Sales Catalog of Huawei Telecommunication Products

Access Network Products

HUAWEI TECHNOLOGIES CO., LTD.

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MA5600/MA5603 Broadband Service Access Device

The MA5600/MA5603 series is developed based on MA5100 and MA5300 IP DSLAMs, inheriting the matured features and advantages and embracing more innovations. In terms of the hardware structure, the series uses an all-GE switching platform and the MA5600 uses 210G super-capacity backplane that gives the system unparalleled scalability. In terms of software, it uses the latest Huawei data communication software platform (VRP5.0), which enables the device to provide abundant L3 IP features and accommodates to customers' differentiated or self-defined needs (also a goal of premium broadband networks).
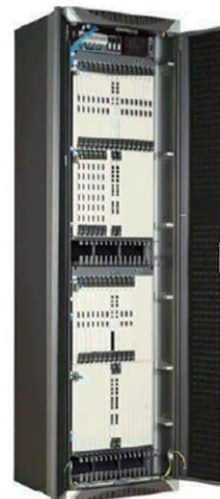
Performance Specifications

L2/L3 line rate forwarding	All ports support line rate forwarding.
IP route	Supports up to 4K routing entries and 200 static routing entries.
	Supports static routes.
	Supports RIP and OSPF (dynamic routing protocols).
VLAN	Supports up to 4K 802.1q-based VLANs
	Supports smart VLANs.
	Supports VLAN trunks.
Multicast	Supports up to 1000 multicast groups.
	Supports IGMP proxy.
	Supports the controllable multicast function: subscriber rights management, multicast source control, and multicast subscriber management. This function helps to implement the OAM of multicast services.
STP/RSTP	Supports STP and RSTP, complying with IEEE 802.1D and IEEE 802.1w.
Port aggregation	Supports up to 128 aggregation groups with each group supporting up to 32 ports.
Broadcast storm suppression	All ports support broadcast storm suppression based on a certain bandwidth ratio.
Port mirroring	Supports port mirroring based on port, MAC address, IP address, or TCP/UDP port number.
MAC address table	Supports MAC address self-learning (IEEE 802.1d compliance).
	Supports up to 16K MAC addresses.
QoS	Supports the following QoS strategies based on traffic rules: packet filtering, packet redirection, traffic mirroring, traffic measurement, traffic policing, port-based queue scheduling, port-based rate limitation, priority strategies, and VLAN change strategies.
	Supports CoS (802.1p by default) and traffic priority.
	Supports queue scheduling.
Flow control	Supports IEEE 802.3x flow control (full-duplex).
	Supports back pressure flow control (half-duplex).

Security features	Supports hierarchical user right control.
	Supports user isolation and controlled mutual access at L2.
	Supports controllable number of access hosts on each port.
	Supports controllable number of multicast groups that each port can join.
	Supports a mechanism that prevents user port theft.
	Supports DHCP option82 for authenticating DHCP users.
	Supports ACL.
	Supports binding between user accounts and physical ports.
Authentication	Supports the 802.1x authentication.
	Supports the Radius client.
Accounting	Supports remote accounting.
Broadband test	Provides a broadband test port.
Terminal management	Supports terminal management.

System Port Parameters

Port Type	Rate	Port Standard Compliance	Transmission Distance	Port Quantity per Board	Board
ADSL2+	Autonegotiation	ADSL2+	6.5 km	64	ADEE
SHDSL	Autonegotiation	SHDSL	6 km	32	SHEA
VDSL2	Autonegotiation	VDSL2	3.5 km	32	VDEB
GE optical port	1000 Mbit/s	1000Base-X	Single-mode: 10 km Multi-mode: 500 m	6	SCU
FE optical port	100 Mbit/s	100BASE-FX	Single-mode: 15 km Multi-mode: 2 km	6	SCU
FE electrical interface	100 Mbit/s	100BASE-T	100 m	6	SCU
Maintenance serial port	9600 bit/s	RS-232	10 m	1	SCU
Maintenance Ethernet port	10/100 Mbit/s	10/100BASE-T	100 m	1	SCU
Environment monitoring port	9600 bit/s	RS-232	10 m	1	SCU

