



JetWave 4110L Industrial Lora Gateway User Manual

V1.1 Oct. 2019



LoRa

📕 Program Tool

- 📕 USB Driver
- Installation Guid.txt

1. Install USB Driver.

1.1 CP210xVCPInstaller_x86.exe: For Windows XP、 Vista、 win7 32bits.
1.2 CP210xVCPInstaller_x64.exe: For Windows Vista、 Win7、 Win8 64bits.

2. Copy all files in the "Program Tool" folder in your PC. (WW_BOX_LoRa.exe / SLABHIDDevice.dll / SLABHIDtoUART.dll).

3. Connect the LORA product and execute the Program Tool (WW_BOX_LoRa.exe).

Noted that:

- 1. Requires operating system: Windows XP / Vista / 7 / 8 / 10.
- 2. The software supports the Wireless LoRa RS-485 Gateway_WW-3C28.

Connect the PC for settings diagram



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Beijer Korenix Program Tool (WW_BOX_LoRa.exe)

WPS-WW_BOX_LoRa v0.0.0.8	_		\times
File Setting			
4			
License Level: 10			
	2018/6/29	12:19:08	

Icon Introduction



Read setting from device



Write setting to device



Back to All setting list



Continuous writing device from setting parameter file(*.par)



MENU Introduction

File Menu

👄 WPS-WW_BOX_LoRa v0.0.0.8		
File	Setting	
	Open	
	Save	
	Save As	
	Read Device	
	Write Device	
	Main MCU Bootloader	
	DIO MCU Bootloader	
	Exit	

Open... Open a setting parameter file (*.par) Save Save the setting parameter file Save As... Save all settings as another parameter file Read Device Read setting from device Write Device Write all settings to device Main MCU Bootloader Main MCU entry to Firmware Update Mode DIO MCU Bootloader DIO board MCU entry to Firmware Update Mode Exit Exit the program

Setting Menu



Language Select the language, such as English\繁體中文\简体中文 Registry Factory functions enable registration code PC Code Install PC hardware ID

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Beijer korenix LLECTRONICS ABUE EBERNEL GROUP COMPANY Execute WW_BOX_LoRa.exe

Press Read setting from device and select the correct COM port and BaudRate(You can ignore BaudRate and the system will automatically search for you).

Com Port Setting		×
Com Port:		
~	ОК	
BaudRate:	Cancel	
115200 🗸		

1. Read setting list from device as below.





All Setting List

Device Information

Device Information
Device Information
Model Number: JetWave4110L Firmware: [V0.0.2] Hardware: 1 PCODE:
Firmware: (RF) 1 Hardware: (RF) 1 PCODE: (RF)
ок

All device information is shown on on the Device Information page. **Model Number** This item is product model number **Firmware Main** Firmware Version **Hardware Main** Hardware Version **PCODE Product** CODE for factory use

Firmware (RF) RF Firmware VersionHardware (RF) RF Hardware VersionPCODE (RF) RF Product CODE for factory use

High Frequency Range (Hz) High band range 862~1020MHz*
Low Frequency Range (Hz) Low band range 410~525MHz*
(*): Will be adjusted according to national regulations.



