ZXSDR R8882

Macro Radio Remote Unit

Hardware Description

Hardware Version: HV2.0

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Revision History

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About This Manual

Purpose

This manual describes the ZXSDR R8882 device, including the chassis and external cables.

Intended Audience

This manual is intended for the following personnel:

- Equipment installation engineers
- Maintenance engineers

What Is in This Manual

This manual contains the following chapters.

Chapter	Summary
Chapter 1, Product Appearance	Describes the overall appearance and dimensions of ZXSDR R8882.
Chapter 2, External Interface	Describes the external interfaces of ZXSDR R8882.
Chapter 3, Indicators	Describes the indicators on the ZXSDR R8882 chassis.
Chapter 4, External Cables	Describes the external cables used for the ZXSDR R8882 chassis.

Conventions

This manual uses the following typographical conventions:

Typeface	Meaning
Italics	Variables in commands. It may also refer to other related manuals and documents.
Bold	Menus, menu options, function names, input fields, option button names, check boxes, drop-down lists, dialog box names, window names, parameters and commands.
CAPS	Keys on the keyboard and buttons on screens and company name.
Constant width	Text that you type, program codes, filenames, directory names, function names.
[ ]	Optional parameters.
{ }	Mandatory parameters.
|	Separates individual parameter in series of parameters.

Typeface	Meaning
	Danger: indicates an imminently hazardous situation. Failure to comply can result in death or serious injury, equipment damage, or site breakdown.
	Warning: indicates a potentially hazardous situation. Failure to comply can result in serious injury, equipment damage, or interruption of major services.
	Caution: indicates a potentially hazardous situation. Failure to comply can result in moderate injury, equipment damage, or interruption of minor services.
	Note: provides additional information about a certain topic.

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Chapter 1
Product Appearance

The ZXSDR R8882 has two models: ZXSDR R8882 with two optical ports and ZXSDR R8882 with three optical ports.

Figure 1-1 shows the appearance of the ZXSDR R8882 with two optical ports.

Figure 1-1 Appearance of the ZXSDR R8882 with Two Optical Ports

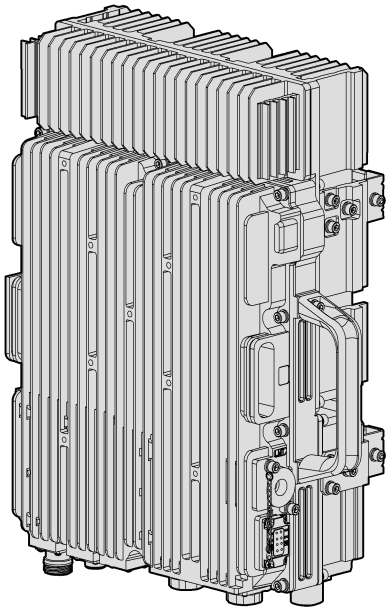
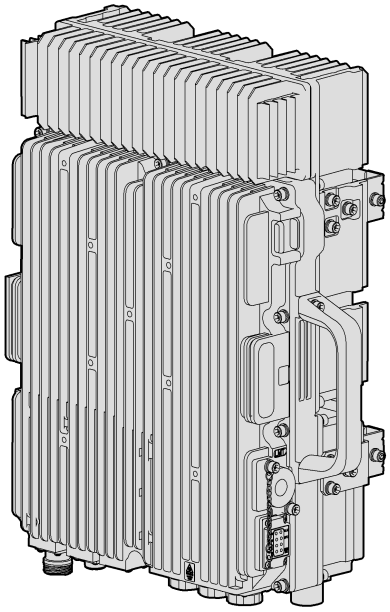


Figure 1-2 shows the appearance of the ZXSDR R8882 with three optical ports.

Figure 1-2 Appearance of the ZXSDR R8882 with Three Optical Ports



Dimensions: 480 mm x 320 mm x 150 mm (Height x Width x Depth)

Weight: 27 kg

Chapter 2
External Interfaces

The ZXSDR R8882 chassis has two models: two optical interfaces and three optical interfaces.

