

# Lampemètre Eurelec

[Menu](#)

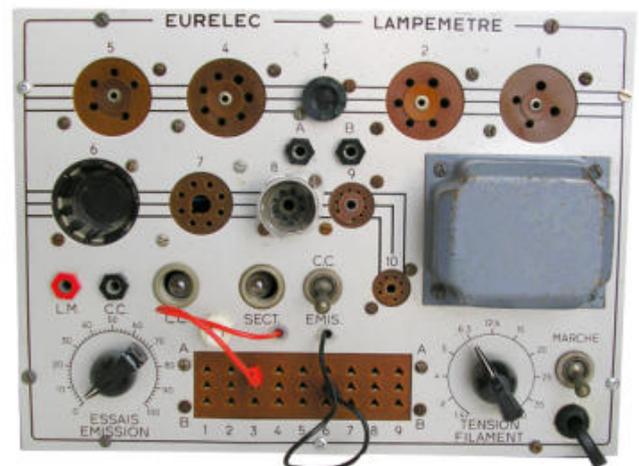
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## PRESENTATION MODEL 1



(/img/controleur1\_XL.jpg)

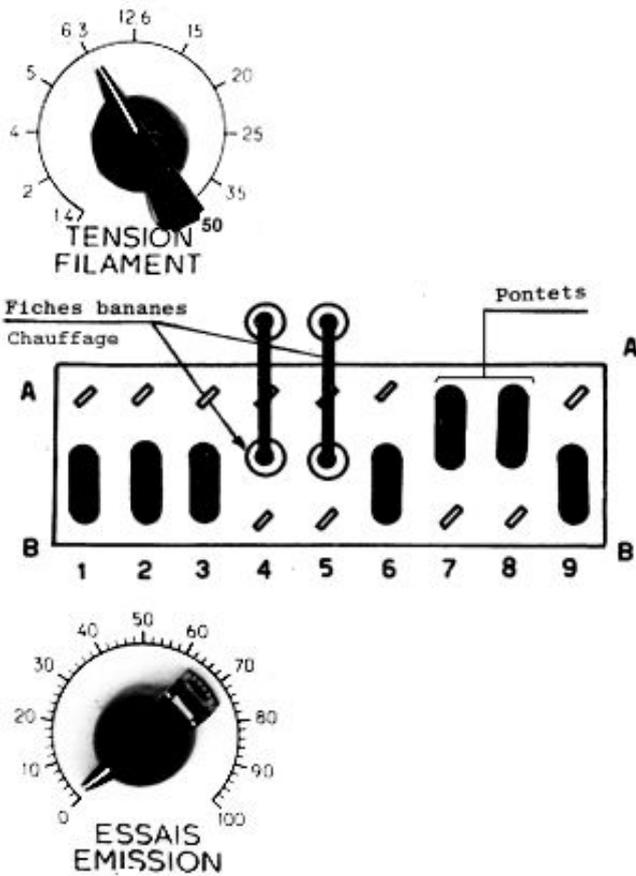


(/img/eurelec\_XL.jpg)

This small lampemètre was provided in the 60's with the course of Radio of E URELEC. This type of course and devices were best known in Germany as E URATELE and E Lettra Italy. It was coupled with a multimeter set to DC 1mA caliber. Part controller measures 1mA is diagrammed below. This type of lampemètre could compete with professional models. It possible to appreciate that the emissive power of the cathode tube and a possible short-circuit grids. No slope measurement and other features ...

For a given tube, the guide gives Eurelec three adjustment points:

- The filament heating voltage
- The diode fashion wiring configuration
- tuning the anode current (emission tests)



DIAL AND SIMPLIFIED DIAGRAM OF THE MULTIMETER EURELEC



(/img/cadran\_XL.jpg)

On the 1mA DC size, the controller is the equivalent circuit diagram shown below. The maximum deviation, DC is obtained when traversed with a current of 1mA. Its internal resistance is 72Ω. The voltage at its terminals is then 72mV.

