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WizFi630 User Manual

(Version 1.1)



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Certification Information

CE for Class B ITE

INFORMATION TO THE USER

Hereby, WIZnet. Declares that this WizFi630 is in compliance with the essential requirements and other relevant provisions of directive 1999/5/EC and other relevant provisions of directive 1999/5/EC.

WARNING: This is a class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures

FCC for Class B ITE

INFORMATION TO THE USER

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no Guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made



Document Revision History

Date	Revision	Changes
2012-07-02	1.0	Release
2012-07-17	1.1	 Change WizFi630's picture at P10 Modify error sentence P6, P18,P19 : WIZ630wi → WizFi630 P24 : DNS server → DNS server address P38 : WDS → WPS



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1. Introduction

WizFi630 is a gateway module that transforms the RS-232 protocol and TCP/IP protocol into IEEE802.11 b/g/n wireless LAN protocol. WizFi630 enables a device with RS-232 serial interface to connect to LAN or WLAN for remotely control, measuring, and administration. WizFi630 can also work as an IP router because of its internally embedded switch.

WizFi630 uses interfaces like Serial(UART), LAN, Wi-Fi(WLAN) to perform functions such as Serial(UART)-To-Wi-Fi, Serial-To-Ethernet, Ethernet-To-Wi-Fi. Users can connect to WizFi630's internal web server or use serial commands for simple Wi-Fi settings; not only serial devices but 8/16/32 bit micro controllers can also use UART for simple Wi-Fi settings.

WizFi630 can significantly reduce the processes for wireless module design, testing, and certification. Therefore, WizFi630 can be the best solution for users who lack wireless network experience.

WizFi630 follows the 802.11b/g/n standard and support up to 150Mbps speed in wireless interface.

WizFi630 provides a test board, pc software, and documents so that anyone can develop a wireless solution.



1.1. Features

- Complies with IEEE802.11b/g/n.
- Gateway/AP(Bridge)/AP-Client/Client(Station)/Ad-hoc Mode , WDS/Repeater supports
- ♦ 1T1R RF Interface
- ◆ Physical link rate up to 150Mpbs
- Built-in 3 Ethernet Ports
- ♦ 2 Serial Ports supports
- ◆ Working as Wi-Fi Router
- ♦ WEP 64/128bit, WPA/WPA2-PSK TKIP, AES
- ◆ 802.1x (Only in AP mode)
- ◆ 802.11e and WMM (Wi-Fi Multimedia)
- Router and Firewall function supports



Figure 1. Example of WizFi630's Application



1.2. Wireless Specifications

Туре	Description
Wireless Standard	IEEE802.11b/g/n
Frequency Range	USA: 2.400 ~ 2.483GHz Europe: 2.400 ~ 2.483GHz Japan: 2.400 ~ 2.497GHz China: 2.400 ~ 2.483GHz
Operating Channels	USA/Canada: 11(1 ~ 11) Major Europe Countries: 13(1 ~ 13) France: 4(10 ~ 13) Japan: 14 for 802.11b(1 ~ 14), 13 for 802.11g(1 ~ 13) Korea/China: 13(1 ~ 13)
Output Power (Tolerance(+/-1dBm)	802.11b: 17dBm@11Mbps 802.11g: 14dBm@54Mbps 802.11n: 14dBm@150Mbps/72Mbps
Receive Sensitivity	802.11b: -89dBm@11Mbps 802.11g: -74dBm@54Mbps 802.11n(40MHz): -66dBm@150Mbps 802.11n(20MHz): -70dBm@72Mbps
Data Rates	802.11b: 1,2,5.5,11Mbps 802.11g: 6,9,12,18,24,36,48,54Mbps 802.11n(20MHz): 7,14.5,21.5,28.5,43.5,57.5,65,72Mbps 802.11n(40MHz): 29.5,86.5,115,130,144,150Mbps
Modulation Type	11g: OFDM(64QAM, 16QAM, QPSK, BPSK) 11b: DSS(CCK, DQPSK, DBPSK)
Antenna	u.FL (EVB : 1T1R 2dBi)

