I-7540D-WF

Quick Start

Dec. 2011 Version 1.1

「I-7540D-WF」Package Checklist

The package includes the following items:

- One I-7540D-WF 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

Table 1: 10-pin screw terminal connecter

10-pin screw terminal connecter	
Pin	Description
1	RS-232 RXD
2	RS-232 TXD
3	RS-232 GND
4	Not Connect
5	CAN_H
6	CAN_L
7	CAN_GND
8	Not Connect
9	+Vs(+10 ~ +30 VDC)
10	GND

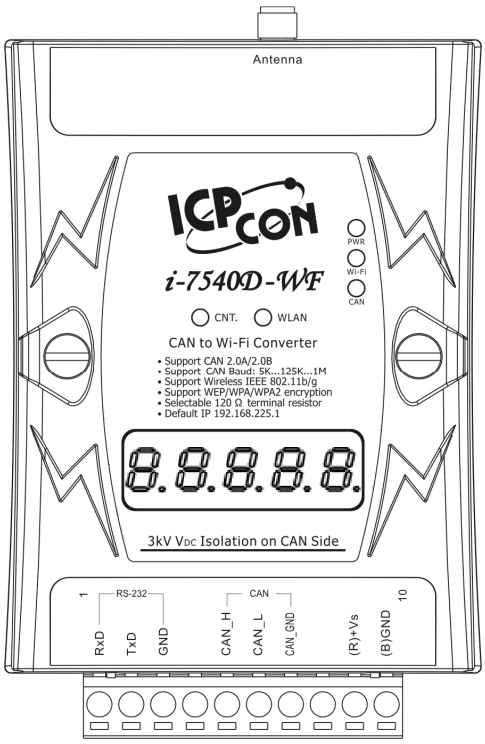

Figure 1: Appearance of the I-7540D-WF

LED Indication

Table 2: LED indication of the I-7540D-WF

LED Name	I-7540D-WF Status	LED Status
ALL LEDs	Firmware Updating Mode	All LED On
	Hardware WDT Fail	All LED blink per 1 second
	Contact to ICP DAS	All LED blink per 100 ms
PWR & CNT. LED	Wi-Fi Module Failure	Blink per 500 ms
PWR LED	No Error	Always turned on
	CAN Bus Transmission Fail	Blink per 100 ms
	CAN Bus-Off	Blink per 500 ms
	CAN Buffer Full	Blink per 1 sec
	Wi-Fi Buffer Full	Flashes twice per 100 ms , every 1 second
	Power Failure	Off
Wi-Fi LED	Data transmission	Blink
	Bus Idle	Off
CAN LED	Data transmission	Blink
	Bus Idle	Off
WLAN LED	WLAN connection established	Always turned on
	WLAN during connection establishment	Blink or Off
CNT.	TCP connection established	Always turned on
	TCP during connection establishment	Blink

● Installation

If users want to start the I-7540D-WF normally, it needs to follow these steps to install the I-7540D-WF below:

Step 1: Check I-7540D-WF Firmware Mode

Users need to set the dip-switch to the “Normal” position as Figure 2. As resetting the power, the I-7540D-WF will be in the operation mode.

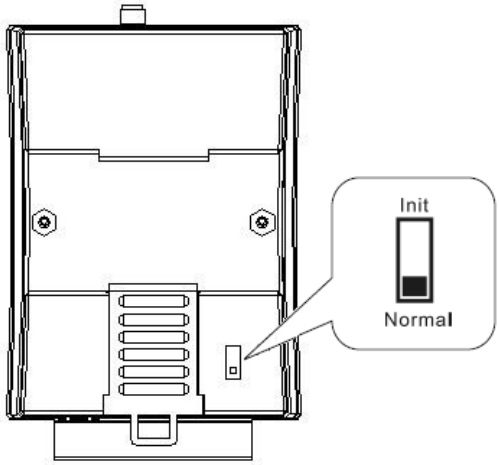

Figure 2**:** Operation mode Position of Dip-Switch

Step 2: Enabling 120Ω termination resistors (if I-7540D-WF is a terminal in the CAN network)

Please open the I-7540D-WF cover and use the JP2 to activate the 120Ω terminal resistor built in the module. After finishing set the JP2, 120 ohm termination resistors can be enabled.

