

Light Pipes — Understanding the Basics

How light pipes carry LED light to the panel

Light pipes are engineered to carry light from point A (the source) to point B (the exit) with minimal bleed or loss, transmitting it from PCB-mounted LEDs to the front display panel. Typically molded from optical-grade acrylic or polycarbonate, VCC's rigid and flexible light pipes deliver excellent optical performance and easy installation, supporting everything from simple status indicators to complex multi-point designs.

By allowing the LED to be located away from the display point, light pipes provide greater design flexibility, optimize PCB layout, and make more efficient use of available panel space.

Configurations

- **Board-mount linear (rigid):** vertical pipes that mount straight to the PCB to carry device status over short distances to the panel.
- **Panel-mount linear:** integrate into the display panel with crushable ribs or a retainer ring, so boards install and remove without disturbing the panel.
- **Flexible:** bend up to 30° to route light around curves and tight spaces; immune to EMI/ESD and able to bypass PCB components.
- **Moisture-sealed flexible:** engineered for outdoor and high-moisture environments where sealing is critical.

Where light pipes are used

- Industrial automation & control
- Medical devices
- Renewable energy
- Internet of Things (IoT)
- EV charging stations
- Datacenters & servers

Featured VCC light pipe series

LFB 3 MM PRESS FIT	LPC 4 MM LOW PROFILE	LFC 5 MM PRESS FIT
• 0.116" (3 mm) panel mounting hole • Diffused rigid; frosted soft-glow surface • Crushable ribs simplify install • 120° viewing angle • Works with through-hole & SMD LEDs • Lengths 0.125" – 1.000" • Clear polycarbonate UL 94-V0 · RoHS	• 0.171" (4.3 mm) panel mounting hole • Low-profile Fresnel, near-flush design • With or without crushable ribs • 160° viewing angle • Works with through-hole & SMD LEDs • Lengths 0.200" – 2.000" • Clear acrylic optical grade · RoHS	• 0.156" (4 mm) panel mounting hole • Diffused rigid; frosted soft-glow surface • Crushable ribs simplify install • 120° viewing angle • Works with through-hole & SMD LEDs • Lengths 0.125" – 1.000" • Clear polycarbonate UL 94-V0 · RoHS