

## CATHODE-RAY TUBE

The TELEFUNKEN Type 1 FP 1 is a one inch, flat face, single beam, electrostatic deflection and focus Cathode-Ray-Tube with small filament power. All other dates correspond with the tube 1 EP 1.

Focusing Method	electrostatic
Deflecting Method	electrostatic

### Direct Interelectrode Capacitances, Approximate

Cathode to all other electrodes	3.5	$\mu\mu\text{f}$
Grid 1 to all other electrodes	6.5	$\mu\mu\text{f}$
D 1 to D 2	1.7	$\mu\mu\text{f}$
D 3 to D 4	0.6	$\mu\mu\text{f}$
D 1 to all other electrodes except D 2	5.0	$\mu\mu\text{f}$
D 2 to all other electrodes except D 1	5.0	$\mu\mu\text{f}$
D 3 to all other electrodes except D 4	3.8	$\mu\mu\text{f}$
D 4 to all other electrodes except D 3	3.8	$\mu\mu\text{f}$

### OPTICAL DATA

Phosphor Number	P 1
Fluorescent Color	Green
Phosphorescent Color	—
Persistence	Medium

### MECHANICAL DATA

Maximum Overall Length	$4\frac{1}{16}$	Inches
Greatest Diameter of Bulb	$1\frac{5}{16}$	Inches
Minimum Useful Screen Diameter	$1\frac{1}{16}$	Inches
Base (Small-Button Unidekar 11 pin base)		E 11-22
Base Alignment		
D 1 D 2 trace aligns with the midpoint between pin 6 and 7 and tube axis	$\pm 10$	Degrees
Positive voltage on D 2 deflects beam approximately toward the midpoint between pin 6 and 7		
Positive voltage on D 3 deflects beam approximately toward the midpoint between pin 9 and 10		
Angle between D 3 D 4 and D 1 D 2 traces	$90 \pm 3$	Degrees



**RATINGS** (design Center Values) Note 1

Heater Voltage	6.3	Volts
Heater Current at 6.3 volts	0.3 ± 10 %	Ampere
Anode Voltage	1,500	Max Volts DC
	500	Min Volts DC
Cathode current	200	Microamperes eff.
Grid 3 (Focusing Electrode) Voltage	1,200	Max Volts DC
Grid 1 Voltage		
Negative-Bias Value	-200	Max Volts DC
Positive-Bias Value	0	Max Volts DC
Positive-Peak Value	+2	Max Volts
Peak-Heater-Cathode Voltage		
Heater negative with respect to cathode		
During warm-up period not to exceed 15 seconds	125	Max Volts
After equipment warm-up period	125	Max Volts
Heater positive with respect to cathode	125	Max Volts
Peak Voltage between Anode and any		
Deflection Electrode	500	Max Volts

**TYPICAL OPERATING CONDITIONS** (Note 1)

Anode Voltage	500	1,000	Volts
Grid 3 Voltage (Focusing Electrode)	50 to 150	100 to 300	Volts
Grid 1 Voltage (Note 2)	-21 to -7	-42 to -14	Volts
Deflection Factors:			
D 1 and D 2	105 to 155	210 to 310	Volts DC per inch
D 3 and D 4	120 to 175	240 to 350	Volts DC per inch
Focusing Electrode Current			
for any operating condition		-5 to +5	Microamperes
Spot Position (undeflected) (Note 4)		2.5	Max Millimeters
Deflection factor uniformity (Note 5)		2 %	Max
Pattern distortion (Note 6)		4 %	Max
For Anode Voltage not shown in the preceding table, the following can be used as a guide:			
Focusing Electrode Voltage	10 % to	30 %	of Anode Volts
Grid 1 Voltage (Note 2)	-1.4 % to	-4.2 %	of Anode Volts

Deflection Factors:

Post-accelerator = Twice Anode

D 1 and D 2	210 to 310 Volts DC per inch per Kilovolt of Anode
D 3 and D 4	240 to 350 Volts DC per inch per Kilovolt of Anode



**MAXIMUM CIRCUIT VALUES**

Grid 1 Circuit Resistance	1.5	Max Megohms
Resistance in any Deflecting-Electrode Circuit (Note 3)	2	Max Megohms

**Pin Connection**

Pin No. 1	Heater
Pin No. 2	Heater 1
Pin No. 3	Grid No. 1
Pin No. 4	Cathode
Pin No. 5	Focusing Electrode
Pin No. 6	Deflecting Electrode D 4
Pin No. 7	Deflecting Electrode D 3
Pin No. 8	Accelerator
Pin No. 9	Deflecting Electrode D 2
Pin No. 10	Deflecting Electrode D 1
Pin No. 11	Internal Connection

**CATHODE RAY TUBE CHARACTERISTICS NOTES**

1. All voltages taken with respect to cathode.
2. Visual extinction of undeflected focused spot.
3. It is recommended that the deflecting-electrode-circuit resistance be approximately equal.
4. Connect free deflecting electrodes to anode.
5. The deflection factor (for both D 1 D 2 and D 3 D 4 plate pairs, separately) for deflections of less than 75% of the useful scan will not differ from the deflection factor for a deflection of 25% of the useful scan by more than specified amount.
6. The edges of a raster pattern with the mean dimension 18 × 18 mm will not deviate from the mean dimension by more than the specified amount.

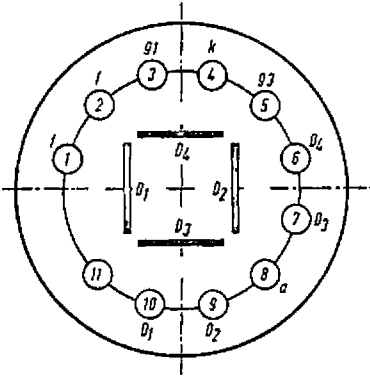
**ACCESSORIES**

Shielding	stock no. 30 441
Socket	stock no. 30 232



Base connection

Bottom view



11 V