External Interfaces (Two Optical Interfaces)

External interfaces are distributed at the bottom and the right side of the ZXSDR R8882 chassis, as shown in Figure 2-1 and Figure 2-2.

Figure 2-1 External Interfaces at the Bottom (Two Optical Interfaces)

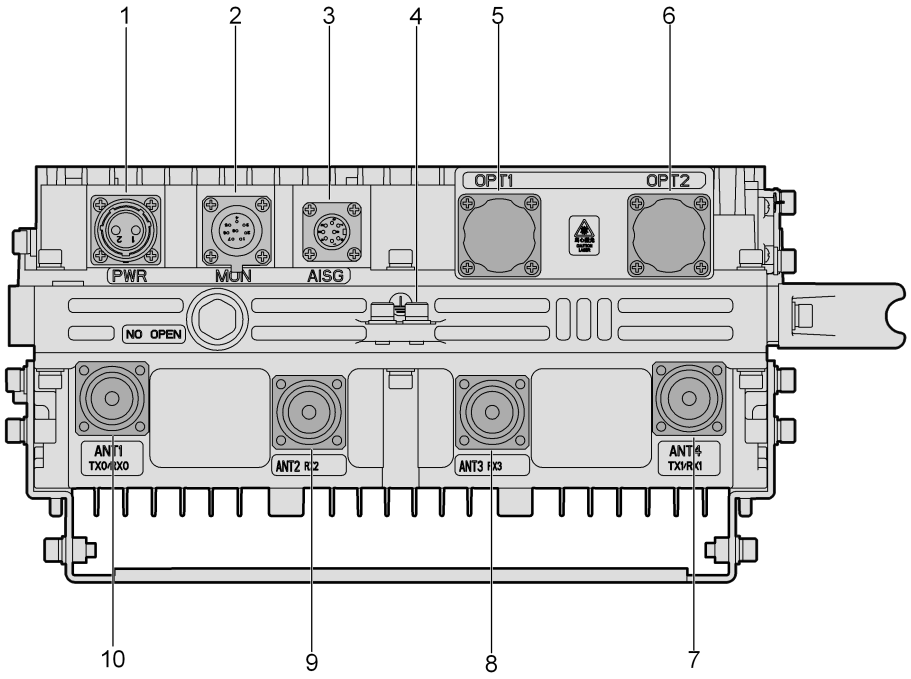


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Figure 2-2 External Interface at the Right Side (Two Optical Interfaces)

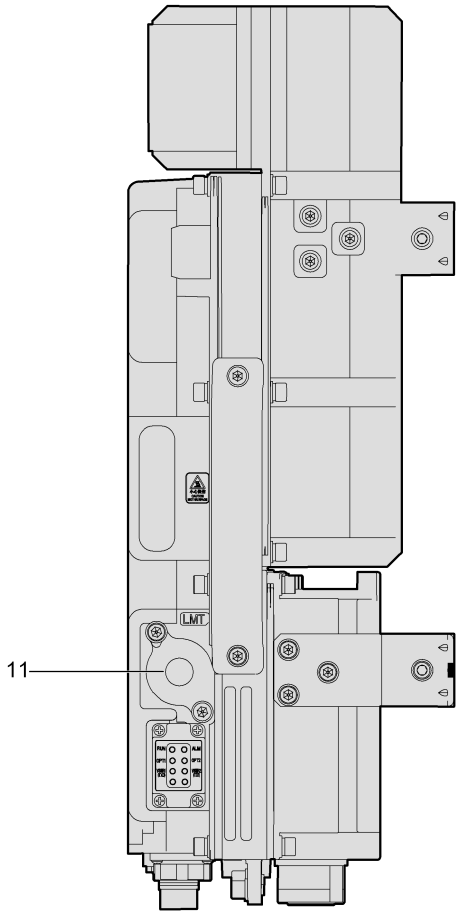

Table 2-1 describes the external interfaces of ZXSDR R8882.

