Preface

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High power laser can cause bodily harm, especially to eyes. Never look directly into the end of the optical transmitter fiber jumper or the end of its active connector.

Caution

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.



Caution

Carpets or other materials that easily generate static electricity should not be used on the floor of equipment room.

4 Warning

Optical communication equipment must be protected from electrical surges, thunder and lightning.

Caution

Exercise care if you must bend fibers. If bends are necessary, the fiber bending radius should never be less than 38 mm.

Caution

All cables on the installation site, such as 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 binders.

Caution

Do not open the active fiber connector unnecessarily. If it is necessary to open it for equipment maintenance, protection measures should be taken to avoid contaminating the end face of connector.

Caution

The network management system requires a dedicated computer. Use of unidentified memory devices should be prohibited so as to avoid computer viruses.

Caution

When maintaining or testing the equipment, connect the instrument ground cable with the equipment (or the cabinet where the equipment is installed) ground cable properly.



Tips

3

The AN5116-06B can be installed in 19-inch cabinets (4102596 to 4102599), 21-inch cabinets (4102589 to 4102592), 21-inch cabinets (40400008 to 404000071), and 21-inch cabinets (404000337 to 404000340). Refer to the following manuals for the procedures of installing the cabinets.

Cabinet	Quick Installation Guide for the Cabinet
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)

4 Installing the Subrack and Related Components

Tips

Generally, subracks have already been installed in the cabinet before delivery. As cards, fan units and the anti-dust screen have been installed in the subracks, you do not need to install them on site. However, installers may need to install or remove the aforesaid components on site in the future for capacity expansion and routine maintenance.

4.1 Installing the Subrack

5 Tips

- When multiple subracks are installed in the cabinet, arrange the subracks from the top down if the top access wiring mode is used, and arrange the subracks from the bottom up if the floor access wiring mode is used.
- The top access wiring mode is mostly used for the AN5116-06B, and the subracks are usually installed from the top down.











4.2 Installing the Optical Switch

🥑 Tips

Use the appropriate mounting ears to install the optical switch in the 19-inch cabinet and 21-inch cabinet respectively. The installation procedures are the same, and the installation in the 19-inch cabinet is used as an example here for description.





According to the positions of the mounting holes on the mounting ears, respectively install the floating nuts into the corresponding mounting holes on the vertical mounting flanges at both sides of the cabinet.



2 Select the right mounting ears, and secure them to both sides of the equipment with the screws.





4.3 Installing Cards

Caution

- ♦Do not operate forcefully; especially do not exert excessive force when installing the card.
- ◆Dummy panels should be applied to the vacant slots not holding cards. The procedures for installing the dummy panels are the same as those for installing common cards.







Align the upper and lower edges of the card with the slide rails of the corresponding slot inside the subrack (with the component side of the card facing right) and push it in along the slide rails slowly. Push the card to its position and close and secure the card's latches as shown in the figure above.

Tighten the captive screw on the card panel to lock the card. Caution

Do not operate forcefully; especially do not exert excessive force when installing the fan unit.

- Hold the fan unit and align the slide rails on both sides of the fan unit with the slide rail grooves for the fan unit on the subrack respectively.
- Push the fan unit slowly into the subrack, and fasten the captive screws on the panel of the fan unit.



4.5 Installing the Anti-dust Screen

🤍 Tips

- Generally, the anti-dust screen has been installed in the subrack before delivery, and users need not install it on site. However, cleaning and maintenance of the anti-dust screen is required at regular intervals. In this case, users need to remove and install the anti-dust screen on site.
- The anti-dust screen is used together with the shield plate.
- The handle of the subrack anti-dust screen is located on the bottom of the screen.





Tips

The AN5116-06B uses the following PDPs for cabinets of different specifications to provide eight channels (four active and four standby) of power input for the equipment :

- ♦3000064-1FHR1AA for the 19-inch cabinets;
- ♦3000064-2FHR1AA for the 21-inch cabinets.

Note

Before laying wires and cables, you need to remove the front panel of the PDP. After you have completed layout of wires and cables, restore the front panel to its original place.

Removing the PDP Front Panel



The 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 the 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 environment and the onsite installation conditions (This guide uses the top access wiring mode as an example in description).

Layout of the Cabinet Protection Earth Ground Cable and the Cabinet Power Cable

a Layout of the Cabinet Protection Earth Ground Cable

Note

5.1

The terminal of the cabinet protection earth ground cable at the PDP side has been connected to the inner PE connector of the PDP before delivery, and you do not need to install it on site.

Lead the other end of the cabinet protection earth ground cable to the earth ground point on the cabinet top. Cling the pre-insulation ring terminal to the cabinet top earth ground point and tighten it with a screw.









5.5 Layout of the E1 Cable



5.6 Layout of the Clock Synchronization Cable



Connecting to the opposite end equipment

Lead the time synchronization 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.





Note

2

Insert the RJ-45 connector into the corresponding interface of the TIMA card.



