RC602-GE (A) remote management 1000M Ethernet media converter

User Manual

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Jan, 2006

Cautions

Please read the following notices carefully before installing and using the device, Raisecom does not respond to any loss that caused by violating safety notice.

RC602-GE series provide optical port, and the Tx laser may damage your eyes. So do not look into the optical port, and if the optical port is not used please insert the plug.

RC602-GE series are integrated devices that have precise elements, please avoid violent shakes and impacts, and do not disassemble or maintain the devices yourself. If it is required, please do it under the guide of our technical staff following in the steps of anti static. Please contact us if there is any need.

There must be grounding protection for the sake of safety; do not disassemble the device yourself, we regard it as you waiver your rights of repair guarantee.

Content

1. Overview

1.1. Introduction

RC602-GE is 1000M Ethernet media converter that supports both local and remote management, and the longest transmission distance is 100km. With NView iEMS network management local RC602-GE can be wholly controlled and configured.

1.2. Features

- RC602-GE (A) has Master and Slave working mode. Master is working in central site, Slave is working in remote site. The working mode can be changed through the DIP-switch.
- Transport Ethernet data at rate of 1000M transparently. Requirement of different transmission distance and different wavelength can be satisfied.
- Flexible network fault management function, which provides optical port RX-to-TX fault-pass-through, Optical-to-electrical fault-pass-through and Electrical-to-optical fault-pass-through to satisfy different customers' needs.

1.3. Ordering information

Part number	Description
RC602-GE(A)-M	central/remote module,1000Mbps,multimode,0-550m，RJ45/DSC
RC602-GE(A)-S1	central/remote module,1000Mbps,singlemode,0-25km，RJ45/DSC
RC602-GE(A)-S2	central/remote module,1000Mbps,singlemode,10-60km，RJ45/DSC
RC602-GE(A)-S3	central/remote module,1000Mbps,singlemode,25-120km，RJ45/DSC
RC602-GE(A)-SS13	remote module,1000Mbps,singlemode,single strand fiber,0-25km，RJ45/SC
RC602-GE(A)-SS15	central module,1000Mbps,singlemode,single strand fiber,0-25km，RJ45/SC

2. Parameters

2.1. Device specifications

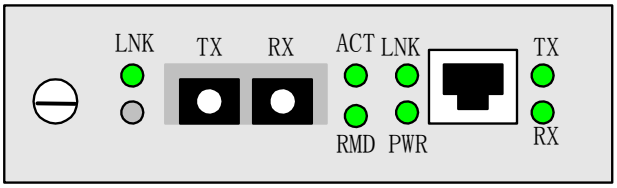
Dimension (H×W×D)	25mm×76mm×170mm
Optical interface	SC/PC, SC/PC
Work temperature (℃)	(0,45)
Storage temperature (℃)	(-40,80)
Power consumption (W)	Typical value: 4W
Humidity	5%~90% non-condensing

2.2. Optical interface specifications

Model	Interface	Wave Length nm	Tx Output Power dBm	Rx Saturation dBm	Cable Length Km	Attenuation dB/Km
RC602-GE(A)-M	DSC	850	-10 - -3	< -15	0 - 0.55	3
RC602-GE(A)-S1	DSC	1310	-10 - -3	< -23	0 - 25	0.5
RC602-GE(A)-S2	DSC	1550	-3 - +2(DFB)	< -20	10 - 60	0.25
RC602-GE(A)-S3	DSC	1550	-3 - +2(DFB)	< -30(APD)	25 - 100	0.25
RC602-GE(A)-SS13	SC	1310	-10 - -3	<-20	0 - 20	0.5
RC602-GE(A)-SS15	SC	1550	-10 - -3	<-20	0 - 20	0.5

3. Front view and indicators

3.1. Front view of RC602-GE (A)



The explanation of RC602-GE indicators:

Interfa	Indicator Name	Indicat	Explanation of Indicator
Optical interface Interface	Optical RX Indicator	LNK	ON, optical RX link works properly; OFF, optical RX link is abnormal
	Indicator Name	Indicator	Explanation of Indicator
	Remote management indicator	RMD	Fixed on: remote device is managed; Fixed off: remote device is not managed.
Electrical interface	Electrical link indicator	LNK	ON, electrical port works properly; OFF, electrical port is abnormal
	Electrical port Tx indicator	TX	ON, electrical port is transmitting data; OFF, electrical port is not transmitting data.
	Electrical port Rx indicator	RX	ON, electrical port is receiving data; OFF, electrical port is not receiving data
Power supply	Power supply indicator	PWR	ON, power supply works properly; OFF, power supply is abnormal

3.2. Front view 16-slot chassis

Explanations of the indicators on 16-slot chassis are as follows:

PWR indicator: ON, chassis power supply works normal.

PS1-5V indicator: OFF, power supply PS1 for modules works normal, otherwise abnormal.

PS1-12V indicator**:** OFF, power supply PS1 for fans works normal, otherwise abnormal.

