FiberHome

AN5516-04
Optical Line Terminal Equipment
Quick Installation Guide

[Version: D]

MN000003108

FiberHome Telecommunication
Technologies Co., Ltd.

Preface

We appreciate your business. Your satisfaction is our goal. We will provide you with comprehensive technical support and after-sales service. Please contact your local sales representative, service representative or distributor for any help needed at the contact information shown below.

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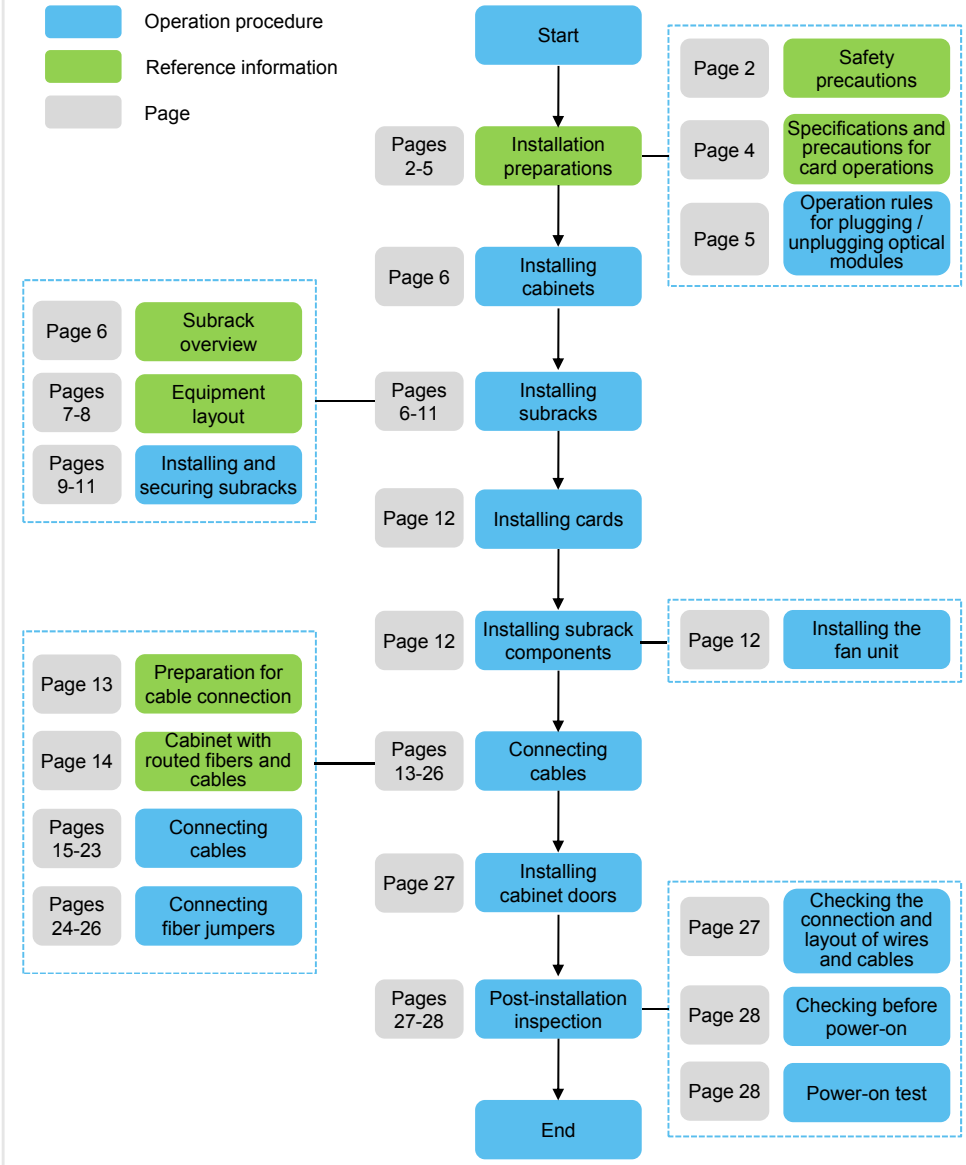
1 Installation Procedure



Warning

Laser Safety

To prevent laser radiation from injuring eyes, do not look into the end face of the fiber or fiber connector directly with naked eyes.

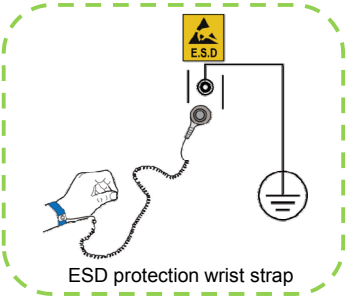
Laser class identifier

Caution

ESD Protection

- Carpets or other materials that easily generate static electricity should not be used on the floor of the equipment room.
- Do not touch any component or wires on cards, or metal conductors in sockets. ESD protection measures should be taken if it is necessary to touch the card during maintenance.


ESD protection gloves



ESD protection wrist strap

Caution

Grounding Requirements

Before the equipment is powered on, the cabinet protection earth ground cable and subrack protection earth ground cable should be well grounded. Check and ensure that the insulation resistance and ground resistance meet the specification.

Caution

Binding Cables

- Cables of different types on the installation site should be laid out independently and bound separately. Please note that optical fibers should be bound with dedicated fiber binding straps.
- Exercise care if you must bend fibers. If bends are necessary, the fiber bending radius should never be less than 20 d (d refers to the fiber diameter).
- The cables are bound with proper and equal spacing between them. The cable binders are arranged in good order. The extra parts of the binders are cut from the root without leaving sharp points.

Caution

Inspection Prior to Installation

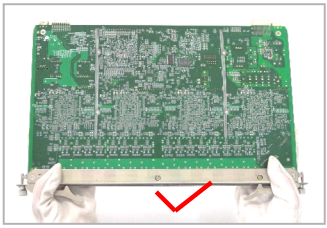
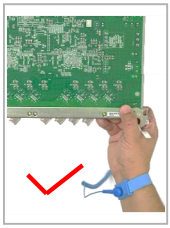
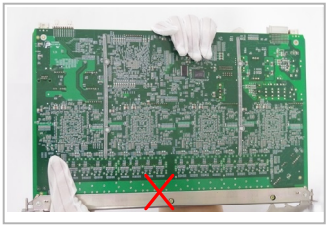
Prior to equipment installation, please inspect the equipment room, cabinet, power supply, connection of cables (especially earth ground cable), and supporting facilities. After confirming that the conditions for installation are satisfactory, start the work following the project designing documents. Please refer to the manual *Installation Reference* for details.

3 Installation Tools

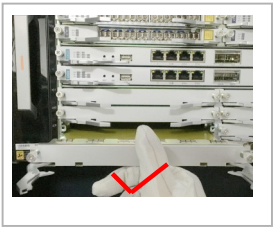
 Ladder	 Vacuum cleaner	 Electric drill	 Drilling bit
 Long tape	 Marker pen	 Spirit level	 File
 Knife	 Claw hammer	 Cross screwdriver	 Flat screwdriver
 Crimping pliers	 Sharp nose pliers	 Diagonal pliers	 Wire stripper
 Combination wrench	 M6 to M12 socket wrench	 Torque wrench	 Fiber puller
 Multimeter	 Optical power meter	 Network cable tester	 Error detector
 ESD protection gloves	 ESD protection wrist strap	 Insulating tape	Cable tie  Fiber binding strap

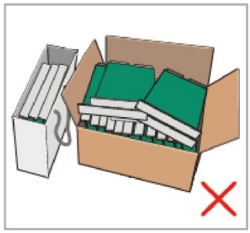
Caution

- Do not contact cards with bare hands. Always wear ESD protection gloves or ESD protection wrist strap when operating on cards.
- When holding a card, put your hands on its panel, and do not touch any component or wires on cards, or metal conductors in sockets.

