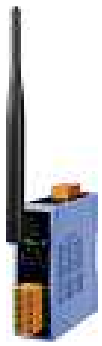
WF-2055

Quick Start

Sep. 2012 Version 1.0

「 WF-2055 」 Package Checklist



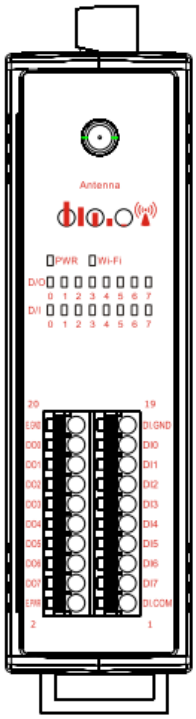
The package includes the following items:

- One WF-2055 module
- One Quick Start
- One software utility CD
- One screw driver
- One RS-232 cable (CA-0910)
- One Antenna 2.4GHz - 5 dBi (ANT-124-05)

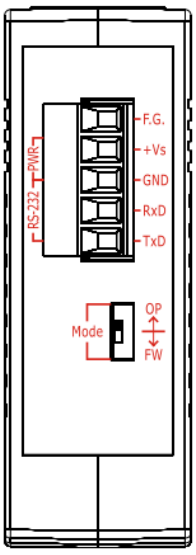
Note:

If any of these items are missed or damaged, contact the local distributors for more information. Save the shipping materials and cartons in case you want to ship in the future.

● Appearance and pin assignments



(Front View)



(TOP View)

Figure 1: Appearance of the WF-2055

Table 1: System Status Indicator

System Status Indicator		
LED	**Module Status**	**LED Status**
PWR	Wi-Fi communication error	Blink per 100 ms
	Wi-Fi associate error	Every 1 second flashes twice per 100 ms
	Wi-Fi unable to connect error	Blink per 1000 ms
	Wi-Fi network configurations error	Every 1 second flashes three times per 100 ms
	Power failure	Off
Wi-Fi	Data transmission	Blink
	Bus Idle	Off

Table 2: Signal Strength LED Indicator

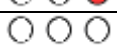
Signal Strength LED Indicator	
LED Status	**Signal strength**
	High
	Medium
	Low
	Bad or No Signal

Table 3: I/O Connector - WF-2055

I/O Connector - WF-2055			
Terminal No.	**Pin Assignment**	**Terminal No.**	**Pin Assignment**
1	DI.COM	**2**	EXT.PWR
3	DI7	**4**	DO7
5	DI6	**6**	DO6
7	DI5	**8**	DO5
9	DI4	**10**	DO4
11	DI3	**12**	DO3
13	DI2	**14**	DO2
15	DI1	**16**	DO1
17	DI0	**18**	DO0
19	DI.GND	**20**	EXT.GND

Operating Mode Selector Switch

FW mode: Firmware update mode

Move the switch to the OP position after the upgrade is complete.

OP mode: Firmware operation mode

In the WF-2000, the switch is always in the OP position. Only when updating the WF-2000 firmware, the switch can be moved from the OP position to the FW position.

Table 4: Power/Signal Connector

Power/Signal connector	
Pin Assignment	**Description**
F.G	Frame Ground
+Vs	+10 ~ +30 VDC
GND	Power / RS-232 GND
RxD	RS-232 RxD
TxD	RS-232 TxD

● Hardware Connection

Power and Serial port connection

The following figures describe the Power and the COM port to a serial device via serial network.