Device Setting RF Packet Setting Digital I/O Pin Frequency (Hz): 922090027 Tx Power: High Spreading Factor: SF10 Bandwidth (KHz): 125 Equivalent Bitrate (bps): 976.56 Receiver Sensitivity (dBm): 1132 RS-485 Baudrate: 115200 ModBus RTU Data Filter Function Enable RS-485 Bias Voltage	🖮 Device Setting	
Frequency (H2): 922090027 Tx Power: High Spreading Factor: SF10 Bandwidth (KH2): 125 Equivalent Bitrate (bps): 976.56 Receiver Sensitivity (dBm): -132 RS-485 Baudrate: 115200 RS-485 Address: 1 ModBus RTU Data Filter Function Enable RS-485 Bias Voltage	Device Setting RF Packet Setting Digital I/O Pin	
Tx Power: High Spreading Factor: SF10 Bandwidth (KHz): 125 Equivalent Bitrate (bps): 976.56 Receiver Sensitivity (dBm): -132 RS-485 Baudrate: 115200 RS-485 Address: 1 ModBus RTU Data Filter Function Enable RS-485 Bias Voltage	Frequency (Hz): 922090027	
Spreading Factor: SF10 V Bandwidth (KHz): 125 V Equivalent Bitrate (bps): 976.56 Receiver Sensitivity (dBm): -132 RS-485 Baudrate: 115200 V RS-485 Address: 1 ModBus RTU Data Filter Function Enable RS-485 Bias Voltage	Tx Power: High \checkmark	
Bandwidth (KHz): 125 v Equivalent Bitrate (bps): 976.56 Receiver Sensitivity (dBm): -132 RS-485 Baudrate: 115200 v RS-485 Address: 1 ModBus RTU Data Filter Function Enable RS-485 Bias Voltage	Spreading Factor: SF10 \checkmark	
Equivalent Bitrate (bps): 976.56 Receiver Sensitivity (dBm): 132 RS-485 Baudrate: 115200 V RS-485 Address: 1 ModBus RTU Data Filter Function Enable RS-485 Bias Voltage	Bandwidth (KHz): 125 \checkmark	
Receiver Sensitivity (dBm): -132 RS-485 Baudrate: 115200 V RS-485 Address: 1 ModBus RTU Data Filter Function Enable RS-485 Bias Voltage	Equivalent Bitrate (bps): 976.56	
RS-485 Baudrate: 115200 v RS-485 Address: 1 ModBus RTU Data Filter Function Enable RS-485 Bias Voltage	Receiver Sensitivity (dBm): -132	
RS-485 Address: 1 ModBus RTU Data Filter Function Enable RS-485 Bias Voltage	RS-485 Baudrate: 115200 \checkmark	
ModBus RTU Data Filter Function Enable RS-485 Bias Voltage	RS-485 Address: 1	
Enable RS-485 Bias Voltage	ModBus RTU Data Filter Function	
	Enable RS-485 Bias Voltage	
Maite		Write

ℜNoted that:

All devices are identical in the setting of frequency and RF BitRate.

All device settings are shown on as follows.

Frequency (Hz)

Setting transmit and receive frequency, the frequency range is 410MHz to 525MHz / 862MHz to 1020MHz.

Tx Power

Setting transmit power High (2W), Middle (1W), Low (0.5W).

Spreading Factor

Setting spreading factor, the range is 7~12. The smaller the value, the greater the transmission rate. **

Bandwidth (KHz)

Setting bandwidth, the range is 7.8 ~ 500 kHz. **

Equivalent Bitrate (bps)

Display equivalent bitrate, for reference only. This value will change according to the Spreading Factor and

Bandwidth.

Receiver Sensitivity (dBm)

Display receiver sensitivity, for reference only. This value will change according to the Spreading Factor



and Bandwidth.

RS-485 / RS-232 Baudrate (bps)

The Baudrate setting from 4800, 9600, 19200, 38400, 57600, 115200, 230400.

RS-485 Address

Setting the RS-485 device address(1~255).

Modbus RTU Data Filter Function

Check the box to enable Modbus RTU data filter function. This function will be checked the RS-485 address and Modbus RTU checksum.

If this function is enabled, the data input from the RF(LoRa)/ RS-485/RS-232 will be compared with RS-485 Address and Modbus RTU Data CheckSum.

Enable RS-485 Bias Voltage

Check the box to enable RS-485 Bias Voltage function. RS-485 bias voltage will provided by WW-3C28.

(**):Adjusting Spreading Factor and Bandwidth will affect Bitrate and Sensitivity. Bitrate range is .018 - 37.5 kbps and Sensitivity range is -111 to -148 dBm.



RF Packet Setting

👄 Device Setting	- • ×
Device Setting RF Packet Setting Digital I/O Pin	
Receive Packet	
Address base filtering: Broadcast / Node / Group ~]
Node address: 1	
Group address: 128	
Transmit Packet	
Target Address Type: Broadcast 🗸	
Node address: 1	
Group address: 128	
Packet Verify Code(Hex.): 0x 79	
	Write

ℜNoted that:

All devices are identical in the Sync. word value to link.

