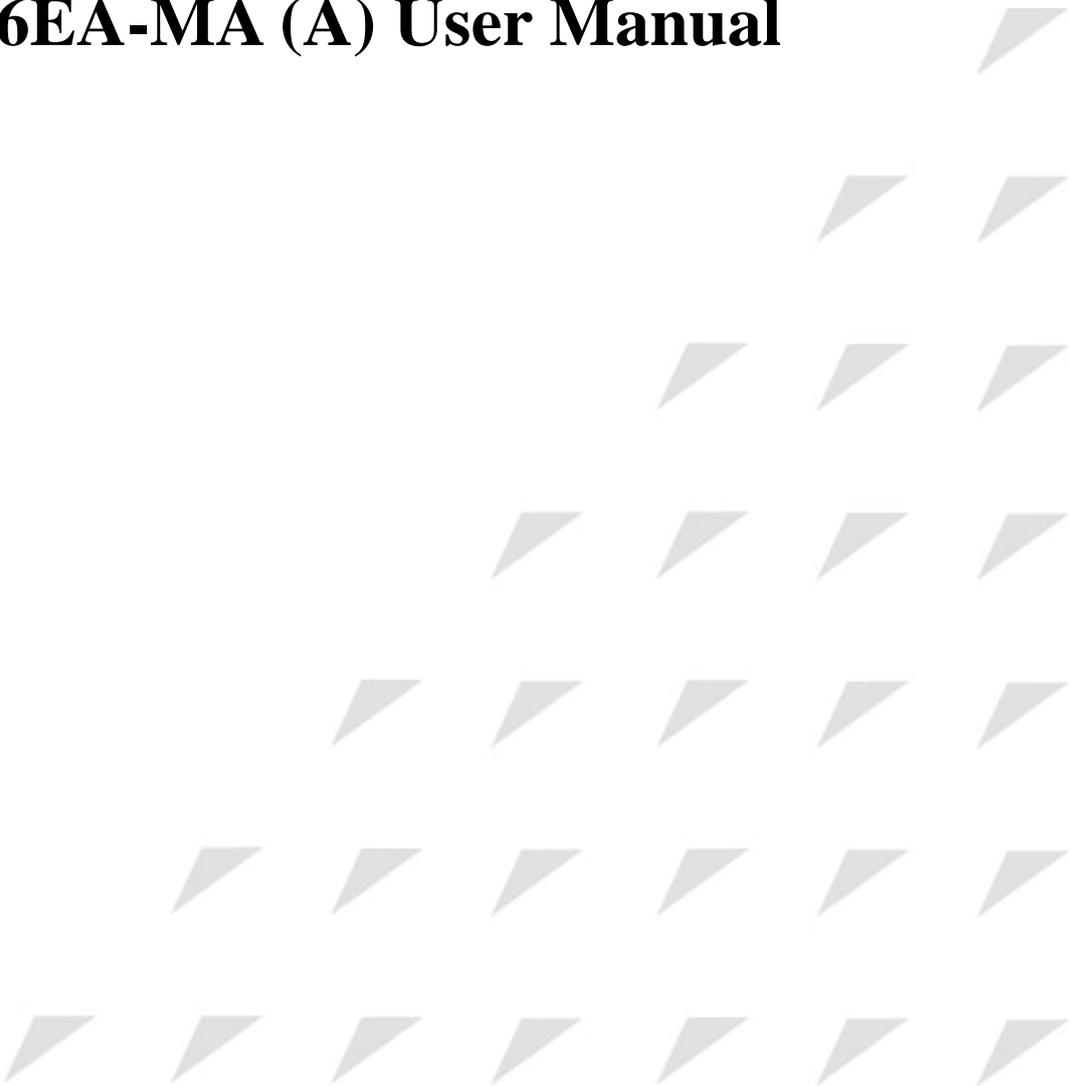


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ISCOM2126EA-MA (A) User Manual



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

If you have comments on the ISCOM2126EA-MA specification, instead of the web page above, please send comments to:

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We hope to hear from you!

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Preface

About This Manual

This manual is applicable to ISCOM2126EA-MA switch VER A.00 or higher version.

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 ISCOM2126EA-MA device, this is also a recommended document.