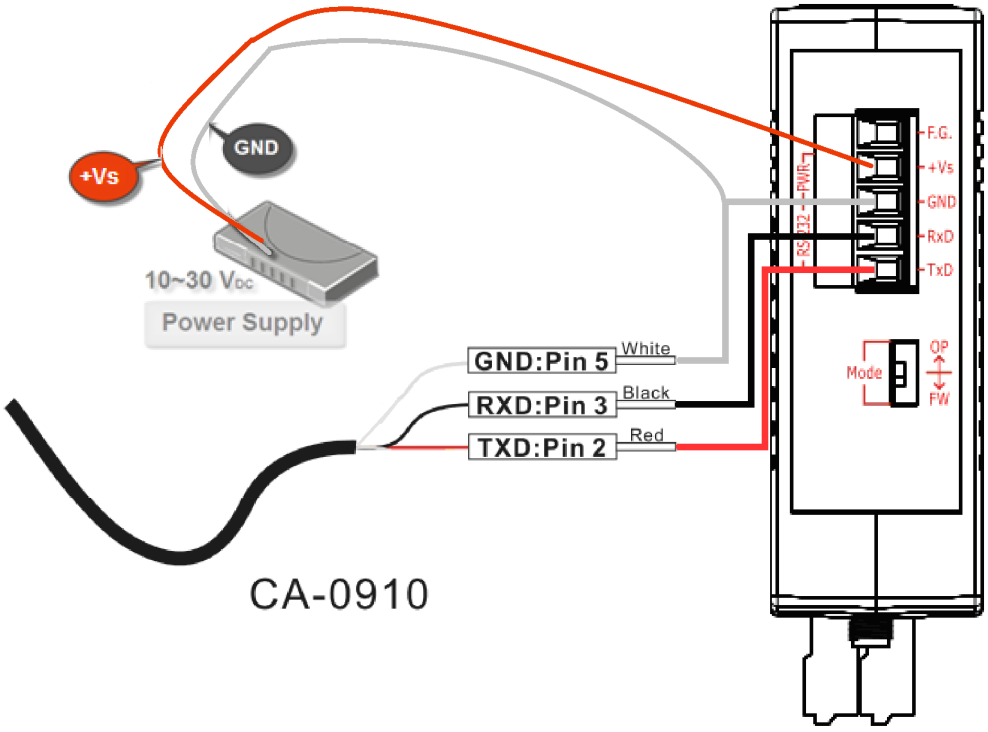


Figure 2**:** Power and Serial port wire connection

I/O connection

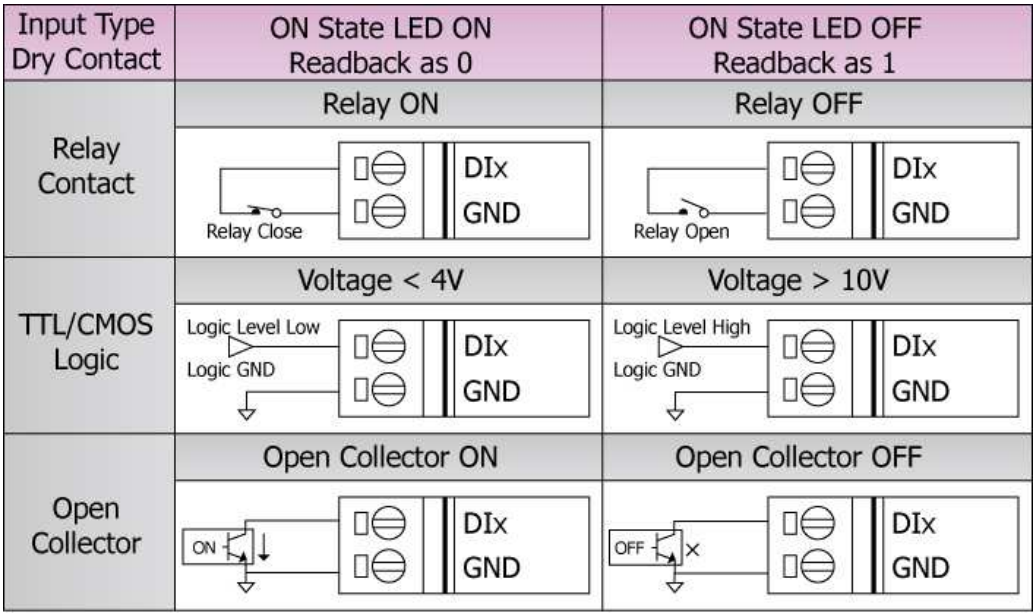


Figure 3: DI Dry contact wire connection

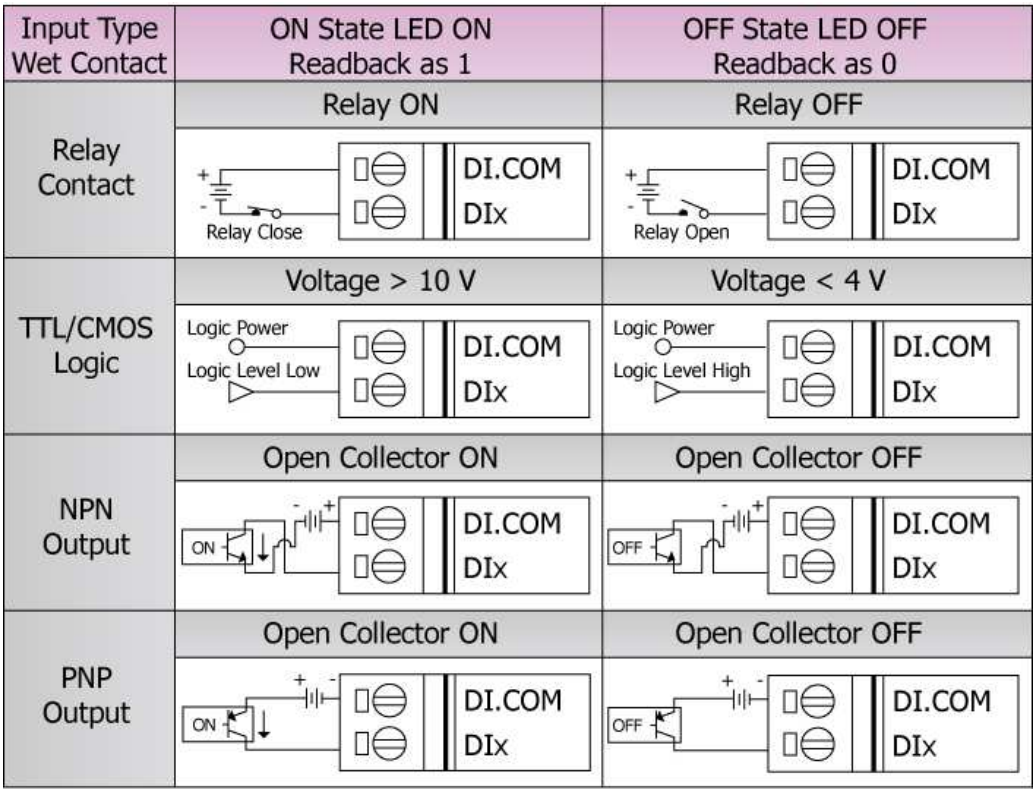


Figure 4: DI Wet contact wire connection

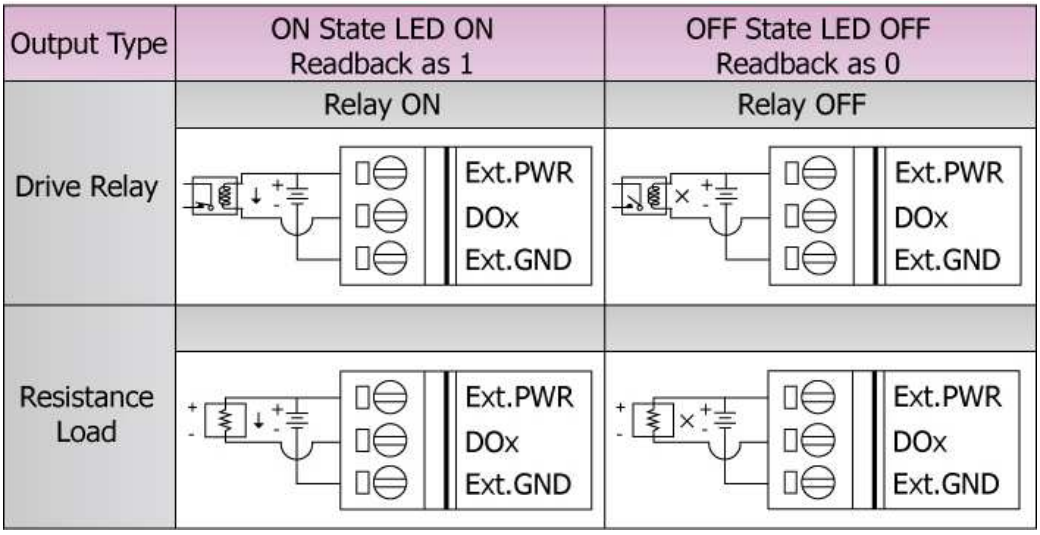


Figure 5**:** DO wire connection

● Installation

Before use, associated hardware configuration, the steps described as follows：

Step 1: Checking the WF-2000 series firmware operation mode

It needs to set the DIP switch to the "OP" position (operation mode), as resetting the power, WF-2000 series will be in the operation mode.

Step 2: Serial port connection

WF-2000 series supports RS-232 serial communication. The circuit configuration is as shown in Figure 2.

If you do not need parameter setting, this step can be omitted.

Step 3: Power connection

Connect the power supply to WF-2000 series' power terminator, as shown in Figure 2.

WF-2000 series connection setting

WF-2000 Series Connection Configuration

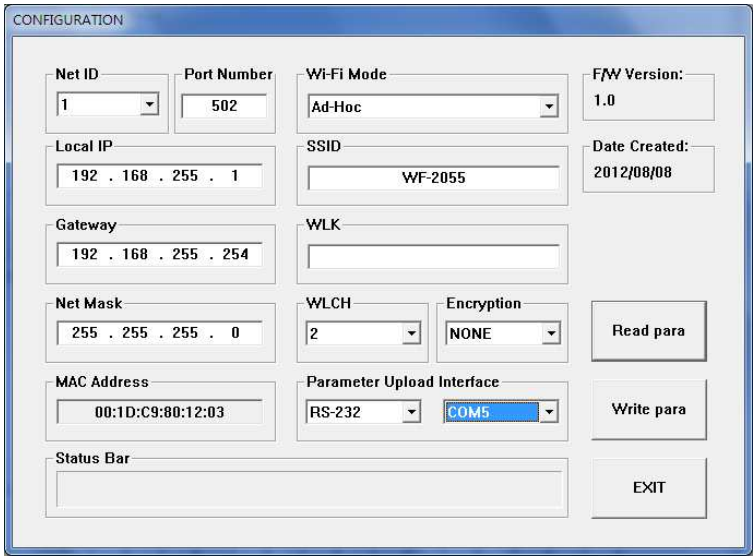


Figure 6**:** Connection Configuration

01、Net ID ：The Unit Identifier in Modbus TCP/IP application data unit. This case is set as "1".
02、Port Number : This field is used to set TCP/IP port of connection according to the actual conditions. This case is set TCP/IP port as "502".
03、Local IP ：Set the local WF-2000 series' IP. Here set to "192.168.255.1".
04、Gateway ：Gateway settings. Here set to "192.168.255.254".
05、Net Mask ：Net Mask settings. Here set to "255. 255. 255.0".
06、Wi-Fi Mode ：Wireless network connection mode settings. Here set to "Ad-Hoc" mode. (If select the "AP" mode, wireless AP devices is needed.)
07、SSID ：Service set identifier. Here set to "WF-2055".
08、WLK ：The Key of encryption. Here does not have the setting.
09、WLCH ：Wi-Fi connection channel settings. Here set to "2".
10、Encryption : Encryption mode settings. Here set "NONE" (without encryption).
11、Upload the parameters : After completing the settings above, select the "RS-232" interface and connections "COM Num". Press "Write para" button to upload the parameters.

PC Connection Configuration

01、TCP/IP Setting ：

a. Open Network connections and entry the properties setting of wireless network connections.