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Receive Packet Setting

Address base filtering

Broadcast / Node / Group, Broadcast / Node, Broadcast / Group, Node / Group, Broadcast only, Node only, Group only

Node address 1~255 %Own Address

Group address 1~255 **%**0wn Address

Transmit Packet Setting

Target address Type Broadcast, Node, Group

Node address 1~255 %Node address of the destination (receiver)

Group address 1~255 % Group address of the destination (receiver)

Pattern association

RX TX	Broadcast	Node	Group
Broadcast / Node / Group	YES	YES	YES
Broadcast / Node	YES	YES	NO
Broadcast / Group	YES	NO	YES
Node / Group	NO	YES	YES
Broadcast only	YES	NO	NO
Node only	NO	YES	NO
Group only	NO	NO	YES

YES The device receive is available.

(NO) The device receive is invalid.

Packet verify Code(.Hex)

Set this value to confirm the packet, only packets that match the value will be received.



ModBus RTU setting

Install "WW_ModBus_RTU" tool. For more ModBus setting.

😑 WW_ModBus_RTU v0.0.3	_	×
File Setting		
Generate Command Parsing Command Response		· · · · ·
RS-485 Address: 1 Digital I/O Pin Exception Status Power Status Pin Number: 1 Output Power Supply Output Pin Input Pin Output Power Supply Configuration Output Power Supply: Enable V		_
Output Power Supply related Modbus RTU Commands Read the current consumption of the power supply output: 0103301000018ACF Read Output Power Supply parameters: 010340100001900F Write Output Power Supply parameters: 0106401000015C0F		
I/O all parameters related Modbus RTU Commands Read I/O all parameters: 010340000002D1CB Write I/O all parameters: 01104000000204640503E8CDE3		
<		>



Install "WW_P_CMD_Tool" tool. For more ModBus setting.

WW_P_CMD_Tool v0.0.3
File Setting
Generate Command Parsing Command Response
Receiving sideRS-485 Address: 1 Sending side RS-485 Address: 2 * All commands must end with "\r\n" (0x0D, 0x0A)! Digital I/O Pin
Pin Number: 1
Output Power Supply Output Pin Input Pin
Output Power Supply Configuration
Output Power Supply: Enable
Auto Report setting
Report Target RS-485 ID: 0 Report Path: RF 🗸
Timed Reporting Interval (sec): 0 (0=Disable the timed reporting function)
Threshold Detect and Report Interval (sec): 10
Reporting condition for each pins
Threshold Reporting Conditions: Disable the threshold reporting function \sim
Max. Threshold Value : 200 • 00 mA
Output Power Supply related Commands
Read the current consumption of the power supply output: \$P,234,0,1,2,1*hh
Read Output Power Supply parameters: \$P,233,0,1,2,1*hh Read Auto Report parameters: \$P,236,0,1,2*hh
Write Output Power Supply parameters: \$P,233,2,1,2,1,1,0*hh Write Auto Report parameters: \$P,236,2,1,2,0,0,0,10*hh
Read Threshold Reporting Conditions: \$P,235,0,1,2,1*hh
Write Threshold Reporting Conditions: \$P,235,2,1,2,1,20000,1,0*hh
I/O all parameters related Commands
Read I/O all parameters: \$P,239,0,1,2,1*hh
Write I/O all parameters: \$P,239,2,1,2,1,1,0,0,0,0,1000,50,1,0*hh



