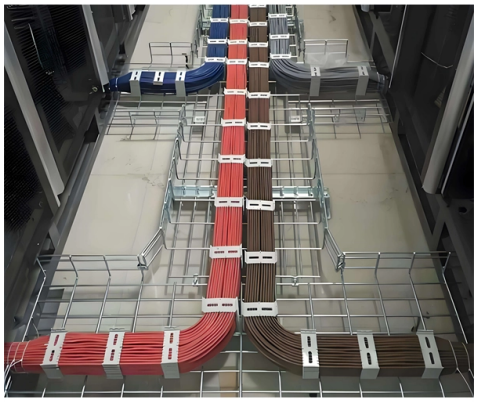
Detection of optical port LOS alarm logic module



Overview

In a word, the existing optical module has the defect of no trigger when the LOS alarm is realized by using the LOS judgment signal of the CDR chip, so that the reliability of the alarm...

Key Takeaways

An optical port LOS alarm is detected by combining signals from the receiver's optical power and the CDR chip to determine if the optical signal is lost, triggering an alarm when either or both indicate signal loss.

LO

S Alarm Detection Logic1.

Dual-

Signal Judgment: Modern optical modules use a combination of two signals to detect LOS: CDR Chip Output: The Clock Data Recovery (CDR) chip monitors the incoming optical signal and outputs a first LOS judgment signal based on signal integrity and timing quality. Received Optical Power: The optical receiver measures the incoming light power. This is converted into a second LOS judgment signal using a comparator to determine if the power falls below the module's sensitivity threshold.

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The LO

S alarm is triggered when either the CDR-based signal or the optical power-based signal indicates a loss, improving detection accuracy and reducing false negatives. 2.

RX LOS and T

X Fault: RX LOS (Receiver Loss of Signal): Indicates insufficient optical power at the receiver, often caused by fiber contamination, misalignment, or distance exceeding the module's range.

T

X Fault (Transmit Fault): Monitors the transmitter laser for abnormal conditions, but is separate from LOS detection. 3.

Auxiliary Detection and IP

A Integration: In some network systems, such as Huawei OptiX OSN 8800, an auxiliary detection board (e.g., ST2 board) monitors LOS alarms. When a LOS is detected, the Intelligent Power Adjustment (IPA) function can automatically disable the upstream optical path to protect the network, affecting service continuity. 4.

Standards and Testing: IEEE C37. 94-compliant systems report LOS alarms in two forms: Frame-induced LOS and Signal-induced LOS, providing detailed diagnostics for troubleshooting. Far-end devices may send a Yellow (RDI) alarm to indicate received signal issues, while upstream devices may generate AIS alarms to maintain network integrity.

Key Components in LO

S DetectionCDR Chip: Shapes and recovers the electrical signal from the optical input, providing a timing-based LOS judgment. Optical Receiver (ROSA): Converts optical signals to electrical signals and measures received power. Microcontroller Unit (MCU): Integrates the LOS logic, combining CDR and optical power signals to generate alarms.

Comparator: Converts analog optical power measurements into digital LOS signals. Gold Finger Contacts: Facilitate signal transmission between the module and host system.

Practical Considerations

Ensure the optical module's sensitivity matches the link distance and fiber quality. Clean connectors and verify fiber alignment to prevent false LOS alarms. Monitor both RX LOS and TX Fault signals for comprehensive diagnostics.

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In systems with IPA or auxiliary detection boards, understand that LOS alarms may trigger automatic path shutdowns affecting upstream services. By combining CDR-based signal integrity checks with optical power monitoring, LOS alarm modules provide reliable detection of signal loss, enabling rapid troubleshooting and network protection.

Article Content

Optical module LOS alarm method and system

In a word, the existing optical module has the defect of no trigger when the LOS alarm is realized by using the LOS judgment signal of the CDR chip, so that the reliability of the alarm...

Troubleshooting Guide for Cisco NCS 1010, IOS XR Releases 7.11.x

In an optical network, alarm propagation defines how different alarms propagate in a larger link during any failure in the network. The alarm correlation algorithm suppresses the lower

Troubleshooting Guide for Cisco NCS 1001, IOS XR Releases 7.x.x,

The RX Loss Of Continuity (LOC) alarm is raised when there is a an optical power failure on the port receiving from a span. This alarm represents a fiber cut on the span and is a combination

Alarms in OTN system and explanations

Here are the key OTN alarms and their explanations: 1. Optical Channel (OTU) Alarms. These alarms occur at the Optical Transport Unit (OTU) layer, which ensures error correction and

HISILICON Optical Module Locating Faults in a Relevant Way

By analyzing the changes in these parameters and the alarm status, it is possible to quickly locate whether the fault is within the module or on the line, and whether it is on the local

Olt optical module alarm method and device

On the basis of the alarm function of the 10G LA chip and the 1G LA chip, the invention uses two chips to sound an alarm at the same time and carries out logic calculation according to rules...

SONET/SDH Alarms Troubleshooting Guide | PDF | Optical Fiber

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This document provides troubleshooting tips for common SONET/SDH alarms such as LOS, LOF, LOP, AIS, and RDI. It explains the causes and solutions, including checking fiber optic cables,

Optical module alarm

Check the diagnostic information, which shows that the received optical power is low, with a threshold of -3 to -23.01, currently at -22.84. Once it exceeds the threshold, an alarm will be

ALM-135463001 hwOpticalInvalid_Common Alarms_V600 Device

Cause 8: The optical signals received by the optical module were lost. Services on the optical module may be affected, which may cause bit errors, error packets, or even service interruption.

Common OTN Alarms and their Troubleshooting Steps

Physical Layer First: For critical alarms like LOS, start with the basics - check fiber connections, clean connectors, measure optical power, and verify transceiver status before diving

Olt optical module alarm method and device

The present invention relates to the field of optical communication technology, in particular to an OLT optical module alarm method and device, the method comprising: processing an optical signal sent

Troubleshooting Guide for Cisco NCS 1010, IOS XR Release 7.7.1

Troubleshooting of Data Path Alarms EGRESS-AUTO-LASER-SHUT Default Severity: Not Alarmed (NA), Non-Service-Affecting (NSA) Logical Object: Controller OTS The EGRESS-AUTO

Troubleshooting Guide for Synchronous Digital Hierarchy

This document discusses the principles of measuring performance parameters in Synchronous Digital Hierarchy (SDH) networks. This document provides a description of basic

Alarm Troubleshooting

Default Severity: Critical (CR), Non-Service-Affecting (NSA) Logical Object: EQUIPMENT This alarm indicates that a relative loss has been detected in the optical fiber on a specific port and direction.

Alarm Troubleshooting

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Logical Object: OTS, OTS-OCH, Optics Controller The RX-POWER-FAIL-LOW alarm is triggered on an OTS-OCH, optics, or OTS controller whenever the optical power of the incoming

Troubleshooting Physical Layer Alarms on SONET and SDH Links

Note the SONET layer at which errors and alarms are detected, when you troubleshoot. For example, perform an extended test of the end−to−end link if the POS interfaces report path−layer errors only.

OLT Alarm and Troubleshooting Guide | PDF | Optical Fiber

1. An ONU was frequently going online and offline after a flood, which was caused by a rogue ONU whose optical module was transmitting abnormally due to flood damage. Replacing the rogue ONU

Optical module status log alarm, but view the specific module status i

Optical module status log alarm, but view the specific module status i Dawson123 Level 1 Options 10-08-202202:28 AM Oct 8 11:16:33.099 GMT: %SFF8472-5-THRESHOLD_VIOLATION:

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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