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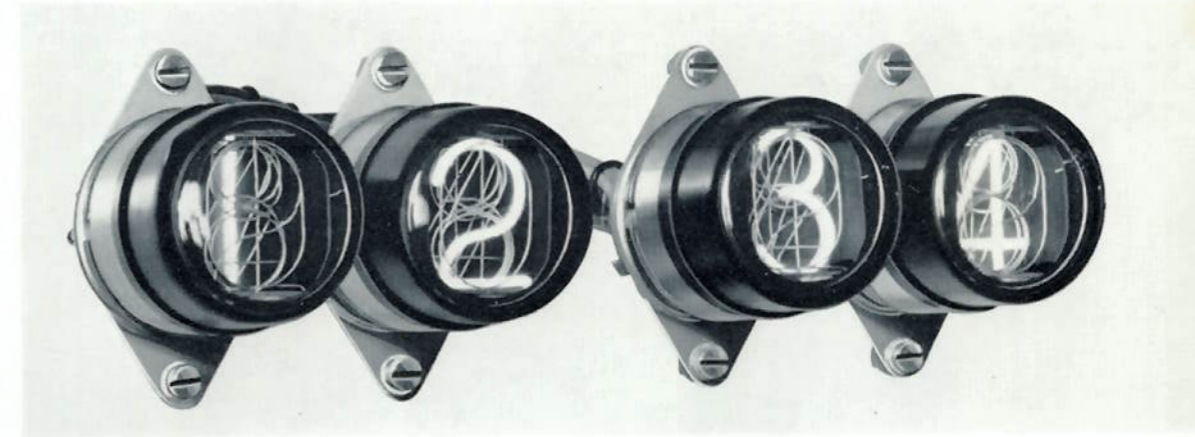
MS/110
Ed. 1

**numeral indicator tube
type GN-I
nodistron**



**for operation from
A-C : D-C
or unsmoothed rectified A-C**

numeral indicator tube type GN-I (G10/201E)



Nodistron

The GN-I is a cold cathode, gas-filled numeral indicator, intended for use as a direct read-out device operating from A.C., unsmoothed rectified A.C., or D.C. power supplies.

The A.C. characteristic enables this tube to be used in applications where operation direct from the main A.C. supply is required. Both A.C. and unsmoothed rectified A.C. anode voltages give good cathode glow coverage at low mean currents, enhancing operational and life characteristics. Low currents provide full coverage at low light intensity; current reduction can provide a useful dimming feature. The D.C. anode takes the form of a black box which masks reflections and stray light.

In addition to the unique electrical characteristics referred to above, the construction of this Nodistron gives enhanced viewing qualities since there are no intervening anode meshes. The large end-viewing numerals are thus unobscured and can be read from approximately 40 ft. The tube is, therefore, well suited to viewing from a distance. The viewing angle is 45° at 40 ft. opening to 80° at 10 ft. and less.

PRINCIPAL APPLICATIONS

DIGITAL READOUT FOR MEASURING EQUIPMENT.

INDICATOR PANELS OF REMOTE CONTROL SYSTEMS.



Standard Telephones and Cables Limited

Registered Office: Connaught House, Aldwych, W.C.2.

VALVE DIVISION - FOOTSCRAY · KENT

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electrical data

Limiting Ratings for D.C., unsmoothed Rectified A.C. (Half Wave) and A.C. Operation

Minimum supply voltage (D.C. or peak)	200	V
Maximum average cathode current (Mean value for A.C. operation)	5	mA
Maximum supply voltage for extinction (D.C. or peak)	120	V
Minimum average cathode current for D.C. operation	2.5	mA

Typical D.C. Operating Conditions (Fig. 1)

Supply voltage	200	250	300	400	V
Anode resistor	18	33	47	68	kΩ
Mean operating current	3.5	3.5	3.5	3.5	mA

Typical Unsmoothed Rectified A.C. (Half Wave) Operating Conditions (Fig. 1)

Supply voltage (R.M.S. before rectification)	220	240	300	400	V
Anode resistor	8.2	10	22	33	kΩ
Mean operating current	3	3	3	3	mA

Typical A.C. Operating Conditions (Fig. 2)