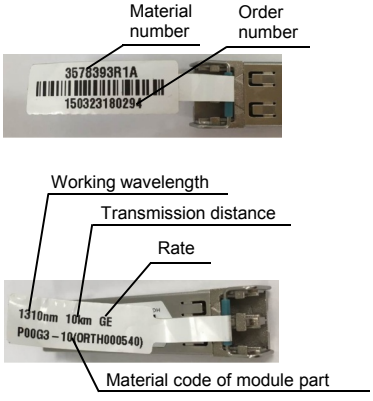

- All vacant slots in the subrack should be installed with dummy panels. When you unplug a dummy panel, ensure that you will plug it back in five minutes.
- Use care when plugging a card. The card cannot be inserted if not properly oriented.
- The cards are valuable and fragile. Users should treat them with great care.
- Prevent the circuit surfaces of cards from contacting each other, to avoid shorting or scratching.
- If the unpacked card is a spare card, it will not be installed immediately. Users can put the card with its original ESD protection bag in a dry and cool place, keeping it away from sunlight and strong electromagnetic radiation sources.



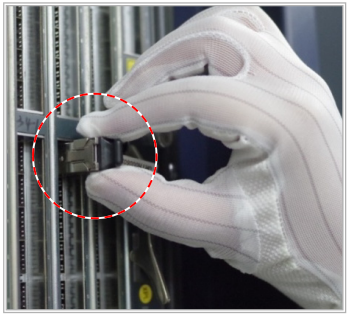


5 Operation Rules for Plugging / Unplugging Optical Modules

5.1 Plugging the Optical Module

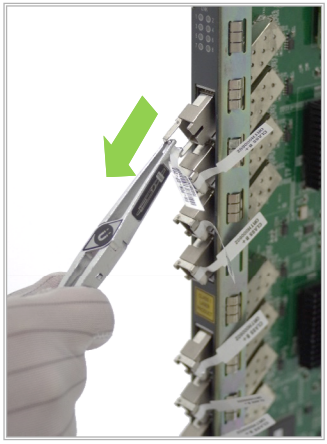


1 Hold the optical module, and plug it into the card along the EMI cage.



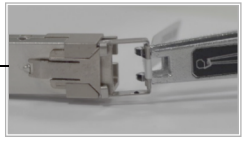
5.2 Unplugging the Optical Module

1 Grab the pull ring of the optical module with the tweezers end of the fiber puller, and draw it out to detach the optical module from the EMI cage.



Fiber puller

Pulling the optical module (tweezers)



Pulling the optical fiber

Caution

While pulling the optical module, hold the fiber puller tightly so that the module will not fall down.

6 Installing Cabinets

Note

The AN5516-04 can be installed in the following cabinets. Please refer to the following manuals for the procedures of installing the cabinets.

Cabinet Model	Manual Description
19-inch cabinets (4102596 to 4102599)	*Quick Installation Guide for the 19-inch Cabinet (600 mm-deep) (4102596 to 4102599)*
21-inch cabinets (4102589 to 4102592)	*Quick Installation Guide for the 21-inch Cabinet (300 mm-deep) (4102589 to 4102592)*
21-inch cabinets (404000068 to 404000071)	*Quick Installation Guide for the 21-inch Cabinet (300 mm-deep) (404000068 to 404000071)*
21-inch cabinets (404000337 to 404000340)	*Quick Installation Guide for the 21-inch Cabinet (340 mm-deep) (404000337 to 404000340)*

7 Installing Subracks

7.1 Subrack Overview

Subrack Structure

No.	Description	Functions
①	Mounting ear	Secures the subrack in the cabinet.
②	Earth ground point on the subrack	Connects with the subrack earth ground cable.
③	ESD fastener	Connects with the ESD protection device.
④	Fiber puller hanger	Holds the fiber puller.
⑤	Fan unit	Facilitates air cooling of the equipment.
⑥	Card area	Houses cards to implement various functions of the equipment.
⑦	Fiber passage unit	Facilitates routing and arranging of fibers and cables.

Subrack Dimensions

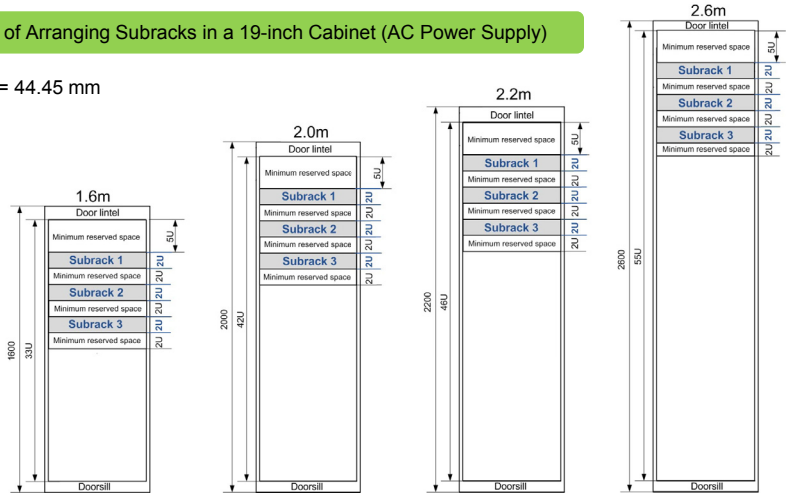
Description	Dimensions (H × W × D) Note 1
Subrack without mounting ears	88 mm × 443 mm × 239.5 mm
Subrack with mounting ears for 19-inch cabinet	88 mm × 480 mm × 241.5 mm
Subrack with mounting ears for 21-inch cabinet	88 mm × 530 mm × 241.5 mm
Note 1:The size of depth does not include the size of fiber passage unit.	

Rules for Arranging Subracks

- When multiple AN5516-04 subracks are to be installed in a cabinet, usually arrange them from the top down.
- The AN5516-04 subrack supports both DC power supply and AC power supply. The equipment layouts in the two cases are different.
- A cabinet can house three AN5516-04 subracks at most.
- The subracks are mounted on the front vertical mounting flanges in both 19-inch and 21-inch cabinets.
- The distance between every three mounting holes on the front vertical mounting flange in a 19-inch cabinet is 1 U (44.45 mm).
- The distance between every two mounting holes on the front vertical mounting flange in a 21-inch cabinet is 1 SU (25 mm).

