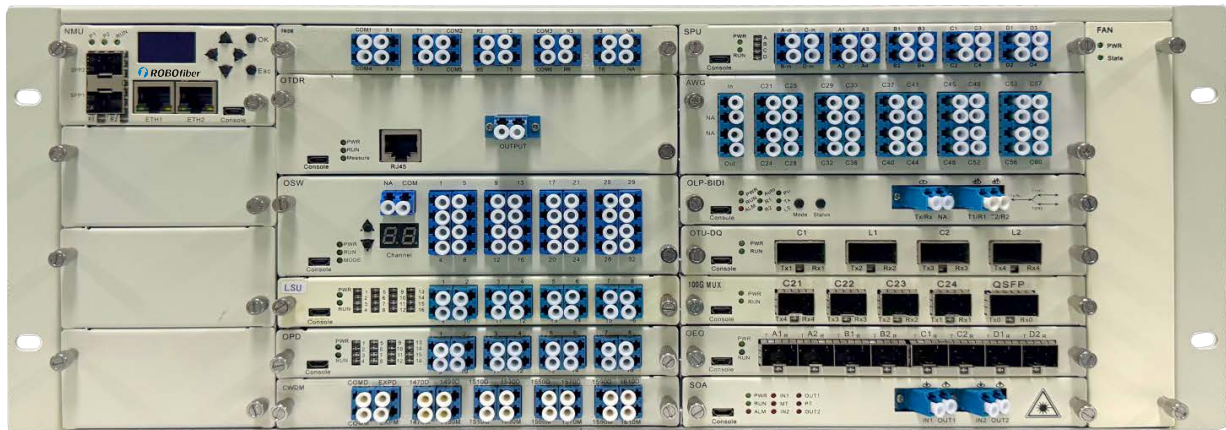


ROC3 Managed Optical Communications Platform



Installation Guide

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1. ROC3 Platform Introduction

ROC3 is an extremely versatile managed platform for optical transport. Platform provides a high density optical fiber solution that includes optical regeneration and transport, amplification, protection and multiplexing, as well as a wide variety of tools for monitoring and analyzing optical performance. The ROC3 features rich management features via web, SNMP, telnet, SSH, local console and local LCD panel.

The ROC3 is structured around 3 main chassis, all 19" mountable and covering 1RU, 2RU and 4RU of rack space. All chassis are driven by same management NMU unit and support redundant AC and DC powering and removable ventilation fan trays. Chassis capacity runs from 4 slots for 1RU to 16 slots for the 4RU, and available cards cover various multi speed transponders(1G to 100G), DWDM and CWDM mux/demuxes and OADM, EDFA and DCM modules, Optical protection and Optical switching, OPM and OLS units, Variable Optical Attenuators, TMUX cards, and more.

2. Features

1. The modular design of the function card allows for flexible networking and enables the formation of CWDM and DWDM transmission, protection, and monitoring networks.
2. Provides various management functions such as configuration management, performance management, alarm management, and security management.
3. The plug-in card-type 1+1 redundant backup power supply design provides a stable power supply for the equipment.
4. The 4U device supports up to 19 function card slots, providing rich functionality for the network.
5. Provides an intuitive and convenient LCD graphical interface for management, facilitating engineering installation and use.
6. Remote management protocol support: SNMP, WEB, TELNET, SSH and other network protocols

3. Product Technical Parameters

Parameter	unit	ROC3-CH04	ROC3-CH08	ROC3-CH16
Chassis slot numbers		7 slots 1 network management card slot 2 power supply slots 4 function card slots	11 slots 1 network management card slot 2 power supply slots 8 function card slots	19 slots 1 network management card slot 2 power supply slots 16 function card slots
Chassis size	mm	482.6×300×44	482.6×300×89	482.6×300×178
Power type		DC 36V~72V or optional AC 100V~240V		
fan		1 removable fan card		
Operating temperature	℃	-5 ~ +55		
Storage temperature	℃	-20 ~ +70		
Relative humidity		5% ~ 95% Non-condensing		

