

Specify your own EL readout brightness levels up to 50 fL.

Hermetically sealed all-glass or metal-glass electro-luminescent readout panels provide initial brightness of up to 50 footlamberts—readily visible even at high ambient light levels.

Brighter phosphors in Sylvania "P-Series" hermetically sealed all-glass and metal-glass EL panels provide intrinsic brightness levels of up to 50 fL at 250 V, 400 Hz, or 25 fL at 115 V, 400 Hz.

Contrast may be increased by changing the transmission characteristics of the glass faceplate. A panel with an intrinsic brightness level of 50 fL would still provide a useful light output of 25 fL with 50% transmission glass for higher contrast, and about 15 fL with 30% transmission glass for extremely high contrast.

These bright, high-contrast panels are available in two basic types of construction: all glass or metal glass (see Fig. 1).

The ideal visual display

From the point of view of design, operational and human engineering considerations, EL panels offer distinct advantages over conventional display devices. When required, they display information faster than the human eye can respond, yet can retain it for as long as necessary. They are highly immune to catastrophic failure. They have the widest viewing angle of any display device: almost 180°, and all in the same viewing plane.

They readily display any type of information de-

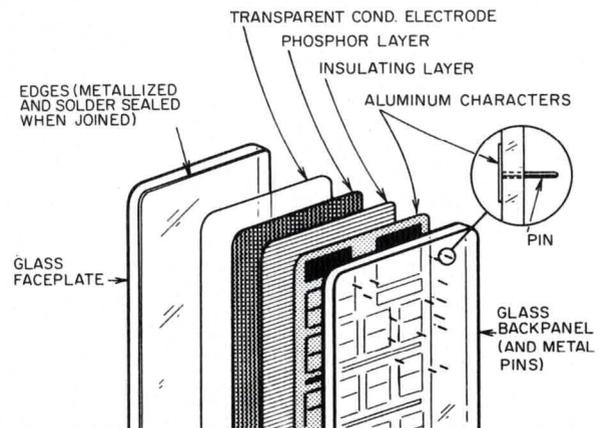
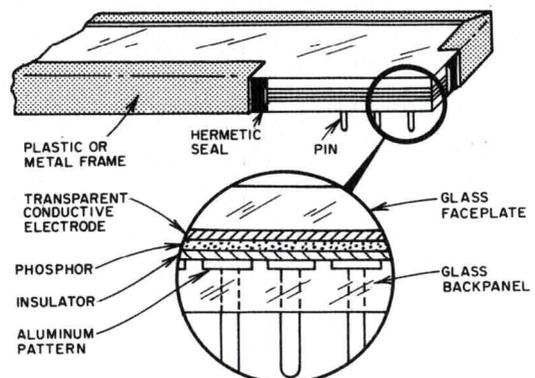


Fig. 1. Top, exploded view, all-glass EL readout panel. Below, sectional view of metal-glass construction.



sired: letters, numbers, pictorial or analog data, quantitative comparisons—and can be custom designed to the user's requirements. Their solid-state nature and construction assures stable performance under extremes of temperature, pressure, humidity and—when properly mounted—under severe shock and vibration. Their soft blue-green light output is very easy on the eyes; spectral emission (Fig. 4) approximates that of the human eye to permit prolonged viewing without fatigue.

Our new "P-Series" panels represent the finest EL display devices Sylvania has ever made—and Sylvania is the acknowledged pioneer and leader in EL technology. These rugged, hermetically sealed devices—although developed originally to meet the stringent environmental and operational demands of critical aerospace and military applications, are also ideal for many industrial uses.

Complete display flexibility

For visual displays, EL readout devices offer almost unlimited flexibility in customized presentation. The conducting electrodes forming the display are made by graphic art techniques so that almost any desired display pattern can be fabricated: numerals, letters, bars, squares, map segments, large solid areas, and special symbols in various arrangements, designs and configurations. Different colors may even be provided on a single panel. Legends and special symbols (i.e., plus and minus signs, decimal points, etc.) may be designed as an integral part of a panel or may be applied in the form of an overlay—whichever best suits the user's requirements. With EL, complex information display problems can be simplified and fully customized.

Typical configurations and applications

EL units are currently being produced in the follow-

ing configurations. (Other configurations are of course possible; Sylvania engineers will be glad to work with you to develop what you need.)

