SingularXYZ

SDL1
Long Distance Data Link
Manual

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Your feedback on this manual will help us improve it with future revisions.

Table of Content

Chapter 1 Introduction

The SDL1 is a high-quality, entire band UHF data link designed for GNSS RTK survey systems. It adapts advanced RF communication technology and digital processing technology, which ensures stable and reliable signal transmission even in the harsh environment.

SDL1 is an industrial-grade data link with anti-reverse power protection function and Tx protection, which is able to protect your instruments even when you forget install UHF antenna. For the repeating function, the SDL1 is able to extend working coverage especially in inaccessible or obstructed areas. To meet all your filed surveying needs, the SDL1 has 10 frequency channels that can be predefined based on your project.

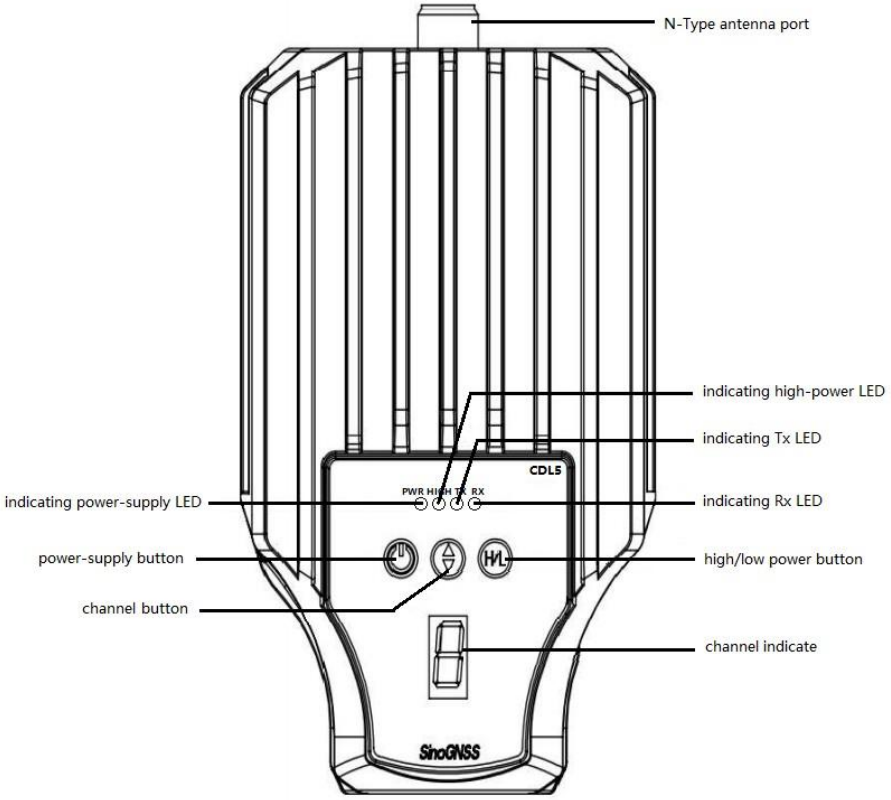
1.1 Overview

Thanks for choosing SingularXYZ Data Link SDL1. Please check the evaluation package you received with the package list as following.

Table 1: Packing list of SDL1

No.	Name	Quantity	Figure
1	SDL1	1	
2	Power Cable	1	
3	Data Cable	1	
4	Radio Antenna & Cable	1	
5	Aluminum Disc	1	
6	Extension Bar	1	

1.2 Interface and Panel Description



N-type antenna port: connect to radio antenna;

Indicating power-supply LED: when the radio powering to GNSS receiver, the LED light, otherwise LED will extinguish;

Indicating high-power LED: when switch to high-power radio mode, the LED light, otherwise the LED will extinguish;

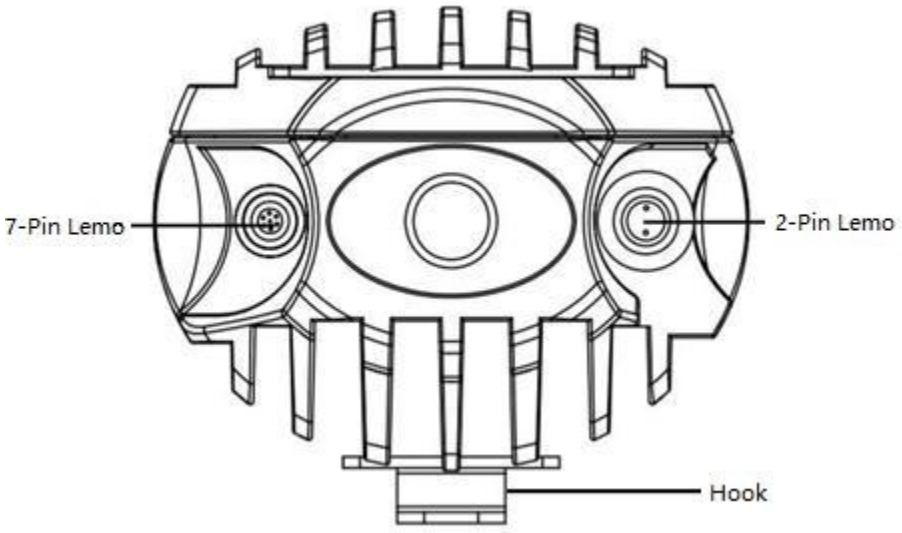
Indicating Tx LED: when the datalink is on the Tx work mode and data correctly transmitting, the LED will flash, otherwise the LED will extinguish;

Indicating Rx LED: then the datalink is on the Rx work mode and receiving data, the LED will flash, otherwise the LED will extinguish;

Power-supply button:

Channel button: change current channel, once click for changing from 0 to 9 step 1;

High/low power button: change high power (30W) or low power (2W default), low power can be changed in the configuration software.



