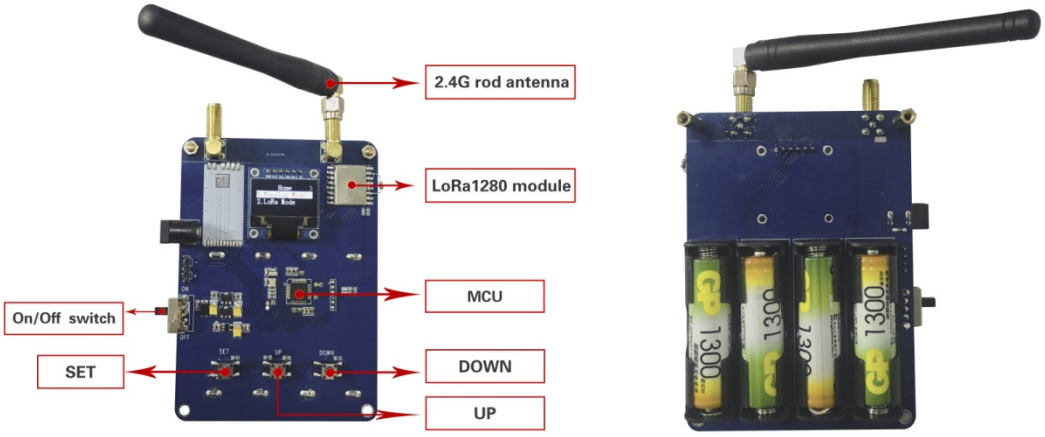
SX1280 wireless module ranging demo board function tutorial

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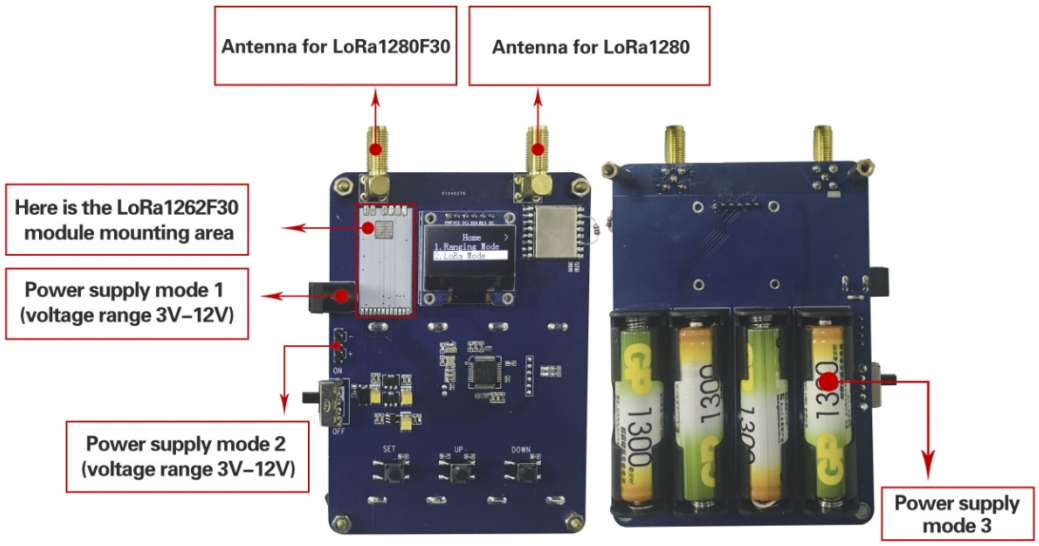
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1.The wireless module of LORA1280 series is our main product series. The core chip adopts Semtech's SX1280 RF chip, which uses the lora modulation mode, works in the 2.4GH frequency band, and has the ranging function. Has a good receiving sensitivity and anti-interference ability. Below is an introduction to our Demo board.



（SX1280 Ranging Demo Board）

Only one template and its matching antenna can be installed on a demo version



Only one type of power supply can be selected

PS: The SX1280 Ranging Demo Board can be powered on the front side in addition to the No.

5 battery. Only one of the three methods can be selected. (If the power is supplied at the same time, the ranging demo board will be burned out)

2.SX1280 wireless module ranging demo board setting instructions

2.1 Function description

The SX1280 wireless module ranging demo board mainly implements the ranging demonstration function of the SX1280 and the two-way communication in the LoRa mode. And parameter modification in both modes.

