GSP

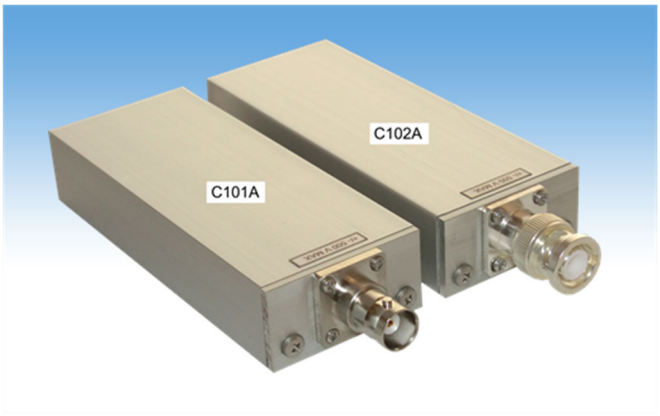
C101A, C102A

Charge-sensitive Preamplifiers for Semiconductor Radiation Detector

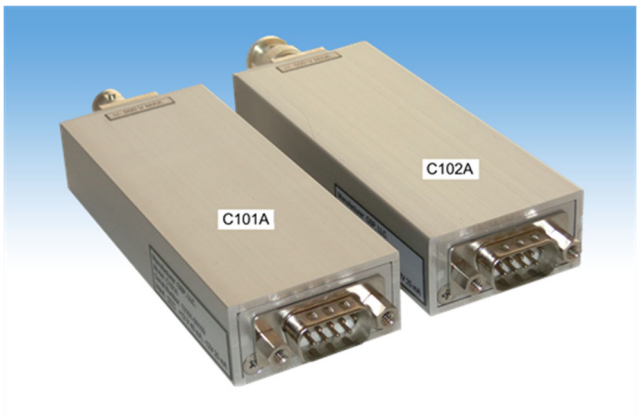
C183 Connection Cable

C100 series charge sensitive preamplifiers are designed primarily for semiconductor detectors up to 100 pF.

- Low noise despite incorporating with first-stage FET protection circuit
- Low offset voltage is maintained over a wide temperature range (0 to 50 degrees C = 32 to 122 degrees F)
- Equipped with over-voltage protection, over-current protection, and high-temperature protection for safe use



Front View



Rear View

C101A and C102A Specifications [*1]

	Item	Specification	Remarks
Charge-sensitive amplifier circuitry section	Decay time constant	0.7 ms (1 GΩ // 0.7 pF)	-
	Connector with detector [*1]	BNC-J (C101A) BNC-P (C102A)	-
	Input coupling	AC	-
Differential circuitry section	Time constant	48 μs	-
	Pole zero cancel (PZC)	Yes, changeable	User replacement is not supported.
Output buffer section	DC offset voltage	Within ± 5 mV	0 to 50 degrees C
	Output impedance	51 Ω	-
Noise	0 pF Load	Less than 1.3 keV	25 degrees C, Si detector equivalent at 88 keV, shaping time constant at 2 μs
	100 pF Load	Less than 2.5 keV	Same as above

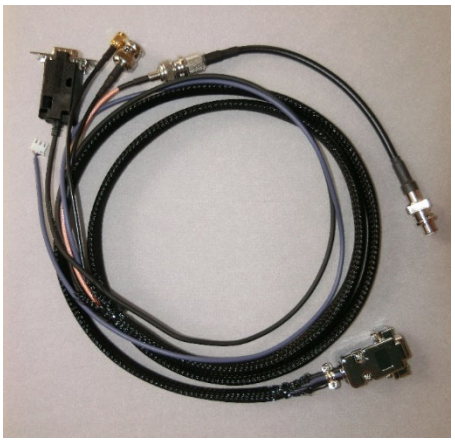
Response characteristics	Output polarity to input	Inverted	–
	Charge sensitivity	Approx. -11 mV / fC	–
	Rise time	Less than 50 ns	10 % to 90 %, 100 pF Load
Bias voltage input for detector	Bias resister	1 GΩ	–
	Applicable voltage	Within ± 500 V	–
	Built-in LPF time constant	10 ms (1 MΩ、0.01 μF)	–
Test pulse input	Coupling capacitor	0.5 pF	–
	Input impedance	51 Ω	–
Protections	First-stage FET protection	Over voltage protection circuit	–
	Over current protection for ±12V power input	PTC Resettable Fuse	I_{trip}: 300mA
	Over temperature protection	The amplifier turns off when the internal temperature reaches 65 degrees C, and automatically returns to normal when the temperature drops.	–
Connector for external (signal, power supply, etc.) *2	Type	D-Sub 9 pins, male	–
	Pins assignment	Pin#1: GND Pin#2: GND Pin#3: Signal OUT Pin#4: +12V IN Pin#5: Detector bias voltage IN (Max. ± 500 V) Pin#6: RXD for offset control Pin#7: TXD for offset control Pin#8: Test pulse IN Pin#9: -12V IN	–
Power supply	Ratings	DC +12V 40 mA, DC -12V 25 mA	Voltage range: Within ±5%
Operating environment condition	Ambient temperature and humidity	0 to 50 degrees C, Less than 80 %RH	–
	Where to use	Indoor	–
Dimensions and weight	Dimensions	40 mm x 20 mm x 101 mm (Excluding connectors)	–
	Weight	Approx. 107 g (C101A), Approx. 115 g (C102A)	Typical
	Enclosure Material	Aluminum alloy	-

*1： The difference between C101A and C102A is only the connector with detector on the front panel.

*2： A cable to connect with the external devices (Host computer, shaping amplifier, etc) using the 9-pin D-Sub connector on the rear panel is not included in C101A and C102A. Please purchase the optional connection cable (C183) when the user don't preare the connection cables.

Connection Cable（Option）

C183 is the cable to connect with the D-sub 9-pin male connector of the C101A or C102A for power supply, HV supply, signal readout, test pulse input, and communication with the offset controller.



C183

C183 Specifications

Specification	Description
Cable length	1.5 meters (Power supply cable and communication cable are approximately 2 meters)
Configuration of the connector and the cable	> Connector for charge sensitive preamplifier side; D-sub 9-pin female > External devices side; 1) Signal OUT: BNC(P) connector + RG174 cable 2) Detector bias IN: BNC(P) connector + RG316 cable (BNC(J)-SHV(P) conversion cable is attached) 3) Test pulse IN: SMA(P) connector + RG174 cable 4) Power supply IN: D-sub 9-pin male with lock guide Pin#1: GND Pin#2: GND Pin#4: +12 V Pin#9: -12 V 5) Communication connector for built-in offset controller of C101A or C102A: XH connector 3-pin female Pin#1: GND Pin#2: RXD (Connect with TXD of PC side) Pin#3: TXD (Connect with RXD of PC side)

Manufacturing and Sales

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