

4GE Ports  
1 FXS Port

EasyMesh  
HOMEFIBER



WiFi Mesh  
Controller

2.5G Download  
1.25G Upload

Dual Core  
900MHz CPU

Multi-WAN  
Route/Bridge

G/EPON  
Hybrid

Datasheet V1.2.0

## HF4AV4001-4 EasyMesh WiFi XPON ONU

The HF4AV4001-4 is an HOMEFIBER AC EasyMesh supported WiFi XPON ONUs designed for FTTx applications. The family of ONUs support both GPON and GEPON features on the same device. It supports 2.5G download speed and 1.25G upload speed. The family of ONUs also support the latest Mesh technology, a Mesh kit at its max capacity can cover an entire area of 1500 Square meters with high density Wi-Fi signals.

## Main Characters

- Support both ITU-T G.984.x GPON and IEEE802.3ah GEPON standard,
- Compatible with Syrotech, Netlink, Genexis, Nokia GEPON and GPON OLTs
- IEEE802.11ac 867Mbps + IEEE802.11n 300Mbps Wi-Fi Router
- EasyMesh controller, support a 1500 square meters of WiFi coverage with multiple Mesh agents
- 1\* SC/APC or SC/UPC GPON / GEPON WAN port, 2.5G download and 1.25G upload
- 4 \* Gigabit Ethernet LAN ports max, wire-speed data transmission

- Max 1\*FXS port for high quality Voice over IP deployments.
- AES 128-bit encrypted and key switching, enhancing transmission security
- Layer 2 Switching, support 802.1Q VLAN, 802.1P QoS, Bandwidth Control, Spanning Tree, etc
- Layer 3 Home Gateway/CPE features with Hardware NAT, support Multiple WAN, Route/Bridge mode, etc
- Port Binding, different LAN ports can be assigned with different WAN services
- Max 1:128 Fiber ration, max transmission distance can reach 20km
- Max 1:64 Fiber ratio for GPON, max transmission distance can reach 20km
- Support FEC (Forward Error Correction), ensures high reliable and precise data transmission
- Support Dynamic Bandwidth Allocation (DBA), Smarter bandwidth assignment and usage.
- Support OMCI and TR069 Management, manage subscribers remotely.
- Support IPv4 and IPv6, highly applicable in both IP type based networks.
- Support Mesh IEEE802.11 k/v/r, IEEE802.11s protocols
- Support 253 on LAN cable ( DHCP Limit) but only 64 in each wifi ( 64 for 2.4G + 64 for 5G).

## Technical Parameters

### GPON Parameters

ITU-T G.984.x GPON, built-in with a -28dBm Optical BOSA ,  
 SC/UPC or SC/APC connector optional  
 1310nm upstream & 1490nm downstream  
 Support G.984.1 General Characteristics  
 Support G.984.2 Physical Media Dependent (PMD) layer Specification  
 Support G.984.3 Transmission convergence layer Specification  
 GPON transceiver transmitting power: 0.5-5dbm,  
 Optical receiving sensitivity: -28dBm  
 Transmission wavelength: Upstream: 1310nm / Downstream: 1490nm  
 Support 1:128 Fiber Ratio at 20km transmission distance.  
 Fiber Transmission cable: G.652 Single mode optical fiber cable  
 Configurable AES decryption on downstream payload.  
 Configurable FEC on both upstream and downstream payloads.  
 Multi-Application Processor queues for dedicated connections for in-band.  
 Enhanced GPON debug and diagnostic functions.  
 Support up to 40 Transmission Container (T-Cons)  
 Support 256 bidirectional GEMport IDs  
 Support NSR/SR Dynamic Bandwidth Allocation (DBA)  
 Support Forward Error Correction (FEC), Support Dying Gasp  
 Maximum 2.5Gbps Downlink/1.25 Gbps Uplink  
 Support Dying Gasp

### QoS

IEEE802.1P QoS, DSCP, TOS:  
 SP, WRR, SP+WRR dispatching Algorithm  
 Source & DST-MAC based QoS  
 VLAN ID, VLAN Priority based QoS  
 Source DST-IP based QoS

### Home Gateway/CPE Features

Multi-WAN, support up to 8 WAN connections  
 Support Route and/or Bridged WAN  
 Port Binding, Data/VoIP/IPTV services can be bound to different LAN ports  
 Configurable VLAN ID for each WAN  
 Configurable QoS queues for each WAN  
 Multi-services bound to the same WAN