Numerics—solid areas—alphanumerics. These displays represent the major types of EL readout currently in use by space agencies, the military and industry. When two or more digits are required to display the desired information, all characters are usually fabricated on a one-piece substrate. This design provides optimum spacing between digits, attractive digit-to-digit balance, permits extra compactness where space is at a premium.

Bar graphs. EL bar graphs are ideal for many aircraft, spacecraft and shipboard instrumentation applications—wherever quantitatively variable input data must be monitored and compared. Parallel EL bars give positive, easy-to-read data display and comparison with high resolution for precise measurement. Legends and/or limit markers can be incorporated either into the illuminated portion of the bar graph itself or onto the panel faceplate.

Random-access panels illustrate the true versatility and superiority of a solid-state EL visual display system. They can display alphanumeric, graphic or symbolic information *in any combination* to visually represent any situation. They are ideal for displays involving: air traffic control, automotive routing and flow, harbor surveillance, troop and equipment movement, local or remote classroom displays, machine programming, warehouse stock control displays, control and monitoring applications, communication of pictorial information—virtually any situation that requires a highly readable and graphic dynamic visual presentation.

CIRCLE NUMBER 301

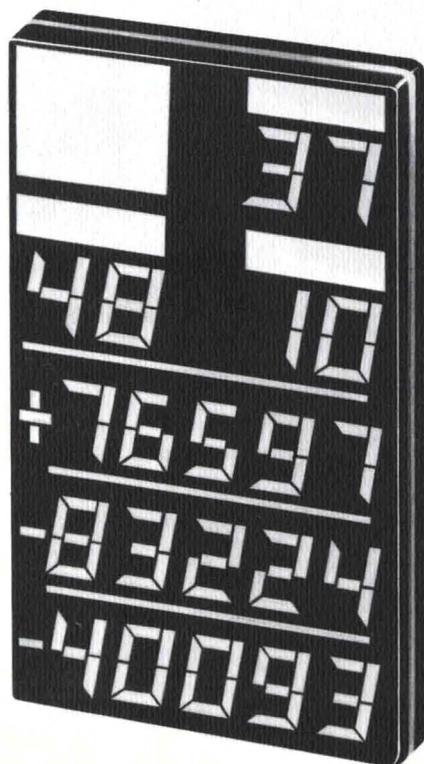


Fig. 2. Typical EL panel, all-glass construction. Intrinsic brightness of phosphor is approximately 50 fL at 250 V, 400 Hz. Brightness varies inversely with contrast depending on transmission characteristics of glass faceplate.

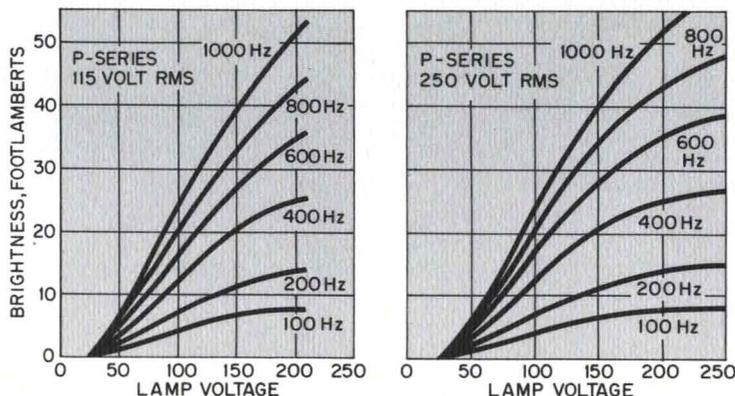


Fig. 3. Brightness vs. voltage, with 60% transmission glass, for both metal-glass and all-glass EL readout panels at 115 and 250 V. rms respectively.

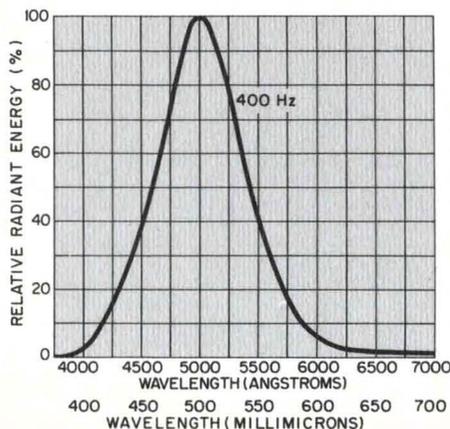


Fig. 4. Spectral emission characteristics, metal-glass and all-glass EL readout panels. Light output very closely matches the response of the human eye, permitting easy prolonged viewing.