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Outdoor UMTS Micro Base Station Engineering Installation Guide (ZXSDR BS8922)

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Safety Information

The following describes personal health and safety information when you work with ZTE system products. To prevent accidents, read the safety information provided in this document carefully before using ZTE system products.

- Local regulations supersede the information provided in this manual. Where applicable local regulations are unavailable, the information herein prevails.
- All personnel must be equipped with the knowledge of safety operations, technical training, and corresponding qualifications certified by ZTE CORPORATION. For some operations, they may need special trainings or qualifications certified by ZTE CORPORATION.

Safety Symbols

	Electrical Hazard: There is a risk of electric shock.
	Laser Hazard: Beware of strong laser beams. Do not look directly at the laser beam.
	Heat Hazard: Beware of heat sources or hot surfaces that can cause burns.

Personal Protection

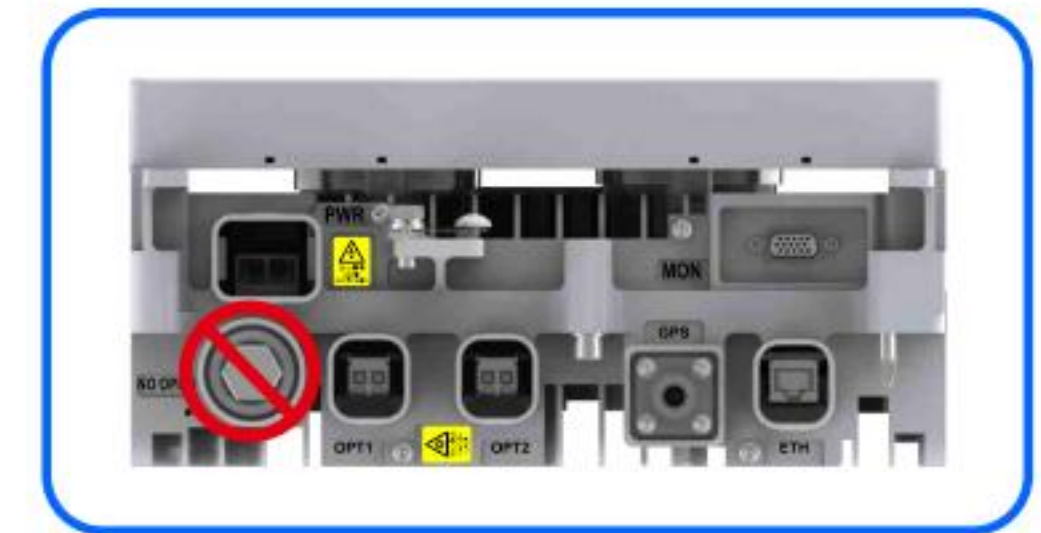
- Remove items of jewelry, such as rings, necklaces, and watches. These items may get entangled with moving parts. Metal jewelry items are conductors that can result in electric shock.
- Always wear appropriate personal protective equipment when working.
- Pay attention to the hazard labels and caution or warning information on products. Never cover or remove the hazard labels and caution or warning information.
- Only use the tools described in the instructions.

Installation Security

- All personnel working at height must be specially-trained and certificated. Working at height must comply with local laws, regulations, and guidelines.
- The device is heavy. Lifting the device without using a lifting device can result in serious personal injury.
- Do not work at height or iron tower in bad weather such as rain or fog.
- Falling objects can result in serious or even fatal injuries. Always wear a safety helmet. Never stand or walk under any heavy object that is being lifted.
- Incorrect electrical installation can result in fire, electric shock, or explosion that is likely to be fatal. Only qualified electricians are allowed to install or modify electrical installations.
- It is recommended that fibers be installed in a temperature higher than -20°C .
- Switch off transmitting antennas, or reduce their output power to a safe level when working with, or staying near, these antennas.

Installation Precautions

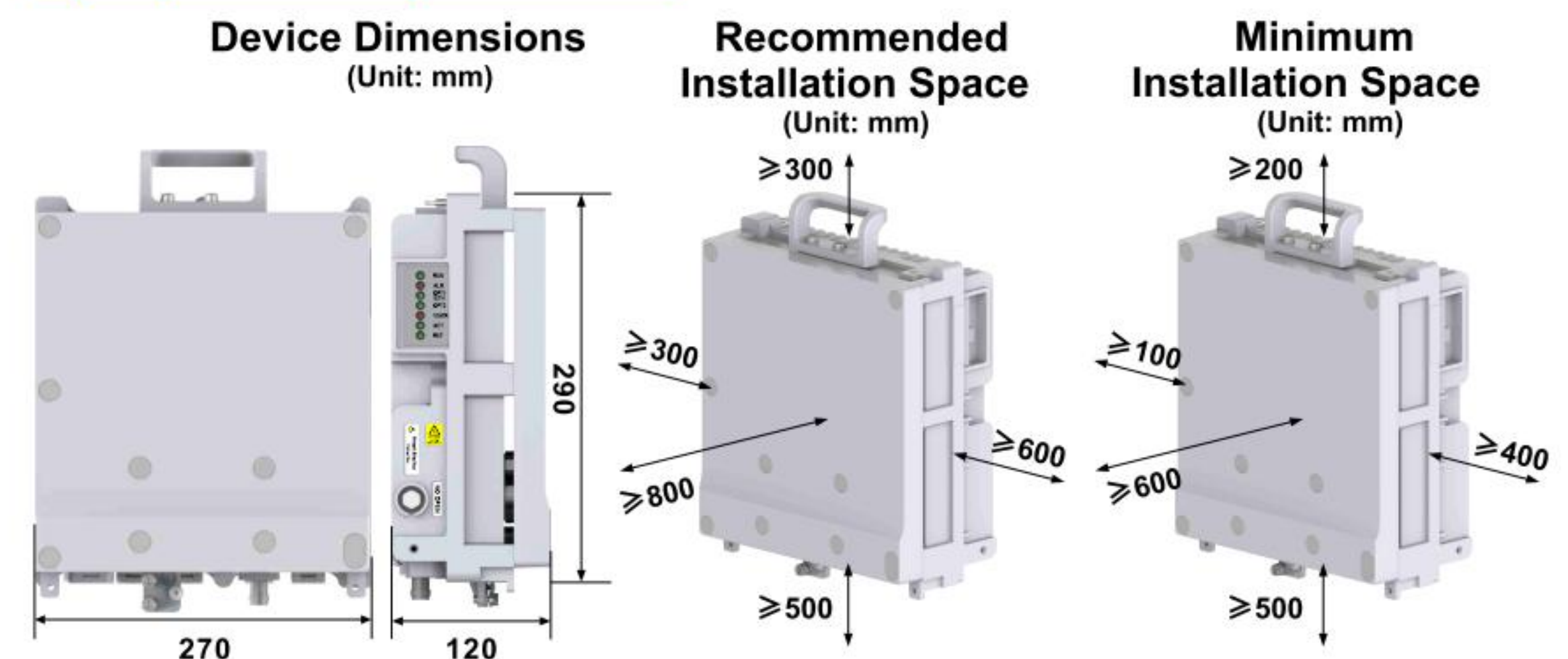
- Never open the hermetic seal before or after the installation.
- The RRU body is applied with antirust coating. Make sure that the coating is not damaged during transportation and installation.
- Do not install the device with interfaces facing upwards.



- Do not install the device horizontally.



Space Requirement

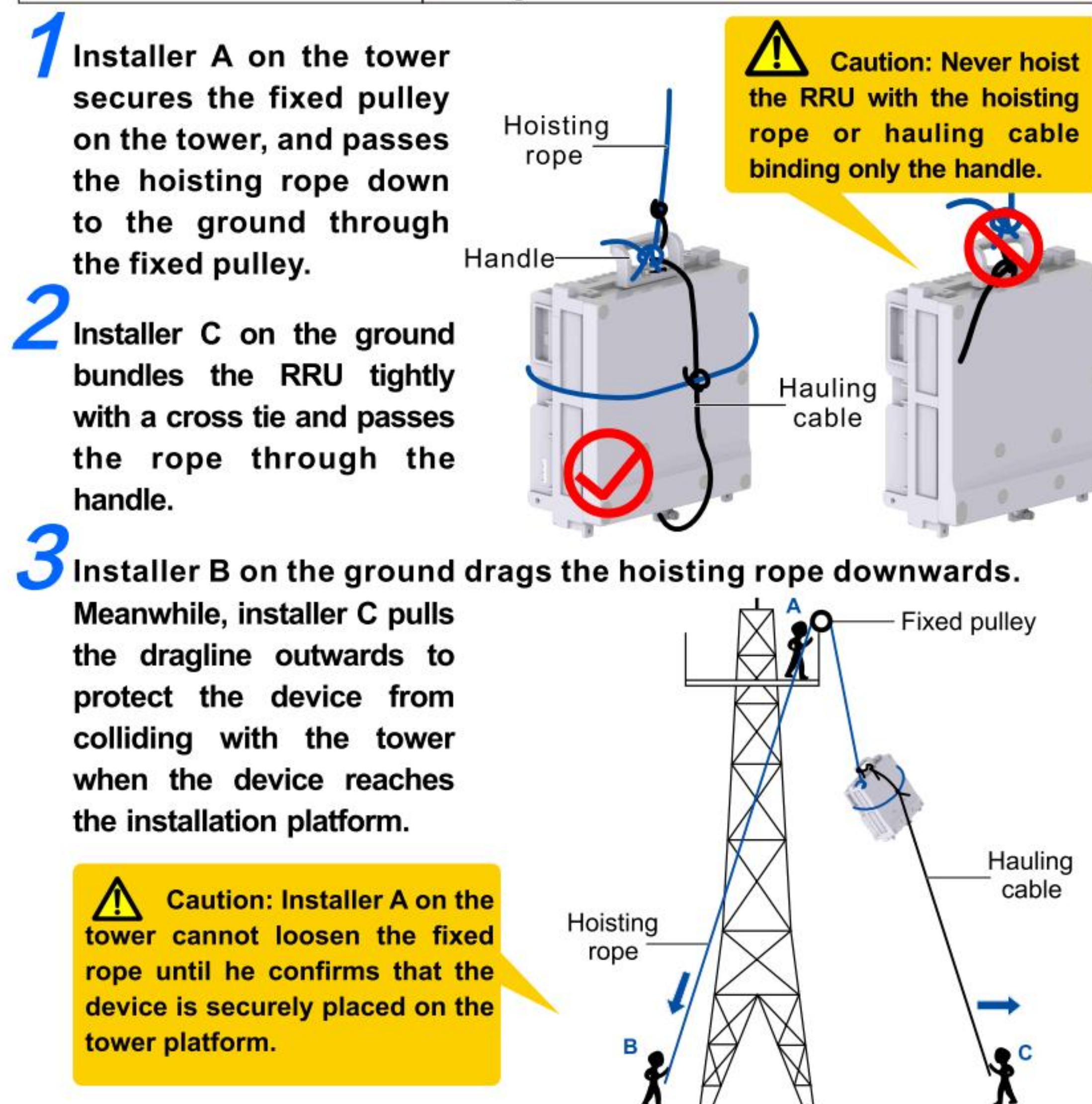


Note: For mounting multiple RRUs on a pole or centralized mounting, the spacing between RRUs depends on the mounting components.

Hoisting

The information provided in this section is used for reference when it is necessary to hoist the RRU.

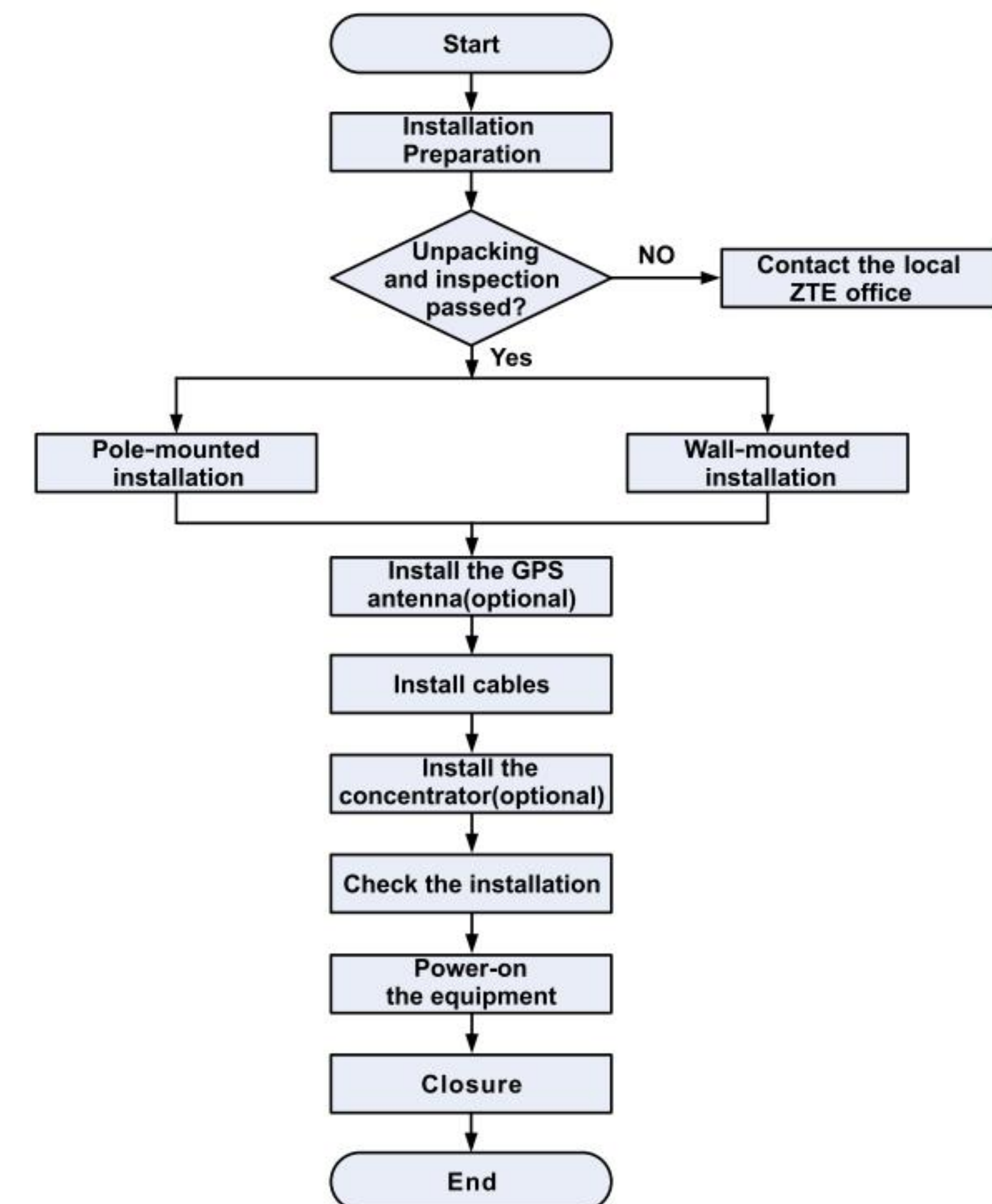
Operation	Tools
Hoist the RRU	Safety helmet
	Life belt
	Fixed pulley
	Hoisting rope
	Hauling cable



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- 4** Lift the properly-packed engineering materials used for tower mounting onto the tower in the manner mentioned above. Never lift the engineering materials by binding them directly to the hoisting rope.

Installation Flow

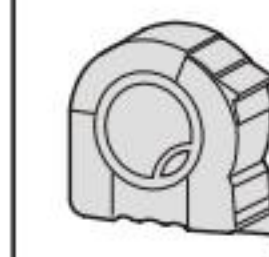
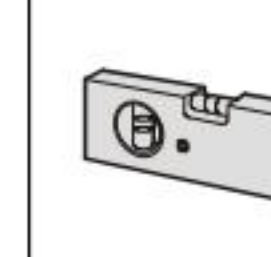
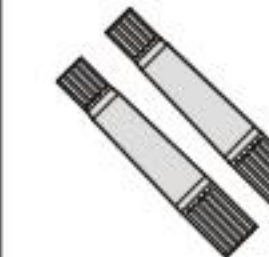
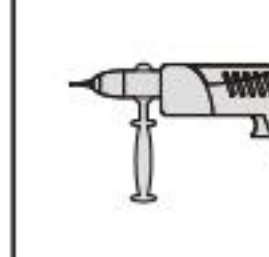
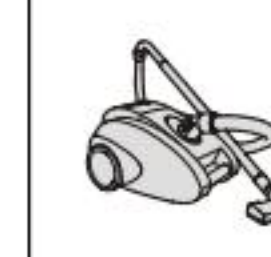
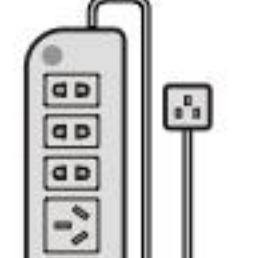
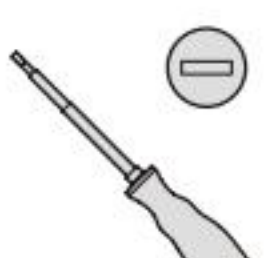
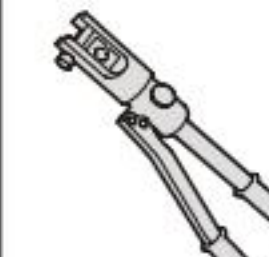
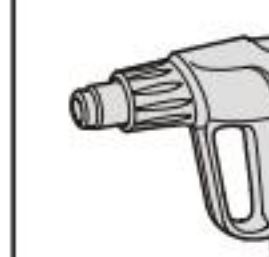
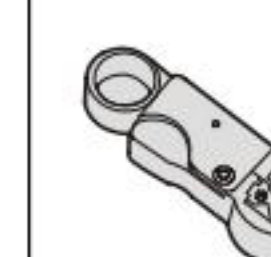
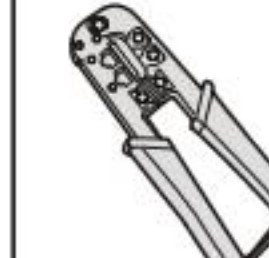
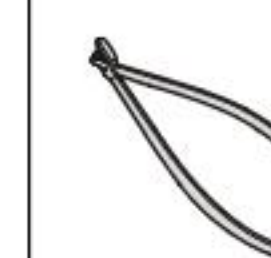
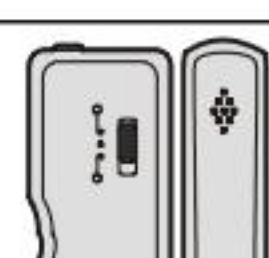
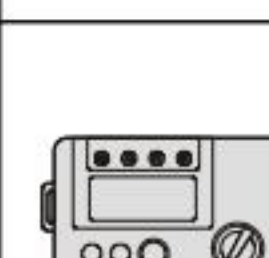
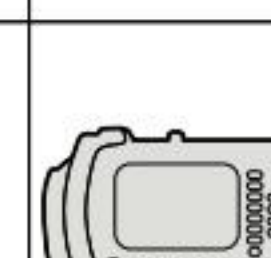


Installation Preparation

Tools and Instruments

Illustrates the tools and instruments required for the installation:

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claw hammer	snap-off knife	safety glove	safety helmet	tape measure	level ruler
					
rope	pulley	Safety harness	marker pen	percussion drill	vacuum cleaner
					
power strip	cross screwdriver	flathead screwdriver	open-end wrench	adjustable wrench	pliers
					
diagonal pliers	slip joint pliers	multifunctional press pliers	hydraulic crimper	hot-air blower	coaxial cable stripper
					
hacksaw	file	pipe wrench	scissors	Ethernet cable crystal-connector crimper	cable tie
					
waterproof tape	insulating tape	network tester	grounding resistance tester	multimeter	VSWR tester

Installation Accessories

Illustrates the installation accessories.

