

ECB9500

11N Multi-Function Gigabit Client Bridge
(Client Bridge / Access Point / WDS AP / WDS Bridge /
Client Router / Router / Universal Repeater)

- 2.4GH/
- 2Tx3R 11N
- 300Mbps



PRODUCT DESCRIPTION

ECB9500 is a powerful and multi-functioned 11n product with 7 major multi-functions, is designed to operate in every working environment for enterprises.

ECB9500 is a Wireless Network device that delivers up to 6x faster speeds and 7x extended coverage than 802.11g devices. ECB9500 supports home network with superior throughput, performance and unparalleled wireless range. With user-friendly WPS function, it helps users to connect to wireless device simply with a one-push button.

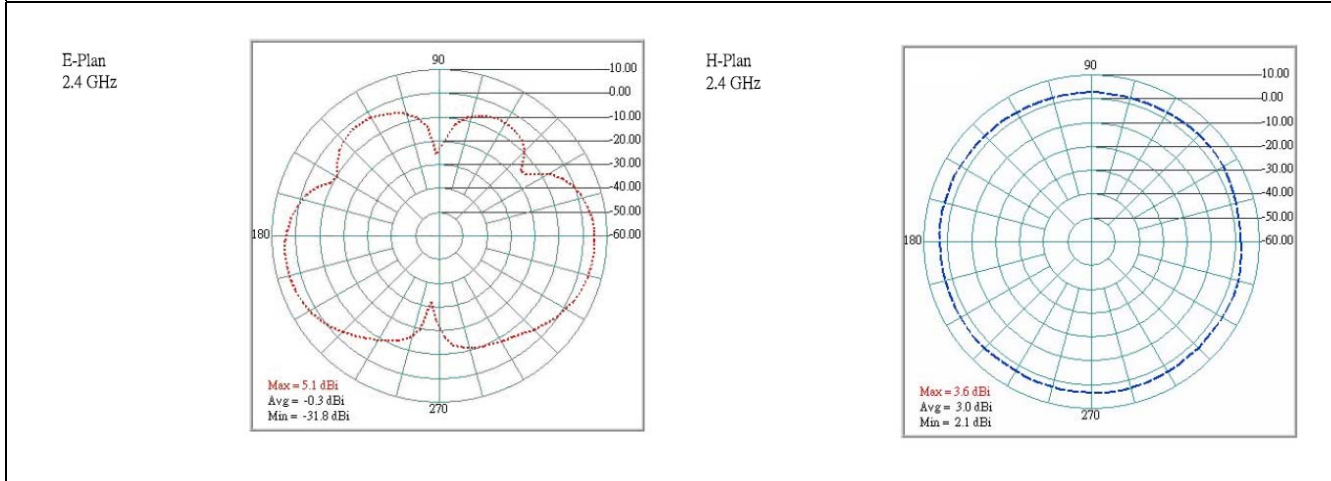
To protect data during wireless transmissions, ECB9500 encrypts all wireless transmissions through WEP data encryption and supports WPA/WPA2. ECB9500 also supports IEEE 802.1x Supplicant function in CB mode. Its MAC address filter allows users to select stations with access to connect network. In addition, the function of user isolation protects private network between client users. ECB9500 thus is the best product to ensure network safety for enterprises.

Features	Benefits
High Speed Data Rate Up to 300Mbps	Capable of handling heavy data payloads such as MPEG video streaming
Gigabit Ethernet	Support up to 1000Mbps networking speed
IEEE 802.11n draft Compliant and backward compatible with 802.11b/g	Fully compatible with IEEE 802.11b/g/n devices
Multi-Function, 7 functions	Allowing users to select different mode in various environment
Point-to-point, Point-to-multipoint Wireless Connectivity	Allowing to transfer data from buildings to buildings
WDS (Wireless Distributed System)	Making wireless AP and Bridge mode simultaneously as a wireless repeater
Universal Repeater	The easiest way to your wireless network's coverage
Support Multi-SSID function (4 SSID) in AP mode	Allowing clients to access different networks through a single access point and to assign different policies and functions for each SSID by manager
WPA2/WPA/ IEEE 802.1x support	Powerful data security
802.1x Supplicant support (CB & CR mode)	More powerful data security in Client Bridge mode
MAC address filtering in AP mode	Ensuring secure network connection
User isolation support (AP mode)	Protecting the private network between client users.
PPPoE function support (CR mode)	Easy to access the internet via ISP service authentication
Power-over-Ethernet (IEEE802.3af)	Flexible Access Point locations and saving cost
Keep personal setting	Keeping the latest setting when firmware upgrade
SNMP Remote Configuration Management	Helping administrators to remotely configure or manage the Access Point easily
QoS (WMM) support	Enhancing user performance and density
WPS push button	WiFi Protected setup within 3 steps to setup the AP easily

