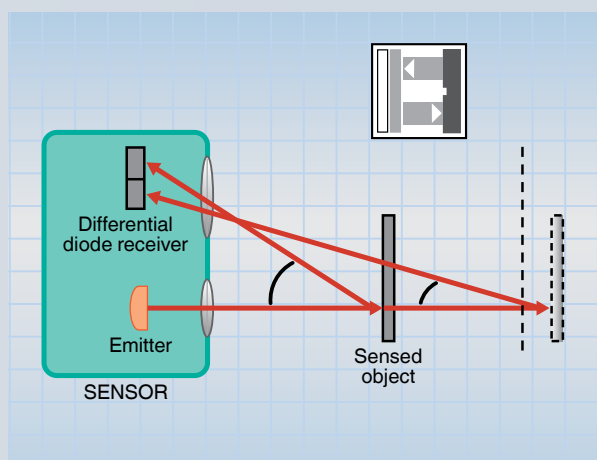


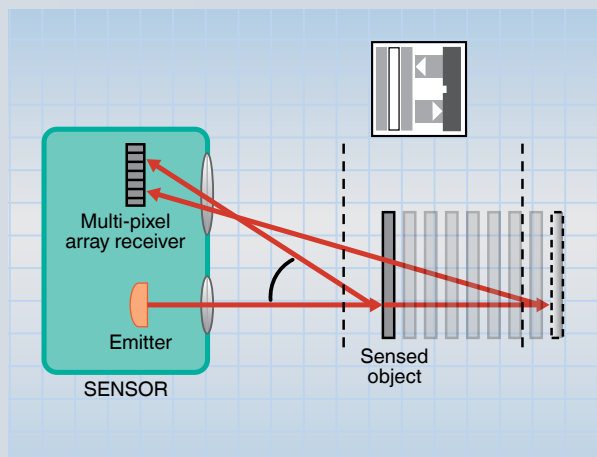
Background Suppression (BGS) sensors easily and precisely sense objects up to a defined distance but not beyond. Light from the sensor's emitter is reflected by an object to the sensor's two-segment receiver at varying angles depending on the object's distance. Depending on that triangulation angle—and subsequently which receiver segment sees more reflected light—the object is either detected or suppressed.

Not only are background machine panels, conveyors, and sidewalls correctly ignored, but materials and products with varying colors and printing are seen at a consistent distance with no adjustment needed.



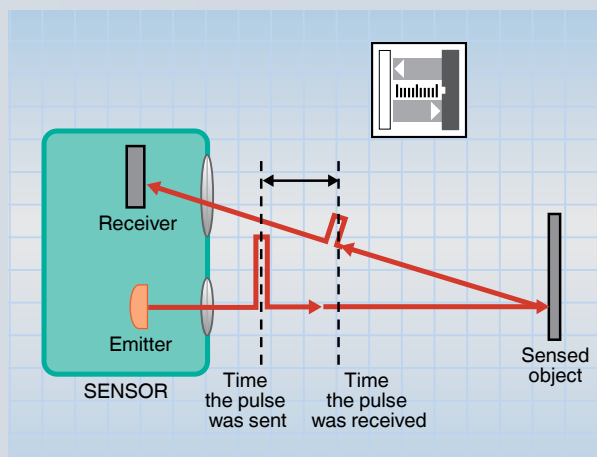
Multi-pixel Array (MPA) sensors detect objects either up to a defined distance or within a defined span. Like BGS sensors, light from the sensor's emitter is reflected by an object to the sensor's receiver at varying angles depending on distance. But an MPA receiver is an array of more than two—possibly over one hundred—segments. The triangulation angle—and subsequently where reflected light contacts the array—determines if the object is detected.

Its unique receiver enables a greater range of sensing modes and configurations so sensing can be customized to a specific application.



Pulse Ranging Technology (PRT) devices accurately measure the distance to an object or reflector. The sensor's emitter sends short, intense bursts of light that are reflected back to the sensor's single receiver. Using the speed of light as a constant, the sensor calculates the duration between the time the pulse was sent and the time it was received and then determines the distance to the object.

Offering continuous distance data, it measures the actual distance to an object or reflector with repeatability and precision.



