**CB200C4 module, 4 channels** charge sensitive preamplifier.

The preamplifier **CB200A** is 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. In module C200C4 are housed four PCB boards of CB200 preamplifier housed in one small box with only +/- 12 Volt power supply voltage.

<table>
<thead>
<tr>
<th>Model</th>
<th>Charge sensitivity (Si Equivalent)</th>
<th>Max. Noise (keV/(Si) (Cin=0pF))</th>
<th>Energy range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB200A</td>
<td>45 mV/MeV</td>
<td>&lt;1.5 KeV</td>
<td>0-200 MeV</td>
</tr>
<tr>
<td>CB200A2</td>
<td>20 mV/MeV</td>
<td>&lt;1.5 KeV</td>
<td>0-400 MeV</td>
</tr>
<tr>
<td>CB200A3</td>
<td>12 mV/MeV</td>
<td>&lt;1.9 KeV</td>
<td>0-600 MeV</td>
</tr>
<tr>
<td>CB200A7</td>
<td>5.5 mV/MeV</td>
<td>&lt;1.9 KeV</td>
<td>0-1200 MeV</td>
</tr>
</tbody>
</table>

Note: Noise value diagram see on Fig.1.

**PERFORMANCE**

- **Decay time**
  - CB200A: 100 us
  - CB200A2: 200 us
  - CB200A3: 165 us
  - CB200A7: 350 us
- **Dynamic input capacitance:** up to 1000 pF
  - 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 then 20 ns
- **Open loop gain:** 30,000
- **HV Bias resistor:** 26 Meg
- **Output resistors:** 100 Ohm
- **Test Capacitance:** 3.3 pF (+/-3%).
INPUTS/ OUTPUT

INPUT

Accepts positive or negative charge signal.

BIAS

High voltage can be applied through SHV input connector. The serial resistance between input and bias connectors is 26 MOhm.

TEST

pulse input connector is LEMO 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. LEMO type connector.

POWER SUPPLY REQUIREMENTS:

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

Power supply pin out:

<table>
<thead>
<tr>
<th>Pin number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>+12 Volt</td>
</tr>
<tr>
<td>9</td>
<td>-12 Volt</td>
</tr>
<tr>
<td>1</td>
<td>Ground</td>
</tr>
<tr>
<td>2</td>
<td>Ground</td>
</tr>
</tbody>
</table>

P. Voltage (V)  Current(mA)
+12            90,0
-12            70,0

Box dimensions: 111x80x40 mm

Cable length 3 m.
Fig. 1. Typical noise as function of input capacitance measured with spectrometric amplifier and 2 us time constant.