Step 3：CAN bus connection

To connect the I-7540D-WF's CAN interface with other devices as Figure 3.

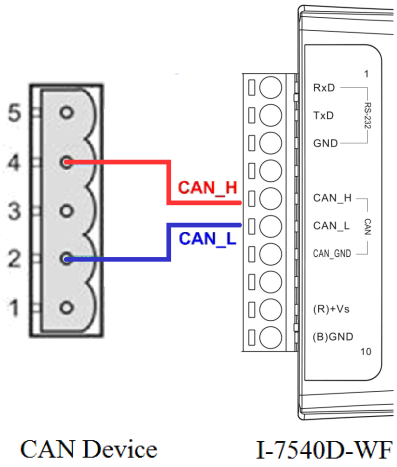

Figure 3**:** CAN bus Wire Connection

Step4: Serial port connection

I-7540D-WF supports RS-232 serial communication. The circuit configuration is as shown in Figure 4.

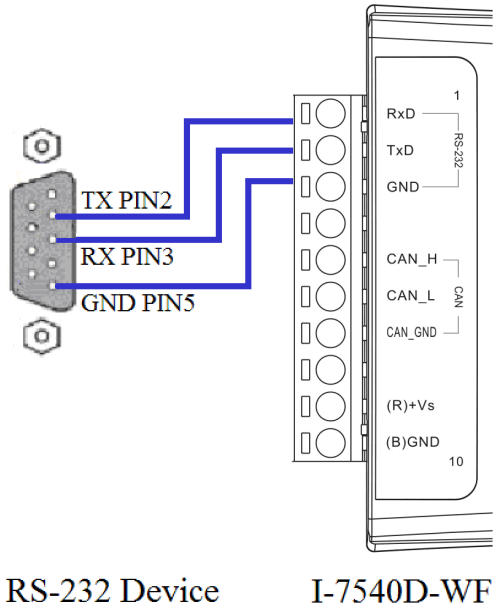

Figure 4**:** RS-232 Wire Connection

Step4: Power wire connection

To connect the power supply to the I-7540D-WF module's power terminator as shown in Figure 5.

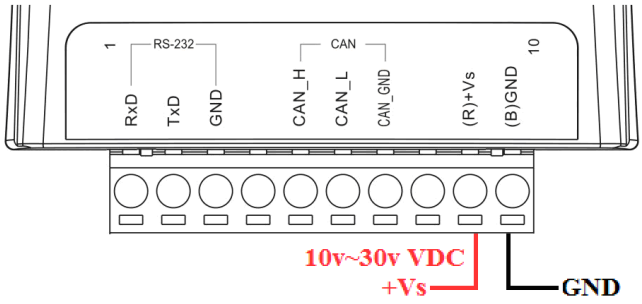

Figure 5**:** Power Wire Connection

I-7540D-WF Utility Configuration

Basic Parameter configuration

I-7540D-WF utility provides the basic configuration interfaces as shown below, such as CAN Baud Rate settings, network configuration, Wi-Fi connection settings, parameters uploading and downloading interface, the status bar display, and so forth.

Figure 6：Basic Parameter Setting Interface

CAN Baud Rate configuration

CAN Baud Rate configuration interface are shown below. There are 5K ~ 1000K, a total of 15 different baud rate for users to choose, as shown in Table 3.