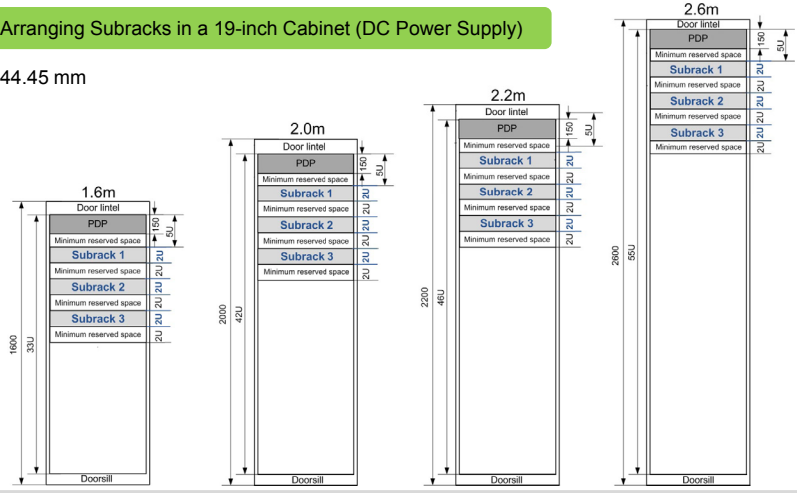
Example of Arranging Subracks in a 19-inch Cabinet (AC Power Supply)

Note: 1U = 44.45 mm



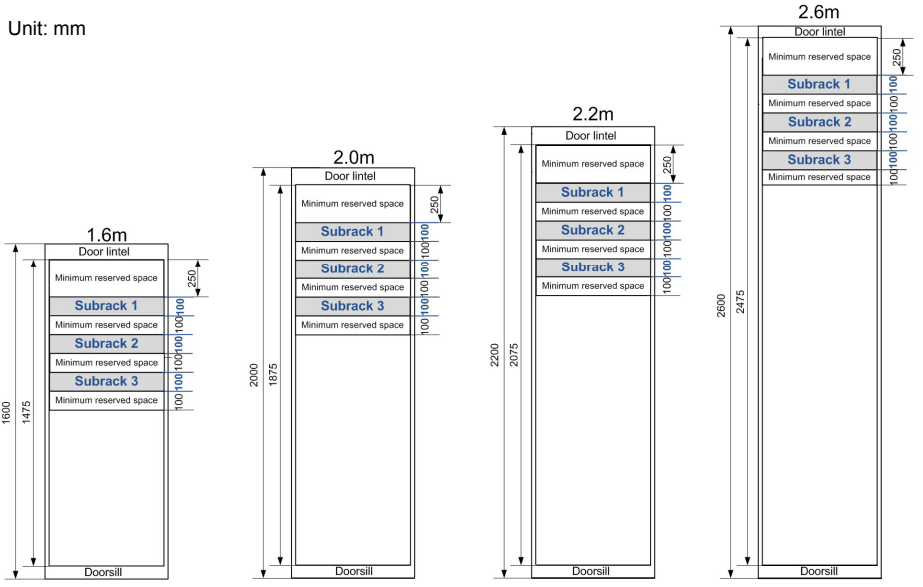
Example of Arranging Subracks in a 19-inch Cabinet (DC Power Supply)

Note: 1U = 44.45 mm



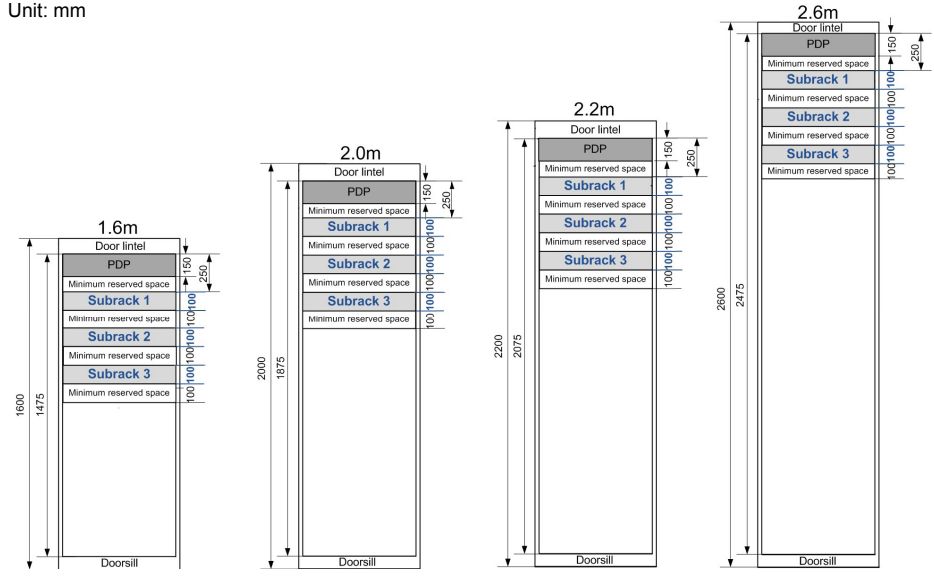
Example of Arranging Subracks in a 21-inch Cabinet (AC Power Supply)

Unit: mm

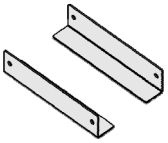


Example of Arranging Subracks in a 21-inch Cabinet (DC Power Supply)

Unit: mm

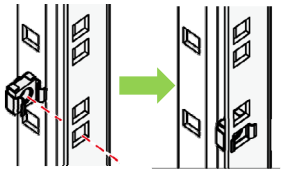


Installing Components

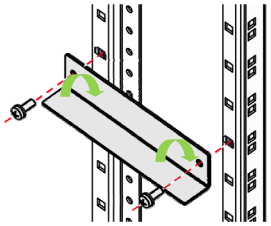


Slide rails for 19-inch cabinets

1 Mark the positions for mounting the subrack and slide rails on the vertical mounting flanges of the cabinet. Then install the floating nuts.

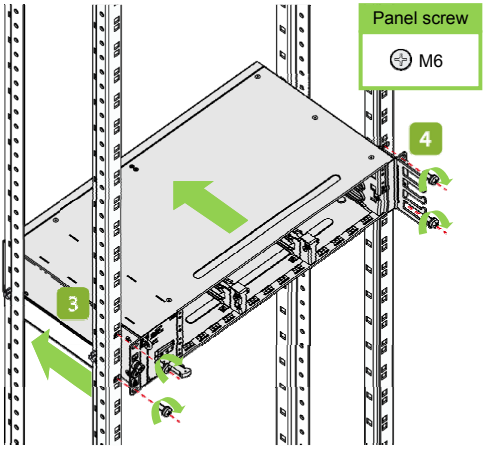


2 Install the slide rails.



3 Push the subrack into the cabinet along the slide rails.

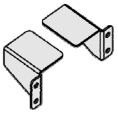
4 Tighten the panel screws clockwise to secure the subrack.



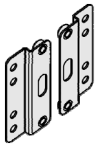
Installing subracks in 19-inch cabinets (4102596 to 4102599)

Marker pen	Flat screwdriver	Cross screwdriver	Panel screw
			M6

Installing Components



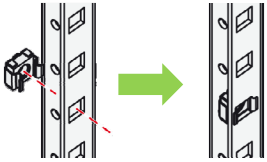
Slide rails for 21-inch cabinets



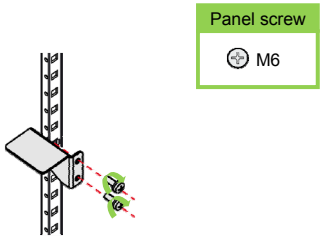
Adapter mounting ears

Installation steps

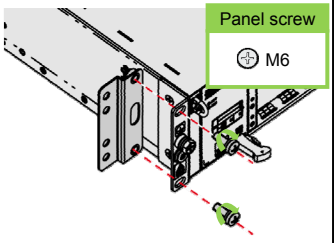
1 Mark the positions for mounting the slide rails and subracks on the vertical mounting flanges of the cabinet. Install the floating nuts.



2 Install the slide rails.

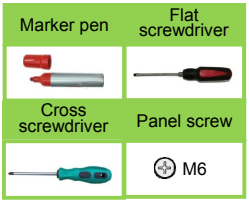


3 Install the adapter mounting ears.



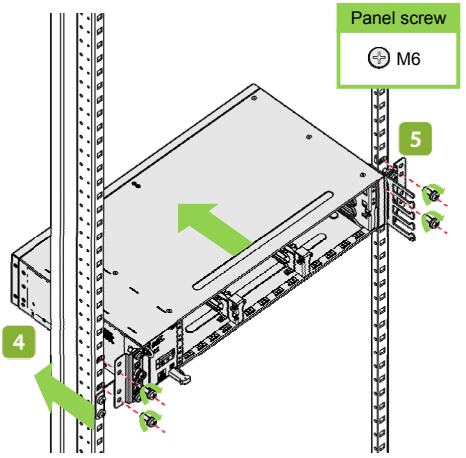
Tip

When installing the adapter mounting ears, install the panel screws but do not tighten them.



