

ELECTRONIC TUBE REFERENCE

11LO5V

Specialized - Uncategorized electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
OTHER

Specialized Soviet electron-beam tube documented in a bilingual technical source. Available material does not establish its intended application confidently enough for a narrower functional description.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	— / —	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Other	
AMPLIFICATION FACTOR	63
English-primary bilingual extraction; published electrical table values retained in parameters.	

11LO5V Cathode-Ray Tube

The **11LO5V** (11ЛО5В) is a precision, multi-anode cathode-ray tube (electron-beam device) manufactured in the USSR. Designed for displaying visual information, it features electrostatic focusing and deflection, a multi-anode electron gun structure, independent blanking plates, and a screen characterized by a long afterglow.

Electrode Configuration and Base Connections

The 11LO5V utilizes a multi-pin base interface alongside specialized external contacts for the deflection plates and the high-voltage fifth anode. The electrode connections are mapped to specific pins and terminals as follows:

Pin / Terminal	Electrode Connection
1	Heater (Heater filament connection)
2	Free (Unconnected)
3	Cathode
4	First Anode (Focusing Anode)
5	Free (Unconnected)
6	Grid
7	Second Anode
8	Fourth Anode
9	Free (Unconnected)
10	Third Anode
11	Blanking Plates
12	Free (Unconnected)
13	Modulator
14	Heater (Heater filament connection)
D ₁ , D ₂	Time (Horizontal) Deflection Plates
D ₃ , D ₄	Signal (Vertical) Deflection Plates
A	Fifth Anode

Installation and Wiring Constraints

The manufacturer specifies strict physical installation rules for the 11LO5V:

- **Unconnected Pins:** Pins 2, 5, 9, and 12 are designated as free. It is strictly forbidden to use the free lugs of the tube socket or the free pins of the tube stem as tie points or support points for circuit wiring or mounting.

Electrical Characteristics and Operating Points

The electrical parameters of the 11LO5V are defined under specific reference potentials. A critical design aspect of this tube is its dual-reference voltage system:

- **Cathode-Referenced Voltages:** The voltages applied to the modulator, the first anode, the second anode, and the fifth anode are specified relative to the cathode.

- **Second-Anode-Referenced Voltages:** The voltages applied to all other electrodes—including the grid, the blanking plates, the third anode, and the fourth anode—are specified relative to the second anode.

Heater Specifications

The cathode is indirectly heated, requiring the following filament supply parameters:

- **Nominal Heater Voltage:** 6.3 V
- **Heater Current:** 0.3 A nominal (with an acceptable range of 0.27 A to 0.33 A)
- **Calculated Heater Power:** 1.89 W (calculated as 6.3 V multiplied by 0.3 A)

Typical Operating Conditions

Under standard operating conditions, the tube is biased and operated at the following electrical points:

- **First Anode (Focusing) Voltage:** 400 V to 600 V
- **Second Anode Voltage:** 1500 V
- **Third Anode Voltage:** -50 V to 50 V (Nominal: 0 V)
- **Fourth Anode Voltage:** -50 V to 50 V (Nominal: 0 V)
- **Fifth Anode Voltage:** 3000 V
- **Grid Voltage:** -50 V
- **Modulator Cutoff Voltage:** -90 V to -40 V
- **Blanking Plates Voltage:** 0 V
- **Blanking Plates Cutoff Voltage:** -60 V to 60 V
- **Average Potential of Deflection Plates:** 0 V

Deflection and Screen Performance

- **Horizontal (Time) Deflection Sensitivity (S_x):** Minimum of 0.6 mm/V
- **Vertical (Signal) Deflection Sensitivity (S_y):** Minimum of 1.0 mm/V
- **Line Width:** Maximum of 0.6 mm under nominal conditions
- **Screen Brightness:** Minimum of 8 cd/m²
- **Afterglow Time:** Nominal 5 seconds