Table 1. Wi-Fi Specifications



1.3. Hardware Specifications

Туре	Description	
Interface	Serial port : 2 EA LAN port : 3EA USB port : 1 USB Host Port (Reserved)	
	U.FL(wireless)	
Temperature	Operation: -10°C~70°C	
Humidity	Operation: 10% to 90%, Non-Condensing Storage: 5% to 90%, Non-Condensing	
	Baud Rate : 1200 ~ 921,600bps	
	Stop bits: 1, 2	
Serial	Parity: None, Odd, Even	
	Flow Control: UART1: XON/XOFF(software), CTS/RTS(hardware), none UART2: XON/XOFF, none	
Input Power	DC 3.3V / 1A	
Power Consumption	Max : 3.3V / 600mA	
Dimension	33mm X 43mm X 4.5mm	
Weight	6g	

Table 2. WizFi630 Module Specifications



1.4. Software Specifications

Туре	Description	
Operation Mode	Access Point(Bridge), Client(Station), Gateway, AP-Client, ad-hoc	
Protocol	TCP, UDP, ARP, ICMP, DHCP, PPPoE, HTTP	
Security	WEP 64/128bit WPA/WPA2-PSK AES/TKIP 802.1x (Only in AP Mode)	
Configuration	Web Configuration, Serial Command, Configuration Tool	
Notification	Event Logging	
Serial To Wi-Fi	2 Serial Port supports	

Table 3. SW Specifications

1.5. EVB Construction

1.5.1. Contents

Section	Qnt.	Contents
		WizFi630
WizFi630	lea	
		WizFi630-EVB
WizFi630- EVB	lea	

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		2dBi WI-FI Antenna (Model : W5I-B0-08)
Antenna	1 ea	MINIZAN AND AND AND AND AND AND AND AND AND A
		Serial Cable
Serial Cable	1 ea	
		LAN Cable
LAN Cable	1 ea	
		DC 5V/2A Adapter
Adapter	lea	

Table 4. WizFi630-EVB Contents



1.6. Block Diagram



Figure 1. WizFi630 Block Diagram

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2. Operation Mode and Description of Menu

2.1. Operation Mode

- User can select the operation mode.
- The default setting of WizFi630 is AP Mode. (DHCP Server Enabled)
- DHCP Server is usually disabled in AP mode, but for the user's convenience, DHCP Sever will be enabled.



2.1.1. Access Point



In this mode, all Ethernet ports and the wireless interface are bridged together. Wired/Wireless interface has the same IP address space with its top mesh. DHCP Server function is disabled and WizFi630 does not assign an IP. Wireless (LAN Port included) sending periodic Broadcast Packet to Station and maintains a connection with Station.



2.1.2. Gateway



When operating in router mode, interfaces are separated into WAN I/F (Top Internet Business Network), LAN I/F (Sub Private Network: 192.168.16.xxx), and Wireless I/F (Sub Private Network: 192.168.16.xxx). Port # 0 will be assigned to the WAN Port. WizFi630 periodically sends Broadcast Packet to Sub-LAN (LAN Port included) and maintains connection with Station.

2.1.3. Client (Station)



192.168.16.XXX 192.168.16.XXX 192.168.16.XXX

Wireless I/F is assigned as WAN Port and all Ethernet Ports are bound to LAN Port. Set the profile and the WizFi630 is automatically connected to the AP when re-booting in the future. Devices that are connected through the LAN port are assigned a private IP. WizFi630 periodically sends PING Packet to AP Gateway and maintains connection with AP.

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2.1.4. AP-Client Mode



Wireless I/F is assigned as WAN Port and all Ethernet Ports are bound to LAN Port. This mode is similar to Station mode, however the difference is that the Wireless I/F will operate as client with AP simultaneously. WizFi630 periodically sends Broadcast Packet to Sub-LAN (LAN Port included) and maintains connection with Station.

2.1.5. Ad-hoc Mode

This mode is similar to Gateway mode. The Wireless I/F operates as ad-hoc and connects to Station Point-to-Point. There is no communication between the LAN Port and Wireless I/F (ad-hoc). WAN \leftrightarrow ad-hoc: OK WAN \leftarrow Ad-hoc: OK ad-hoc \leftarrow ad-hoc: OK ad-hoc \leftarrow LAN: No Communication



