

LoRa to Modbus RTU Digital I/O SLDIO201 Quick Start Guide



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1.Introduction

LoRa converters with **the same frequency and the same encryption key** will be grouped into the same LoRa network when they are powered on. In the same LoRa network, only one master can broadcast (sends query) to all other slaves (devices). When the master sends out a query, all other slaves (devices) will receive this query, only the device with the corresponding ID will reply, all other devices not with the corresponding ID will ignore this query.

✘The frequencies between any two different LoRa networks must differ by at least 0.5MHz to avoid interference with each other.

1.1 Product Views

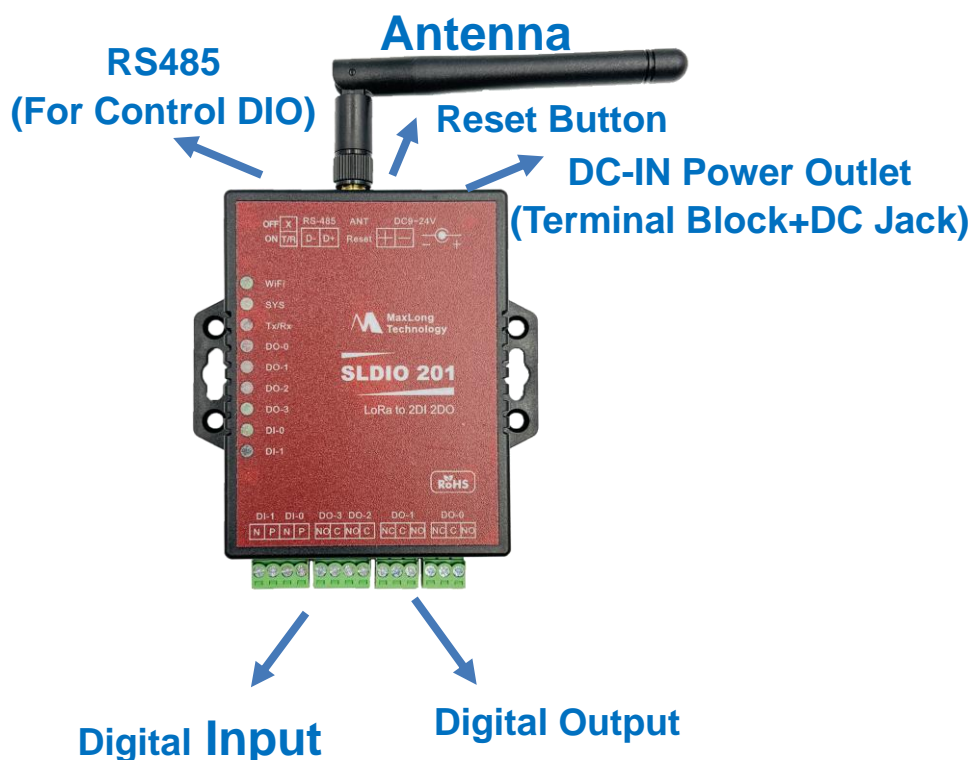


Figure 1 Product View

1.2 Wiring Architecture

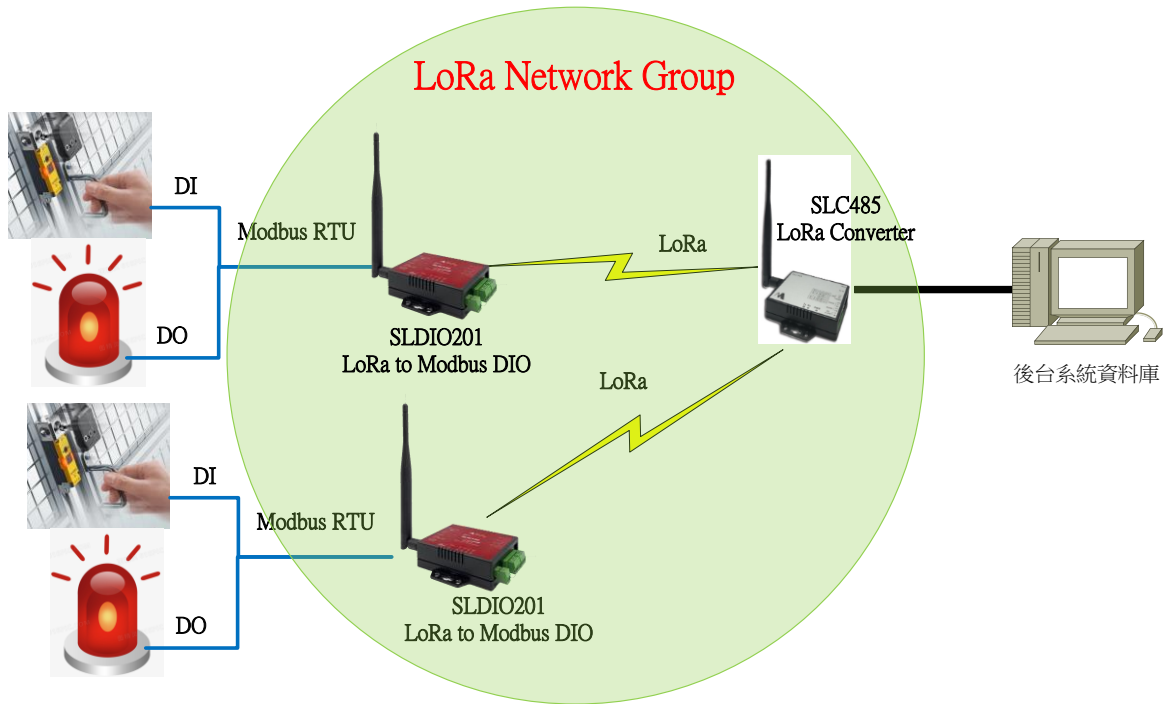


Figure 2 Wiring Architecture

2. Configuration

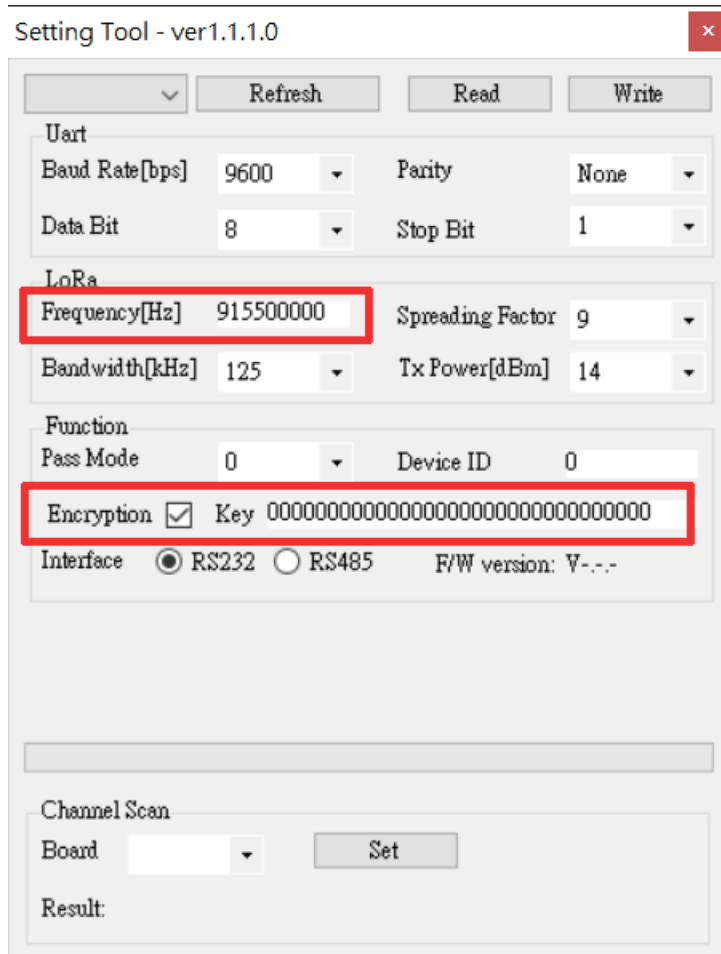
2.1 Configuration Via Windows Utility

Step1 → The first thing is to Group LoRa Network

Step2 → Open and configure SLDIO via the “**Setting Tool**”

