

## binay LED MATRIX ANNUNCIATOR WINDOW FASCIA UNITS

**Binay LED (Light Emitting Diode) annunciator windows provide HIGH RELIABILITY of indication in mission-critical control and fault annunciation**

Annunciator window units play a crucial role in control and fault annunciation. The reliability of indication is very important for control applications, as failure can have catastrophic consequences.

These annunciators are normally back-lit with conventional filament bulbs from the rear. However, filament bulbs suffer from the disadvantages of a short life (1000 hours only) and high power consumption, apart from being susceptible to vibration. These problems are further aggravated when cheap filament bulbs of inferior quality are used, as their failure rate is extremely high.

**BINAY LED Matrix Annunciator Windows utilise solid-state LEDs and offer the following advantages over filament bulbs:**

- *A long life of 100,000 hours (nearly 11 years on a continuous burning basis – as such, the question of replacement does not arise)*
- *Extremely low current consumption (20mA - 40mA) – this may reduce complexity in solid-state logic circuits, since driver transistors and thyristors can be avoided. Furthermore, when using filament bulbs, the high ratio of cold/hot resistance requires the use of highly over-rated electronic components, which can withstand high current surge at switch-on. With the use of LEDs, this problem is eliminated*
- *Totally shock-proof and vibration-resistant (as LEDs are solid-state devices)*
- *Ability to withstand a wide range (+/-25%) of voltage variation without any appreciable change in life or light output.*

However, the greatest advantage that the LED Annunciator Window offers over the filament bulb type is the **reliability** of indication. The failure of the filament bulb at a critical juncture due to its limited life or as a result of vibration can cause an expensive mishap, and it is for this reason that many

**Model 9696M**  
(Shown with six partitions)

designers and users prefer to install these LED windows even though the cost is higher.

LEDs, however, suffer from some limitations, which require suitable modifications to be made in the design of the end product. Filament bulbs radiate light in all directions, and one light source is usually adequate; however, when using LEDs (which have directional light emission) a multiple-LED source is required, arranged so as to give wide dispersal of the emitted light over the entire annunciator legend plate. To enable this result, various factors have to be considered in the design of the window – its depth, the positioning of the

**Model 7052AA**



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INVENTING NEW TECHNIQUES OF PRODUCING LIGHT

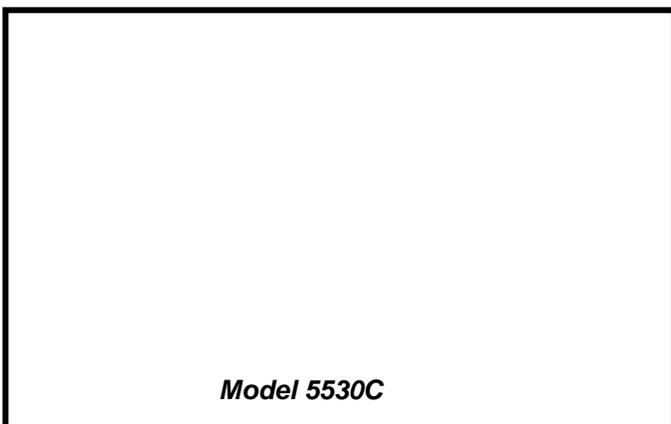
LEDs, angle of light emission of the LEDs used, etc. Furthermore, the material with which the legend plate is made has to be highly translucent.

BINAY LED Matrix Annunciator Windows use multiple high-intensity LEDs to achieve a satisfactory and uniform light output. These LEDs are positioned on a replaceable printed circuit board in a matrix form, and as a result, the legend plate is illuminated in an extremely uniform manner. This plate itself has just the right amount of transmission so as to optimise the compromise between uniform diffusion over its outer surface and too much absorption of light.

For better legibility in high ambient light conditions, high contrast is required between the light transmitted through the window and the light incident on its surface. As such, a dark background for the legend plate (which reflects a minimal amount of incident light) gives highly improved visibility.

For such conditions (where the ambient light is high), we can also provide 'Negative' legend plates. These have a dark background with transparent letters (as opposed to a white background with the legend inscribed in dark letters). This gives a superior effect, as a result of the high contrast obtained by the transparent legend being **back-lit** on a dark background.

Legend engraving can be furnished either on a clear plate or a black background. On request, legends on photo-film transparencies can also be supplied.



BINAY LED Matrix Annunciator Windows are available in any voltage rating from 5V to 220V. Legend colours can be red, green or yellow-white, with the possibility of different partitions in different colours.

A flashing arrangement can also be provided. All types in high voltage ratings (110V/220V) can be supplied with internal circuitry for fast flashing (120 flashes per minute), slow flashing (60 per minute) and steady conditions. Various terminations such as solderable lugs, screw terminals, clip-on ('EImech' type) conductor terminals, or multi-pin connectors can be provided.

**Annunciation Arrays:** Annunciator windows can be supplied in arrays on special order. The numbers of rows and column should be intimated. An external bezel fixes the array on the main panel.

BINAY LED Annunciator Windows come with a free-replacement guarantee against manufacturing defects and operational failure for a period of one year from the date of purchase. The normal life of an LED, however, is 100,000 hours (11 years) calculated on a continuous burning basis, as compared to 1,000 hours for a properly manufactured filament lamp (a ratio of 100:1). As such, the question of replacement of an LED indicator does not normally arise.

**BINAY LED Matrix Annunciator Windows are available in the following standard types:**

<i><b>BINAY Model</b></i>	<i><b>External Bezel Size (mm)</b></i>	<i><b>Panel cutout (mm)</b></i>
<b>9696M</b>	96x96	92x92
<b>7656AAA</b>	76x56	64x54.5
<b>7353A</b>	73x53	59x39.5
<b>7052AA</b>	70x52	56x44
<b>7035BC</b>	70x35	56x27
<b>6550AB</b>	65x50	51x36
<b>6443B</b>	64x43	50.5x30.5
<b>5530C</b>	55x30	41x22.5



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Apart from the Model number (as above), mention voltage rating, type (AC or DC), colour of illumination and type of legend background (clear or black) when enquiring.



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