4 Push the subrack into the cabinet along the slide rails.

5 Tighten the panel screws clockwise to secure the subrack.

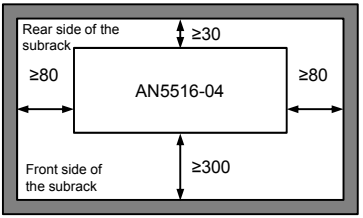


Installing subracks in 21-inch cabinets (404000068 to 404000071)

7.5 Mounting Subrack on the Wall

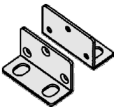
Note

To facilitate air cooling of the equipment and users' operation on the equipment, provide the required installation spaces as indicated in the figure below (in this example, the front side of the subrack facing downward) when mounting a subrack on the wall.



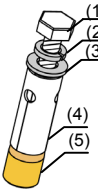
Unit: mm

Component



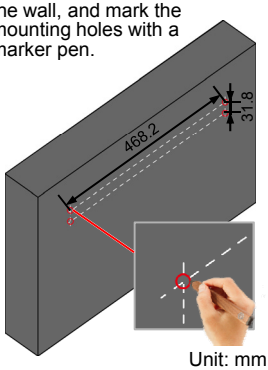
Wall mounting ears

Assembly of the Expansion Bolt



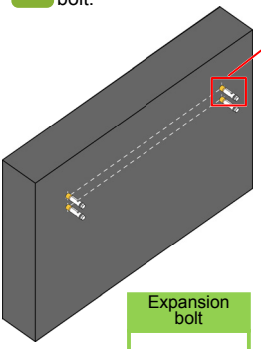
(1) Hex machine screw M8x60
(2) Spring washer
(3) Flat washer
(4) Expansion sleeve
(5) Expansion nut

1 Determine the position and direction of the subrack on the wall, and mark the mounting holes with a marker pen.

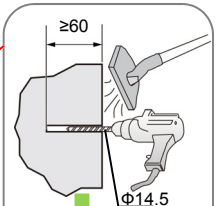


Unit: mm

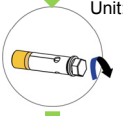
2 Install the expansion bolt.

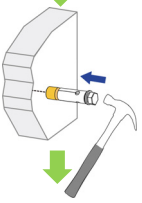


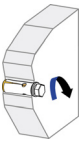
Expansion bolt

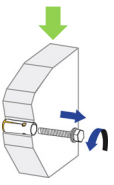


Unit: mm

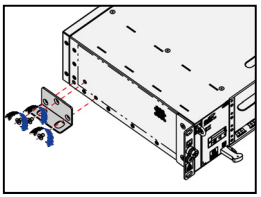






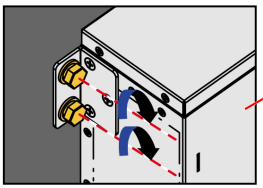


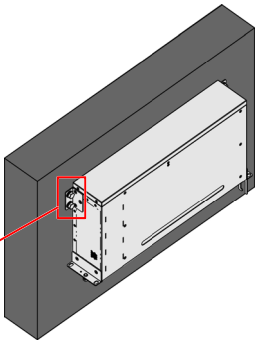
3 Install the wall mounting ears.



Screw

4 Tighten the screws on the mounting ears with a wrench to secure the subrack.





Long tape

Marker pen

Electric drill

Drilling bit

Vacuum cleaner

Claw hammer

Cross screwdriver

Screw

Socket wrench

8 Installing Cards and Components

8.1 Installing Cards

Caution

- Before installing a card, check the pin and card connector on the backplane.
- Follow the rules for installing cards.
- If resistance is encountered when you are plugging a card, pull out the card and check whether the card direction, slot, and card type are correct. Do not force in a card in such a case.
- Apply dummy panels to the slots not holding cards. The procedures for installing the dummy panels are the same as those for installing common cards.

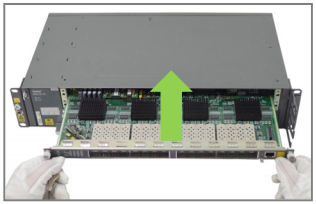
ESD protection gloves / wrist strap

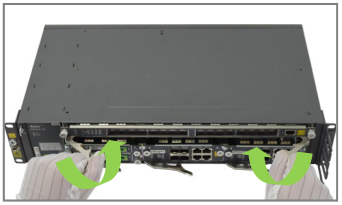
Cross screwdriver	Captive screw
	M3

1 Open the latches, align the left and right edges of the card with the slide rails in the slot (with the component side of the card facing upward) and push the card in along the slide rails slowly.

2 Push the card to its position, and close and secure the card's latches as shown in the figure below.

3 Tighten the captive screws on the card panel to lock the card.





8.2 Installing the Fan Unit

Caution

- Do not operate forcefully; especially do not exert excessive force when installing the fan unit.
- Do not touch the fan blades when the fan unit is running.

ESD protection gloves wrist strap

1 Hold the fan unit and align the slide rails on the upper and lower sides of the fan unit with the slide rail grooves for the fan unit on the subrack respectively.

2 Push the fan unit slowly into the subrack until it is completely inserted and locked into the backplane socket of the subrack.

Note

- Internal cables are the wires and cables that are connected inside the cabinet. These cables are usually connected before delivery. Installers should check the connection of internal cables on site. The items to check include whether the cable distribution is reasonable, whether the wires and cables are properly and neatly arranged, whether the plugs are connected firmly, whether incorrect insertion or poor insertion exists, and whether any part is missing.
- The installers can choose the top access wiring mode or the floor access wiring mode according to the equipment room and the installation site conditions (This guide uses the top access wiring mode as an example for description).
- The AN5516-04 can use the PDP296B (3000068). Please refer to *Hardware Description* for the specifications and pin definitions of the PDP.

Tip

- Before laying out wires and cables, you need to remove the front panel of the PDP. If space is limited for operations, remove the baffle at the bottom of the PDP.
- After you have completed layout of wires and cables, restore the front panel and baffle to their original places.

Preparing Wiring Holes on the Cabinet

Note

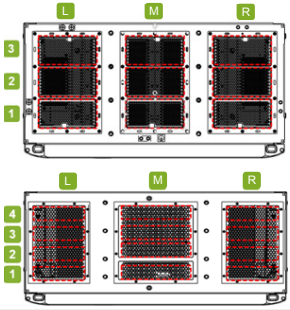
- For a cabinet equipped with mouseproof hop-pockets on the top, fasten the mouseproof hop-pockets after external wires and cables are led into the cabinet and well arranged.
- For a cabinet equipped with cover plate on the top or bottom of the cabinet, determine the position, size and number of wiring holes according to the wiring plan. Pierce the cover plate with diagonal pliers at desired positions to make wiring holes. The following introduces how to make wiring holes on the top of the cabinet.

Fastening the mouseproof hop-pockets on the top of cabinet

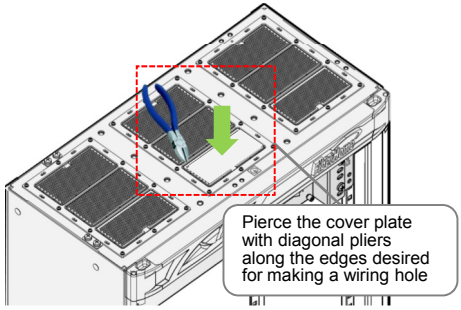
Caution

- Prepare the holes from near to far in sequence.
- Polish the raw edges of holes so that they will not cut hands or cables.

