# WF-2000 series FAQ

APPLICATION

ICP DAS Co., Ltd. Ver.1.2.0 2020/12/2

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# Q1: How to increase the connection distance?

A1: We suggest replacing the High-power antenna as follow to increase the connection distance, such as ANT-8 / ANT-15 / ANT-18, etc.

ANT-8(<u>https://www.icpdas.com/en/product/ANT-8</u>)

ANT-15(https://www.icpdas.com/en/product/ANT-15)

ANT-18(https://www.icpdas.com/en/product/ANT-18)

# Q2: How to establish a connection with the smart phone?

A2:

- A. Smartphone support Ad Hoc Connectivity
  - a. WF-2000 Wi-Fi network configuration (CONFIGURATOIN)
    - a1. Set the Wi-Fi Mode as "Ad-Hoc", the rest are reserved factory default settings

letwork					Wi-R			General		
Net ID	1			•	Wi-Fi Modes	Ad-Hoc	-	F/W Version	1.3	
DHCP Enab	de				SSID Auto S	Search Se	sarch	Date Created	2013/11	/5
IP Address	192	168	255	1	SSID	WF-20	85	Auto Disconn	ect	
Subnet Mask	255	255	255	0	Encryption	NONE	•	Comm. Net ID	1	•
Gateway	192	168	255	254	Wireless Key			RS-232	COM3	•
MAC Address	00-1	D-C9-	01-99	-99	Wireless CH	2		Write	Read	d

b. Smartphone Wi-Fi network configuration

b1. Open the Smartphone Wi-Fi interface, select the WF-20xx devices join the network and confirmed



c. Smartphone network IP address and subnet mask settings

c1. Entry the IP address as "192.168.255.x", where "x" is a number between 1 and 254 except WF-2000's IP address.

#### c2. Subnet mask as"255.255.255.0"

••••• • • • • • 30	3 748.88	53% 🔳
<ul><li>✓ Wi-Fi</li></ul>	WF-20	
	18	
自動加入		$\bigcirc$
IP Address		
DHCP	BootP	Static .
IP Addreess	19	2.168.255.6
Subnet Mask	25	5.255.255.0

d. After the above settings, you can use your Smartphone to connect to the WF-2000 (IP address "192.168.255.1")

B. Smartphone does not support Ad Hoc connection method (need to use with a wireless AP)

a. Configuration of wireless AP

a1. Set SSID as "ICPDAS" (Can be arbitrarily set)

a2. Set Encryption as"WPA2-PSK(AES) ", Key as"12345678"(If you cancel this setting without encryption)

Vireless	Wireless
Basic Advanced Security Access 1 W	Rasic Advanced Security Access WDS
This page is used to configure the parameters for wireless your Access Point. Here you may change wireless encryptio network parameters.	LAN dients which may connect to n settings as well as wireless Authentication two: Open System Share Key @ Auto
Band: 802 11b/a	Security: WPA2 Set WEP Key
build. A set of the se	Use 802.1x Authentication
Mode: Access Point	WPA Authentication Mode: O Enterprise (RADIUS) Personal(Pre-Shared Key)
ESSID: ICPDAS	WPA Cipher Suite:
Channel Number: 11	WPA2 Cipher Suite: WAES
Annual to a climate Character Official	Pre-Shared Key Format: ASCII (8-63 characters) -
Associated Clients: Show Active Clients	Pre-Shared Key: 12345678
Apply Cancel	Pre-Shared Key Format Pre-
	Authentication Enable

- b. WF-2000 Wi-Fi network configuration (CONFIGURATOIN)
  - b1. Checked "DHCP Enable" checkbox to enable DHCP function
  - b2. Set Wi-Fi Mode as "AP"
  - b3. Set SSID as "ICPDAS"

b4. Set Encryption as "WPA2", Wireless Key as "12345678" (If you cancel this setting without encryption)

b5. The rest are reserved factory default settings

letwork			Wi-Fi			General	
Net ID	1	•	Wi-Fi Modes	AP	•	F/W Version	1.0
DHCP Enab	ble		SSID Auto S	Search Search		Date Created	2013/11/12
IP Address	192 168 25	5 1	SSID	ICPDAS		Auto Disconne	ect
Subnet Mask	255 255 255	5 0	Encryption	WPA2		Comm. Net ID	1 •
Gateway	192 168 25	5 254	Wireless Key	12345678		RS-232 +	сомз 👻
MAC Address	00-1D-C9-01-9	9-99	Wireless CH	2	-	Write	Read

# c. Smartphone Wi-Fi network configuration

c1. Open the Smartphone Wi-Fi interface, select "ICPDAS" network, set key as "12345678" and join the network

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Wi-Fi		Pas	swor	d		• • • •	•••	•			٦	Wi-Fi		
														• ∻ ()
Pue	• ♥ () • ♥ ()											P680		<b>₽ 奈 (j</b> )
AB		1	2	3	4	5	6	7	8	9	0	AB		
		•	/	÷	;	(	)	\$	&	@	"			
		#+=		•	,	1	?	!	,		$\otimes$			
		A	BC			spa	ace			Joi	n			

- d. Network configuration of Smartphone
  - d1. Set as "DHCP" mode

••••• •••	上年刊38	67% 💼
🗙 Wi-Fi	ICPDAS	
IP 位址		
DHCP	BootP	ER.
	in the second second	
IP Addreess	19:	2.168.0.142