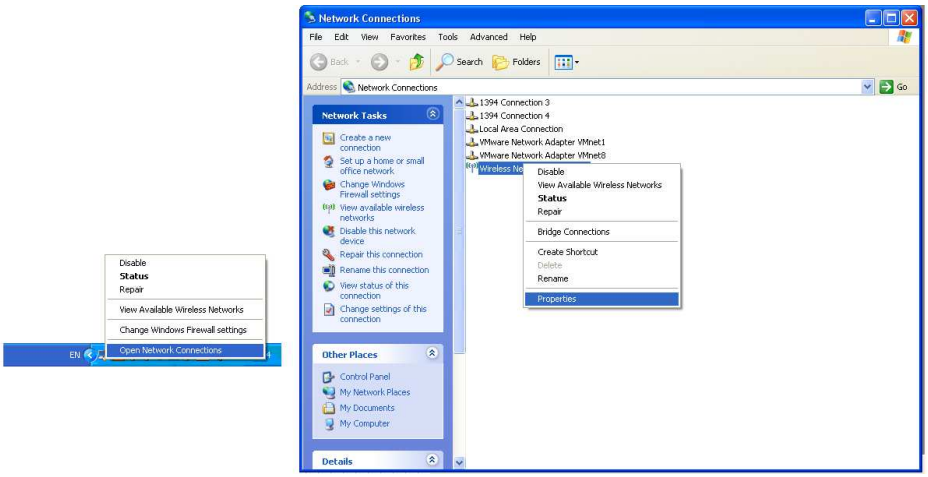


Figure 7**:** Properties setting of wireless network connections

b. Select the Internet Protocol (TCP/IP) and press the "Properties" button.

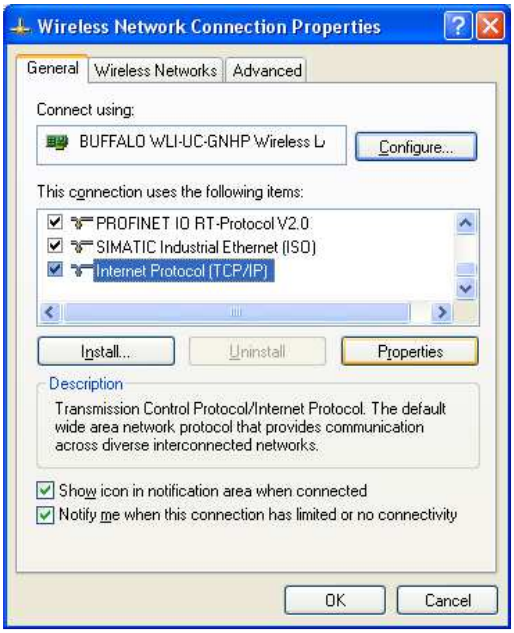


Figure 8**:** Properties setting of Internet Protocol (TCP/IP)

c. Click the "Use the following IP address" and entry the **IP address** as "192.168.255.10", **Subnet mask** as "255.255.255. 0". Finally, press "OK" button.

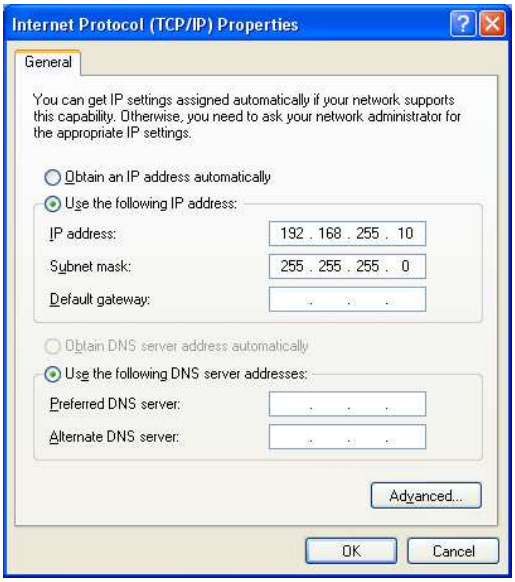


Figure 9: IP address setting interface

02、Wireless network connection ：

a. View available wireless networks and you can see the "WF-2055" wireless network in the list.
b. Select the "WF-2055" and press the "Connect" button.

