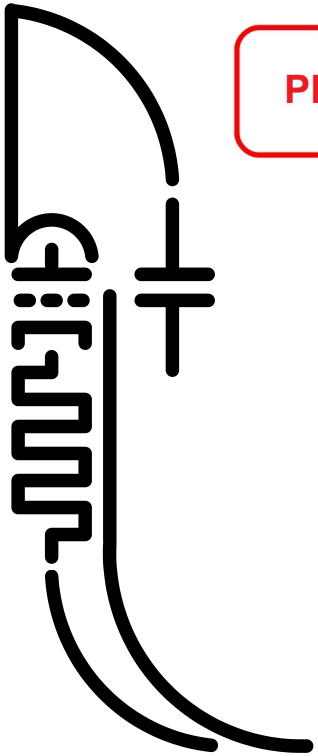
AmpDiVa



RAITES Engineering srls

PROTOTYPE

Metro-N-Voli

Raites Engineering s.r.l.s. v.le Rimembranza S.Giovanni 34 33072 Casarsa della Delizia - PN, Italy

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AmpDiVa Metro-N-Voli

DISCLAIMER NOTICE

ELECTROMAGNETIC COMPLIANCE

This electronic unit is a prototype for evaluation purposes.
The user recognizes this evaluation prototype is not FCC or other Regulatory Bodies approved for resale and in some circumstances can produce interference to radio communications.
The user can avoid this interference moving away the unit from the involved radio system.

DANGER – HIGH VOLTAGE

This electronic unit uses 200..300V to power the Magic Eye electron tube.
Do not open, dissasemble, remove the cabinet cover panels.
Do not use in humid envinronments, close to flammable soubstances or in explosive atmosphere !

DO NOT USE IN CASE OF BROKEN GLASS

Inner high voltage electrodes became accessible !

End of Life Disposal

Dispose the unit according the local laws about the recycling of electronic equipments by taking it to the appropriate collection centers.

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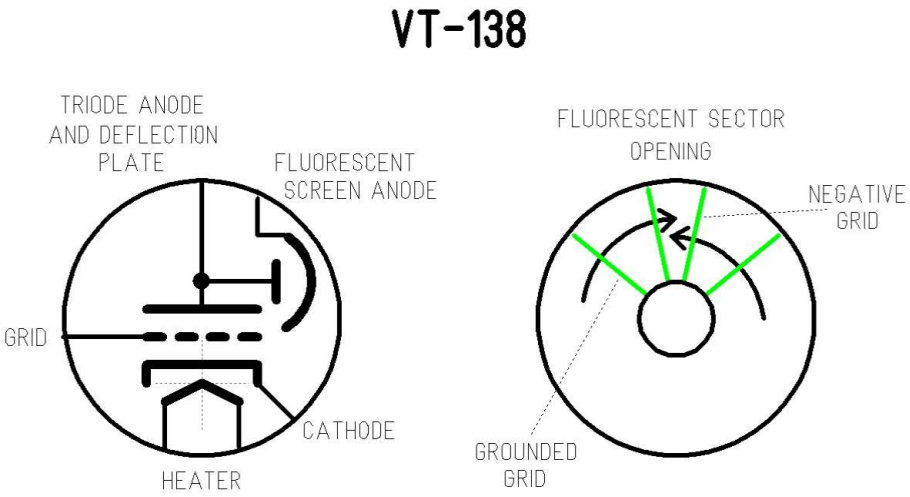
AmpDiVa

Metro-N-Voli

Magic Eye Metronome

The *Magic Eye* is an electron vacuum tube developed during the thirties of the '900.
Thanks to a small fluorescent screen, it allows the viewing of an electrical quantity replacing the moving needle of an electromechanical instrument.
It's a real electrostatic deflection Cathode Ray Tube similar to those used on the oscilloscopes, even if in a minimal simplified version with one single deflection plate and without the electrons beam focusing electrodes.

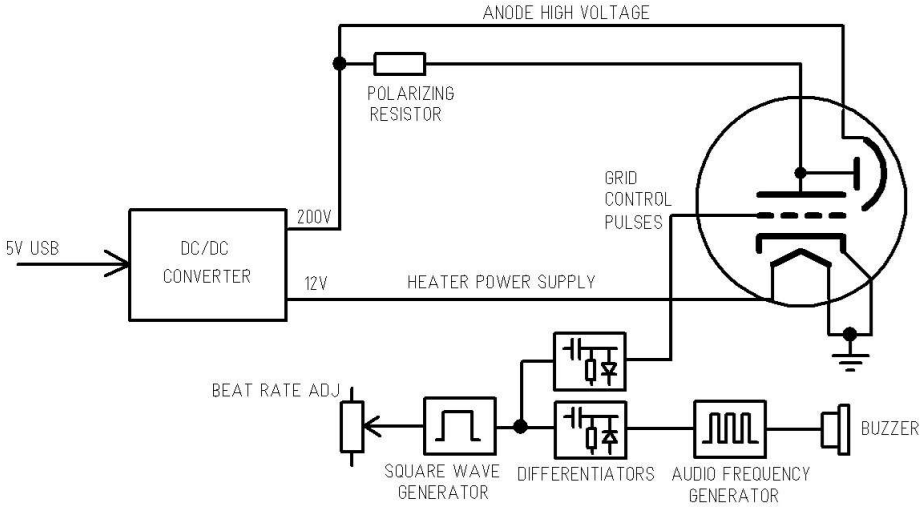
The tube used on the ***METRO-N-VOLI***[1] is a VT-138 (aka 1629) manufactured by RCA, Silvanya and Ken-Rad; it comprises an amplifing triode with its anode directly controlling the deflection electrode.



[1] "Voli" means "eye" in Friulano, the language spoken in the north-east italian region Friuli

The circuit that turns on the unit is powered by 5Vdc from a common USB mobile phone charger; a DC/DC switching converter steps up this voltage to 12V for the tube heater and by a diodes doubler to approx. 200V for the triode anode and the fluorescent screen.

A primary low-frequency Schmitt Trigger Oscillator generates a square wave, which can be tuned via the Beat Rate control knob. A dual differentiator circuit then extracts short pulses from each edge of the waveform; these pulses trigger a secondary Schmitt Trigger Oscillator, which provides the audio-frequency signal to the buzzer. Simultaneously, a second pair of differentiators delivers negative pulses to the vacuum tube's grid, effectively closing the 'fan' on the fluorescent screen.



The beat rate is approximately in the range 60 to 600 BPM.

The 5Vdc power supply requires approx. 700mA and is short-circuit protected by a PTC self-recovery fuse.

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