Name	Angle adjustment installation component	Clamp (used in pole-mounted installation mode)	Expansion bolt (used in wall-mounted installation mode)	GPS antenna installation component (optional)	Power cable crimping tool
Image					

Unpacking and Inspection

Counting Goods

The packing boxes for the ZXSDR BS8922 include crates and cartons.

Step

1. Verify that the packing boxes are in good condition. If any is broken, contact the transportation company immediately.
2. Unpack the packing boxes and verify that the goods are consistent with the packing list.

Checking Goods

Check the ZXSDR BS8922 and verify that:

1. There are no dents, bumps, peeling, scratches, foaming, paint stripping, or blots on the case.
 2. The case surface is in good condition, without problems such as lacquer flaking off and scoring.
 3. All captive screws are tightly secured without dislocation.
 4. The accessories required for the installation are correct and complete.
- Arrange the inspected goods in accordance with categories.

Equipment Handover

1. After the goods are inspected, the project supervisor and the customer representative must approve and sign the Unpacking Acceptance Report.
2. Each party keeps one copy of the Unpacking Acceptance Report. The project supervisor should, within seven days, send the Unpacking Acceptance Report to the local ZTE office for filing.



Caution: In case of goods shortage, overplus, damage, in arrears, or wrong distribution, installation personnel must stop unpacking immediately, fill in the Unpacking Acceptance Feedback Table, and contact the local ZTE office immediately for proper handling.

Media Requirement

RRU Installation Modes

Illustrates the ZXSDR BS8922 installation modes.

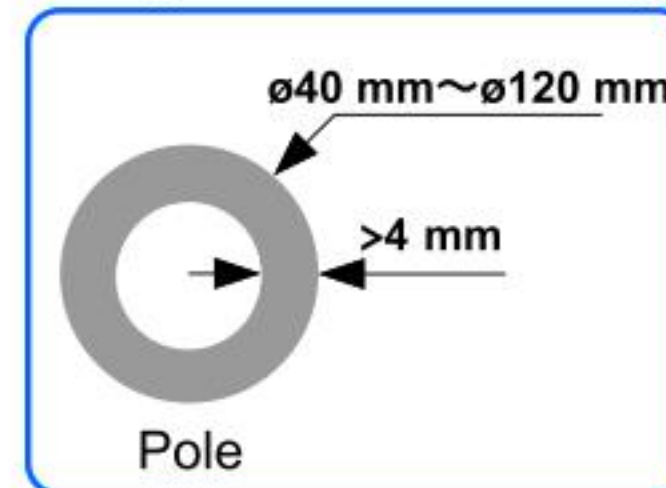
Installation Mode	Pole-mounted installation	Wall-mounted installation
Image		

Installing the ZXSDR BS8922 on a Pole

Installation Tools

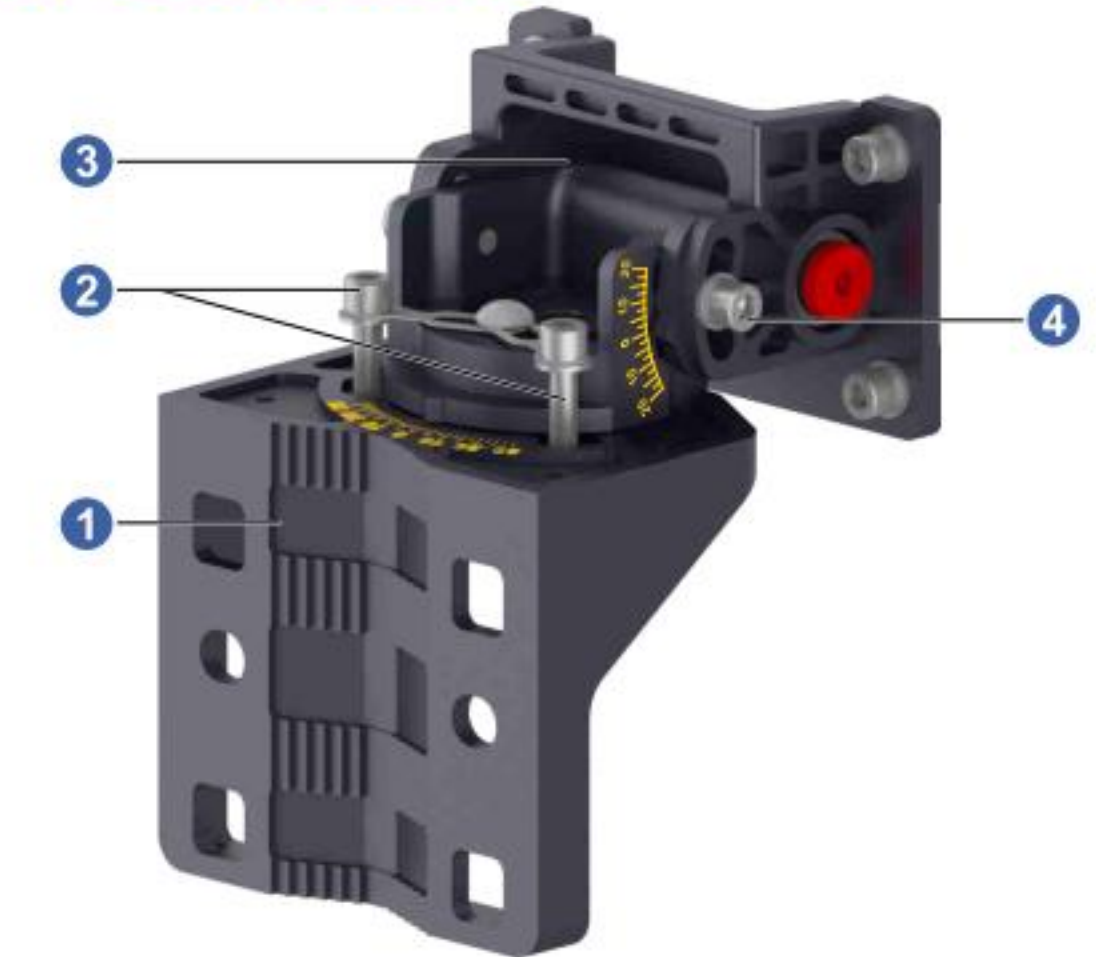
Operation	Tool
Install the installation bracket on the ZXSDR BS8922.	M6 internal hexagonal wrench
Secure the vertical fastening screws.	M6 internal hexagonal wrench
Secure the bracket fastening screws.	M6 internal hexagonal wrench

Single-RRU Mounting



Angle Adjustment installation Component

- 1 Fixing clip
- 2 Installation bracket and fastening screws
- 3 Installation bracket
- 4 Vertical fastening screws

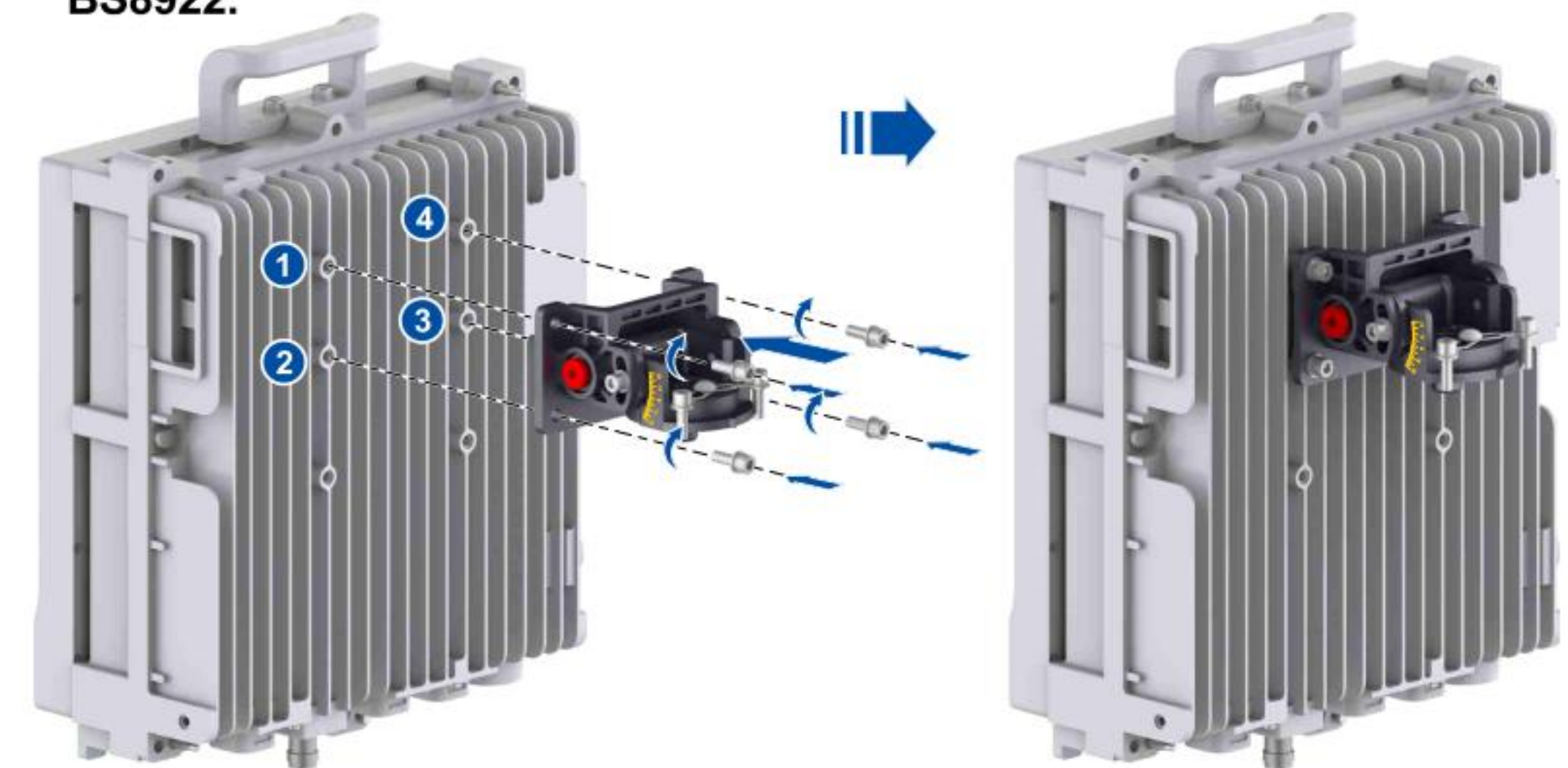


Steps



Clamps are used in pole-mounted installation mode. The pole diameter is between 40 mm and 120 mm.

- 1 Use four M6×20 screws to install the installation bracket on the ZXSDR BS8922.



Note: When installing the M6×20 screws, first fasten the screws about 70% of the depth, then fasten the screws in accordance with the diagonal sequence.

- 2 Use clamps to install the fixing clip on the pole.

- 3** Mount the ZXSDR BS8922, on which the installation bracket is installed, on the fixing clip.



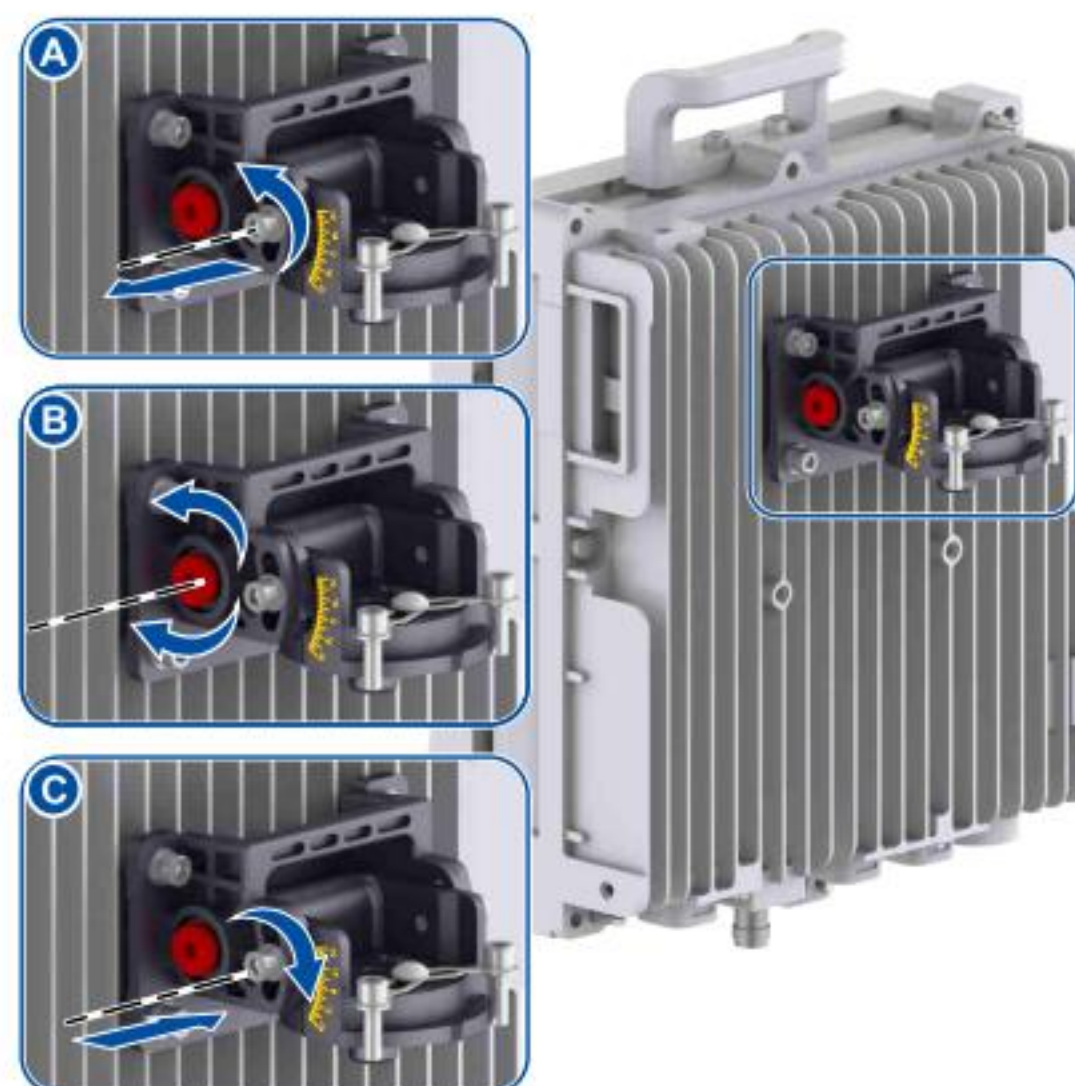
- 4** Adjust the vertical angle of the ZXSDR BS8922.

Note: The angle between the ZXSDR BS8922 and the pole must be between 0° and 20°.

- a** Loosen the vertical fastening screws until the ZXSDR BS8922 can be adjusted vertically.

- b** Adjust the vertical angle of the ZXSDR BS8922.

- c** Secure the vertical fastening screws.



- 5** Adjust the horizontal angle of the ZXSDR BS8922.



