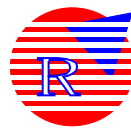# RC511/RC512 Series
# SNMP Manageable,
# Bandwidth Control,
# 10/100 Mbps Auto-Sensing
# Ethernet Copper to
# Fiber Media Converter

# User Manual

**Beijing Raisecom Science & Technology Co., Ltd**

# Contents

# Chart 1   Introduction

**I.   Description:**

| Article Number | Description |
|---|---|
| RC511-FE-M | SNMP Management, Standalone, 10/100Mbps Auto-Sensing, Multi-Mode, 0-2KM,RJ45/DSC |
| RC511-FE-S1 | SNMP Management, Standalone, 10/100Mbps Auto-Sensing, Single Mode, 0-25KM    RJ45/DSC |
| RC511-FE-S2 | SNMP Management, Standalone, 10/100Mbps Auto-Sensing, Single Mode, 10-60KM    RJ45/DSC |
| RC511-FE-S3 | SNMP Management, Standalone, 10/100Mbps Auto-Sensing, Single Mode, 15-120KM    RJ45/DSC |
| RC512-FE-M | SNMP Management, Host Site Module, 10/100Mbps Auto-Sensing, Single Mode, 0-2KM    RJ45/DSC |
| RC512-FE-S1 | SNMP Management, Host Site Module, 10/100Mbps Auto-Sensing, Single Mode, 0-25KM    RJ45/DSC |
| RC512-FE-S2 | SNMP Management, Host Site Module, 10/100Mbps Auto-Sensing, Single Mode, 10-60KM    RJ45/DSC |
| RC512-FE-S3 | SNMP Management, Host Site Module, 10/100Mbps Auto-Sensing, Single Mode, 15-120KM    RJ45/DSC |

**Notes    RC512-FE and RC511-FE are always deployed in pairs.**

## II. Product Parameter:

| Article Number | Interface | Wavelength nm | Launch Power dBmW | Receiving Sensitivity dBmW | Receiving Saturation dBmW | Supported Link Distance Km | Attenuation dB/Km |
|---|---|---|---|---|---|---|---|
| RC511-FE-M | DSC-RJ45 | 1310 | -18.5 14 | -31 | -14 | 0   2 | 3 |
| RC511-FE-S1 | DSC-RJ45 | 1310 | -13 3 | -35 | -3 | 0   25 | 0.5 |
| RC511-FE-S2 | DSC-RJ45 | 1310 | -5 0 | -36 | -3 | 10   60 | 0.5 |
| RC511-FE-S3 | DSC-RJ45 | 1550/DFB | -5 0 | -37 | -3 | 15   120 | 0.25 |
| RC512-FE-M | DSC-RJ45 | 1310 | -18 14 | -31 | -14 | 0   2 | 3 |
| RC512-FE-S1 | DSC-RJ45 | 1310 | -13 3 | -35 | -3 | 0   25 | 0.5 |
| RC512-FE-S2 | DSC-RJ45 | 1310 | -5 0 | -36 | -3 | 10   60 | 0.5 |
| RC512-FE-S3 | DSC-RJ45 | 1550/DFB | -5 0 | -37 | -3 | 15   120 | 0.25 |

## III. Explanation for the Front Panel and Indicator

### 1  The indication on the front panel
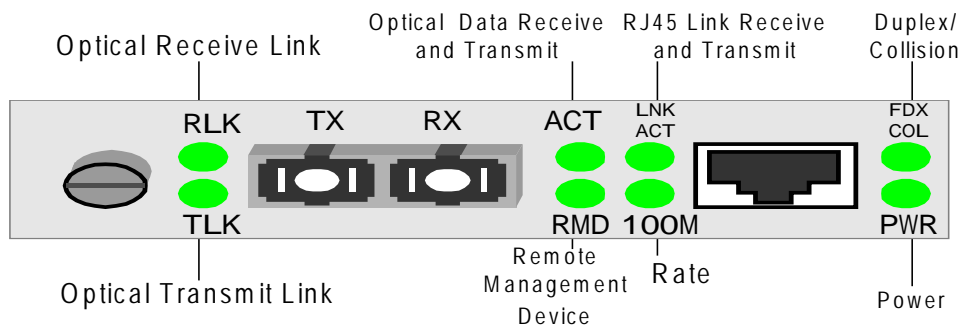


### 2  The Status of Indicators Display

| Interface | Indicator Name | Indicator | Definition |
|---|---|---|---|
| **Optical Interface** | Optical Receive Link | RLK | ON: Optical receive link works in good condition; OFF: Optical receive link fails. |
| | Optical Transmit Link | TLK | ON: Optical transmit link works in good condition; OFF and RLK ON: Optical transmit link fails. |