### Networking Features

MAC Learning, 2K MAC address table  
 Bridged or Route network mode  
 Support RIP v1, v2 for routing  
 Static Route, Dynamic Route, DNS Proxy,  
 IPv4 & IPv6 TCP, UDP, RTP, SNTP, NAT, DHCP, DNS  
 IEEE802.1Q VLAN, port VLAN  
 IEEE802.1x, MAC, IP, or TCP/UDP based ACLs  
 Port Bandwidth Control, IEEE802.3x flow control  
 Storm Control: Broadcast/Multicast/unknown unicast, ARP  
 Port Isolation, port Mirror, Auto MDI/MDIX  
 IEEE802.1d STP, port Loop detection  
 IGMP v2, v3 & IGMP Snooping for IPv4  
 MLD v2, v3 & MLD Snooping for IPv6  
 Support DHCP, Static IP and PPPoE  
 DHCP Server, DHCP Relay, DHCP Client, Static IP assignment  
 Static Routing from source IP to destination IP  
 Firewall, NAT, NAPT, UPnP  
 DDNS, DMZ Host, port Forwarding

### GEPON Parameters

IEEE802.3ah GEPON standard, support standard OAM  
CTC 2.1, 3.0 Telecom GEPON standard  
GEPON BOSA built on board,  
SC/APCor SC/UPC connector optional  
1310nm wavelength at upstream  
1490nm wavelength at downstream  
GEPON transceiver sending power: 0-4dBm,  
Optical receiving sensitivity: -28dBm  
1:64 Fiber Ratio at 20km transmission distance.  
Fiber Transmission cable: G.652 Single mode optical fiber cable  
Support 1 LLID (Logical Link Identifier)  
Support 1 LOID (Logical ONU Identifier)  
Support Triple Churning Encryption algorithm  
Support NSR/SR Dynamic Bandwidth Allocation (DBA)  
Support Forward Error Correction (FEC)  
4 QoS queues & SP Dispatching Algorithm over PON  
Maximum 1.25Gbps Downlink / 1.25Gbps Uplink  
Support Dying Gasp

### VoIP Parameters

Offers 1\* FXS port for Phone connections  
1 Calls can be made/received simultaneously  
SIP V1, V2 (RFC3261, RFC3262, RFC3264, RFC3265)  
SIP & H.248, support registering 2 SIP accounts  
G.711, G.723.1, G.729A-8kbps, G.726, G.722, ILBC voice codes  
DTMF Tone Detection, DTMF Tone Relay,  
Multiple Calling Tone, FSK Caller ID  
Calling line Identification Presentation  
Calling line Identification Restriction  
Call forwarding, call transfer, call hold, three-way conference, etc  
QoS and TOS to ensure voice packets pass through in priority  
Support RFC62 Echo protocol  
Support Digital Map configuration

### Management Features

Serial interface maintenance using UART  
Web UI Management  
OAM & NMS Management  
CLI command line management  
FTP/TFTP/HTTP Auto Provision Management  
TR069 ACS management

### Hardware Parameters

Realtek RTL9607C  
Dure Core 900Mhz processor for PON  
Single Core 500Mhz processor for VoIP  
CPU covered with cooling unit.  
Support Hardware NAT.  
come with a 1Gb 16-bit DDR3 SDRAM  
come with a 1Gb Nand Flash  
1\*GPON SC/APC or SC/UPC port,  
2.5G downstream, 1.25G Upstream  
4\* 10/100/1000Base-Tx Gigabit Ethernet ports  
1\*300Mbps Wi-Fi Router,  
1\*867Mbps Wi-Fi Router  
4\*5dBidirectional external antennas  
1\* FXS port, support analog phones  
IEEE802.3x flow control Full duplex and half duplex,  
LED Lights: PWR,PON,Los,Internet,VoIP1-2,GE1-4, 2.4G  
Wi-Fi, 5G Wi-Fi, WPS  
External power supply, DC 12V,1A-1.5A.