Recommended areas and sequence for making wiring holes



Making a wiring hole



10 Cabinet with Routed Fibers and Cables

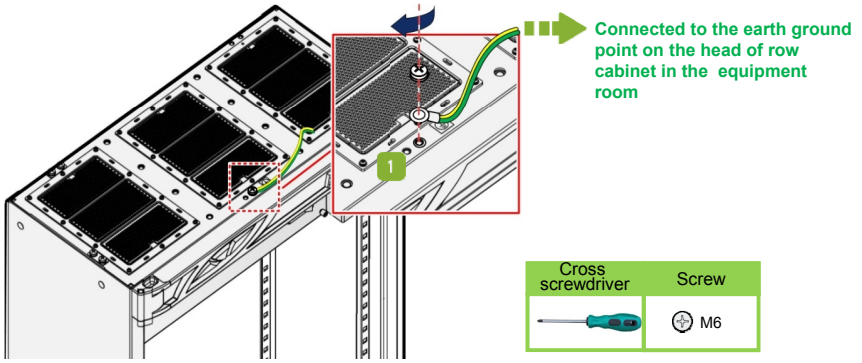
A PON Service Subrack

An MSAN Service Subrack

11 Connecting Power Cables and Protection Earth Ground Cables

11.1 Connecting the Cabinet Protection Earth Ground Cable

1 Cling one end of the cabinet protection earth ground cable to the earth ground point on the cabinet top and tighten it with a screw. Lead the other end of the cable to the earth ground point on the head of row cabinet in the equipment room.



11.2 Connecting the Cabinet Power Cable

Warning

- Make sure the external power supply is shut off before connecting the power cable. Do not connect the power cable when it is powered.
- Make sure the DC input is cut off; identify the switches to be used.
- Never expose the joining part of the power cable and the power connector unless necessary.
- If the bonding resistance between the ground cable of the equipment and the ground bar is larger than 0.1 ohm, the ground cable should be re-arranged.

Caution

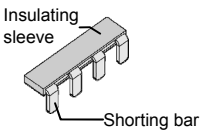
- With the premise that the cables must be arranged in compliance with the route, the power cables (including ground cables) should be processed on site according to the “shortest” route principle.
- The power cables should be made of a continuous segment of copper core with no intermediate connections.

Connection

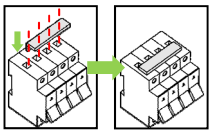
PDP End PDP296B (3000068)	Cable[Note 1]	Opposite End
-48V_A terminal (active) -48V_B terminal (standby)	-48V power cable (blue) 	External -48V DC power supply
0V_A terminal (active) 0V_B terminal (standby)	0V power cable (black) 	External power earth ground
PE terminal	PDP protection earth ground cable (yellow- /green) PDP296B (3000068): 	Earth ground point on the top of cabinet
Note 1: Please refer to the chapter on cables in *Hardware Description* for the model numbers of the cabinet power cables.		

Bus bar

Structure



Installation



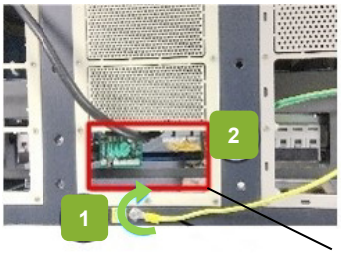
Tip

The protection earth ground cable for the PDP has been connected with the PE terminal before delivery of the PDP; users need only to connect the other end of the cable to the earth ground point on the cabinet top.

Note

The following introduces how to connect the cabinet power cables when the PDP296B (3000068) is used.

Top view



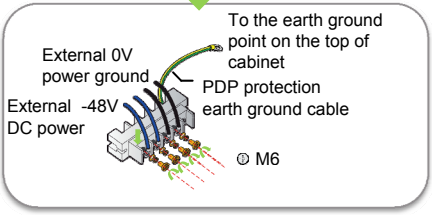
Wiring hole

1 Connect the cabinet earth ground cable to the protection earth ground bar in the equipment room.

2 Lead the power cable into the cabinet.

3 Remove the front panel of the PDP. M3

4 Connect the terminals of cabinet power cables on the PDP side and the opposite end.



-48V power cable

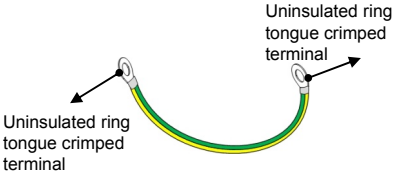
0V power cable

Protection earth ground cable

Screw/bolt	Captive screw	Socket wrench	Cross screwdriver
M6	M3		

11.3 Connecting the Subrack Protection Earth Ground Cable

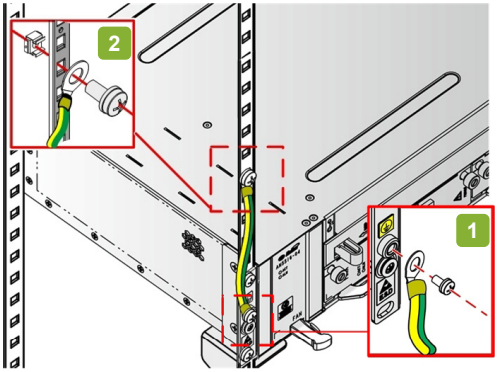
Subrack protection earth ground cable



Marker pen	Flat screwdriver	Cross screwdriver	Panel screw
			M6

1 Cling the uninsulated ring tongue crimped terminal on one end of the protection earth ground cable to the earth ground hole on the subrack and secure it with a panel screw with a flat washer from the accessories.

2 Install the floating nut and cling the uninsulated ring tongue crimped terminal on the other end of the cable to the determined mounting hole. (Installers may select a convenient installation hole on the vertical mounting flange to account for distance and position.) Secure the terminal by tightening the panel screw with a flat washer from the accessories.



11.4 Connecting the Subrack Power Cable

Caution

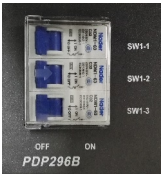
- Completely insert the cord end terminals into the terminal blocks on the PDP. To ensure good connection, the metal part exposed should not exceed one sixth of the overall metal length. The length of exposed insulation covering or metal part of terminals in the same row or batch should be equal whenever possible.
- Do not press the insulation covering of the cord end terminals, which may result in poor electrical connection.
- Make sure the side with larger area of the cord end terminal contacts with the terminal block.

Caution

- The power cables and the signal cables should be bound separately.
- After you have completed connection of the power cables, attach a label indicating the cable information to both ends of each cable, 1 cm to 2 cm away from the connector on each end.

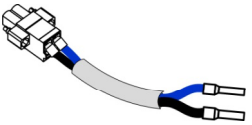
Caution

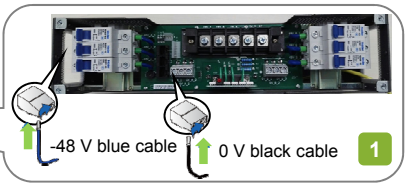
Make sure that the power control switches for the corresponding subrack on the PDP are placed in the OFF position.

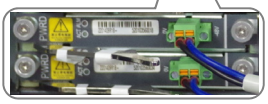


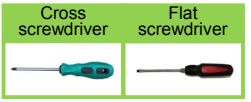
Note

The subrack power cable is shown in the table below.