Table 2-1 External Interface Description (Two Optical Interfaces)

No.	Silkscr-een	Interface	Connector Type	Compliant Protocol	Function
1	PWR	-48V DC power input interface	2-pin round plastic connector (male)	-	Provides -48 V DC power supply.
2	MON	External monitoring interface	8-pin straight panel mount round socket (male)	-	Supports interaction of signals between the RRU and external devices, including alarm signals, RS485/RS422 control signals, and two pairs of

No.	Silkscr-een	Interface	Connector Type	Compliant Protocol	Function
					dry contact input signals.
3	AISG	AISG interface	8-pin socket with a square base	AISG	Supports the connection to an RET antenna.
4	-	PE interface	16 mm^2 yellow-green round terminal	-	Provides protective earth.
5	OPT1	Interface for connecting BBU and RRU, or cascading RRUs	LC connector (IEC 874)	Private protocol of ZTE	Supports signal transmission between RRU and BBU, or between RRUs.
6	OPT2	Interface for connecting BBU and RRU, or cascading RRUs	LC connector (IEC 874)	Private protocol of ZTE	
7	ANT4 TX1/ RX1	Antenna feeder interface (Tx1/Rx1)	DIN connector	-	Transmits and receives radio signals on channel 1. A 1/2" foam dielectric cable (50Ω) is used to connect this interface to an antenna.
8	ANT3 RX3	Antenna feeder interface (Rx3)	DIN connector	-	Receives radio signals on channel 3. It implements the diversity receiving of radio signal for channel 1.

No.	Silkscr-een	Interface	Connector Type	Compliant Protocol	Function
9	ANT2 RX2	Antenna feeder interface (Rx2)	DIN connector	-	Receives radio signals on channel 2. It implements the diversity receiving of radio signal for channel 0.
10	ANT1 TX0/ RX0	Antenna feeder interface (Tx0/Rx0)	DIN connector	-	Transmits and receives radio signals on channel 0.
11	LMT	Ethernet interface for operation and maintenance	8P8C shielded right angle PCB mount jack with LED (left yellow, right green)	-	Supports operation and maintenance on the RRU, and outputs internal signals.

External Interfaces (Three Optical Interfaces)

The external interfaces are distributed at the bottom and the right side of the ZXSDR R8882 chassis, as shown in Figure 2-3 and Figure 2-4.

Figure 2-3 External Interfaces at the Bottom (Three Optical Interfaces)