2.2. Menu List by Operation Mode

2.2.1. Access Point (Bridge) Mode

Menu	Detailed Menu	Description (Link)	List Number
	System IP	Internet connection setting	2.3.1
, , ,	LAN	Local network setting	2.3.2
Internet	DHCP Clients	DHCP Client Information	2.3.3
Setting	VPN Config	VPN setting	2.3.4
	QoS(802.1p)	QoS(802.1p) Setting	2.3.6
	Basic	Basic settings	2.4.1
	Advanced	Advanced Wireless Settings (AP Mode)	2.4.2.1
	Security	Wireless Security setting	2.4.3
Wireless	WDS	WDS Setting	2.4.4
Setting	WPS	WPS Setting (AP Mode)	2.4.5.1
	Station List	Wireless network status	2.4.6
	Packet Statistics	AP Wireless Statistics (AP Mode)	2.4.7.1
Serial	Serial Port #1		25
Setting	Serial Port #2	Serial to LAN(Wired and Wireless)	2.5
	System Mgmt	System Management	2.7.1
	Firmware Mgmt	Firmware	2.7.2
	Config Mgmt	Config Settings	2.7.3
Managements	Port Mgmt	Port Setting	2.7.4
	Packet Statistics	Packet Statistics	2.7.5
	System Status	System Status	2.7.6
	System Log	System Log	2.7.7

2.2.2. Gateway (Router) Mode

Menu	Detailed Menu	Description (Link)	List Number
	WAN	Internet connection setting	2.3.1
	LAN	Local network setting	2.3.2
To to us of	DHCP Clients	DHCP Client Information	2.3.3
Internet	VPN Config	VPN setting	2.3.4
Setting	Routing	Static Routing Setting	2.3.5
	Qos(802.1p)	QoS(802.1p) Setting	2.3.6
	VLAN(802.1q)	<u>VLAN(802.1p)</u>	2.3.7
	Basic	Basic settings	2.4.1
	Advanced	Advanced Wireless Settings (AP Mode)	2.4.2.1
\\(inclose	Security	Wireless Security setting	2.4.3
Catting	WDS	WDS Setting	2.4.4
Setting	WPS	WPS Setting (AP Mode)	2.4.5.1
	Station List	Wireless network status	2.4.6
	Packet Statistics	AP Wireless Statistics (AP Mode)	2.4.7.1
Serial	Serial Port #1	Carial to LAN(Mired and Mirelass)	25
Setting	Serial Port #2	Serial to LAN(WIRED and Wireless)	2.5
	DMZ	DMZ	2.6.1
	Port Forwarding	Port forwarding	2.6.2
Firowall	Packet Filtering	Packet filtering	2.6.3
Firewall	Contents Filtering	Contents filtering	2.6.4
	System Security	System Security	2.6.5
	System Mgmt	System Management	2.7.1
	Firmware Mgmt	Firmware	2.7.2
	Config Mgmt	Config Settings	2.7.3
Managements	Port Mgmt	Port Setting	2.7.4
	Packet Statistics	Packet Statistics	2.7.5
	System Status	System Status	2.7.6
	System Log	System Log	2.7.7

2.2.3. Client (Station) Mode

- WizFi630 works as a Wi-Fi client(station) which is always paired with a Wi-Fi AP.
- Users can take Client Mode as an opposite of Gateway Mode

Menu	Detailed Menu	Description (Link)	List Number
	WAN	Internet connection setting	2.3.1
	LAN	Local network setting	2.3.2
Trate up at	DHCP Clients	DHCP Client Information	2.3.3
Setting	VPN Config	VPN setting	2.3.4
Setting	Routing	Static Routing Setting	2.3.5
	Qos(802.1p)	QoS(802.1p) Setting	2.3.6
	VLAN(802.1q)	<u>VLAN(802.1p)</u>	2.3.7
	Profile	Profile	2.4.9
	Link Status	Link Status	2.4.10
	Site Survey	Site Survey	2.4.11
Wireless	Packet Statistics	AP Wireless Statistics (Client Mode)	2.4.7.2
Setting	Advance	Advanced Wireless Settings(Client Mode)	2.4.2.2
	0.05	Station QoS/DLS(Direct Link Setup)	2.4.8
	QUS	Configurations	
	WPS	WPS Settings (Client Mode)	2.4.5.2
Serial	Serial Port #1	Serial to LAN(Wired and Wireless)	25
Setting	Serial Port #2		2.5
	DMZ	DMZ	2.6.1
	Port Forwarding	Port forwarding	2.6.2
Firowall	Packet Filtering	Packet filtering	2.6.3
Filewali	Contents	Contents filtering	2.6.4
	Filtering		
	System Security	System Security	2.6.5
	System Mgmt	System Management	2.7.1
	Firmware Mgmt	<u>Firmware</u>	2.7.2
	Config Mgmt	Config Settings	2.7.3
Managements	Port Mgmt	Port Setting	2.7.4
	Packet Statistics	Packet Statistics	2.7.5
	System Status	System Status	2.7.6
	System Log	System Log	2.7.7

2.2.4. AP-Client Mode

- ◆ AP-Client Mode Settings are very similar to the Gateway Mode Settings.
- The table below shows the added features of AP-Client mode.
- One module can operate as both AP and Station.
- The wireless module connects to a different AP and functions as WAN port.
- ◆ The channel of WizFi630 must be identical to the channel of AP to be connected
- Support wireless bridge.

