Omron E32-T11L

Omron E32T11L Standard Fiber Optic Sensor Instruction Manual

Model: E32-T11L

1. Introduction

The Omron E32T11L is a standard fiber optic sensor designed for reliable detection of small, fast-moving objects in various industrial environments. This through-beam sensing unit utilizes an LED light source and is suitable for installations with space constraints or harsh conditions. Its flexible design allows for custom fitting and adaptation to complex machinery contours.

2. Safety Information

Read and understand all instructions before installing, operating, or maintaining this product. Failure to follow these instructions may result in injury or equipment damage.

- **Electrical Safety:** Ensure power is disconnected before wiring or performing any maintenance. Incorrect wiring can cause electric shock or fire.
- **Environmental Conditions:** Do not use the sensor in environments exceeding its specified temperature, humidity, or vibration limits.
- **Mounting:** Securely mount the sensor and fiber optic cables to prevent accidental detachment or damage.
- **Intended Use:** Use this product only for its intended purpose as a fiber optic sensor. Do not modify the product.

3. Product Overview

The Omron E32T11L is a through-beam fiber optic sensor. It consists of a transmitter fiber and a receiver fiber, which are typically paired with a separate amplifier unit (not included with this fiber unit). The sensor detects objects when they interrupt the light beam traveling between the transmitter and receiver fibers.

Figure 3.1: Omron E32T11L Standard Fiber Optic Sensor. This image shows the fiber optic cable with its sensing head, designed for through-beam applications.

Key Features:

- **Sensing Method:** Through-Beam
- **Light Source:** LED
- **Flexible Cables:** Highly flexible fibers with a minimum 1 mm bending radius, allowing conformity to machine contours.
- **Robust Construction:** Brass Sensing Head, Plastic Sheath, Acrylic Resin Core.
- **Environmental Protection:** IP67 enclosure rating.

4. Setup and Installation

Proper installation is crucial for optimal performance of the E32T11L sensor.

4.1 Mounting the Fiber Unit

1. **Select Location:** Choose a mounting location where the transmitter and receiver fibers can be aligned directly opposite

each other, with the object to be detected passing between them.

2. **Secure Mounting:** Use the M4 screw mounting type to securely fasten the sensing heads. Ensure they are stable and free from vibration.
3. **Cable Routing:** Route the fiber optic cables carefully, avoiding sharp bends that exceed the 1 mm minimum bending radius. Use cable ties or clamps to secure the cables along their path to the amplifier.

4.2 Connecting to an Amplifier

The E32T11L fiber unit requires connection to a compatible Omron fiber optic amplifier (e.g., E3X series). Refer to the amplifier's manual for specific connection instructions.

- Insert the ends of the fiber optic cables into the designated ports on the amplifier unit.
- Ensure the fibers are fully inserted and secured by the amplifier's locking mechanism.
- Connect the amplifier to the power supply and control system according to its specific wiring diagram.

5. Operating Instructions

Once installed and connected to a powered amplifier, the E32T11L sensor operates by detecting interruptions in its light beam.

5.1 Basic Operation

1. **Power On:** Turn on the power to the fiber optic amplifier.
2. **Alignment:** Ensure the transmitter and receiver fibers are perfectly aligned. Most amplifiers have an indicator (e.g., LED) to show signal strength or detection status.
3. **Sensitivity Adjustment:** Adjust the sensitivity of the amplifier as needed. For through-beam sensors, this typically involves setting the threshold at which an object interrupting the beam is detected. Refer to the amplifier's manual for detailed adjustment procedures.
4. **Test Detection:** Pass the target object through the sensing area to verify proper detection. The amplifier's output should change state when the object is present.

5.2 Sensing Distance and Object Size

The E32T11L offers a sensing distance of up to 910 mm and can detect objects as small as 0.01 mm in diameter. Optimal performance depends on proper alignment and amplifier sensitivity settings.

6. Maintenance

The Omron E32T11L is designed for low maintenance. Regular inspection and cleaning will ensure long-term reliable operation.

- **Cleaning:** Periodically clean the sensing heads of both the transmitter and receiver fibers. Use a soft, lint-free cloth. For stubborn dirt, a mild, non-abrasive cleaning solution can be used, applied to the cloth, not directly to the sensor.
- **Inspection:** Regularly inspect the fiber optic cables for any signs of damage, such as kinks, cuts, or excessive bending. Ensure all mounting hardware is secure.
- **Environmental Check:** Verify that the operating environment remains within the specified temperature and humidity ranges.

Note: Do not attempt to disassemble the sensor head or fiber optic cable, as this will void the warranty and may damage the unit.

7. Troubleshooting

This section addresses common issues you might encounter with the E32T11L fiber optic sensor.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
No Detection / Always ON	• Misalignment of fibers. • Dirty sensing heads. • Incorrect amplifier sensitivity setting. • Damaged fiber optic cable. • Amplifier malfunction.	• Realign transmitter and receiver fibers. • Clean sensing heads thoroughly. • Adjust amplifier sensitivity. • Inspect cables for damage; replace if necessary. • Check amplifier status and connections.
Intermittent Detection	• Vibration or unstable mounting. • Dust or debris on sensing heads. • Object passing too quickly or inconsistently. • Marginal amplifier sensitivity.	• Securely mount fibers and amplifier. • Clean sensing heads. • Ensure consistent object presentation. • Fine-tune amplifier sensitivity.
Reduced Sensing Distance	• Dirty sensing heads. • Aging LED light source (less common for new units). • Fiber damage.	• Clean sensing heads. • Check amplifier for error codes. • Inspect and replace damaged fibers.

8. Specifications

Detailed technical specifications for the Omron E32T11L Fiber Optic Sensor.

Parameter	Value
Model Number	E32-T11L
Type	Standard Fiber Optic Sensor
Sensing Method	Through Beam
Light Source	LED
Sensing Distance	910 mm
Minimum Object Size	0.01 mm Dia
Response Time	500 ms
Electrical Connection	2 m Cable
Enclosure Rating	IP67
Operating Temperature	-40 to 70 deg C
Mounting Type	M4 Screw
Material	Brass Sensing Head, Plastic Sheath, Acrylic Resin Core
Item Weight	0.64 ounces

9. Warranty and Support

Omron products are manufactured to high quality standards. For specific warranty terms and conditions, please refer to the official Omron warranty statement provided with your purchase or visit the Omron official website or contact their customer support.

For technical assistance, troubleshooting beyond this manual, or to inquire about replacement parts, please contact Omron customer support directly.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question