ZXSDR R8882

Macro Radio Remote Unit

Hardware Description

Hardware Version: HV2.1

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LEGAL INFORMATION

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About This Manual

Purpose

This manual describes the ZXSDR R8882, 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 1, External View	Describes the external view and dimensions of the ZXSDR R8882.
Chapter 2, External Interfaces	Describes the external interfaces of the ZXSDR R8882.
Chapter 3, Indicators	Describes the indicators of the ZXSDR R8882.
Chapter 4, External Cables	Describes the external cables of the ZXSDR R8882.

Conventions

This manual uses the following conventions.

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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Contents

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Chapter 1
External View

The ZXSDR R8882 has two models:

- ZXSDR R8882 with two optical interfaces
- ZXSDR R8882 with three optical interfaces

Figure 1-1 shows the external view of a ZXSDR R8882 with two optical interfaces.

Figure 1-1 ZXSDR R8882 With Two Optical Interfaces

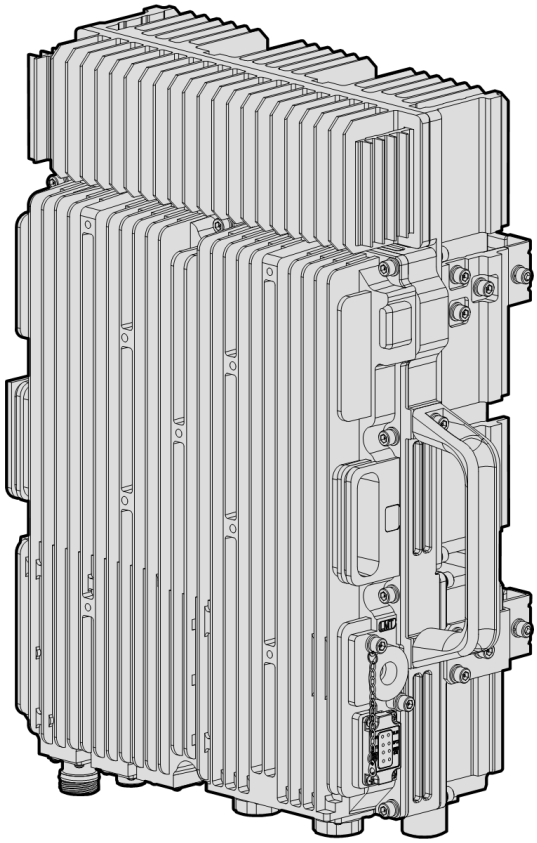
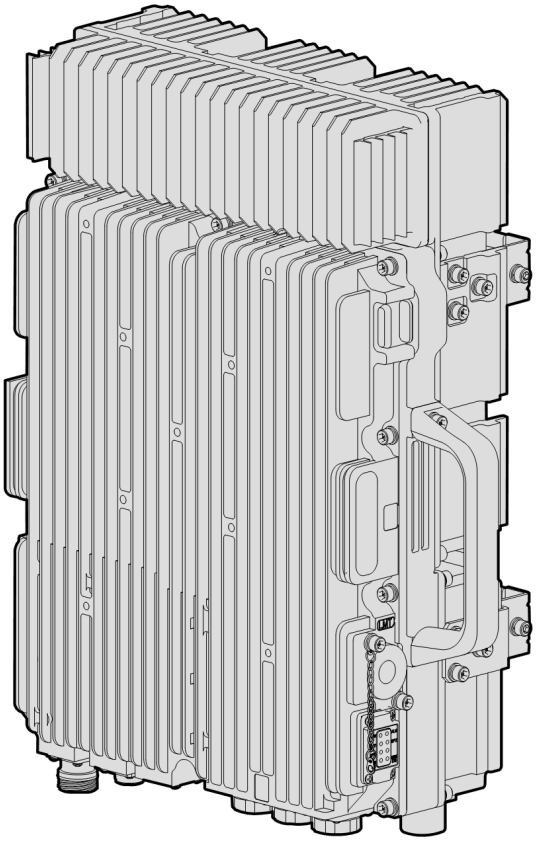


Figure 1-2 shows the external view of a ZXSDR R8882 with three optical interfaces.