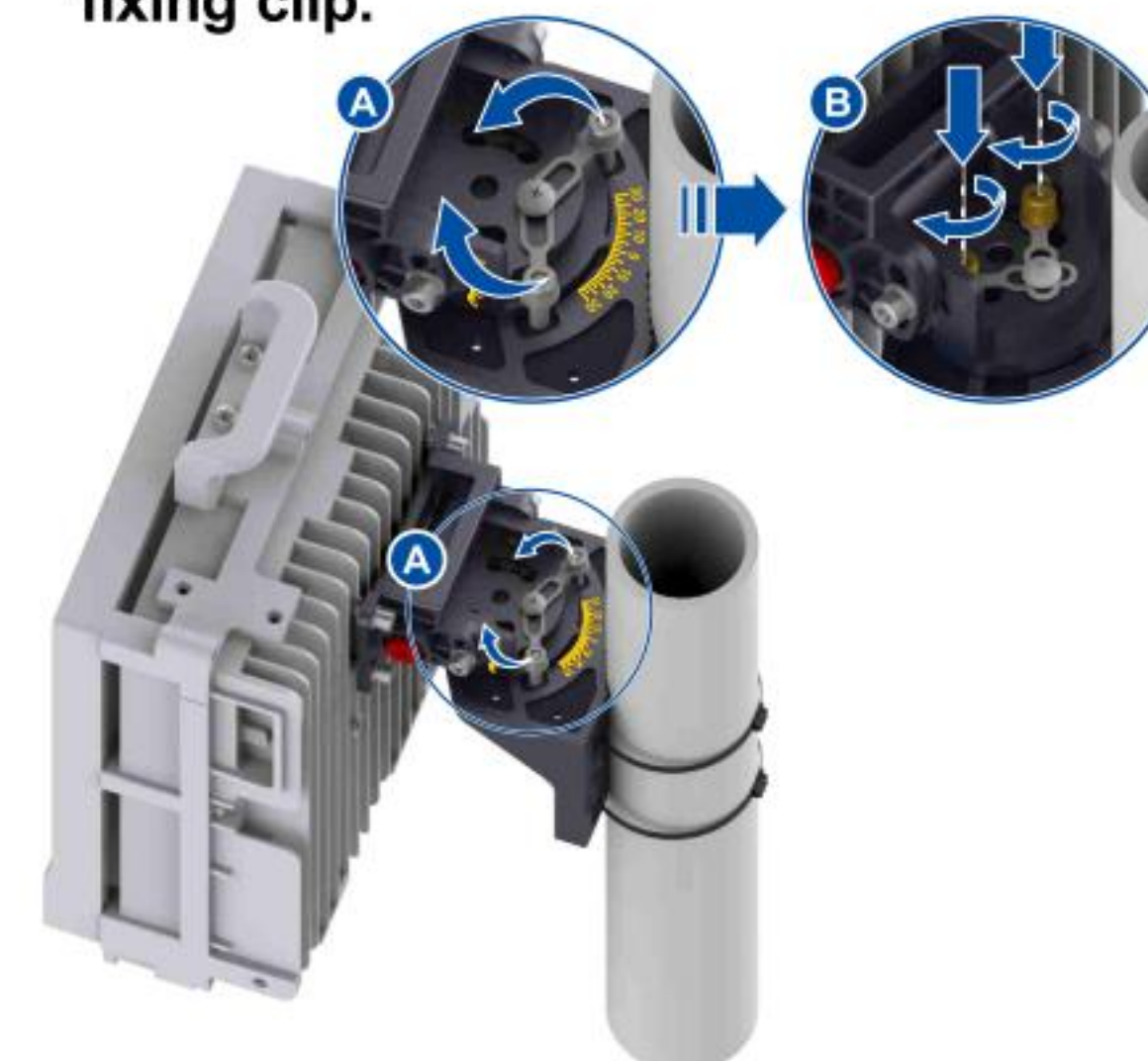
Note: The horizontal angle adjustment range for the ZXSDR BS8922 must be between -30° and 30°.

- a** Adjust the horizontal angle of the ZXSDR BS8922.



- b** Secure the two screws of the installation bracket on the fixing clip.

- 6** ZXSDR BS8922 Installed on a Pole.



Installing the ZXSDR BS8922 on the Wall

Installation Tools

Operation	Tool
Fix screws.	Mask
	Tape
	Long tape
	Marking pen
	Level ruler
	Percussion drill
	Vacuum cleaner
	Adaptor
	Adjustable wrench
	Claw hammer
Installing the Fixing Clip on the Wall.	Socket wrench
Install the installation bracket on the RRU.	M6 internal hexagonal wrench
Secure the vertical fastening screws.	M6 internal hexagonal wrench
Secure the bracket fastening screws.	M6 internal hexagonal wrench

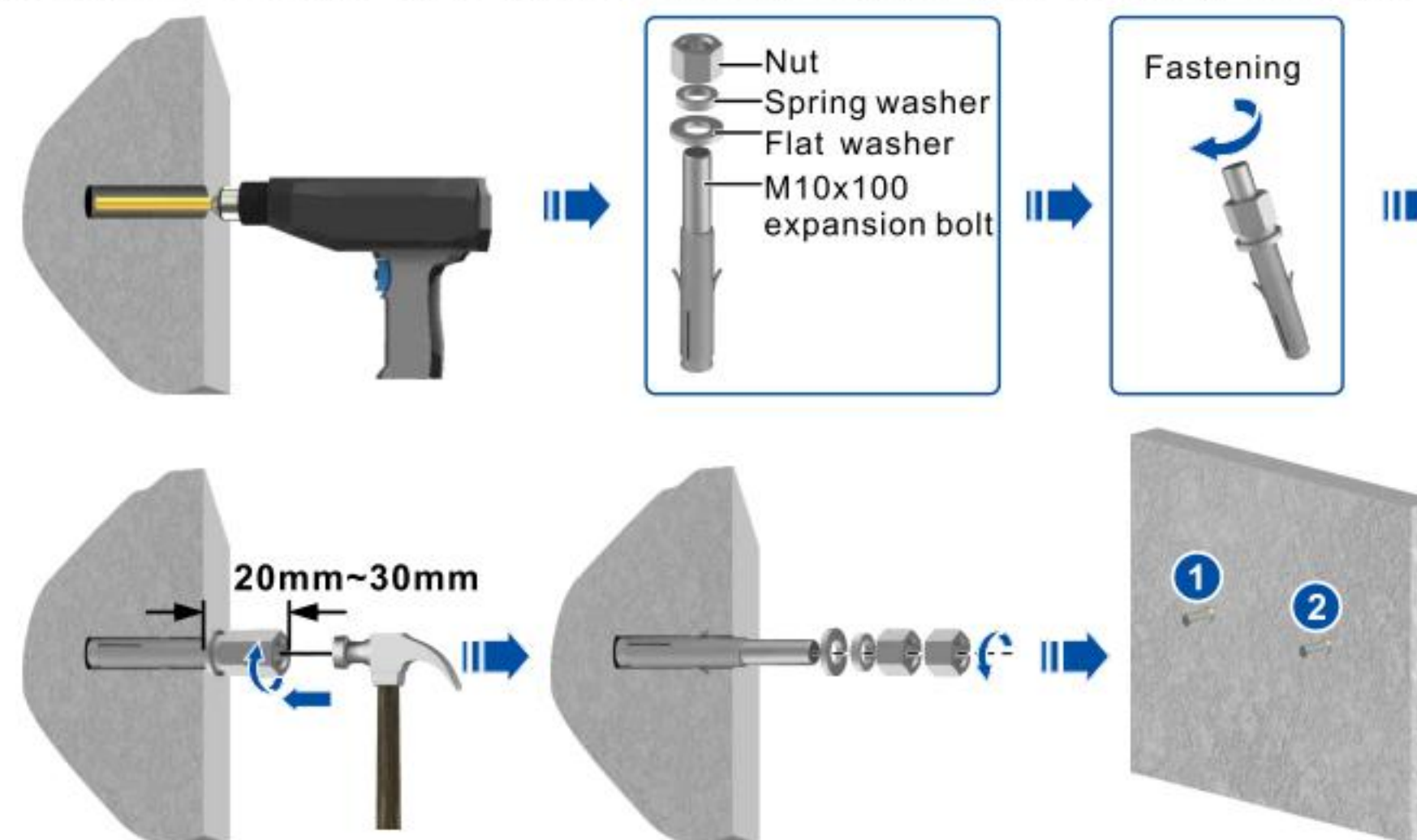
Drilling Specification

Follow the installation diagram to mark the drilling position on the wall.

Steps

1 Drill holes on the wall and install expansion bolts.

a Mark holes on the wall in accordance with the drilling specification.



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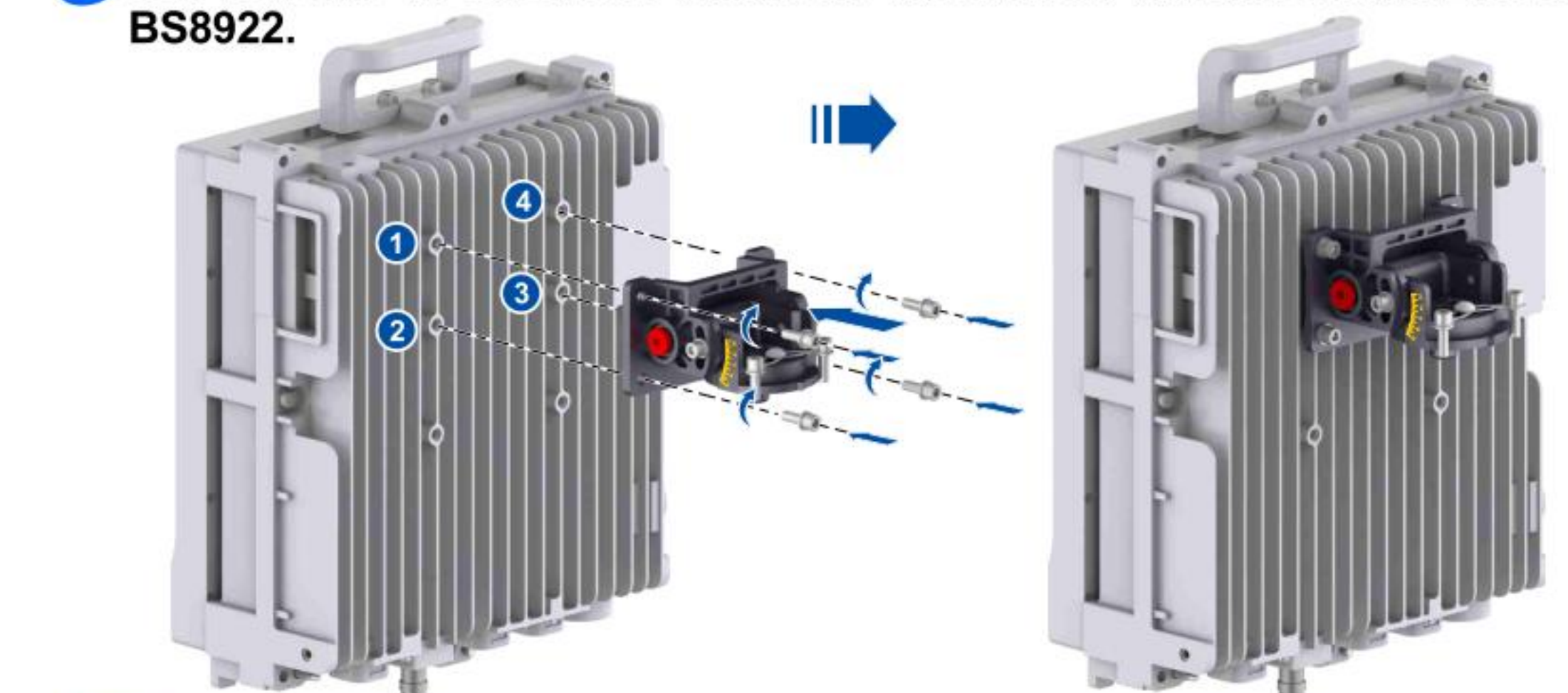
Note: It is recommended that you use a level ruler to keep the holes horizontal when marking the drilling holes.

- b** Use a $\phi 12$ percussion drill to drill holes at the marked positions on the wall, and use a vacuum cleaner to remove the dust.
- c** Use a claw hammer to knock the expansion bolts into the holes, and fasten the nuts clockwise to make the bolts fully expand in the wall.
- d** Loosen the nuts counterclockwise, and remove the nuts, spring washers, and flat washers.

2 Install the fixing clip on the wall.



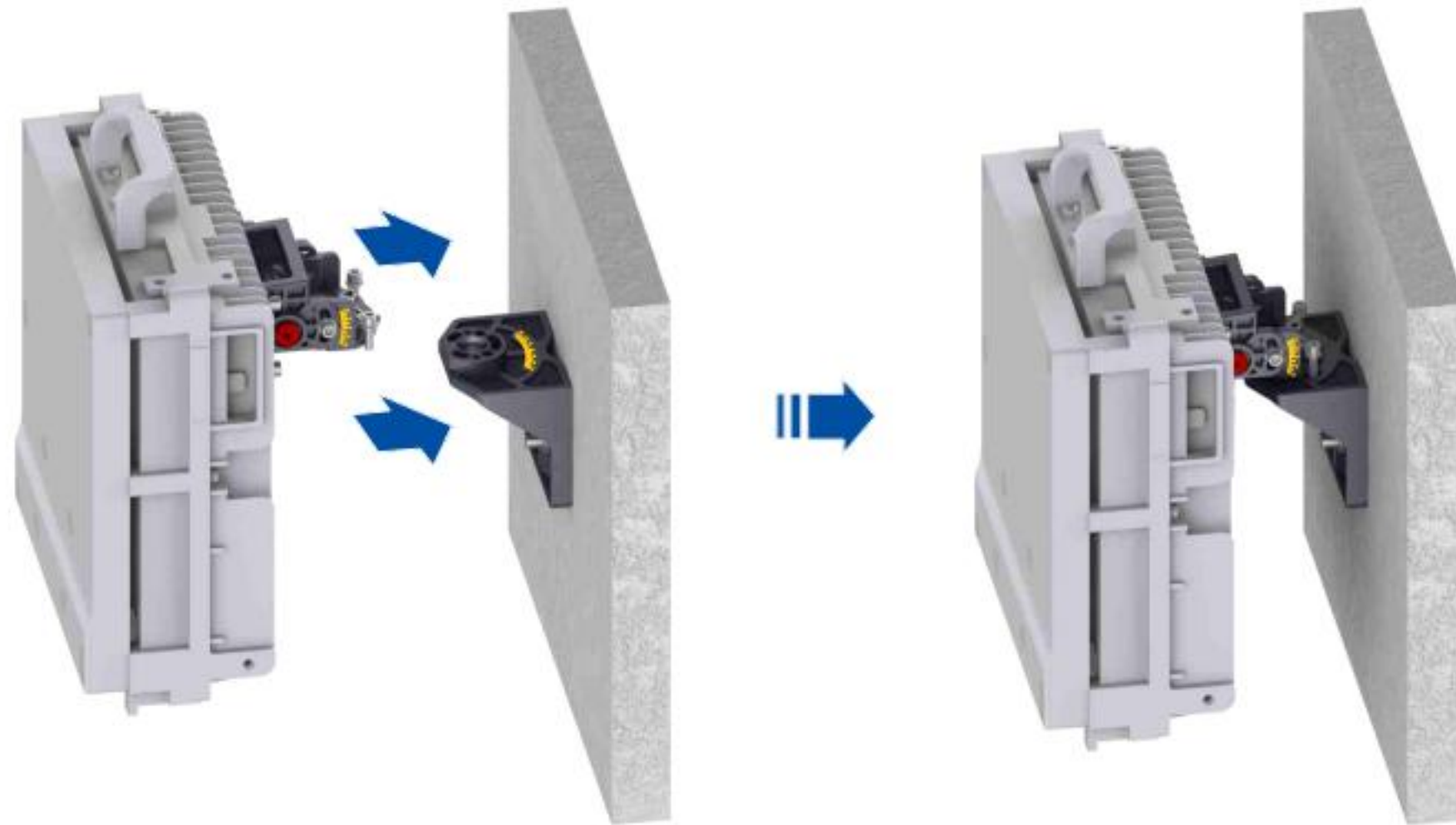
3 Use four M6×20 screws to install the installation bracket on the ZXSDR BS8922.



Note: When installing the M6×20 screws, first fasten the screws about 70% of the depth, then fasten the screws in accordance with the diagonal sequence.

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- 4** Mount the ZXSDR BS8922, on which the installation bracket is installed, on the fixing clip.



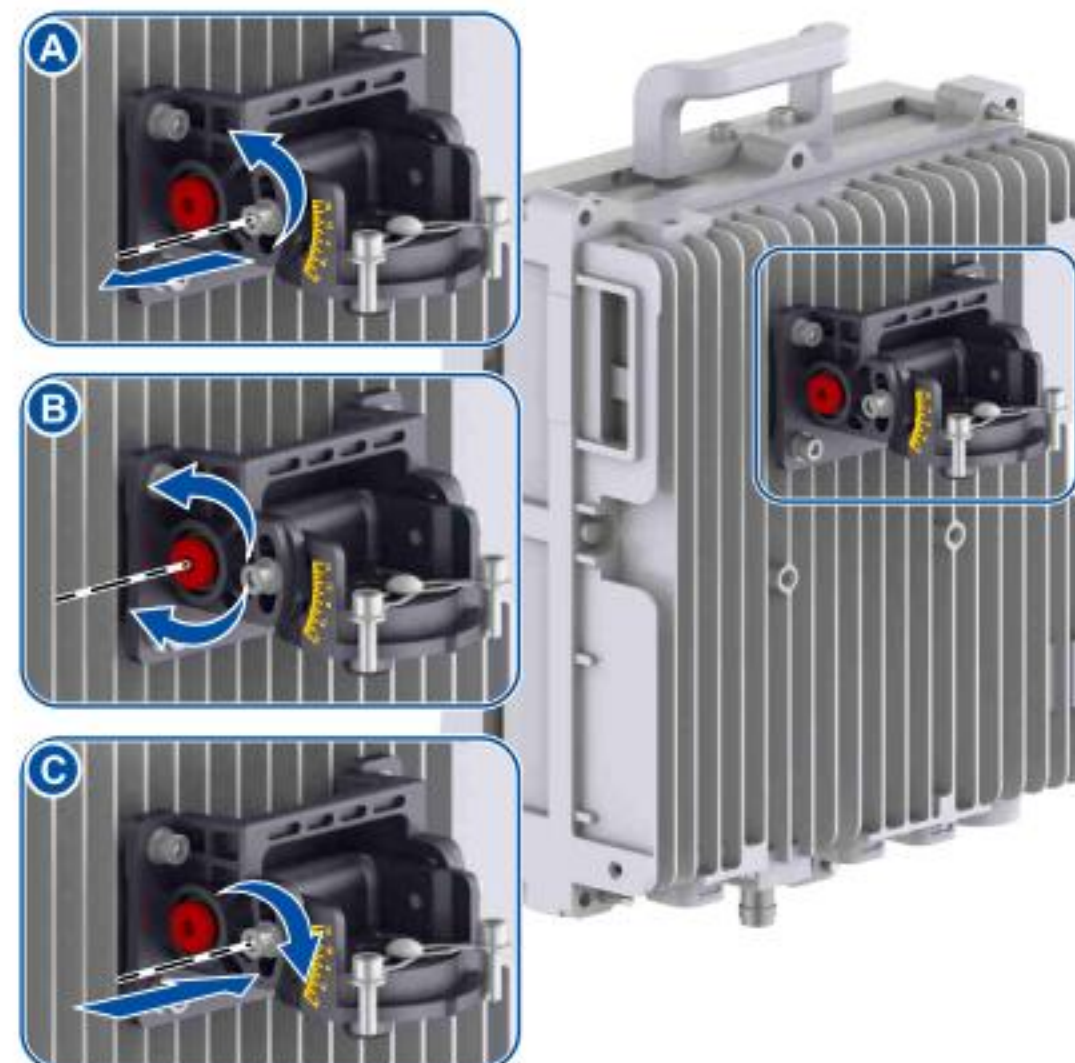
- 5** Adjust the vertical angle of the ZXSDR BS8922.



