

Fiber Optic Sensor Through-beam Switch



Overview

Through Beam Fiber Optic Sensors – MouserMouser offers inventory, pricing, & datasheets for Through Beam Fiber Optic Sensors. Through-beam sensors Through.

Key Takeaways

A fiber optic through-beam switch detects objects by transmitting a light beam from a separate transmitter to a receiver, triggering a signal when the beam is interrupted. How It Works

A through-beam fiber optic sensor consists of two main components: a transmitter that emits a light beam and a receiver that detects the beam. When an object passes between the transmitter and receiver, it interrupts the light, causing the sensor to change its output state, effectively acting as a switch. Unlike reflective sensors, through-beam sensors are highly reliable for detecting objects regardless of color, surface finish, or material.

Components and Design

Fiber optic sensors include:

- **Sensor heads:** These are the fiber optic cables or tips that transmit and receive light. They contain no electronics, making them suitable for tight or harsh environments.



- Amplifier unit: This contains the light source and processing electronics, interpreting the received light signal and generating the output . Through-beam sensors can be designed with aluminum sheathing for high-temperature applications (up to 290°C), chemical resistance, and small bending radii for installation in confined spaces .

Applications

Through-beam fiber optic switches are widely used in:

- Industrial automation: Detecting parts on assembly lines or conveyor systems.
- Harsh environments: Areas with high temperatures, chemicals, or limited space where conventional sensors cannot operate .
- Precision detection: Detecting small or transparent objects that are difficult for other sensors to sense .

Advantages

- High reliability: Works with objects of any color or surface finish .
- Long sensing range: Can detect objects over extended distances depending on the model .
- Flexibility: Fiber optic heads can be positioned in tight or hazardous areas while the amplifier remains in a safe location .
- Durability: Resistant to chemicals, heat, and mechanical stress .

Product Examples

- ifm E20753: A fiber optic through-beam sensor with technical data, mounting instructions, and CAD drawings available for industrial integration .
- Keyence FU Series: Offers through-beam sensor heads compatible with amplifiers, suitable for detecting difficult targets in factory automation .
- Balluff Through-beam Sensors: Reliable detection for objects with heavy gloss finishes or challenging surfaces .
- Mouser Electronics: Provides a range of through-beam fiber optic sensors with datasheets and inventory for selection .
- GlobalSpec: Offers high-temperature, chemically resistant through-beam fiber optic proximity sensors with compact designs for limited mounting space . Through-beam fiber optic switches are essential in applications requiring precise, reliable, and flexible object detection, especially in environments where conventional sensors may fail.

Article Content

Fiber optic through beam sensor

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

10.083-97_Photo1

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

fiber optic through-beam and dif. reflection sensors

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

Through beam fiber-F&C sensors

Through beam fiber 1. The amplifier is equipped with optical fiber, which can detect the presence or absence of opaque or

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

Photoelectric Through Beam with Fiber-Optics

Challenge: Photoelectric sensors are often used with fiber-optic cables in the through-beam/opposed mode. While there are

MULTI-BEAM Sensors Family

Selection of the fiber optic sensing tip should involve matching the effective beam of the fiber to the profile of the part to be sensed to

Fiber optic through beam sensor

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

Through-Beam Fiber Optic Sensors – Mouser

Through-Beam Fiber Optic Sensors are available at Mouser Electronics. Mouser offers inventory, pricing, & datasheets for Through

Fiber Optic Proximity Sensors Information

Choices for optical configuration for fiber optic proximity sensors include through beam, retroreflective, polarized retroreflective,

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

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