Subrack Power Cable	Power Interface on the PWRD Card	Power Cable Equipped
DC power cable		







1. Connect the blue and black cord end terminals of the subrack power cable to the corresponding interfaces on the PDP. Connection of the subrack power cables for the AN5516-04 on the PDP side may vary with the PDP used. Refer to the table below for details.
2. Lead the subrack power cable through the PDP wiring hole on the top of the cabinet. Route the power cable to the power interface of the power card in the subrack along the wire channels on the side of the cabinet.
3. Insert the D-type two-conductor connector of the subrack power cable into the power interface of the PWRD card, and tighten the screws clockwise.

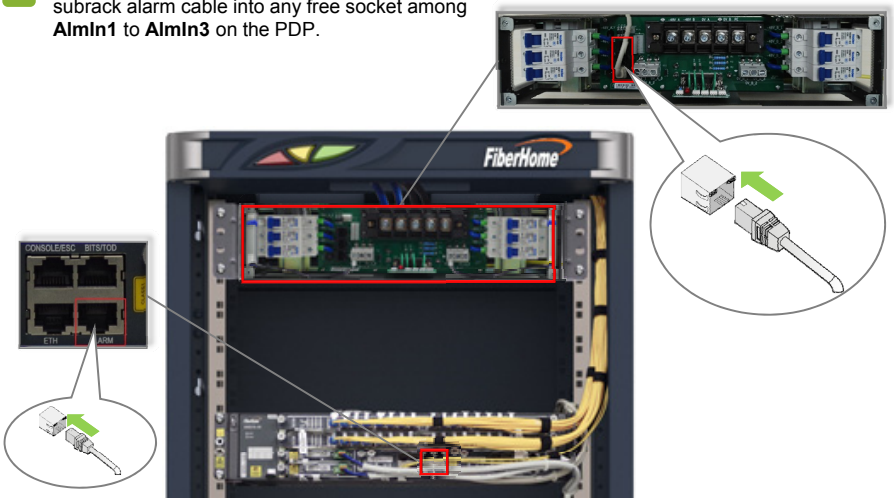
Connection

Cable Connector	Connection Description
	PDP296B (3000068)
Cord end terminal (-48 V, blue)	Connected to the -48V_A_1 to 48V_A_3 terminals (active) and -48V_B_1 to -48V_B_3 terminals (standby) on the PDP.
Cord end terminal (0 V, black)	Connected to the 0V_A_1 to 0V_A_3 terminals (active) and 0V_B_1 to 0V_B_3 terminals (standby) on the PDP.
D-type two-conductor connector	Connected to the PWRD power input interface on the backplane of the AN5516-04 subrack.

12 Connecting the Alarm Cable

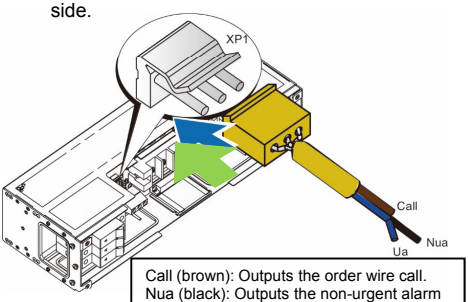
12.1 Connecting the Subrack Alarm Cable

1. Insert the RJ-45 connector on one end of the subrack alarm cable into the **ALARM** socket on the HSUB / HSUC card.
2. Lead the other end of the subrack alarm cable through the fiber guide unit. Route the cable upward from the subrack bottom to the PDP along the wiring channel at the right side of the cabinet.
3. Insert the RJ-45 connector on the other end of the subrack alarm cable into any free socket among **AlmIn1** to **AlmIn3** on the PDP.



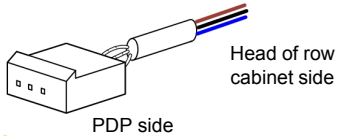
12.2 Connecting the Alarm Cable for the Head of Row Cabinet

1. Lead the alarm cable for the head of row cabinet through the wiring hole on the cabinet top, routing it to the PDP along the wiring channel on the side of the cabinet, passing through the wiring hole on the top of the PDP.
2. Insert the D-type connector of the alarm cable for the head of row cabinet into the **XP1** socket on the PDP.
3. Arrange the alarm cable for the head of row cabinet and connect the cable on the head of row cabinet side.



Call (brown): Outputs the order wire call.
Nua (black): Outputs the non-urgent alarm signal.
Ua (blue): Outputs the urgent alarm signal.

Alarm Cable for the Head of Row Cabinet



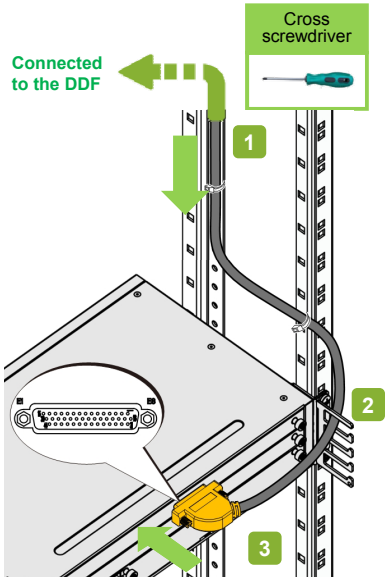
Tip

Installers need to make the plug for connection with the head of row cabinet in the equipment room by themselves.

Connection

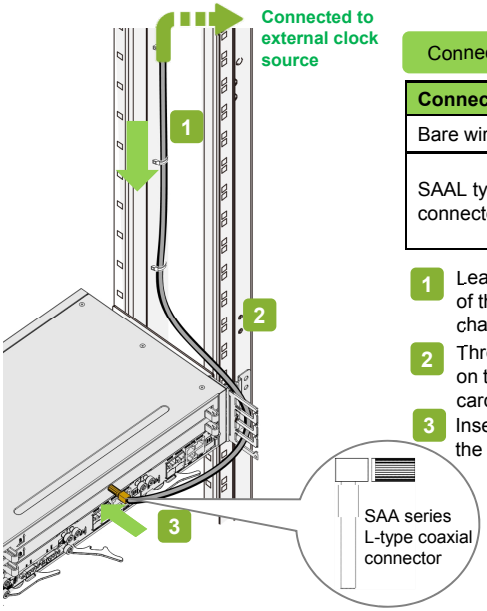
Cable Connector	Connection Description
Three-conductor cable	Connected to the head of row cabinet.
D-type three-conductor connector	Connected to the XP1 terminal on the PDP.

13 Connecting the E1 Cable



1. Thread the E1 cable through the wiring hole at the top of the cabinet, and route it downward along the wiring channel at the side of the cabinet.
2. Lead the E1 cable through the fiber passage unit on the subrack, and route it to the CE1B card.
3. Insert the DB-44P type connector of the cable into the E1 interface on the CE1B card.