Note: The angle between the ZXSDR BS8922 and the wall must be between 0° and 20°.

- a** Loosen the vertical fastening screws until the ZXSDR BS8922 can be adjusted vertically.

- b** Adjust the vertical angle of the ZXSDR BS8922.



- c** Secure the vertical fastening screws.

- 6** Adjust the horizontal angle of the ZXSDR BS8922.

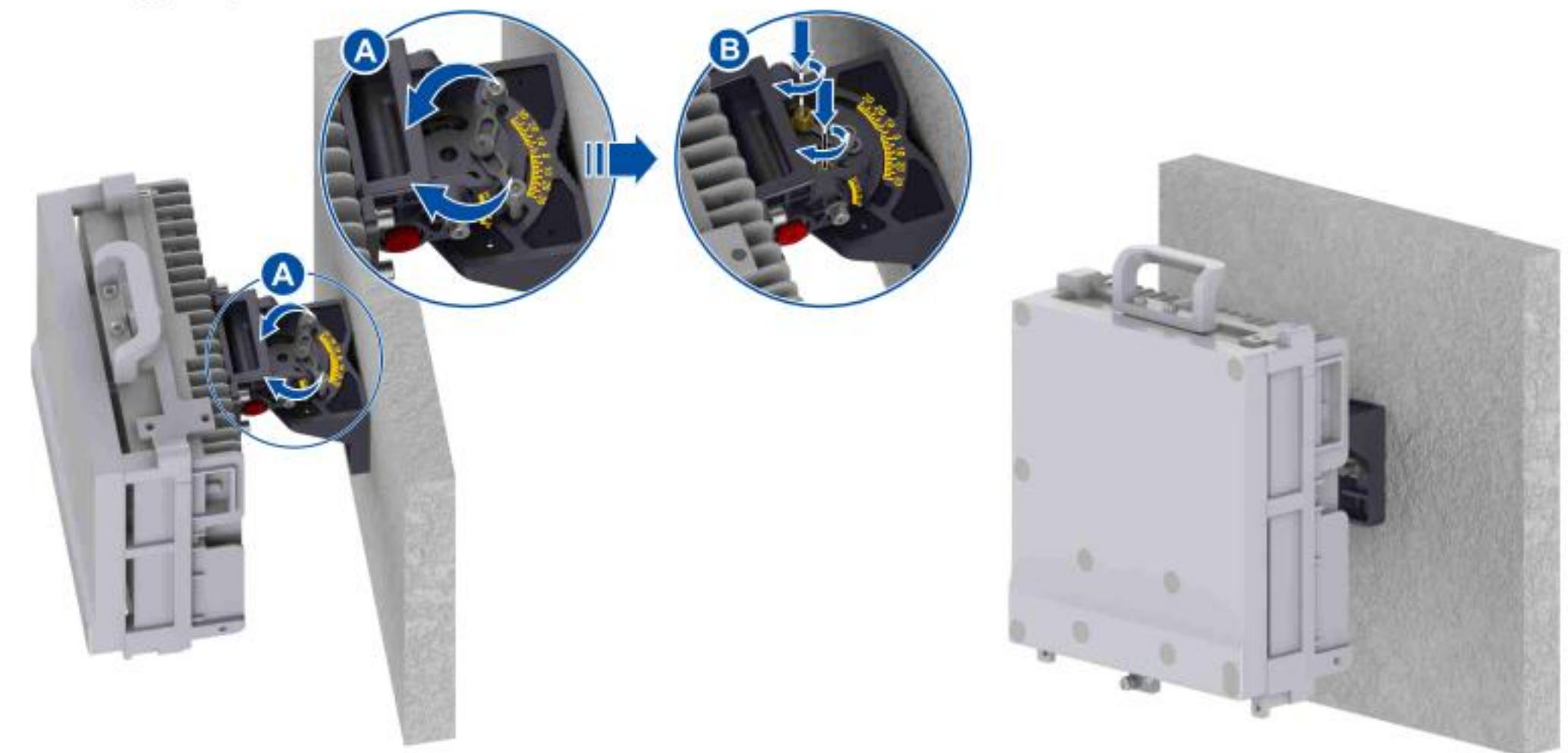


Note: The horizontal angle adjustment range for the ZXSDR BS8922 must be between -30° and 30°.

- a** Adjust the horizontal angle of the ZXSDR BS8922.

- b** Secure the two screws of the installation bracket on the fixing clip.

- 7** ZXSDR BS8922 Installed on the Wall.



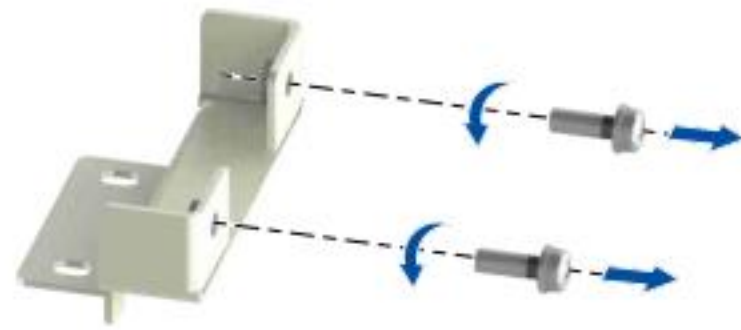
GPS Antenna Installation (Optional)

Installation Tools

Operation	Tool
Installing the GPS Antenna Installation Component on the RRU.	cross screwdriver
Installing the GPS Antenna on the GPS Antenna Installation Component.	cross screwdriver

Steps

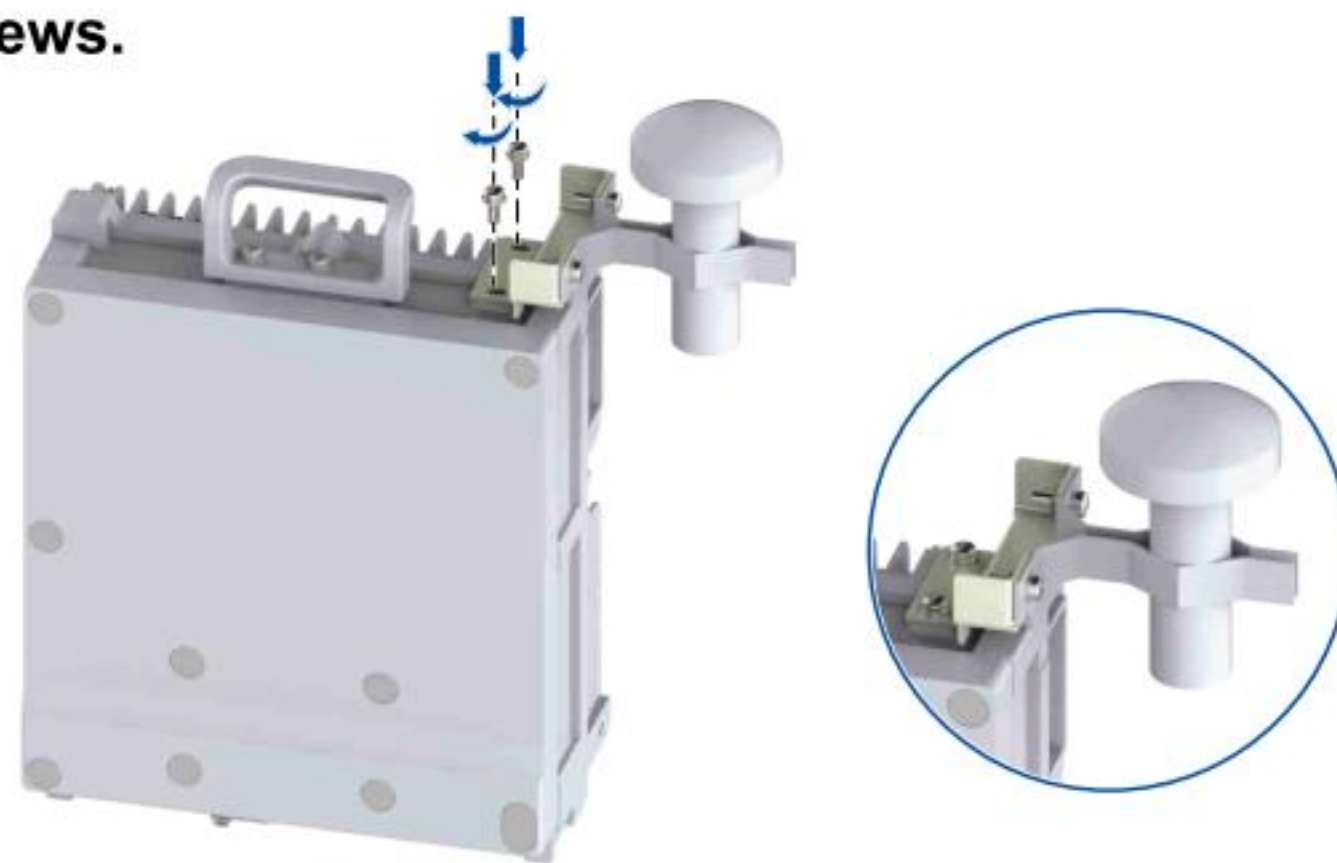
- 1** Remove the two M6×20 screws from the GPS antenna mounting part.



- 2** Mount the GPS antenna onto the GPS antenna mounting part.



- 3** Mount the GPS antenna assembly onto the ZXSDR BS8922 with two M6×16 screws.



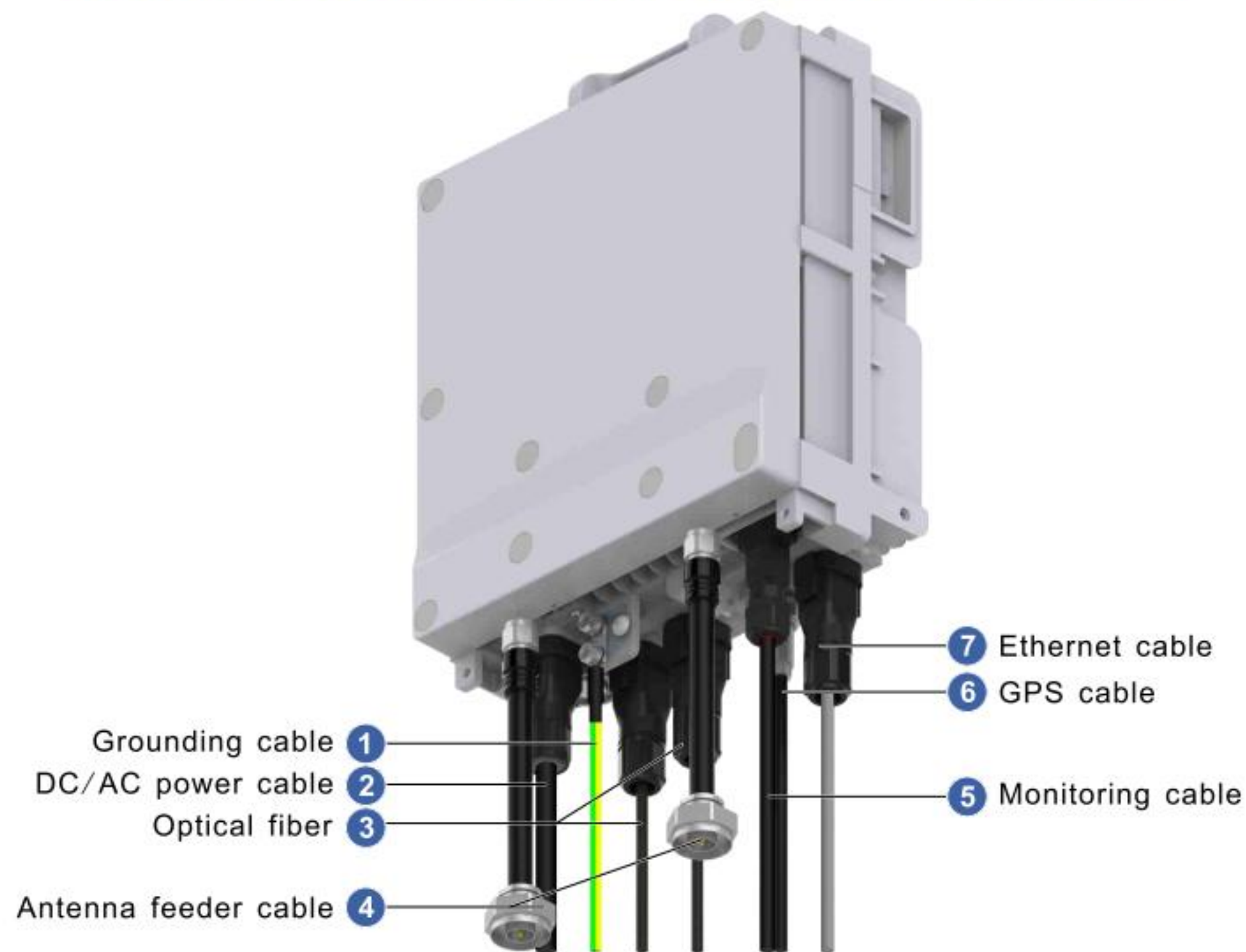
Cable List

Item		Local Equipment	Interconnected Equipment
Grounding Cable	Connector Type	OT terminal	OT terminal
	Interconnected Port	Local grounding terminal of ZXSDR BS8922	Grounding bar
	External View		
DC power cable	Connector Type	DC power input connector	Bare wire
	Interconnected Port	The power interface of the ZXSDR BS8922	DC power supply. Terminals need to be fabricated on site.
	External View		

AC power cable	Connector Type	Power input connector	Three-flat-bottom plug
	Interconnected Port	Power interface of the ZXSDR BS8922	DC power supply. Terminals need to be fabricated on site.
	External View		
Optical fiber	Connector Type	LC	LC
	Interconnected Port	OPT interface of the ZXSDR BS8922	Core network or neighbor device
	External View		
Antenna feeder cable	Connector Type	N-type connector	N-type connector
	Interconnected Port	Antenna port of the ZXSDR BS8922	Antenna RF port
	External View		
Monitoring cable	Connector Type	D-type 15-pin (three rows) straight cable welding circle connector	Bare wire
	Interconnected Port	MON interface of the ZXSDR BS8922	Monitoring device
	External View		
GPS cable	Connector Type	N-type connector	N-type connector
	Interconnected Port	GPS port of the ZXSDR BS8922	GPS antenna RF port
	External View		
Ethernet cable	Connector Type	8-pin RJ45 connector	8-pin RJ45 connector
	Interconnected Port	ETH interface of the ZXSDR BS8922	PC, core network, neighbor device, or peripheral device
	External View		

Cable Installation

ZXSDR BS8922 Cable Installation Illustration



Installing the Grounding Cable

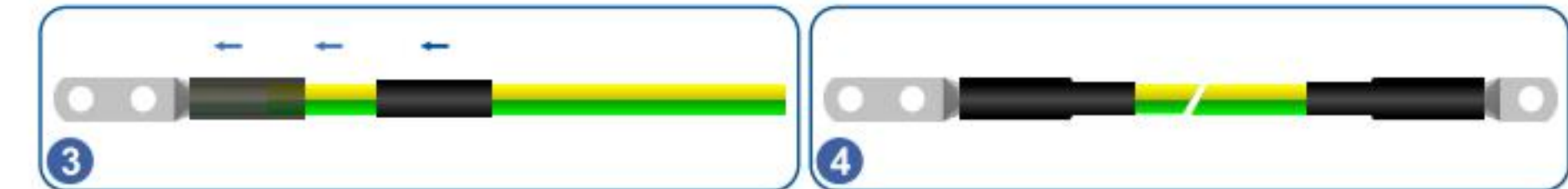
Installation Tools

Operation	Tool
Crimp an OT terminal.	Hydraulic clamp
Fix a protection grounding cable.	Cross screwdriver
	Adjustable wrench

The grounding cable consists of 16 mm² yellow/green fire-resistant multi-strand wires. End A is a dual-hole grounding terminal while end B is a single-hole grounding terminal. The grounding cable is made on site. Figure illustrates how to make a grounding cable.