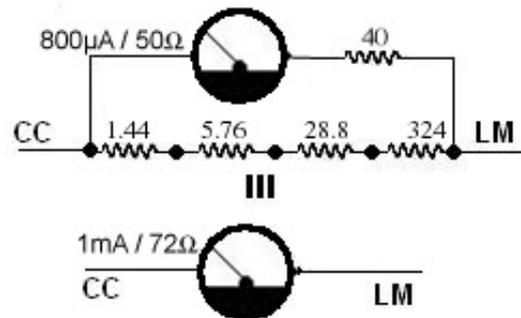
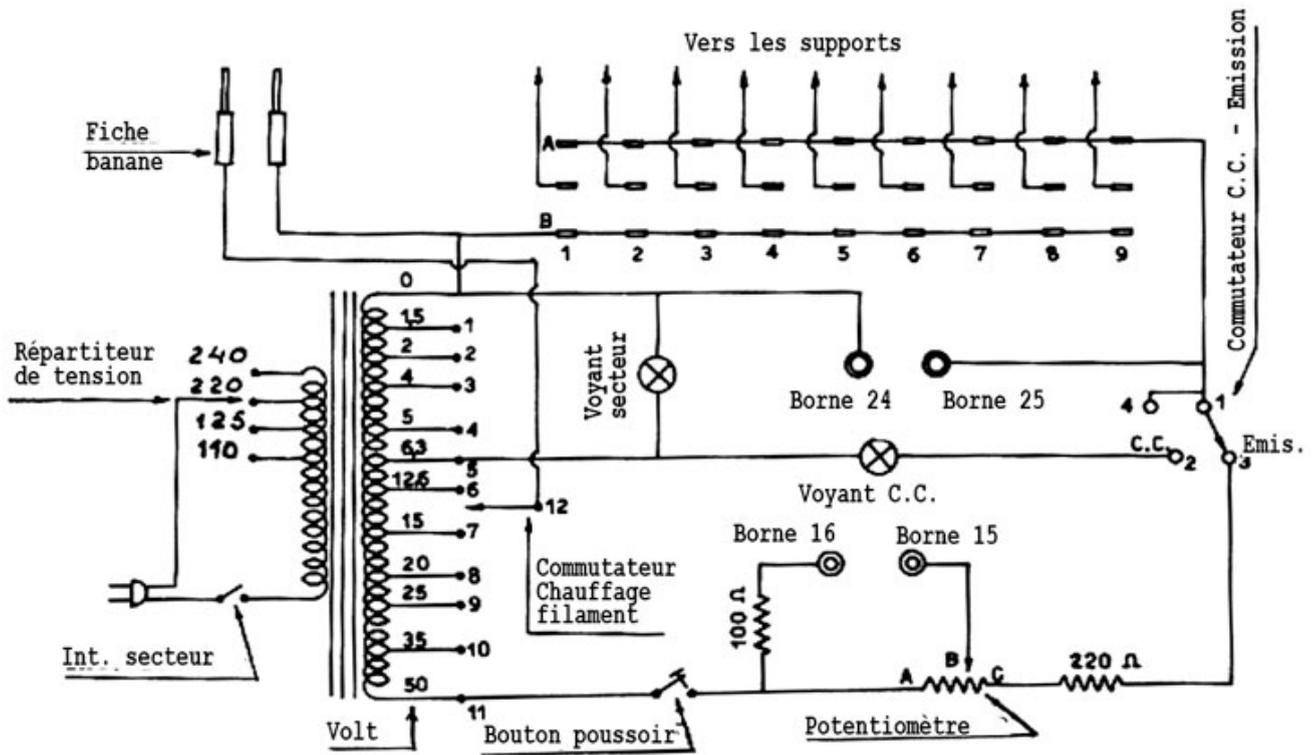


DIAGRAM OF LAMPÉMÈTRE



### EXAMPLE OF USE

Eurelec recommended to test tubes that are not in the provided guide, the following connections: **A**: corresponds to the positive high voltage and **B**: the mass (0V), then use a **GOOD tube as reference potentiometer to Test 'emission**.

	Cathode	Grille1	Grid2	Grid3	Anode
<b>Diode</b>	B	-	-	-	TO
<b>Triode</b>	B	B	-	-	TO
<b>Tetrode</b>	B	B	TO	-	TO
<b>Penthode</b>	B	B	TO	B	TO

### OPERATING PRINCIPLE

In the case of a pentode EF93, the guide gives:

Notice L.M.