Step3 → Default **Frequency: “915.5MHZ”** and **Encryption Key:**

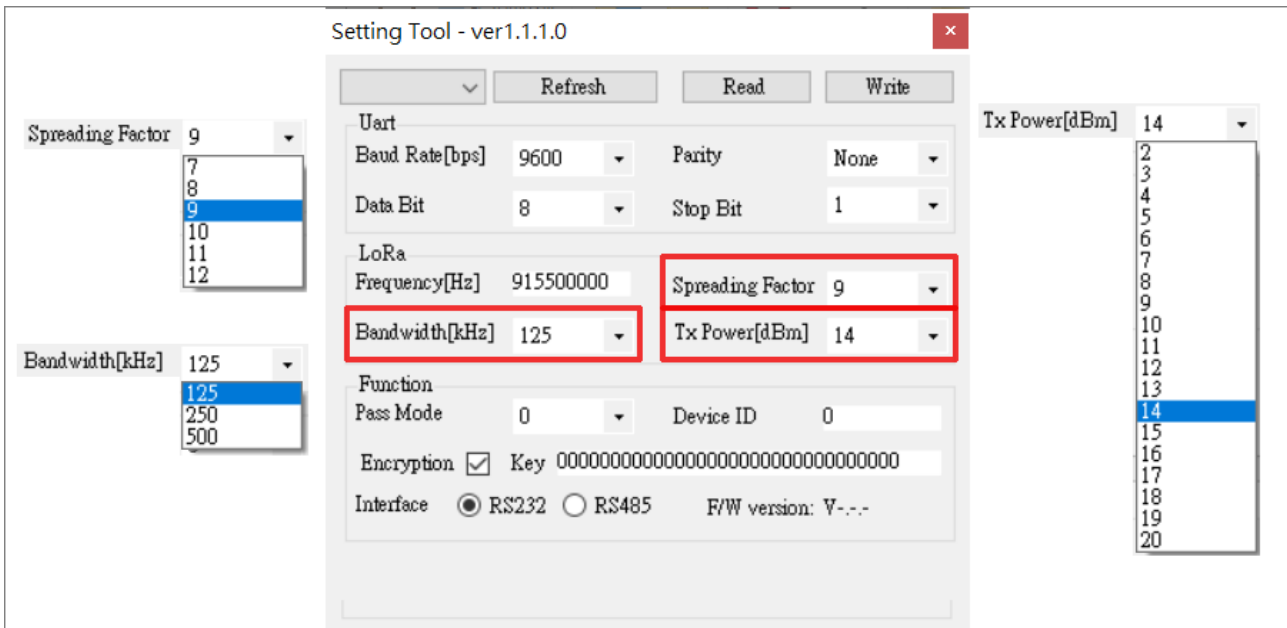
“00000000000000000000000000000000”(or **Check with Vendor**)



Step4→After you have successfully Group LoRa Network

2.2 Configuration Sections

There are 3 knobs you can configure: "Transmission power", "Bandwidth" and "spreading factor".



If you increase the data rate (make the bandwidth wider or the spreading factor lower) you can transmit those bytes in a shorter time. For those, the calculation is approximately as follows: Making the bandwidth 2x wider (from BW125 to BW250) allows you to send 2x more bytes in the same time. Making the spreading factor 1 step lower (from SF10 to SF9) allows you to send 2x more bytes in the same time. Lowering the spreading factor makes it more difficult for the gateway to receive a transmission, as it will be more sensitive to noise. You could compare this to two people taking in a noisy place (a bar for example). If you're far from each other, you have to talk slow (SF10), but if you're close, you can talk faster (SF7)

2.3 Function Test

1. After you have successfully Group LoRa Network
Step1 → Run Modbus Test Tool as below:



1=Modbus ID
2=Point type 03讀DI . 06讀DO
3=00(DI1/DO1),01(DI2/DO2)
4=00(DO=1)01(DO=0)
讀取時00(DI=0)01(DI=1)

Step2 → Open “**Communication Port**”

Step3 → Key in Modbus Command Set(Ref 2.4) then one can get SLDIO201 reply as shown below and the corresponding indicator light will turn on or off .



2.4 Modbus Command Set

Read DI 0

01 03 00 00 00 00 **Reply** =01 03 02 00 00 1=01 03 02 00 01

Read DI 1

01 03 00 00 00 01 **Reply** =01 03 02 00 00 1=01 03 02 00 01

Read DO 0

01 03 00 00 01 00 **Reply** =01 03 02 00 00 1=01 03 02 00 01

Read DO 1

01 03 00 00 01 01 **Reply** =01 03 02 00 00 1=01 03 02 00 01

Open DO 0

01 06 00 00 00 00 **Reply** =01 06 00 00 00 00

Open DO 1

01 06 00 01 00 00 **Reply** =01 06 00 01 00 00

Close DO 0

01 06 00 00 00 01 **Reply** =01 06 00 00 00 01

Close DO 1

01 06 00 01 00 01 **Reply** =01 06 00 01 00 01

2.5 Reset Button

If any chance you forgot the login password or have incorrect settings making this Device inoperable, upon the power is on and the "SYS" LED light on, use a point tip to press this button and hold it for more than 20 seconds the release the point tip. The Device will reboot and all the parameters will be reset to the factory default.