Figure 1-2 ZXSDR R8882 With Three Optical Interfaces



Dimensions: 480 mm × 320 mm × 150 mm (H × W × D)

Weight: 23 kg

Chapter 2
External Interfaces

The ZXSDR R8882 has two models:

- ZXSDR R8882 with two optical interfaces
- ZXSDR R8882 with three optical interfaces

External Interfaces (ZXSDR R8882 With Two Optical Interfaces)

External interfaces are located at the bottom and the right side of the ZXSDR R8882, see Figure 2-1 and Figure 2-2.

Figure 2-1 External Interfaces at the Bottom (ZXSDR R8882 With Two Optical Interfaces)

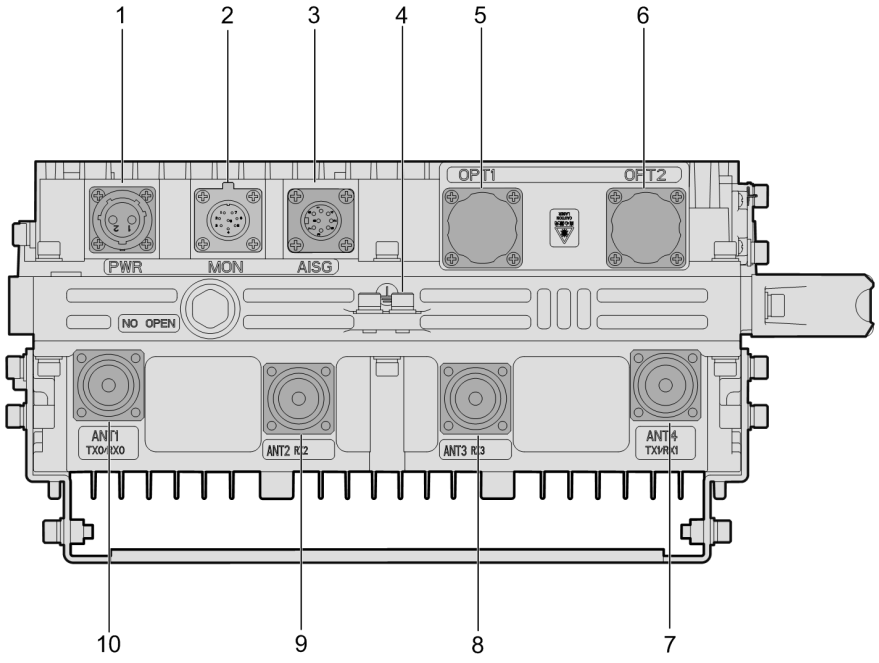
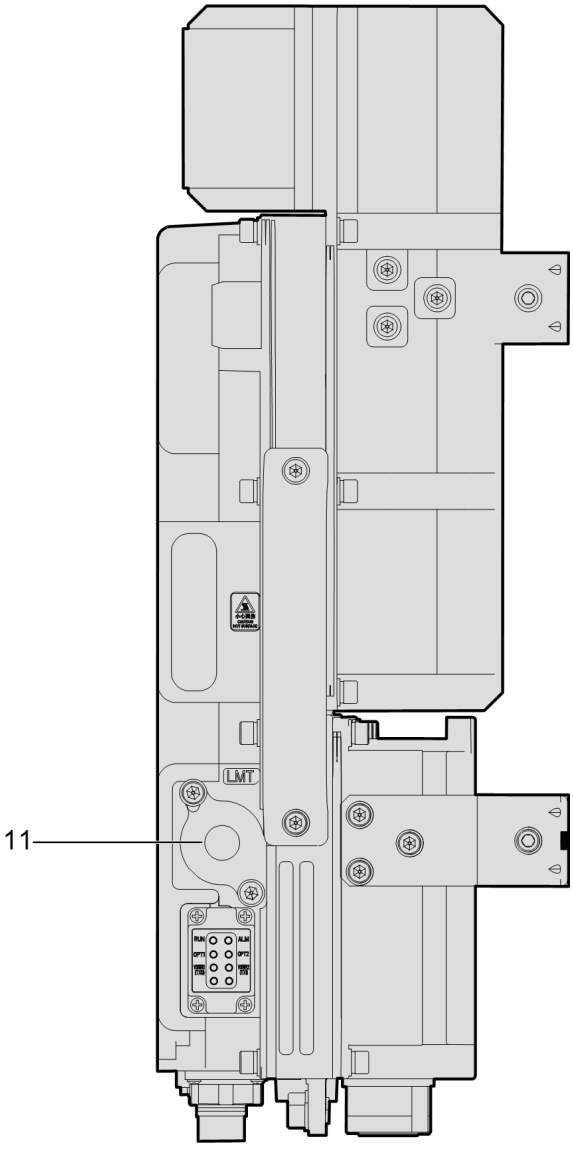


Figure 2-2 External Interface at the Right Side (ZXSDR R8882 With Two Optical Interfaces)



For a description of the external interfaces, refer to Table 2-1.