Table 3：CAN Baud Rate Options

Item	CAN Baud Rate	Item	CAN Baud Rate
1	5K	9	200K
2	10K	10	250K
3	20K	11	400K
4	40K	12	500K
5	50K	13	600K
6	80K	14	800K
7	100K	15	1000K
8	125K		

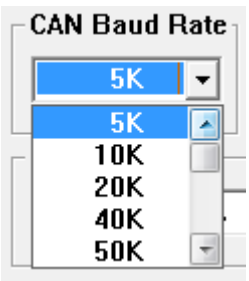

Figure 7: CAN Baud Rate Setting Interface

■ Network configuration

Figure 8 is about the network configuration interface of I-7540D-WF. It needs to depend on the user connection request to set the scene consistent with the basic content of the network connection as follows.

Table 4：Network configuration instructions

Item	Description
TCP/IP Port	TCP/IP Port Number Setting
Local IP	Local IP Setting
Remote IP	Remote IP Setting
Gateway	Gateway Setting
Net Mask	Net Mask Setting
MAC Address	MAC Address Display

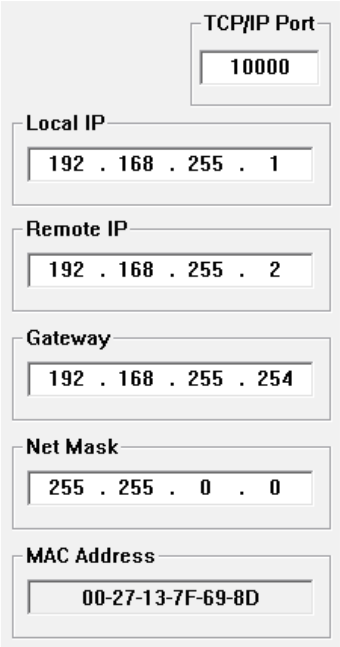

Figure 8：Network configuration

■ Wi-Fi configuration

Wi-Fi configuration interface of I-7540D-WF is shown as below, such as Wi-Fi connection mode, SSID, WLK, WLCH, Encryption, and so forth. The detailed description is as the following table.

Figure 9: Wi-Fi Configuration Interface

Table 5：AP Mode

Operation Mode	Server：Set I-7540D-WF for the TCP Server mode. Client：Set I-7540D-WF for the TCP Client mode.
Wi-Fi Mode	AP：Use the wireless access point way for connection and transmission. (Must have Wi-Fi AP)
SSID	Service Set Identifier: Connected devices must be with the same SSID, SSID length must not exceed 20 characters.
WLCH	0~13：Wi-Fi transmission channel setting, connected devices must with the same channel. Setting 0 (Auto) for automatically channel modulation with Wi-Fi AP.
Encryption	NONE / WEP64 / WEP128 / WPA / WPA2: Encryption of Wi-Fi, connected devices must with the same encryption.
WLK	Key of Encryption, connected devices must with the same Key. WEP-64 ：Key length must be 10 characters. WEP-128：Key length must be 26 characters. WPA ：Key length must between 8~64 characters. WPA2 ：Key length must between 8~64 characters. Characters of key should be in range of: [0 ~ 9] or [A ~ F] or [a ~ f]

Table 6：Ad-Hoc Mode

Operation Mode	Server：Set I-7540D-WF for the TCP Server mode. Client：Set I-7540D-WF for the TCP Client mode.
Wi-Fi Mode	Ad-Hoc：Use Ad-Hoc connectivity with another I-7540D-WF to create AD-hoc wireless network.
SSID	Service Set Identifier: Connected devices must be with the same SSID, SSID length must not exceed 20 characters.
WLCH	1~13：Wi-Fi transmission channel setting, connected devices must with the same channel, can’t setting 0 (Auto) channel in Ad -Hoc mode.
Encryption	NONE / WEP64 / WEP128: Wi-Fi Encryption of Wi-Fi, connected devices must with the same encryption. Not Support WPA、WPA2 encryption in Ad-Hoc mode。
WLK	Key of Encryption，connected devices must with the same Key. WEP-64 ：Key length must be 10 characters. WEP-128：Key length must be 26 characters. Characters of key should be in range of: [0 ~ 9] or [A ~ F] or [a ~ f]

■ Parameter Transmission Interface

I-7540D-WF's parameter connection configuration interface provides wireless and RS-232 interface for connection, RS-232 interface provides upload and download parameter function; wireless interface only provides upload parameter function as following.