Relevant Manuals

ISCOM2126EA-MA Commands Notebook

ISCOM2126EA-MA Configuration Guide

Organization

This manual is an introduction of the main functions of ISCOM2126EA-MA. To have a quick grasp of the using of ISCOM2126EA-MA, please read this manual carefully. The manual is composed of the following chapters:

Chapter 1 Overview

This chapter briefly introduces the content referred in this manual, reference documents and terminology explanations

Chapter 2 Dimensions

This chapter mainly introduces the hardware introduction and device dimensions.

Chapter 3 Device Appearance and Description

This chapter introduces the appearance of device and indicators description.

Chapter 4 Installation and Connection

This chapter introduces the device installation and connection.

Chapter 5 Precautions

Appendix A Acronyms

Appendix B FAQ

General Safety Instructions

The following instructions serve as a general guide for the safe installation and operation of telecommunications products. Additional instructions, if applicable, are included inside the manual.

Safety Symbols

 <i>Warning</i>	This symbol may appear on the equipment or in the text. It indicates potential safety hazards regarding product operation or maintenance to operator or service personnel.
---	--

	Danger of electric shock! Avoid any contact with the marked surface while the product is energized or connected to outdoor telecommunication lines.
---	---

	Protective earth: the marked lug or terminal should be connected to the building protective earth bus.
--	--

 <i>Warning</i>	<p>Some products may be equipped with a laser diode. In such cases, a label with the laser class and other warnings as applicable will be attached near the optical transmitter. The laser warning symbol may be also attached.</p> <p>Please observe the following precautions:</p> <ul style="list-style-type: none">• Before turning on the chassis with optic module, make sure that the fiber optic cable is intact and is connected to the transmitter.• Do not attempt to adjust the laser drive current. <ul style="list-style-type: none">• Do not use broken or unterminated fiber-optic cables/connectors or look straight at the laser beam.• The use of optical devices with the equipment will increase eye hazard.• Use of controls, adjustments or performing procedures other than those specified herein, may result in hazardous radiation exposure. <p>ATTENTION: The laser beam may be invisible!</p>
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Always observe standard safety precautions during installation, operation and maintenance of this product. Only qualified and authorized service personnel should carry out adjustment, maintenance or repairs to this product. No installation, adjustment, maintenance or repairs should be performed by either the operator or the user.

All extension slots are not hot-swappable

Before operating modules in the electricity conditions, please be noticed that optical modules shall be connected with optical fiber wires or shield with optical module cover for fear that laser light harms to operator's eyes.

Handling Energized Products

General Safety Practices

Do not touch or tamper with the power supply when the power cord is connected. Line voltages may

be present inside certain products even when the power switch (if installed) is in the OFF position or a fuse is blown. For DC-powered products, although the voltages levels are usually not hazardous, energy hazards may still exist.

Before working on equipment connected to power lines or telecommunication lines, remove jewelry or any other metallic object that may come into contact with energized parts.

Unless otherwise specified, all products are intended to be grounded during normal use. Grounding is provided by connecting the mains plug to a wall socket with a protective earth terminal. If an earth lug is provided on the product, it should be connected to the protective earth at all times, by a wire with a diameter of 18 AWG or wider. Rack-mounted equipment should be mounted only in earthed racks and cabinets.

Always make the ground connection first and disconnect it last. Do not connect telecommunication cables to ungrounded equipment. Make sure that all other cables are disconnected before disconnecting the ground.

Connection of AC Mains

Make sure that the electrical installation complies with local codes.

Always connect the AC plug to a wall socket with a protective ground.

Always connect the power cord first to the equipment and then to the wall socket. If a power switch is provided in the equipment, set it to the OFF position. If the power cord cannot be readily disconnected in case of emergency, make sure that a readily accessible circuit breaker or emergency switch is installed in the building installation.

Connection of DC Mains

Unless otherwise specified in the manual, the DC input to the equipment is floating in reference to the ground. Any single pole can be externally grounded.

Due to the high current capability of DC mains systems, care should be taken when connecting the DC supply to avoid short-circuits and fire hazards.

DC units should be installed in a restricted access area, i.e. an area where access is authorized only to qualified service and maintenance personnel.

Make sure that the DC supply is electrically isolated from any AC source and that the installation complies with the local codes.

Before connecting the DC supply wires, ensure that power is removed from the DC circuit. Locate the circuit breaker of the panel board that services the equipment and switch it to the OFF position.

