# Fiber Optic Sensor Amplifier Tuning Method

Article Overview

Fiber optic amplifier sensors are adjusted using one-point, two-point, or three-point teaching methods, combined with threshold fine-tuning and sensitivity calibration for accurate detection.

Basic Adjustment Steps

1. Installation and Alignment

o Mount the amplifier on a DIN rail and secure it properly.
o Insert the optical fiber into the launch (emitter) and receiving ends, ensuring correct orientation to avoid performance degradation .
o Align the fiber so that the light beam is directed toward the sensing object. Visible light models simplify positioning . 2. One-Point Teaching (Basic Calibration)
o Press the button twice: once to set the reference light intensity and again to confirm the output state .
o This sets the sensor's sensitivity to detect the object under standard conditions . 3. Two-Point Teaching (Threshold Range Setting)
o Place the sensing object in the detection area and press to record the lower threshold (10% below incident light).
o Remove or change the object to record the upper threshold (10% above incident light).
o This method stabilizes detection when objects vary in size or background conditions . 4. Three-Point Teaching (Advanced Calibration)
o Use three objects with different light intensities (A, B, C).
o Set the mid-point thresholds between A-B and B-C to define a precise detection range .
o This is useful for small objects or complex backgrounds. 5. Fine Adjustment and Preset Functions
o Use the threshold fine adjustment function to slightly increase or decrease sensitivity to compensate for dust, dirt, or environmental changes .
o Some sensors allow automatic sensitivity adjustment while the workpiece passes through, maintaining consistent detection without stopping the line .
o Preset functions can correct the current value to standard reference points (e.g., 0.0 and 100.0) for reflective models . 6. Mode Selection and Locking
o Select Light-ON or Dark-ON operation depending on whether the sensor detects the presence or absence of light .
o Advanced settings may be available in PRO or CUSTOM modes, including response time, emission power, and hysteresis .
o Key lock functions prevent accidental changes during operation . 7. Practical Tips
o Ensure fibers are fully inserted and locked to prevent misalignment .
o Avoid using the sensor for personnel protection unless it meets safety standards like OSHA, ANSI, or IEC .

o Regularly check and clean the fiber ends to maintain consistent light transmission . By following these steps, fiber optic amplifier sensors can be accurately adjusted for stable and reliable object detection in various industrial environments.

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This function is effective when the intensity value does not change (saturation) from the maximum value of the display-possible range

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