| | Optical Data Receive and Transmit Link | ACT | Flashing: transfer data in the optical interface. |
|---|---|---|---|
| **RJ45** | Remote Management Device | RMD | ON: Remote media converter supports remote SNMP management;<br>OFF: Remote media converter can't support remote SNMP management. |
| | Duplex/ Collision | FDX/COL | ON: RJ45 works at full duplex;<br>OFF: RJ45 works at half duplex;<br>FLASH: Half duplex and collision. |
| | RJ45 Link Receive and Transmit | LNK/ACT | ON: RJ45 works in normal conditions;<br>OFF: RJ45 link fails;<br>FLASH: transfer data in RJ45. |
| | Rate | 100M | ON: Rate is 100M    OFF: Rate is 10M. |
| **Power** | Power | PWR | ON: Power is in normal conditions;<br>OFF: Power occurs error. |

## 3   16 Slots Chassis Front Panel Indication:
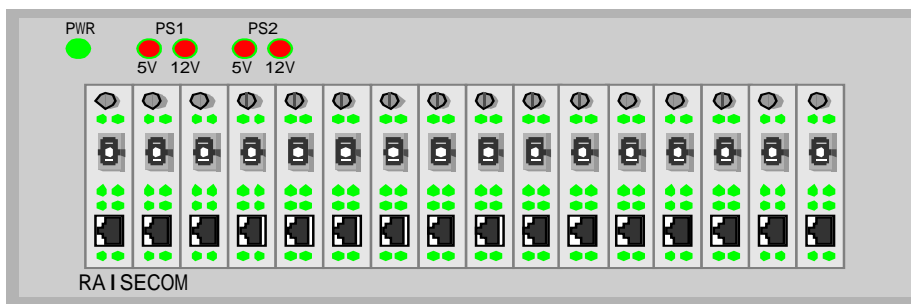


The working conditions displayed by each indicator are as follows:

PWR    usually ON, Power supply of chassis is working in good conditions.

PS1-5V    usually OFF, the PS1 to supply power to modules is in good conditions.

PS1-12V    usually OFF, the PS1 to supply power to fan is in good conditions.

PS2-5V    usually OFF, the PS2 to supply power to modules is in good conditions.

PS2-12V    usually OFF, the PS2 to supply power to fan is in good conditions.

# Chapter 2    Connection Configuration

**I.    Equipment Interconnection**

When connecting other equipments, it is required to comply with the specific connecting article numbers according to the following table. Otherwise, link faults or abnormal data transmission will occur.

| Host Site | Remote Site |
| --- | --- |
| RC512-FE-M | RC511-FE-M |
| RC512-FE-S1 | RC511-FE-S1 |
| RC512-FE-S2 | RC511-FE-S2 |
| RC512-FE-S3 | RC511-FE-S3 |

**II.    Connected with Other Equipment (RJ45)**

1. RC512/511 series copper to fiber media converters have the function of "auto MDI/MDIX crossover auto-negotiation", so both MDI and MDIX crossover can be used to connect with other equipment.

| Media Converter | Other Equipment | Connection Mode of RJ45 |
| --- | --- | --- |
| **Media Converter** | Switch | Direct/Crossover connected |
| **Media Converter** | HUB | Direct/Crossover connected |
| **Media Converter** | Router | Crossover/ Direct connected |
| **Media Converter** | Network Interface Card | Crossover/ Direct connected |

2. When RJ45 interface of RC512/511 seeries media converters works on the forced status, the "auto MDI/MDIX crossover" function may fail. So it is advised to adopt the following connection modes on the forced status.

| Media Converter | Other Equipment | Connection Mode of RJ45 |
| --- | --- | --- |
| Media Converter | Switch | Direct Connected |
| Media Converter | HUB | Direct Connected |

| Media Converter | Router | Crossover Connected |
|---|---|---|
| Media Converter | Network Interface Card | Crossover Connected |

**III.    Duplex Configuration (RJ45)**

    **1.    RC511/2 Series RJ45 Duplex Auto-negotiation:**

The copper port/RJ45 of other network equipments must be configured to "auto-negotiation" to ensure normal data transmission. If other equipments are in forced status, the rate of media converter can remain the same. But duplex mode shall be fixed in "full duplex status".

