

300M WiFi  
Router


8 FE Ports


2.5Gbps  
GPON WAN  
Port

40 T-CONs  
256 GEM Port  
IDs

Dual Core  
400Mhz CPU

Multiple WAN  
Connections

IPv4 & IPv6  
QOS & VLAN

Datasheet V1.1.5

### SGN8688FVW 8 FE WiFi GPON ONT:

The SGN8688FVW is an ITU-T G.984.x based GPON ONT designed for home and Office users. It offers 8 Fast Ethernet ports for LAN. Its uplink interface is a GPON SC port, supports 2.5G for downstream and 1.25G for upstream. The SGN8688FVW also offers 2 FXS ports and a 300Mbps WiFi Router for VoIP and Wifi networking applications. Built for FTTx deployments, it supports powerful home gateway/CPE features, such as Multiple WAN, QOS, VLAN, Firewall, ACL, etc. It is an Internet Data, Voice and WiFi all-in-one GPON CPE for ISPs deploying Triple Play networks over single fiber.

### Main Characters

ITU-T G.984.x GPON standard, compatible with Huawei, ZTE, Fiberhome, CHIMA GPON OLTs.

Offers 1\*GPON WAN Port, support 2.5G for downstream and 1.25G for upstream

Offers 8\*Fast Ethernet ports, 3 Router ports and 5 Switching ports

Offers 2\*FXS ports for high quality Voice over IP deployments.

Offers 300Mbps WiFi Router for Home WiFi applications

AES 128-bit encrypted and key switching, enhancing transmission security

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40 Tconts and 256 GEM Port IDs, enabling multiple services on a single Subscriber CPE.  
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 (For 1-3 Ports), different LAN ports can be assigned with different WAN services  
Max 1:128 Fiber ration, max transmission distance can reach 35km  
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.  
Supports IPv4 and IPv6, highly applicable in both IP type based networks.

## Technical Parameters

### GPON Parameters

ITU-T G.984.x GPON compliant, Class B+ 2\*10 SFF GPON transceiver, SC/APC  
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 sending power: 0.5-5dbm, receiving sensitivity: -27dbm  
Transmission wavelength: Upstream: 1310nm / Downstream: 1490nm  
Support 1:128 Fiber Optic Ratio at 35km 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 GEM Port IDs  
Support NSR/SR Dynamic Bandwidth Allocation (DBA)  
Support Forward Error Correction (FEC)  
Maximum 2.488 Gbps Downlink/1.244 Gbps Uplink  
Support Dying Gasp

### Interoperable GPON OLT Models

CHIMA SNA8800, SNA9000T series  
Huawei MA5680T, MA5683T OLTs  
ZTE C200, C220, C300 series OLTs  
Fiberhome AN5516 OLT

### 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 (Only 1-3 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 Rout, 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

### 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

### VoIP Parameters

Offers 2 FXS ports for Phone connections  
2 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 codecs  
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 T.38 Fax Machine  
Support Digital Map configuration

### 300Mbps WiFi Router Features

Offers an IEEE802.11n WiFi Router, 2.4GHz frequency  
3 FE Router Ports + 5 FE Switch Ports  
MIMO, support 2-IN-2-OUT, Max 300Mbps WiFi throughput  
2\*7dB external antennas, support 150m Indoors, 300m outdoors  
WPS one-key protection over your wifi network  
Support DHCP, Static IP and PPPOE  
DHCP Server, DHCP Relay, DHCP Client, Static IP assignation  
Static Routing from source IP to destination IP  
Firewall, NAT, NAPT, UPnP  
DDNS, DMZ Host, Port Forwarding  
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  
Wifi Multimedia (WMM), enhanced QOS for multimedia packets

### 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

Built on powerful GPON SOC, Dual Core CPU at 400Mhz. CPU covered with cooling unit.  
16-bit DDR3 SDRAM, with a 512Mb DDR3 SDRAM,  
Nand Flash, with a 1Gb Nand Flash  
Built-in with an 8 port Unmanaged Fast Ethernet Switch chipset  
1\*GPON SC/APC port  
8\*10/100Base-Tx LAN ports, 3 Router ports and 5 Switching Ports  
300Mbps WiFi Router  
2 FXS telephone ports, support analog phones and T.38 fax machine.  
Support Hardware NAT.  
Support full duplex and half duplex, IEEE802.3x flow control and backpressure  
LED Indicators: Power, PON, Los, WAN, VoIP 1, VoIP 2, LAN1, LAN2, LAN3, S1, S2, S3, S4, S5, WiFi, WPS, USB  
External power supply, DC 12V, 1.5A.

## Hardware Interfaces

2.5Gbps GPON WAN Port \* 1  
 10/100Base-Tx LAN Ports \* 8  
 FXS Telephone Ports \* 2  
 WiFi On/Off button \* 1  
 WPS Button \* 1  
 Host: 1 USB port  
 Power Jack \* 1  
 On/Off Switch Button \* 1  
 Reset Button \*1  
 7dB External Antenna \* 2



## Specification Table

|                            |   |              |             |
|----------------------------|---|--------------|-------------|
| Standards                  | IEEE 802.3, IEEE 802.3u, IEEE 802.3x, IEEE802.1Q, IEEE802.1P, IEEE802.1D, IEEE802.11b/g/n, ITU-T G.984.1, ITU-T G.984.2, ITU-T G.984.3, ITU-T G.984.4 |              |             |
| Topology                   | Star Topology   |              |             |
| GPON Port                  | 1 GPON Uplink port, Upstream: 1.25Gbps / Downstream: 2.5Gbps  |              |             |
| GPON Transmission Distance | Up to 35Km  |              |             |
| Downstream Ports           | 8*10/100Base-Tx Fast Ethernet LAN ports   |              |             |
| LED Indicators             | POWER, PON, LOS, WAN, VoIP1, VOIP2, LAN1-LAN3, S1-S5, WIFI, WPS, USB  |              |             |
| Ethernet Cable             | 10Base-Tx: UTP category 3, 4,5, up to 100m<br>100Base-Tx: UTP category 5, up to 100m  |              |             |
| Fiber Cable                | 8.3μm, 8.7μm, 9μm and 10μm single mode fiber cable  |              |             |
| Power Supply               | AC 96-260V, DC 12V, 2A, External Power Supply   |              |             |
| Temperature Humidity       |   | Temperature  | Humidity    |
|                            | Working   | 0°C - 45°C   | 10% - 90%   |
|                            | Standby   | -40°C - 70°C | 5% - 90% RH |

## Order Information

| Model NO.  | Description                       |
|------------|-----------------------------------|
| SGN8688FVW | 8 FE + 2 FXS + 300M WiFi GPON ONT |