

ASTRUM Series Product Family Description 802.11 a/b/g/n MIMO OFDM Outdoor Radios

LPASTRUM_PFD_ENB01W

Features

■ Integrated Multi-radios interfaces on ASTRUM Series platform.

Multiple radios interfaces were integrated by "Fast Data Switching" technology from LanPro inside the **ASTRUM series** platform. There are 3 models for options:
LP-ATMH11125 (1*radio) /
LP-ATMH11225 (2*radios) /
LP-ATMH11325 (3*radios)
and each radio interface can be configured independently to run different wireless connectivity missions.

■ High efficiency transmission in multi-hops repeating.

The backbone throughput will remain in a high level even after several hops repeating. (≥ 100 Mbps @ 10 hops), and the total latency is short as well (≤ 15 ms @ 10 hops).

■ Flexible wireless backbone deployment options

Except the Fast data switching and integrated multi-radios interfaces, high output power MIMO-OFDM technology is also a key factor to support **ASTRUM** Multi-hops repeater series to be the most Flexible wireless backbone deployment options.

■ Secure and efficient client connectivity.

The nimble QoS (Quality of Service) configuration provides flexible management of user's access bandwidth of wireless connectivity. Perfect integrated with central RADIUS server and data encryption (WEP/WPA/WPA2), the **ASTRUM** Multi-hops Repeater series provide a secure wireless connectivity for each client device.



ASTRUM Series Product Family Description 802.11 a/b/g/n MIMO OFDM Outdoor Radios

The ASTRUM series are enterprise and carrier-grade IEEE 802.11N Outdoor Wireless radios IP-68 rated which offer the user a powerful MIMO-OFDM solution with a robust and high performance design in both 2.4 GHz and 5 GHz ISM bands.

The Multi-Hops Repeater function in ASTRUM Series offer the user a great solution for PTP / PTMP/ Hotzone applications by integrated multi-radios interfaces (up to 3* Radio modules) and Fast Data Switching technology from LanPro.

This series is the ideal solution for Service Providers to deliver carrier-grade wireless services to multiple market segments such as campuses, hospitality, healthcare, warehousing and wider metropolitan area deployments. Even in the NLOS environments, this series shows incredible efficiency on multi-hops repeating – truly throughput ≥ 100 Mbps and only ≤ 15 ms total latency after 10 extended hops.

Much different from the traditional Wi-Fi that dropped 50% throughput per each extended hop and can't get reply from remote device after 5~6 hops for too long latency.

A Specifications

Interfaces and Standards	
Wireless Standard	IEEE802.101a/b/g/n; IEEE802.11h (DFS)
Wireless Interface	LP-ATMH11125: N-type female connectors x 2 LP-ATMH11225: N-type female connectors x 4 LP-ATMH11325: N-type female connectors x 6
Ethernet Standard	IEEE802.3 / 802.3u / 802.3a (1000 Base-T) IEEE802.1d (STP)/ 802.1w (RSTP)/ 802.1s (MSTP) IEEE802.1q (VLAN) / IEEE802.1p (Layer 2 QOS)
Ethernet Interface	10/100/1000 Base-T RJ-45 port with M25 cable gland
Security & Access Control	
<ul style="list-style-type: none"> • Static WEP up to 152 bits. • WPA / WPA2 PSK / EAP with TKIP / CCMP AES based Encryption. • IEEE 802.1x EAP-MD5 / EAP-TLS / EAP-TTLS. • MAC Address ACL (Access Control List). • Client access number control + client isolation. • Hidden ESSID. • VLAN priority + Bandwidth control. 	
Management	
<ul style="list-style-type: none"> • Web management (HTTPS) / Telnet / SSH / CLI commands. • SNMP V1/V2, standard / private MIBs. • Event syslog. • Management VLAN ID. • Time setting (Current time, time zone & NTP client). • Firmware upgrade / downgrade via FTP / WEB / SNMP / Layer 2 / Batch process. • Ping watch dog. • Firmware upgrade / downgrade via FTP / WEB / SNMP / Layer 2 / Batch process. • Dual Configuration files / Factory Default. • Multiple Level Management. 	
Electrical and Interface	
<ul style="list-style-type: none"> • 48VDC Passive POE • RJ-45 connector with M25 cable gland • Power Consumption: <ul style="list-style-type: none"> LP-ATMH11125: Max. 17W LP-ATMH11225: Max. 21W LP-ATMH11325: Max. 25W • Surge protection: IEC61000-4-5 (4KV/2KA) 	
Physical Specifications	
<ul style="list-style-type: none"> • Dimensions: 259 (H) * 250 (W) *75 (D) ; mm • Weight: 1.98Kg • Enclosure: Aluminum Die Casting. • Mounting: Pole / Wall; Stainless Steel. 	
Environmental	
<ul style="list-style-type: none"> • Operating temperature: -35°C ~ 70°C (-31°F ~ 158°F) • Storage temperature: -40°C ~ 85°C (-40°F ~ 185°F) • Humidity: Max 95% non-condensing • Waterproof: IP-68 waterproof • Wind survivability: 180km/h 	
Standard Package	
<ul style="list-style-type: none"> • LP-ATMH11125 IEEE802.11a/b/g/n outdoor radio • 48VDC Passive PoE Injector • M25 Waterproof connector for SFTP cable • Pole / Wall Stainless Steel mounting bracket Kit • Power cord and 48VDC power adaptor • Water-resistant adhesive tape • Quick installation guide • Installation CD 	
Warranty	
<ul style="list-style-type: none"> • 1 Year 	
Compliant Standards	
<ul style="list-style-type: none"> • FCC • IEC61000-4-5 (4KV/2KA) 	

