

# INDICATOR TUBE

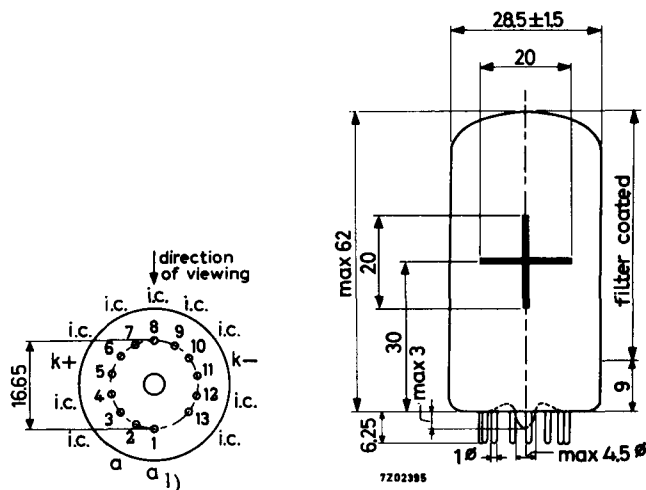
Cold cathode sign indicator tube for side viewing.

| QUICK REFERENCE DATA |        |
|----------------------|--------|
| Sign height          | 20 mm  |
| Signs                | + -    |
| Supply voltage       | 170 V  |
| Cathode current      | 4.5 mA |

## DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: B13B



## GENERAL

The tube has the same physical dimensions as the ZM1040 numeral indicator tube. The ZM1041 is provided with a red contrast filter.

1) Pins 1 and 2 to be interconnected externally.



## CHARACTERISTICS

|                                            |                  |                    |     |   |
|--------------------------------------------|------------------|--------------------|-----|---|
| Ignition voltage                           | $V_{\text{ign}}$ | max.               | 170 | V |
| Maintaining voltage                        | $V_m$            | see sheets 3 and 4 |     |   |
| Extinguishing voltage                      | $V_{\text{ext}}$ | min.               | 120 | V |
| "Off" cathode probe current characteristic |                  | see sheet 4        |     |   |

## PRINCIPLE OF OPERATION

The tube contains two cathodes, in the form of the signs + and -, and a common anode. By applying a suitable voltage between the anode and one of the cathodes the corresponding sign will be covered by a red neon glow.

## ACCESSORIES

Socket 2422 505 00001, 2422 505 00002 or 2422 505 00003

## MOUNTING POSITION

Any

The signs are viewed through the side of the envelope.

## LIMITING VALUES (Absolute max. rating system)

|                                              |                   |      |     |                                  |
|----------------------------------------------|-------------------|------|-----|----------------------------------|
| Anode voltage necessary for ignition         | $V_a$             | min. | 170 | V                                |
| Cathode current,                             |                   |      |     |                                  |
| average during any conduction period         | $I_k$             | min. | 3   | mA                               |
| average ( $T_{\text{av}} = 20$ ms)           | $I_k$             | max. | 6   | mA                               |
| peak                                         | $I_{kp}$          | max. | 20  | mA                               |
| Impulse duration                             | $T_{\text{imp}}$  | min. | 80  | $\mu\text{s}$                    |
| Cathode selecting voltage                    | $V_{kk}$          | min. | 60  | V                                |
| Bias voltage between anode and "off" cathode | $V_{\text{bias}}$ | max. | 120 | V                                |
| Bulb temperature                             | $t_{\text{bulb}}$ | max. | +70 | $^{\circ}\text{C}$ <sup>1)</sup> |
|                                              |                   | min. | -50 | $^{\circ}\text{C}$               |

<sup>1)</sup> Bulb temperatures below 10  $^{\circ}\text{C}$  result in a reduced life expectancy and changes in characteristics (see sheet 4).

In designing equipment to be used within a wide temperature range the use of "constant current operation" (high supply voltage with a high anode series resistor) is recommended.

