CB200PC - CHARGE SENSITIVE PREAMPLIFIER

The preamplifier CB200PC is a low noise charge sensitive preamplifier with very high gain 6 V/pC. Fast timing and small size make this preamplifier excellent for charged particle detectors or laboratory measurements. The preamplifier is optimized for high input capacitance (up to 1000pF). The module has bias input (up to 3KV) and protection circuit to avoid breakdown of the input of the preamplifier circuit.

<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>CB200PC</td>
<td>160 mV/MeV</td>
<td>&lt; 0.6 KeV</td>
<td>0-50 MeV</td>
</tr>
</tbody>
</table>

**PERFORMANCE**

- **Decay time**: 100 µs
- **Dynamic input capacitance**: Up to 1000 pF
- **Noise/Input capacitance ratio**: < 8 e⁻/pF
- **Integral nonlinearity**: 0.1% (without termination)
- **Dynamic output range**: ± 7.5 V (without termination) ± 3 V (with 100 Ω termination)
- **Temperature stability**: ± 100 ppm/C
- **Rise time**: < 7 ns
- **Open loop gain**: 30,000
- **HV Bias resistor**: 50 MegΩ
- **Output resistors**: 100 Ω
- **Test Capacitance**: 3 pF (±3%)
INPUT/OUTPUT

Input
Accepts positive or negative charge signal.

Bias
Voltage can be applied through SHV input connector. The serial resistance between input and bias connectors is 50 MegΩ.

Test
Pulse input connector is BNC type connector. Test capacitance is 3 pF.

Power
Input power through 3m screened cable from spectrometric amplifier, NIM crate power supply 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.

<table>
<thead>
<tr>
<th>P, Voltage (V)</th>
<th>Current/ch (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+24</td>
<td>19,6</td>
</tr>
<tr>
<td>-24</td>
<td>10,0</td>
</tr>
<tr>
<td>+12</td>
<td>10,0</td>
</tr>
<tr>
<td>-12</td>
<td>11,6</td>
</tr>
</tbody>
</table>

Power supply pin out:

<table>
<thead>
<tr>
<th>Pin number</th>
<th>Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>+24</td>
</tr>
<tr>
<td>6</td>
<td>-24</td>
</tr>
<tr>
<td>4</td>
<td>+12</td>
</tr>
<tr>
<td>9</td>
<td>-12</td>
</tr>
<tr>
<td>1</td>
<td>Ground</td>
</tr>
<tr>
<td>2</td>
<td>Ground</td>
</tr>
</tbody>
</table>

BOX DIMENSIONS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>box dimensions</td>
<td>111x80x40 mm</td>
</tr>
<tr>
<td>weight</td>
<td>0,5 kg</td>
</tr>
<tr>
<td>cable length</td>
<td>3 m</td>
</tr>
</tbody>
</table>

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