TECHNICAL SPECIFICATION	
> Hardware Specification	
Expansion Slots	N/A
Physical Interface	<ul style="list-style-type: none"> LAN: One 10/100/1000Mbps Reset Button Power Jack WPS push button (Wi-Fi Protected Setup)
LEDs Status	<ul style="list-style-type: none"> Power/ Status LAN (10/100/1000Mbps) WLAN (Wireless Connection)
Power Requirements	<ul style="list-style-type: none"> Power Supply: 90 to 240 VDC \pm 10%, 50/60 Hz (depends on different countries) Active Ethernet (Power over Ethernet, IEEE802.3af)- 48 VDC/0.375A Device: 12V/1A
Regulation Certifications	<ul style="list-style-type: none"> FCC Part 15/UL, CE
> RF Specification	
Frequency Band	2.400 ~ 2.484 GHz
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation Technology	<ul style="list-style-type: none"> - OFDM: BPSK, QPSK, 16-QAM, 64-QAM - DBPSK, DQPSK, CCK
Operating Channels	11 for North America, 14 for Japan, 13 for Europe
Receive Sensitivity (Typical)	<ul style="list-style-type: none"> - IEEE802.11n MCS8 @ -91dBm MCS15 @ -74dBm - IEEE802.11g (3RX) 6Mbps@ -92dBm 54Mbps@ -75dBm - IEEE802.11b (1RX) 1Mbps@ -93dBm 11Mbps@ -91dBm
Available transmit power	<ul style="list-style-type: none"> - IEEE802.11n/g 19dBm@6~9 Mbps / MCS9 18dBm@12~18 Mbps / MCS11 17dBm@24~36 Mbps / MCS13 16dBm@48~54 Mbps / MCS15 - IEEE802.11b 18dBm@1, 11Mbps
Antenna *3	Omni-directional external antenna TNC type; Peak Gain = 5 dBi (Reverse)
> Antenna Specification	

Electrical Properties	Impedance	50 ohm
	Frequency Range	0 ~ 6 GHz
	V.S.W.R	1.5 (Max.)
	Working Voltage	≤ 500 Vrms
	Dielectric Withstanding Voltage	≤ 1500 Vrms
	Insulation Resistance	≥ 5000 Megohms
	Contact Resistance	Center contact : 1.5 Milliohms (Max.) Outer contact : 0.2 Milliohms (Max.)

Antenna Radiation Pattern



External Antenna	2 x SMA connector (for 2.4GHz and 5GHz individually)
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SOFTWARE FEATURES

> Settings	
Topology	Infrastructure
Operation Mode	Client Bridge / Access Point / WDS AP / WDS Bridge / Client Router / Router / Universal Repeater
LAN	DHCP Server DHCP Client

Wireless	<p>Wireless Mode – 11b / 11g / 11n / Disable</p> <p>Transmission Rate</p> <ul style="list-style-type: none"> ➤ 11 b/g: 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 in Mbps ➤ 11n: <table border="1" data-bbox="527 420 1458 1045"> <thead> <tr> <th rowspan="2">MCS Index</th> <th colspan="2">Guard Interval 800ns</th> <th colspan="2">Guard Interval 400ns</th> </tr> <tr> <th>20MHz (Mbps)</th> <th>40MHz (Mbps)</th> <th>20MHz (Mbps)</th> <th>40MHz (Mbps)</th> </tr> </thead> <tbody> <tr><td>0</td><td>6.5</td><td>13.5</td><td>7.2</td><td>15</td></tr> <tr><td>1</td><td>13</td><td>27</td><td>14.4</td><td>30</td></tr> <tr><td>2</td><td>19.5</td><td>40.5</td><td>21.7</td><td>45</td></tr> <tr><td>3</td><td>26</td><td>54</td><td>28.9</td><td>60</td></tr> <tr><td>4</td><td>39</td><td>81</td><td>43.3</td><td>90</td></tr> <tr><td>5</td><td>52</td><td>108</td><td>57.8</td><td>120</td></tr> <tr><td>6</td><td>58.5</td><td>121.5</td><td>65</td><td>135</td></tr> <tr><td>7</td><td>65</td><td>135</td><td>72.2</td><td>157.5</td></tr> <tr><td>8</td><td>13</td><td>27</td><td>14.4</td><td>30</td></tr> <tr><td>9</td><td>26</td><td>54</td><td>28.9</td><td>60</td></tr> <tr><td>10</td><td>39</td><td>81</td><td>43.3</td><td>90</td></tr> <tr><td>11</td><td>52</td><td>108</td><td>57.8</td><td>120</td></tr> <tr><td>12</td><td>78</td><td>162</td><td>86.7</td><td>180</td></tr> <tr><td>13</td><td>104</td><td>216</td><td>115.6</td><td>240</td></tr> <tr><td>14</td><td>117</td><td>243</td><td>130</td><td>270</td></tr> <tr><td>15</td><td>130</td><td>270</td><td>144.4</td><td>300</td></tr> </tbody> </table> <p>Signal Strength</p> <p>Bandwidth Selection- 40/20 MHz for 11n</p>	MCS Index	Guard Interval 800ns		Guard Interval 400ns		20MHz (Mbps)	40MHz (Mbps)	20MHz (Mbps)	40MHz (Mbps)	0	6.5	13.5	7.2	15	1	13	27	14.4	30	2	19.5	40.5	21.7	45	3	26	54	28.9	60	4	39	81	43.3	90	5	52	108	57.8	120	6	58.5	121.5	65	135	7	65	135	72.2	157.5	8	13	27	14.4	30	9	26	54	28.9	60	10	39	81	43.3	90	11	52	108	57.8	120	12	78	162	86.7	180	13	104	216	115.6	240	14	117	243	130	270	15	130	270	144.4	300
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Security	<ul style="list-style-type: none"> • WEP Encryption-64/128 bit • WPA Personal (WPA-PSK using TKIP or AES) • WPA Enterprise (WPA-EAP using TKIP) • 802.1x Authenticator • 802.1x Supplicant- MD5/TTLS (CB & CR mode) • Hide SSID in beacons • Multiple SSID with 802.1q VLAN tagging (up to 4 SSIDs) in AP mode • MAC Filter(AP mode) • WLAN L2 isolation(AP mode) • Wireless STA (Client) connected list (Idle/Connection Time, Pkt statistics) 																																																																																									
QoS	WMM																																																																																									
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Configuration	Web-based configuration HTTP / Telnet																																																																																									
Firmware Upgrade	Upgrade firmware via web-browser Keep latest setting when f/w update																																																																																									
Administrator Setting	Administrator password change																																																																																									
Reset Setting	Reboot (press 1 second) Reset to Factory Default (press 10 second)																																																																																									
System monitoring	Status, Statistics and Event Log																																																																																									