Table 2-1 External Interfaces (ZXSDR R8882 With 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.

No.	Silkscr-een	Interface	Connector Type	Compliant Protocol	Function
2	MON	External monitoring interface	8-pin straight panel-mounted welded round socket (male)	-	Supports signal interaction 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 AISG signal connection to an RET antenna.
4	-	PE interface	16 mm^2 yellow/green round terminal	-	Provides protective earth.
5	OPT1	Interface for connecting a BBU and an RRU, or cascading RRUs	LC optical connector (IEC 874)	ZTE private protocol	Supports signal transmission between an RRU and a BBU, or between RRUs.
6	OPT2	Interface for connecting a BBU and an RRU, or cascading RRUs	LC optical connector (IEC 874)	ZTE private protocol	
7	ANT4 TX1/ RX1	Antenna feeder interface (Tx1/Rx1)	DIN connector	-	A 1/2" foam dielectric cable (50 Ω) is used for RF signal transmission.
8	ANT3 RX3 (Op-tional)	Antenna feeder interface (Rx3)	DIN connector	-	
9	ANT2 RX2 (Op-tional)	Antenna feeder interface (Rx2)	DIN connector	-	

No.	Silkscr-een	Interface	Connector Type	Compliant Protocol	Function
10	ANT1 TX0/ RX0	Antenna feeder interface (Tx0/Rx0)	DIN connector	-	
11	LMT	Ethernet interface for operation and maintenance	8P8C shielded angle PCB socket with LED (left yellow, right green)	-	Supports operation and maintenance on the RRU, and outputs internal signals.

External Interfaces (ZXSDR R8882 With Three Optical Interfaces)

The external interfaces are located at the bottom and the right side of the ZXSDR R8882, see Figure 2-3 and Figure 2-4.

Figure 2-3 External Interfaces at the Bottom (ZXSDR R8882 With Three Optical Interfaces)