FACTORY AUTOMATION – SENSING YOUR NEEDS



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DISTANCE-BASED PHOTOELECTRIC SENSING



DISTANCE-BASED PHOTOELECTRIC SENSING

Photoelectric sensors that only detect the absence or presence of an object may not suffice for every application. Distance-based photoelectric sensors address more challenging application requirements by not only determining the presence of something, but also its position. Three methods have emerged as front-runners of distance-based photoelectric sensing.



BACKGROUND SUPPRESSION (BGS) SENSORS

How Does It Work?	Triangulates reflected light to differential diode
What Does It Indicate?	If an object is closer than a defined distance
Why Use It?	To sense object while ignoring background or color variation
Applications	Detecting varying products, presence check in tight space, leading edge detection
Advantages	Simplicity; tight switching hysteresis, product breadth; economical



BACKGROUND SUPPRESSION (BGS) SENSORS



Typical BGS Applications:

- Detect cookies in a plastic tray
- Verify hole presence in a mold assembly
- Trigger barcode reads
- Sense filters in a nozzle head
- Monitor stack height



MULTI-PIXEL ARRAY (MPA) SENSORS

How Does It Work?	Triangulates reflected light to array
What Does It Indicate?	If an object is closer than a defined distance or in a defined window
Why Use It?	To customize sensing thresholds or ranges
Applications	Presence check, tension monitoring; leading edge detection, web break monitoring, stroke height monitoring
Advantages	Balances flexibility and simplicity; multiple modes; economical

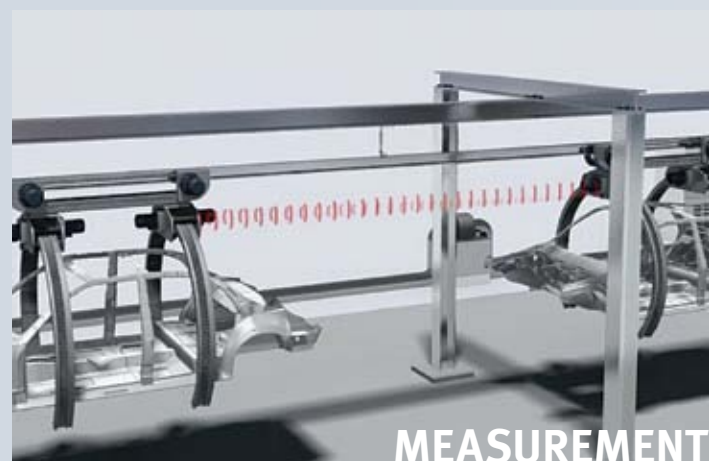
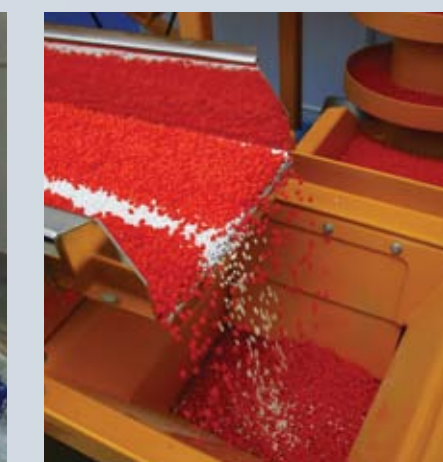


MULTI-PIXEL ARRAY (MPA) SENSORS



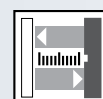
Typical MPA Applications:

- Web tension monitoring
- Leading edge monitoring of reflective and irregularly contoured objects
- Fill level monitoring
- Web break detection
- Dancer arm stroke height control



PULSE RANGING TECHNOLOGY (PRT) SENSORS

How Does It Work?	True time-of-flight calculation using reflected light pulses
What Does It Indicate?	Distance to an object
Why Use It?	To measure distance
Applications	Monitoring proximity, determining position, measuring dimensions
Advantages	Distance output, flexibility



PULSE RANGING TECHNOLOGY (PRT) SENSORS



Typical PRT Applications:

- Collision avoidance on overhead conveyors
- Measurement of distance to stacker crane
- Container dimensions measurement
- Elevator positioning
- Precise level measurement