When connecting the DC supply wires, first connect the ground wire to the corresponding terminal, then the positive pole and last the negative pole. Switch the circuit breaker back to the ON position.

A readily accessible disconnect device that is suitably rated and approved should be incorporated in the building installation.

Preventing Electrostatic Discharge Damage

Modules which can be plugged into chassis are sensitive to damage from static electricity. Conversely, static voltages as high as 35,000V can be generated just by handling plastic or foam packing material, or by sliding assemblies across plastic and carpets. Not exercising the proper electrostatic discharge (ESD) precautions can result in intermittent or complete component failures. To minimize the potential for ESD damage, observe the following guidelines:

- Always use an ESD-preventive antistatic wrist strap or ankle strap and ensure that it makes good skin contact.
- When removing or installing a component, make sure the equipment end of your antistatic strap leash is connected to the ESD connection sockets on the front of the chassis or to a bare metal surface on the chassis. Avoid contact between the component and your clothing. The wrist strap only protects the component from ESD voltages on the body; ESD voltages on your clothing can still cause component damage.
- Always place a card component-side-up on an antistatic surface, in an antistatic card rack, or in a static shielding bag. If you are returning the item to the factory, immediately place it in a static shielding bag.
- Handle Modules by the metal card carrier edges only; Avoid touching the board or any connector pins.

Chapter 1 Overview

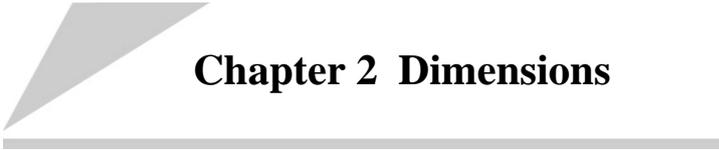
1.1 Contents

This manual describes how to install ISCOM2126EA-MA Switch, the features and component modules of the device and function of every module. It provides a standard method of installation and cable specifications.

This manual is for hardware installation and for additional configuration operations of software, refers to *Configuration Guide*.

1.2 Terminology explanation

10BASE-T	Brief terminology of IEEE 802.3 for LANs, operates at 10Mbps based on Manchester coding and uses category-3 or better twisted-pair cable.
100BASE-TX	Brief terminology of IEEE 802.3 for LANs, operates at 100Mbps based on 4B/5B coding and uses category-5 twisted-pair cable.
Auto-negotiation	Auto-Negotiation detects the various modes that exist in the device on the other end of the wire, the Link Partner, and advertises its own abilities to automatically configure the highest performance mode of interoperation.
Full-duplex	Transmission of data in two directions simultaneously
Half-duplex	Data can be transmitted in both Rx and Tx directions on a signal carrier, but not at the same time.
RJ-45	An eight-wire connector used in twisted pair wire
MDI	Medium dependent interface, provides the physical and electrical connection to the cabling medium.
MDIX	MDI crossover, a version of MDI that enables connection between like devices.



Chapter 2 Dimensions

2.1 Hardware description

ISCOM2125EA-MA is professional layer-2 Ethernet switch for carrier network and WAN network. It provides 24 10/199Base-TX Ethernet ports and 2 1000Base-X SFP ports, the power of system is smaller than 13.2W.

2.2 Dimension of main body

Dimension of ISCOM2126EA-MA is: 1U (H)* 442mm (W)* 266mm (D), weighted 3.3kg; it can be installed in 19 inches chassis or on the table.

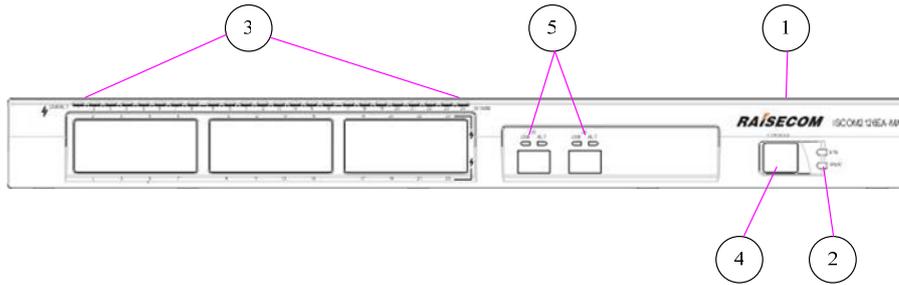
2.3 Working environment

- Environment temperature: -10° ~ 45°
- Storage temperature: - 40° ~ 60°
- Environment humidity: 10%~90%