SNMP	v1, v2c
MIB	MIB I, MIB II (RFC1213) and Private MIB
Traffic Measurement	Per interface
Bandwidth Measurement	IP range and bandwidth management
Backup & Restore	Settings through Web

ECB9500 7 FUNCTIONS	
<p>The diagram shows a central EnGenius ECB9500 router with three antennas. It is surrounded by a blue circular signal area. To the left, a laptop is labeled 'WLAN PCI'. To the right, a USB device is labeled 'WLAN USB'. Below the router, a red oval contains the text 'WIRELESS AP'.</p>	<p>01.AP MODE</p> <p>The most basic mode of multi-function Access Point. In this mode, the AP will act as a central hub for different Wireless LAN clients. Some hot spot APs requires 802.1x authenticator function to authenticate a user before providing internet service.</p>
<p>The diagram shows a 'WISP OUTDOOR AP' on a building. A signal wave connects it to a central EnGenius ECB9500 router. A purple double-headed arrow connects the router to a 'DESKTOP PC'. Below the router, a red oval contains the text 'CLIENT MODE'.</p>	<p>02.CLIENT MODE</p> <p>Also known as Ethernet Client. In this mode, AP will act as a WLAN card to connect with remote AP. Users can connect PC or local LAN to the Ethernet port of the client mode AP. This mode is mostly used as a CPE device for WISP subscriber service.</p>
<p>The diagram shows a 'DESKTOP PC' and a 'NOTEBOOK' on the left, both connected to a central EnGenius ECB9500 router. The router is connected to an 'ADSL MODEM', which is in turn connected to the 'INTERNET' (represented by a globe with 'www'). Below the router, a red oval contains the text 'ROUTER'.</p>	<p>03.ROUTER MODE</p> <p>The LAN port will behave as a WAN port for wired connection to ADSL or Cable modem. The NAT routing will be performed between the WAN and LAN port. Making IP sharing possible.</p>

	<p>04. BRIDGE MODE</p> <p>In This mode, 2 access points is being connected to provide a wireless bridge between 2 remote LANs. It is mostly used by enterprise to connect 2 remote office's network together. The bridge mode is connected by using either the WDS (Wireless Distributed System) or ADHOC topology.</p>
	<p>05. UNIVERSAL REPEATER</p> <p>A universal repeater extends the wireless coverage of another wireless AP or router. The advantage of the universal repeater is that the remote device does not need to have WDS function and may not need to be the same brand or make. Therefore, it can work with almost any wireless device.</p>
	<p>06. WDS</p> <p>This function extends wireless range of another wireless AP. For WDS repeater to work, the remote wireless AP must also support WDS function and in some cases only works with the same brand and make. The function may support token ring and star topology with the spanning tree protocol.</p>
	<p>07. WISP(CLIENT ROUTER) MODE</p> <p>In WISP mode, the AP will behave as Client. In addition, router function is added between the wireless WAN side and the Ethernet LAN side. Therefore, the WISP subscriber can share the WISP connection without the need of extra router.</p>

ENVIRONMENT AND MECHANICAL	
Temperature Range	Operating: 0°C to 45°C (32°F to 113°F) Storage: -20°C to 70°C (-4°F to 158°F)
Humidity (non-condensing)	5% ~ 95% typical
Dimensions	125mm (L) x 108mm (W) x 31mm (H)
Weight	350g

PACKAGE CONTENT
▶ 1 x 11N multi-function Gigabit Client Bridge (ECB9500)
▶ 1 x Power Adaptor (12V/1A)
▶ 1 x CD with User's Manual
▶ 1 x QIG
▶ 1 x Ethernet Cable
▶ 3 x 5dBi 2.4GHz Dipole Antenna