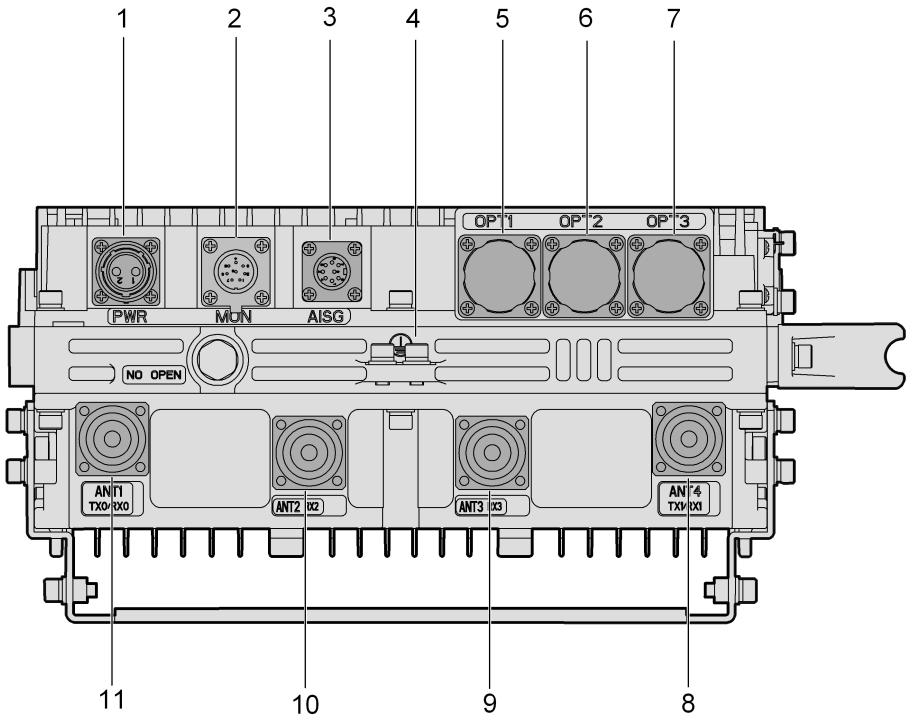

Figure 2-4 External Interface at the Right Side (Three Optical Interfaces)

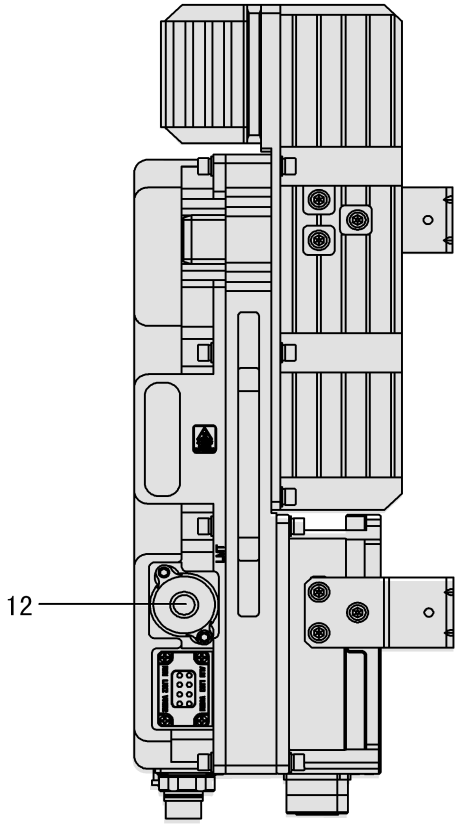

Table 2-2 describes the external interfaces of ZXSDR R8882.

Table 2-2 External Interfaces

No.	Silkscr-een	Interface	Connector Type	Compliant Protocol	Function
1	PWR	-48V DC power input interface	2-pin round plastic connector (male)	-	Supports the input of -48V DC power and provides a dry contact.
2	MON	External monitoring interface	8-pin straight panel mount round socket (male)	-	Supports interaction of signals between the RRU and external devices, including alarm signals, RS485/RS422 control signals, and two pairs of dry contact input signals.
3	AISG	AISG interface	8-pin socket with a square base	AISG	Supports the connection to an RET antenna.
4	-	PE interface	16 mm^2 yellow-green round terminal	-	Provides protective earth.
5	OPT1	Interface for connecting BBU and RRU, or cascading RRUs	LC connector (IEC 874)	Private protocol of ZTE	Supports signal transmission between RRU and BBU, or between RRUs.
6	OPT2	Interface for connecting BBU and RRU, or cascading RRUs	LC connector (IEC 874)	Private protocol of ZTE	
7	OPT3	Interface for cascading RRUs on the same branch	LC connector (IEC 874)	Private protocol of ZTE	Supports signal transmission between RRUs.
8	ANT4 TX1/ RX1	Antenna interface (Tx1/Rx1)	DIN connector	-	Transmits and receives radio signals on channel 1. A 1/2" foam dielectric cable (50Ω) is used to connect this interface to an antenna.
9	ANT3 RX3	Antenna interface (Rx3)	DIN connector	-	Receives radio signals on channel 3. It implements the diversity receiving of radio signal for channel 1.