Menu	Detailed Menu	Description (Link)	List Number
	WAN	Internet connection setting	2.3.1
	LAN	Local network setting	2.3.2
Internet	DHCP Clients	DHCP Client Information	2.3.3
Setting	VPN Config	VPN setting	2.3.4
	Routing	Static Routing Setting	2.3.5
	Qos(802.1p)	QoS(802.1p) Setting	2.3.6
	Basic	Basic settings	2.4.1
	Advanced	Advanced Wireless Settings (AP Mode)	2.4.2.1
	Security	Wireless Security setting	2.4.3
Wireless	WDS	WDS Setting	2.4.4
Setting	WPS	WPS Setting (AP Mode)	2.4.5.1
	WIFI Multi Bridge	WIFI Multi-Bridge settings	2.4.12
	Station List	Wireless network status	2.4.6
	Packet Statistics	AP Wireless Statistics (AP Mode)	2.4.7.1
Serial	Serial Port #1		25
Setting	Serial Port #2	Serial to LAN(WIRE and WIREless)	2.5
	DMZ	DMZ	2.6.1
	Port Forwarding	Port forwarding	2.6.2
Firewall	Packet Filtering	Packet filtering	2.6.3
	Contents Filtering	Contents filtering	2.6.4
	System Security	System Security	2.6.5
	System Mgmt	System Management	2.7.1
Managements	Firmware Mgmt	Firmware	2.7.2
	Config Mgmt	Config Settings	2.7.3
	Port Mgmt	Port Setting	2.7.4
	Packet Statistics	Packet Statistics	2.7.5



System Status	System Status	2.7.6
System Log	System Log	2.7.7

2.2.5. Ad-hoc Mode

- Settings for ad-hoc mode are almost the same as settings for Client (Station) Mode as previously shown.
- The difference with Client mode is that Client mode is used to connect AP.
- Client Mode connects to AP, whereas ad-hoc Mode connects with stations that use the same SSID.
- ◆ Both 1:1 connection and 1:N connection are possible
- ◆ In case of 1:N, N is possible up to 255

Menu	Detailed Menu	Description (Link)	List Number
	WAN	Internet connection setting	2.3.1
	LAN	Local network setting	2.3.2
Internet	DHCP Clients	DHCP Client Information	2.3.3
Setting	VPN Config	VPN setting	2.3.4
	Routing	Static Routing Setting	2.3.5
	Qos(802.1p)	QoS(802.1p) Setting	2.3.6
	Profile	Profile	2.4.9
	Link Status	Link Status	2.4.10
Wirelass	Site Survey	Site Survey	2.4.11
Sotting	Packet Statistics	AP Wireless Statistics (Client Mode)	2.4.7.2
Setting	Advance	Advanced Wireless Settings(Client Mode)	2.4.2.2
	QoS	Station QoS/DLS(Direct Link Setup) Configurations	2.4.8
	WPS	WPS Settings (Client Mode)	2.4.5.2
Serial	Serial Port #1	Serial to LANIANIzed and Mizelass)	25
Setting	Serial Port #2	Senar to LAN(WIRED and Wireless)	2.5
	DMZ	DMZ	2.6.1
	Port Forwarding	Port forwarding	2.6.2
Firewall	Packet Filtering	Packet filtering	2.6.3
	Contents Filtering	Contents filtering	2.6.4
	System Security	System Security	2.6.5
	System Mgmt	System Management	2.7.1
Managements	Firmware Mgmt	Firmware	2.7.2
	Config Mgmt	Config Settings	2.7.3
	Port Mgmt	Port Setting	2.7.4
	Packet Statistics	Packet Statistics	2.7.5
	System Status	System Status	2.7.6



System Log	System Log	2.7.7



2.3. Internet Setting

2.3.1. Internet connection setting

- ◆ Select the internet service type and WizFi630 can connect to the internet
- ◆ If users would like access to Internet, Gateway Mode should be selected.