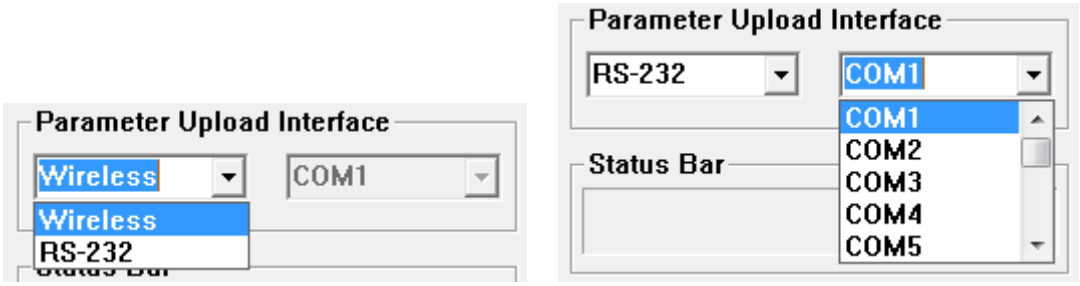

Figure 10: Parameter Transmission Interface

■ Parameter Transmission status bar

I-7540D-WF utility provides the parameter transmission status display interface. By the status bar, the user can immediately understand the transfer state.

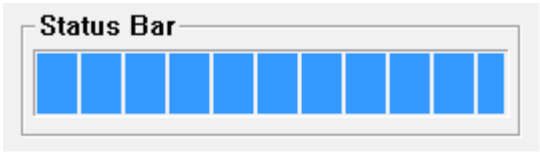

Figure 11: Parameter Transmission status bar

■ Parameter reading function

I-7540D-WF utility provides parameters download function for I-7540D-WF by the RS-232 interface. It allows user to download the parameters form I-7540D-WF.

Figure 12: Parameter reading button

Parameter writing function

I-7540D-WF utility provides parameters upload function for I-7540D-WF by the RS-232 and Wi-Fi interfaces to allow users to upload the parameters to I-7540D-WF.

Figure 13: Parameter writing button

Exit parameter setting

Press this button to exit I-7540D-WF Utility of the parameter setting interface and return to the main screen.

