Sensitivity Adjustment of Fiber Optic Sensors



Overview

Fiber-Optic Pressure Sensors: Recent Advances in This paper conducts a systematic analysis of the sensing mechanisms in fiber-optic pressure sensors, with.

Key Takeaways

Fiber optic sensor sensitivity can be set manually or automatically using the SET and PRESET buttons, adjusting the detection threshold to match the light intensity received from the target.

Basic Sensitivity Adjustment

Manual Calibration: Most fiber optic sensors have a SET button that allows you to calibrate sensitivity.

Pressing the SE

T button once or twice adjusts the sensor to the current light intensity, establishing a baseline for detection. Preset Function: The PRESET button can be used to define reference points. Pressing it sets the current light intensity as a standard value (e.g., 100%), which helps compensate for variations in target reflectivity or background light.

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Holding the PRESE

T button can disable the function if needed. Percentage Calibration: Some sensors allow percentage-based threshold settings. For example, you can set the detection threshold to 15% of the received light intensity, which is useful for detecting small or low-contrast objects.

Automatic Sensitivity Adjustment

Many sensors support automatic sensitivity calibration while the workpiece passes through the detection area. This is effective when the line cannot be stopped, ensuring consistent detection without manual intervention. Automatic adjustment can also compensate for dust, dirt, or gradual light intensity changes, maintaining reliable operation over time.

Advanced Settings

Mode Selection: Sensors often allow switching between light-ON (L-on) and dark-ON (D-on) modes, which determines whether the sensor triggers when light is received or blocked.

Fine-

Tuning: Holding the MODE button for several seconds can enter advanced settings, such as high-speed response modes or retouch sensitivity ranges, allowing precise control over detection timing and threshold.

Two-

Point Correction: Some models allow setting two reference points (0% and 100%) to correct for background and target variations, improving accuracy in reflective or diffuse sensing applications.

Practical Tips

Always align the fiber optic head properly with the target to ensure accurate light reception. Use background suppression or reflective models depending on the application to reduce false triggers. Regularly recalibrate if environmental conditions change, such as lighting, dust, or target color.

For networked or programmable sensors, sensitivity can often be adjusted remotely via communication units. By combining manual calibration, preset reference points, and automatic adjustment, you can optimize the sensitivity of a fiber optic sensor for reliable detection in industrial environments.

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