B Radio Specifications

Frequency	USA: 2.400 ~ 2.483 GHz / 5.15 ~ 5.35 GHz / 5.5 ~ 5.7 GHz / 5.725 ~ 5.825 GHz							
	Europa: 2.400 ~ 2.483 GHz / 5.15 ~ 5.35 GHz / 5.47 ~ 5.725 GHz (*Most countries in Europe)							
	Japan: 2.400 ~ 2.497 GHz / 5.15 ~ 5.35 GHz / 5.47 ~ 5.725 GHz							
	China: 2.400 ~ 2.483 GHz / 5.725 ~ 5.85 GHz							
Modulation	Data Rate	IEEE 802.11b		IEEE 802.11a		IEEE 802.11g		
		Output power	Rx Sensitivity	Output power	Rx Sensitivity (1Rx / 2Rx)	Output power	Rx Sensitivity (1Rx / 2Rx)	
CCK	1~11Mbps	24(±1.5) dBm	-76~-92dBm	N/A	N/A	N/A	N/A	
BPSK 1/2	6Mbps	N/A	N/A	24(±1.5) dBm	-82/-95 dBm	25(±1.5) dBm	-82/-95 dBm	
BPSK 3/4	9Mbps	N/A	N/A	24(±1.5) dBm	-81/-95 dBm	25(±1.5) dBm	-81/-95 dBm	
QPSK 1/2	12Mbps	N/A	N/A	24(±1.5) dBm	-79/-94 dBm	25(±1.5) dBm	-79/-94 dBm	
QPSK 3/4	18Mbps	N/A	N/A	24(±1.5) dBm	-77/-91 dBm	25(±1.5) dBm	-77/-92 dBm	
16QAM 1/2	24Mbps	N/A	N/A	24(±1.5) dBm	-74/-88 dBm	25(±1.5) dBm	-74/-90 dBm	
16QAM 3/4	36Mbps	N/A	N/A	23(±1.5) dBm	-70/-85 dBm	24(±1.5) dBm	-70/-85 dBm	
64QAM 2/3	48Mbps	N/A	N/A	22(±1.5) dBm	-66/-81 dBm	23(±1.5) dBm	-66/-82 dBm	
64QAM 3/4	54Mbps	N/A	N/A	21(±1.5) dBm	-65/-79 dBm	22(±1.5) dBm	-65/-80 dBm	
MCS Index	IEEE 802.11an /HT20				IEEE 802.11an /HT40			
	Data Rate (Mbps)		Output Power	Rx Sensitivity (1Rx / 2Rx)	Data Rate (Mbps)		Output Power	Rx Sensitivity (1Rx / 2Rx)
	GI=800ns	GI=400ns			GI=800ns	GI=400ns		
MCS0/8	6.5/13	7.2/14.4	24(±1.5) dBm	-82/-94 dBm	13.5/27	15/30	22(±1.5) dBm	-79/-90 dBm
MCS1/9	13/26	14.4/28.9	23(±1.5) dBm	-79/-92 dBm	27/54	30/60	22(±1.5) dBm	-76/-89 dBm
MCS2/10	19.5/39	21.7/43.3	22(±1.5) dBm	-77/-90 dBm	40.5/81	45/90	21(±1.5) dBm	-74/-87 dBm
MCS3/11	26/52	28.9/57.8	21(±1.5) dBm	-74/-87 dBm	54/108	60/120	20(±1.5) dBm	-71/-83 dBm
MCS4/12	39/78	43.3/86.7	20(±1.5) dBm	-70/-84 dBm	81/162	90/180	19(±1.5) dBm	-67/-80 dBm
MCS5/13	52/104	57.8/115.6	19(±1.5) dBm	-66/-80 dBm	108/216	120/240	18(±1.5) dBm	-63/-77 dBm
MCS6/14	58.5/117	65/130.3	18(±1.5) dBm	-65/-78 dBm	121/242	135/270	17(±1.5) dBm	-62/-75 dBm
MCS7/15	65/130	72.2/144.4	18(±1.5) dBm	-64/-76 dBm	135/270	150/300	17(±1.5) dBm	-61/-73 dBm
MCS Index	IEEE 802.11bgn /HT20				IEEE 802.11bgn /HT40			
	Data Rate (Mbps)		Output Power	Rx Sensitivity (1Rx / 2Rx)	Data Rate (Mbps)		Output Power	Rx Sensitivity (1Rx / 2Rx)
	GI=800ns	GI=400ns			GI=800ns	GI=400ns		
MCS0/8	6.5/13	7.2/14.4	25(±1.5) dBm	-82/-95 dBm	13.5/27	15/30	24(±1.5) dBm	-82/-95 dBm
MCS1/9	13/26	14.4/28.9	25(±1.5) dBm	-81/-95 dBm	27/54	30/60	24(±1.5) dBm	-81/-95 dBm
MCS2/10	19.5/39	21.7/43.3	25(±1.5) dBm	-79/-94 dBm	40.5/81	45/90	24(±1.5) dBm	-79/-94 dBm
MCS3/11	26/52	28.9/57.8	25(±1.5) dBm	-77/-91 dBm	54/108	60/120	23(±1.5) dBm	-77/-91 dBm
MCS4/12	39/78	43.3/86.7	24(±1.5) dBm	-74/-88 dBm	81/162	90/180	22(±1.5) dBm	-74/-88 dBm
MCS5/13	52/104	57.8/115.6	23(±1.5) dBm	-70/-85 dBm	108/216	120/240	21(±1.5) dBm	-70/-85 dBm
MCS6/14	58.5/117	65/130.3	22(±1.5) dBm	-66/-81 dBm	121/242	135/270	21(±1.5) dBm	-66/-81 dBm
MCS7/15	65/130	72.2/144.4	21(±1.5) dBm	-65/-79 dBm	135/270	150/300	20(±1.5) dBm	-65/-79 dBm
Advanced Technology								
Watch dog								
Integrated Multiple Radios management								
Fast Data Switching								
Intelligent Wireless Traffic Control								
Against Co-band Interference								

