

Application Note

Protecting TAX Timing Amplifier Inputs from High Voltage Spikes

If you expect the TAX inputs to be exposed to high voltage spikes larger than the normally allowed absolute maximum ratings a varistor can be added to the input. This would provide improved protection at the cost of additional input capacitance.

Near the input connector there is already an unpopulated 0603 land pattern for optional soldering in an appropriate varistor.

A very low capacitance varistor would be a Panasonic EZJZ1V171AA with the following specifications (ref. also the Panasonic website):

Part No.:	EZJZ1V171AA
Case size:	0603
Max. DC voltage:	18 V
Nom. Varistor voltage at 1mA:	170 V
Capacitance at 1 MHz:	max. 3 pF (typ. 2.1 pF)
Max. ESD IEC61000-4-2	Contact discharge 8 kV
Operating temperature:	-40 to 85 °C

If it is anticipated that the above varistor would not provide enough protection a larger type (that usually exhibits larger capacitance) might be selected and optionally soldered directly to the rear of the BNC connector.

NOTE: it is always a trade-off between protection level and input capacitance.

IMPORTANT:

even an added varistor does not provide a 100% protection but the probability of a disastrous failure due to high voltage exposure can be largely reduced