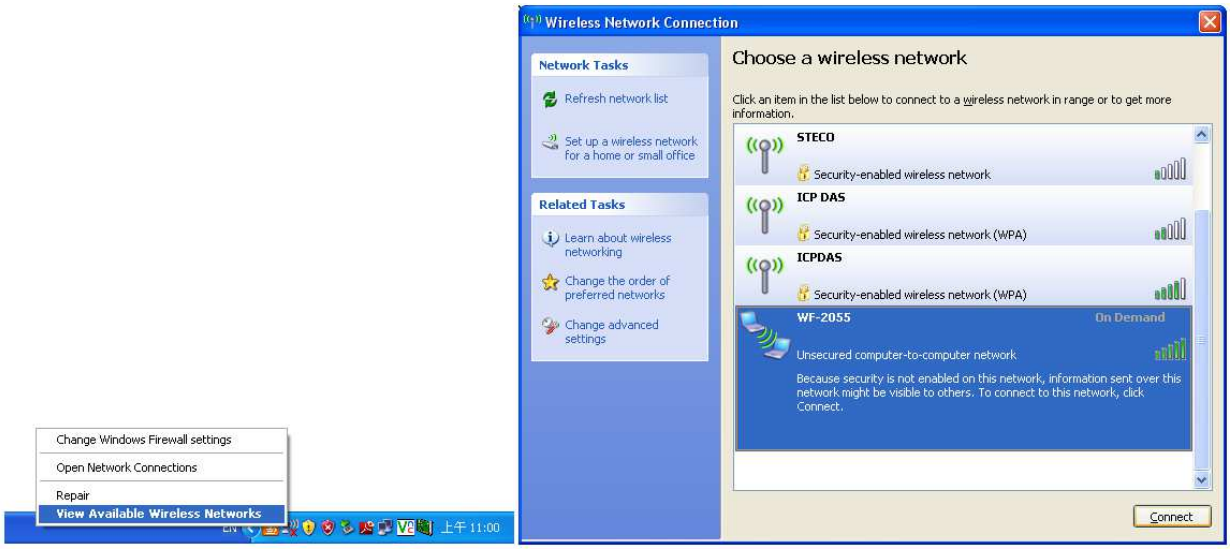


Figure 10: Wireless network connection

c. Press the "Connect Anyway" button for the next step.

Figure 11**:** Connection confirm interface

d. After waiting for a while, there will appear connection success screen.

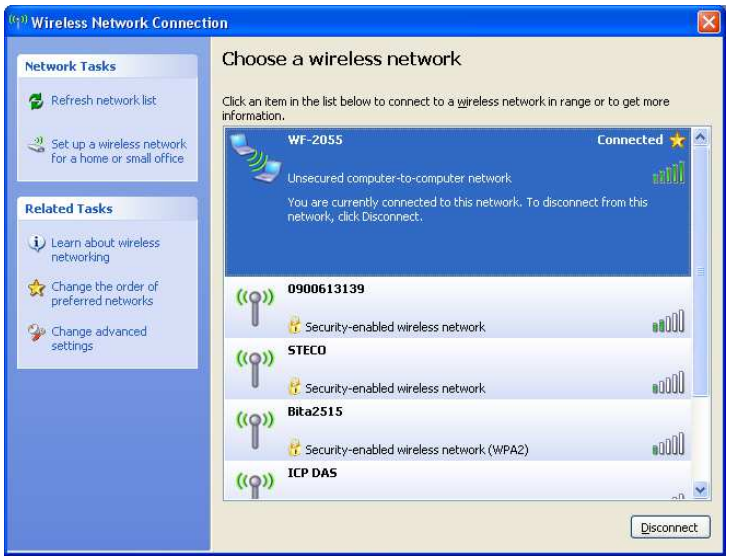


Figure12**:** Connection successful interface

PC Connection Test

01、Connection test Ⅰ: **Connection with WF-2000 I/O utility**

a. Open WF-2000 I/O utility and key in the IP address as "192.168.255.1", Port Number as "502". Finally, press the "Connect" button.
b. If the network settings are correct, this will immediately establish a connection.
c. You can do the DO output control or DI / DO monitoring in this operation interface.

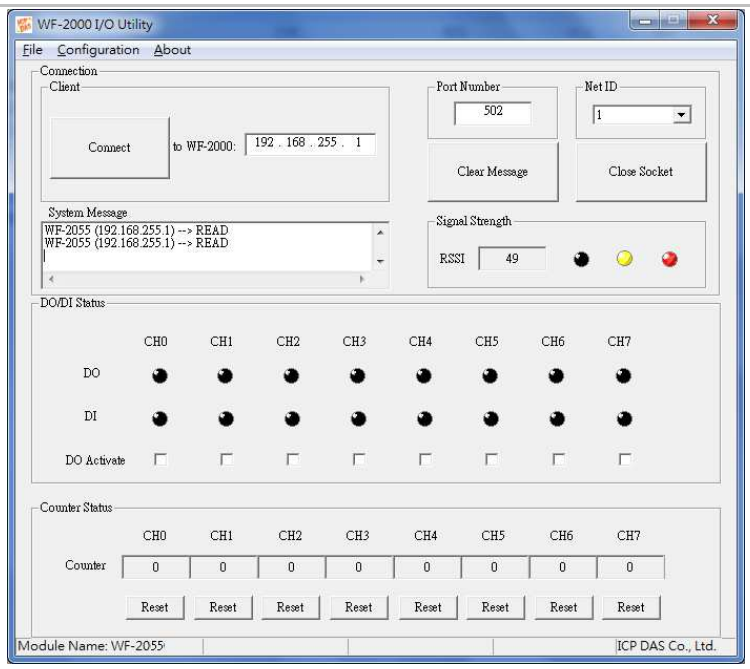


Figure 13**:** Connection successful interface

02、Connection test Ⅱ: **Connection with Modbus TCP utility**

a. Open Modbus TCP utility and key in the IP address as "192.168.255.1", Port as "502". Finally, press the "Connect" button.

b. If the network settings are correct, this will immediately establish a connection.

c. Use the function code "0x0F", and set the reference number as "0x00" to do the DO output control.