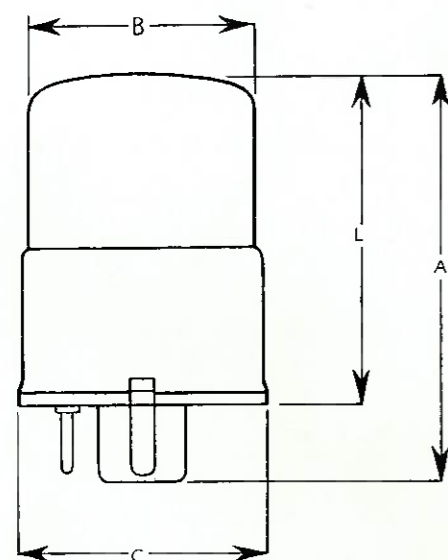
Supply voltage (R.M.S.)	220	240	300	400	V
Anode resistor	27	33	56	82	kΩ
Mean operating current	3	3	3	3	mA

mechanical data

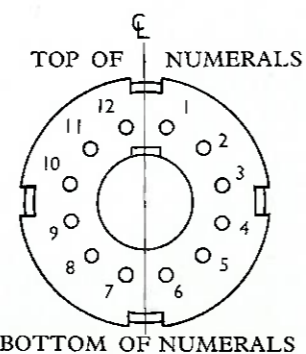
Maximum overall length	61.9	mm
Maximum seated height	47.6	mm
Maximum overall diameter	43.7	mm
Maximum bulb diameter	40.9	mm
Net weight	60	g
	2.2	oz

Base B12A wafer with metal shell
Mounting position Unrestricted

NUMERALS AND BASE KEY WILL NOT DEVIATE FROM A COMMON ϕ BY MORE THAN 6° IN EITHER DIRECTION



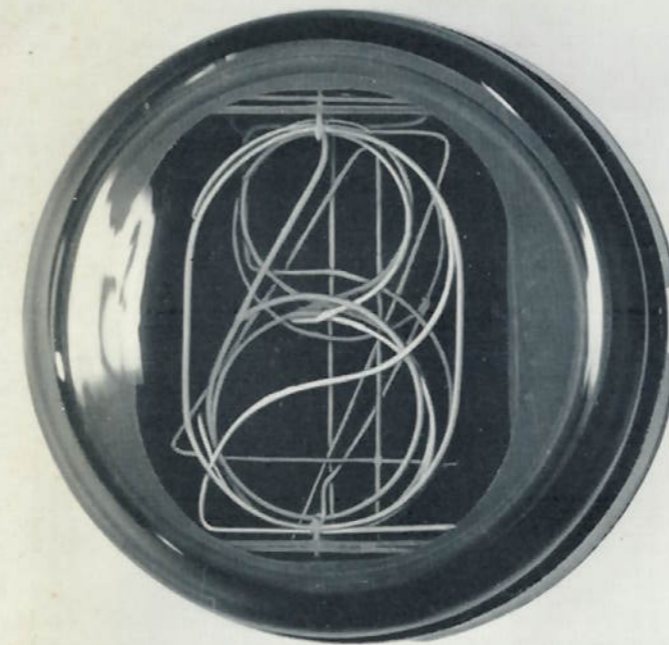
B12A WAFER BASE WITH METAL SHELL



Basing			
1	CATHODE	7	CATHODE
2	CATHODE	8	CATHODE
3	CATHODE	9	CATHODE
4	CATHODE	10	CATHODE
5	CATHODE	11	A.C. ANODE
6	CATHODE	12	D.C. ANODE

REF.	MILLIMETRES	INCHES
A	61.9 MAX.	2 $\frac{3}{4}$ MAX.
B	38.1 MIN. 40.9 MAX.	1.50 MIN. 1.61 MAX.
C	43.7 MAX.	1 $\frac{7}{8}$ MAX.
L	41.3 MIN. 47.6 MAX.	1 $\frac{3}{8}$ MIN. 1 $\frac{1}{2}$ MAX.

NOTE: BASIC DIMENSIONS ARE INCHES



general notes

- The highest supply voltage available should be used with a suitable anode series resistor.
- To facilitate correct orientation of the numerals when mounting the valve, the base spigot corresponds to the top of the numerals.
- To give improved uniformity of glow intensity from figure to figure an additional equalising resistor, approximate value 80 per cent of main anode resistor, may be used in the cathode circuit of numeral 1.
- Valve life depends upon operating current. Low operating currents within the range for full glow coverage will give longer life.

operating circuits

A voltage of 200 volts or more, with a suitable limiting resistor, must be applied between the anode (a_1 for D.C. operation, a_2 for A.C. operation) and the cathode which is required to glow. All other cathodes must be open-circuited or kept at a potential within 120 volts of that of the anode.

The required cathode may be selected by mechanical or electronic switch circuits. Mechanical switch circuits are shown in Figures 1 and 2 below.