PS2-5V indicator: OFF, power supply PS2 for modules works normal, otherwise abnormal.

PS2-12V indicator: OFF, power supply PS2 for fans works normal, otherwise abnormal.

4. Connection configuration

4.1. Interconnecting Devices

Please follow the connection rules in the following table when interconnecting RC602-GE (A) series media converters; otherwise they may not work properly.

Central site	Remote site
RC602-GE(A)-M-Master	RC602-GE(A)-M-Slave
RC602-GE(A)-S1-Master	RC602-GE(A)-S1-Slave
RC602-GE(A)-S2-Master	RC602-GE(A)-S2-Slave
RC602-GE(A)-S3-Master	RC602-GE(A)-S3-Slave
RC602-GE(A)-SS15-Master	RC602-GE(A)-SS13-Slave

4.2. Connect MC with Other Devices (Electrical Port)

RC602-GE (A) series copper to fiber media converters have the function of MID/MIDX auto-sensing, so they can connect with other devices through straight-though cable or crossover cable.

Media converter	Other device	Connection type of RJ45 port
Media converter	Switch	Straight-through, crossover
Media converter	HUB	Straight-through, crossover
Media converter	Router	Crossover, straight-through
Media converter	NIC	Crossover, straight-through

4.3. Working Mode Configuration (Electrical Port)

Electrical port of RC602-GE (A) series copper to fiber media converter has the ability of auto-negotiation and works in 1000M full-duplex mode (cannot work in 1000M half-duplex mode). And the electrical port of other device should enable auto negotiation to make sure of normal communication.

4.4. Connecting MC with Other Devices (optical port)

The following conditions must be satisfied:

1. The same wavelength (single strand dual wavelength MC is not included)
2. The same data rate
3. Matched optical power
4. Gigabit Ethernet protocol (IEEE 802.3z Gigabit Ethernet)

Optical port is forced to work in 1000M full duplex and auto negotiation function is disabled.

5. Installation & preparation

1. Make sure that fiber optical media matches the media converter.

RC602-GE (A)-M must use multi mode optical fiber and the connector should be DSC.

RC602-GE (A)-S1/2/3 must use single mode optical fiber and the connector should be DSC.

Single mode optical interface of RC602-GE (A)-SS13/5 must use single mode optical fiber medium and the connector should be SC/PC.

2. Fiber type

Fiber for multi mode optical interface:

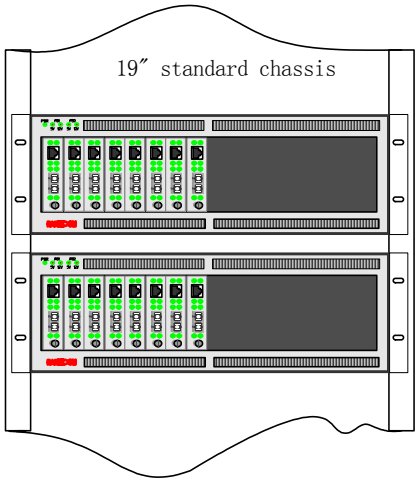
62.5/125um multi mode optical fiber or 50/125um multi mode optical fiber

Fiber for single mode optical interface:

9/125um single mode optical fiber

3. Electrical interface: Connecting media converter with Cat.5 twisted-pair which should not be longer than 100m. Refer to *4.2. Connect MC with Other Devices (Electrical Port)* in Chapter 2 for details.

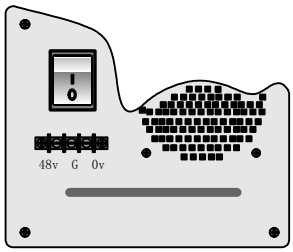
4. Installation of chassis (refer to the following figure)



Note: Brackets used to fix the chassis are in the accessory box. If you use the bracket's rear holes to attach brackets to the chassis, there will be 3cm space between chassis front panel and cabinet front panel; and if you use the bracket's front holes, the front panel and the rack will be at the same level vertically.

5. Install the DC power supply:

There are three connectors of DC power supply: -48V, Ground, 0V, which must be connected to -48 power supply cable, protection ground and 0V power supply cable respectively.



6. Ambience

Operating temperature: 0-45℃

Humidity: 5%~90% (non-condensing)

7. Power supply requirement:

Single slot chassis: 220V/50Hz AC or –48V DC

16-slot chassis: 220V/50Hz AC or –48V DC

8. Dimensions

Single slot chassis: 155 (W) x 39 (H) x 120mm (D)

16-slot chassis: 442 (W) x 130.5 (H) x 350mm (D)

6. Dip-Switch

Functions of RC602-GE (A) series copper-to-fiber media converter can be configured by the function configuration DIP switches. The modular media converter has function configuration DIP switches SW2 and function configuration DIP switches of standalone media converter is SW2 which is on the rear panel. Besides, modular media converter also has a type configuration switch SW1.

