

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



Package Content

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

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 |
| 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 |

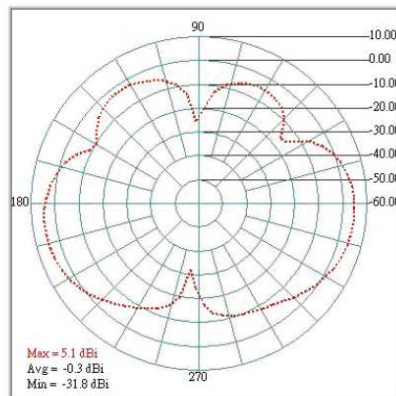
| TECHNICAL SPECIFICATION | |
|------------------------------------|--|
| > Hardware Specification | |
| Expansion Slots | N/A |
| Physical Interface | <ul style="list-style-type: none"> • LAN: One 10/100/1000Mbps • Reset Button • Power Jack • WPS push button (Wi-Fi Protected Setup) |
| LEDs Status | <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 <ul style="list-style-type: none"> MCS8 @ -91dBm MCS15 @ -74dBm - IEEE802.11g (3RX) <ul style="list-style-type: none"> 6Mbps @ -92dBm 54Mbps @ -75dBm - IEEE802.11b (1RX) <ul style="list-style-type: none"> 1Mbps @ -93dBm 11Mbps @ -91dBm |
| Available transmit power | <ul style="list-style-type: none"> - IEEE802.11n/g <ul style="list-style-type: none"> 19dBm @ 6~9 Mbps / MCS9 18dBm @ 12~18 Mbps / MCS11 17dBm @ 24~36 Mbps / MCS13 16dBm @ 48~54 Mbps / MCS15 - IEEE802.11b <ul style="list-style-type: none"> 18dBm @ 1, 11Mbps |
| Antenna *3 | Omni-directional external antenna TNC type; Peak Gain = 5 dBi (Reverse) |

> Antenna Specification

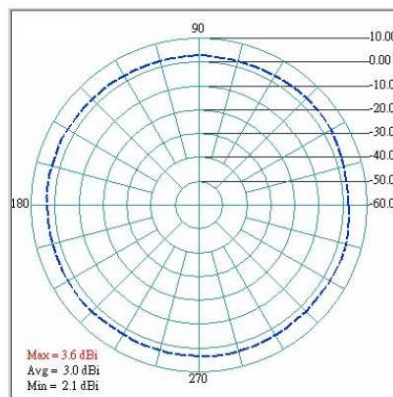
| | | |
|-----------------------|---------------------------------|---|
| Electrical Properties | Impedance | 50 ohm |
| | Frequency Range | 0~6 GHz |
| | V.S.W.R | 1.5 (Max.) |
| | Working Voltage | ≤ 500 Vrms |
| | Dielectric Withstanding Voltage | ≤ 1500 Vrms |
| | Insulation Resistance | ≥ 5000 Megohms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

> Antenna Radiation Patterns

E-Plan
2.4 GHz



H-Plan
2.4 GHz



SOFTWARE FEATURES

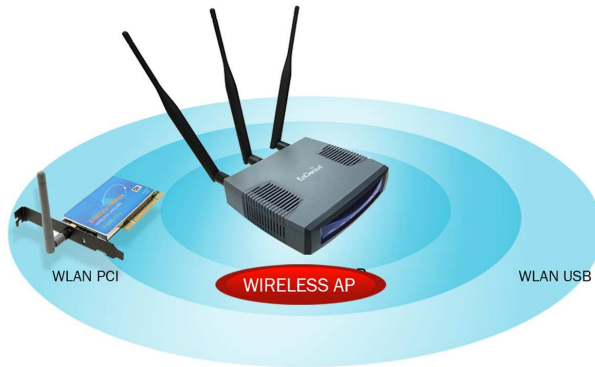
> **Settings**

| 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"> <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 |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| > Management | |
|------------------------|---|
| 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 |

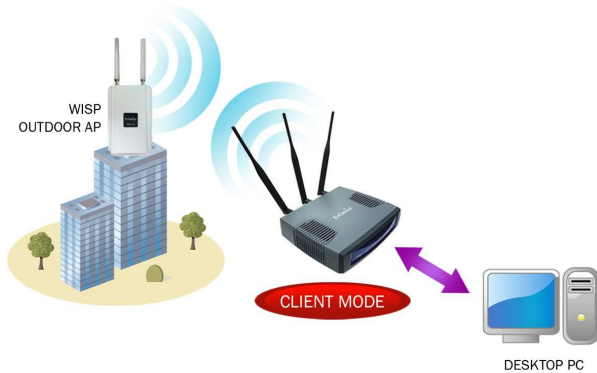
| > Environment & Physical | |
|--|--|
| Temperature Range | Operating: 0°C to 45°C (32°F to 113°F) Storage: -20°C to 70°C (-4°F to 158°F) |
| Humidity (non-condensing) | 5% ~ 95% typical |
| Dimensions | 125mm (L) x 108mm (W) x 31mm (H) |
| Weight | 350g |

> **ECB-9500 7 Functions**



01.AP MODE

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 hotspots APs requires 802.1x authenticator function to authenticate a user before providing internet service.



02.CLIENT MODE

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.



03.ROUTER MODE

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.



04.BRIDGE MODE

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.



05. UNIVERSAL REPEATER

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.



06. WDS

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.



07. WISP (CLIENT ROUTER) MODE

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.