2.2 Button function

There are three buttons on the demo board, which are SET button, UP button and DOWN button; the functions are as follows:

button	Features
SET button short press	Determine or enter the next level interface
SET button long press	Return to the previous interface
UP button short press	Cursor up or parameter plus 1
DOWN button short press	Cursor down or parameter minus 1

2.3 Operation method:

normal power supply, toggle the power switch, turn on the power, the main interface will appear on the LCD screen of the ranging demonstration board. The main interface has two categories: Ranging Mode and LoRa Mode. Select to enter an option and press the SET button to return. Press and hold SET. Move the cursor up and down by pressing the up button and short pressing the DOWN button. The Ranging Mode interface is divided into three main options: Ranging Master, Ranging Slave and Setting. The LoRa Mode interface is divided into two major options: Communication and Setting. The function and operation of each option are described below.

3. SX1280 Ranging Demo Board Interface description

3.1 Main interface



Main interface

3.2 ranging mode interface:

Select Ranging mode from the main interface. Press the SET button to enter the ranging mode interface. Press and hold the SET button to return to the main interface from the ranging mode interface



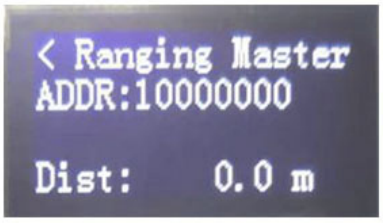
Ranging mode interface

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3.2.1 ranging host interface :

Select Ranging Master from the ranging mode interface and press the SET button to enter the ranging host interface. Press and hold the SET button to return to the ranging mode interface from the ranging host interface.

When the host is in the range, the host enters this interface and can display the distance.



Ranging host interface

3.2.2 ranging slave interface:

Select Ranging Slave from the ranging mode interface and press SET button to enter the slave interface. Press and hold the SET button to return to the ranging mode interface from the ranging slave interface.

The slave enters this interface during ranging;



Ranging slave interface

3.2.3 ranging parameter setting interface Set:

Select from the ranging mode interface. Short-press the SET button to enter the ranging parameter setting interface Set.

There are two pages in the ranging parameter setting interface. Press the UP and Down keys to select the parameter to be set. Short press the SET button to start the modification. Press the Up or DOWN button to modify the set parameters. Finally, press the SET button to complete the modification.。

a. SF：Spreading Factor
b. BW：bandwidth
c. CR：Coding Rate
d. POWER：power
e. CH_NUM：Channel number
f. ADDR：address





Ranging parameter setting interface

3.3 LoRa mode interface :

Select LoRa mode from the main interface. Press the SET button to enter the LoRa mode interface. Press and hold the SET button to return to the main interface from the LoRa mode interface.



LoRa mode interface

3.3.1 LoRa communication interface :

Select Communication from the LoRa mode interface and press the SET button to enter the LoRa communication interface. Press and hold the SET button to return to the LoRa mode interface from the LoRa communication interface.

When LoRa transceiver communication display, enter this interface, without setting master and slave, the module will automatically switch;



LoRa communication interface

3.3.2 LoRa parameter interface :

Select Setting from the LoRa mode interface and press the SET button to enter the LoRa parameter setting interface. Press and hold the SET button to return to the LoRa mode interface from the LoRa parameter setting interface.

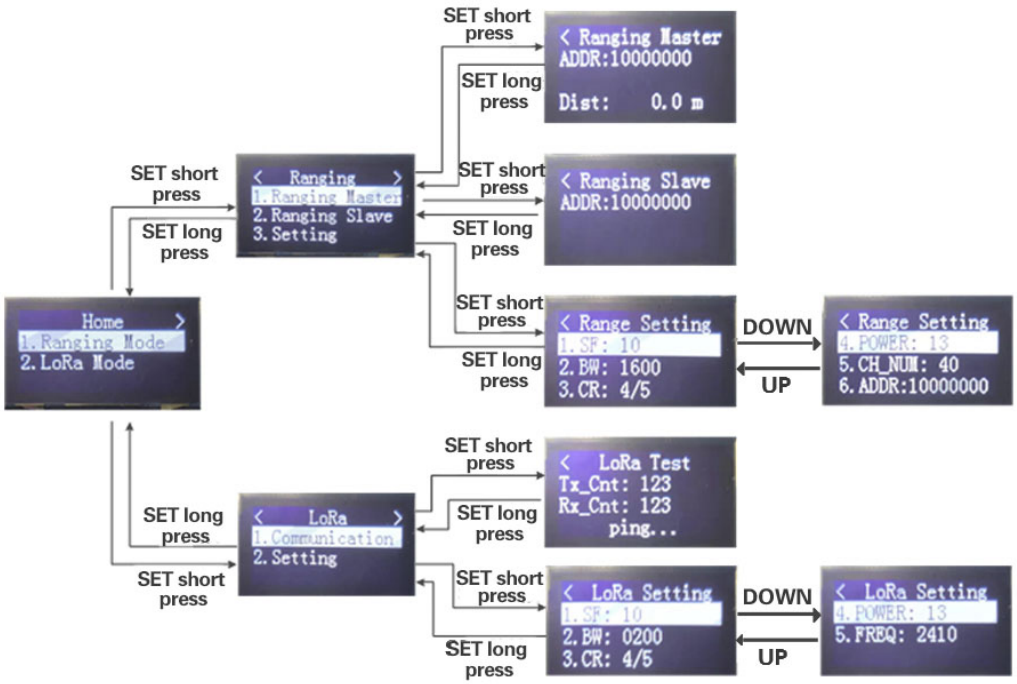
The LoRa parameter setting interface has two pages. To jump to the next page, press the DOWN button to short press. To jump back to the previous page, press the UP button to short press. The method of setting parameters is as follows: move the cursor to the option to modify the parameter, short press the SET button to select, short press the up button and the DOWN button to modify the set parameters, and finally press the SET button to complete the modification.。

