

E2V Technologies

MA942A

Resistor Box



INTRODUCTION

'X' type thyratrons have an additional lead on the base which enables the user to adjust the gas pressure inside the tube to a greater degree than is possible by changing the reservoir voltage. This allows the gas pressure to be optimised for a particular set of operating conditions, reducing the power dissipation in the thyratron to a minimum and maximising its switching speed. The maximum gas pressure allowable is dependent on the voltage hold off required; the higher the gas pressure, the more likely the thyratron is to break down spontaneously. Optimisation is achieved by increasing the gas pressure until the thyratron will no longer reliably hold off the required anode voltage, and then reducing it again only until the tube will operate reliably without spontaneous anode voltage breakdowns.

The gas pressure of E2V Technologies metal envelope thyratrons is normally set during manufacture to allow reliable operation at the maximum rated anode voltage, by resistors inside the base cap of the tube. In 'X' type tubes, these resistors are omitted and replaced by two parallel variable resistors mounted in the MA942A resistor box which is connected to the thyratron as shown in the schematic diagram on the tube data sheet. Increasing the value of this parallel combination will increase the pressure in the thyratron.

'X' type thyratrons are supplied with a recommended minimum combination of values. Do not use a lower combined value of resistors as this would result in the tube being operated with an unacceptably low gas pressure and may lead to tube damage and reduced tube life.

Ten resistor values can be selected by each rotary switch (3.3 Ω , 4.7 Ω , 6.8 Ω , 8.2 Ω , 10 Ω , 15 Ω , 18 Ω , 22 Ω , 33 Ω , O/C), giving the range of possible values shown in the table.

Paralleled Value (Ω)	Control Box Settings (Ω)		Paralleled Value (Ω)	Control Box Settings (Ω)	
1.65	3.3	3.3	5.19	6.8	22.0
1.94	3.3	4.7	5.30	8.2	15.0
2.22	3.3	6.8	5.63	8.2	18.0
2.35	4.7	4.7	5.64	6.8	33.0
2.35	3.3	8.2	5.97	8.2	22.0
2.48	3.3	10.0	6.00	10.0	15.0
2.70	3.3	15.0	6.43	10.0	18.0
2.78	4.7	6.8	6.57	8.2	33.0
2.79	3.3	18.0	see note	6.8	O/C
2.87	3.3	22.0	6.87	10.0	22.0
2.99	4.7	8.2	7.50	15.0	15.0
3.00	3.3	33.0	7.67	10.0	33.0
3.20	4.7	10.0	8.18	15.0	18.0
see note	3.3	O/C	see note	8.2	O/C
3.40	6.8	6.8	8.92	15.0	22.0
3.58	4.7	15.0	9.00	18.0	18.0
3.72	6.8	8.2	9.90	18.0	22.0
3.73	4.7	18.0	see note	10.0	O/C
3.87	4.7	22.0	10.31	15.0	33.0
4.05	6.8	10.0	11.0	22.0	22.0
4.10	8.2	8.2	11.65	18.0	33.0
4.11	4.7	33.0	13.2	22.0	33.0
4.51	8.2	10.0	15.0	15.0	O/C
4.68	6.8	15.0	16.5	33.0	33.0
see note	4.7	O/C	18.0	18.0	O/C
4.94	6.8	18.0	22.0	22.0	O/C
5.00	10.0	10.0	33.0	33.0	O/C
			O/C	O/C	O/C

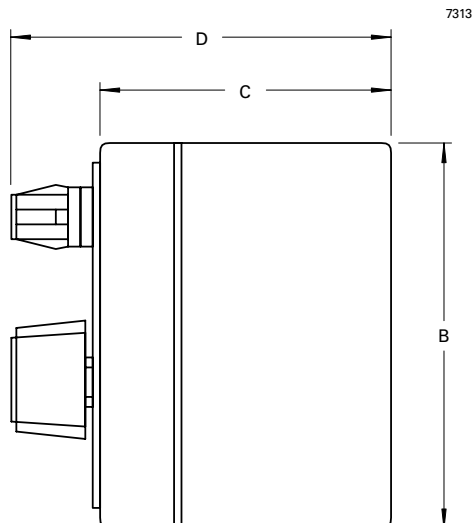
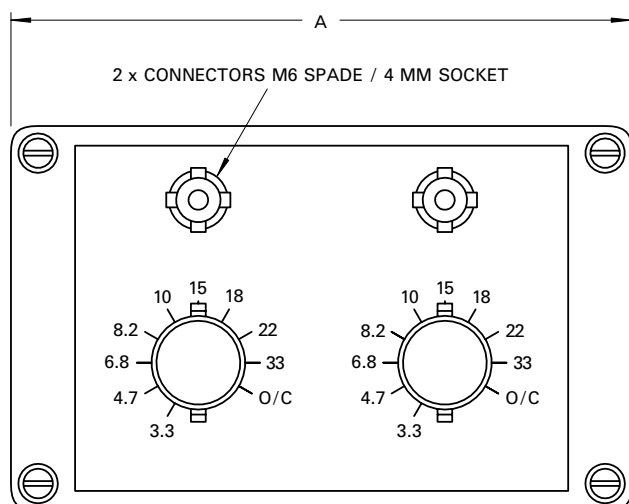
Note Do not set parallel resistors to these values, as this may cause the power rating of the resistor to be exceeded.

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OUTLINE

(All dimensions without limits are nominal)



Ref	Millimetres	Inches
A	125.0	4.921
B	80.0	3.150
C	57.0	2.244
D	85.0 max	3.346 max

Inch dimensions have been derived from millimetres.

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