



DEPARTEMENT DE RECHERCHES
ELECTRONIQUE ET ATOMISTIQUE
CORBEVILLE

ELECTROSTATIC MEMORY ANALYSER TUBE

TMA 403 X

(Provisional instruction booklet)

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This tube enables electric signals to be stored in the form of a pattern of charges deposited by induced conductivity on a thin insulating target by means of a high voltage writing gun.

Stored signals are read by a second gun which releases them some arbitrary time after writing.

Tube type TMA 403 X is very flexible in use for all cases requiring the use of a target of large capacity :

- on writing, several successive signals can be added
- on reading, a suitable scan enables the signals to be recovered in any arbitrary order which way differ from the order of writing
- reading and writing can be done simultaneously without any interaction.

1 - DIMENSIONS, PIN ARRANGEMENTS

These are shown in the attached drawing N° 9 240 911.

2 - SUPPLY VOLTAGES

In order to give the characteristics of each gun separately, the voltages will be given as from the cathode as for oscilloscopes of usual types. A general diagram will then give the relative values of the potentials of the various electrodes with respect to the target, this being the only point common to writing and to reading.

2.1 - Writing gun : triode type with electrostatic focusing and magnetic deflection :

- filament voltage	6.3 volts
- filament current	1 amp
- maximum anode voltage	10 kV
- focusing voltage	25 to 30% of the anode voltage
- gun electrode bias (cut off voltage)	- 30 to - 60 V

NOTE

A maximum anode voltage was given since it may depend on the use to which the TMA 403 X tube is put. If a long remanence is required (some thousands of readings), it is better to use the maximum voltage; if a very short one is required (some tens of reading scans), lower voltages are more appropriate.

2.2 - Reading gun : tetrode type with electrostatic focusing and deflection

- filament volts	6.3 volts
- filament current	1 amp
- G1 gun electrode cut off voltage	- 25 \pm 10 volts
- G2 screen voltage	300 volts
- A1 focusing voltage	350 to 400 volts

NOTE

In exceptional cases, the G2 voltage may be raised to + 500 volts in order to increase the beam current without loss of definition (but at the cost of a shorter life).

Voltages required for scanning a square inscribed in the target. (maximum anode voltage 1 500 volts) :

- X plates	380 volts
- Y plates	350 volts