4. Main Chassis Configuration

4.1. ROC3-CH04 chassis



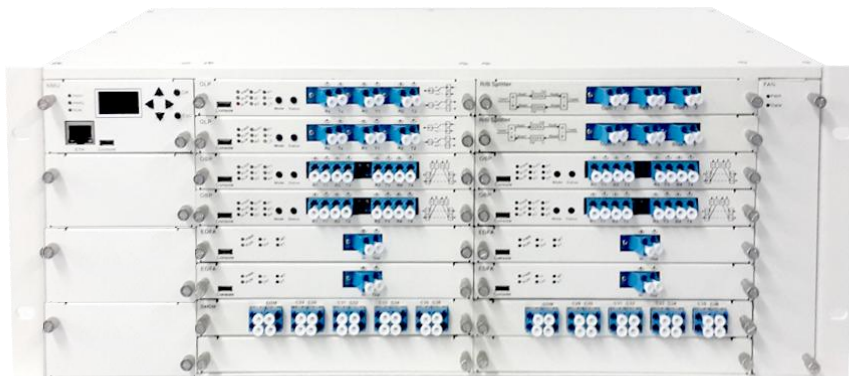
ROC3-CH04 chassis outline

4.2. ROC3-CH08 chassis



ROC3-CH08 chassis outline

4.3. ROC3-CH16 chassis



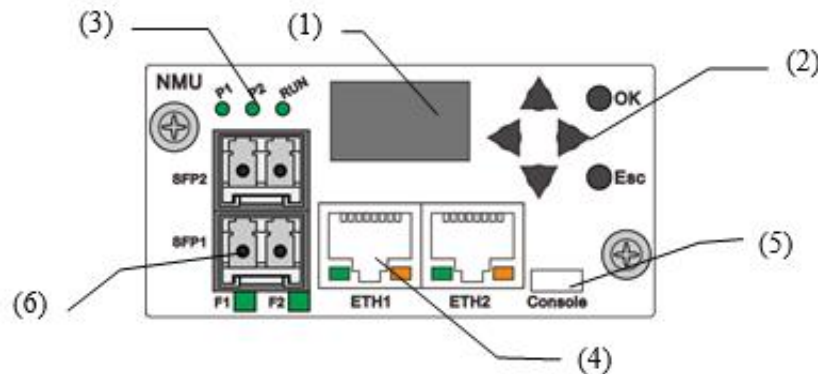
ROC3-CH16 chassis outline

5. ROC3 Components

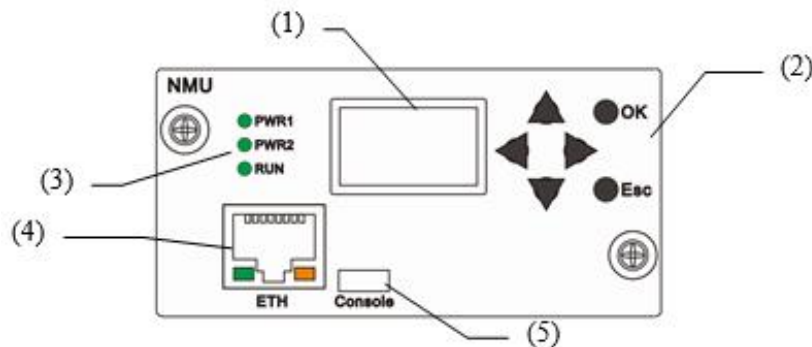
5.1. ROC3 Main Chassis Cards

5.1.1. Network Management Card Front Panel Description

Optical port network management card:



Electrical interface network management card:



(1) LCD display screen: Displays device and service card information.

(2) OK - Confirm key , Esc - Cancel key, ▲, ▼, ◀, ▶ - Move up/down/left/right keys.

(3) Power1 and Power2 power indicator lights: indicate the working status of the power supply. When the light is on, the power supply is working. When the light is off, the power supply is not working .

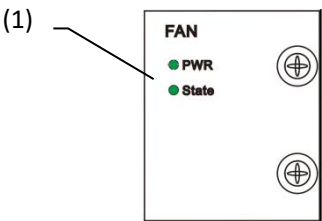
Run indicator light: The device's operating status indicator light, flashes once per second normally.

(4) ETH1 and ETH2 device network ports: can be used for network connection, remote command control communication street ports.

(5) Console interface: Device debugging interface.

(6) SFP1 and SFP2 optical module interfaces: used for connecting optical modules.