### HOMEFIBER Mesh Wi-Fi Router

#### Features

IEEE802.11ac 867M Wi-Fi, 5Ghz  
IEEE802.11n 300M Wi-Fi, 2.4Ghz  
BandSteering and BeamForming  
5GHz and 2.4GHz dual band connections  
802.11ac and 802.11n Wi-Fi Clients  
2\*5dBidirectional External antennas for 802.11ac  
2\*5dBi directional External antennas for 802.11n  
4 Gigabit Ethernet ports, wired speed transmission  
Support 4-IN-4-OUT, Max Mbps Wi-Fi throughputSupport  
WDS Wi-Fi bridge  
Wi-Fi Transmission Distance: 100m for indoors,  
150m for outdoors  
WPS one-key protection over your Wi-Fi network  
64/128 bit WEP, IEEE802.1x, WPA and WPA2 authentications  
Max 4 SSID broadcasting, Hidden SSID  
Automatically choose the best signal channel  
STA mutual isolation and ACL table based on MAC Accesses  
Wi-Fi Multimedia (WMM), enhanced QoS for multimedia  
packets

## Mesh Parameters

Support IEEE802.11s, IEEE802.11k/v/r EasyMesh protocols

Support using as an EasyMesh Controller

Support EasyMesh pairing with HOMEFIBER EasyMesh WiFi Routers

Support EasyMesh pairing with 3<sup>rd</sup> party EasyMesh Routers [On demand]

Support a maximum of 8 mesh agents through Ethernet cable and WiFi

WiFi coverage up to 1500 square meters

Mesh Backhaul through WiFi or Ethernet cable

Mesh Kits/Capacity:

a. 1\*SWRHOMEFIBERAC Mesh Controller+ max 8\*SWRHOMEFIBERACS mesh Agents

b. 1\*HOMEFIBER775x-V3 xPON ONT Mesh Controller + max

8\*SWRHOMEFIBERACS mesh agentsSupport Automatic Mesh pairing through WiFi

beacon

Support management with HTTP Web and mobile phone Apps

Maximum WiFi throughput on controller: 700Mbps

## Interoperable OLTs

### GPON OLT Models

Nokia GPON OLTs

Genexis GPON OLTs

Syrotech GPON OLTs

Netlink GPON OLTs

### GEPON OLT Models

Genexis GEPON OLTs

Syrotech GEPON OLTs

Netlink GEPON OLTs

Nokia GEPON OLTs


## Hardware Interfaces

1*GPON SC/APC or SC/UPC port	4*5dBi directional external antennas
4*10/100/1000Base-Tx GE port	1*Reset button
1*PWR On/Off Switch button	1*USB port
1*FXS VoIP port	1*Wi-Fi on/off button
1*Power Supply Jack	1*WPS button
13 LEDs Indicators	Power, PON, LOS, Internet, VoIP, GE1-GE4, 2.4G/5GWi-Fi,WPS, USB

## Specification Table

Standards	IEEE 802.3, IEEE 802.3u, IEEE802.3ab, IEEE 802.3x, IEEE802.1Q, IEEE802.1P, IEEE802.1D, IEEE802.11b/g/n, IEEE802.11ac, ITU-T G.984.1, ITU-T G.984.2, ITU-T G.984.3, ITU-T G.984.4 IEEE802.11 k/v/r, IEEE802.11s		
Topology	Star Topology		
Uplinkport	1*GPON/GEAPONWAN port, SC/UPC Connectors or SC/APC connectors optional		
Transmission distance	Up to 20Km		
Downlink ports	4*10/100/1000Base-Tx Gigabit Ethernet ports		
VoIP Ports	1*FXS port		
Wi-Fi	IEEE802.11b/g/n 300Mbps + IEEE802.11ac 867Mbps Wi-Fi		
LED Indicators	Power, PON, LOS, Internet, VoIP, GE1-GE4, Wi-Fi, WPS		
Ethernet Cable	10Base-Tx: UTP category 3, 4, 5, up to 100m 100Base-Tx: UTP category 5, up to 100m 1000Base-Tx: UTP category 5, 5E, 6, up to 100m		
Fiber Cable	8.3μm, 8.7μm, 9μm and 10μm single mode fiber cable		
Power Supply	AC110-240V Input, DC 12V, 1.5A output External Power Supply, 4KV Surge Protection		
Temperature & Humidity		Temperature	Humidity
	Working	0 to 45°C	10% - 90%
	Standby	-40 to 70°C	5% - 90% RH

## Order Information

Product Pictures	Model No. Product Description & Power Consumption
	HF4AV4001-4: 4GE+1FXS+HOMEFIBER Mesh Wi-Fi GEAPON ONU
	HF4AV4001-4: 4GE+1FXS+HOMEFIBER Mesh Wi-Fi GPON ONT
	HF4AV4001-4: 4GE+1FXS+HOMEFIBER Mesh Wi-Fi XPON HYBRID ONU
	SC/APC or SC UPC connector optional
	Power Consumption: 11.9w for GEAPON ONU Power Consumption: 12.1w for GPON ONU