Chapter 3 Device Appearance and Description

3.1 Front panel and explanation

On the front panel of ISCOM2126EA-MA, there are 24 10/100M Ethernet ports, 1 CONSOLE port, 2 1000Base-X SFP ports and status indicator LEDs. See in the following figure:



Explanation:

- ①. Switch logo and type: ISCOM 2126EA-MA
- ②. Status indicator LEDs, SYS and PWR (see labels on the panel)

Indicator	Color	Status	Indication
SYS	Green	ON	System is initializing when just powered on
		Flickering	System works normally
		OFF	Software fault
PWR	Green	ON	System powered on
		OFF	System powered off

- ③. 24 10/100M Ethernet ports and the relative indicator LEDs, every port has 2 LEDs: LNK/ACT and 10/100M (refer to the panel labels)

Indicator	Color	Status	Indication
LNK/ACT	Green	ON	The relative port is in Link up status
		Flickering	The relative port is receiving or transmitting data
		OFF	The relative port is in Link down status
10/100	Green	ON	The rate of relative port is 100M
		OFF	Link up status, the rate of relative port is 10M

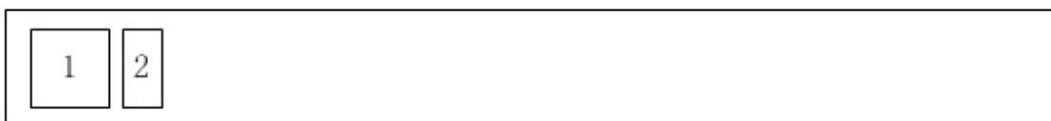
- ④. CONSOLE port
- ⑤. Two 1000Base-X SFP interface and related LEDs, 2 LED for each port, labeled as LNK and ACT (refer to the panel labels):

Indicator	Color	Status	Indication
LNK	Green	Flickering	The relative port is receiving or transmitting data
		OFF	The relative port is in Link down status

ACT	Green	ON	The relative port is LINK UP
		OFF	The relative port is LINK DOWN

3.2 Rear view and explanation

There is an AC 220V connector or a DC -48V connector on the rear panel of ISCOM2126EA-MA as the following figure:



Explanation:

- ①. AC 220V connector or a DC -48V connector
- ②. Power supply switch

Chapter 4 Installation and Connection

4.1 Before installation

4.1.1 Installation environment

There are heat exhausting inlets at back and on both sides of ISCOM2126EA-MA. To maintain ambient airflow there must be some space around the two sides or airflow path. The heat exhausting inlets should not be blocked in case that the airflow can not flow.

4.1.2 Install onto the cabinet

Install the bracket onto the device and then fix the bracket on cabinet by the 4 screws to make the device as stable as possible.

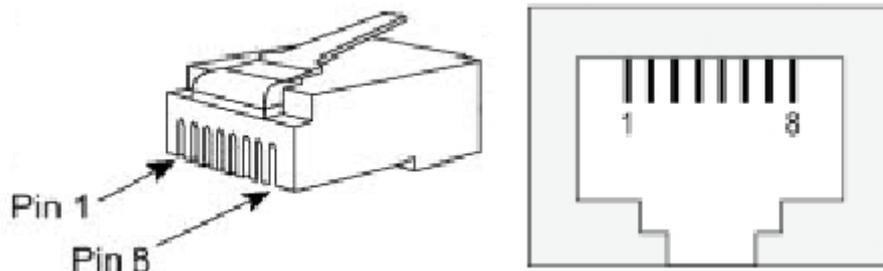
4.2 Connection of switch

4.2.1 Connect to CONSOLE

ISCOM2126EA-MA provides RS-232 port in form of RJ45 as CONSOLE port. Connect the CONSOLE port to PC serial port by cable, then configure and control the device through the PC control platform.