No.	Silkscr-een	Interface	Connector Type	Compliant Protocol	Function
10	ANT2 RX2	Antenna interface (Rx2)	DIN connector	-	Receives radio signals on channel 2. It implements the diversity receiving of radio signal for channel 0.
11	ANT1 TX0/ RX0	Antenna interface (Tx0/Rx0)	DIN connector	-	Transmits and receives radio signals on channel 0.
12	LMT	Ethernet interface for operation and maintenance	8P8C shielded right angle PCB mount jack with LED (left yellow, right green)	-	Supports operation and maintenance on the RRU, and outputs internal signals.

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Chapter 3
Indicators

The indicators, located at the bottom of the ZXSDR R8882 chassis, display the operating status of the device. Figure 3-1 and Figure 3-2 respectively show the indicators on a ZXSDR R8882 that has two optical interfaces and three optical interfaces.

Figure 3-1 Indicators of the RRU (Two Optical Interfaces)

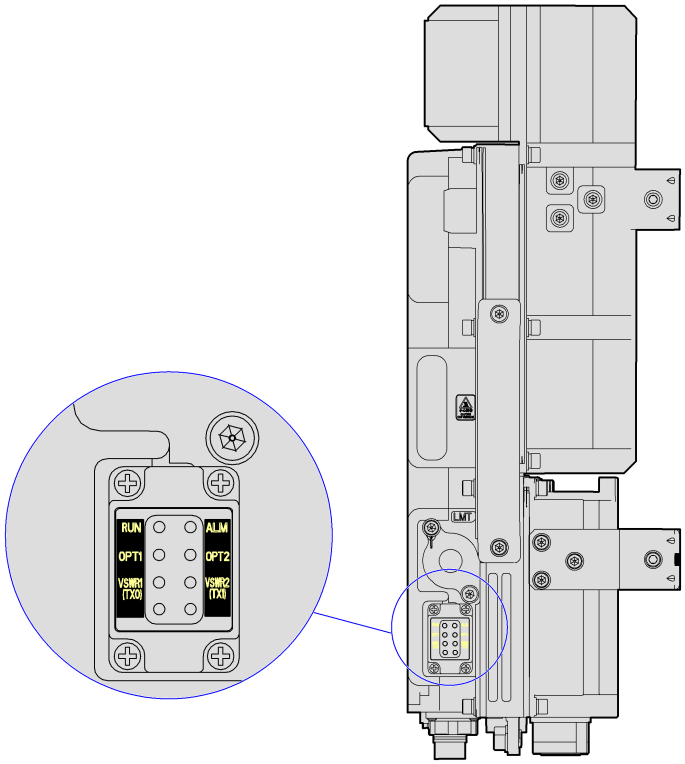

Figure 3-2 Indicators of the RRU (Three Optical Interfaces)