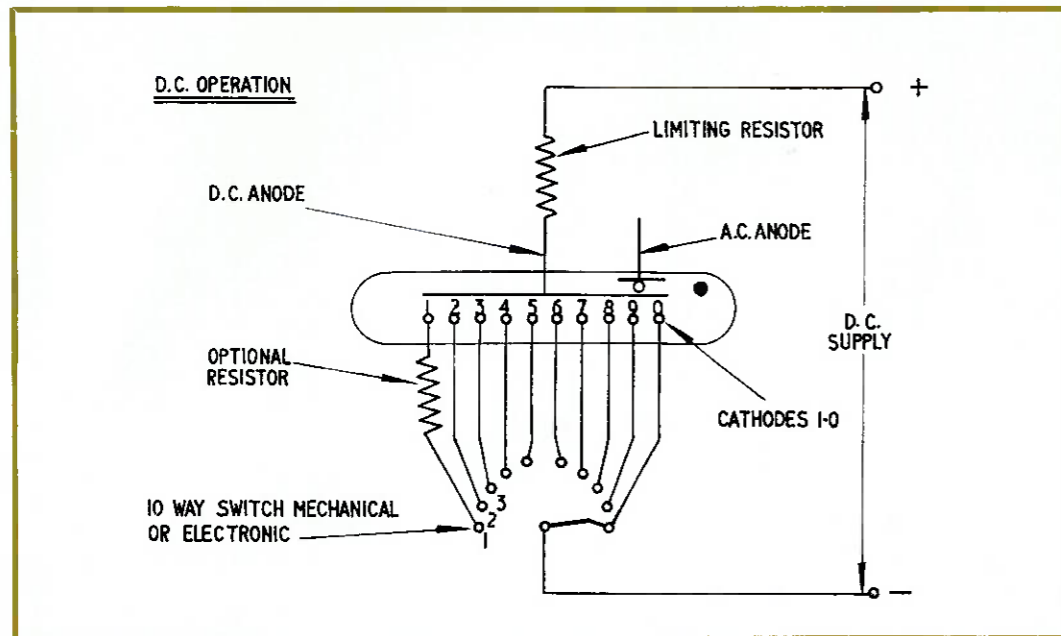


FIGURE 1

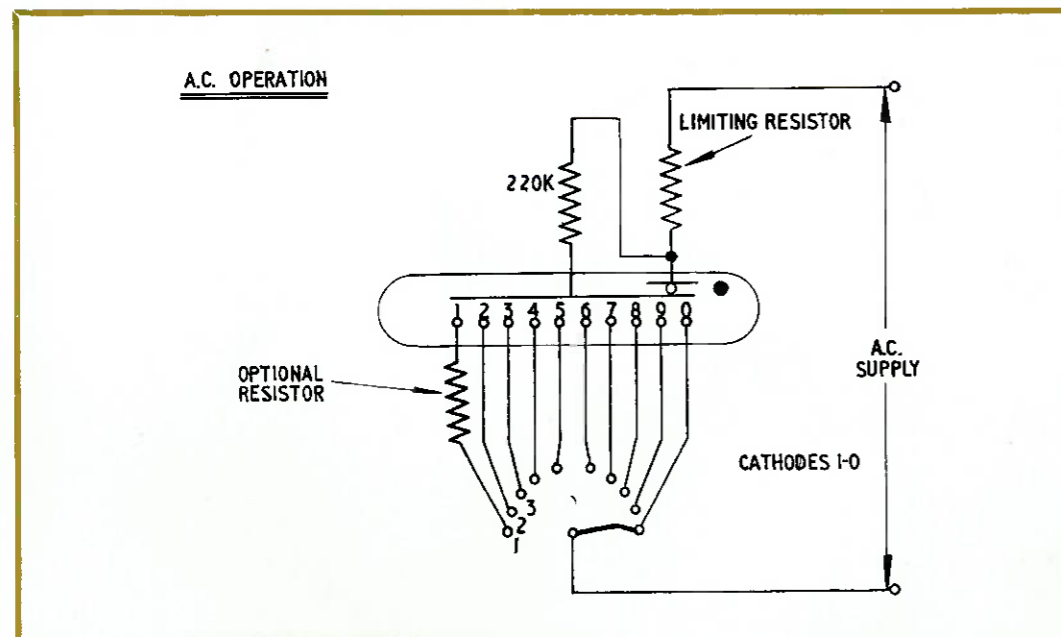


FIGURE 2

Coupling of Nodistrons to Cold-cathode Counter Tubes

Fig. 3 shows a typical example of electronic switching of the Nodistron. A positive output from the counter tube inverted by the coupling triode to depress the potential of the Nodistron cathode on which a glow is required. The triode current flows through a cathode resistor common to all coupling triodes to keep them cut off and therefore the potentials of all other cathodes of the Nodistron are high. Such a circuit is suitable for coupling Nodistrons to any type of counter tube or other device with an output of about 50 volts.

Flashing Numeral

The maintaining voltage of trigger tube G240/2D is lower than that of GN-1. Therefore this trigger tube can be made to extinguish the Nodistron by direct shunt connection. Figure 4 shows a pair of trigger tubes connected as an astable multivibrator which causes the numeral to flash. The Nodistron auxiliary anode a_2 may be used as a "keep-alive" device as shown.