#### e. Search WF-2000 IP address

e1. Please connect the computer to the wireless AP

e2. Open the Wi-Fi interface, select "ICPDAS" network and set key as "12345678" to join the network

Currently connected to:	++ ^		Currently connected to:	+9
Network 2 Internet access Unidentified network		Connect to a Network	Network 2 Internet access Unidentified network	
No network access		Type the network security key	No Internet access	
Wireless Network Connection	<u>^    </u>		Wireless Network Connection	^
ICPDAS-EE	- Ille	Security key: 12345678	ICPDAS Cor	nected
ICPDAS	In.	<u>nide characters</u>	ICPDAS-EE	llee.
Connect automatically	nnect		P880	100
P880	1100		lilyhome	line
lilyhome	.all	OK Cancel	874-4401	-sil
STECO	_ line		0900617912	
Open Network and Sharing C	Center		Open Network and Sharin	g Center

e4. Open "WF-2000 Utility v2.0"

e5. Click "Search" button to search WF-2000 devices ,  $% \left( {{\rm T}_{\rm A}} \right)$  it will obtain an IP address as the device list

f. After the above settings, you can use your Smartphone to connect to the WF-2000 (IP address "192.168.0.248")

# Q3: How to establish a connection between WF-2000 I/O modules and personal computer?

A3:

a. View available wireless networks and you can see the "WF-20xx" wireless network in the list. Select the "WF-20xx" and press the "Connect" button.



b. Press the "Connect Anyway" button for the next step. After waiting for a while, there will appear connection success screen.



# Q4: How to configure the WF-2000 DI / DO series to Pair Connection mode?

A4: Use two WF-2055 devices for operation example

A. The configuration of first WF-2055

a. CONFIGURATOIN Setting

- a1. Set the Local IP as "192.168.255.1"
- a2. The rest are reserved factory default settings
- a3. Click the "Write Para." button to take the parameters effect.

Network					Wi-Fi			General	
Net ID	1			•	Wi-Fi Modes	Ad-Hoc	+	F/W Version	1.3
DHCP Enab	vle				SSID Auto S	Search S	Search ]	Date Created	2013/11/5
IP Address	192	168	255	1	SSID	WF-2	0	Auto Disconn	lect
Subnet Mask	255	255	255	0	Encryption	NONE	•	Comm. Net ID	1
Gateway	192	168	255	254	Wireless Key			RS-232	сомз ч
MAC Address	00-1	D-C9-	01-99-	-99	Wireless CH	2	-	Write	Read

b. PAIR CONNECTION Setting

- b1. Set the Remote IP as "192.168.255.2"
- b2. Set the I/O count as "8"
- b3. Checked "I/O Pair Connection" checkbox to enable pair connection
- b4. The rest are reserved factory default settings
- b5. Click the "Write Para." button to take the parameters effect.

-
Remote Port Number 502 Scan Time (ms) 500
Remote DI Base Address
Communication Timeout (ms) 30000
Read Para.
Write Para.
EXIT

- B. The configuration of second WF-2055
  - a. CONFIGURATOIN Setting
    - a1. Set the Local IP as "192.168.255.2".
    - a2. The rest are reserved factory default settings.
    - a3. Click the "Write Para." button to take the parameters effect

Vetwork				Wi-Fi			General	
Net ID	1		•	Wi-Fi Modes	Ad-Hoc	•	F/W Version	1.3
DHCP Enab	le			SSID Auto S	earch Sear	rch	Date Created	2013/11/5
IP Address	192 16	255	2	SSID	WF-20	8	Auto Disconr	nect
Subnet Mask	255 25	5 255	0	Encryption	NONE	-	Comm. Net ID	1 .
Gateway	192 16	255	254	Wireless Key			RS-232	COM3
MAC Address	00-1D-C9	-01-99	-99	Wireless CH	2	-	Write	Read

- b. PAIR CONNECTION Setting
  - b1. Set the Remote IP as "192.168.255.1".
  - b2. Set the I/O count as "8".
  - b3. Checked "I/O Pair Connection" checkbox to enable pair connection.
  - b4. The rest are reserved factory default settings.
  - b5. Click the "Write Para." button to take the parameters effect.

	-
PAIR CONNECTION	
Remote IP Address	Remote Port Number
Remote Net ID	Scan Time (ms)
1	500
Local DO Base Address	Remote DI Base Address
VO Count 8	Communication Timeout (ms) 30000
Active	Read Para.
Parameter Upload Interface RS-232 V COM5 V	Write Para.
Status Bar	EXIT

C. Connection Test of Pair Connection

c1. After completion of the above settings, re-power on the two sets of WF-2055.

c2. The connection will established automatically after about 10 seconds.

c3. Any one of WF-2055's DI is triggered, then another WF-2055's corresponding DO will automatically output.

# Q5. How can I make Wi-Fi connection range larger than 1km?

A5. External antenna and PA are required. We test with ANT-15 and ALFA APAG05-PoE. We make the connection test with WF-2571 and its diagram is show below. The both NB(Notebook) make the remote desktop connection with each other. The communication environment is LOS.

NB1 + WF-2571 + PA + ANT-15 <----- Ad-Hoc -----> ANT-15 + PA + WF-2571 + NB2 (NB: Notebook)

The connection failed on 2020m. That is larger than 1km. ALFA APAG05-PoE: <a href="https://www.alfa.com.tw/products/apag05-poe?variant=36473964003400">https://www.alfa.com.tw/products/apag05-poe?variant=36473964003400</a>

# ANT-15:

https://www.icpdas.com/en/product/ANT-15