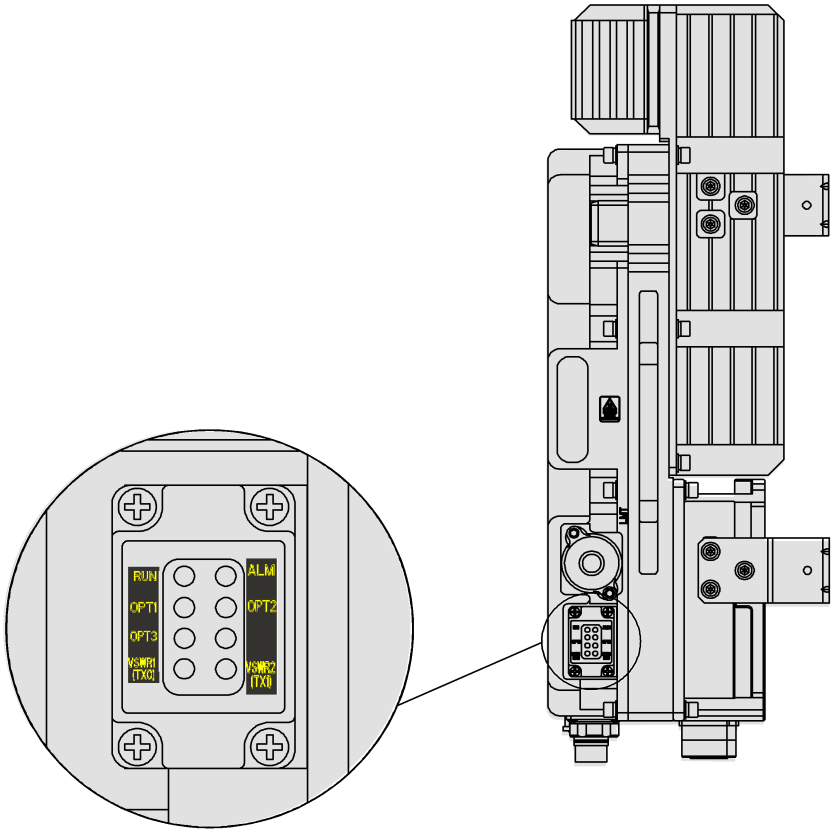

Table 3-1 describes these indicators.

Table 3-1 Indicator Description

Name	Meaning	LED Color	Operation Mode
RUN	Power-on status	Green	Flashing at 2Hz: normal system operation Lit and other blinking modes: system being started or abnormal system Not lit: system not powered on
ALM	Alarm indication	Red	Lit: alarm Not lit: no alarm
OPT1	Status of optical interface 1	Green	Flashing: normal optical port 1 Lit: abnormal optical port 1 (with optical signals) Not lit: abnormal optical port 1 (without optical signals)
OPT2	Status of optical interface 2	Green	Flashing: normal optical port 2 Lit: abnormal optical port 2 (with optical signals) Not lit: abnormal optical port 2 (without optical signals)

Name	Meaning	LED Color	Operation Mode
OPT3	Status of optical interface 3	Green	Flashing: normal optical port 3 Lit: abnormal optical port 3 (with optical signals) Not lit: abnormal optical port 3 (without optical signals)
VSWR1(TX0)	VSWR status of Tx0	Red	Lit: TX0 antenna VSWR alarm Not lit: normal TX0 antenna VSWR
VSWR2(TX1)	VSWR status of Tx1	Red	Lit: TX1 antenna VSWR alarm Not lit: normal TX1 antenna VSWR

Note:

There is no OPT3 indicator on ZXSDR R8882 chassis with two optical interfaces.

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Chapter 4
External Cables

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4.1 Overview

This chapter describes the external cables of ZXSDR R8882.

The external cables are as follows:

- Protective grounding cable
- DC power input cable
- Antenna feeder cable
- Fiber cable
- External monitoring cable
- Antenna Interface Standards Group (AISG) control cable

4.2 Protective Grounding Cable

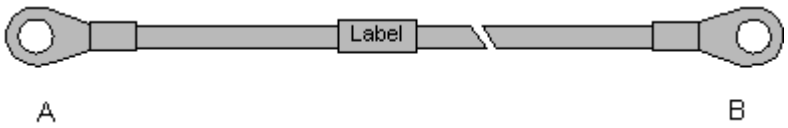
Function

The protective grounding cable provides protective earth for the ZXSDR R8882 chassis.

External View

This cable is a 16 mm^2 green-yellow cable. A TNR22-8 lug is crimped on both ends, as shown in Figure 4-1.

Figure 4-1 Appearance of the Protective Grounding Cable



Signal Definition

Name	Definition	Pin (End A)	Pin (End B)	Core Color
PE	Protective earth	-	-	Green-yellow

Connections

- End B is connected to the grounding bar and tightened with a bolt.
- End A is connected to the protective grounding terminal on the ZXSDR R8882 chassis and tightened with a bolt.