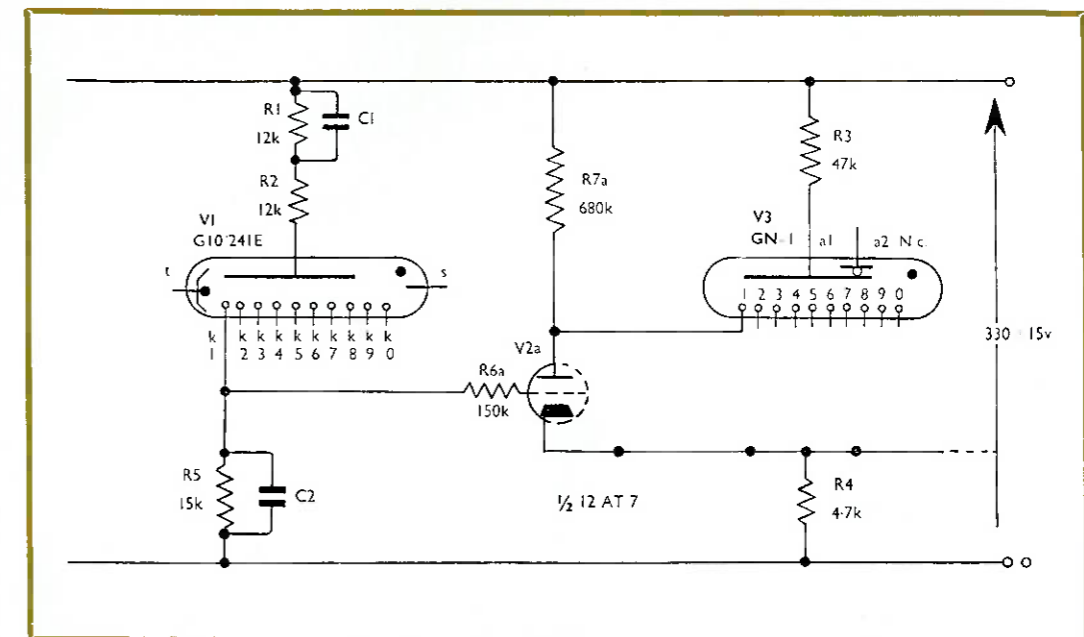


FIGURE 3 Repeat V2, R6 and R7 (a to j) for coupling corresponding cathodes of V1 and V3

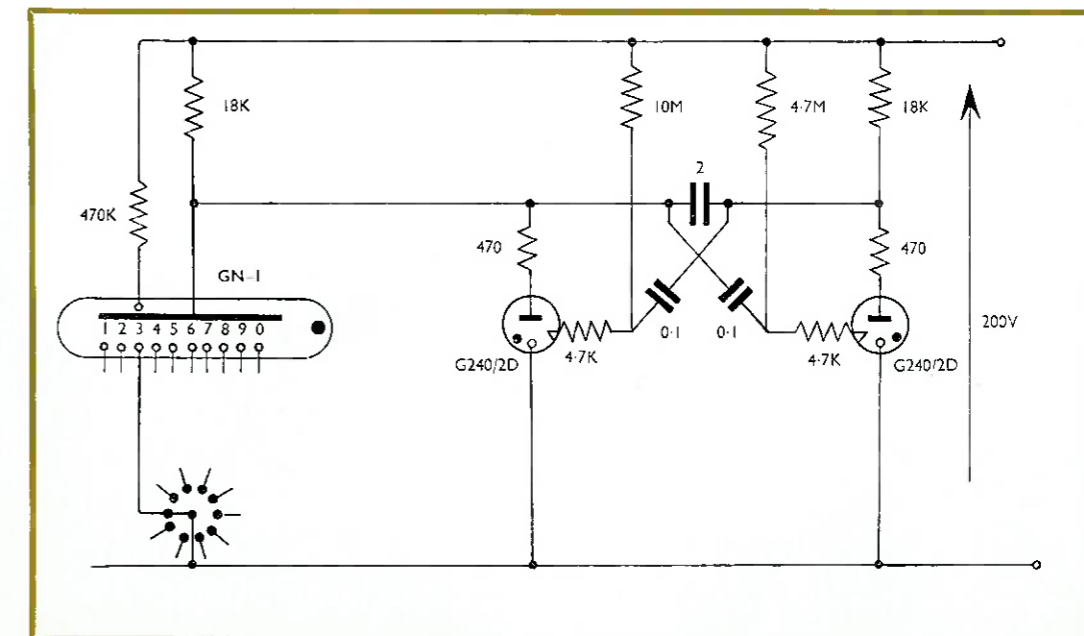


FIGURE 4 Resistance in Ω Capacitance in μF



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