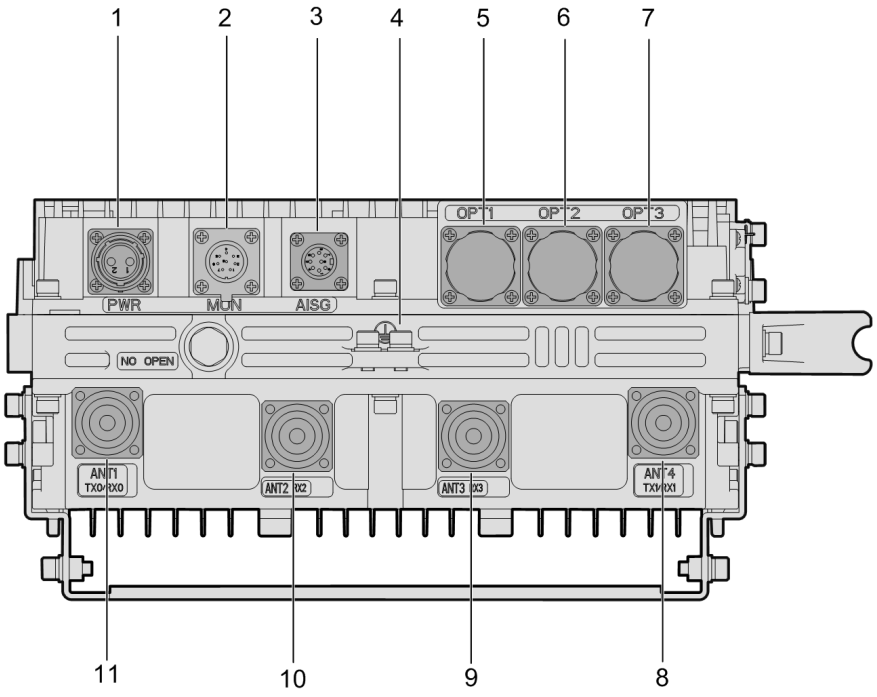
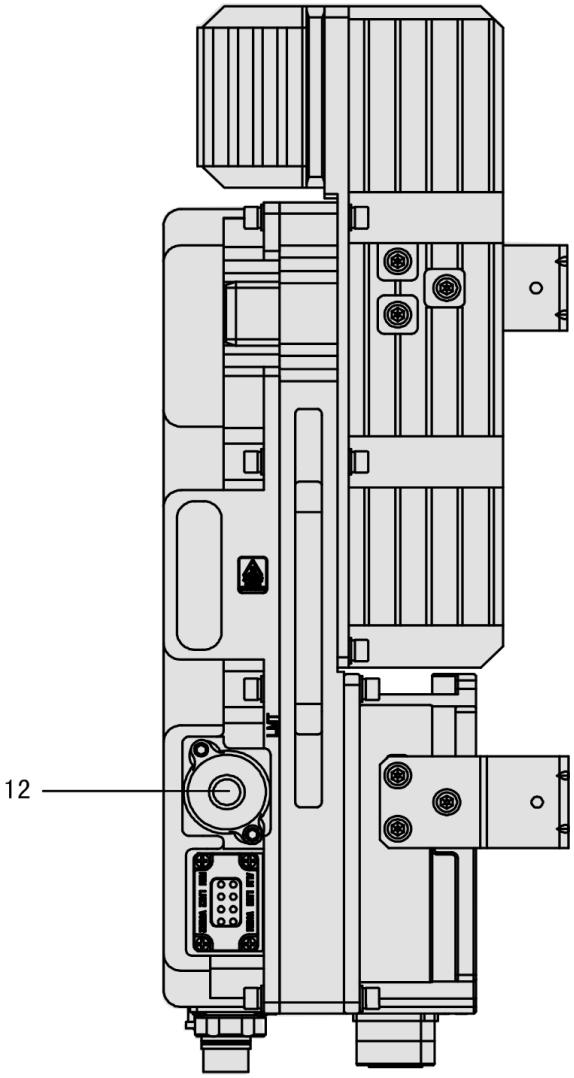


Figure 2-4 External Interface at the Right Side (ZXSDR R8882 With Three Optical Interfaces)



For a description of the external interfaces, refer to Table 2-2.

Table 2-2 External Interfaces (ZXSDR R8882 With Three 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-mounted welded round socket (male)	-	Supports signal interaction between the RRU and external devices, including alarm signals, RS485/RS422 control signals, and two pairs of dry contact input signals.

No.	Silkscr-een	Interface	Connector Type	Compliant Protocol	Function
3	AISG	AISG interface	8-pin socket with a square base	AISG	Supports the AISG signal connection to an RET antenna.
4	-	PE interface	16 mm^2 yellow/green round terminal	-	Provides protective earth.
5	OPT1	Interface for connecting a BBU and an RRU, or cascading RRUs	LC optical connector (IEC 874)	ZTE private protocol	Supports signal transmission between an RRU and a BBU, or between RRUs.
6	OPT2	Interface for connecting a BBU and an RRU, or cascading RRUs	LC optical connector (IEC 874)	ZTE private protocol	
7	OPT3	Interface for cascading RRUs on the same branch	LC optical connector (IEC 874)	ZTE private protocol	
8	ANT4 TX1/ RX1	Antenna interface (Tx1/Rx1)	DIN connector	-	A 1/2" foam dielectric cable (50 Ω) is used for RF signal transmission.
9	ANT3 RX3 (Optional)	Antenna interface (Rx3)	DIN connector	-	
10	ANT2 RX2 (Optional)	Antenna interface (Rx2)	DIN connector	-	
11	ANT1 TX0/ RX0	Antenna interface (Tx0/Rx0)	DIN connector	-	
12	LMT	Ethernet interface for operation and maintenance	8P8C shielded angle PCB mount socket with LED (left yellow, right green)	-	Supports operation and maintenance on the RRU, and outputs internal signals.

Chapter 3
Indicators

The indicators, which are located at the lower part of the ZXSDR R8882, display the operating status of the equipment, see Figure 3-1 and Figure 3-2.

