SingularXYZ

D1-D External Radio

User Manual

V1.0, modified on 2021.12.27

CINTENT

1 Introduction

D1-D external radio is a digital radio communication module designed for correction data transmission of GNSS receiver. Adopting LED display working mode, can switch the channel by buttons, in strict accordance with industrial product technology manufacturing, to ensure stable and reliable data transmission performance in bad working environment.

Wide bandwidth and voltage design, automatic protection, internal program intelligent switching mechanism, to meet the diversified use environment. And the built-in data transmission radio is a transceiver integrated radio, support domestic and foreign mainstream communication protocols, can be customized according to the needs of 1W, 2W, 5W and other different models of series products.

1.1 operation panel

There are four ports on the operation panel,indicators, display screen, buttons and trademark

Indicators: three indicators, red - power indicator, blue - data upload indicator, green - data download indicator (when working normally, the indicator blinks red, green and blue in sequence)

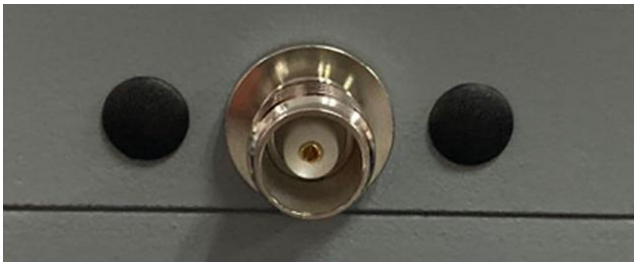
LED display: it shows the current working channel of the module.

Buttons:click buttons to switch radio channel up and down.

Trademark: displays basic information of D1-D external radio,

1.2 interface

1) 1 TNC connector for connecting antenna.



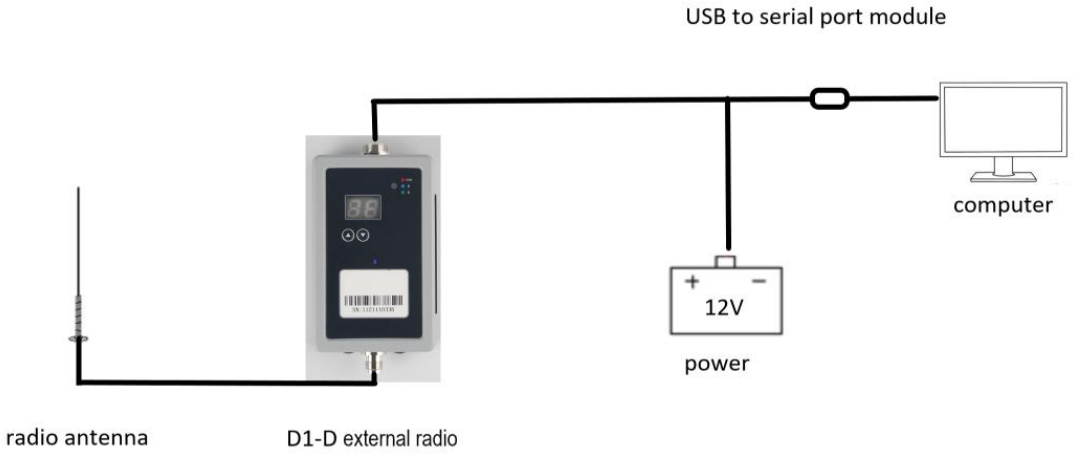
9 pin navigation plug interface,which connects with 9 pin data cable for power supply and data transmission (data communication protocol RS232 and RS485).

1.3 Definition of 9 pin navigation plug interface

Pin	Definition
1	+
2	-
3	TX
4	NULL
5	RS485A
6	RS485B
7	RX
8	NULL
9	NULL

2 Connection

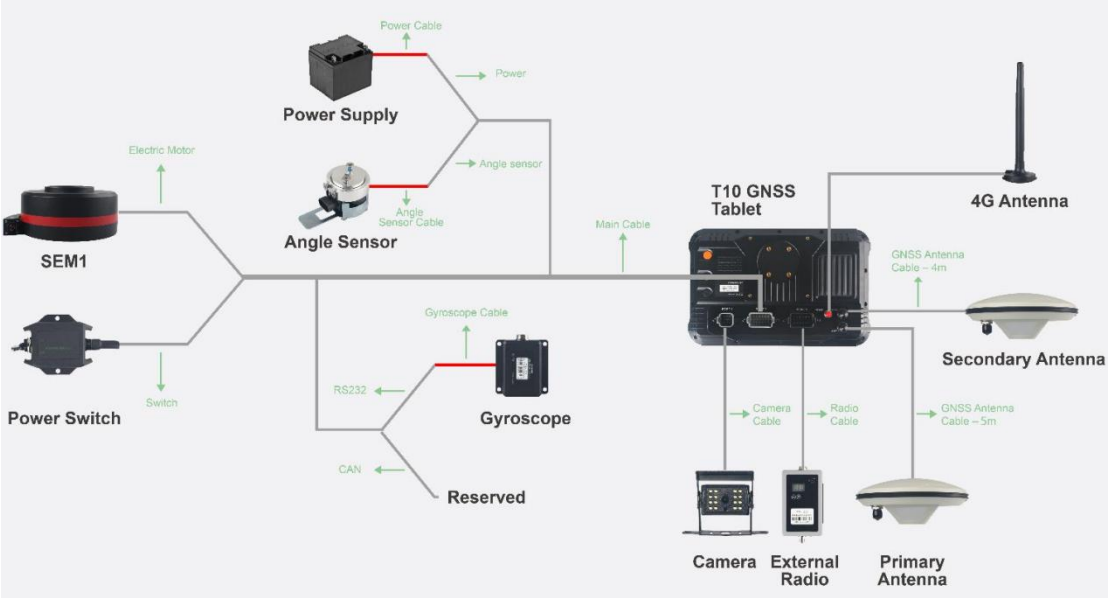
2.1 connect to computer



Configuration list	unit
D1-D	1
9 pin data cable	1
12V power adapter	1
USB to serial port module	1
Computer	1
Radio antenna	1

The TNC connector of D1-D module is connected to the radio antenna, the 9 P pin aviation plug is connected to the 9 pin aviation plug data cable. The other side of data cable, the DC connector is connected to the 12V power supply, and the DB9 connector of the COM port is connected to the USB to serial port module, and then connected to the computer.

