

Choosing the Right Light Pipe

A specification checklist for engineers

Choosing the right light pipe means matching three things at once: the **optics** (viewing angle and diffusion), the **mechanics** (mounting style, length, and board-to-panel distance), and the **environment** (sealing and flammability).

Providing the following design parameters helps ensure the right light pipe is selected for your application. If your requirements are unique, VCC can also design a custom solution tailored to your needs.

#	SPECIFICATION	WHAT TO CAPTURE	WHY IT MATTERS
1	Mounting hole diameter	The exact panel cutout (Ø).	Determines which body and retention style will fit and hold securely.
2	Mounting type	Press-fit, panel mount, or board mount.	Drives installation method, retention, and assembly tooling.
3	PCB-to-hole distance	Gap between the PCB and the mounting hole.	Sets the required light-pipe length and coupling geometry.
4	Light-pipe type	Rigid (straight or right angle) or flexible.	Routes light from the LED to the exit around your board layout.
5	IP rating	Sealing constraints (VCC offering is typically IP50).	Confirms environmental protection at the panel interface.
6	Flammability rating	UL V-0, UL V-2, or UL HB minimum.	Meets the safety / compliance class required for your enclosure.
7	Material type	Polycarbonate, acrylic, and/or silicone.	Balances toughness and a low refraction index for clean transmission.
8	Lens type & finish	Dome, semi-dome, or flat; clear, frosted, fresnel, or user-provided.	Controls viewing angle, diffusion, and the look at the panel.

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