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# **Optical Module Digital Diagnoses Configuration Guide**



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# Contact Information

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## World Wide Web

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<http://www.raisecom.com/en/xcontactus/contactus.htm>.

If you have comments on the ... specification, instead of the web page above, please send comments to:

[export@raisecom.com](mailto:export@raisecom.com)

We hope to hear from you!

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# Release Notes

Date of Release	Manual Version	Software Version	Revisions

# Preface

## About This Manual

This manual introduces primary functions of the configuration management software for RC series products.

## Who Should Read This Manual

This manual is a valuable reference for sales and marketing staff, after service staff and telecommunication network designers. For those who want to have an overview of the features, applications, structure and specifications of ... device, this is also a recommended document.

## Relevant Manuals

《Raisecom NView System User Manual》

《Raisecom Nview System Installation and Deployment Manual》

《... User Manual》

《... Commands Notebook》

## Organization

This manual is an introduction of the main functions of ... EMS. To have a quick grasp of the using of the EMS of ... , please read this manual carefully. The manual is composed of the following chapters

### Chapter 1 Overview

This chapter briefly introduces the basic function of ...

### Chapter 2 Configuration Management

This chapter mainly introduces the central site configuration management function of the ....

### Chapter 3 Performance Management

This chapter focuses on performance management function of ....

### Chapter 4 Device Maintenance Management

This chapter introduces the device maintenance management function of ....

### Appendix A Alarm Type

The alarm types supported by ....

## Compliance

The RC series products developed by Raisecom are strictly complied with the following standards as well as ITU-T, IEEE, IETF and related standards from other international telecommunication standard organizations:

YD/T900-1997 SDH Equipment Technical Requirements - Clock

YD/T973-1998 SDH 155Mb/s and 622Mb/s Technical conditions of optical transmitter module and receiver module

YD/T1017-1999 Network node interface for the Synchronous Digital Hierarchy (SDH)

YD/T1022-1999 Requirement of synchronous digital hierarchy (SDH) equipment function

YD/T1078-2000 SDH Transmission Network Technique Requirements-Interworking of Network Protection Architectures

YD/T1111.1-2001 Technical Requirements of SDH Optical Transmitter/Optical Receiver Modules——2.488320 Gb/s Optical Receiver Modules

YD/T1111.2- 2001 Technical Requirements of SHD Optical Transmitter/Optical Receiver Modules——2.488320 Gb/s Optical Transmitter Modules

YD/T1179- 2002 Technical Specification of Ethernet over SDH

G.703 Physical/electrical characteristics of hierarchical digital interfaces

G.704 Synchronous frame structures used at 1544, 6312, 2048, 8448 and 44 736 kbit/s hierarchical levels

G.707 Network node interface for the synchronous digital hierarchy (SDH)

G.774 Synchronous digital hierarchy (SDH) - Management information model for the network element view

G.781 Synchronization layer functions

G.783 Characteristics of synchronous digital hierarchy (SDH) equipment functional blocks

G.784 Synchronous digital hierarchy (SDH) management

G.803 Architecture of transport networks based on the synchronous digital hierarchy (SDH)

G.813 Timing characteristics of SDH equipment slave clocks (SEC)

G.823 The control of jitter and wander within digital networks which are based on the 2048 kbit/s hierarchy

G.825 The control of jitter and wander within digital networks which are based on the synchronous digital hierarchy (SDH)

G.826 End-to-end error performance parameters and objectives for international, constant bit-rate digital paths and connections

G.828 Error performance parameters and objectives for international, constant bit-rate synchronous digital paths

G.829 Error performance events for SDH multiplex and regenerator sections

G.831 Management capabilities of transport networks based on the synchronous digital hierarchy (SDH)

G.841 Types and characteristics of SDH network protection architectures

G.842 Interworking of SDH network protection architectures

G.957 Optical interfaces for equipments and systems relating to the synchronous digital hierarchy

G.691 Optical interfaces for single channel STM-64 and other SDH systems with optical amplifiers

G.664 Optical safety procedures and requirements for optical transport systems

I.731 ATM Types and general characteristics of ATM equipment

I.732 ATM Functional characteristics of ATM equipment

IEEE 802.1Q Virtual Local Area Networks (LANs)

IEEE 802.1p Traffic Class Expediting and Dynamic Multicast Filtering

IEEE 802.3 CSMA/CD Access Method and Physical Layer Instruction



# Chapter 1 Optical Module Digital Diagnoses Configuration

## 1.1 Digital diagnoses principle

SFP (Small Form Pluggable) is a kind of optical module in media converter. The fault diagnoses function provides the system a way of performance monitoring. Using the data monitoring function provided by this module, network administrator can forecast the lasting time of the module, insulate the system fault and validate the module compatibility when fixing equipments.

