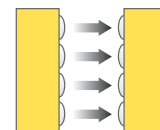
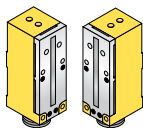




## LS10 Light Screen System

- Emitter and receiver pair produce a strobed array of modulated light beams to produce a light screen
- Simple, economical and highly reliable means of sensing small parts which pass anywhere through the light screen
- Light screen area measures 90 mm (3.5") high, and as wide as the distance between the emitter and receiver
- Fast, 1 millisecond response; output includes a 5-millisecond pulse stretcher for interfacing reliability
- Tight beam spacing for sensing small parts as small as 5.6 mm (0.22") diameter
- Totally self-contained; very rugged with totally encapsulated circuitry
- Bipolar design offers the choice of NPN (current sinking) or PNP (current sourcing) outputs from the same receiver; both outputs may be used simultaneously



*Infrared, 880 nm*

## LS10 Series Opposed Mode Emitter (E) and Receiver (R)

Models	Range	Cable*	Supply Voltage	Output Type	Minimum Resolution
LS10ESR	100 to 200 mm (4" to 8")	3-Pin Mini-style QD	12-30V DC	Bipolar NPN/PNP DO	5.6 mm (0.22")
LS10RSR		4-Pin Mini-style QD			
LS10E	100 to 1220 mm (4" to 48")	3-Pin Mini-style QD			7.6 mm (0.30")
LS10R		4-Pin Mini-style QD			

\*Emitters come with a 3-pin Mini-style connector; receivers come with a 4-pin connector. All require a mating cable; see page 5.



### **WARNING . . . Not To Be Used for Personnel Protection**

**Never use these products as sensing devices for personnel protection. Doing so could lead to serious injury or death.**

These sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition. Consult your current Banner Safety Products catalog for safety products which meet OSHA, ANSI and IEC standards for personnel protection.

# MULTI-BEAM<sup>®</sup> LS10 Light Screen System

## LS10 System Overview

LS10 Light Screen Systems consist of two self-contained units: an emitter and a receiver. Multiple infrared LEDs in the emitter are aligned in a row and strobed (turned ON one at a time) in a specific sequence and at a high frequency. Receivers contain a matching array of phototransistors. The length (height) of the array is 90 mm (3.5"), and produces a curtain of light as wide as the distance between the emitter and receiver. The receiver may be placed 4" to 48" opposed from the emitter (LS10E/LS10R) or 4" to 8" away (LS10ESR/LS10RSR). The LS10E/LS10R system can detect objects as small as 7.6 mm (0.30") in diameter; minimum detectable object profile for the LS10ESR/LS10RSR system is 5.6 mm (0.22").

NOTE: Sensing should not take place within 1/2" of any LS10 system sensor face.

The light from the emitter is modulated to minimize sensitivity to ambient light. An indicator LED on the emitter lights whenever power is applied. The receiver has an Alignment LED which lights whenever the beam is broken.

The receiver output interfaces directly with dc loads or circuits up to 30V dc, and offers both sinking (NPN) and sourcing (PNP) output transistors. The sinking (NPN) output may be connected directly to any Banner MAXI-AMP or MICRO-AMP logic module for additional system control. Outputs are energized continuously while the beam is broken. A 5 millisecond pulse stretcher (OFF delay) is included to improve interfacing reliability.

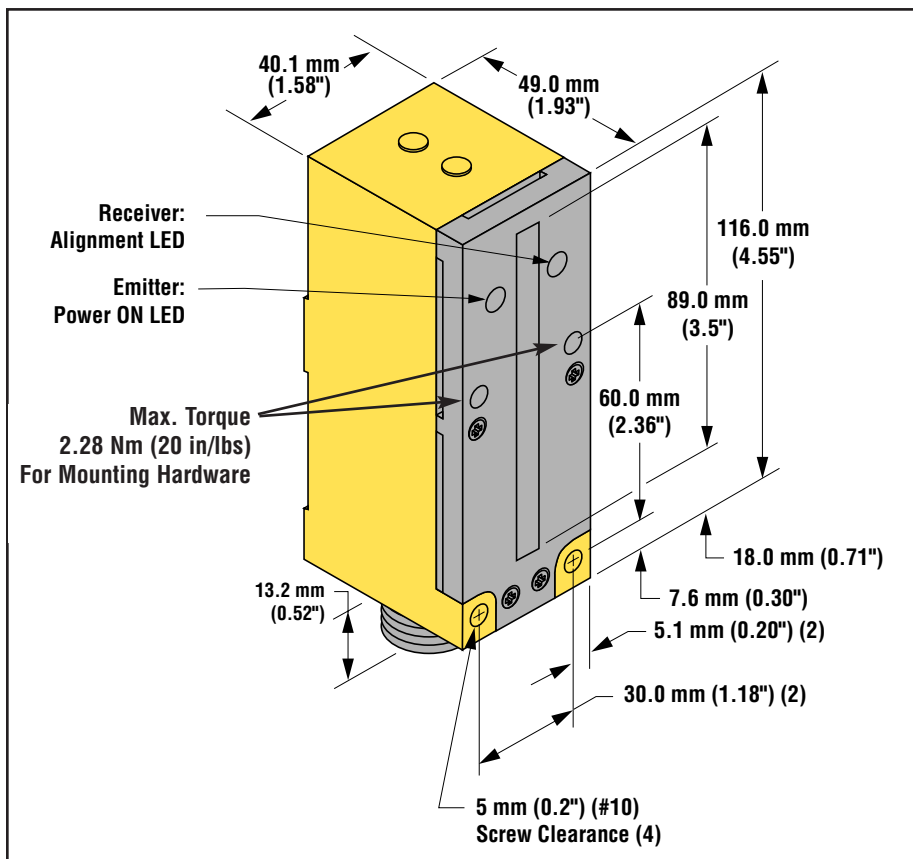


Figure 1. LS10 features