NOTE **Note:**

If there is a PIMDC lightning protection box, end A of the protective grounding cable is connected with the protective grounding port of the ZXSDR R8882. End B is connected with the lightning protection box and then connected with the grounding bar through the box.

4.3 DC Power Input Cable

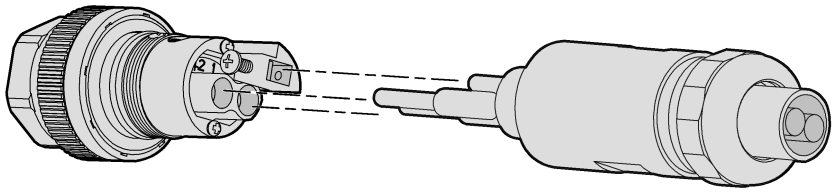
Function

The DC power input cable provides the input of -48 V DC power for the ZXSDR R8882 chassis.

External View

Figure 4-2 shows the appearance of the DC power input cable.

Figure 4-2 Appearance of the DC Power Input Cable



Signal Definition

Name	Definition	Core Color
-48 V	-48 V DC power	Blue
-48 V GND	-48 V DC ground	Black

Connections

- End A is connected to the PWR interface of ZXSDR R8882.
- End B is connected to the corresponding terminals on the power supply adapter.

NOTE **Note:**

The EPBC embedded lightning arrester is used for the device and therefore external signals are not transmitted through the cable transit box. During installation, the field engineer needs to make a cable on site in accordance with the available power aviation head and connect the power cable with the power connector.

4.4 Antenna Feeder Cable

Function

The antenna feeder cable connects the antenna feeder interface on the ZXSDR R8882 chassis to the main feeder, supporting transmitting and receiving of radio signals.

External View

This cable is an 1/2" RF cable (50Ω). A DIN connector is mounted on both ends, as shown in Figure 4-3.

Figure 4-3 Appearance of the Antenna Cable

Signal Definition

None

Connections

- One end is connected to the ANT interface on the ZXSDR R8882 chassis.
- The other end is connected to the main feeder.

4.5 Fiber Cable

Function

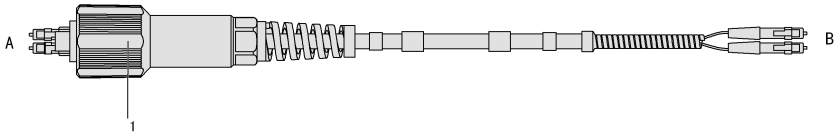
In the ZXSDR R8882 system, a fiber cable can be used to:

- Connect an RRU to a BBU.
- Connect two cascaded RRUs.

External View

A Single Mode Fiber (SMF) cable is used to connect the ZXSDR R8882 chassis to a BBU. End A is mounted with a waterproof LC connector, and end B is mounted with an LC connector, as shown in Figure 4-4.

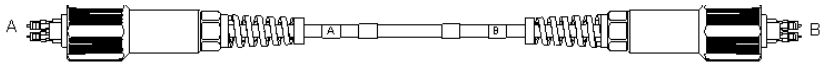
Figure 4-4 Fiber Cable for Connecting a BBU



1. Outdoor waterproof assembly

An SMF cable with both ends mounted with a waterproof LC connector is used to connect two RRUs, as shown in Figure 4-5.

Figure 4-5 Fiber Cable for Cascading RRUs



Signal Definition

None

Connections

The cable connection between an RRU and a BBU is as follows:

- End A is connected to an optical interface (OPT1, OPT2, or OPT3) on the ZXSDR R8882 chassis.
- End B is connected to an appropriate optical interface of the BBU.

The cable connection between two cascaded RRUs is as follows:

- End A is connected to an optical interface (OPT1, OPT2, or OPT3) on a ZXSDR R8882 chassis.
- End B is connected to an optical interface (OPT1, OPT2, or OPT3) on the other ZXSDR R8882 chassis.