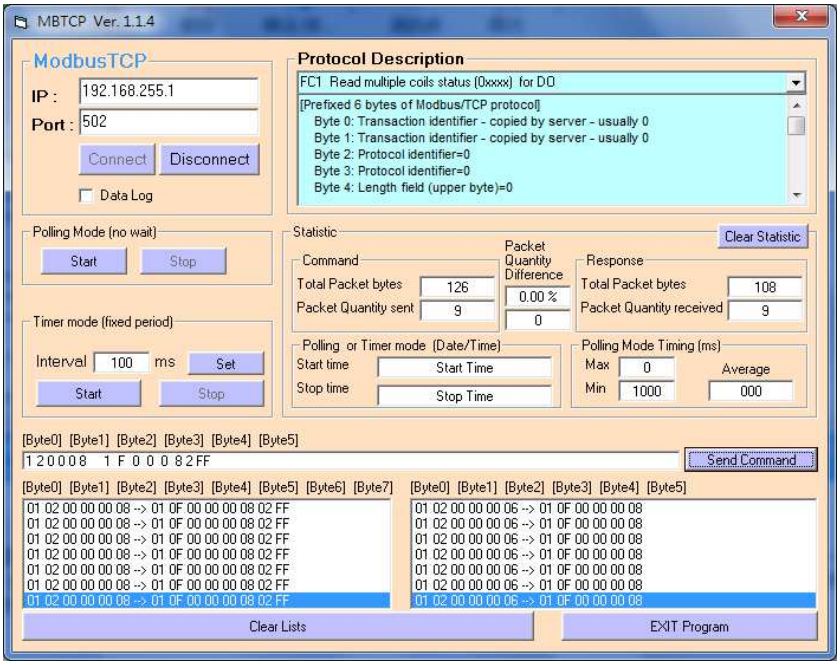


Figure 14**:** DO output control interface

d. Use the function code "0x01", and set the reference number as "0x00" to get the DO output monitor data.

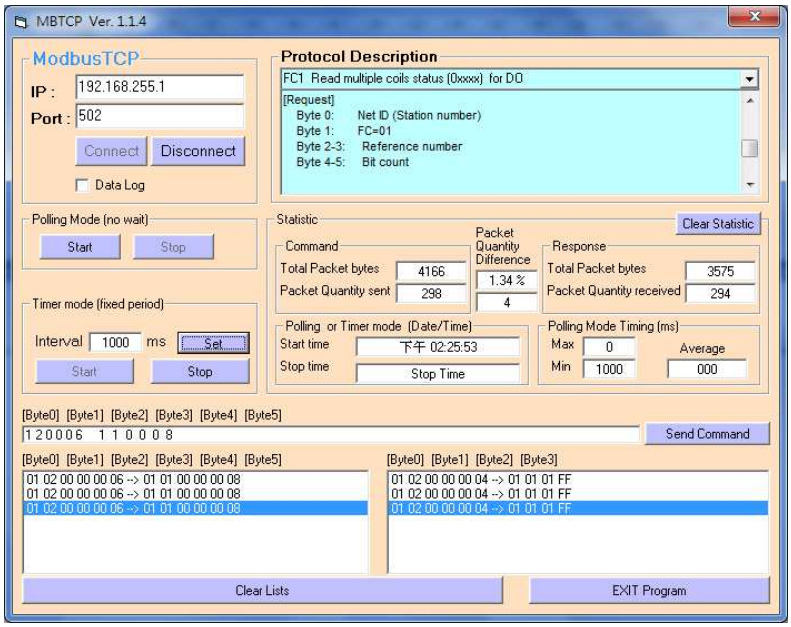


Figure 15**:** DO output monitor interface

e. Use the function code "0x02", and set the reference number as "0x00" to get the DI input monitor data.

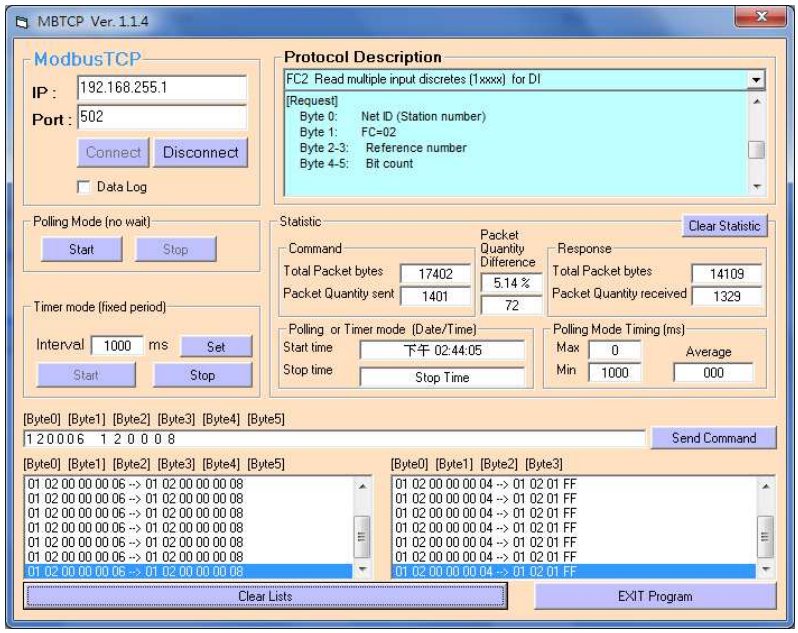


Figure 16**:** DI input monitor interface

f. Use the function code "0x04", and set the reference number as "0x32" to get the Counter monitor data.