Figure 3-1 Indicators of the ZXSDR R8882 With Two Optical Interfaces

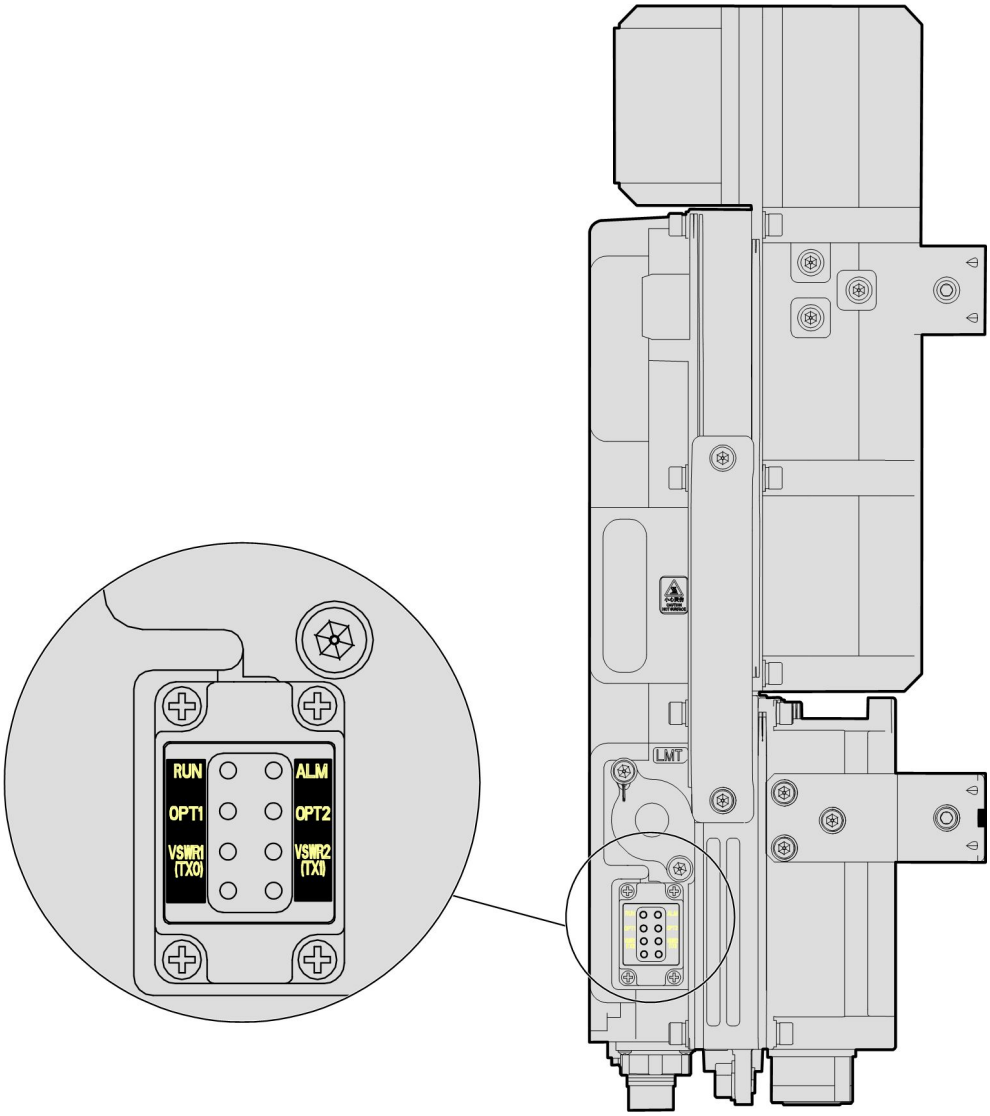
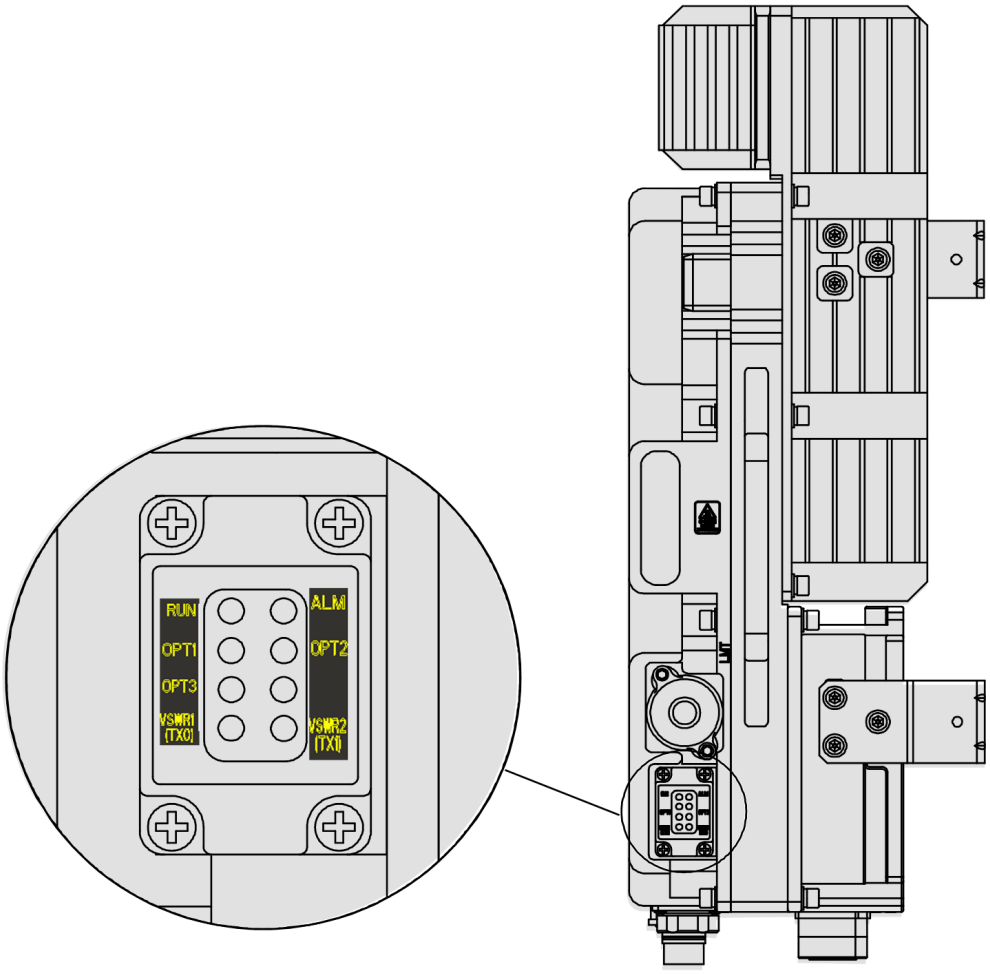