4.6 External Monitoring Cable

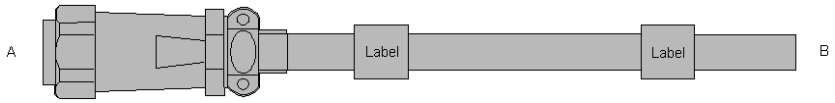
Function

The external monitoring cable supports the interaction of signals between the ZXSDR R8882 system and external devices, including the interaction of alarm signals, RS485/RS422 control signals, and dry contact signals.

External View

Figure 4-6 shows the external view of the external monitoring cable. End A is mounted with an 8-pin round plug. End B needs to be mounted with an appropriate connector on site according to the connector type of the external device to be connected. The cable length is 1.2 m.

Figure 4-6 Appearance of the External Monitoring Cable



Signal Definition

Pin	Name	Definition
PIN1	Dry_Node_In1+	Dry contact input, positive
PIN2	Dry_Node_In1-	Dry contact input, negative
PIN3	Dry_Node_In2+	Dry contact input, positive
PIN4	Dry_Node_In2-	Dry contact input, negative
PIN5	RS485TX+	Full-duplex RS422/RS485TX+ (differential mode)
PIN6	RS485TX-	Full-duplex RS422/RS485TX- (differential mode)
PIN7	RS485RX+	Full-duplex RS422/RS485RX+ (differential mode) or half-duplex RS485A
PIN8	RS485RX-	Full-duplex RS422/RS485RX- (differential mode) or half-duplex RS485B

Connection

- End A is connected to the MON interface on the ZXSDR R8882 chassis.
- End B is connected to an external monitoring device or a dry contact device.

4.7 AISG Control Cable

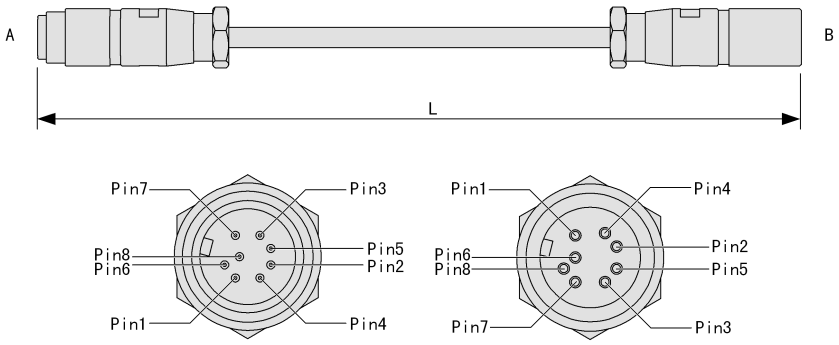
Function

The AISG control cable is used to send AISG control signals to an RET antenna that is connected to the ZXSDR R8882.

External View

An 8-pin aviation plug in compliance with IEC 60130-9-ED is mounted on both ends of the AISG control cable, as shown in Figure 4-7.

Figure 4-7 AISG Control Cable



Signal Definition

Name	Definition	Pin (End A)	Pin (End B)
AISG_RS485B	RS485 signal positive (RS485 B specified in AISG)	PIN3	PIN1
AISG_RS485A	RS485 signal negative (RS485 A specified in AISG)	PIN5	PIN2
AISG_PWR	DC power (output)	PIN6	PIN3, PIN4
GNDP	DC power ground (output)	PIN7	PIN5, PIN6
NC	Not used	PIN1, PIN2, PIN4, PIN8	-

Connections

- End A is connected to the AISG interface on the ZXSDR R8882 chassis.
- End B is connected to the control interface of an RET antenna.

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Glossary

AISG
- Antenna Interface Standards Group

BBU
- BaseBand Unit

DIN
- Deutsches Institut für Normung(=German Institute for Standardization)

PCB
- Printed Circuit Board

RET
- Remote Electrical Tilt

RF
- Radio Frequency

SMF
- Single Mode Fiber