ZITHA TECH SPECIALTY CABLES (Pty) Ltd

Optical fiber sensor for through-beam side detection



Overview

The ipf plastic fiber optic systems consist of a flexible pla-stic fiber with a sensing head and an optoelectronic fiber optic amplifier.

Key Takeaways

Through-beam side-sensing fiber optic sensors provide high-precision, non-contact detection of small and irregular objects, requiring a fiber amplifier for stable operation.Overview

Through-beam fiber optic sensors operate by transmitting light from an emitter fiber to a receiver fiber, detecting objects that interrupt the light path. Side-sensing through-beam sensors are specifically designed to detect objects from the side, making them ideal for irregular shapes, label marks, moving parts, or wide-area inspection in industrial automation . These sensors are commonly used in electronics manufacturing, packaging, automotive production, and food or pharmaceutical processing .

Key Features
• High Detection Accuracy: Capable of detecting very small objects, with some models sensing diameters as small as 0.04 mm and others down to 0.5 mm .

• Adjustable Light-Emitting Widths: Available in widths ranging from 5 mm to 120 mm, allowing wide-area coverage and uniform light output .

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• Durable Construction: Reinforced soft rubber sleeves or stainless steel sensor heads provide bending resistance, waterproof protection, and long service life .

• Fast Response: Ultra-fast signal transmission ensures real-time detection, suitable for high-speed production lines .

• Compatibility: Must be paired with a fiber amplifier for stable signal processing, with support for both conventional and analog output amplifiers .

Advantages of Side-Sensing Through-Beam Design

• Wide-Area Detection: Side-sensing allows inspection of irregular or moving objects without requiring precise alignment.

• Non-Contact Measurement: Prevents damage to delicate targets while maintaining sensor integrity.

• Flexibility: Can be installed in tight or complex environments where traditional sensors may not fit .

Applications

• Industrial Automation: Part presence detection, counting, and material deviation monitoring.

• Label and Mark Detection: Ensures accurate positioning and quality control.

• Micro-Level and Large-Area Inspection: Suitable for both very small components and broader inspection areas .

Considerations

• Amplifier Requirement: A fiber amplifier is essential for signal stability and consistent performance.

• Installation Distance: Detection ranges can extend up to 500 mm, depending on the model and light-emitting width .

• Environmental Resistance: Some models are designed to withstand high temperatures (up to 300°C) and harsh industrial conditions . Through-beam side-sensing fiber optic sensors combine precision, durability, and flexibility, making them a reliable choice for demanding industrial applications where accurate, non-contact detection is critical .

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Side sensing through-beam fiber optic sensor is designed for high-precision object detection, offering fast

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This Through-Beam Fiber Optic Sensor offers exceptional performance and versatile design, making it an

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

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Through Beam Fiber Optic Sensor, M3/M4/M6

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With the ability to perform diffuse reflective, through-beam, top-sensing, side-sensing, and U-type slot detection, fiber optic sensors

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Fiber Sensors

Detection Principles Optical fiber is comprised of a central core with a high refractive index surrounded by cladding with a low

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Fiber-optic waveguides These extend the range of possible applications of photoelectric fi ber sensors with important additional fi

Through Beam Fiber Optic Sensor, M3/M4/M6

This through beam fiber optic sensor has high performance and professional design, thread size M3, M4,

Fiber optic through beam sensor

ifm efector, inc. 1100 Atwater Dr. Malvern, PA 19355 Phone 800-441-8246 email cs @ifm

fiber optic through-beam and dif. reflection sensors

The ipf plastic fiber optic systems consist of a flexible pla-stic fiber with a sensing head and an optoelectronic fiber optic amplifier.

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Photoelectric Sensors detect photo-optical workpieces. OMRON provides many varieties of Sensor, including diffuse-reflective,

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Whether you need sensors for high-speed production, transparent object detection, or precision positioning, we have

Through Beam Rectangular Fiber Optic Sensor

High-quality through beam rectangular fiber optic sensors offer a wide range of detection ranges of 10mm,

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What is a Fibre Optic Sensor? Fibre optic sensors are a type of proximity sensor that have an optical fibre connected to a light source

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How to Specify Fiber Optic Sensors |Library tomationDirect

Photoelectric sensors come with a variety of light emission types (infrared, visible red, laser Class 1 and 2), sensing

Fiber optic through beam sensor

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For installation with limited mounting space Operation as through-beam sensor Long range For cutting to size Small bending radius

THE SELF-CONTAINED THRU-BEAM SENSOR

Rather than simply interrupting a static beam as with self-contained thru-beam sensors, the entire part must enter and exit

Type of Fiber Optic Sensors/Fiber Unit

Transparent object detection Retro-reflective Effective for detecting transparent objects. The beam passes

CHAPTER 09 FIBER OPTIC SENSORS

EXTRINSIC FIBER OPTIC SENSORS: In such type of sensors, sensing takes place in a region outside of the fiber and essentially

Fiber optic through beam sensor

For installation with limited mounting space Operation as through-beam sensor With 90° deflection of the light beam for use where

Through-beam sensors

Through-beam sensors from Balluff serve to detect objects reliably, regardless of surface, color, material - even with a heavy gloss

Difference between reflective and through-beam fiber sensors

Through-beam fiber sensors transmit light from a source to a receiver using optical fibers. They usually consist of two

Lateral and axial displacements measurement using fiber optic sensor ...

The performance of the fiber-optic displacement sensor with beam-through detection technique is investigated. The

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Through Beam Fiber Optic Proximity Sensors | GlobalSpec

Beam Type: Infrared Fibre Optic Sensors -- 1780218 [E32-TC200E 2M from OMRON Automation and Safety] from RS Components,

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Fiber optic through beam sensor E20753 FE-11-EPA-M4/F1x1/2M For installation with limited mounting space Operation as through

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Threaded Through-Beam Fiber Units | M3, M4, M6 Fiber Sensors

Discover how thru beam fibre optic sensors detect objects by blocking a light beam between emitter and receiver. Ideal for precise,

Through-beam sensors

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