14 Connecting the Coaxial Clock Cable

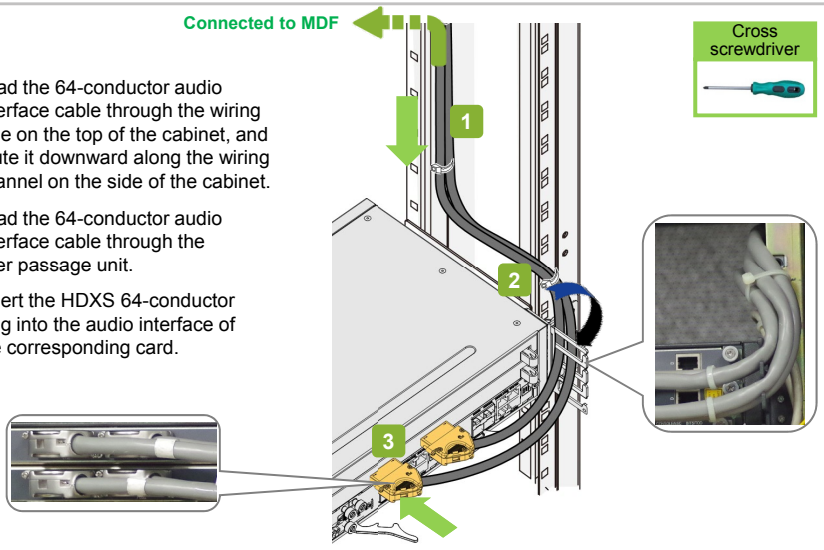


Connection

Connector	Connected To
Bare wire	External clock equipment
SAAL type connector	The **CLK IN1** / **CLK IN2** / **CLK OUT** interface on the C155A /TIMA card
	The **CLK IN** / **CLK OUT** interface on the CE1B card

1. Lead the clock cable through the wiring hole at the top of the cabinet, and route it downwards along the wiring channel at the side of the cabinet.
2. Thread the clock cable through the fiber passage unit on the subrack, and route it to the C155A /TIMA/CE1B card.
3. Insert the SAA series L-type connector of the cable into the clock interface of the C155A / TIMA/CE1B card.

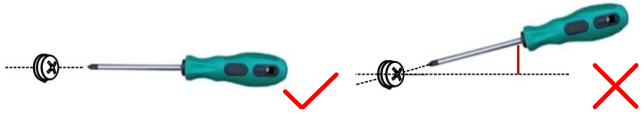
15 Connecting the 64-conductor Audio Interface Cable



1. Lead the 64-conductor audio interface cable through the wiring hole on the top of the cabinet, and route it downward along the wiring channel on the side of the cabinet.
2. Lead the 64-conductor audio interface cable through the fiber passage unit.
3. Insert the HDXS 64-conductor plug into the audio interface of the corresponding card.

Correct Way to Install Screws

1. Insert the cable plug completely into the desired interface so that the end face of the plug aligns with the card panel surface.
2. Pre-tighten the screw: Tighten the screw with moderate force, making sure that the screwdriver is on the same line with the screw.



3. Make sure that the screw threads can get a good grip (the resistance encountered is small), and tighten the screw carefully.

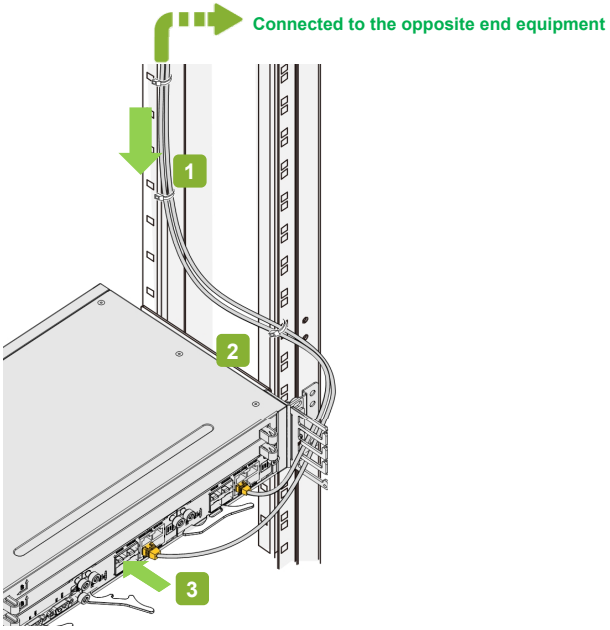
Caution

- ◆Please select an appropriate tool. It is advised to use a flat screwdriver or a screwdriver set with 1# screwdriver head. The diameter of the screwdriver (metal rod) is no larger than 4 mm.
- ◆Do not operate forcefully while tightening the screw. Make sure that the moment of force is no larger than 2.5 Kgf.cm.

16 Connecting the Network Cable

Connection

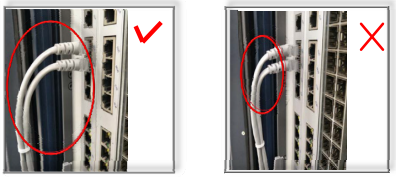
Subrack Side (RJ-45)	Interface	Opposite End (RJ-45)
HSUB/HSUC card	ETH	Connected to the UNM2000 computer .
TIMA card	1000MASK_TX	Connected to the opposite end equipment .
HSUB/HSUC card	BITS/TOD	Connected to the BITS/TOD external clock source.



1. Lead the network cable through the wiring hole on the cabinet top, and route it downward along the wiring channel on the side of the cabinet.
2. Lead the network cable through the fiber passage unit, and route it to the corresponding card.
3. Insert the RJ-45 connector into the corresponding Ethernet interface of the card.

Caution

Ensure that the network cable and other cables have a proper surplus in the section between the connector and the nearest banding point, so that stress will not be produced at the connector and that the cable can be easily plugged or unplugged.



17 Connecting the Optical Fiber Jumper

Note

Select the right type of the optical fiber jumper according to the type of the optical interfaces on the local equipment and opposite end equipment. The optical interfaces on the AN5516-04 correspond to two types of optical fiber connectors: LC/PC and SC/PC (SC/APC).

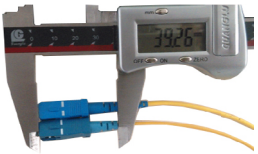
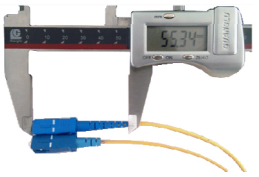
LC/PC Type Optical Fiber Connector

SC/PC Type Optical Fiber Connector

SC/APC Type Optical Fiber Connector

Caution

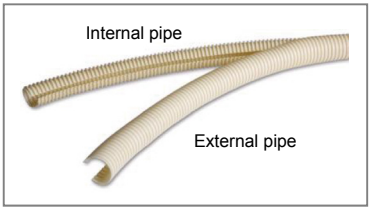
See the table below for the major specifications and appearance of the commonly used LC/PC and SC/PC optical fiber connectors. When the equipment is mounted in a 300 mm-deep cabinet, it is advisable to use the short optical fiber connectors.

Type	Short Optical Fiber Connector	Long Optical Fiber Connector
LC/PC	31 mm 	48 mm 
SC/PC	39 mm 	55 mm 

17.1 Connecting the External Optical Fibers

Caution

- The open corrugated pipes should not be overloaded with optical fibers. An open corrugated pipe with the diameter of 32 mm should carry no more than 60 optical fibers with the diameter of 2 mm.
- It is recommended that the corrugated pipe inside the cabinet should be about 10 cm long.
- Arrange the corrugated pipe outside the cabinet according to the conditions of the equipment room.



17.2 Connecting the Optical Fiber Inside the Cabinet

Caution

- Bind all wires and cables used in onsite installation. Each cable type should be bound separately. For example, power cables, alarm cables and optical fibers should be laid out independently and bound separately. Note that optical fibers should be bound with dedicated fiber binding straps.
- Exercise care if you must bend fibers. If bends are necessary, the fiber bending radius should never be less than 20 d (d: fiber diameter).

1. Route the optical fibers along the wiring channel on the cabinet to the fiber passage area of the subrack.
2. Lead the optical fibers through the fiber passage unit of the subrack.
3. Connect the optical fibers to the optical interfaces on the corresponding card.