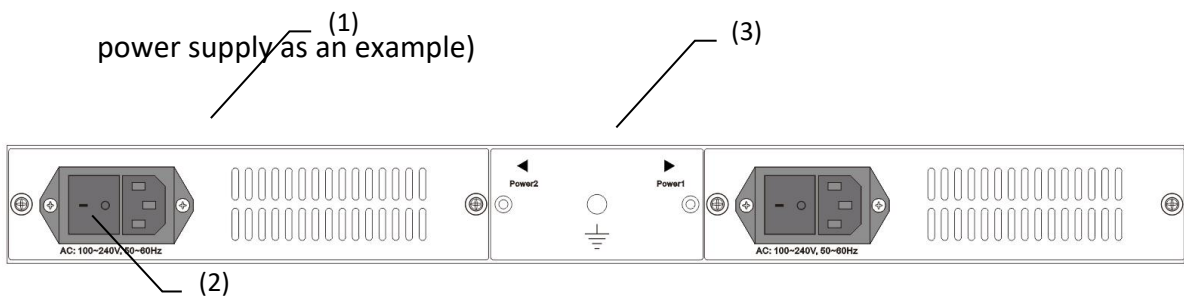
5.1.2. Fan panel instructions



(1) PWR power supply indicator: When lit, it indicates that the service card is powered normally; when off, it indicates an abnormality.

State Fan status indicator: lit indicates the fan is on; off indicates the fan is off.

5.1.3. Description of the rear panel of the device power supply (taking a 1U dual AC



(1) Dual AC power supply: working voltage 100 ~240V .

(2) Power switch: " | " indicates on; " o " indicates off.

(3) Grounding post.

5.2. Operating Instructions

5.2.1. Instructions for the LCD operation interface of the network management card

- (1) The main interface displays information such as the device's IP address.
- (2) Press the " OK " button on the main menu interface to enter the submenu management interface.
- (3) Press " ▲ " and " ▼ " on the submenu interface to view the manageable items of each submenu.
- (4) Items marked with "*" are configurable items. Press " OK " to enter the configuration interface and use " ▲ ", " ▼ ", " ◀ " and " ▶ " to configure the parameters of the item.
- (5) During operation , press the " Esc " key to return to the previous menu.

User interface instructions

Main interface	Submenu	Submenu settings instructions
0. Main control board information 010.042.042.178 2 55.255.255.000 001497120041	*1. IP address 010.042.042.178	IP address management
	*2. Subnet mask 255.255.255.000	Subnet mask management

*3. Default Gateway 010.042.042.001	Default gateway management IP addr.
4. MAC address 001497120041	Display device's MAC address
*5 . Button Lock Unlocked	Set button status 1. Locked 2. Unlocked
*6. LCD Password *****	View current and set LCD password Default: 8 88888
*7. Fan status	Set fan switch 1. ON 2. OFF
8. Fan status	Check fan status 1.ON2.OFF3. ALARM
9. Power supply 1 status	Querythestatusofpower supply 1 1. ON 2. OFF
10. Power supply 2 status	Querythestatusofpower supply 2 1. ON 2. OFF
11. Card Type ROC3-EDFA21725	Display card type
12. Device serial number 123456789012	Display device serial number
13. Software version number SV1.02.44	Display device software version number
14. Hardware version number HV2.00.01	Display device hardware version number
15.Manufacturing date 2023-11-28	Display device manufacturing date

5.2.2. Web User Interface Instructions

1. Open web browser and enter the device's IP address and port number (default: <http://10.42.42.178:9091>) in the address bar , then press Enter . If the network cable is connected correctly, a login page will be displayed. Username: "admin"; Password: "admin" . (Note: The computer's IP address must be on the same network segment as the device's IP address .)

Log in to the Optical System

Username:

Password:

[Change password](#)

Login screen

2. After successfully logging into the device, you can manage and configure the network management card.

ROC3-CH16 Configuration

	Device	NMU	Card-1	Card-2	Card-3	Card-4	Card-5	Card-6	Card-7	Card-8	Card-9	Card-10	Card-11	Card-12	Card-13
	Card-14	Card-15	Card-16												
NMU	Basic Information														
Basic Info	IP Address		10.42.42.178												
	Gateway		10.42.42.1												
	Subnet Mask		255.255.255.0												
SNMP Config	Trap IP 1		Not Set												
	Trap IP 2		Not Set												
Net Config	Trap IP 3		Not Set												
	Power 1 Status		On												
Time Config	Power 2 Status		Off												
	FAN Status		Alarm												
NetFilter Config	Community (read)		public												
	Community (write)		private												
Log Info	Software version		SV1.02.44												
	Hardware version		HV2.00.01												
Logout	Serial Number														
	Manufacturing Date														
	sysLocation														
	sysName														
	sysContact														
	Time		1970-01-01 08:18:40												