Figure 3-2 Indicators of the ZXSDR R8882 With Three Optical Interfaces



The status of the indicators varies with different software versions.

For a description of the indicators on the ZXSDR R8882 panel of V4.09.21/V4.11.10, refer to Table 3-1.

Table 3-1 Indicator Description (V4.09.21/V4.11.10)

Name	Meaning	Color	Operation Mode
RUN	Power-on status indicator	Green	Flashing at 2 Hz: The system is operating properly. Lit and other blinking modes: The system is being started or is not operating properly. Not lit: The system is not powered on.
ALM	Alarm indicator	Red	Lit: There is an alarm reported. Not lit: There is no alarm reported.

Name	Meaning	Color	Operation Mode
OPT1	Optical interface 1 status indicator	Green	Flashing: Optical interface 1 is communicating properly. Lit: Optical interface 1 is not communicating properly (with optical signals). Not lit: Optical interface 1 is not communicating properly (without optical signals).
OPT2	Optical interface 2 status indicator	Green	Flashing: Optical interface 2 is communicating properly. Lit: Optical interface 2 is not communicating properly (with optical signals). Not lit: Optical interface 2 is not communicating properly (without optical signals).
OPT3	Optical interface 3 status indicator	Green	Flashing: Optical interface 3 is communicating properly. Lit: Optical interface 3 is not communicating properly (with optical signals). Not lit: Optical interface 3 is not communicating properly (without optical signals).
VSWR1	Tx0 VSWR status indicator	Red	Lit: TX0 antenna VSWR alarm Not lit: normal TX0 antenna VSWR
VSWR2	Tx1 VSWR status indicator	Red	Lit: TX1 antenna VSWR alarm Not lit: normal TX1 antenna VSWR

NOTE **Note:**

The ZXSDR R8882 with two optical interfaces does not have the OPT3 indicator.

For a description of the indicators on the ZXSDR R8882 panel of V4.12, refer to Table 3-2.