a. SF：Spreading Factor
b. BW：bandwidth
c. CR：Coding Rate
d. POWER：power
e. FREQ：frequency



LoRa parameter interface

3.4 Interface diagram



4.SX1280 Communication test and Ranging Operation Method

4.1 Ranging operation:

Prepare two SX1280 Ranging Demo Boards and select the Ranging mode interface. (Set the ranging parameters to the same, otherwise the communication will not be normal)



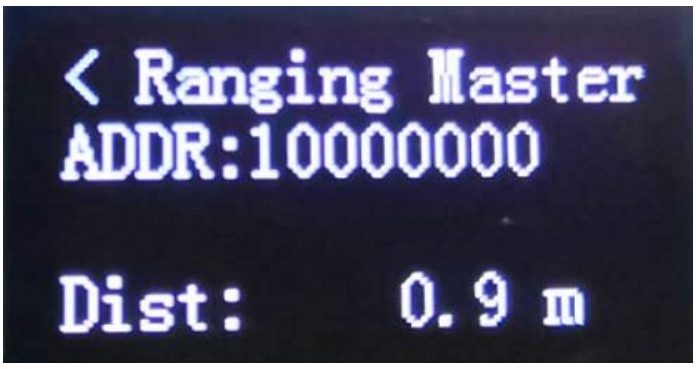
1.Select one set as the ranging host: main interface - ranging mode interface - ranging host interface.



2. The other one is set to the distance measuring slave: main interface - ranging mode interface - ranging from the machine interface.



At this time, the status of the indicator light is observed; the indicator light flashes blue for the wireless module to communicate normally, and the ranging is successful; in red, the wireless module does not communicate, and the ranging fails. The distance displayed by the ranging display is displayed on the screen of the ranging host, as shown in the figure:



4.2 Communication test:

Prepare the two SX1280 Ranging Demo Boards and select the LoRa mode mode interface (set the

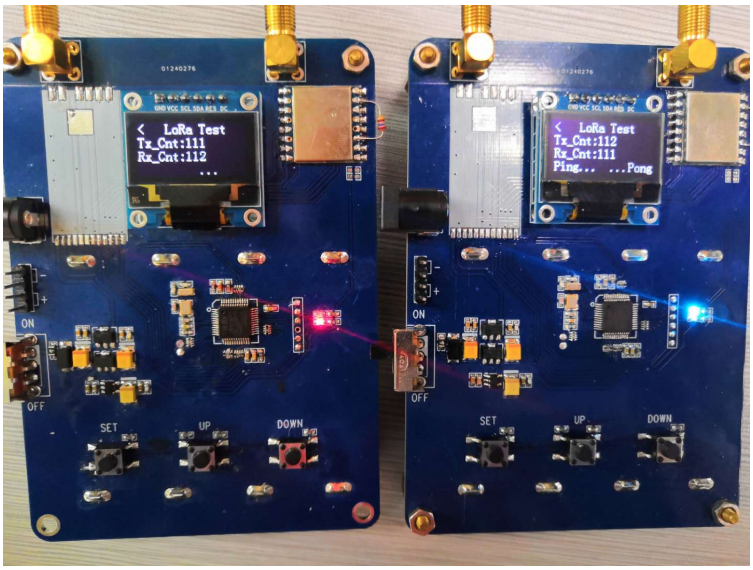
parameters of LoRa mode to the same, otherwise communication will not be possible)



1.Simultaneously choose to enter the LoRa communication interface.



2.The screen of the LoRa communication interface shows that the numbers of Tx_Cnt and Rx_CNT are increasing continuously (the red light indicates that the transmission is successful once, and the blue light indicates that the reception is successful once). Figure:


LoRa Test
Tx_Cnt:111
Rx_Cnt:112
LoRa Test
Tx_Cnt:112
Rx_Cnt:111
Ping... ...Pong
ON
OFF
SET
UP
DOWN