✧ Signal definition of CONSOLE port

ISCOM2126EA-MA provides RS-232 port in form of RJ45 as CONSOLE port, the pin number of RJ45 plug and connector are showing as follows:



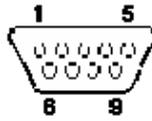
RJ45 Connector

RJ45 Plug

Signaling and Pinouts of ISCOM2126EA-MA CONSOLE port:

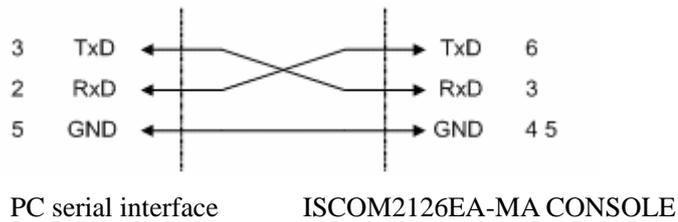
Pin number	Signal	Type
3	RxD	In
6	TxD	Out
4, 5	GND	
1, 2, 7, 8	N.C	

✧ Signaling and Pinouts of PC serial port:



Pin No.	Signal	Type	Pin No.	Signal	Type
1	CD		6	DSR	
2	RxD	In	7	RTS	
3	TxD	Out	8	CTS	
4	DTR		9	RI	
5	GND				

✧ CONSOLE connection and parameters:



Parameters of simulation program on PC terminal are as follows:

- Baud rate – 9600
- Data bit– 8
- Stop bit– 1
- Bit parity– None
- Traffic control– None

4.2.2 Connect to Ethernet

ISCOM2126EA-MA provides 24 10/100M auto-negotiation ports and 2 1000M SFP uplink ports; the default configuration is auto-negotiation enable.

When enable auto-negotiation, the ISCOM2126EA-MA Ethernet ports have the function of Auto-MDI/MDIX, they can change the MDI and MDIX signals automatically. In any case of using MDI port or MDIX port, and whether using straight-through cable or crossover cable, the device can always works normally.

Pin number of RJ45 plug and connector is available in *signal definition of CONSOLE port*.

✧ Signaling and Pinouts of MDI and MDIX are in the following table:

Pin No.	MDI-X signal	MDI signal
1	RD+	TD+
2	RD-	TD-
3	TD+	RD+
6	TD-	RD-
4,5,7,8	N.C	N.C

When disable auto-negotiation of ISCOM2126EA-MA Ethernet ports, they are MDI-X ports and can be connected to PC which has MDI port though straight-through cable.

4.2.3 Connect to power supply

1. For ISCOM2126EA-MA with 220V AC power supply, users please connect 220V AC power supply with power supply interface on rear panel of the switch. Pay attention that the switch is powered on once connecting 220V power supply with device since there is no power supply switch on ISCOM2126EA-MA, make sure the switch has been connected correctly before connecting power supply.
2. For ISCOM2126EA-MA with -48V DC power supply, users please connect -48V DC power supply with power supply interface on rear panel of the switch. Pay attention that the switch won't be electrified after connecting with -48V DC power supply until users turn on the power supply switch since the ISCOM2126EA-MA has been designed with power supply switch.

4.3 Making cable

Pin number of RJ45 plug and connector is available in *signal Definition of CONSOLE port*.

- ✧ Straight through cable (100M)



- ✧ 100M crossover cable



4.4 Power Supply

- After install the device correctly following above steps, the device can be powered on by connecting the switch with 220V power supply.
- PWR indicator ON means the system has been powered on.
- All the indicator lights on front panel of ON means the system is self-checking and initializing.
- After self-check and initialization, the device starts to operate, and then the SYS indicator starts flickering which means that system operates normally. Indicator LEDs of the 24 Ethernet ports indicate the status of ports (ON or OFF is according to port configuration and connection).
- If the CONSOLE port is connected to PC and terminal software is configured correctly before system powered on, there will be user management interface on the PC screen, and then operation is available. (Specific operations are available in *ISCOM2126EA-MA Configuration Guide*).

Chapter 5 Precautions

Only trained and qualified personnel should install, maintain, or install the parts of ISCOM2126EA-MA. The device must be installed in a place where temperature and humidity can be controlled, meanwhile consider the electronic conductivity of surrounding materials. Extreme moisture may result in short circuit, and if too dry there may be fire. So there must be a suitable environment for the device.

- The power supply must be grounded to discharge static.
- There must be some space between device and the near electrical equipments.
- We recommend that outside device routing intersect with live wire to avoid long paralleling.
- Follow the guide strictly when installing.
- Do not install the device when your hands are wet or with a lot of sweat.
- Do not rebuild the device mechanically and electrically.
- When install ISCOM2126EA-MA on the table, please do not put other thing onto it.



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