₩LAN AP Operation Mode	It shows current	Wide Area Network (WAN) Settings		
Internet Settings	internet connection setup information.	WAN Connection Type:	DHCP (Auto config)	
> LAN	User may choose	DHCP Mode		
DHCP Clients VPN Config	different connection type suitable for environment. Besides, user may also configure parameters according to the selected connection type	Hostname	WLAN-AP	
> Routing		MAC Clone		
QoS(802.1p)		Enabled	Disable 💌	
			Save	
Firewall Managements	1)po.			

Туре	Description		
WAN Connection Type	Select the communication ways for Internet's connection - Static(Fixed IP) - DHCP (Auto config) - PPPoE		
Host Name	Settings about module's host name		
Mac Clone	Some ISPs require that you register a MAC address. Users can directly enter MAC address or use the MAC Clone function		

Туре	Description		
	User should choose DHCP Mode when the user connects to the internet service such as FTTH, cable modems, VDSL, or IP-ADSL		
	WAN Connection Type: DHCP (Auto config)		
	DHCP Mode		
DHCP(Auto config)	Hostname WLAN-AP		
	MAC Clone		
	Enabled Disable -		
	Save		
Static(Fixed IP)	Static IP setting window. If user receives static IP from ISP, user should set the Fixed IP		



	WAN Connection Type:	STATIC (fixed IP)		
	Static Mode			
	IP Address	192.168.123.70		
	Subnet Mask	255.255.255.0		
	Default Gateway	192.168.123.254		
	Primary DNS Server	61.41.153.2		
	Secondary DNS Server	203.248.252.2		
	MAC Clone			
	Enabled	Disable 💌		
		Save		
	Input the network information that	t got from ISP		
	(such as IP, Subnet, Gateway, DNS	5)		
	WAN Connection Type:	PPPoE (ADSL)		
	PPPoE Mode			
	User Name	pppoe_user		
	Password			
	Verify Password			
		Keep Alive 💌		
PPPoE(ADSL)	Operation Mode	Keep Alive Mode: Redial Period 60 senconds		
		On demand Mode: Idle Time 5 minutes		
	MAC Clone			
	Enabled Disable			
	Save			
	User Name: Setting the User Name received from ISP			
	Password: Password assigned by ISP			
	Operation Mode: This mode is used for re-connecting when connection is bad			



2.3.2. Local network setting

♦ WizFi630 internal IP setting, DHCP server setting and DHCP.

WLAN AP Operation Mode Internet Settings WAN LAN DHCP Clients VPN Config Routing	It show local networking information and user can setup the local networking	Local Area Netw	ork (LAN) Settings	
		LAN Setup		
		IP Address	192.168.16.254	
	tunction for user's network environments.	SubnetMask	255.255.255.0	
		MAC Address	00:50:38:08:38:88	
QoS(802.1p) VLAN(802.1q)		DHCP Server	Enable 💌	
 Wireless Settings Serial Setting 		Start IP Address	192.168.16.11	
Firewall Managements		End IP Address	192.168.16.50	
		Subnet Mask	255.255.255.0	
		Primary DNS Server	8.8.8.8	
		Secondary DNS Server	168.126.63.1	
		Lease Time	3600 sec(60-86400, default:3600)	
		Statically Assigned	MAC:	
		Statically Assigned	MAC:	
		Statically Assigned	MAC:	
		IGMP Proxy	Enable 🔻 Group List	
		DNS Proxy	Disable 💌	
			Save	

Туре	Description	
IP Address	Enter the module's IP. (Default Value : 192.168.16.254)	
Subnet Mask	Enter the module's subnet mask.	
MAC Address	MAC Address of module's LAN port (Wireless included). (Read Only)	
DHCP Server	Decide whether the module's DHCP server will be used.	
Start IP Address	Set the start IP address that will be assigned from the DHCP server	
End IP Address	Set the end IP address that will be assigned from the DHCP server.	
Subnet Mask	Enter the value of subnet mask.	
Primary DNS Server	Enter the primary DNS server address.	
Secondary DNS Server	Enter the secondary DNS server address.	
Lease Time Enter the lease time when IP address is assigned.		
Statically Assigned	Maximum of three IP can be statically assigned when IP address is assigned.	