Register Address Mappings

Address	Description	Attribute
0x3000	REG_DI_VAL_1:	R
	DI(AI) #1 Detection value	(03H)
0x3001	REG_DI_VAL_2:	R
	DI(AI) #1 Detection value	(03H)
0x3002	REG_DI_VAL_3:	R
	DI(AI) #2 Detection value	(03H)
0x3003	REG_DI_VAL_4:	R
	DI(AI) #3 Detection value	(03H)
0x3004	REG_DI_VAL_5:	R
	DI(AI) #4 Detection value	(03H)
0x3010	REG_VOUT_CUR_VAL_1:	R
	Vout Current consumption #1 Detection	(03H)
	value	
0x3011	REG_ VOUT_CUR _VAL_2:	R
	Vout Current consumption #2 Detection	(03H)
	value	
0x3012	REG_ VOUT_CUR _VAL_3:	R
	Vout Current consumption #3 Detection	(03H)
	value	
0x3013	REG_ VOUT_CUR _VAL_4:	R
	Vout Current consumption #4 Detection	(03H)
	value	
0x3014	REG_ VOUT_CUR _VAL_5:	R
	Vout Current consumption #5 Detection	(03H)
	value	

Beijer korenix JetWave 4110L LoRa Gateway User Manual 0x3020 R REG_DIO_EXCEP_STATUS: (03H) **DIO Abnormal state** 0x3021 **REG_POWER_ELECTRICITY:** R (03H) Main power (mV) R/W*** 0x4000(~0x4001) REG_DIO_ALL_PAR_1: DIO#1 All parameter (03H/10H) 0x4002(~0x4003) REG_DIO_ALL_PAR_2: R/W*** DIO#2 All parameter (03H/10H) R/W*** 0x4004(~0x4005) REG_DIO_ALL_PAR_3: DIO#3 All parameter (03H/10H) R/W*** 0x4006(~0x4007) REG_DIO_ALL_PAR_4: (03H/10H) **DIO#4** All parameter 0x4008(~0x4009) REG_DIO_ALL_PAR_5: R/W*** (03H/10H) **DIO#5** All parameter 0x4010 REG_DIO_VOUT_PAR_1: R/W DIO#1 Vout parameter (03H/06H) 0x4012 REG_DIO_VOUT_PAR_2: R/W DIO#2 Vout parameter (03H/06H) R/W 0x4014 REG_DIO_VOUT_PAR_3: (03H/06H) DIO#3 Vout parameter 0x4016 REG_DIO_VOUT_PAR_4: R/W DIO#4 Vout parameter (03H/06H) R/W 0x4018 REG_DIO_VOUT_PAR_5: DIO#5 Vout parameter (03H/06H) 0x4020 REG_DIO_DI_PAR_1: R/W (03H/06H) DIO#1 DI(AI) parameter

0x4022

REG_DIO_ DI _PAR_2:

R/W

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	DIO#2 DI(AI) parameter	(03H/06H)
0x4024	REG_DIO_ DI _PAR_3:	R/W
	DIO#3 DI(AI)parameter	(03H/06H)
0x4026	REG_DIO_ DI _PAR_4:	R/W
	DIO#4 DI(AI)parameter	(03H/06H)
0x4028	REG_DIO_ DI _PAR_5:	R/W
	DIO#5 DI(AI)parameter	(03H/06H)
0x4030	REG_DIO_DO_PAR1_1:	R/W
	DIO#1 DO parameter1	(03H/06H)
0x4031	REG_DIO_DO_PAR2_1:	R/W
	DIO#1 DO parameter2	(03H/06H)
0x4032	REG_DIO_DO_PAR1_2:	R/W
	DIO#2 DO parameter1	(03H/06H)
0x4033	REG_DIO_DO_PAR2_2:	R/W
	DIO#2 DO parameter2	(03H/06H)
0x4034	REG_DIO_DO_PAR1_3:	R/W
	DIO#3 DO parameter1	(03H/06H)
0x4035	REG_DIO_DO_PAR2_3:	R/W
	DIO#3 DO parameter2	(03H/06H)
0x4036	REG_DIO_DO_PAR1_4:	R/W
	DIO#4 DO parameter1	(03H/06H)
0x4037	REG_DIO_DO_PAR2_4:	R/W
	DIO#4 DO parameter2	(03H/06H)
0x4038	REG_DIO_DO_PAR1_5:	R/W
	DIO#5 DO parameter1	(03H/06H)
0x4039	REG_DIO_DO_PAR2_5:	R/W
	DIO#5 DO parameter2	(03H/06H)

***: When reading (03H) REG_DIO_ALL_PAR_x, it require 2 data numbers.