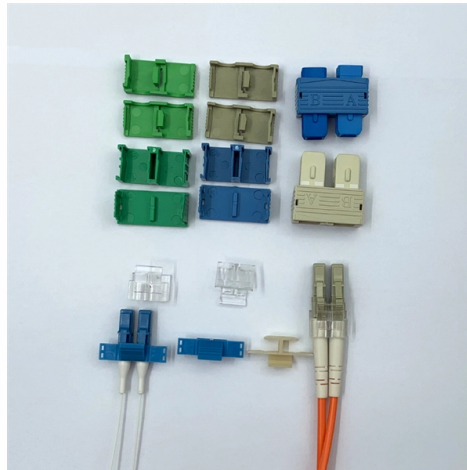


Optical module DC power supply cannot be adjusted



Overview

This chapter describes how to configure the Optical Amplifier Module and Protection Switching Module (PSM).

Key Takeaways

If a DC power supply for an optical module cannot be adjusted, the issue may stem from protection circuits, fixed-output design, or digital control interface limitations. Check Basic Power Supply Functionality

First, ensure the power supply is properly connected to both the power source and the optical module, and that the input voltage is within the rated range. Verify that the power switch and indicator lights are functioning; a non-illuminated indicator may indicate a faulty switch or internal fault. Measure the output voltage with a voltmeter to confirm whether it is present or abnormally low, which could indicate a malfunction in the output circuit or internal components .

Consider Protection Circuit Activation

Many DC power supplies include overcurrent or thermal protection. If the module is overloaded or overheated, the supply may shut down or lock the output voltage, preventing adjustment until it cools down or the fault is cleared . Allow the supply to return to normal operating temperature and retry adjustment.

Verify Output Voltage Adjustment Method

Some optical modules require digitally controlled voltage adjustment rather than manual potentiometers. High-speed optical modules often use I2C or other digital interfaces to set the output voltage in discrete steps. If the host controller or MCU is not properly communicating with the power supply, the voltage may appear unadjustable. Ensure that the digital interface is correctly configured and that the host processor is operational.

Check Optical Module Requirements

Optical modules may have fixed voltage requirements for proper operation. Attempting to adjust the supply outside the module's nominal range can be blocked by the module or the supply itself. Use the module's data sheet or digital diagnostic monitoring (DDM) data to confirm the acceptable voltage range. Exceeding or falling below this range can cause abnormal operation or damage.

Additional Troubleshooting Steps

- Inspect cables and connectors for damage or poor contact.
- Ensure optical fibers and transceivers are clean and undamaged, as abnormal optical power can sometimes trigger protective behavior in the module.
- If the supply has a manual adjustment knob, verify it is not mechanically stuck or defective.
- If all else fails, replace the power supply with a compatible unit that supports adjustable output within the required voltage range. By systematically checking connection integrity, protection circuits, digital control interfaces, and module voltage specifications, you can identify why the DC power supply cannot be adjusted and take corrective action.

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Cause analysis: The module's LOS A and LOS D cannot be adjusted. Repair method:
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Power Tree of an Optical Module Figure 1 is an example block diagram of how all the necessary blocks in an optical module can be

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