

Choosing the Right Light Pipe: Comparison of Rigid and Flexible

A Host of Considerations for Choosing the Right Pipe

The choice for light pipes is rigid polycarbonate or flexible optical fiber. Determine the distance required to move light from point A at the LED to Point B where light is needed (see Figure 2). Choose an optical fiber diameter based on flexibility and luminosity requirements. The light pipe adapters have many mounting and LED options. PCB and panel configuration determine whether a light pipe needs surface mounted devices (SMD), firm retention for vibration, or a standard post mount. Bivar pre-cuts POF light pipe to any length from 1.5" to 330', assuring uniformity and proper face perpendicularity. Lenses rated against Ingress Protection (IP) are available for harsh environments such as industrial, transportation, aerospace, defense, and outdoor utility installations.

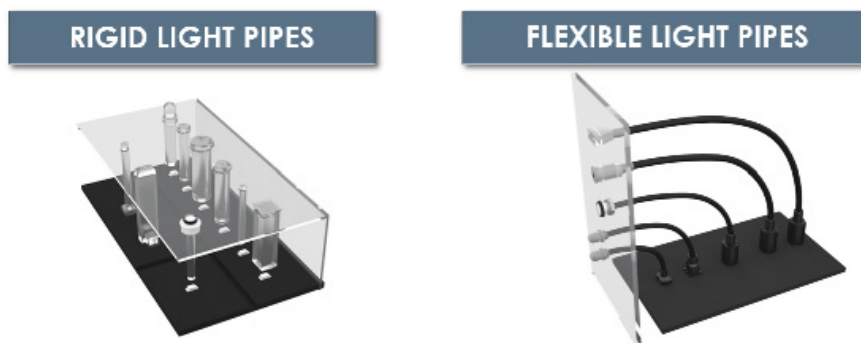


Figure 3: Rigid light pipes move light short distances. Flexible light pipes move light up to 330 feet. All Bivar ZLB light pipes eliminate light bleed.

A light pipe offers benefits on several fronts: clean status indication and design options that improve human factors. Flexible light pipes can transport LED light up to 330 feet away without having to add powerful drivers or protection against noise. Light traveling through POF eliminates noise that affects high-frequency designs in a world reaching 5G communications.

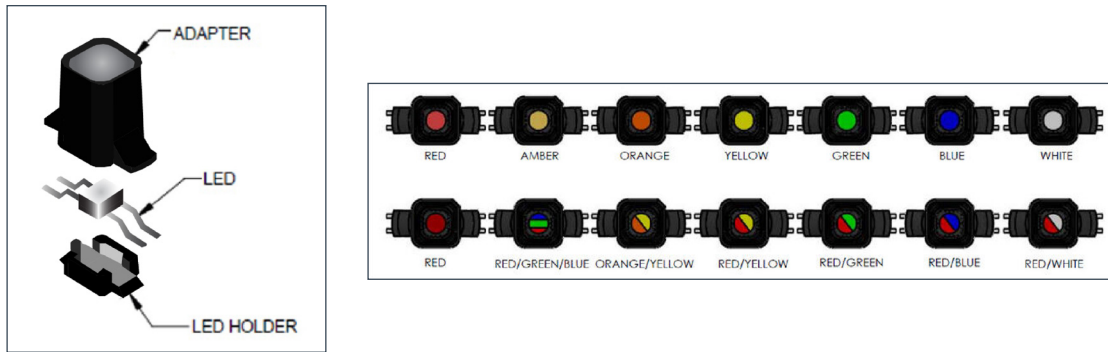


Figure 4: The BIVAR SZ Series SMD assembly of flexible light pipes has a reinforced adapter and a total of 14 possible LED colors: eight single color LEDs, five bicolor LEDs, and one Red-Green-Blue (RGB) LED. An RGB LED can produce up to 2563 (16,777,216) color combinations in an 8-bit system.

Light pipes can add tremendous flexibility to designs that otherwise might not be possible. There's more room to design when you can move LED circuitry up to 330 feet away, eliminate light bleed, and move light pathways around obstacles inside a chassis. As LEDs propagate into more applications where it is critical that there is no light bleed and complete certainty surrounding what indicator a human user should be attending to, Bivar's ZLB pipes provide necessary space savings, power savings, and noise immunity.

To find out more, visit Bivar.com.