

RIVO MULTITRADE OPTICAL SYSTEMS

Through-beam photoelectric and fiber optic sensors

Mesh door/glass door optional



Sp-601 glass door

Sp-602 mesh door

Overview

Through-beam sensors Through-beam sensors from Balluff serve to detect objects reliably, regardless of surface, color, material - Through Beam Fiber Optic.

Key Takeaways

Through-beam photoelectric sensors detect objects by interrupting a light beam between a separate emitter and receiver, while fiber optic sensors use flexible fiber heads to transmit and receive light in challenging or confined environments. Through-Beam Photoelectric Sensors

Working Principle: Through-beam sensors consist of a separate emitter and receiver aligned opposite each other. When an object interrupts the light beam, the receiver detects a change in the signal, triggering an output response . Advantages:

- High reliability: Can detect almost any object regardless of color, surface, or material .
- Long detection range: Capable of ranges up to 150 m, and even 800 m for object radiation .
- Insensitive to surface characteristics: Works effectively with reflective, transparent, or dark objects, including metalized films .



- Fast response time: Light travels at high speed, allowing rapid detection .

Applications: Widely used in packaging, material handling, automotive, and electronics industries. They are particularly effective for detecting objects in films, separating packaged items, and ensuring precise positioning .

Fiber Optic Sensors

Working Principle: Fiber optic sensors consist of a sensor amplifier and fiber optic heads. The amplifier contains the light source and processing electronics, while the fiber heads transmit and receive light to detect objects or changes in light intensity .

Advantages:

- Flexible installation: Fiber heads can be placed in tight or harsh environments where conventional sensors cannot fit .
 - High environmental resistance: Suitable for extreme temperatures, moisture, or chemical exposure .
 - Versatile detection modes: Supports through-beam, reflective, retro-reflective, and definite reflective sensing .
 - Precise detection: Can detect small or difficult targets with high accuracy .
- Applications: Commonly used in factory automation, robotics, and areas with limited space or harsh conditions. They are ideal for detecting small parts, transparent objects, or targets in confined spaces.

Key Differences

Feature	Through-Beam Photoelectric Sensor	Fiber Optic Sensor
Components	Separate emitter and receiver	Amplifier and fiber optic heads
Installation	Requires line-of-sight alignment	Flexible fiber heads allow placement in tight or harsh areas
Detection Range	Very long (up to 150 m or more)	Moderate, depends on fiber length and head type
Environmental Suitability	Standard industrial environments	Harsh, confined, or high-temperature environments
Object Detection	Any object, including transparent or reflective	Small, difficult, or hard-to-reach targets

Both sensor types are essential in industrial automation, with through-beam sensors excelling in long-range, high-reliability detection, and fiber optic sensors providing flexibility and precision in challenging environments.

Article Content

Photoelectric Sensor

mF&FF Series Optical Fiber Sensor *High speed response time 0.1ms / ON *Free cut fiber cable *DIN rail fixer *Thermal drift

E32 Series Fiber Sensors/Lineup | OMRON Industrial Automation

Sensors (1) Fiber Sensors (1) Features Lineup Specifications Dimensions Catalog last update: October 6, 2025 Standard Installation

Digital Fiberoptic Sensor

Latest Technology The Next Evolution in Fiber Optic Sensing Downloads: Technical Guides Data Sheet (PDF) CAD / CAE Manuals

Fiber Unit

This is a series of fiber optic sensor heads designed to be connected to a fiber optic sensor amplifier. The FU Series offers a wide

Thru-Beam/Opposed Mode Sensors | TRI-TRONICS

Self-contained, easy-to-use sensors available in a wide variety of sensing models (thru-beam, retroreflective, proximity and fiber

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