

INSTRUMENT CATHODE-RAY TUBE

10 cm diameter metal-backed flat-faced double gun oscilloscope tube with post-deflection acceleration by means of a helical electrode and low interaction between beams.

QUICK REFERENCE DATA

| | | |
|-------------------------------|----------------|-----------|
| Final accelerator voltage | $V_{g8}(\ell)$ | 4000 V |
| Display area | horizontal | full scan |
| | vertical | 7 cm |
| Deflection factor, horizontal | M_x | 17 V/cm |
| | vertical | M_y |

SCREEN

| | Colour | Persistence |
|-----------|-----------------|--------------|
| E10-130BE | blue | medium short |
| E10-130GH | green | medium short |
| E10-130GM | yellowish green | long |
| E10-130GP | bluish green | medium short |

Useful screen diameter min. 85 mm

Useful scan (each gun) at $V_{g8}(\ell)/V_{g5} = 4$

| | | |
|--|------------|------------|
| | horizontal | full scan |
| | vertical | min. 70 mm |

The useful scan may be shifted vertically to a maximum of 5 mm with respect to the geometric centre of the face plate.

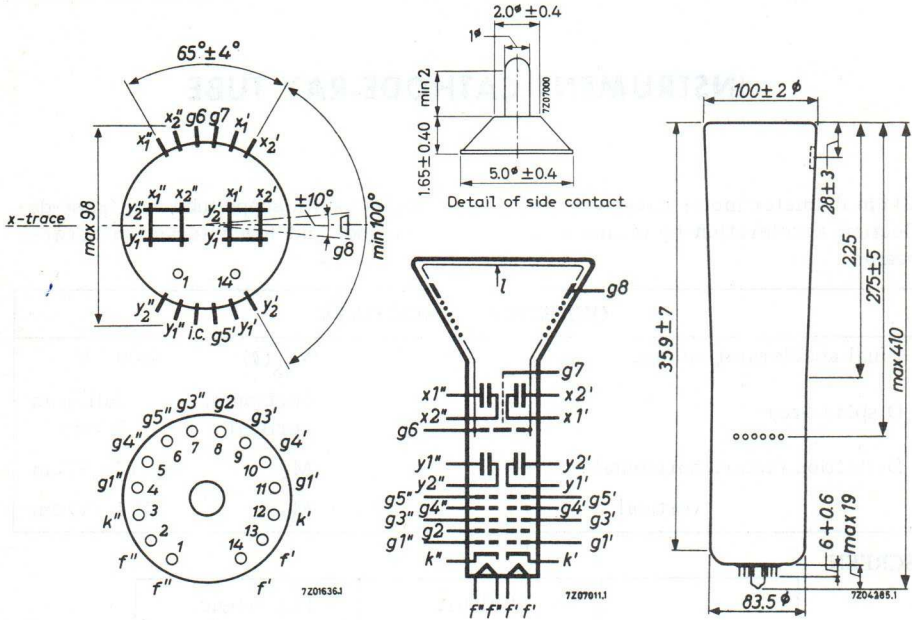
HEATING

Indirect by A.C. or D.C.; parallel supply

| | | |
|----------------|-------|--------|
| Heater voltage | V_f | 6.3 V |
| Heater current | I_f | 300 mA |

Blue binder Cathode-ray tubes

MECHANICAL DATA



Mounting position: any

The tube should not be supported by the base alone and under no circumstances should the socket be allowed to support the tube.

Base

14 pin, all glass

Dimensions and connections

| | | |
|----------------|---------|--------|
| Overall length | max. | 410 mm |
| Face diameter | max. | 102 mm |
| Net weight | approx. | 800 g |

Accessories

| | | |
|-------------------------------------|------|-------|
| Socket, supplied with tube | type | 55566 |
| Final-accelerator contact connector | type | 55563 |
| Side contact connector | type | 55561 |
| Mu-metal shield | type | 55545 |

CAPACITANCES

| | | |
|--|--------------------|--------|
| x_1' to all other elements except x_2' | $C_{x_1'}(x_2')$ | 4.5 pF |
| x_2' to all other elements except x_1' | $C_{x_2'}(x_1')$ | 3 pF |
| x_1'' to all other elements except x_2'' | $C_{x_1''}(x_2'')$ | 3 pF |
| x_2'' to all other elements except x_1'' | $C_{x_2''}(x_1'')$ | 4.5 pF |
| y_1 to all other elements except y_2 | $C_{y_1}(y_2)$ | 2 pF |
| y_2 to all other elements except y_1 | $C_{y_2}(y_1)$ | 2 pF |
| x_1 to x_2 | $C_{x_1x_2}$ | 2 pF |
| y_1 to y_2 | $C_{y_1y_2}$ | 1.5 pF |
| Grid No. 1 to all other elements | C_{g_1} | 5.2 pF |
| Cathode to all other elements | C_k | 5 pF |