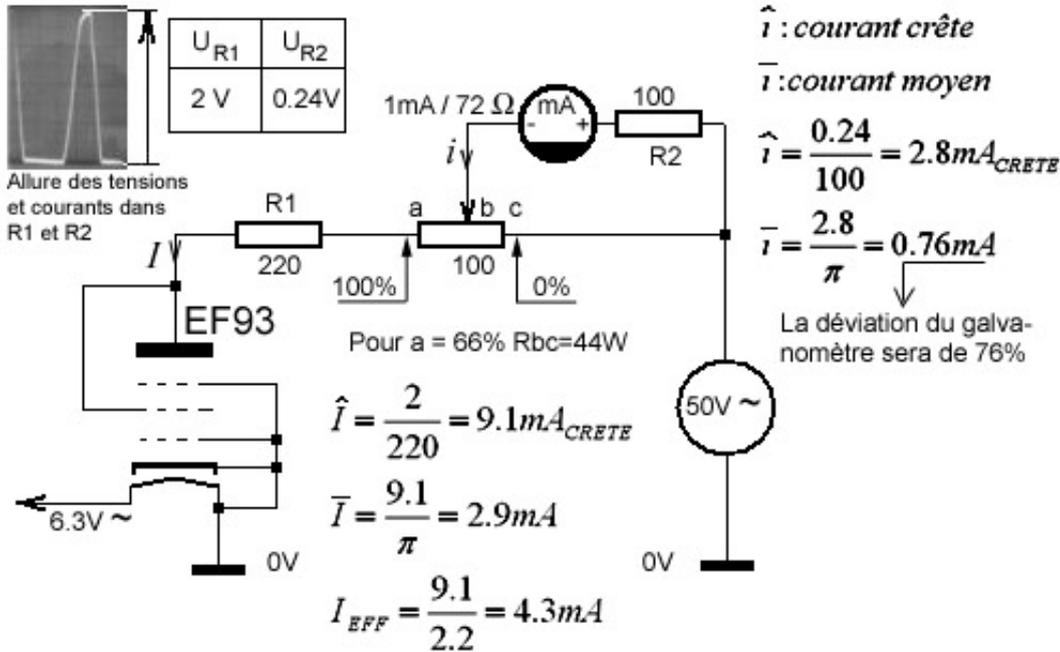
43-

TUBE	N° Support	Volts filament	COMMUTATIONS										Position bouton	Nota
			1	2	3	4	5	6	7	8	9	Cap.		
EF89	9	6,3	B	B	B	F	F	B	A	A	B	-	50	
EF93	10	6,3	B	B	F	F	A	A	B	-	-	-	66	
EF94	10	6,3	B	B	F	F	A	A	B	-	-	-	41	

To facilitate reading of the scheme when the penthode and controller are connected, they are given a synthetic scheme below. It shows the principle of operation of this lamp tester. Applying an alternating voltage between the cathode and anode of the tube operating here rectifier. The peak

voltage anode is 71V. The measures voltages to the R1 and R2 terminals to determine the peaks currents (and means dividing by  $\pi$ ). When the potentiometer «TRIAL ISSUE of» is in position 64%, this means that resistance of  $44\Omega$  is in parallel with all multimeter +  $100\Omega$ . This type of meter when it is crossed by a single rectified sinusoidal current, shows a value close to this average value. It appears that the manufacturer gives an emission position of potentiometer 75% deviation to the nominal characteristic. Small deviations measurements / calculations are probably due to the precision resistors.

«»



## GUIDE THE TESTER COMBINATIONS EURELEC

Enter a tube reference here

ENTRER ↑

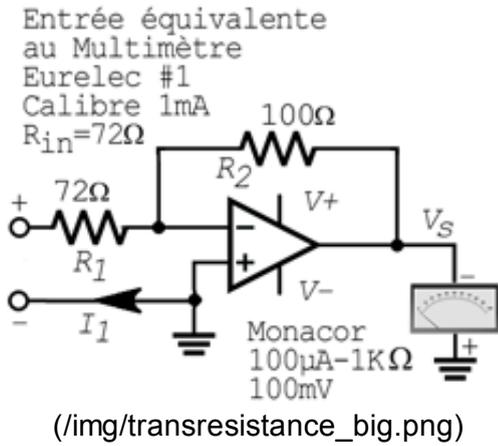
Tube	Support	Heating.	C1	C2	C3	C4	C5	C6	C7

C8	C9	CAP	Page	EMIS.

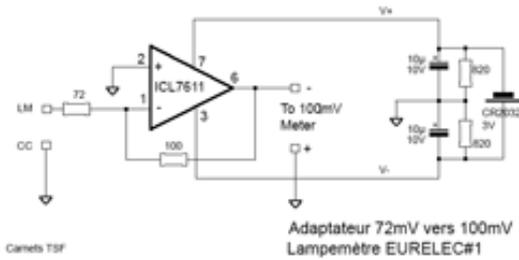
Subject to errors in the guide provided by Eurelec

Thanks to Michel Marignan (<http://eurelec.net/>) for the big job of digitizing Eurelec course.

## ADAPTER FOR OTHER GALVANOMETER



If you do not have the multimeter described above, an adapter can be inserted between the Eurelec lampemètre and a current galvanometer. An example is given for an adaptation to a moving frame MONACOR 100μA / 1K. This framework deviates at its maximum for a voltage of 0.1V across it. To fit this mounting your drawer bottoms or your multimeter, simply adapting  $R_2$  using the following equation by knowing the sensitivity  $V_S$  mobile frame or the multimeter (in volt)  $V_S I_1.R_2 = \rightarrow R_2 = 1000.V_s$  For compatibility with Eurelec controller,  $R_1$  should always be equal to  $72 \Omega$ . For a graduation from 0 to 100, here reading zones:



(/img/72ma.png)

- 0-42: BAD
- 42 to 58: (FAIR)
- 58-100: GOOD

A sample implementation based on a low supply voltage AmpliOp is given below cons. The specification is available here ampliOp ICL-7611

(<https://www.intersil.com/content/dam/Intersil/docu12.pdf>)



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