Management Interface

5.2.3. NetFilter Config User Guide

After logging into the webpage, click the NetFilter Config option under the NMU network management card. The following page will be displayed:

	Device	NMU	Card-1	Card-2	Card-3	Card-4	Card-5	Card-6	Card-7	Card-8
NMU	Config Netfilter Service									
Basic Info	☒ Enable Netfilter Service									
SNMP Config	☐ Modifying IP Address Disable Netfilter Service									
Net Config	Apply Reset									
Time Config	Config ICMP Service									
NetFilter Config	☐ Enable ICMP Service									
Log Info	Apply Reset									
Logout	Config Netfilter Tables									
	Add Netfilter Items									
	Index	IP Address	Protocol	Port						
	Previous	1	2	3	4	Next				

(1) Explanation of the Enable Netfilter Service option:

Check this box to enable IP filtering; uncheck this box to disable IP filtering. Click the Apply button below to submit the settings. With IP filtering disabled, all IPs can access the device; with

IP filtering enabled, only IPs and ports configured as ACCEPT in the Netfilter Tables can access the device. Other IPs will be blocked. It is recommended to first configure the Netfilter Tables and add the IPs of the computers that need to access the device before enabling this feature to ensure the computer's IP and port are listed in the Netfilter Tables, preventing connection failures.

(2) Modifying IP Address and Disable Netfilter Service options:

Checking this option and clicking the Apply button to submit the settings means that the IP filtering function will be automatically turned off after the device IP is changed, preventing the device from being unable to connect after the device IP is changed; not checking this option will turn off the function.

(3) Enable ICMP Service option:

Check this option and click the Apply button to submit the settings to enable the ping function. If this option is not checked, the device will not be able to be pinged (this function will be effective after the IP filtering function is enabled).

(4) Add Netfilter Items Description:

This function is used to add IP addresses that can access the device (Note: If the added IP address is 0.0.0.0, it means that all IPs can access the device). After clicking the Add Netfilter Items button, the following page will be displayed:

Add Netfilter Items

IP Address:

Protocol:

Port:

Action:

Parameters for Add Netfilter Items:

1. IP Address: The IP address to be added (when this address is 0.0.0.0, it means that all IPs can access the device);
2. Protocol: Protocol selection, where TELNET, WEB, and FTP use the TCP protocol, and SNMP uses the UDP protocol;
3. Port: Select the corresponding protocol port;
4. Action: NA indicates that the item is invalid, ACCEPT indicates that the IP and port of the item

are acceptable, and DROP indicates that the IP and port of the item are discarded.

6. Network management card program control commands

Note: Using TCP/IP protocol, port number: 4001

6.1. Command encapsulation format

<C00_[IP_?][MSK_?][GW_?]>

Instruction encapsulation start marker: "<" Instruction encapsulation end marker: ">"

Instruction encapsulation indication: C00 represents the Network Management Unit (NMU); C01 represents Service Card 01; C16 represents Service Card 16;

Single command encapsulation format: [IP_?] Query IP address; [IP_010.042.042.225] Set IP address to 10.42.42.225.

6.2. NMU Network Management Card Instruction Table

Order	Detailed description
[IP_?]	IP address lookup Successfully returned the device IP address, such as : [IP_010.042.042.225]
[IP_XXX.XXX.XXX.XXX]	IP address settings Example: [IP_010.042.042.22 6] IP address displayed on device.
[CS_?]	Business card insertion status query Successfully returned the service card insertion status, such as: [CS_XX_ZZZZ_0102_0201_0901_1001] XX: Indicates the number of slots the device has. Z: Indicates whether a card is inserted. Z=1 indicates a card is inserted; Z=0 indicates no card is inserted; Z=2 indicates a slot position, which is occupied by a card that occupies multiple slots. The first position is card 1, the second position is card 2, and so on. The following 4 bytes indicate the card type. 0000: Indicates no card is inserted. 0601 indicates a light switch card. 0101 represents OLP1:1, and 0102 represents OLP1+1. The preceding 01 indicates the major category of OLP, and the following 01 indicates a 1:1 ratio; 02 indicates 1+1. 0201 represents OBP, where 02 indicates the major category of OBP and 01 indicates the subcategories of various OBP cards. 0301 represents EDFA, and the preceding 03 indicates the major category of EDFA. - Other types are pending.

