



AC nebula series

5 GHz frequency

1300 mW radio power

17 dBi antenna gain

866 Mbps modulation

PoE Conditioner technology

Fiber SFP connector

Base Sector 90 Dual AC

NWBS-GIGA-F-1300AN-17SEC90-MIMO-CTAF



Board Specifications

CPU	QCA9557-AT4A-R, MIPS-BE, 720 MHz		
RAM	128 MB		
Data Storage	128 MB, NAND memory chip		
Ethernet	10/100/1000 Mbps Ethernet port with Auto-MDI/X, PoE, L2MTU 2030 bytes		
SFP	10/100/1000 Mbps Multi Mode Optical Fiber up to 550m, dual LC connector (optional)		
Max Wireless Throughput	20 MHz, IEEE 802.11ac, NV2, best case	140 Mbps TCP	160 Mbps UDP
	80 MHz, IEEE 802.11ac, NV2, best case	500 Mbps TCP	600 Mbps UDP



Wireless Interface Specifications

Atheros Chipset	QCA9882-BR4A-R
RF Band	4920 – 6100 MHz
Channel Width	5, 10, 20, 40, 80 MHz available only using 802.11ac
Data Rates	54 Mbps (IEEE 802.11a), 300 Mbps (IEEE 802.11n), 866 Mbps (IEEE 802.11ac)
Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM / MCS 0 – MCS 19)
Wireless protocol	IEEE 802.11an, IEEE 802.11ac, Hiperlan, Hiperlan/2, Nstreme, NV2, MIMO
Channel access method	FDMA, TDMA
Channel management	DFS with Radar Detection, customizable scan-list
Frequency management	Manual / Automatic selection according with country code limitation
Output power	Max aggregation 34 dBm (31 dBm @ chain 0 + 31 dBm @ chain 1)
Output power management	TPC / ATPC (1 dBm step, max mean e.i.r.p. density 50 mW/MHz, ± 3 dBm offset)
Wireless operating mode	Client, Point to Point, Transparent Bridge
Wireless special features	Spectrum Analyzer, Adaptive Noise Immunity, Audio Alignment, Wireless Sniffer
Wireless security	Mac filtering, WEP 64/128bit, WPA/WPA2 (aes-ccm/tkip) PSK/EAP, Radius Authentication, Management Frame Encryption

Radio Output Power / Sensitivity



Standard	Modulation	Max Modulation	Average TX (dBm)	Sensitivity (dBm)
IEEE 802.11a	6 Mbps		31	-96
	54 Mbps		27	-81
IEEE 802.11n	MCS0	13.5 Mbps @ 40MHz	30	-96
	MCS7	300 Mbps @ 40MHz	27	-77
IEEE 802.11ac	MCS9	866 Mbps @ 80MHz	22	-72

ICON LEGEND Present Absent

- Hi Speed CPU
- Hi Sensitivity
- Nebula Power Conditioner Technology
- Gigabit Ethernet
- Hi Power
- IEEE 802.3at Compliant
- Frequency Band
- Maximum Modulation
- Power over 4 Pairs
- Wireless Protocol
- RouterOS Licence Level
- ESD Protection
- Time Division Multiple Access
- OSI Layer
- 2 Years Warranty
- Spectrum Analyzer
- Quality of Service
- CE Compliant
- Client and Bridge Functionality
- Protection Class
- RoHS Compliant
- Access Point Functionality
- Multiple Input Multiple Output
- Extended Temperature Range

nebula Base Sector 90 Dual AC

Software



Operating System	RouterOS, Level 4
Access Protection	Multiple User Access Policy, Radius Authentication
Management	Mac-Telnet, Telnet, SSH, Winbox, HTTP, HTTPS
Software upgrade	FTP, TFTP
Monitoring	SNMP v.1-2-3
IP addressing	IPv4, IPv6
L2 Bridging	Multiple Bridge Interfaces, Spanning Tree Protocol (SPT/RSPT), Bridge Firewall
Routing	RIP, OSPF, BGP, MPLS, MME, HWMP+
QoS	WMM, IEEE 802.1p, HTB Queuing, Up to L7 Traffic Inspection
VPN Client/Server Support	PPTP, SSTP, L2TP, PPPoE, OpenVPN, IPSec
Tunnel Protocols Support	EoIP, IPIP, GRE
Special features	VRRP, Hotspot Captive Portal, Web Proxy, NTP, Scripting host, Real time traffic monitor

Environmental



Operating Temperature	-40°C to +80°C
Protection Class	IP68 Certified
Enclosure Material	Aluminium Die Cast

Electrical



Power over Ethernet	Nebula PoE Conditioner Technology with Voltage Stabilizer and Overvoltage Immunity
Power method	IEEE 802.3at, Passive PoE Mode A & Mode B, Po4P Power over 4 Pairs
Operating Voltage range	37-57 V DC
Power supply	IEEE 802.3at Gigabit PSE (100-250 V, 50-60Hz / 48 V DC, 0.6 A) with diagnostic led
Power consumption	18 W
ESD Protection	16 kV on RF port, 2 kA on ethernet port

Compliance and Warranty



EMC	EN 301 489-01 v1.5.1, EN 301 489-17 v1.2.1, EN 300 328 v1.6.1 EN 301 893 v1.2.3, EN 50371:2002
Safety	EN 60950-1:2001, A11:2004 First Edition
Notified Body Opinion	NEMKO 0470
Warranty	Standard: 2 years from date of purchase / Extra Warranty Option
MTBF	150000 h

Structural

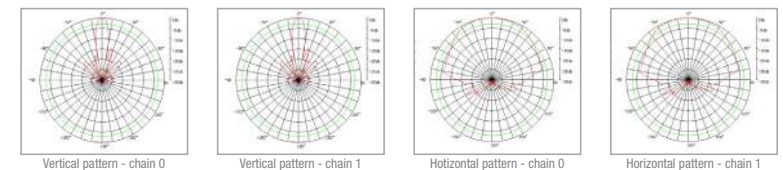
Mounting Mast Diameter	Ø30 mm to Ø120 mm
Dimensions (LxWxD)	450x165x89 mm
Weigh without bracket	2.3 Kg
Package content	Nebula device, RJ45 IP68 Protection class insulator, IEEE 802.3af Gigabit PSE, Precision Mounting Bracket with nuts and bolts
Accessories	Nebula SPP (Ethernet Lighting Arrestor 15 kA)



Integrated antenna



Rated Wind Velocity	241 Km/h
Polarization	Linear
Direction	Vertical
Antenna gain	17 dbi @ 5150 – 5850 MHz
V/H Beamwidth	90° Horizontal, 8° Vertical
Cross Polarization min.	-28 dbi
VSWR	1.5 : 1



TERMS OF USE: The Nebula radio device must be professionally installed. Shielded ethernet cable and earth grounding must be used as conditions of product warranty. It is the installers responsibility to follow local country regulations including operation within legal frequency channels, output power, and Dynamic Frequency Selection (DFS) requirements.
All specifications in this document are subject to change without notice.

For further information please visit www.flycommunications.net.

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