C Real TCP Throughput

Modelo No.	Descripción	Potencia de salida	Tasa Real TCP (Throughput)
LP-ATMH11125	2.4/5GHz ISM Band 2x2 MIMO-OFDM Outdoor IP-68 Radio (Multi-hops repeater).	25dBm @ QPSK	HT20MHz: 80~100Mbps HT40MHz: 160~200Mbps
LP-ATMH11225	2.4/5GHz ISM Band 4x4 MIMO-OFDM Outdoor IP-68 Radio (Multi-hops repeater).	25dBm @ QPSK	HT20MHz: 140~160Mbps HT40MHz: 280~320Mbps
LP-ATMH11325	2.4/5GHz ISM Band 6x6 MIMO-OFDM Outdoor IP-68 Radio (Multi-hops repeater).	25dBm @ QPSK	HT20MHz: 140~160Mbps HT40MHz: 280~320Mbps

D How to order

LP-ATMH11125	2.4/5GHz ISM Band 2x2 MIMO-OFDM Outdoor IP-68 Radio (Multi-hops repeater) 25dBm @ QPSK
LP-ATMH11225	2.4/5GHz ISM Band 4x4 MIMO-OFDM Outdoor IP-68 Radio (Multi-hops repeater) 25dBm @ QPSK
LP-ATMH11325	2.4/5GHz ISM Band 6x6 MIMO-OFDM Outdoor IP-68 Radio (Multi-hops repeater) 25dBm @ QPSK