5.8 Layout of the 64-conductor Audio Interface Connection Cable



1 On the AN5116-06B, the 64-conductor audio cable is used to connect with the LINE interface of the CATA card or the POTS interface of the PPDA card. The following introduces how to lay the 64-conductor audio cable using the PPDA card as an example.

Lead the 64-conductor audio 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.

Lead the 64-conductor audio cable through the fiber passage unit

Insert the HDXS 64-conductor plug into the POTS interface of the PPDA card.

Lead the dry contact cable through the wiring hole on the cabinet top, and route it downward along the wiring channel on the side of the cabinet.

Insert the RJ-45 connector into the "DC1-3" interface on the backplane of the subrack.

2



5.10 Layout of the Network Cable



Connecting to the opposite end equipment

The following introduces how to connect the network cable to the SFP interface of the uplink card as an example.

Lead the network cable through the wiring hole on the cabinet top, and route it downward to the uplink card along the wiring channel on the side of the cabinet.

2 Lead the network cable through the fiber passage unit.

Insert the RJ-45 connector into the SFP interface of the uplink card.

Tips

The serial port line is used to connect the CONSOLE interface of the core switch card with the serial port of the network management computer. It is used only in commissioning or local maintenance.



The computer should be powered off when installers connect the DE-9 connector to the serial port on the computer.



6 Connection and Layout of the Optical Fiber Jumper



Caution

- Exercise care if you must bend fibers. If bends are necessary, t fiber bending radius should never be less than 38 mm.
- Installers should 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 laid out independently and bound separately. Note that optical fibers should be bound with the cable tie dedicated for optical fibers.



When there are a lot of fiber jumpers to be arranged, it is advised to arrange the fibers as illustrated in Box A. When there are only a few fiber jumpers to be arranged, it is advised to arrange the fibers as illustrated in Box B.

Route the optical fibers along the left and right wiring channels of the cabinet to the fiber passage area of the subrack (the figure here illustrates the top access wiring mode as an example). Top access wiring mode: The optical fiber is led into the cabinet via the wiring hole on the cabinet top and then routed downward. Floor access wiring mode: The optical fiber is led into the cabinet via the wiring hole on the cabinet bottom and then routed upward



Lead the optical fiber through the fiber passage unit.

Note

The intervals between cable binders should be 3 to 4 times the diameter of the cables, and should be equally spaced.

3 Connect the optical fiber connector with the optical interface of the corresponding card.

6.3 Arrangement after Layout

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.

Connect the optical fibers on the ODF side.

Remove the temporary labels. Make and attach project labels to both ends of the optical fibers.

Note

The intervals between binders should be 3 to 4 times the diameter of the fiber bundle and should be equally spaced.

7 Installing Cabinet Doors

5 Tips

The AN5116-06B can be installed in 19-inch cabinets (4102596 to 4102599), 21-inch cabinets (4102589 to 4102592), 21-inch cabinets (404000068 to 404000071), and 21-inch cabinets (404000337 to 404000340). Refer to the following manuals for the procedures of installing the cabinets.

Cabinet	Quick Installation Guide for the Cabinet
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 4000340)	Quick Installation Guide for the 21-inch Cabinet (340 mm-deep) (404000337 to 404000340)

Checking the Connection and Layout of Wires and Cables

Caution

8

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 effectively.

Number	Checking Content	Method
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	When the cables are arranged under the floor, the height of the cable bundles should not be exceed 3/4 of the net height from the ground to the ESD protection raised floor; otherwise, the ventilation and air cooling may be hindered.	Visual inspection
5	 Layout of the fiber pigtails: 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. Fiber pigtails an move forward or backward freely in the fiber fastener but cannot bend in right angle. After the fiber pigtails are arranged, do not put any cable or other objects upon them. 	Visual inspection

8.2 Checking before Power-on

Caution

The AN5116-06B uses -48 V DC power supply with an acceptable voltage range from -40 V to -57 V.

Before powering on the equipment, installers should check the following items:

- 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 control switches on the PDP in the OFF position.
- 4. Unplug the power cable plugs of all subracks.
- 5. Disconnect all cards inside the subrack but leave them on their slots.
- 6. Disconnect the fan unit inside the subrack but leave it on its slot.

8.3 Power-on Test on the Equipment

- 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 branch ACBs on the PDP in the ON position.
- Measure the voltage between the "-48V" and the "0V' connectors on each subrack power cable's plugs respectively; the measured value should be between -40 V and -57 V.
- 4. Place each branch ACB and switch on the PDP front panel in the OFF position.
- 5. Insert the plugs of the subrack power cables into the subrack power interfaces.
- 6. Place each branch ACB and switch on the PDP front panel in the ON position.
- 7. Confirm that the subrack has no abnormal sound or smell.
- Insert the fan unit first. The fan unit will start running as soon as it is inserted and air movement will begin.
- 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.



The power-off procedures for the AN5116-06B are in reverse order of the power-on procedures.