[MSK_?]	Net Mask query Example: [MSK_?] Successfully returned the device subnet mask, such as: [MSK_255.255.255.00 0]
[MSK_XXX.XXX.XX.XXX]	Net Mask Settings Example: [MSK_255.255.255.00 1] Successful response: [MSK_SETOK]
[GW_?]	Gate Way Search Successfully returned the device gateway address, such as: [GW_010.042.042.001]
[GW_XXX.XXX.XX.XXX]	Gate Way settings Example: [GW_010.042.042.00 2] Successful response: [GW_SETOK]
[MAC_?]	MAC address lookup Successfully returned: [MAC_XX-XX-XX-XX-XX-XX]
[KEY_?]	Key lock query Successfully returned to the device's key lock state, such as [KEY_X]. X=1: Button on; X=0: Button off.
[KEY_X]	Button lock settings Command format: [KEY_X] X=1 enables button functionality; X=0 locks button functionality. Successful response: [KEY_SETOK]
[FNC_?]	Fan control switch query Successfully returned the fan control switch status, such as [FNC_X]. X=1: Fan control switch is on; X=0: Fan control switch is off.
[FNC_X]	Fan control switch settings; command format: [FNC_X] X=1: Turn on the fan control switch; X=0: Turn off the fan control switch. Successful response: [FNC_SETOK]
[FNS_?]	Fan operating status query Successfully returned the fan operating status, such as [FNS_X]. X=1: Fan is on; X=0: Fan is off.
[PWR_?]	Power supply status query Successfully returned to power-on status, such as [PWR_XZ] X indicates the operating state of power supply 1. X=1 Power supply 1 is on; X=0 Power supply 1 is off. Z indicates the operating state of power supply 2. X=1 Power supply 2 is on; X=0 Power supply 2 is off.
[DTP_?]	Equipment Model Inquiry The device model was successfully returned, such as [DTP_OAP01].
[SV_?]	Device software version number lookup Successfully returned the device software version number, such as [SV_01.02.38].
[HV_?]	Device hardware version number lookup

	Successfully returned the device hardware version number, such as [HV_01.02.02].
[SN_?]	Equipment production serial number lookup Successfully returned the device production serial number, such as [SN_104100020008]
[MD_?]	Equipment manufacturing date inquiry Successfully returned the device's manufacturing date, such as [MD_2014-12-22].

7. Safety and Equipment Maintenance

7.1. Safety

- (1) The power supply must be grounded, and the input voltage must be within the range required by the equipment.
- (2) If a sudden interference occurs and the board malfunctions, the power should be turned off before further actions.

7.2. Equipment maintenance

Proper use and storage of equipment can maintain its good performance indicators and extend its service life; therefore, appropriate maintenance is necessary.

(1) Equipment should be protected from strong mechanical vibration, collision, drop and other mechanical damage. Good packaging and vibration reduction, humidity protection and water intrusion prevention measures must be taken during transportation.

(2) The equipment should be kept clean at all times, and working environment should be free of corrosive gases such as acids and alkalis. Panels can be gently wiped with a clean towel dampened with water. Do not use solvents such as alcohol to clean it.

For any further questions, please contact us. Your feedback is very much appreciated.

8. Troubleshooting

Fault symptoms	Possible reasons	Solution
No display when powered on	The power supply is not connected properly.	Reconnect the power supply and turn it on.
Fan malfunction	The fan is not plugged in properly.	Un-plug, check alignment and re-insert.
Invalid host computer command	Inconsistent baud rate settings	The serial port baud rate is fixed at 115200.
	The network cable and serial cable are not connected properly.	Recheck network cable and serial cable, and restart computer used for access.

9. Factory Settings

Variable	Factory default configuration	Remark
Device access key	allow	
Device IP	10.42.42.178	Port: 9091
Web login	Username: admin	Password: admin
Subnet mask	255.255.255.0	
Default gateway	10.42.42.1	
Serial port baud rate	115200	8 data bits, 1 stop bit, no parity