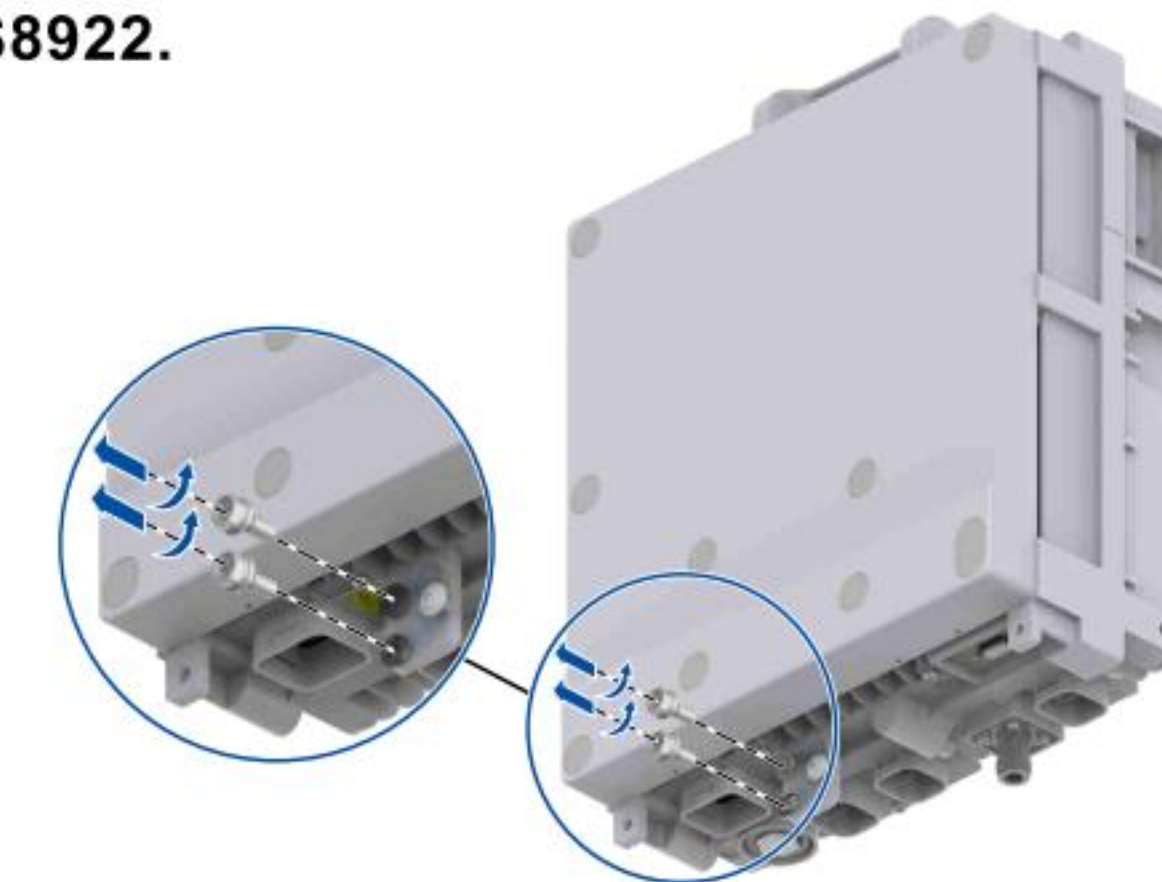
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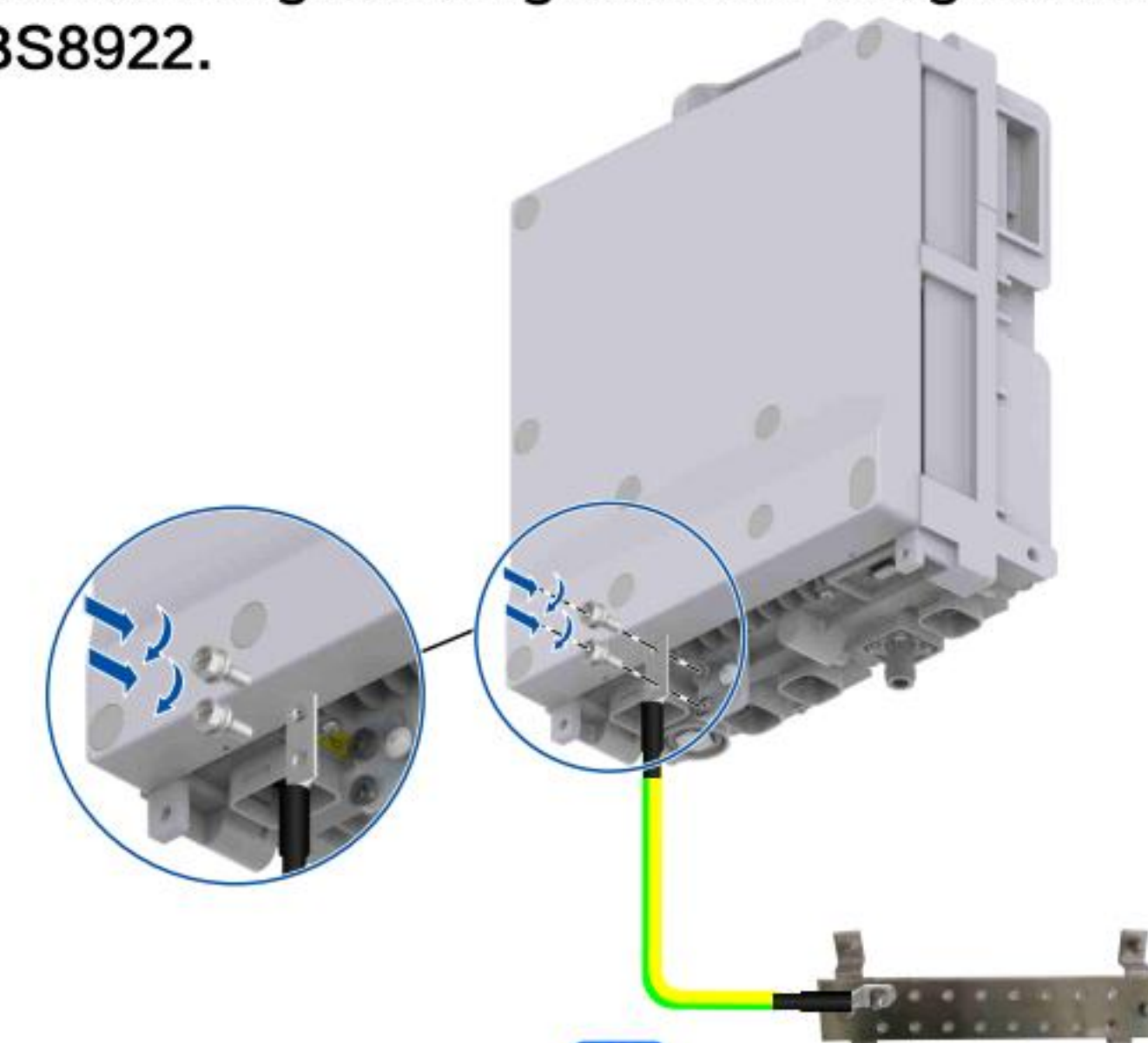
- a** Cut a proper length of the grounding cable, and peel off the external sheath at end A to expose the wires.
- b** Put a heat-shrinkable tube on end A, and crimp it on a grounding terminal.
- c** Use a hot-air blower to heat the heat-shrinkable tube.
- d** Use the same method to crimp end B on a grounding terminal.

Steps

- 1** Remove the two grounding screws from the grounding point of the ZXSDR BS8922.



- 2** Install end A of the grounding cable on the grounding point of the ZXSDR BS8922.



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3 Remove the dust on the copper grounding busbar, install end B on the copper grounding busbar, and put anti-rust paint around the grounding screws on the copper grounding busbar.

4 Paste labels on the two ends of the grounding cable. The grounding cable is installed successfully.

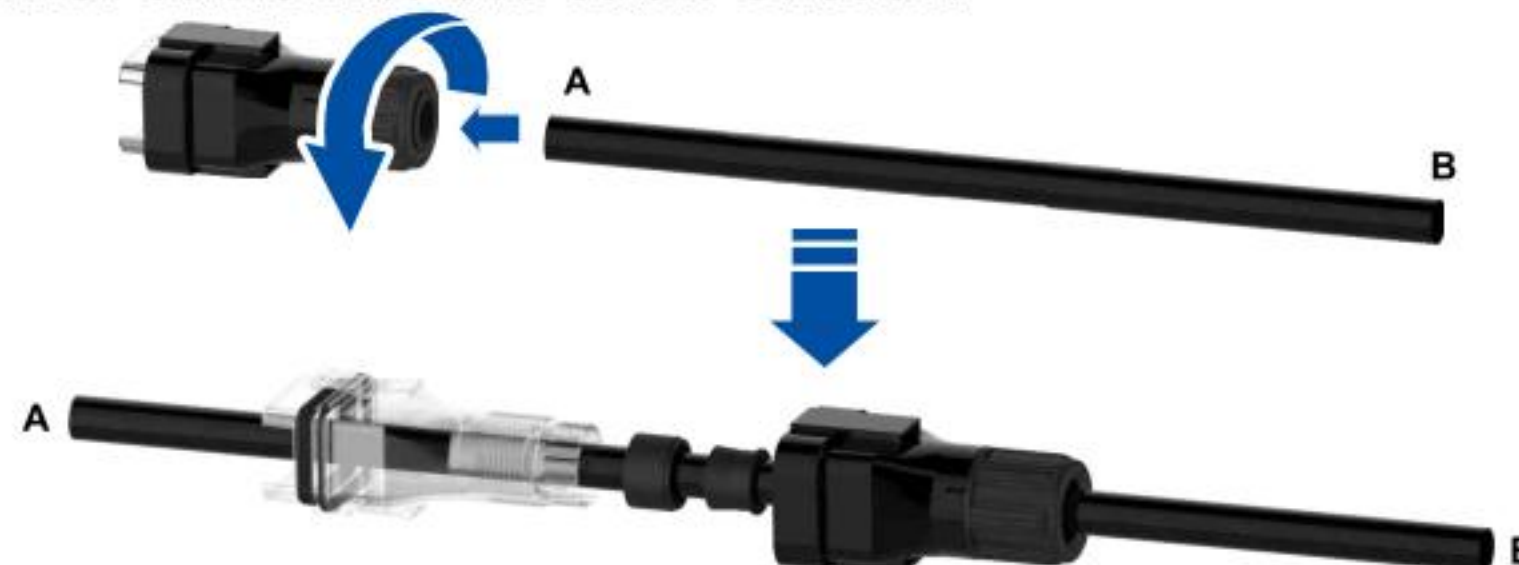
Installing the Power Cable

Installation Tools

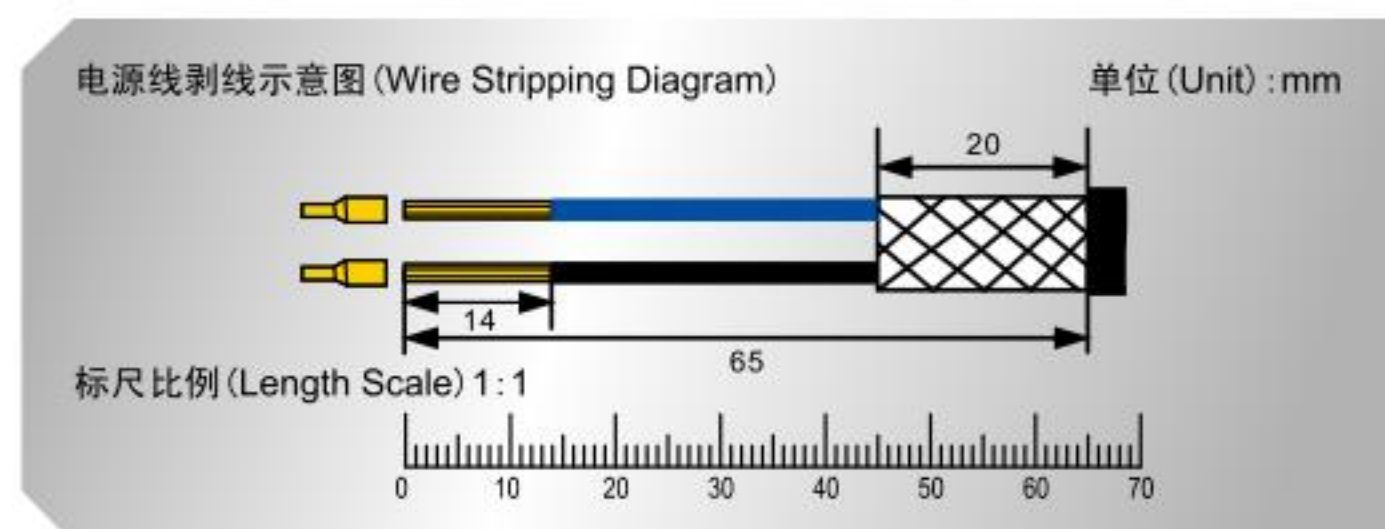
Operation	Tool
Tailor cables.	Ruler
	Wire stripper/paper knife
Crimp tubular terminals.	Crimping pliers
Rinsulate the shielding layer.	Black insulation tape
Fix the power cable to the shell.	Black ties
Tailor black ties.	Diagonal pliers
Remove cables from the DC power connector.	Flathead screwdriver

The following describes how to make a power cable:

1 Loosen the power cable sheath counterclockwise, and lead end A of the power cable into the cable sheath.

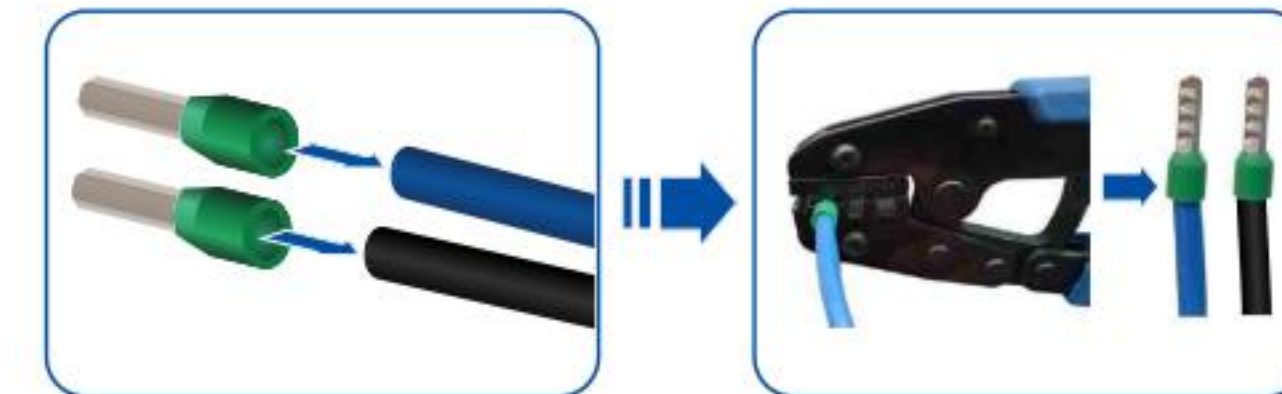


2 Use a cable stripper to peel the cable.



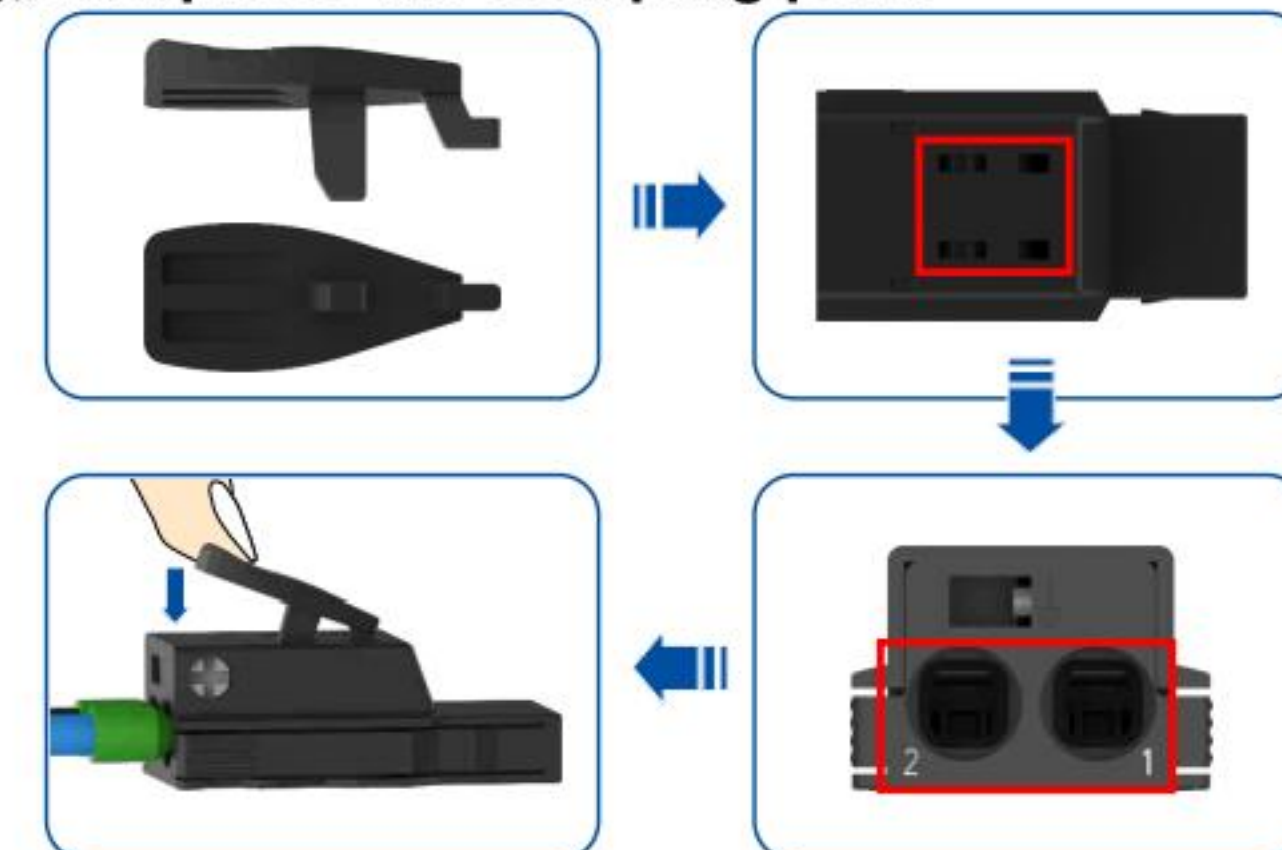
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3 Lead the power cable into the tube-shaped terminals, and crimp them tightly.

