

300Mbps  
WiFi Router

1GE + 1FE +  
1FXS + 1CATV

ITU-T G.984.x GPON  
IEEE 802.3ah EPON  
Standard

1.25G upstream  
2.5G/1.25G  
downstream

RTL9602C  
625MHz CPU

Multi-WAN  
Route/Bridge

IPv4/IPv6  
VLAN, QOS  
Firewall, ACL

Datasheet V1.1.5

### SDN7255FVWG1T Dual Mode ONU:

The SDN7255FVWG1T is an ITU-T G.984.x based and IEEE 802.3ah based dual mode ONU that supports 1.25G/2.5G downstream and 1.25G upstream bandwidth for both GPON and EPON. It can access GPON/EPON OLTs. It offers 1\*Gigabit, 1\*100Mbps, 1\*FXS, 1CATV RF ports as well as a 300Mbps WiFi router for wired and wireless Internet connections. The SDN7255FVWG1T supports full home gateway features, such as multiple WAN connections, VLAN, QOS, etc. It is a cost effective WiFi GPON/EPON ONU for CATV operators integrating high quality Internet and TV services over single fiber.

### Main Characters

- ITU-T G.984.x GPON standard, compatible with Huawei, ZTE, Fiberhome, CHIMA GPON OLTs
- IEEE 802.3ah EPON standard, compatible with Huawei, ZTE, Fiberhome, CHIMA EPON OLTs
- Offers 1 GPON WAN port, support 1.25G upstream and 2.5G downstream
- Offers 1 EPON WAN port, support 1.25G upstream and 1.25G downstream
- Offers 1GE + 1FE LAN ports can be configured in both Route or Bridge modes

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- Offers 1FXS port for high quality Voice over IP deployment
- Offers 300Mbps 2T2R WiFi Router features
- Offers 1 CATV RF port, support high quality TV image transmissions over 1550nm Fiber
- Max 1:128 Fiber ratio for GPON, max transmission distance can reach 20km
- Max 1:64 Fiber ratio for EPON, max transmission distance can reach 20km
- Multiple WAN connections, offers different services on different LAN ports
- Support AES 128-bit encrypted and key switching, enhancing transmission security
- Support 8 Tconts and 32 GEM Port IDs, enabling multiple services on a single Subscriber CPE
- Support FEC (Forward Error Correction), ensures high reliable and precise data transmission
- Support Rich layer 2 Management features, applicable to the biggest ISP networks
- Support FBA (Flexible Bandwidth Assignment), dynamic assign bandwidth automatically
- Support Dynamic Bandwidth Allocation (DBA), Smarter bandwidth assignment and usage
- High security, data encrypted at upstream and downstream directions
- Support L2 Switching features, such as IEEE802.1Q VLAN, 802.1P QOS, etc.
- 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, built-in with a bosa, SC/UPC or SC/APC connector  
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

Support G.988 OMCI protocol

GPON transceiver sending power: 0.5-5dBm, receiving sensitivity:  
-27dBm

Transmission wavelength: Upstream: 1310nm / Downstream: 1490nm

Support 1:128 Fiber Optic 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 8 Transmission Container (T-Cons), 32 GEM Port IDs

Support NSR/SR Dynamic Bandwidth Allocation (DBA)

Support Forward Error Correction (FEC)

Maximum 2.5 Gbps Downlink/1.25 Gbps Uplink

Support Dying Gasp

### 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

### Management Features

Serial interface maintenance using UART

Web UI Management

OMCI & NMS Management

CLI command line management

FTP/TFTP/HTTP Auto Provision Management

TR069 ACS management

### EPON Parameters

IEEE 802.3ah GEPON standard, support standard OAM  
CTC 2.1, 3.0 China Telecom GEPON standard  
Built-in with a bosa, SC/UPC or SC/APC connector  
1310nm wavelength at upstream & 1490nm wavelength at downstream  
EPON transceiver sending power: 0.5-5dBm, receiving sensitivity: -27dBm  
1:64 Fiber Optic 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

### 300Mbps WiFi Router Features

Offers an IEEE802.11n WiFi Router, 2.4GHz frequency  
2 LAN ports, 1GE and 1FE port  
MIMO, support 2-IN-2-OUT, Max 300Mbps WiFi throughput  
WiFi Transmission Distance: 150m for indoors, 300m for 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

