

INDICATOR TUBE

Cold cathode sign indicator tube for side viewing.

QUICK REFERENCE DATA			
Sign height			15 mm
Signs			+ -
Supply voltage	V_{ba}	min.	170 V
Cathode current	I_k		4 mA

GENERAL

This tube has the same physical dimensions as the biquinary numerical indicator tube ZM1030. The ZM1031 is provided with a red contrast filter.

PRINCIPLE OF OPERATION

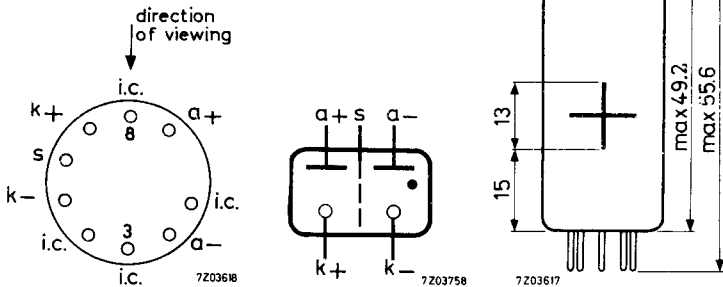
The tube contains two anodes and two cathodes separated by a shield. The rear compartment contains the minus (-) sign and the rear anode, the front compartment contains the plus (+) sign and the front anode.

By applying a suitable voltage between the required sign and the corresponding anode, the sign will be covered by a red neon glow.

DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval



Mounting position: any

The signs are viewed through the side of the envelope.

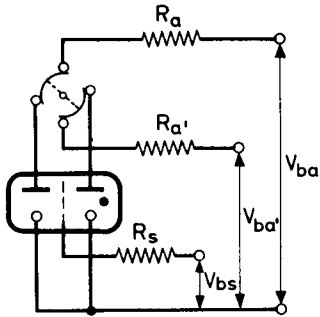
7Z2 5252

CHARACTERISTICS AND OPERATING CONDITIONS

Ignition voltage	V_{ign}	<	170	V
Maintaining voltage at $I_k = 4$ mA	V_m		140	V
Anode current,				
average during any conduction period for coverage	I_a	>	2	mA
average, $T_{av} = 20$ ms	I_a	<	5	mA
peak	I_{aP}	<	10	mA
Incremental resistance	r_a		4.5	k Ω

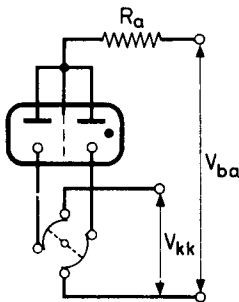
Typical operation at temperatures $t_{amb} = 10$ to 50 °C

I. with anode switches



Shield supply voltage	V_{bs}		50	V
Shield series resistance	R_s		10	k Ω
"Off" anode voltage	$V_{a'}$		90 to 110	V

II. with cathode switches



Cathode selecting voltage	V_{kk}		40 to 70	V
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LIMITING VALUES (Absolute max. rating system)

Anode voltage necessary for ignition	V_a	min.	170 V
Anode current,			
average during any conduction period	I_a	min.	2 mA
average ($T_{av} = 20 \text{ ms}$)	I_a	max.	5 mA
peak	I_{ap}	max.	10 mA
Bulb temperature	t_{bulb}	min.	-55 °C ¹⁾
		max.	+70 °C

¹⁾ Below 10 °C the life expectancy is substantially reduced.

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