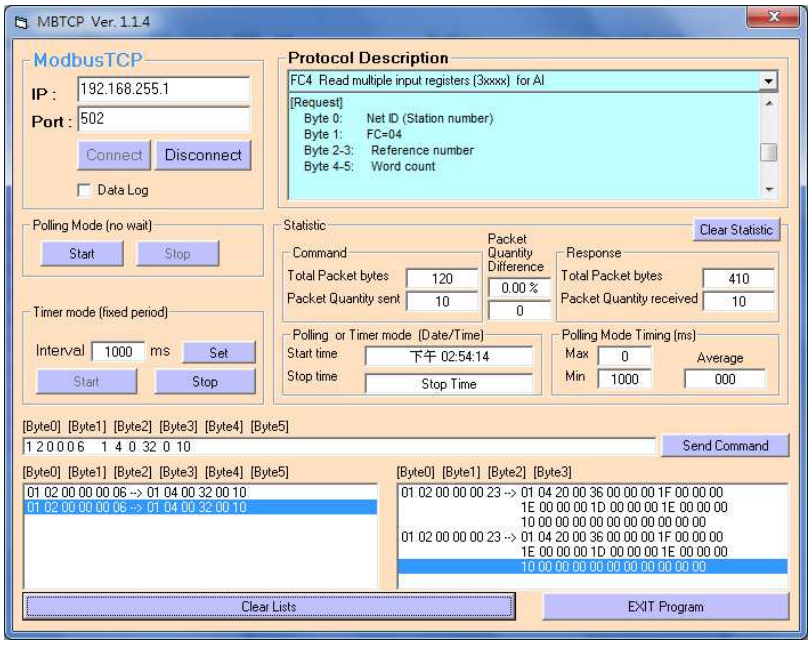


Figure 17**:** Counter monitor interface

Pair Connection Test
(Another WF-2055 set to pair connection mode)

Module Configuration setting

01、Set the Local IP as "192.168.255.**2**".
02、Set the Net ID as "1".
03、Set the same Port Number as "502".
04、Set the same Gateway as "192.168.255.254".
05、Set the same Net Mask as "255.255.255.0".
06、Set the same Wi-Fi Mode as "Ad-Hoc" mode.
07、Set the same SSID as "WF-2055".
08、Set the same WLK, here does not have the setting.
09、Set the same WLCH as "2".
10、Set the same Encryption, here set "NONE" (without encryption)
11、Finally, click the "Write Para." button to take the parameters effect.

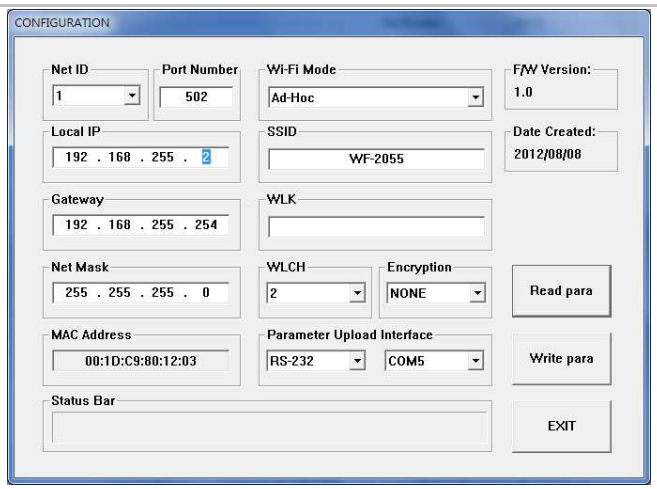


Figure 18**:** Module configuration interface

Pair connection setting

01、Set the Remote IP as "192.168.255.**1**".
02、Set the Remote Port Number as "502".
03、Set the Remote Net ID as "1".
04、Set the Scan Time as "500" ms.
05、Set the Local DO Base address as "0".
06、Set the Remote DI Base address as "0".
07、Set the I/O count as "8".
08、Set the communication Timeout as "3000" ms.
09、Set the I/O Pair Connection to "Enable".
11、Finally, click the "Write Para." button to take the parameters effect.

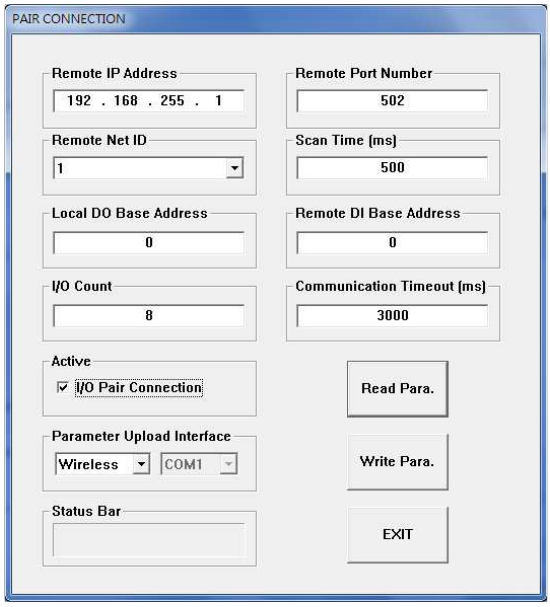


Figure 19**:** Pair connection setting interface

Pair connection test

01、After completion of the above settings, re-power on the two sets of WF-2055.
02、The connection will established automatically after about 10 seconds.
03、If the DI of WF-2055 have been triggered, then the DO of another WF-2055 will automatically output.