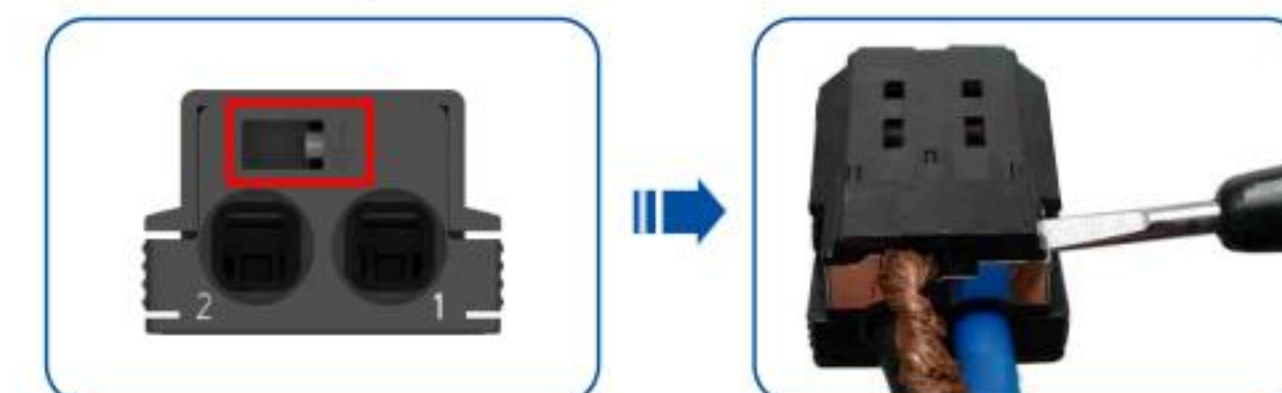


4 Connect the power cable to a power connector.

a Insert the power cable with crimped tube-shaped terminals into a power plug, and press the crimping part.



b Loosen the screw for the grounding interface of the power connector, twist the shielding layer of the power cable into a strip, and connect it to the grounding interface of the power connector. Tighten the screw for the grounding interface.



5 Fasten the nut at the end of the power cable sheath clockwise.



Steps

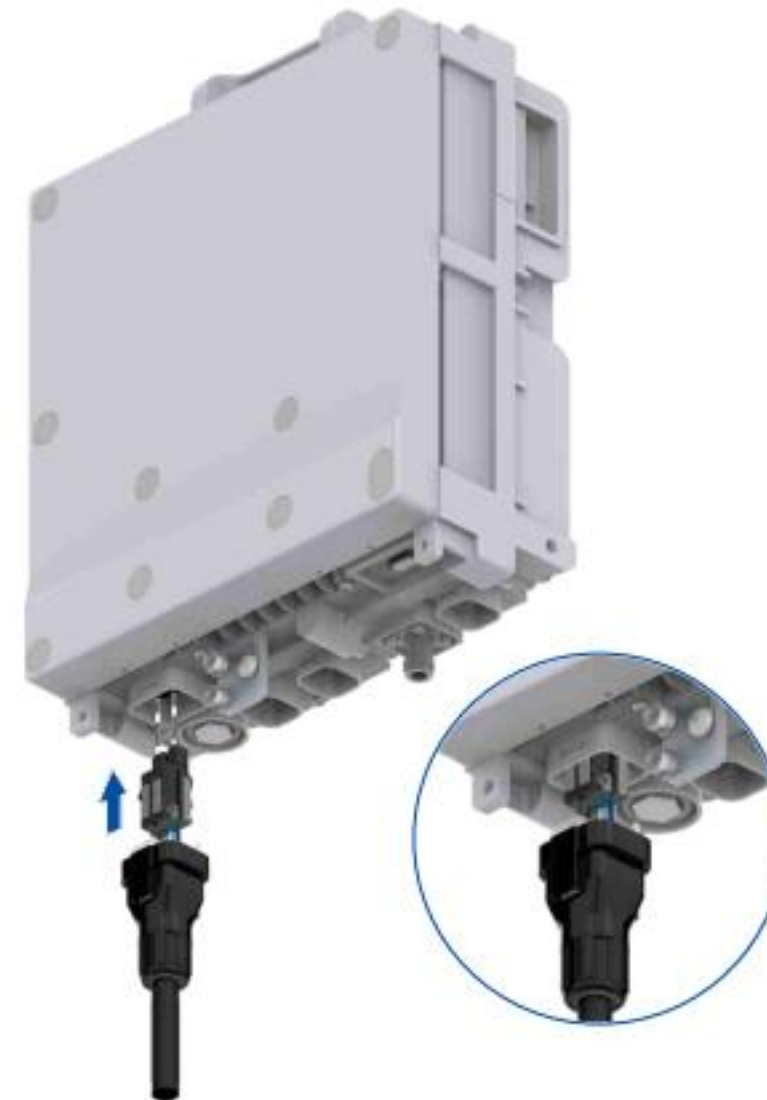
Prerequisite: The power cable is made.

22

- 1** Loosen the nut at the end of the power cable sheath counterclockwise.



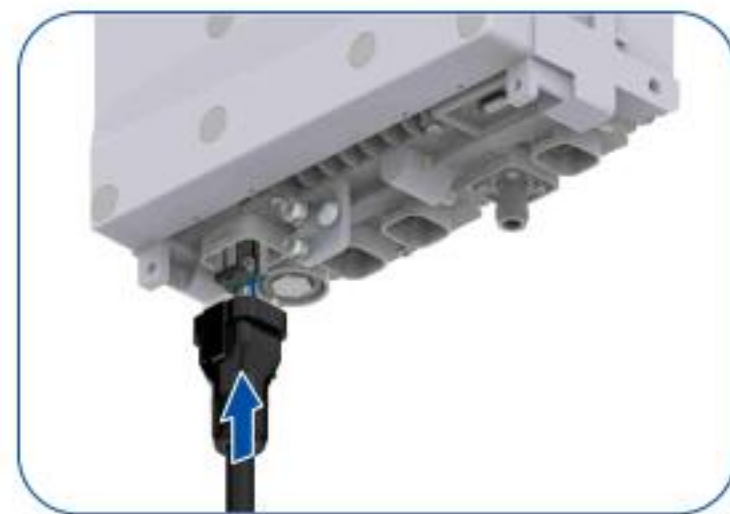
- 2** Insert the power plug of the power cable into the power interface of the ZXSDR BS8922.



- 3** Push the power cable sheath upwards until it fastens onto the slot of the power interface.



Note: When the power cable sheath is completely engaged in the slot of the power interface, two click sounds are heard.



- 4** Fasten the nut at the end of the power cable sheath clockwise.

- 5** Connect end B of the power cable to the power supply.

- 6** Paste labels on the two ends of the power cable. The power cable is installed successfully.

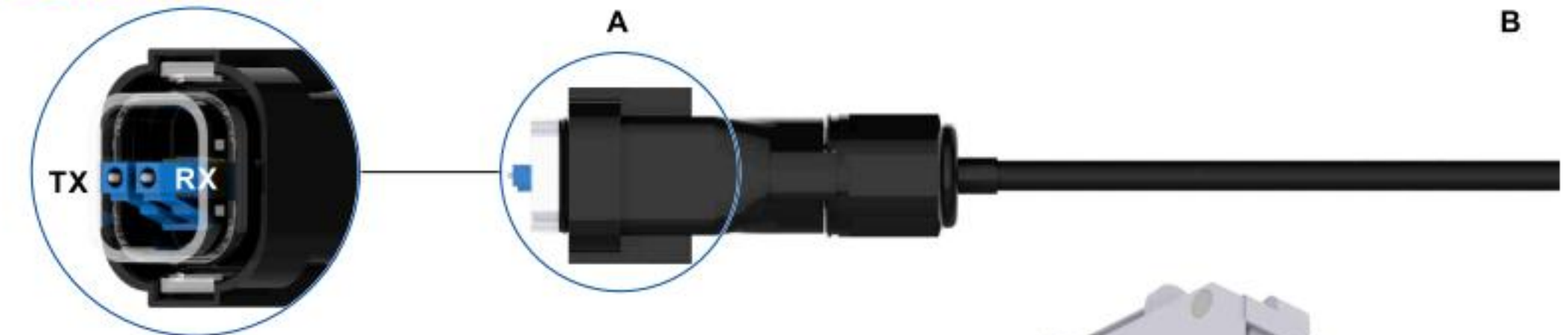


Installing the Optical Fiber

Installation Tools

Operation	Tool
Fix the optical fiber.	Cross screwdriver
Remove the bellows.	Diagonal plier

Optical Fiber



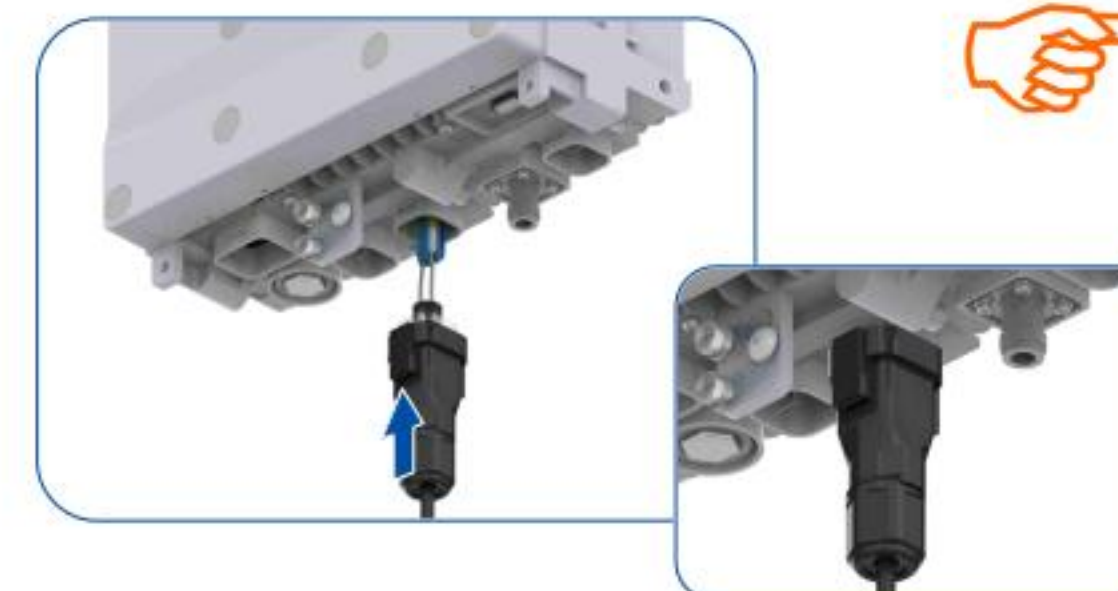
Steps

- 1** Loosen the nut at the end of the optical fiber sheath counterclockwise.



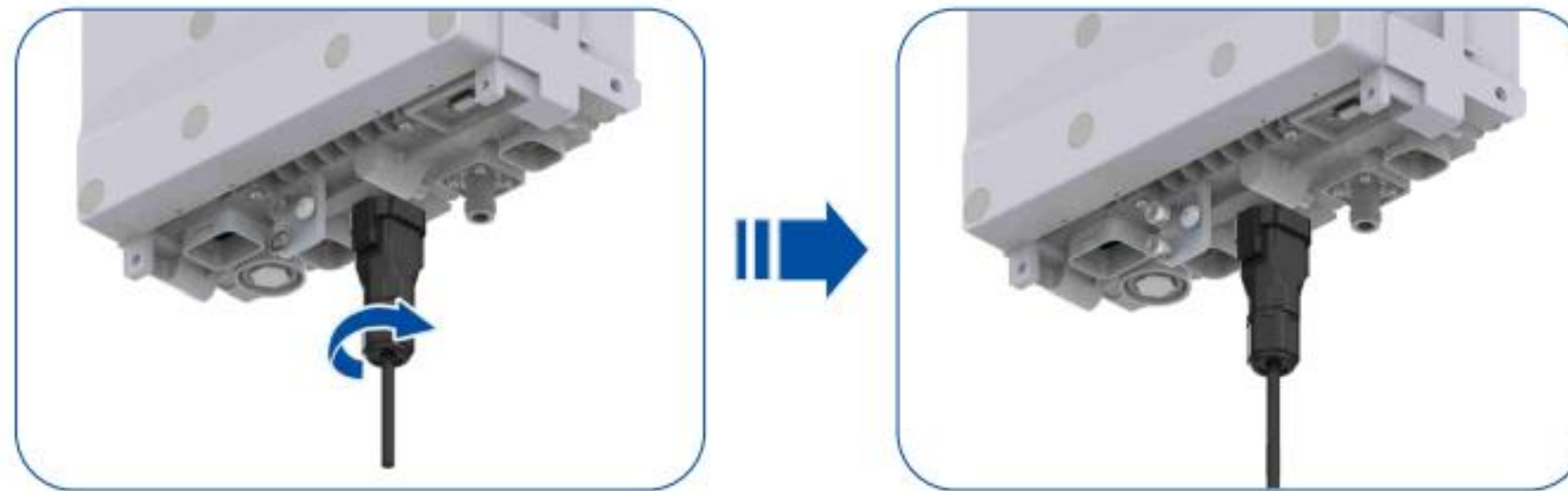
- 2** Insert the optical connector into the OPT1 port or OPT2 port of the ZXSDR BS8922.

- 3** Push the optical fiber sheath upwards until it fastens onto the slot of the OPT1 port or OPT2 port.



Note: When the optical fiber sheath is completely engaged in the slot of the OPT port, two click sounds are heard.

- 4** Fasten the nut at the end of the optical fiber sheath clockwise.



- 5** Connect end B of the optical fiber to the transmission device at the opposite end.

- 6** Paste labels at the two ends of the optical fiber. The optical fiber is installed successfully.

Installing Antenna Feeder Cables

Prerequisite: The ZXSDR BS8922 is connected to an antenna installed in separate-installation mode.

Installation Tools

Operation	Tool
Fasten feeder connectors.	Cross-head screwdriver/Torque wrench
Waterproof feeder connectors.	PVC adhesive tape
	Waterproof cement
	Ultraviolet-proof tape

Antenna Feeder Cable



Steps

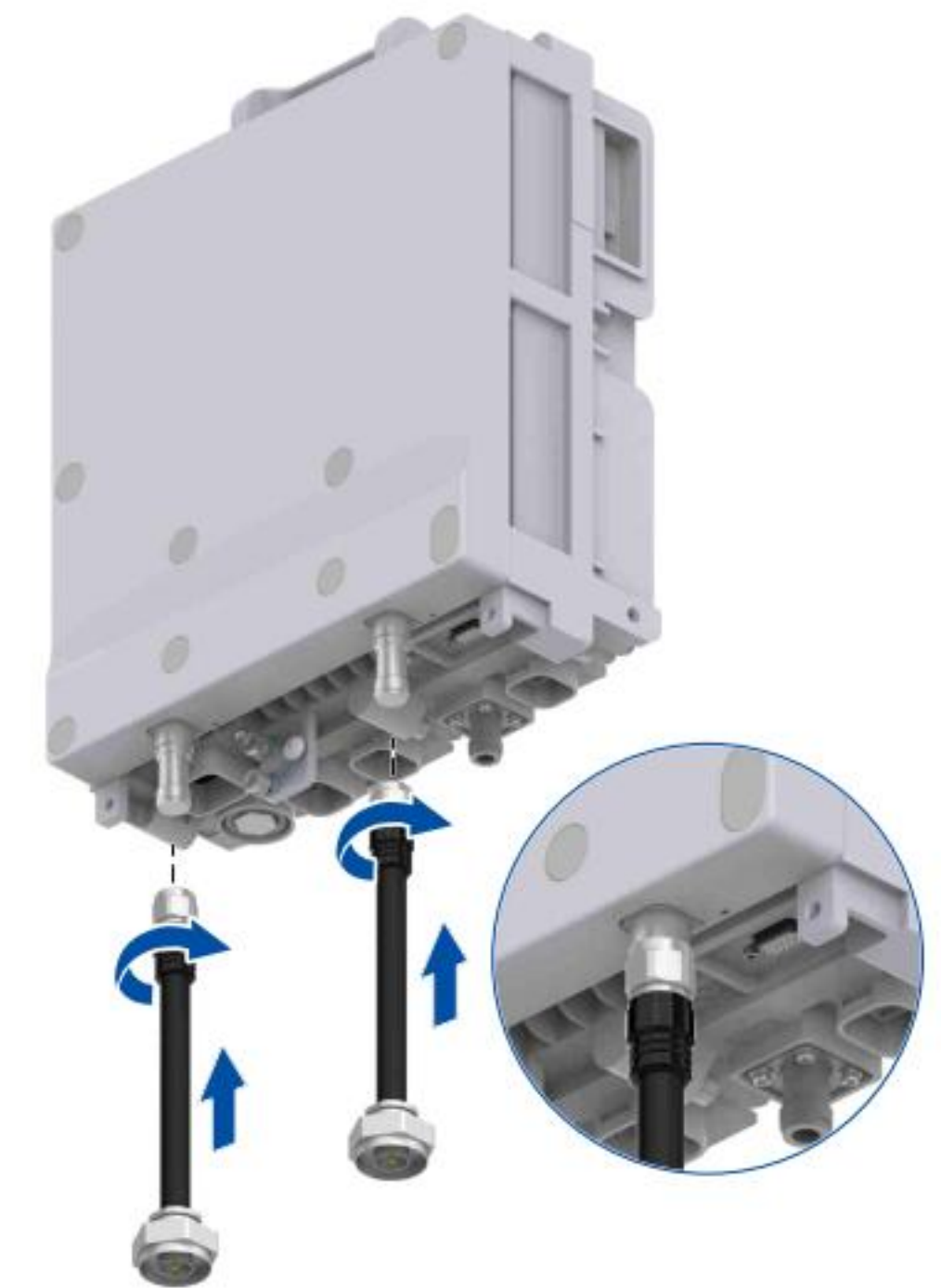
- 1** Connect end As of antenna feeder cables to ANT interfaces of the ZXSDR BS8922, see the Figure .

