FERRANTI

VACUUM LIGHT SOURCES — HIGH SPEED STROBOSCOPIC LIGHT SOURCES

Small grid controlled Triode Tubes designed to produce single light flashes or trains of light flashes of high luminous intensity; they are also suitable for continuous stroboscopic working at high repetition rates. The seven types differ only in the type of screen phosphor employed.

PHYSICAL DETAILS.

Base for
Side Contact
Max. Overall Length
Max. Diameter
Nom. Neck Diameter
Mounting Position

B12A (Duodecal).
CT8 Cavity Type.
221 mm. (8 3/8in.).
95mm. (3 15/16in.).
35 mm.
Any.

SCREEN FLUORESCENCE.

<table>
<thead>
<tr>
<th>Type</th>
<th>Phosphor</th>
<th>Luminescence</th>
<th>Decay Time*</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL60</td>
<td>A type</td>
<td>Green</td>
<td>&lt;1μsec.</td>
</tr>
<tr>
<td>CL61</td>
<td>P type</td>
<td>Blue</td>
<td>5μsecs. approx.</td>
</tr>
<tr>
<td>CL62</td>
<td>Q type</td>
<td>Ultra-Violet</td>
<td>0 - 1μsec.approx.</td>
</tr>
<tr>
<td>CL63</td>
<td>C type</td>
<td>Yellow-Green</td>
<td>6μsecs. approx.</td>
</tr>
<tr>
<td>CL64</td>
<td>V type</td>
<td>Red</td>
<td>2μsecs. approx.</td>
</tr>
<tr>
<td>CL65</td>
<td>R type</td>
<td>White</td>
<td>5μsecs. approx.</td>
</tr>
<tr>
<td>CL66</td>
<td>T type</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BASE CONNECTIONS.

Pin 1—Heater.
Pin 2—Grid.
Pin 3—No pin.
Pin 4—No pin.
Pin 5—No pin.
Pin 6—No connection.
Pin 7—No connection.
Pin 8—No pin.
Pin 9—No pin.
Pin 10—No connection.
Pin 11—Cathode.
Side Contact—Anode.

HEATER.

Heater Voltage
Heater Current

6.3 volts.
0.3 amp.

RATINGS AND CHARACTERISTICS.

Max. Anode Voltage
Max. Anode Current (Pulsed)
Max. Mean Anode Current
Grid Volts for Cut off
Grid drive for Max. Anode Current

20 kV.
100 mA.
200 μA.
-30 to -80 volts.
150 volts max.

LIGHT OUTPUT (V_a=20 kV—100 mA peak beam current, using eye corrected photometer).

CL60
CL61
CL62
CL63
CL64
CL65
CL66

10,000 candelas approx.
16,000 candelas approx.
240 candelas approx.
24,000 candelas approx.
12,000 candelas approx.
14,000 candelas approx.
12,000 candelas approx.

†See Phosphor Characteristic Curves on pages 2 and 3.
*To 1/4 level.
†The anode voltage may be raised to 25 kV, in applications where the presence of constant "background illumination" of a low level can be tolerated. Alternatively the anode may be pulsed up to 35 kV, for applications where greatest light output is required for single flashes of short duration trains of flashes.
**Averaged over a period 1 min. For shorter periods mean anode currents of up to 400 μA may be used. For periods of not more than 1 sec. mean currents up to 3 mA, may be used.
††Most of the output of the Q phosphor is in the extreme violet.
LUMINOUS AREA.

The unfocused luminous area is 5 cm. dia. minimum. The fluorescent area may be reduced to approx. ½ in. diameter by means of a suitable focus coil; under this condition care must be taken to avoid damaging the phosphor by overloading.

FLASH DURATION.

The minimum duration of the flash depends on the duration of the grid pulse and on the screen phosphor. With CL60 and CL62 the flash duration can be reduced to less than 1 microsecond.

FLASH FREQUENCY.

Any repetition rate can be employed within the characteristics of the particular screen phosphor provided the maximum mean current rating is not exceeded.

TYPICAL OPERATION.

The usual method of operation of these Flash Tubes is to apply positive going pulses to the negatively biased control grid. A typical circuit is shown on the following diagram:

![Circuit Diagram](image)

The negative bias on the control grid is set by means of the potentiometer so that when H.T. is applied to the anode there is no anode current flowing or that there is no illumination of the screen. When the positive pulses are applied to the grid the anode current flows and the screen fluoresces. The brightness duration and frequency of the flash are respectively controlled by the amplitude, duration and P.R.F. of the pulses as applied to the grid. These pulses should be derived from a low impedance source and should not have an amplitude in excess of 200 volts but the maximum anode current of the CL60-66 should not exceed 100 mA in any case.
TYPICAL PHOSPHOR CHARACTERISTICS IN THE VISIBLE SPECTRUM

(NOTE—The curves are not relative to each other)

RELATIVE RADIANT ENERGY

WAVELENGTH (Å)

7000
6000
5000
4000

CL60
CL61
CL62
CL63
CL64
CL65
CL66

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TYPICAL PHOSPHOR CHARACTERISTICS
IN THE VISIBLE SPECTRUM

(NOTE—The curves are not relative to each other)

RELATIVE RADIANT ENERGY

WAVELENGTH (Å)

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