### 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

### Hardware parameters

Built on a powerful GPON/GEAPON SOC, Dual Core  
CPU at 625Mhz  
CPU covered with cooling unit.  
Support Hardware NAT.  
16-bit DDR3 SDRAM, come with a 1Gb DDR3 SDRAM  
Nand Flash, come with a 1Gb Nand Flash  
1\*GPON/EPON SC Port, 2.5G/1.25G downstream,  
1.25G upstream  
1GE + 1FE ports  
300Mbps WiFi, 2\*5dBi external antennas  
1 FXS port, support analog phones  
1\*CATV RF port  
IEEE802.3x flow control Full duplex and half duplex,  
LED Lights: Power, PON, LOS, INTERNET, VOIP, GE,  
FE, CATV, WiFi, WPS  
External power supply, DC 12V, 1.5A

### VoIP Parameters

Offers 1 FXS port 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 Digital Map configuration

### Interoperable GPON OLT Models

CHIMA SGT8000A, SGT8016A series GPON OLTs  
HUAWEI MA5680T, MA5606T, MA5683T GPON OLT  
ZTE C220, C300 GPON OLT  
Alcatel Lucent 7342, 7360 ISAM GPON OLT  
Fiberhome AN5516-01, AN5516-02 GPON OLT  
LSCABLE LST20016 GPON OLT  
ERICSSON BM1500 GPON OLT  
AURORA Trident7, T7-PIM-8802/COLT GPON OLT  
ZHONG HONG MX-180/280, MXK 319, 819, 823, MXK-F1419, MXK-F1421

### 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

### Interoperable EPON OLT Models

CHIMA SNA8800, SNA9000T series  
Huawei MA5680T, MA5683T OLTs  
ZTE C200, C220, C300 series OLTs  
Fiberhome AN5506, AN5516 OLTs  
Furukawa, Corecess GEPON OLTs

### CATV Parameters

CATV Frequency range: 40~1000Mhz  
RF 75ohm Coaxial Cable TX port: Metric F or England F  
RF output power: 68~ 72dBuV at input optical power 1 dBm  
CNR  $\geq 46$ dB, CSO  $\leq -61$ dBc,  
Support Enable or Disable CATV service remotely

### Hardware Interfaces:

Built with Realtek RTL9602C GPON/EPON SOC  
CPU covered with cooling unit, support Hardware NAT.  
1\*GPON/EPON SC Port, 2.5G/1.25G downstream, 1.25G upstream  
1\* 10/100/1000Base-Tx Gigabit Ethernet Port  
1\* 10/100Base-Tx Fast Ethernet Port  
1 FXS port, support analog phones  
1\*CATV RF port  
1\*IEEE802.11b/g/n 300Mbps WiFi Router, 2\*5dBi external antennas

IEEE802.3x flow control Full duplex and half duplex  
LED Indications: Power, PON, LOS, INTERNET, VOIP, GE,  
FE, WiFi, CATV, WPS  
1\*Reset button, 1\*WPS button, 1\*ON/OFF button  
External Power Supply: DC 12V, 1.5A  
Desktop design, Plastic housing

## Specification Table

Standards	IEEE 802.3, IEEE 802.3u, IEEE802.3ab, IEEE802.3ah, 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		
Uplink Port	1 GPON/EPON SC uplink port, SC/UPC or SC/APC connector		
G/EPON Transmission Distance	Up to 20km		
Downlink Port	1*10/100/1000Base-Tx Gigabit LAN 1* 10/100Base-Tx Fast Ethernet Port 1 FXS port		
TV Port	1*CATV RF port		
WiFi	IEEE802.11b/g/n 300Mbps WiFi Router, 2T2R		
LED Indicators	Power, PON, LOS, INTERNET, VOIP, GE, FE, WiFi, CATV, 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	AC 96-260V, DC 12V, 1.5A, 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
SON7255FVWG1T	1GE+1FE+1FXS+WiFi+1CATV EPON ONU, 2*5dBi external antennas, 2T2R, 16dBm WiFi power output
SGN7255FVWG1T	1GE+1FE+1FXS+WiFi+1CATV GPON ONT, 2*5dBi external antennas, 2T2R, 16dBm WiFi Power output
SDN7255FVWG1T	1GE+1FE+1FXS+WiFi+1CATV Hybrid ONU, 2*5dBi external antennas, 2T2R, 16dBm WiFi power output