Absolute Maximum Ratings and Operational Constraints

To prevent damage and ensure the longevity of the 11LO5V, circuit designs must adhere to the following absolute maximum limits:

Parameter	Minimum Limit	Maximum Limit
Heater Voltage	5.7 V	6.9 V

Parameter	Minimum Limit	Maximum Limit
Second Anode Voltage	1000 V	2000 V
Modulator Voltage	-150 V	0 V
Fifth Anode Voltage	Equal to the actual second anode voltage	6000 V
Grid Voltage	-150 V	-20 V
Average Potential of Deflection Plates	-50 V	50 V

Operational Rules and Service Life

- **Simultaneous Limits:** Operation of the tube at two or more maximum allowable limit values simultaneously is strictly prohibited.
- **Service Life:** The tube is rated for a minimum operating life of 1000 hours, provided that all specified operating conditions and limits are strictly observed.
- **Permissible Performance Degradation:** Over the course of its operating life, the following changes in performance parameters are considered acceptable and within tolerance:
 - The line width may increase up to a maximum of 0.7 mm.
 - The screen brightness may decrease to a minimum of 6 cd/m².
 - The current of the fifth anode may decrease to a minimum of 10 μA.

Technical Summary

The **11LO5V** is a Soviet-designed, multi-anode cathode-ray tube featuring electrostatic focusing and deflection, a 6.3 V heater, and a screen with a 5-second afterglow. It operates with a dual-reference voltage scheme where the primary accelerating and focusing anodes are referenced to the cathode, while the auxiliary anodes, grid, and blanking plates are referenced to the second anode. With a vertical deflection sensitivity of at least 1.0 mm/V and a horizontal sensitivity of at least 0.6 mm/V, the tube provides precise beam control. Designers must respect the strict prohibition against using free pins as wiring supports, avoid simultaneous maximum ratings, and account for standard parameter degradation—such as line widening up to 0.7 mm and brightness reduction to 6 cd/m²—over its 1000-hour minimum service life.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

195X Russian

Published test conditions and operating points. Values on this page are preserved as reported by this source.

195X RUSSIAN

Section 1 · Other

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Source symbol AYYJAAT0pa,	3 A	HanpsikeRue MOAYyJAAT0pa, 3anupapliee, B Usan. fL!* _fl
Published electrical parameter	3 A	3anupaiomee Hampsxkende ONAHKHPYIOWHX U 6. sam, —60 50
Source symbol r	0 mA	{appsiKenne monyasropa 1-ro, 2-ro B 5-r0 aHOZOB YKAa3aHH OTHOCHTEN
Source symbol YKAa	3 A	{appsiKenne monyasropa 1-ro, 2-ro B 5-r0 aHOZOB YKAa3aHH OTHOCHTEN
Source symbol PEAEJNLHLIE	3 h	OPEAEJNLHLIE 3HAYEHHA NONYCTUMBIX 3JEKTPHYECKHX
Published electrical parameter	1 A	4 \ 1 amon ((boxybnpyiomnfi)
Published electrical parameter	3 W	0 3wkamon
Source symbol AONYCTUMBIX	3 h	npe AByX H 0cnee HPENECABHO AONYCTUMBIX 3HAYEHMEX napamer-
Source symbol J	1 A	2. 3anpemaerCs HCHOJbL30BAHHE CBOGOAHBIX JENCCTKOSB J1aM-
Source symbol Tewense	1000 W	MunyumagbHan HapadoTka B Tewense 1000 wacos npH YCI0BHK
Source symbol A0	0.7 mm	HBI JIH HHK A0 0,7 MM, YMEHbINEHMA SAPKOCTH 40 6 xKu/M' # VMEHL-

TUBE TINKER

An independent reference for electronic tubes, vacuum tubes,
and their source documents.

[Catalog](#) [Tube types](#) [Full books](#) [Blog](#) [Feedback & corrections](#)

© 2026 Tube Tinker