connector.

POWER SUPPLY REQUIREMENTS

The module has NIM standard power supply.

P. Voltage (V)	Current/ch (mA)
+12	85
-12	85

Pin out DSUB 9 connector

Pin number	
4	+12 Volt
9	-12 Volt
1	Ground
2	Ground

DIMENSIONS

dimensions	160x165x51,5 mm
weight	832 g
cable length	3m

