

SM Sygnus Deneb OFDM MIMO Outdoor Radio 2.4 / 4.9 / 5 GHz



The Star Microwave Sygnus Deneb OFDM MIMO series is an enterprise and carrier-grade 802.11N Outdoor Wireless radio, with offers a powerful MIMO-OFDM solution with robust and high performance design in 2.4 GHz, 4.9 GHz and 5 GHz ISM bands

The Multi-Hop configurations in Sygnus Deneb Series provides a great solution for PTP / PTMP / Mesh / Hot zone applications by integrating multi-radios interfaces (up to 3* Radio modules) and Fast Data Switching technology from Star Microwave.

This series is the most ideal solution for Service Providers to deliver carrier-grade wireless services to multiple market segments such as campuses, healthcare and wider metropolitan area deployments. Even in the NLOS environments the Sygnus Deneb shows incredible efficiency on multi-hop configurations – it gives 100 Mbps of true Ethernet throughput with only 15 ms total latency after 10 extended hops. Traditional Wi-Fi drops 50% of its throughput per each extended hop with greater latency after 5~6 hops.

Product Highlights

Flexible wireless backbone deployment options

With fast data switching and integrated multi-radio interfaces, the high output power MIMO-OFDM technology is also a key factor to support Star Microwave Multi-hop repeater series to be the most flexible wireless backbone deployment option.

Integrated Multi-radios interfaces on Star Microwave Series platform.

Sygnus Deneb MIMO-2x2 (1*radio) / Sygnus Deneb MIMO-4x4 (2*radios) / Sygnus Deneb MIMO-6x6 (3*radios) / Sygnus.

Product Features

- 802.11 a/b/g/n MIMO OFDM Radio
- Integrated Multi-Radio Interfaces
- Fast Data Switching Technology
- Real Aggregate TCP Throughput \geq 320Mbps @ 4x4 & 6x6 Base Station
- High Efficiency in Multi-hops Repeating
 - Low Throughput dropped (\geq 100 Mbps @ 10 hops)
 - Short Latency increased (\leq 15 ms @ 10 hops)
- Operate in 2.4GHz /4.9GHz/ 5GHz ISM Band
- IP-68 Water & Dust Resistant
- IEC61000-4-5 Surge Protection
- Outstanding MTBF
- Real Aggregate TCP Throughput



Technical Specifications

RADIO	
Operating Frequency	2.400 ~ 2.483 GHz / 5.15 ~ 5.35 GHz / 5.5 ~ 5.7 GHz / 5.725 ~ 5.825 GHz
	2.400 ~ 2.483 GHz / 5.15 ~ 5.35 GHz / 5.47 ~ 5.725 GHz
	2.400 ~ 2.497 GHz / 5.15 ~ 5.35 GHz / 5.47 ~ 5.725 GHz
Channel Bandwidth	Software selectable channel bandwidths of 20 and 40 MHz
Data Rate	Up to 320 Mbps
INTERFACES	
Ethernet	10/100/1000 Base-T RJ-45 port
MANAGEABILITY	
Management and Setup	Web-based (HTTPSS) / Telnet / SSH / CLI Comands
SNMP Agents	V1, V2c / Private Mibs
Operating System	Windows 98 / 2000 / NT / XP
Network Architecture	PTMP or PTP
Bandwidth Management	YES
VLAN transparent	YES
SECURITY	
Data Encryption	64/128/152 bits encryption; WPA-PSK, WPA2 (AES-128 bit)
Authentication	802.1x Auth.(EAP)
Authorization	MAC Address Access and Protocol Filter
ENVIRONMENT	
Operating Temperature	-35°C ~ 70°C (-31°F ~ 158°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Humidity	95% non-condensing
POWER SUPPLY	
48VDC Passive PoE Injector	
PHYSICAL	
Dimension	259 (H) * 250 (W) *75 (D) ; mm
Weight	1.98 Kg.
WARRANTY	
2 Years	

MODULATION / RATE

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	23(±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 / 20 MHz				IEEE 802.11an / 40 MHz			
	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

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Specifications and availability may change without notice.

MODULATION / RATE

MCS Index	IEEE 802.11bgn / 20 MHz				IEEE 802.11bgn / 40 MHz			
	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

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