6.1. Explanation of function configuration DIP-switch

SW2 is a 8-bit DIP-switch and the 8 bits are: optical-to-electrical fault-pass-through enable/disable, electrical-to-optical fault-pass-through enable/disable, optical port RX-to-TX fault-pass-through enable/disable and remote management enable/disable. Please refer to the following table for details:

Switch	Function	Status	Explanation
SW2-1	Fault return	OFF	Optical port RX-to-TX fault-pass-through disabled
		ON	Optical port RX-to-TX fault-pass-through enabled
SW2-2	Reserved	--	--
SW2-3	Reserved	--	--
SW2-4	Reserved	--	--
SW2-5	Remote management	OFF	Enable
		ON	Disable
SW2-6	Master/slave	OFF	RC602-GE(A)-Master
		ON	RC602-GE(A)-Slave
SW2-7	Optical-to-electrical fault-pass-through enable/disable	OFF	Optical-to-electrical fault-pass-through disabled
		ON	Optical-to-electrical fault-pass-through enabled
SW2-8	Electrical-to-optical fault-pass-through enable/disable	OFF	Electrical-to-optical fault-pass-through disabled
		ON	Electrical-to-optical fault-pass-through enabled

SW2 ex-factory setting:

	1	2	3	4	5	6	7	8
ON								
OFF	■	■	■	■	■	■	■	■

Note: SW2-6 ex-factory setting is OFF, RC602-GE (A)-Master

6.2. Introduction of type configuration DIP switches

SW1 is used for setting up the type of device. Please refer to the following table for details:

SW1-1	SW1-2	SW1-3	SW1-4	Module type
ON	ON	ON	ON	RC602-GE(A)-M
ON	ON	ON	OFF	RC602-GE(A)-S1
ON	ON	OFF	ON	RC602-GE(A)-S2
ON	ON	OFF	OFF	RC602-GE(A)-S3
ON	OFF	ON	ON	RC602-GE(A)-SS13
ON	OFF	ON	OFF	RC602-GE(A)-SS15

Note: Customers are not permitted change the state of type configuration DIP switches SW1.

7. Network management

7.1. View the module status

The RC602-GE (A)-Master status information can be viewed, controlled, and configured through network management software. RC602-GE(A)-Slave can be controlled and configured through RC602-GE (A)-Master

Available status information of RC602-GE (A) command is:

Number	Status name, control and configuration items	Value	Controllable features
1	Module type	RC602-GE-REV_A-Master	Not controllable
2	Remote management	Enable/disable	Controllable
3	Optical-to-electrical port fault pass through	Enable/disable	Controllable
4	Electrical-to-optical fault pass through	Enable/disable	Controllable
5	Electrical port: Link status	Up/Down	Not controllable
6	Electrical port: control	Open/close	Controllable
7	Electrical port (FP): control	Open/close	Not controllable
8	Optical module type	M,S1,S2,S3,SS15	Not controllable
9	Optical port: Link status	Up/Down	Not controllable
10	Optical port: control	Open/close	Controllable
11	Optical port (FP) : control	Open/close	Controllable
12	Optical port(FR): control	Open/close	Controllable
13	Optical port: SD status	Normal/abnormal	Not controllable
14	Optical port: RX-to-TX fault return	Enable/disable	Controllable
15	Traffic statistic: receiving the number of bits on electrical port		Not controllable
16	Traffic statistic: transmitting the number of bits on electrical port		Not controllable

7.2. Configure the module

In the above table, the configurable items can be configured through “config module” command. These items includes: turn on or turn off electrical port, RX-to-TX fault pass through, optical-to-electrical port fault pass through, electrical-to-optical port fault pass through, etc.

7.3. Reset the module

Local module can be reset through “Reset module” command. After reboot, the working mode and status will remain the same as that before reboot.

8. Q&A

	Fault phenomenon	Resolve methods
1	Optical LNK indicator turns off	Check whether the input optical power of optical interface is normal.
2	There is packet loss and optical connection breaks off sometimes	First check whether the input optical power of optical interface is normal, if it is normal, check if the rate and duplex mode of the two sides match each other. If not set the relative DIP switches.
3	Network management is not available	Make sure that the EMS version is 1.15 (build2)6.6.0 or higher and MCU chip is secured to the main board.
4	Optical interface Link Down	Make sure both sides are powered on and fiber is connected correctly and when RC602-GE works in pairs, the Rx-to-Tx fault pass through function is not enabled at both sides at the same time.
5	Electrical interface Link Down	Make sure that UTP complies with 568-a and 568b standards, otherwise they cannot communicate normally. Make sure both side devices are powered on and the electrical port is not shutdown through network management.
6	When connect with other factory device, the LNK indicator is steady ON but the two devices cannot communicate normally.	Make sure that the optical port of other factory device works in 1000M full-duplex.
7	When the remote device can not be checked	Firstly please check SW2-5 to make sure if it is enable, then please check SW2-6 if it is slave setting.

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