

M5000

Wireless 802.11 a/b/g Outdoor AP

- 2.4GHz / 5GHz
- 54Mbps
- 802.11 a/b/g
- MESH Function



PRODUCT DESCRIPTION

M5000 is a long range outdoor wireless Access Point / Client Bridge that operates in both **5GHz and 2.4GHz** frequency. It provides high bandwidth up to 54Mbps and features high transmitted output power as well as superior sensitivity. M5000 extends radio coverage, avoids unnecessary roaming between Access Points and ensures a stable wireless connection while reduces the number of required equipments. With mesh function implemented, it can be used to establish mesh network, reduces the expense of equipment and risk of disconnection.

M5000 provides user friendly interface including user friendly distance control ranges from 1KM up to 30KM and RSSI LED indicator offering real time signal status. It comes with PoE injector for convenient outdoor installation.

M5000 enforces transmission security with full support of latest encryption mechanism including 64/128-bit WEP, WPA and WPA2. With 14dBi internal antenna and superior performance, M5000 makes an optimal wireless solution for both small and large scale projects.

Package Content

- 1* (M5000)
- 1* PoE Injector (EPE-1212)
- 1* Power Adaptor(24V/1A)
- 1* CD with User's Manual
- 1* QIG
- 1* Metal strap
- 2* Special screw set

M5000 Datasheet Version 02032010

*Theoretical wireless signal rate based on IEEE standard of 802.11 a, b, g chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice

BUSINESS CLASS

M5000

FEATURES

Wireless

- :: **2.4GHz/5GHz** It works in 2.4GHz or 5GHz frequency spectrum.
- :: **MESH** It is designed to establish a network with best link reliability under harsh outdoor environment. There is not any limitation on transmission and network communication. In this mode for better performance, recommended 1 Gateway with 4 Relay in linear and radiative deployment scenario.
- :: **High output power** Transmit high output power programmable for different country selections.
- :: **High Data Rate** High speed transmitting rate up to 54Mbps, support large payload such as MPEG video streaming.
- :: **Multifunction application** Access Point/Client Bridge/Client Router/WDS Function/MESH.
- :: **Long range transmitting** Transmit power control and distance control (ACK timeout).
- :: **Narrow Bandwidth** Provide 5MHz/10MHz/20MHz bandwidth selection.
- :: **Signal Strength Display** RF signal strength status shown LEDs of 3 colors, making network build-up easier. LED indicators have the best transmit and receive signal for traffic communication.
- :: **Multiple SSID** 4 SSID supported. Each SSID can set itself wireless or WAN access setting.
- :: **QoS(WMM)** Enhance performance and density.

Networking

- :: **PPPoE & PPTP** Point-to-Point Protocol over Ethernet at Client Router mode. This function will keep trying when failed or disconnected. Point-to-Point Tunneling Protocol (PPTP) is a method for implementing virtual private networks.
- :: **Traffic Shaping** Traffic shaping is the control of network traffic in order to optimize or guarantee performance.
- :: **VPN Pass Through**

Security

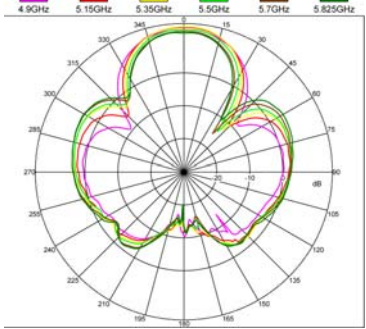
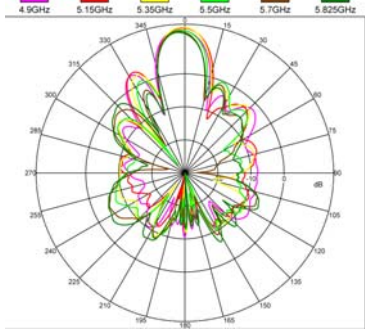
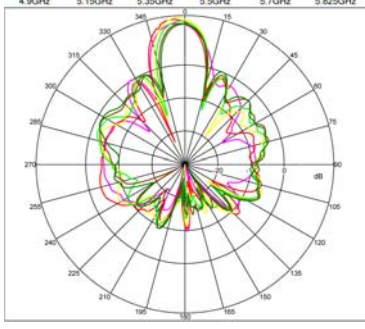
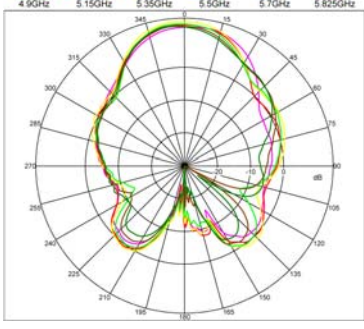
- :: **802.11i** WEP, WPA, WPA2 (Encryption support TKIP/AES)
- :: **MAC address functions** MAC address filter (AP mode)
- :: **802.1x** IEEE802.1x Authenticator
- :: **Station isolation** L2 isolation

Management

- :: **802.11i & 802.1x** WEP, WPA, WPA2 (Encryption support TKIP/AES), IEEE802.1x Authenticator
- :: **MAC address functions** MAC address filter (AP mode) up to 50
- :: **AP Detection** Scan all neighboring APs with their channels and signal strengths automatically for best operated channel selection on installing
- :: **Firmware Upgrade** Upgrading firmware via web browser, setting are reserved after upgrade
- :: **Reset & Backup** Reset to factory default. User can export all setting into a file via WEB
- :: **Ping & Trace Route** Built-in PING function & Trace Route function in Web GUI
- :: **MIB** MIB I, MIB II(RFC1213) and Private MIB
- :: **SNMP** V1, V2c

