



**INSTRUMENT  
CATHODE RAY TUBE**

**BRIEF DATA**

A 13cm flat faced, single gun, spiral p.d.a. tube for medium bandwidth applications. Features include electrostatic focus, electrostatic deflection and deflection blanking. The scan voltages required for this tube can be obtained from transistorised deflection circuits. Precision engineering renders astigmatism and geometry correction potentials unnecessary in many applications. The tube may also be used as a monoaccelerator with a larger scanned area.

	(i)	(ii)	
Final anode voltage (p.d.a.) . . . . .	3	4	kV
p.d.a. ratio . . . . .	3:1	4:1	
Display area* . . . . .	8 x 10	8 x 10	cm
Y deflection factor (D <sub>y</sub> ). . . . .	<8.7	<9.2	V/cm
X deflection factor (D <sub>x</sub> ). . . . .	<16.5	<18	V/cm

\*Limited by a useful screen diameter of 12cm.

**HEATER**

V <sub>h</sub> . . . . .	6.3	V
I <sub>h</sub> . . . . .	0.3	A

**SCREEN**

	1324Y	1346Y
Fluorescence . . . . .	Green	White
Phosphorescence . . . . .	Green	Yellowish Green
Persistence . . . . .	1-5ms	10s-60s
E.I.A. phosphor code . . . . .	P31	P7
GEC phosphor code . . . . .	24	46

Other screens can be supplied to special order.

## RATINGS

	Max	Min	
$V_{a4}$ . . . . .	7.0	1.8	kV
$V_{a3}$ . . . . .	2.5	0.8	kV
Ratio ( $V_{a4}/V_{a3}$ ) . . . . .	4	1	
$V_{a2}$ . . . . .	1.0	0	kV
$V_{a1}$ . . . . .	2.2	0.8	kV
$-V_{g1}$ . . . . .	200	1.0	V
$V_{g2-a1}$ . . . . .	$\pm 200$	—	V
$V_{y-a3}$ . . . . .	500	—	V
$V_{x-a3}$ . . . . .	500	—	V
$R_{g1-k}$ . . . . .	1.5	—	M $\Omega$
$R_{y-a3}$ . . . . .	100	—	k $\Omega$
$R_{x-a3}$ . . . . .	500	—	k $\Omega$
p.d.a. spiral resistance . . . . .	—	75	M $\Omega$

Voltage ratings are to cathode unless otherwise shown.

## CAPACITANCES (Typical)

$C_{hk}$ —all . . . . .	3.3	pF
$C_{g1}$ —all . . . . .	8	pF
$C_{g2}$ —all . . . . .	11	pF
$C_{x1-x2}$ . . . . .	2.0	pF
$C_{y1-y2}$ . . . . .	1.5	pF
$C_{x1}$ —all less $x_2$ . . . . .	6.2	pF
$C_{x2}$ —all less $x_1$ . . . . .	6.2	pF
$C_{y1}$ —all less $y_2$ . . . . .	5.0	pF
$C_{y2}$ —all less $y_1$ . . . . .	5.5	pF

## EQUIPMENT DESIGN RANGE

	Max	Min	
$V_{a2}$ (for focus) . . . . .	400	175	V/k $V_{a3}$
$-V_{g1}$ (for cut-off) . . . . .	75	35	V/k $V_{a1}$
$V_{g2}$ (for blanking)(w.r.t.a1) . . . . .	+65	—	V/k $V_{a1}$
Dy (at $V_{a4}/V_{a3} = 4$ ) . . . . .	9.2	7.5	V/cm/k $V_{a3}$
Dx (at $V_{a4}/V_{a3} = 4$ ) . . . . .	18	13	V/cm/k $V_{a3}$
Dy (at $V_{a4}/V_{a3} = 3$ ) . . . . .	8.7	7.0	V/cm/k $V_{a3}$
Dx (at $V_{a4}/V_{a3} = 3$ ) . . . . .	16.5	12	V/cm/k $V_{a3}$
$V_{a3}$ (astigmatism correction) . . . . .	+50	-50	V/k $V_{a3}$
$V_s$ (pattern correction) . . . . .	+50	-50	V/k $V_{a3}$

## TYPICAL OPERATION

	(i)	(ii)	
$V_{a4}$ . . . . .	3	4	kV
$V_{a3}$ . . . . .	1	1	kV
$V_{a2}$ (for focus). . . . .	175-400	175-400	V
$V_{a1}$ . . . . .	1	1	kV
$V_{g2}$ (nom) . . . . .	1	1	kV
$V_s$ (nom). . . . .	1	1	kV
$-V_{g1}$ (for cut-off). . . . .	35-75	35-75	V
Dy (max) . . . . .	8.7	9.2	V/cm
Dx (max) . . . . .	16.5	18.0	V/cm

### Minimum Scanned Area

x axis. . . . .	10.5	10	cm
y axis. . . . .	8.4	8	cm

This area will be centred on a point which is within 3mm of the centre of the tube face. The undeflected spot will lie within a 14mm square at the centre of the tube face.

### †Astigmatism Correction

Adjustment of the potential on a3 relative to the y plate mean potential may be used for the purpose of astigmatism correction. A range of adjustment of  $\pm 50V/kV_{a3}$  should be allowed for this purpose.

### †Pattern Correction

Barrel or pincushion distortion may be minimised by the application of the appropriate potential to s with respect to the x plate mean potential. A range of adjustment of  $\pm 50V/kV_{a3}$  should be allowed for this purpose. Astigmatism and pattern correction potentials are quoted for the condition where the x plate mean potential is equal to the y plate mean potential. If in any application, a difference between x and y plate mean potentials is unavoidable it is recommended that this difference should be kept to a minimum.

†In many applications these correction potentials will be unnecessary.

### **Beam Blanking**

At a cathode current of  $500\mu\text{A}$ , a potential of  $+65\text{V}/kV_{a1}$  with respect to a1 applied to the blanking electrode g2, will completely cut off the beam. This electrode should not be used as a brightness control.

### **Pattern Distortion**

With pattern correction applied the edges of a test raster will lie between two concentric rectangles  $100 \times 60\text{mm}$  and  $97.5 \times 58.5\text{mm}$ . The angle between the x and y axes will be  $90^\circ \pm 1^\circ$ .

### **Deflection Linearity**

The deflection factor for a deflection of less than 75% of useful scan will not differ from that for a deflection of 25% by more than 2%.

### **MOUNTING**

The tube may be mounted in any position but should not be supported by the base alone. It should, preferably, be held in a suitable rubber mask at the screen and by a clamp round the magnetic shield near the base. The socket should have sufficient freedom of movement to accommodate overall length and base orientation tolerances.

### **BASE CONNECTIONS**

Base: B 12 F

Side contact (CT8): a4

Pin 1: g1  
2: hk  
3: h  
4: a2  
5: g2  
6: a3

Pin 7: y1  
8: y2  
9: s  
10: x1  
11: a1  
12: x2

### **WEIGHT**

The weight of the tube alone is approximately 1.0kgm.

**ACCESSORIES**

Part	Manufacturer	Type No.
Base socket	Carr Fastener Co. Ltd.	77/842
CT8 connector	Carr Fastener Co. Ltd.	77/699
Magnetic shield	Magnetic Shields Ltd.	

**WARNING**

Care should be taken not to expose the tube to strong magnetic fields either in use or during storage.

OUTLINE

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