Each SFP module provides five performance parameters: the media converter temperature, inner power supply voltage, sending electronic current, sending optical power and receiving optical power.

The digital diagnoses module polls all the SFP ports every 5 seconds, and gives three datasheet according to the performance parameter getting from the poll: the real-time monitoring table of the optical module, the period performance monitoring table of the optical module, the current period performance monitoring table. When the parameter exceeds the threshold, it will send trap and offer its global switch control.

The index of optical module real-time monitoring table is SFP port number and parameter type. Inside the software the table has stable number of rows, but when you look over it in the command lines only the information of the ports that are active (the row mark is valid) can be shown. Seen from the network management software, the table has stable number of rows, when SFP is not active it means the row mark of the table is invalid. The table restores the parameter value, threshold value, the time and value that the last time the threshold value is exceeded of each parameter for each SFP module. The initialized value of last threshold exceeding is -1000000, the left values are all 0. When the digital diagnose module polls SFP port every 5 seconds, if SFP is active, read SFP's 5 parameter value, adjusting measure, adjusting parameter and threshold value, refresh the parameter value and threshold value of the optical module real-time monitoring table, if it exceeds the threshold value, update the time and value of the exceeding Digital diagnoses configuration. Configure real-time monitoring table that the row mark is invalid. Each row of the table contains 2 variables, which stands for how many 15 minutes' cycle records and 24 hours' cycle records are restored in the parameters of SFP ports. Now digital diagnoses module supports 96 15 minutes' cycle record and 1 24 hours' cycle record at the most.

The index of optical module current period performance monitoring table is SFP port number, period type and parameter type. The table records the maximum value, least value and the average value of the parameters that are within a recording cycle. The table has stable row number, and all the initialized parameter values are 0. When the equipment is started, the digital diagnoses module polls all the SFP ports every 5 seconds, and the value that read first will be evaluated to the maximum, least and average value. Then, if the polling value is larger than the maximum value, refresh it to the larger value; if it is smaller than the least value, refresh the recorded least value, and compute the summation, add 1 on the digit. If SFP is not active when polling, no data record will be refreshed. After 180 polling (15 minutes later), add a row in the period performance monitoring table, and configure the maximum, least and average value of the row's parameter according to current period monitoring table record, cycle type is 15 minutes, then reset all the data in the current period row, and start recording the next cycle. It is the same to record the data of 24 hour cycle. When it reaches 24 hours, add a row in period monitoring table, then reset all the data in the current period row, and

start recording the next cycle.

The index of period performance monitoring table of the optical module is port number, cycle type, cycle recording number and parameter type. The monitoring table restores data of two cycles, that is 15 minutes data and 24 hours data. The table is empty originally. Every 15 minutes, a 15 minutes cycle record will be added to the table. The record number of the newest one is 1, larger recording number means older recording. The table keeps at most 96 fifteen minutes record. When it reaches 96 records, the oldest one will be deleted when a new one is added. Every time it reaches 24 hours, a 24 hour cycle record will be added to the table. The newest recording number is 1, at most 1 twenty-four hour cycle record will be restored in the table, and the old record will be covered every 24 hours.

## 1.2 Configure digital diagnoses function for optical module

### 1.2.1 Default digital diagnoses configuration

Function	Default value
Enable/disable sending optical module parameter state unusual trap	Enable sending optical module parameter state unusual trap

### 1.2.2 Configure optical module parameter state unusual alarm

Step	Command	Description
1	<code>config</code>	Enter global configuration mode
2	<code>snmp trap transceiver {enable disable}</code>	Enable/disable sending optical module state unusual trap.
3	<code>exit</code>	Return to global configuration mode
4	<code>show interface transceiver</code>	Show digital diagnoses information

### 1.2.3 Optical module digital diagnostic parameter monitoring and maintenance

Command	Description
<code>show interface port [<i>port-list</i>] transceiver</code> <code>[threshold-violations] [detail]</code>	Show digital diagnoses information





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