

CREMAT Modules:

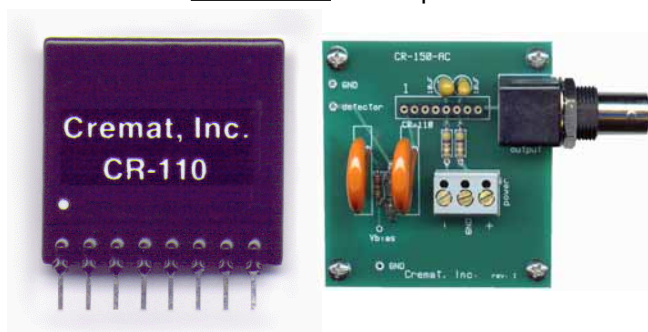


Model CR-110 Charge Sensitive Preamplifier, Model CR-200 Shaping Amplifier

Charge Sensitive Preamplifier Module

CR-110 Overview: Ionizing radiation typically produces a small burst of current in the detector. This current flows into a charge sensitive preamplifier connected to the detector. The preamplifier integrates this burst of current, producing an output that is proportional to the total charge from the event.

Cremat offers the CR-110: a small, high performance charge sensitive preamplifier. Cremat also offers two different evaluation boards for this preamplifier, providing an easy method for the casual user to operate and evaluate it. The CR-150-DC is a simple evaluation board



that allows for the direct coupling of the detector to the preamplifier. The CR-150-AC contains modified circuitry that provides for the detector to be *AC coupled*.

CR-150 Evaluation Boards:

The CR-150-DC and CR-150-AC are evaluation boards intended for use with the CR-110 charge sensitive preamplifier. The two boards differ in that the CR-150-DC provides for the direct coupling (DC) of the preamplifier to the detector while the CR-150-AC provides for AC (capacitive bypassed) coupling.

The CR-150-DC and CR-150-AC replaces the CR-150-BRD and CR-150-COMP boards previously available. The new boards are completely assembled (except for the CR-110 preamplifier which is purchased separately).

Shaping Amplifier Module

CR-200 Overview: Shaping amplifiers are often used following the charge sensitive preamplifier stage and perform three functions: First, they provide an output pulse having a faster baseline restoration than the charge sensitive preamplifier output pulse. This is especially important at high count rates, where pulses from consecutive events can 'pile up'. Secondly, shaping amplifiers filter some of the noise from the preamplifier output signal. Finally, shaping amplifiers can also be used to provide extra gain to the signal, which may be

very small (sub mV) at the preamplifier output.

Cremat offers the CR-200 series of shaping amplifiers. They are available in four different shaping times: 100 ns, 250 ns, 1 us, and 4 us. Each has a fixed gain of 10. To achieve greater gains, a broadband amplification stage should be added between the charge sensitive preamplifier and the shaping amplifier. Cremat offers an evaluation board for the CR-200 series amplifiers, which contains such a broadband amplifier. The combination of a CR-200 series amplifier with the CR-160 evaluation board creates a low noise shaping amplifier module complete with BNC connectors, variable gain (0 to 10,000) and reversible polarity.

CR-160 Evaluation Board:

The CR-160 evaluation board is intended for the evaluation of the CR-200 series of shaping amplifiers. When used with a CR-200 shaping amplifier, the CR-160 creates a low noise



Gaussian shaping amplifier having input and output BNC connectors, adjustable gain (0 to 10,000), reversible polarity, and pole/zero compensation. The CR-200 shaping amplifiers are small boards (less than 1 in² in area) having an 8-pin SIP connection on one edge and are available in four different shaping times. To create the fully adjustable shaping amplifier described, one CR-200 amplifier needs to be plugged into the SIP socket on the CR-160 evaluation board.



CREMAT CR-110/CR-200