17.3 Arrangement after Layout

1. After the connection of the optical fibers is completed, installers should bind the optical fibers at the entrance of the cabinet and at the point near the fiber passage area with dedicated fiber binders to secure them.
2. Connect the optical fiber on the ODF side.
3. Remove the temporary labels; make project labels and attach them to both ends of the optical fiber.
4. The optical interfaces not connected with fiber pigtails should be covered with anti-dust caps. The fiber pigtails not connected
with optical interfaces should be covered with pigtail caps.

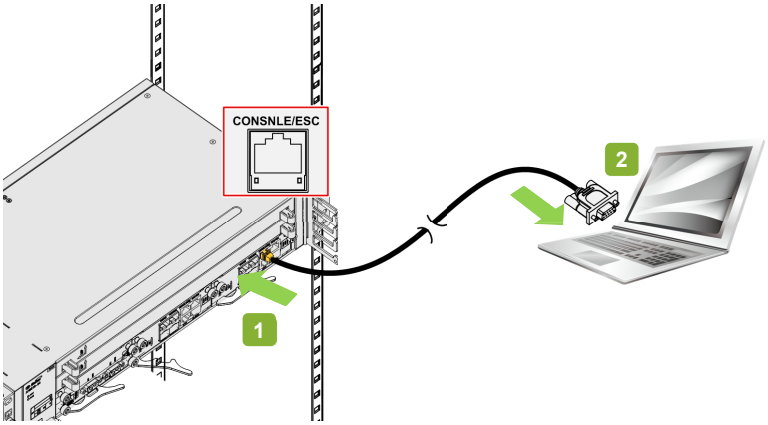
Caution

Do not leave the label between two cards, which may affect the electrical conductivity between cards.

Note

The serial port line is used to connect the CONSOLE / ESC interface of the HSUC / HSUB card and the serial port of the local computer. It is used only in commissioning or debugging.

1. Insert the RJ-45 connector of the serial port line into the CONSOLE / ESC interface of the HSUC / HSUB card.
2. Insert the DE-9 connector of the serial port line into the serial port of the local computer and tighten the screws.



Tip

Make sure the computer is powered off when connecting the DE-9 connector to the serial port (RJ-45 interface) on the computer.

19 Installing the Cabinet Door

Note

The AN5516-04 can be installed in the following cabinets. Please refer to the following manuals for the procedures of installing the cabinet doors.

Caution

Exercise care in operation especially when closing or opening the doors to avoid damage to the cables.

Cabinet Model	Manual Description
19-inch cabinets (4102596 to 4102599)	*Quick Installation Guide for the 19-inch Cabinet (600 mm-deep) (4102596 to 4102599)*
21-inch cabinets (4102589 to 4102592)	*Quick Installation Guide for the 21-inch Cabinet (300 mm-deep) (4102589 to 4102592)*
21-inch cabinets (404000068 to 404000071)	*Quick Installation Guide for the 21-inch Cabinet (300 mm-deep) (404000068 to 404000071)*
21-inch cabinets (404000337 to 404000340)	*Quick Installation Guide for the 21-inch Cabinet (340 mm-deep) (404000337 to 404000340)*

20 Post Installation Inspection

20.1 Checking the Connection and Layout of Wires and Cables

Caution

When the connection and layout of the cables and wires are completed, installers should conduct the connectivity test and ensure that the signals are transmitted normally.

No.	Items to Check	Means
1	The specifications, routes, cross-sectional area, and position of the cables arranged are compliant with the construction plan drawing. The cables are arranged in good order, without damage to their sheath.	Visual inspection
2	The plugs of the cables are clean and intact; and the plugs made onsite are up to standard. The plugs are all connected correctly and firmly.	Visual inspection
3	When cables must be arranged along the upper part of the cabinet, the distance between them and the ventilation hole on the cabinet top should be no less than 10 cm. If the distance between the cabling rack and the cabinet is larger than 0.8 m, installers should set up a cabling ladder.	Visual inspection
4	Layout of the fiber pigtails: 1. The fiber pigtails are not arranged too closely to each other or intertwined at the turning points. The paired fiber pigtails are bound after being arranged in order. Do not bind with too much force and leave pressure marks on the fiber pigtails. 2. Fiber pigtails can move forward or backward freely in the fiber fastener but cannot bend in right angle. 3. After the fiber pigtails are arranged, do not put any cables or other objects upon them.	Visual inspection

20.2 Checking before Power-on

Caution

The AN5516-04 uses -48 V DC power supply with an acceptable voltage range from -40 V to -57 V.

Before powering on the equipment, installers should

1. Confirm that the cabinet power cables are correctly connected with the external power supply equipment.
2. Confirm that all the wires and cables are connected correctly.
3. Place all power switches on the PDP in the OFF position.
4. Disconnect all cards inside the subrack but leave them on their slots.
5. Disconnect the fan unit inside the subrack but leave it on its slot.

20.3 Power-on Test

1. Measure the voltage between the **-48V** and the **0V** connectors in the external power input area of the PDP. The normal value should be between -40 V and -57 V.
2. Place all the branch output switches on the PDP in the ON position.
3. Confirm that the subrack has no abnormal sound or smell.
4. Insert the fan unit . The fan unit will start running as soon as it is inserted, and air movement will begin.
5. Insert the cards into the subrack in sequence and the cards will be electrified normally in two or three minutes. Then the indicator LEDs of all cards in the subrack should be in normal working status.

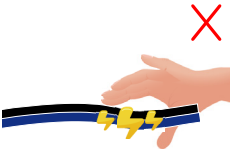
① Check whether the ACT indicator LED on the card is illuminated, which stands for normal power on.

② Check whether the alarm indicator LED on the card is OFF, which indicates no alarm.

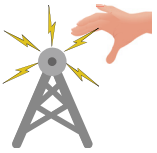
Note

The power-off procedures for the AN5516-04 are reverse to those of power-on.

Do not install / operate the equipment or lay cables during a lightning storm.

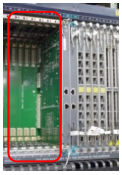


Do not connect or remove the power cable while it is powered.

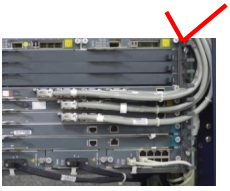


Direct or indirect contact (through damp objects) with high voltage power supply can cause bodily harm and should be avoided.

Promptly report any conditions that may lead to security problems.

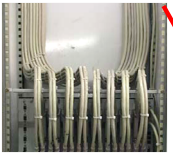


The vacant slots should be covered with dummy panels to prevent foreign objects from entering the equipment and ensure normal air circulation.



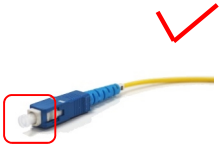
The power cables should be separated from signal cables.

Do not bind optical fibers with cable ties. Use the black fiber binding strap instead.

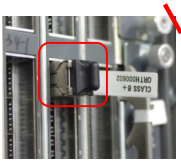


Tidy up big bundles of cables, avoid crossing or twisting them whenever possible.

When plugging / unplugging a card, exercise care and align the card with the slide rails.



Put an anti-dust cap on an unused optical fiber.



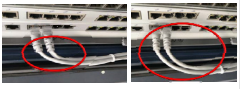
Put an anti-dust cap on an unused optical module.

Do not twist, bend, stretch or squeeze optical fibers during installation. The bending radius of the optical fibers should be no less than 20d (d: fiber diameter) .

Install rat guards at the top and bottom of the cabinet or fasten the mouseproof hop-pockets after connection of the cables is completed.

Keep the cabinet door closed in daily operations.

Do not place the labels between two cards, which may affect the electrical conductivity between the cards.



Reserve proper margins between cable connectors and the first binding points, so that the cables can be easily plugged or unplugged and that stress will not be produced at the connecting points.

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