FOCUSING Electrostatic**DEFLECTION** Double electrostatic

x plates symmetrical

y plates symmetrical

Angle between x and y traces (each gun) $90 \pm 1^\circ$ Angle between corresponding x traces
at the centre of the screen max. 0.6° Angle between corresponding y traces
at the centre of the screen max. 1°

If use is made of the full deflection capabilities of the tube the deflection plates will intercept part of the electron beam; hence a low impedance deflection plate drive is desirable.

LINE WIDTH

Measured with the shrinking-raster method in the centre of the screen.

| | | |
|---------------------------------------|-----------------|----------------------|
| Final accelerator voltage | $V_{g_8}(\ell)$ | 4000 V |
| Astigmatism-control electrode voltage | V_{g_5} | 1000 V ²⁾ |
| First accelerator voltage | V_{g_2} | 1000 V |
| Beam current | $I_{g_8}(\ell)$ | 10 μ A |
| Line width | l.w. | 0.4 mm |

HELIXPost-deflection accelerator helix resistance min. 100 $M\Omega$ ²⁾ See page 5

TYPICAL OPERATING CONDITIONS (each gun, if applicable)

| | | | | |
|--|----------------|------------------------|--------------|----|
| Final accelerator voltage | $V_{g8}(\ell)$ | 4000 | V | |
| Intergun shield voltage | V_{g7} | 1000 \pm 100 | V | 1) |
| Geometry-control electrode voltage | V_{g6} | 1000 \pm 100 | V | 1) |
| Astigmatism-control electrode voltage | V_{g5} | 1000 \pm 100 | V | 2) |
| Focusing electrode voltage | V_{g4} | 200 to 320 | V | |
| Deflection-blanking electrode voltage | V_{g3} | 1000 | V | |
| Deflection-blanking control voltage for blanking a beam current $I_{g8}(\ell) = 10 \mu\text{A} \Delta V_{g3}$ | V_{g3} | max. 40 | V | |
| First accelerator voltage | V_{g2} | 1000 | V | |
| Control grid voltage for extinction of focused spot | V_{g1} | -25 to -90 | V | |
| Deflection factor, horizontal | M_x | 14 to 20 | V/cm | |
| vertical | M_y | 6.4 to 8.4 | V/cm | |
| Deviation of linearity of deflection | | max. 2 | % | 3) |
| Geometry distortion | | see note 4 | | |
| Interaction factor | | max. $2 \cdot 10^{-3}$ | mm/ V_{DC} | 5) |
| Tracking error | | 1.2 | mm | 6) |

LIMITING VALUES (each gun, if applicable) (Absolute max. rating system)

| | | | |
|--|-----------------------|-----------|--------------------|
| Final accelerator voltage | $V_{g8}(\ell)$ | max. 5000 | V |
| | | min. 2700 | V |
| Intergun shield voltage | V_{g7} | max. 1200 | V |
| Geometry control electrode voltage | V_{g6} | max. 1200 | V |
| Astigmatism control electrode voltage | V_{g5} | max. 1200 | V |
| | | min. 800 | V |
| Focusing electrode voltage | V_{g4} | max. 1200 | V |
| Beam blanking electrode voltage | V_{g3} | max. 1200 | V |
| First accelerator voltage | V_{g2} | max. 1200 | V |
| | | min. 200 | V |
| Control grid voltage, negative | $-V_{g1}$ | max. 200 | V |
| positive | V_{g1} | max. 0 | V |
| Cathode to heater voltage, cathode positive | V_{kf} | max. 125 | V |
| cathode negative | $-V_{kf}$ | max. 125 | V |
| Average cathode current | I_k | max. 300 | μA |
| Screen dissipation | W_ℓ | max. 3 | mW/cm ² |
| Ratio $V_{g8}(\ell)/V_{g5}$ | $V_{g8}(\ell)/V_{g5}$ | max. 4 | |

1) 2) 3) 4) 5) 6) See page 5