7-pin Lemo: include 8V DC supply, RS232 and USB2.0 interface, and each of them need specialize cable;

2-pin Lemo: 12V DC power supply (adaptive 11V-14.5V DC);

Hook: help to put device on the wall or tripod.

Chapter 2 Installing the Radio

This chapter describes SDL1, radio antenna and cable connections. And also some usual function and operation introduction.

2.1 Device connections

SDL1 Tx mode connection

Note: radio antenna can be put on farer place by reserved antenna cable.

Warning: Please must connect radio antenna first then power on.

2.2 Operations

2.2.1 Power Supply Control

SDL1 can be set as powering to receiver (***SDL1 will not power to receiver default***).

When supplying power to the receiver without batteries, you need long press SDL1 power button and receiver power button together for 3-5s, it will force supply power to receiver;

- **When supply power to the receiver with batteries**, you need just set the receiver as base correction, while CDL detected data stream from receiver, it will automatically supply power to receiver.

It can be forcedly stop supply power when you long press power button longer than 8s.

When SDL1 detected connect to PC by USB cable, the power button will be disable to use.

2.2.2 Channel switch

Press channel button, digital tube will show the channel change, circle change from 0-9, indicating frequency as 454.0500/455.0500/…/463.0500 MHz. What's more, it can be also set as any frequency 410.0500 MHz to 469.0500 MHz by CRU software, channel spacing is 12.5 KHz.

2.2.3 High/Low power switch

Press H/L button to switch Tx power. When change to high Tx power, the High LED will be light, and Tx power indicate to 30W; when change to low Tx power, the High LED will be dark, indicating to 2W (default). Low power can be set as other value by CRU software.

Appendix A: PRECAUTIONS FOR USE

1. SDL1 should be avoid falling down or strongly impacted by other objects.
2. SDL1 should be installed in a well-ventilated environment, and avoid being caught in rain for a long time.
3. SDL1 and antenna connection should be firm. The antenna shall be installed vertically upward.
4. SDL1 must be powered by 11V~14.5V regulated power or 12V storage battery.
5. SDL1 suggest to use whip antenna with maximum power 30W+.
6. SDL1 should be connect antenna firstly and then set to transmit corrections.

Appendix B: FAULTS & ELIMINATION METHODS

Cannot turn on

a) Power supply is abnormal.

Power supply should be between 11V-14.5V. See if exception number showed on the SDL1: E01 means power supply too high, E02 means power supply too lower, E03 means configuration missing. Please check or change another suitable power supply.

b) Positive and negative of the power is reversed.

Reserved power usually will not cause device damaged because of the anti-reserve power protection, but device cannot open on normally. Please check its connection.

Receiver cannot receive data

a) Power supply is abnormal.

See if exception number showed on the SDL1: E01 means power supply too high, E02 means power supply too lower, E03 means configuration missing. Please check or change another suitable power supply.

b) Tx LED is flashing abnormal.

Tx LED should flash per second, or flash following corrections transmitting frequency. If it's abnormal, please try setting the base again, or checking the data transmit cable connection, or change another cable to try.

c) Antenna or antenna cable is damaged.

Please check if any break or damage on the cable/antenna's surface. If it have, please change another one.

d) Radio frequencies of receiver and device are not same.

Please check the two sides' channel, or try change another channel of both sides. And also check the SDL1's channel and its corresponding frequency whether same as the label on SDL1. You need make the frequency accordance.

ROVER Receiver have big corrections delay

a) The transmitted frequency not matches the radio antenna type.

For example, the TX frequency is 454.05MHZ but radio antenna is adapt to 430-450MHZ.

b) Set as low power transmit mode.

The weak radio signal will cause corrections delay, you need check if your work range have

been over the signal transmit range. Please try change to high power mode.

Cannot read configuration when connecting to pc

a) The cable has connected correctly and driver have correctly installed.

If the PC alerts some messages like install failed, please ask ComNav technician for support.

b) The baud rate has been changed.

The default baud rate is 38400, if it had been changed; please choose the current baud rate.

Appendix C: DEFAULT FACTORY SETTINGS

COM baud rate: 38400bps

Air baud rate: 9600bps

Modulation type: GMSK

Transmit Protocols: Transparent

Default factory channels

Channel	Tx (MHZ)	Rx (MHZ)
0	454.0500	454.0500
1	455.0500	455.0500
2	456.0500	456.0500
3	457.0500	457.0500
4	458.0500	458.0500
5	459.0500	459.0500
6	460.0500	460.0500
7	461.0500	461.0500
8	462.0500	462.0500
9	463.0500	463.0500

***factory channels can be checked on the side face of SDL1.**