TECHNICAL SPECIFICATION				
> Hardware Specification				
MCU/RF	Atheros AR2316 Single Chip			
Memory	32MB SDRAM			
Flash	8MB			
Physical Interface	One 10/100 Fast Ethernet RJ-45 One Reset Button One Power Jack			
LED indicators	Power/ Status LAN (10/100Mbps) WLAN (Wireless Connection)			
Power Requirements	Power Supply : 90 to 240 VDC \pm 10%, 50/60Hz (Depends on different countries) Active Ethernet (Power over Ethernet, IEEE802.3af), 48VDC/0.375A Adapter : 12V/1A			
> RF Specification				
Frequency Band	802.11b/g 2.412~2.472GHz			
Modulation Technology	OFDM = BPSK, QPSK, 16-QAM, 64-QAM DSSS = DBPSK, DQPSK, CCK			
Operating Channels	802.11b/g 11 for North America, 14 for Japan, 13 for Europe			
Receive Sensitivity (Typical)	802.11g -92 dBm @ 6Mbps -74 dBm @ 54Mbps		802.11b -97 dBm @ 1Mbps -89 dBm @ 11Mbps	
Available transmit power (Average power)	FCC		ETSI	
	Frequency	Power	Frequency	Power
	2.412~2.462 GHz IEEE802.11g	28dBm@6~24Mbps 26dBm@36Mbps 24dBm@48Mbps 23dBm@54Mbps	2.412~2.472 GHz IEEE802.11g	28dBm@6~24Mbps 26dBm@36Mbps 24dBm@48Mbps 23dBm@54Mbps
	2.412~2.462 GHz IEEE802.11b	28dBm@1~11Mbps	2.412~2.472 GHz IEEE802.11b	28dBm@1~11Mbps
Internal Antenna (Dual Polarization)	Antenna Specification			
	Gain		5dBi	
	Radiation		Omni	
	Frequency Band Range		0-6GHz	

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Physical Interface	1 x 10/100 Fast Ethernet RJ-45																														
LED indicators	Power/ Status																														
Power Requirements	Active Ethernet (Power over Ethernet) Proprietary PoE design																														
Regulation Certifications	FCC Part 15C/15B/15E, EN301 893, EN 300 328, EN 301 489-1/-17, EN60950, IC																														
> RF Specification																															
Frequency Band	802.11a = 5.150~5.350GHz, 5.470~5.725GHz, 5.725~5.825GHz																														
Modulation Technology	OFDM = BPSK, QPSK, 16-QAM, 64-QAM																														
Operating Channels	802.11a = See the Table1																														
Receive Sensitivity (Typical)	802.11a -92dBm @ 6Mbps, -73dBm @ 54Mbps	802.11g -92 dBm @ 6Mbps, -75 dBm @ 54Mbps	802.11b -97 dBm @ 1Mbps -91 dBm @ 11Mbps																												
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Internal Antenna (Dual Polarization)	Antenna Specification																														
	Gain	14dBi																													
	Radiation	Directional																													
	Frequency Band Range	5.1-5.8GHz																													
	Horizontal -3dB Bandwidth	35°																													
	Vertical -3dB Bandwidth	15°																													

Internal Antenna Pattern	
<p style="text-align: center;">Horizontal Azimuth</p> 	<p style="text-align: center;">Horizontal Elevation</p> 
<p style="text-align: center;">Vertical Azimuth</p> 	<p style="text-align: center;">Vertical Elevation</p> 
<p>External Antenna</p>	<p>2 x SMA connector (for 2.4GHz and 5GHz individually)</p>

SOFTWARE FEATURES	
> General	
Topology	Infrastructure
Protocol / Standard	IEEE 802.3 (Ethernet) IEEE 802.3u (Fast Ethernet) IEEE 802.11b/g (2.4GHz WLAN)
Operation Mode	802.11 a/b/g Access Point Client Bridge Client Router WDS AP/CB Mesh Function
LAN	DHCP Server DHCP Client
VPN	VPN Pass through
Wireless	Channel Selection (Setting varies by countries) Transmission Rate 11 a/b/g : 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps Long distance transmission : 1km to 30km Transmit power table Antenna Diversity with Dual Polarization Signal Strength indication using LEDs Auto Channel Selection AP Detection Traffic Shaping PPPoE(CR mode) and PPTP Narrow Bandwidth 5MHz/10MHz/20MHz Support PING function and Trace Route function MSSID Support BSSID VLAN Support
Security	WEP Encryption-64/128/152 bit WPA/WPA2 Personal (WPA-PSK using TKIP or AES) WPA/WPA2 Enterprise (WPA-EAP using TKIP) 802.1x Authenticator Hide SSID in beacons MAC address filtering, up to 50 field Wireless STA (Client) connected list
QoS	WMM

> Management	
Configuration	Web-based configuration (HTTP)
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 5 seconds)
System monitoring	Status, Event Log
SNMP	V1, V2c
MIB	MIB I, MIB II (RFC1213)
Backup & Restore	Settings through Web
Time setting	NTP (Auto-setting of time); Time setting manually

ENVIRONMENTAL AND MECHANICAL	
Temperature Range	Operating -20°C~70°C Storage -30°C to 80°C
Humidity (non-condensing)	0% ~ 95% typical
Dimensions	260mm (L) x 84mm (W) x 55mm (H)
Weight	300g