Table 3-2 Indicator Description (V4.12)

Name	Meaning	Color	Operation Mode
RUN	Power-on status indicator	Green	Not lit: The system is not powered on or is not operating properly. Lit: The system is being powered on but is not operating properly. Flashing slowly (lit for one second and not lit for one second): The system software is being started. Flashing normally (lit for 0.3 second and not lit for 0.3 second): The system is operating properly and the RRU is communicating with the BBU properly. Flashing rapidly (lit for 70 milliseconds and not lit for 70 milliseconds): The system is operating properly, but the communication between the RRU and the BBU is not set up or the communication is disconnected.
ALM	Alarm indicator	Red	Lit: There is an alarm reported. Not lit: There is no alarm reported.
OPT1	Optical interface 1 status indicator	Green	Flashing: Optical interface 1 is communicating properly. Lit: Optical interface 1 is not communicating properly (with optical signals). Not lit: Optical interface 1 is not communicating properly (without optical signals).
OPT2	Optical interface 2 status indicator	Green	Flashing: Optical interface 2 is communicating properly. Lit: Optical interface 2 is not communicating properly (with optical signals). Not lit: Optical interface 2 is not communicating properly (without optical signals).
OPT3	Optical interface 3 status indicator	Green	Flashing: Optical interface 3 is communicating properly. Lit: Optical interface 3 is not communicating properly (with optical signals). Not lit: Optical interface 3 is not communicating properly (without optical signals).

Name	Meaning	Color	Operation Mode
VSWR1	Tx0 VSWR status indicator	Red	Lit: TX0 antenna VSWR alarm Not lit: normal TX0 antenna VSWR
VSWR2	Tx1 VSWR status indicator	Red	Lit: TX1 antenna VSWR alarm Not lit: normal TX1 antenna VSWR

Note:

The ZXSDR R8882 with two optical interfaces does not have the OPT3 indicator.

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Chapter 4
External Cables

This chapter describes the external cables of the ZXSDR R8882.

Table of Contents

4.1 Protective Grounding Cable

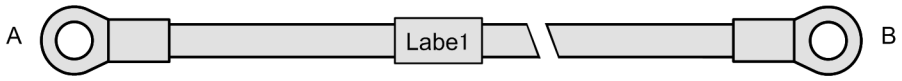
Function

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

External View

This cable is a 16 mm² green/yellow cable. A TNR22-8 lug is crimped on both ends, see Figure 4-1.

Figure 4-1 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:

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

4.2 DC Power Input Cable

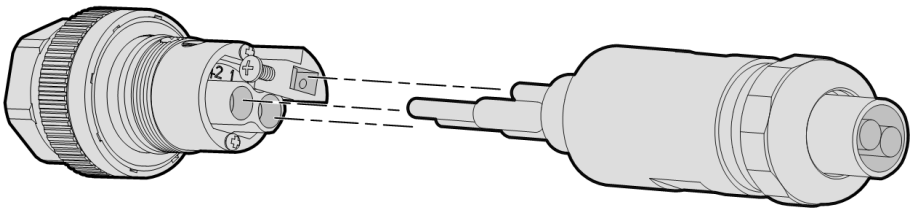
Function

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

External View

Figure 4-2 shows the external view of a DC power input cable.

Figure 4-2 DC Power Input Cable



A B

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

Note:

The EPBC embedded lightning protector is used for the equipment, and external signals are not transmitted through the cable transit box. During installation, field engineers need to make a DC power input cable on site in accordance with the available power aviation head and connect the power cable to the power connector.

4.3 Antenna Feeder Cable

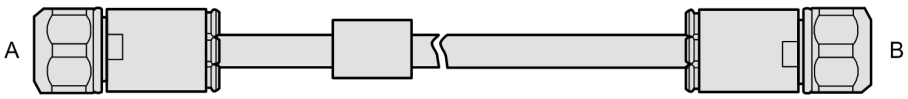
Function

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, see Figure 4-3.

