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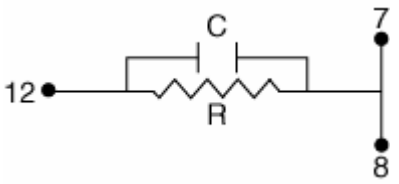
Application Note: A111 Threshold Adjustment

A) Increasing the threshold of the A111:

Increasing the threshold of the A111 beyond the x10 provided by shorting out Pins 7 and 8 can be achieved by an RC feedback as shown below:



Apart from unit to unit variation, the discrimination levels will be as follows:

1) Shorting out Pins 7 and 8 will result in x10 increase of nominal threshold:
(5×10^4 electrons x 10 = 5×10^5 electrons.

2) Shorting our Pins 7 and 8 plus feedback:

R = 50 K	C = 2.2 pf : x17
R = 20 K	C = 3.3 pf : x23
R = 5 K	C = 4.7 pf : x40
R = 2 K	C = 6.8 pf : x88

Intermediate values can be obtained by adjusting the value of R.

B) Decreasing the Threshold of the A111:

Decreasing the threshold of the A111 beyond the nominal 5×10^4 electrons can be achieved by adding a resistor from Pin 8 to Ground. A 300 Ω resistor will approximately double the sensitivity resulting in a threshold of 2.5×10^4 electrons.