

Training Note

Types of Optical Sensors

Self-contained Sensors:



Right-Angle





Pros

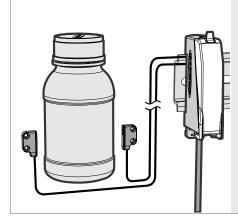
- Easy to wire: Self-contained sensors require only one source of voltage to power them and can interface directly with the load.
- Easy to align: Self-contained sensors contain the amplifier circuitry so they also have integral alignment indicators.

Cons

- Accessibility of controls: Depending on mounting constraints, alignment indicator may be difficult to view while mounting sensors.
- **Temperature limitations:** Avoid using self-contained sensor in temperatures exceeding 70° C (158° F).

NOTE: Maximum operating temperature rating of some models is less than 70° C.

Remote Sensors



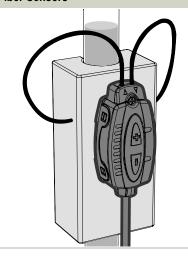
Pros

- Small sensor size: Remote sensors have minimal circuitry and can be much smaller.
- Accessibility of control: Amplifiers can be mounted away from sensing location, allowing easier access to sensitivity and timing adjustments.
- **High temperature**: Some remote sensors may be placed in high temperature environment but the amplifier needs to be kept relatively cool.

Cons

- Separate alignment indicator: The alignment indicator is housed with the amplifier module. If the amplifier is mounted away from view, aligning the emitter and receiver can be difficult.
- Wiring precautions: It is very important that you follow the instructions for wiring your sensor to avoid such problems as electrical "crosstalk."

Fiber Sensors



Pros

- **Immune to electrical noise:** Fibers have no electrical circuitry and no moving parts.
- Tolerant to shock/vibration/temperature: Fibers are passive mechanical sensing components in rugged, protective assemblies.
- Considered intrinsically safe in some applications.

Cons

- · Adds cost to sensing systems.
- Repetitive flexing can damage some fiber models.