Figure 4-3 Antenna Feeder Cable



Signal Description

None

Connections

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

4.4 Fiber Cable

Function

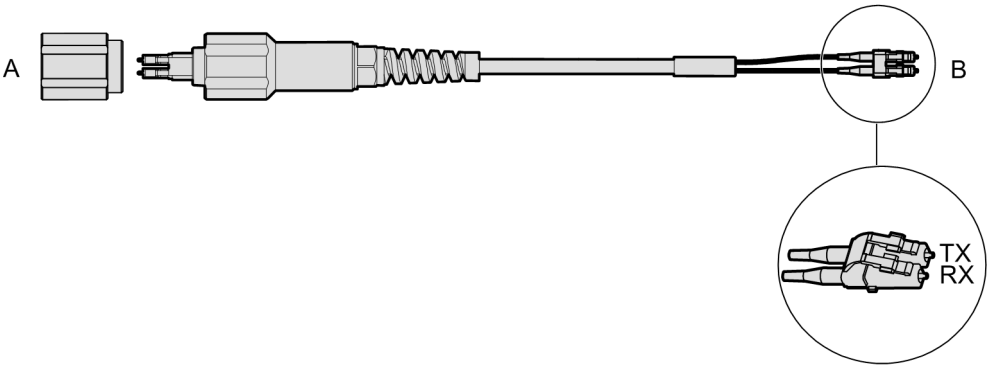
In the ZXSDR R8882 system, a fiber cable can be used to:

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

External View

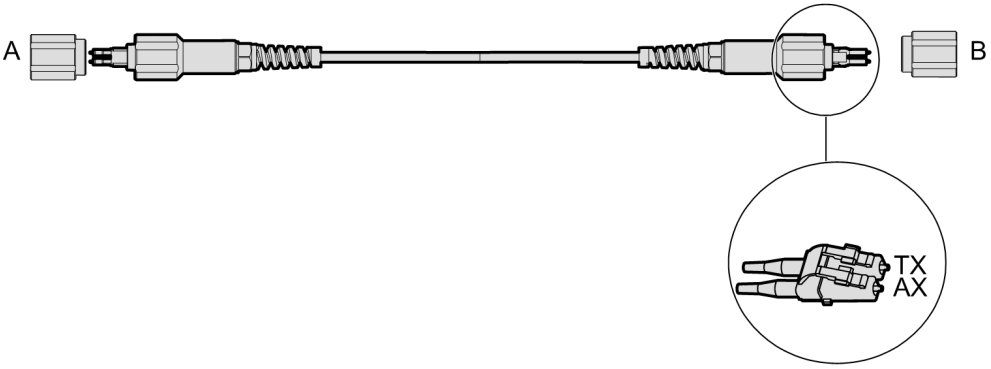
An SMF cable is used to connect the ZXSDR R8882 to a BBU. End A is mounted with a waterproof LC connector while end B is mounted with an LC connector, see Figure 4-4.

Figure 4-4 Fiber Cable for Connecting an RRU to a BBU



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

Figure 4-5 Fiber Cable for Cascading RRUs



Signal Definition

None

Connections

The cable connections between an RRU and a BBU are described as follows:

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

The cable connections between two cascaded RRUs are described as follows:

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

4.5 External Monitoring Cable

Function

The external monitoring cable supports signal interaction 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 an 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 External MON Interface 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

Connections

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

4.6 AISG Control Cable

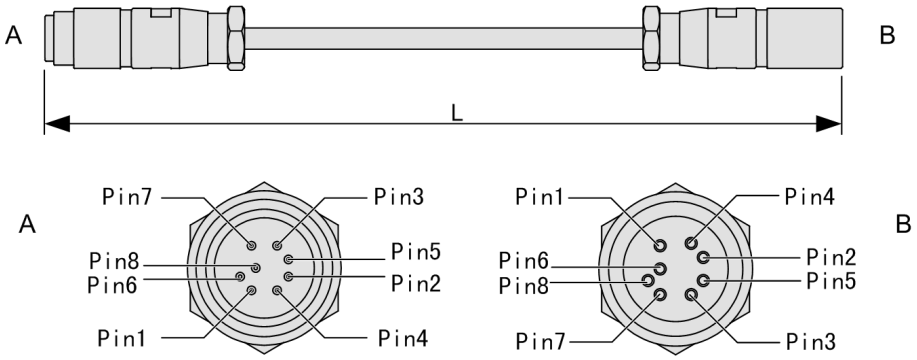
Function

The AISG control cable is used to send AISG control signals to a 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, see Figure 4-7.

Figure 4-7 AISG Control Cable



Signal Description

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

Connections

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

Figures

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Tables

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Glossary

AISG

- Antenna Interface Standards Group

BBU

- Base Band 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