Figure 14: Exit parameter setting button

I-7540D-WF Connection

Connection Architecture

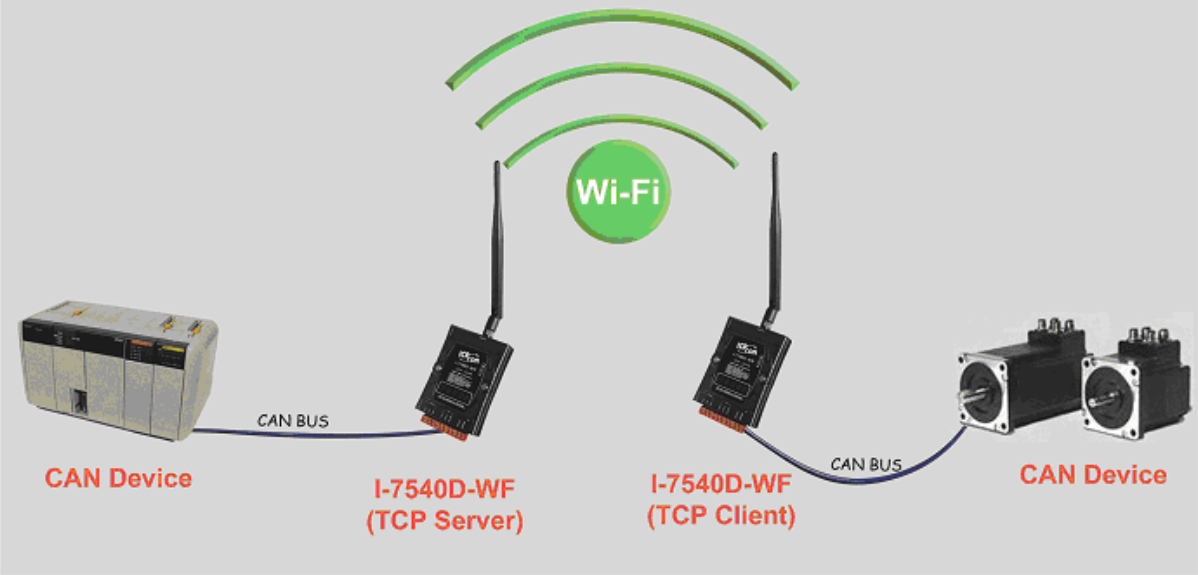

Figure 15 application architecture

Basic Parameter Configuration

Server connection mode

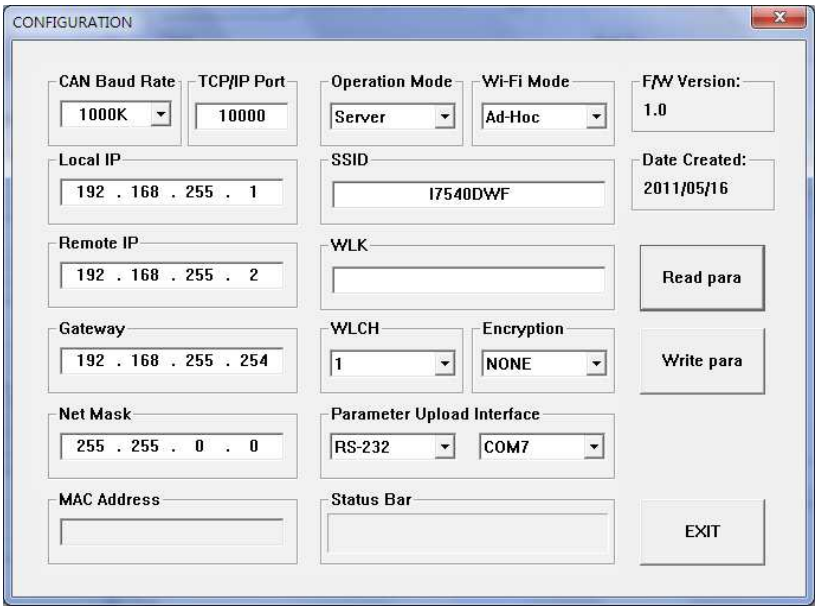

Figure 16: Server connection mode

01、CAN Baud Rate ：It can help users to set the CAN bus baud rate according to the actual connection. The case is set as 1000K bps in Figure 16
02、TCP/IP Port ：This field is used to set TCP/IP port of Connection according to the actual conditions. The case is set TCP/IP port as 10000 in Figure 16
03、Local IP ：Set the local machine's wireless IP. Here set to 192.168.255.1
04、Remote IP ：Set the remote connection device's IP. Here set to 192.168.255.2
05、Gateway ：Gateway settings (Here set to 192.168.255.254)
06、Net Mask ：Net Mask settings (Here set to 255. 255.0.0)
07、Operation Mode ：I-7540D-WF's operation mode settings (Here set to Server mode)
08、Wi-Fi Mode ：Wireless network connection mode settings (Here set to Ad-Hoc mode. If the mode is AP mode, wireless AP devices is needed)
09、SSID ：Service set identifier (Here set to I7540DWF)
10、WLK ：Key of encryption (Here does not have the setting)
11、WLCH ：Wi-Fi connection channel settings (In Ad Hoc mode, can not be set 0 (Auto), here set to 1)
12、Encryption : Encryption mode setting (Here set NONE (without encryption))

Upload the parameters

After completing the settings above, select the RS-232 interface and connections Port Num. Press "Write para" Button to upload the parameters, If the connection settings and the wiring are correct, the transmission process status bar will show the transmission state below. As uploading is successful, the upload window will appear as shown below.

