CB200A Charge sensitive preamplifier.

The preamplifier **CB200A** is a low noise charge sensitive preamplifier. CB200A series has four fixed gain values. The preamplifier is optimized for high input capacitance (up to 1000pF). The module has bias input (up to 3 KV) and protection circuit to avoid breakdown of the input of the preamplifier circuit. Different number of amplifier can be housed in different box. There are 2 type of box (see below).

Model	Charge sensitivity (Si Equivalent 3,62)	Max. Noise (keV/(Si) (Cin=0pF)	Energy range
CB200A	45 mV/MeV	<1.5 keV	0-200 MeV
CB200A2	20 mV/MeV	<1.5 keV	0-400 MeV
CB200A3	12 mV/MeV	<1,9 keV	0-600 MeV
CB200A7	5.5 mV/MeV	<1,9 keV	0-1200 MeV

Note: Noise value diagram see on Fig.1.

PERFORMANCE

Decay time	**CB200A**	100 us
	CB200A2	200 us
	CB200A3	165 us
	CB200A7	70 us
Dynamic input capacitance:	up to 1000 pF	
Noise/Input capacitance ratio:	**CB200A**	9 e-/pF
	CB200A2	10 e-/pF
	CB200A3	12 e-/pF
	CB200A7	14 e-/pF
Integral nonlinearity:	0,03 % (without termination)	
Dynamic output range:	+/- 7,5 V (without termination). +/-3 V (with 100 Ohms termination).	
Temperature stability:	+/- 100 ppm/C.	
Rise time	Less than 12 ns	
Open loop gain:	30,000	
HV Bias resistor	26 Meg	
Output resistors:	100 Ohm	
Test Capacitance:	3,3 pF (+/-3%).	

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INPUTS/ OUTPUT

INPUT	Accepts positive or negative charge signal. SHV connector standard, BNC connector without bias connection.
BIAS	High voltage can be applied through SHV input connector. The serial resistance between input and bias connectors is 26 MegOhm.
TEST	Pulse input connector is BNC type connector. Test capacitance is 3 pF.
POWER	Input power through 3 meter screened cable from spectrometric amplifier or portable power supply.
ENERGY	Output negative or positive linear pulse. BNC connector.

POWER SUPPLY REQUIREMENTS:

The best solution is alimentation from a NIM standard power supply or special low noise linear power supplies.

P. Voltage (V)	Current/ch. (mA)
+24	19,6
-24	10,0
+12	10,0
-12	11,6

Power supply pin out:

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

Box dimensions:

Version 1 (1 channel): 111x80x40 mm
Version 2 (2 channels): 111x80x40 mm
Version 4 (4 channels): 111x80x40 mm
Version 8 (8 channels): 160x165x103 mm

Cable length 3 m.

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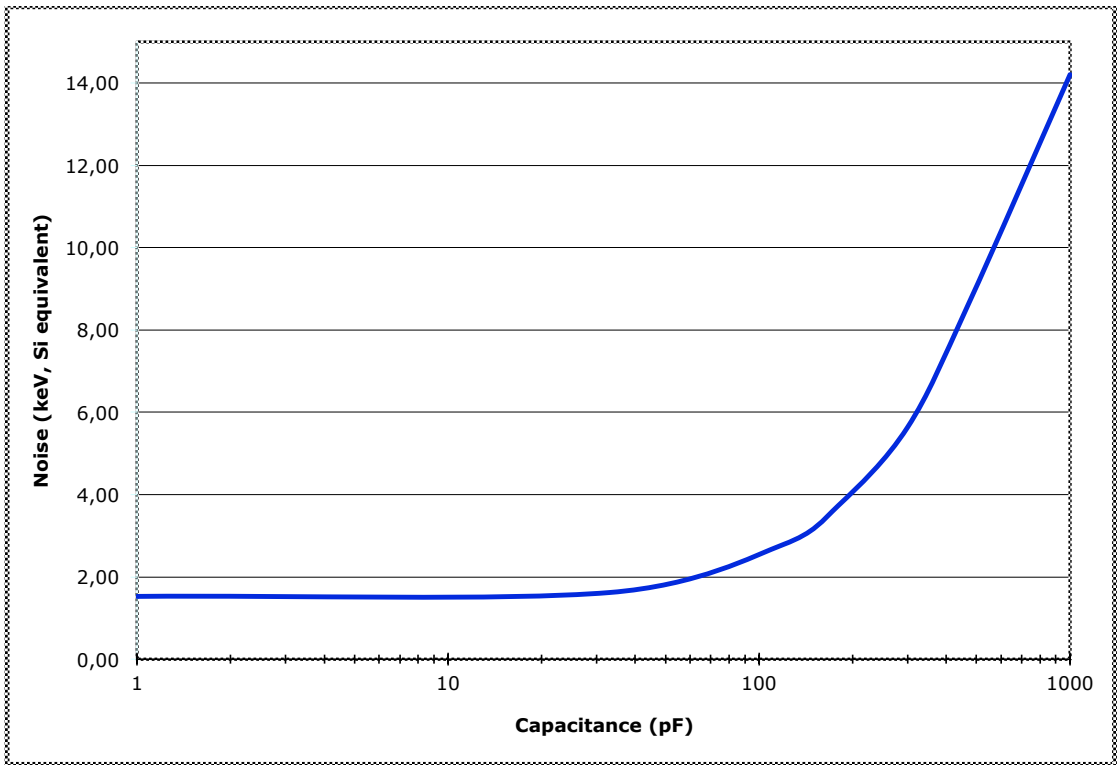

Fig.1. Typical noise as function of input capacitance measured with spectrometric amplifier and 2 us time constant.