    **2.    RC511/2 Series RJ45 Force Status**

The RJ45 duplex mode of other network equipment must have the same configuration as the following chart. So data can be transmitted normally.

| Media Converter RJ45 Mode | Equipment interconnected RJ45 Mode |
|---|---|
| 100M/ Full Duplex | 100M/ Full Duplex |
| 100M/ Half Duplex | 100M/ Half Duplex |
| 10M/ Full Duplex | 10M/ Full Duplex |
| 10M/ Half Duplex | 10M/ Half Duplex |

**IV.    RC511/2 Series connected with Other Equipment (Optical Interface)**

Several mandatory conditions:

1   Same wavelength(not including single strand dual wavelength media converter)

2   Same rate

3   Matched Power

4   Fast Ethernet protocol    IEEE 802.3u FastEthernet

Note: when RJ45 of RC511/2 series media converter connect with other equipment, remote SNMP management doesn't work.

# Chapter 3   Installation and Preparation

**I.**      **Confirm Fiber is Matching with the Media Converter:**

RC511/2-FE-M series should adopt multi-mode fiber, and connector of multi-mode fiber should be SC/PC.

RC511/2-FE-S1/2/3 should adopt single-mode fiber, and connector of single-mode fiber should be SC/PC.

**II.**      **Type of fiber wire cable:**

The type of fiber cable for multi-mode fiber port: 62.5/125um multi-mode fiber or 50/125um multi-mode fiber.

The type of fiber cable for single-mode fiber port: 9/125um single-mode fiber.

**III.  RJ45 Interface:**

CAT 5 of twisted-pair. And the length of twisted-pair wires shall not be more than 100 meters. For connection configuration, please see Chapter 2     II. Other Equipment Interconnection (RJ45)     .

**IV.      Installation of Chassis:**

The fixing accessories of chassis are in the accessory box. If fixing the chassis with the rear hole, there'll be 3 cm more space between the front edge of chassis and the rack; if fixing with the front hole, there'll be 3cm less space.
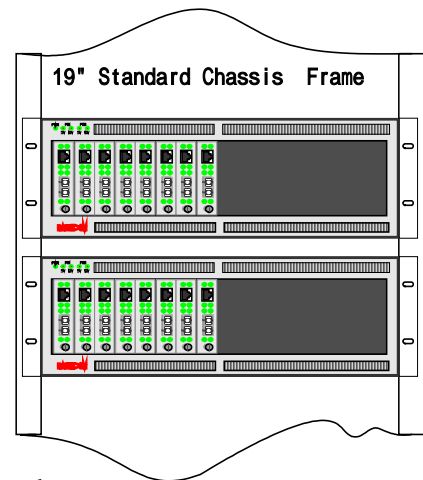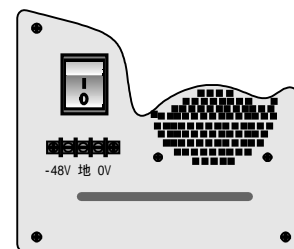
**V.      Installation of DC Power Supply:**

DC power supply provides three connecters: –48V, ground and 0V. These three connecters are connected respectively with –48V power cable, ground protection and 0V power cable.

**VI.      Operation Environment Requirements:**

Temperature   -20-60

Humidity   5%~90% no condensing.

**VII.    Power Requirements:**

1 Slot Chassis: 220V/50Hz AC or –48V DC

16 Slots Chassis: 220V/50Hz AC or –48V DC

**VIII.    Dimension:**

1 Slot Chassis: 155　width　x 39　height　x 120mm　depth

16 Slots Chassis: 440　width　x 131　height　x 410mm　depth

# Chapter 4    Switch Setting

**I.    SW20 switch setting:**

RC512-FE-XX has a 8-place SW20 switch and the functions are as follows in sequence  auto-negotiation enable/disable, rate 100M  10M, full duplex/half duplex, reserve, frame length 1916 bytes  1536 bytes, remote network management enable/disable, reserve, failure transfer disable/enable.

