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





1.2 Wiring Architecture



Figure 2 Wiring Architecture

2. Configuration

2.1Configuration 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*:



\sim	Refre	sh	Read	Write	
Uart					
Baud Rate[bps]	9600	•	Parity	None	
Data Bit	8	-	Stop Bit	1	,
LoRa					
Frequency[Hz]	9155000	00	Spreading Factor	9	
Bandwidth[kHz]	125	•	Tx Power[dBm]	14	,
Function Pass Mode	0	•	Device ID	0	
Encryption 🔽	Key 000	000000	000000000000000000000000000000000000000	0000000	
Interface 💿 R	\$232 🔘	RS485	F/W version:	¥	
Channel Scan					

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".



Spreading Factor 9 • Refresh Read Write Uart Uart Baud Rate[bps] 9600 • Parity None • 9 Data Bit 8 • Stop Bit 1 • 10 11 • • • 12 • • • •	ool - ver1.1.1.0 ×
7 8 9600 Parity None 2 9 Data Bit 8 Stop Bit 1 4 10 11 LoRa 7 7	✓ Refresh Read Write Tx Power[dBm] 14 ▼
9 Data Bit 8 Stop Bit 1 + 5 10 11 LoRa 6 7 7 7	te[bps] 9600 - Parity None - 2 3
	8 • Stop Bit 1 •
Frequency[Hz] 915500000 Spreading Factor 9 - 8 9	>y[Hz] 915500000 Spreading Factor 9 → 9
Bandwidth[kHz] 125 - Tx Power[dBm] 14 - 11 12	th[kHz] 125 - Tx Power[dBm] 14 - 11
125 250 500 Pass Mode 0 • Device ID 0 13 13 13 13 13 13 13 13 13 13	le 0 - Device ID 0 14
Encryption Key 00000000000000000000000000000000000	ion Key 00000000000000000000000000000000000
Interface • RS232 C RS485 F/W version: V 19 20	RS232 ORS485 F/W version: V 19 20

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:

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· 潘訊埠		時間設定	
COM埠: COM1 通訊速度: 9600 通訊協定: N.8.1	開啟 通訊埠 關閉 通訊埠	時間: 100 ms	1=Modbus ID 2=Point type 03讀DI . 06讀 DO
輸入資料(CRC檢查碼不用輸入): 傳送資料:	1234 0106000100000 接收資料:	傳送 <u>清除</u>	3=00(DI1/DO1).01(DI2/DO2) 4=00(DO=1)01(DO=0) 讀取時00(DI=0)01(DI=1)
	-	-	
		關於離開	

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 .

Nodbus 測試軟體		-	×
通訊埠		時間設定	
COM埠: COM5 ▼	開啟 通訊埠	時間: 100	ms
通訊速度: 9600 ▼	關閉補訊埠	臣位 潘世	停止
通訊[歴定・ 11,8,1]	Durd Ashir T		IT IL
輸入資料(CRC檢查碼不用輸入): 02	06 00 00 00 001	傳送	清除
傳送資料:	接收資	料:	
02 03 00 00 00 10 44 35	▲ 02 03	02 00 00 FC 44	
02 06 00 00 00 00 00 89 F9	02 03	02 51 31 00 00 00 00 89 F9	
02 06 00 01 00 00 D8 39 02 06 00 01 00 01 19 F9	02 06	00 01 00 00 D8 39 00 01 00 01 19 F9	
02 06 00 00 00 01 48 39	02 06	00 00 00 01 48 39	
	-		-
		RR to	102 R.B
		1949] 1712"	[H] #P



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.

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