2.2 connect to tablet



The TNC connector in D1-D is connected to the radio antenna, and the 9 pin aviation plug is connected to the PORT3 port of tablet through the data cable.

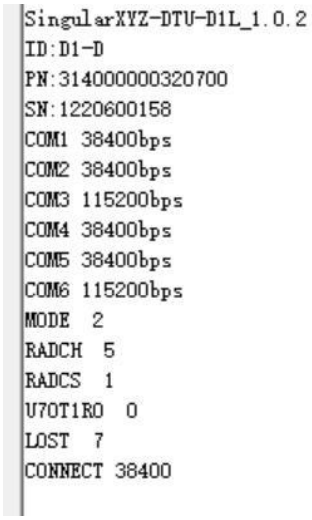
3 Configuration

When configuring the radio module, you need to configure the baseboard and radio

3.1 Default Baseboard Configuration

Command	Definition
SET UART CONFIG	Enter the baseboard configuration.
SETCOM1BUAD38400 SETCOM2BUAD38400 SETCOM3BUAD115200 SETCOM4BUAD38400 SETCOM5BUAD38400 SETCOM6BUAD115200	Change the baud rate of each serial port
SETMODE2	Set the baseboard working mode to 2
SAVE LIST	Save the baseboard configuration

USB to series module is connected to the COM port of the 9 pin navigation data cable, and the communication baud rate is 38400.



For standard configuration we mainly look at two pieces of information:

1. Check whether the baud rate of the serial port is correct.

2. Check whether the baseboard working mode is 2.

3. U70T1R01 is the transmit mode, and U70T1R00 is the receive mode

3.2 Radio module default configuration

Command	Definition
SET UART CONFIG	Enter the baseboard configuration.
SETMODE0	Set the baseboard working mode to 0
CONCOM15	Change the baseboard link to 15
SAVE LIST	Save the baseboard configuration
+++（No carriage return or line feed required）	Enter module configuration（the baud rate should be 38400 of com5）
AT&V	Read the default configuration of radio
ATP0=01 462.0125 462.0125	Set the receiving frequency of the each channel
ATS186=1	Modify module Protocols: (1-TRIMTALK; 2-TRIMMK3; 4-TT450S; 5 - TRANSEOT; 13-SATEL)
AT&W	Save the radio configuration
ATA	Restore radio communication
SET UART CONFIG	Enter the baseboard configuration.

SETMODE2	Set the baseboard working mode to 2
SAVE LIST	Save the baseboard configuration

After you enter AT&V, then you can read the default configuration of radio.

```
AT&V
HX-DV1018D
Soft ver:C017.03.05 Aug 13 2021 18:46:49
S/N:D22035735
S102=3 Serial Baud Rate
S103=2 Wireless Link Rate
S108=H Output Power
S131=05-464.01250 Current Tx Frequency
S132=05-464.01250 Current Rx Frequency
S127=0 Modulation
S186=01 Protocol Selection
S128=0 Modem Type
S226=0 Compatibility Type

OK
```

S102=3 indicates that the baud rate is 38400. s102=1 indicates that the baud rate is 115200.

S103=2 indicates that the air baud rate is 9600.

S108=H，keep default。

S131/S132=05-464.0125, 05 represents the channel, 464.0125 represents the transmitting and receiving frequencies.

S127=0，keep default。

S186=01, S186 represents the protocol （ 1-TRIMTALK; 2-TRIMMK3; 4-TT450S; 5 - TRANSEOT;13-SATEL）。

S128/S226=0，keep default.

Module modification instructions are as follows:

1. Modify the transmitting and receiving frequency: ATP0=CH TX RX

CH represents channel (0-63), TX transmitting frequency (410-470), and RX receiving frequency (410-470).

2. Modify communication protocol: ATS186=VALUE (VALUE is as follows, 1-TRIMTALK; 2-TRIMMK3; 4-TT450S; 5 - TRANSEOT;13-SATEL) .

For example, modify the protocol to TRIMTALK, channel 01 receiving and sending frequency is 462.0125, and the instructions are as follows:

Radio Frequency List Protocol:TRIMTALK; Baud rate: 38400; Air baud rate: 9600					
Channel	transmitting frequency	receiving frequency	Channel	transmitting frequency	receiving frequency
0	445.05	445.05	16	441.05	441.05
1	460.0125	460.0125	17	442.05	442.05
2	461.0125	461.0125	18	443.05	443.05
3	462.0125	462.0125	19	444.05	444.05
4	463.0125	463.0125	20	445.05	445.05
5	464.0125	464.0125	21	446.05	446.05
6	465.0125	465.0125	22	447.05	447.05
7	466.0125	466.0125	23	448.05	448.05
8	467.0125	467.0125	24	449.05	449.05
9	434.05	434.05	25	450.05	450.05
10	435.05	435.05	26	451.05	451.05
11	436.05	436.05	27	452.05	452.05
12	437.05	437.05	28	453.05	453.05
13	438.05	438.05	29	454.05	454.05
14	439.05	439.05	30	455.05	455.05
15	440.05	440.05	31	456.05	456.05