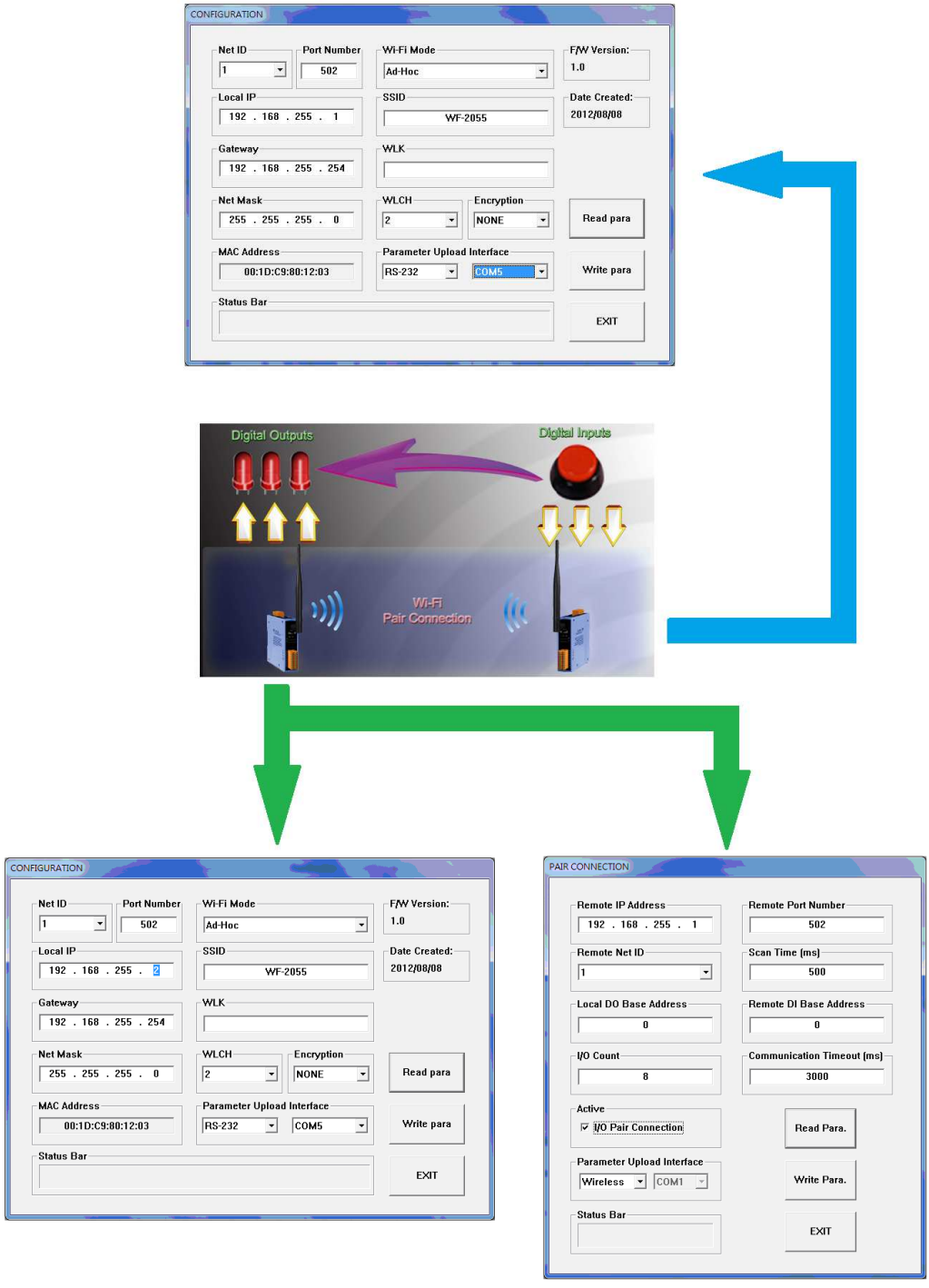
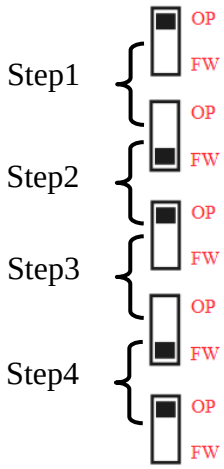


Figure 20: Pair connection architecture and setting interface

Troubleshooting

Item	Problem Description	Solution
1	Power Failure (PWR LED Off)	1. Please return to the ICP DAS for inspection and repair
2	WLAN connection can not be established	1. Make sure that the service set identifier device (SSID) settings are the same. 2. Make sure Wi-Fi transmission Channel settings are the same. 3. Make sure encryption is set, encryption keys are the same way 4. Make sure antenna is good 5. Make sure the connection is too far away, resulting in poor signal quality. 6. Please confirm whether there are barriers on the scene. That could result in poor signal quality.
3	TCP connection can not be established	1. Make sure WLAN connection is established successfully 2. Make sure the network configuration is good (TCP / IP Port, Local IP, Remote IP, Gateway, Net Mask)
4	How to restore factory default  	1. Power on the WF-2000 series I/O module 2. Change the Dip-Switch position of the WF-2000 series and to complete the following steps in 5 seconds. Step1. From “OP” to “FW” position. Step2. From “FW” to “OP” position. Step3. From “OP” to “FW” position. Step4. From “FW” to “OP” position. 3. When the correct implementation of the above steps, the Signal Strength LEDs and PWR/Wi-Fi LEDS of the WF-2000 series should be turn on, and that should be turn off after 500 ms later. 4. Reset the power the WF-2000 series would back to factory defaults.

Technical Support

If you have problems about using the WF-2000 series I/O module, please contact ICP DAS Product Support.

Email: service@icpdas.com