- 1** Connect end As of antenna feeder cables to ANT interfaces of the ZXSDR BS8922, see the Figure .

- 2** Connect end Bs of antenna feeder cables to the antenna installed in separate-installation mode.

- 3** Perform 1+3+3 waterproof handling for the cable connectors. For detailed information, refer to Appendix A Waterproof Handling.

- 4** Paste labels on the two ends of antenna feeder cables. The antenna feeder cables are installed successfully.



Installing the Monitoring Cable

Installation Tools

Operation	Tool
Fasten monitoring cable.	Cross-head screwdriver

Monitoring Cable



End B of the monitoring cable is a bare wire, and needs to be connected on site. For a description of the signal definitions and cable connections, refer to Table.

Pin No. at End A	Signal Name	Signal Description	Cable Color at End B
1	MON_RS485A	MONITOR interface RS485 bus signal, positive	Red
2	MON_RS485B	MONITOR interface RS485 bus signal, negative	Black
3	Dry_Node_In1+	Dry contact input, positive	Brown
8	GND	Grounding	Yellow
4	Dry_Node_In2+	Dry contact input, positive	Blue
10	GND	Grounding	White

Steps

- 1 Connect end A of the monitoring cable to the MON interface of the ZXSDR BS8922.
- 2 Connect end B of the monitoring cable to a monitoring device.
- 3 Paste labels on the two ends of the monitoring cable. The monitoring cable is installed successfully.



Installing the GPS Cable

Prerequisite: The GPS antenna is installed.

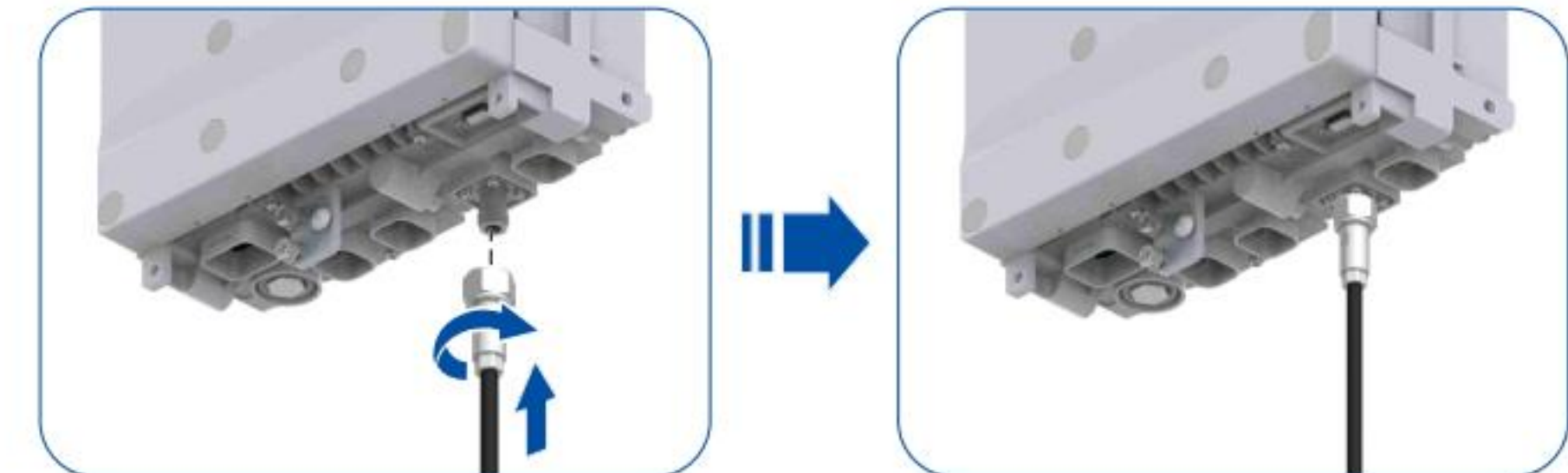
Installation Tools

Operation	Tool
Fasten GPS cable connectors.	Torque wrench
Waterproof GPS cable connectors.	PVC adhesive tape
	Waterproof cement
	Ultraviolet-proof tape

GPS Cable



- 1 Connect end A of the GPS cable to the GPS interface of the ZXSDR BS8922.



- 2 Connect end B of the GPS cable to the GPS antenna.
- 3 Perform 1+3+3 waterproof handling for the GPS cable connectors. For detailed information, refer to Appendix A Waterproof Handling.
- 4 Paste labels on the two ends of the GPS cable. The GPS cable is installed successfully.



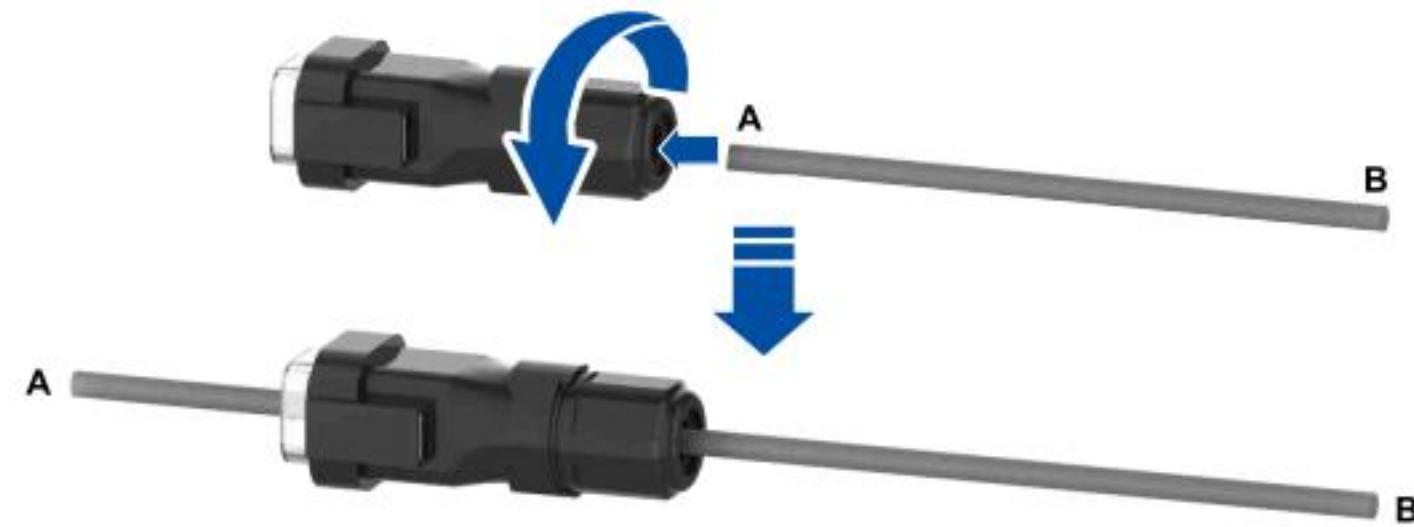
Installing the Ethernet Cable

Installation Tools

Operation	Tool
Crimp the crystal connector at end A and B.	Ethernet cable crystal-connector crimper
Test the Ethernet cable.	Network tester

The following describes how to make an Ethernet cable:

- 1 Loosen the Ethernet cable sheath counterclockwise, and lead end A of the Ethernet cable into the cable sheath.



- 2** Peel the Ethernet cable, and crimp the crystal connector at end A.
For a description of the cable connections, refer to Table.

No.	Cable Color at End A	Cable Color at End B
1	White/Orange	White/Orange
2	Orange	Orange
3	White/Green	White/Green
4	Green	Blue
5	Blue	White/Blue
6	White/Blue	Green
7	White/Brown	White/Brown
8	Brown	Brown

- 3** Fasten the nut at the end of the Ethernet cable sheath clockwise.



- 4** Crimp the crystal connector at end B of the Ethernet cable.

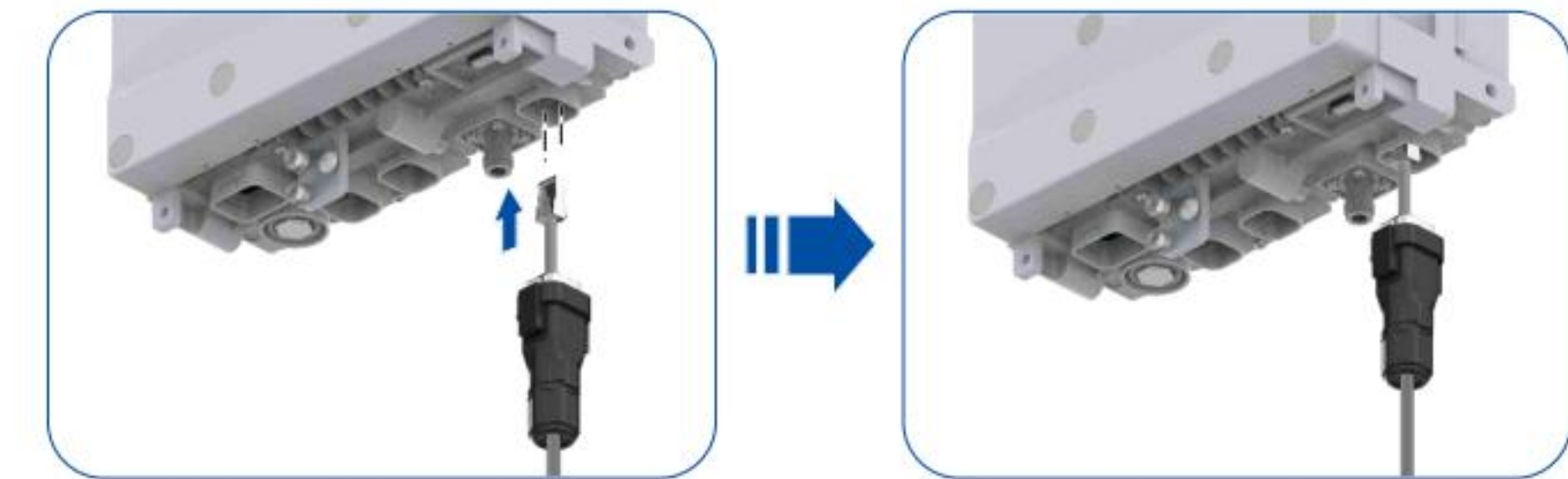
- 5** Use a network tester to verify that the wires of the Ethernet cable are crimped and connected properly. The Ethernet cable is made successfully.

Steps

- 1** Loosen the nut at the end of the Ethernet cable sheath counterclockwise.



- 2** Insert end A of the Ethernet cable into the ETH interface of the ZXSDR BS8922.



- 3** Push the Ethernet cable sheath upwards until it fastens onto the slot of the ETH interface.



Note: When the Ethernet cable sheath is completely engaged in the ETH interface, two click sounds are heard.

- 4** Fasten the nut at the end of the Ethernet cable sheath clockwise.

- 5** Connect the other end of the Ethernet cable to the transmission device at the opposite end.



- 6** Paste labels on the two ends of the Ethernet cable. The Ethernet cable is installed successfully.

Waterproof Handling

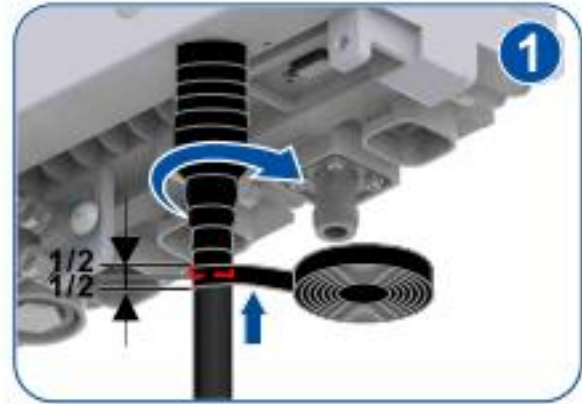
Waterproof Handling Requirement

Item	Requirement
Antenna feeder cable	1+3+3 waterproof handling
GPS cable	1+3+3 waterproof handling

The following procedure describes how to waterproof a feeder connector.

Steps

- 1** Wrap one layer of insulating tape from bottom to top, see **Figure 1**.



Note: After a connector is connected, wrap insulating tape on the connector in the fastening direction, with the upper layer overlapping $\frac{1}{2}$ of the lower layer. The wrapped insulating tape is 10 mm longer beyond the connector end. Keep enough stretching force when wrapping insulating tape.

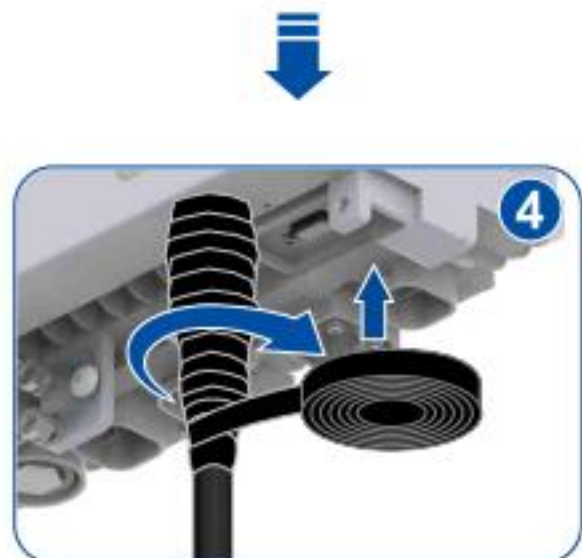
- 2** Wrap three layers of waterproof tape in the following manner: from bottom to top, from top to bottom, and from bottom to top, see **Figure 2**, **3**, and **4**.



- a** Expand the waterproof tape, remove the release paper, and paste one end of the tape 20–50 mm below the connector. Make sure that the tape layer faces inwards.



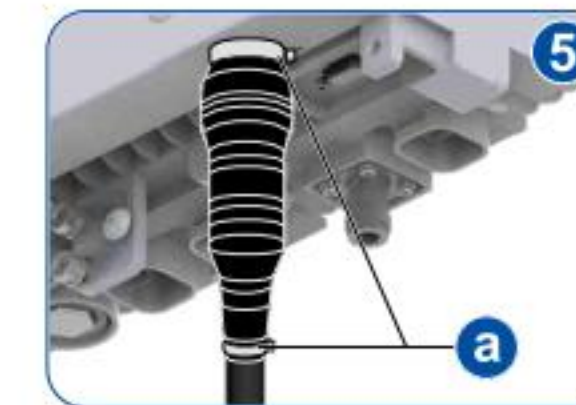
- b** Stretch the waterproof tape with even force to make its width 50% to 75% of its original width. Keep the stretching force and wrap the tape from bottom to top in overlapping mode, namely, each layer of the tape covers half of the previous layer.



- c** When the tape is wrapped 20–50 mm above the connector, use the same method to wrap the tape from top to bottom until the tape is 20–50 mm below the connector, then, wrap the tape from bottom to top.

- d** After the waterproof tape is wrapped properly, squeeze the tape by hand to make the layers stick firmly to the cable and connector.

- 3** Wrap three layers of ultraviolet-proof tape in the following manner: from bottom to top, from top to bottom, and from bottom to top, see **Figure 2**, **3**, and **4**.



a Ultraviolet-proof cable tie

Note: During the wrapping process, make sure that the two ends of the ultraviolet-proof tape are 20 mm beyond the previous layer of waterproof tape. First, the ultraviolet-proof tape is wrapped in overlapping mode from bottom to top, with each layer of the tape covering half of the previous layer. Second, the tape is wrapped three layers from top to bottom. Then, the tape is wrapped from bottom to top. Make sure that you wrap the tape with even force and do not stretch the tape too much. After the tape is wrapped, use both hands to squeeze the ultraviolet-proof tape and waterproof tape to make sure that they are stuck firmly.

- 4** Use ultraviolet-proof cable ties to bind the two ends of the tape tightly. Use ultraviolet-proof cable ties to bind the two ends of the tape tightly, see **Figure 5**.

Concentrator Installation(Optional)

Prerequisite: The cables are installed.