| Switch | Contents | Status | Setting Details |
|--------|----------|--------|-----------------|
| 1 | RJ45 auto-sensing or manual setting | ON | RJ45 is configured as manual setting |
| | | OFF | RJ45 is configured as auto sensing |
| 2 | RJ45 manual setting 100M/10M | ON | RJ45 manual setting: rate is 10M |
| | | OFF | RJ45 manual setting: rate is 100M |
| 3 | RJ45 manual setting: Full Duplex/Half Duplex | ON | RJ45 manual setting: Half duplex |
| | | OFF | RJ45 manual setting: Full duplex |
| 4 | Reserve | | |
| 5 | Over-sized frame configuration | ON | Over-sized frame up to 1536 bytes |
| | | OFF | Over-sized frame up to 1916 bytes |
| 6 | Remote network management enable/disable | ON | Disable remote network management |
| | | OFF | Enable remote network management |
| 7 | Reserve | | |
| 8 | Failure transfer disable/enable | ON | Enable failure transfer: no receive signal in local optical link and opposite optical link. Turn off local RJ45 when it's no connection with opposite RJ45 link. |
| | | OFF | Disable failure transfer: Local RJ45 is in normal conditions. |

Note: When switch SW20-1 is OFF    switch20-2 and 20-3 is in failure.

**II.    SW21 switch setting:**

Switch SW21 is used for configuration module

| SW21-1 | SW21-2 | Module Types |
|--------|--------|--------------|
| ON | ON | RC511/2-FE    A    -M |
| OFF | ON | RC511/2-FE    A    -S1 |
| ON | OFF | RC511/2-FE    A    -S2 |
| OFF | OFF | RC511/2-FE    A    -S3 |

# Chapter 5    Network Management

**I.    Card/Module Information Review:**

With network management software, the status of RC512/511 series at the host site can be reviewed, and controlled/configured. The status information on "Show Card" is as follows:

| No. | Status Title/Control/ Configure | Items | Features |
|-----|--------------------------------|-------|----------|
| 1 | Module type | M    S1    S2    S3 | Uncontrollable, unconfigurable |
| 2 | Failure transfer | Enable/disable | Configurable |
| 3 | Remote network management    Only used for RC512 | Enable/disable | Configurable |
| 4 | Loop back control    Only used for RC512 | Perform/No perform | Controllable |
| 5 | Loop back results    Only used for RC512 | Success/failure | Uncontrollable, unconfigurable |
| 6 | Frame length | 1916Byte    1536Byte | Configurable |
| 7 | Receive rate    Only used for RC512 | N × 32kb/s | N Configurable |
| 8 | Transmit rate    Only used for RC512 | N × 32kb/s | N Configurable |
| 9 | Module voltage beyond upper limitation    Only used for RC511 | Normal/beyond upper limitation | Uncontrollable, unconfigurable |

| 10 | Module voltage beyond lower limitation    Only used for RC511 | Normal/beyond lower limitation | Uncontrollable, non-configurable |
|----|---|---|---|
| 11 | Module temperature    Only used for RC511 | Actual temperature | Uncontrollable, non-configurable |
| 12 | RJ45: Link status | Up    Down | Uncontrollable, non-configurable |
| 13 | RJ45: auto-negotiation | Enable/manual | Configurable |
| 14 | RJ45: control | Turn on/off | Configurable |
| 15 | RJ45: duplex status | Full/half duplex | Configurable |
| 16 | RJ45: rate | 10M    100M | Configurable |
| 17 | Optical Interface: transmit Link | Up    Down | Uncontrollable, non-configurable |
| 18 | Optical Interface: receive Link | Up    Down | Uncontrollable, non-configurable |
| 19 | Optical Interface: control | Turn on/off | Uncontrollable, non-configurable |
| 20 | Optical Interface: signal | Normal/abnormal | Uncontrollable, non-configurable |

**II.      Show Card Info. Configuration:**

Such functions as receiving rate, transmitting rate and RJ45 port, etc, can be configured through "Configure Card".

**III.      Loop back test:**

Modules in host site can be carried out the test of loop back enable/disable through the command "Show Card Info. Loop Back". The results of test can be shown through Show Card Info.

**IV.      Show Card Info. Reset:**

Host/remote site module can be reset through "Host Show Card Info. Reset" or "Remote Show Card Info. Reset ". The frame length of the reset module is 1916 bytes, RJ45 enabled and auto-negotiation mode.

# BROADBAND
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