FERRANTI

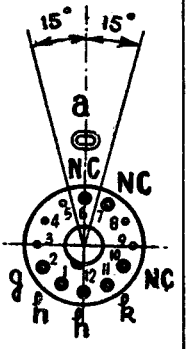
VACUUM LIGHT SOURCES — HIGH SPEED STROBOSCOPIC LIGHT SOURCES

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.

CL60
CL61
CL62
CL63
CL64
CL65
CL66

PHYSICAL DETAILS.

Base	B12A (Duodecal).
Side Contact	CT8 Cavity Type.
Max. Overall Length	221 mm. (8¾in.).
Max. Diameter	95mm. (3¾in.).
Nom. Neck Diameter	35 mm.
Mounting Position	Any.



SCREEN FLUORESCENCE.

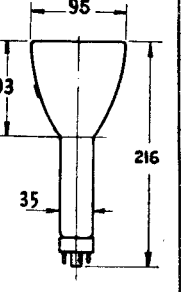
Type	*Phosphor*	*Luminescence*	*Decay Time**
CL60	A type	Green	<1μsec.
CL61	P type	Blue	5μsecs. approx.
CL62	Q type	Ultra-Violet	0·1μsec. approx.
CL63	C type	Yellow-Green	6μsecs. approx.
CL64	V type	Yellow	5μsecs. approx.
CL65	R type	Red	2μsecs. approx.
CL66	T type	White	5μsecs. approx.

BASE CONNECTIONS.

Pin 1—Heater.
Pin 2—Grid.
Pin 3—No pn.
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.
Pin 12—Heater.
Side Contact—Anode.

HEATER.

Heater Voltage	6·3 volts.
Heater Current	0·3 amp.



RATINGS AND CHARACTERISTICS.

‡Max. Anode Voltage	20 kV.
Max. Anode Current (Pulsed) ...	100 mA.
**Max. Mean Anode Current ...	200 μA.
Grid Volts for Cut off ...	−30 to −80 volts.
Grid drive for Max. Anode Current	150 volts max.

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

CL60	10,000 candelas approx.
CL61	16,000 candelas approx.
CL62	240 candelas approx.††
CL63	24,000 candelas approx.
CL64	12,000 candelas approx.
CL65	14,000 candelas approx.
CL66	12,000 candelas approx.

†See Phosphor Characteristic Curves on pages 2 and 3.
*To 1/e 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.

Issue 4
Aug, 1958

CL60
CL61
CL62
CL63
CL64
CL65
CL66

LUMINOUS AREA.

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

FLASH DURATION.

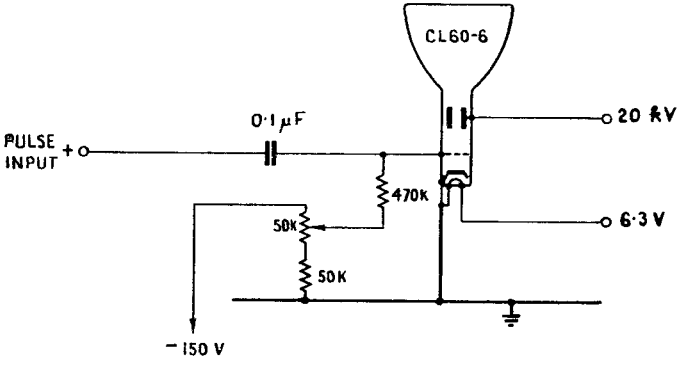
The minimum duration of the flash depends on the duration of the grid pulse and on the screen phosphor. With CL60 and CL62 the flash duration can be reduced to less than 1 microsecond.

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 shewn on the following diagram :—

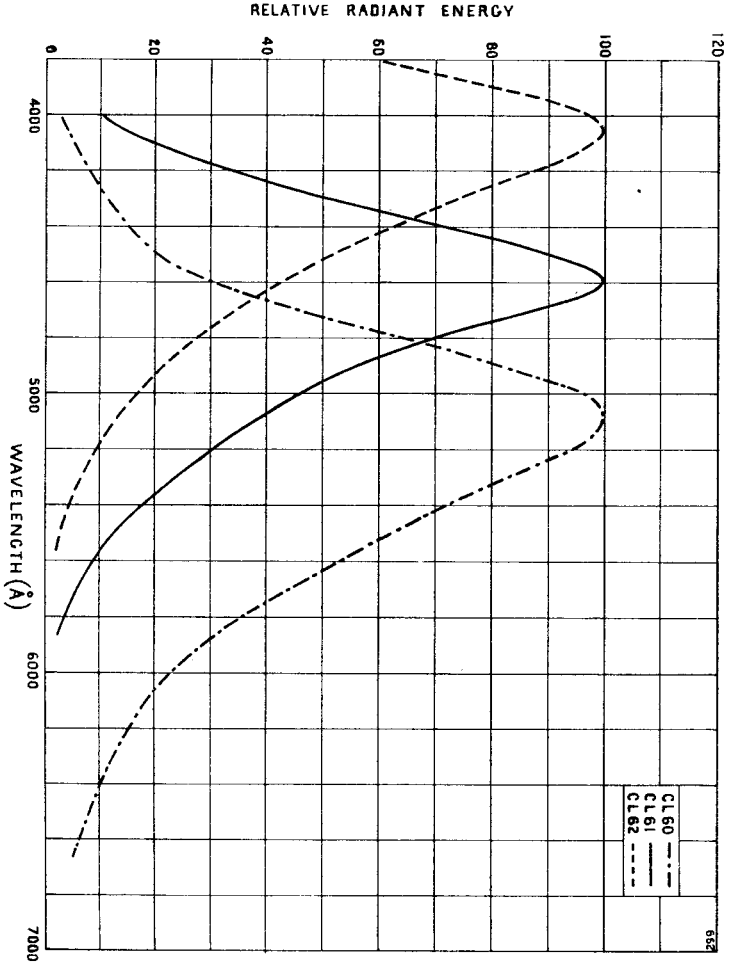


The negative bias on the control grid is set by means of the potentiometer so that when H.T. is applied to the anode there is no anode current flowing or that there is no illumination of the screen. When the positive pulses are applied to the grid the anode current flows and the screen fluoresces. The 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.

CL60
CL61
CL62
CL63
CL64
CL65
CL66

TYPICAL PHOSPHOR CHARACTERISTICS IN THE VISIBLE SPECTRUM

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



CL60
CL61
CL62
CL63
CL64
CL65
CL66

TYPICAL PHOSPHOR CHARACTERISTICS IN THE VISIBLE SPECTRUM

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