Installation Tools

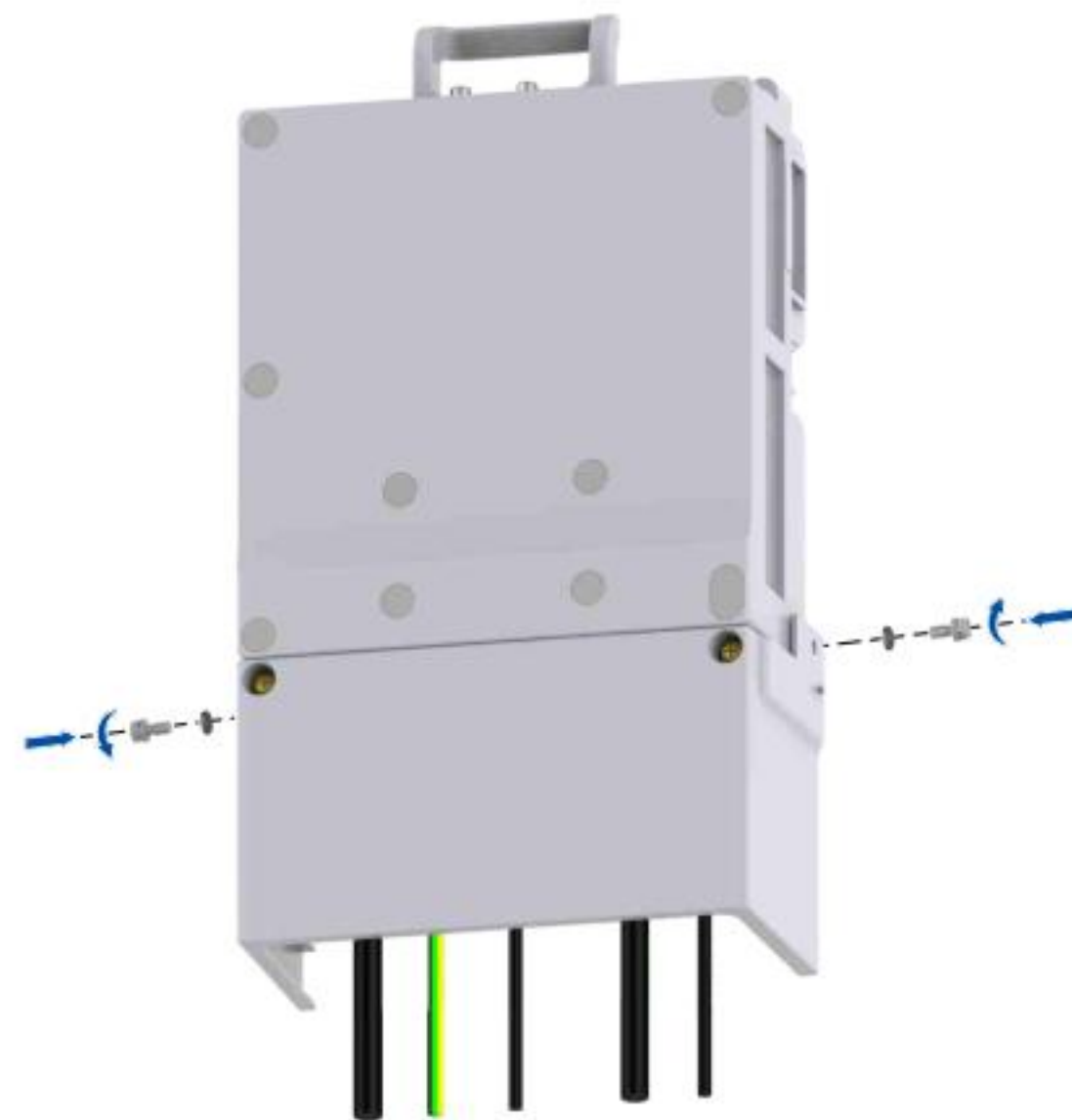
Operation	Tool
Fasten a Concentrator on the ZXSDR BS8922	Cross-head screwdriver

Concentrator

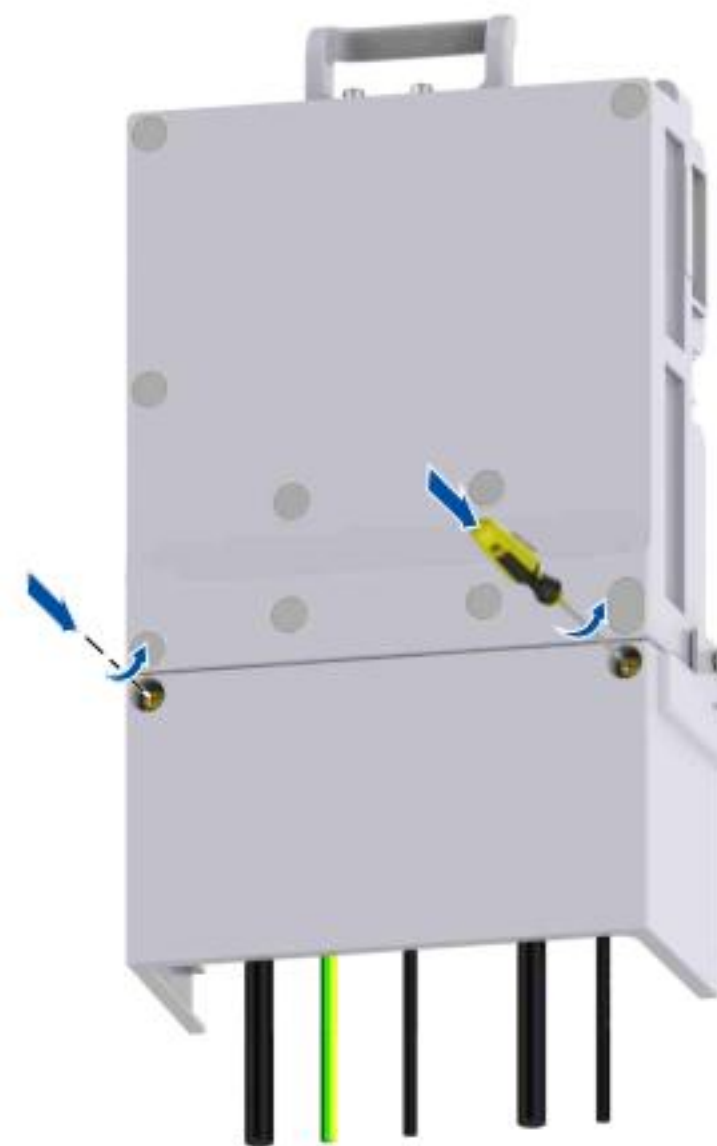


Steps

- 1 Clamp a concentrator to the ZXSDR BS8922, and fix it on the ZXSDR BS8922 with the screws on the two sides of it.



- 2 Fasten the two captive screws on the front of the concentrator. The concentrator is installed successfully.



Installing the Waterproof Cover

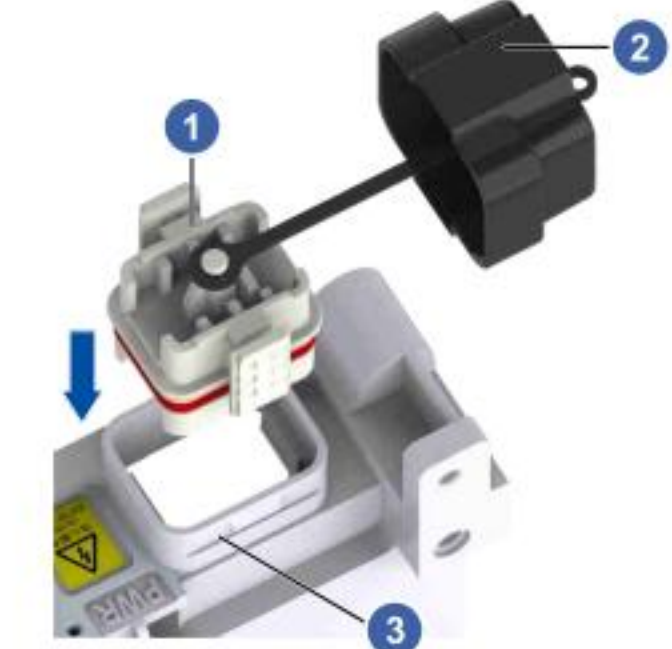
A waterproof cover protects the device from water and ensures proper air tightness. This procedure uses a waterproof cover for the power supply as an example to describe how to install and remove a waterproof cover.

Steps for Installing the Waterproof Cover

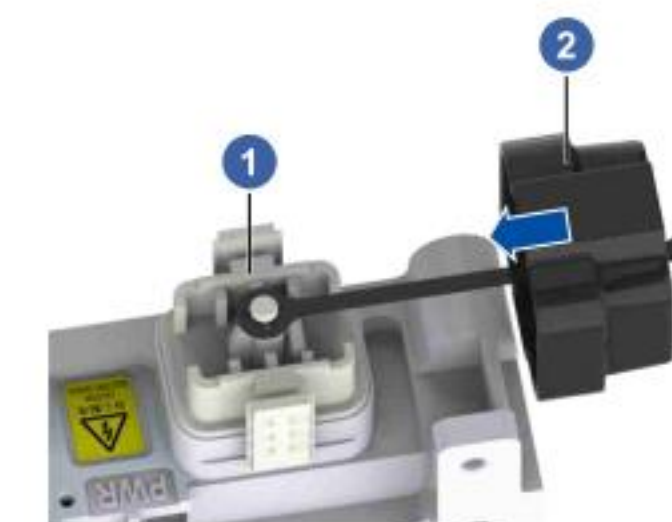
- 1 Push the elastic barrier to unlock the inner and outer enclosures.
- 2 Pull the outer enclosure, and install the inner enclosure onto the power interface, until two click sounds are heard.



- 1 Inner enclosure
- 2 Outer enclosure
- 3 Protruding part of the power interface



- 3 Cover the inner enclosure with the outer enclosure, until a click sound is heard.



- 1 Inner enclosure
- 2 Outer enclosure



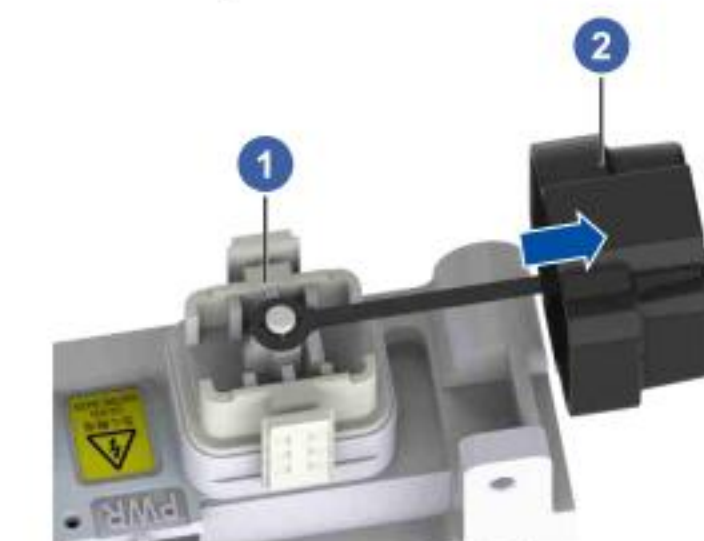
Note: • If the outer enclosure cannot be installed, verify that the fasteners of the inner enclosure are in position, and install the outer enclosure again.
• After the outer enclosure is installed, slightly pull the outer enclosure to verify that the waterproof cover is properly installed.

Steps for Removing the Waterproof Cover

- 4 Unlock the inner and outer enclosures by referring to the right Figure.
- 5 Pull the outer enclosure properly, and press the fasteners of the inner enclosure to remove the waterproof cover.



- 1 Inner enclosure
- 2 Outer enclosure



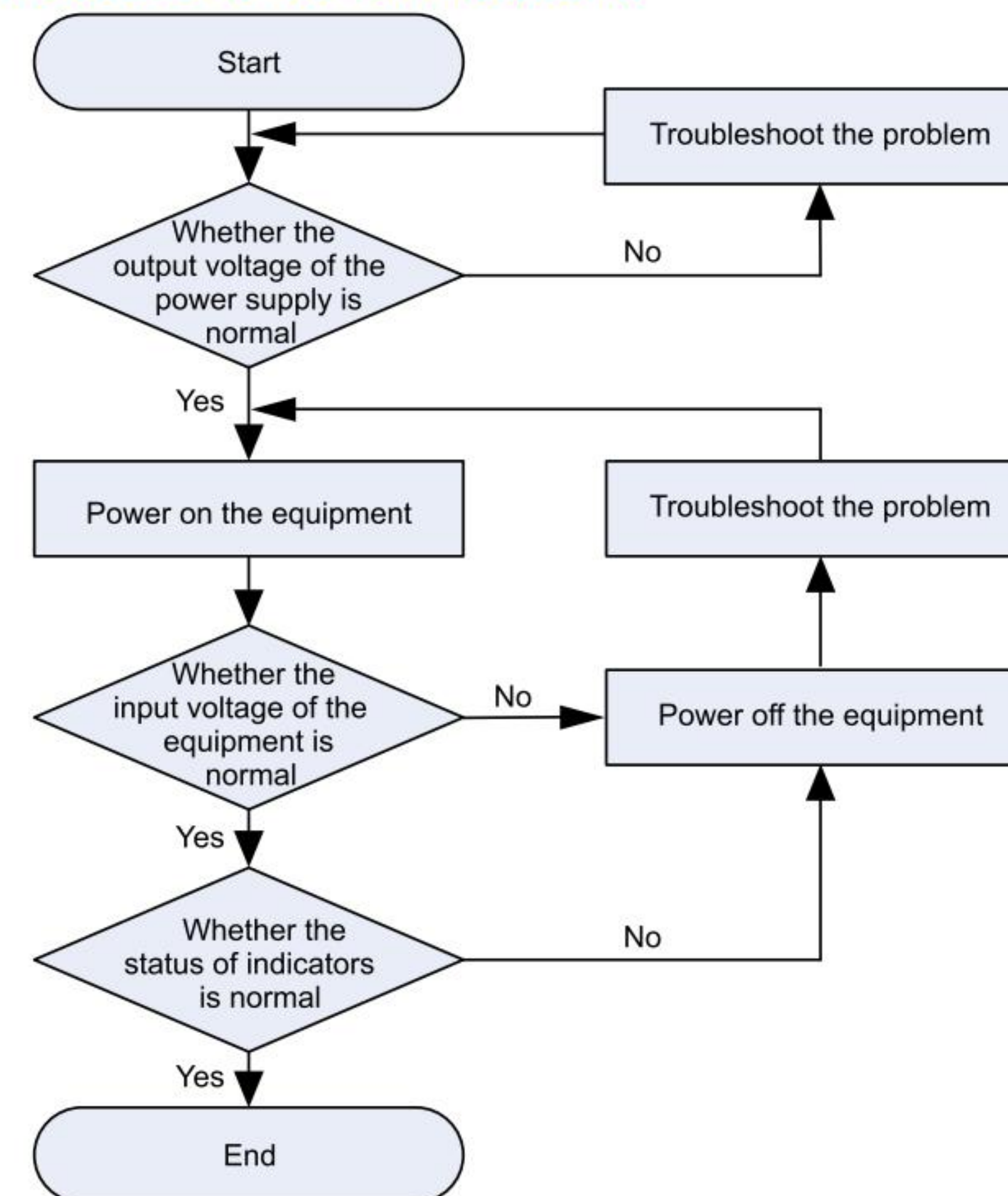
Installation Check

Item	No.	Requirement
Equipment installation	1	The installation components are installed in proper order, and the equipment is fixed securely without swaying.
	2	The independent pole is equipped with a lightning rod, and the equipment is within the protection scope of 45 degrees and grounded reliably.
Cable installation	3	The wire lugs and bare wires of the power cable and the grounding cable are wrapped with tubes or insulating tape. There are no exposed copper wires. The copper lug type is consistent with the cable diameter.
	4	The power supply is connected properly, and the terminals of the power cable and grounding cable are crimped tightly. The copper lugs are fastened on binding posts through flat washer and spring washer.
Cable installation	5	The surplus grounding cable and power cable are cut off. All cables are complete and their insulating layers are in good condition. It is prohibited to splice two cables.
	6	The power cable, signal cables, and fiber pigtails are bundled by category and routed separately, with a spacing of 5 cm between each other.
	7	All cable connectors are connected securely. All DIN-type connectors and N-type connectors are fastened properly.
	8	The bending radius of all cables satisfy the requirement.
	9	Unused optical cables, optical channels, and sockets are equipped with protective caps.
	10	Black cable ties and white cable ties cannot be interchanged. White cable ties are used indoors and must be cut off at the end, without leaving any sharp edge. Black cable ties are used outdoors, and must be cut off at the end with a 3-5 mm margin in case of expansion due to high temperature.
	11	All cable labels are correct and pasted in the same direction.
	12	The outdoor feeder cable and GPS cable are grounded in accordance with relevant specifications.

Grounding and waterproof handling	13	Rust and stains on the grounding terminal of the protective grounding cable are removed before the cable is connected. After the cable is connected, anticorrosion and antirust measures are taken properly.
	14	All cable connectors are wrapped for waterproof purposes. Insulating tape and waterproof tape are wrapped tightly and sequentially.
	15	The protective grounding cable of the equipment is installed properly, and cannot be cascaded with other protective grounding cables. The protective grounding cable is connected to the nearest copper grounding bar.

Equipment Power-on

ZXSDR BS8922 Power-On Procedure



Power-On Steps:

- 1** Connect the power supply equipment to the junction box of the ZXSDR BS8922, or switch on the air circuit breaker of the lightning protection box.
- 2** Observe the indicators to determine whether the ZXSDR BS8922 is powered on successfully.



Note: The following describes the status of indicators when the ZXSDR BS8922 is operating properly:

- RUN (operating status indicator): flashing (lit for 0.3 s and not lit for 0.3 s)
- ALM (fault indicator): not lit
- OPT1/ETH (link status indicator): flashing (lit for 0.3 s and not lit for 0.3 s)
- OPT2 (link status indicator): flashing (lit for 0.3 s and not lit for 0.3 s)
- VSWR (SWR indicator): not lit
- ACT (cell status indicator): lit
- REF (clock reference indicator): flashing (lit for 0.3 s and not lit for 0.3 s)

Closure

Before leaving the installation site, make sure that the following jobs are completed:

■ Put away the tools.

Put away the installation tools.

■ Recycle redundant materials.

Recycle excess materials and hand them to the customer.

■ Clean up the installation site.

Remove trash from the installation site to keep a clean environment.

■ Complete the installation report.

Fill in the installation report and submit it to the person in charge.