Figure 17**:** Parameter transmission status and upload successfully screens

Client connection mode

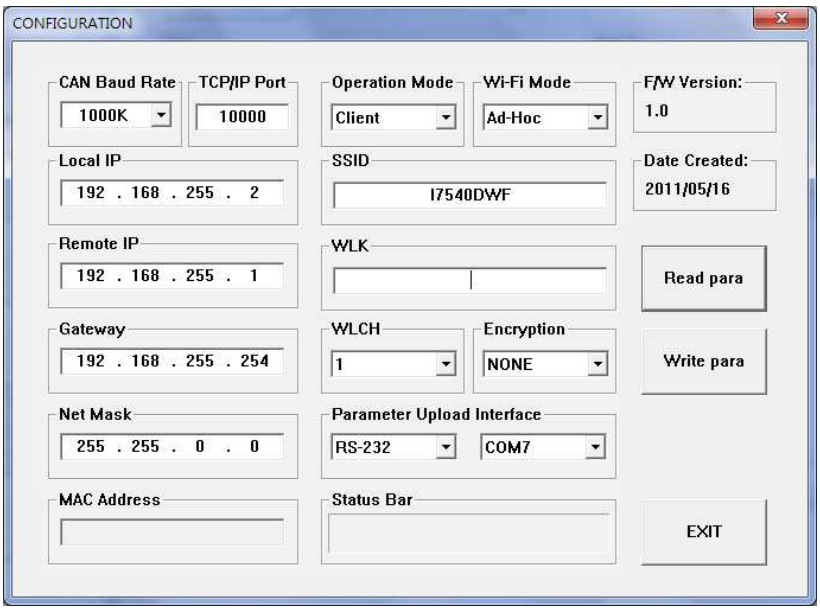

Figure 18**:** Client connection mode

01、CAN Baud Rate ：It can help users to set the CAN bus baud rate according to the actual connection. The case is set as 1000K bps in Figure 18

02、TCP/IP Port ：This field is used to set TCP/IP port of Connection according to the actual conditions. The case is set TCP/IP port as 10000 in Figure 18

03、Local IP ：Set the local machine's wireless IP. Here set to 192.168.255.2

04、Remote IP ：Set the remote connection device's IP (Server). Here set to 192.168.255.1

05、Gateway ：Gateway settings (Here set to 192.168.255.254)

06、Net Mask ：Net Mask settings (Here set to 255. 255.0.0)

07、Operation Mode ：I-7540D-WF's operation mode settings (Here set to Client mode)

08、Wi-Fi Mode ：Wireless network connection mode settings (Here set to Ad-Hoc mode. If the mode is AP mode, wireless AP devices is needed)

09、SSID ：Service set identifier (Here set to I7540DWF)

10、WLK ：Key of encryption (Here does not have the setting)

11、WLCH ：Wi-Fi connection channel settings (In Ad Hoc mode, can not be set 0 (Auto), here set to 1)

12、Encryption : Encryption mode setting (Here set NONE (without encryption))

Upload the parameters

After completing the settings above, select the RS-232 interface and connections Port Num, press "Write para" button to upload the parameters. If the connection settings and the wiring are correct, it will appear the screen as Figure 17.

■ Connection test

1、Power on the two I-7540D-WF (TCP Client / TCP Server).

2、After about 10 seconds, two I-7540D-WF will first establish Ad-Hoc connection. WLAN LED on the front panel will be form flashing state to normally ON.

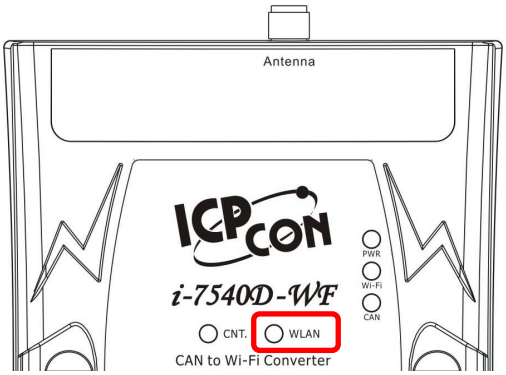

Figure 19**:** Ad-Hoc connection LED

3、After about 5 seconds, two I-7540D-WF will further establish TCP connection. The CNT. LED on the front panel will also form flashing state to normally ON.

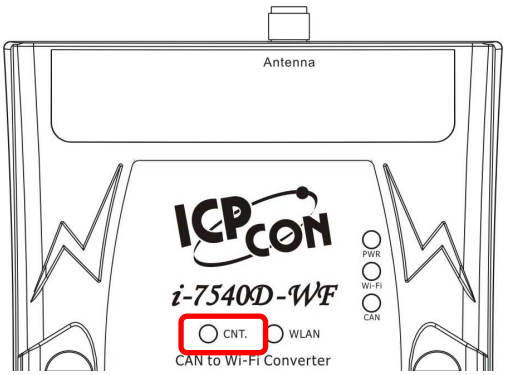

Figure 20**:** TCP connection LED

4、As WLAN LED and CAN. LED are always turned on, it means the two I-7540D-WF connection established successfully. This can be for CAN wireless transmission.

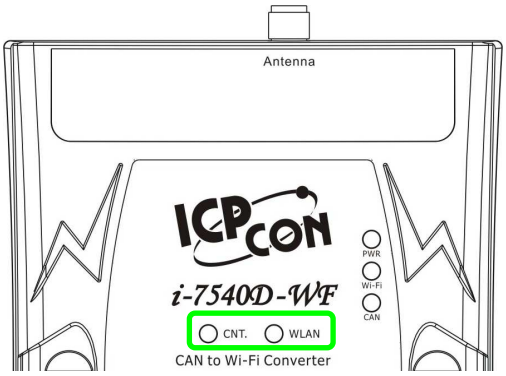

Figure 21**:** I-7540D-WF successful connection LED

5、When CAN and Wi-Fi connection are under normal conditions, the CAN LED will show flashing light with CAN data transmitting or receiving; The Wi-Fi LED will also show flashing light with Wireless data communicating.

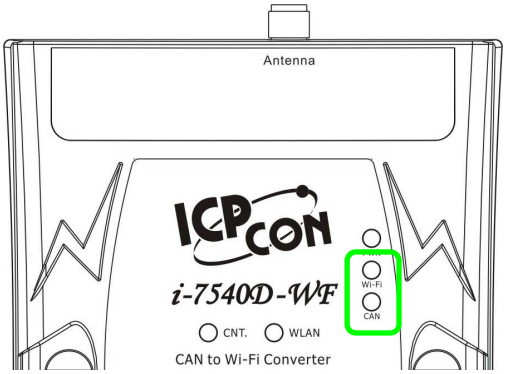

Figure 22**:** I-7540D-WF CAN and Wi-Fi Transmission LED

Troubleshooting

Item	Problem Description	Solution
1	CAN Bus Transmission Fail (Power LED Blink per 100 ms)	1. Make sure the CAN bus wiring is connected to the correct pin. 2. Make sure the devices is in the same CAN Baud Rate setting.
2	CAN Bus-Off (Power LED Blink per 500 ms)	1. Make sure the CAN bus wiring is not in short-circuit
3	Wi-Fi module communication error (PWR & CNT. LED Blink per 500 ms)	1. Please return to the ICP DAS for inspection and repair
4	Power Failure (PWR LED Off)	1. Please return to the ICP DAS for inspection and repair
5	WLAN connection can not be established (WLAN LED Blink or Off)	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. (Please shorten the connection from the test) 6. Please confirm whether there are barriers on the scene. That could result in poor signal quality.
6	TCP connection can not be established (CNT. LED Blink)	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)

● Technical Support

If you have problems about using the I-7540D-WF, please contact ICP DAS Product Support.

Email: service@icpdas.com