DSLAM Broadband Network Device

System Configuration and Performance

Management and maintenance port	SCU: 1 10/100M maintenance Ethernet port, 1 local maintenance serial port, and 1 environment monitoring port
Number of GE ports supported in a subrack	SCU: 1 to 6 GE ports
Number of FE ports supported in a subrack	SCU: 1 to 6 FE optical ports and 1 to 4 FE electrical ports
Number of ADSL2+ ports supported in a subrack	MA5600: 896; MA5603: 384
Number of SHDSL ports supported in a subrack	MA5600: 448; MA5603: 192
Number of VDSL2 ports supported in a subrack	MA5600: 448; MA5603: 192
Number of PVCs supported on each port	xDSL port: 8
Maximum number of QoS queues	xDSL port: 4; GE upstream port: 8
Backplane bus	Backplane capacity of the MA5600: 210 Gbit/s Backplane capacity of the MA5603: 45 Gbit/s System L2 packet forwarding rate: 72 Mpps
Switching/Forwarding delay	Low forwarding delay (The 100 Mbit/s Ethernet port sends 64-byte Ethernet packets at a delay shorter than 20 µs.)
BER in full load	BER of port when transmitting data in full load < 10 e-7

Device Parameters

Cabinet dimensions (H x W x D; unit: mm)	2.2 m cabinet: 2200 x 600 x 600 1.8 m cabinet: 1800 x 600 x 600
Subrack dimensions (H x W x D; unit: mm; excluding the fan subrack)	MA5600 service subrack (without mounting ears): 441.8 x 435.4 x 420 MA5603 subrack (without mounting ears): 219.5 x 436 x 419.2 MA5600 SPL subrack (without mounting ears): 397.3 x 435.4 x 420
AC working voltage	Rated voltage: 220 V/50 Hz Range: 157.5 V to 290 V; 45 Hz to 65 Hz
DC working voltage	Rated voltage: −48 V Range: -38.4 V to -57.6 V
Power consumption of a fully loaded subrack	MA5600 subrack: 1415 W (maximum); MA5603 subrack: 550 W (maximum)
Long-term operating temperature	-5°C to +45°C
Short-term operating temperature	-25°C to +55°C
Working humidity	5% to 95%
Atmospheric pressure	70 to 106 kPa
Altitude	≤ 4000 m

IA5000 Integrated Access and Multiplexing Device

The IA5000, used for integrated access and multiplexing, is a next-generation MSTP-based PCM service access and platform for transmission. Bridging the backbone network and access network, the device provides a wide range of service ports and large transmission capacity. It features small size, low power consumption, high reliability, and supports unified OAM, saving installation space, reducing costs, and bring values to customers. It can be widely used in power, oil, and traffic industries, and used for municipal administration and water resource monitoring. Besides, it can also be used to transmit some special data signals (monitoring, remote automatic controlling, and alarm signals) and support internal phone calls (scheduling and administrative calls).

● **High Integration**

- The device is 3 U high and features compact design, small size, and flexible configuration, easy for installation and expansion and reducing installation space and costs.
- The device provides access for PCM, E1, and Ethernet services and supports up to 168 E1, 224 RS-232 (V.24/V.28), 60 FXS, and 28 STM-1, and 56 FE/GE channels.
- The device supports four 2.5G SDH transmission networks, and provides voice service ports such as the FXS/FXO, 2/4 w E&M, Magneto, and hotline ports.

● **Flexible Networking**

- The SDH optical transmission port of the device can be used to establish optical fiber transmission networks.
- The device, together with other transmission devices, can be deployed in the access and transmission layers of private networks, providing the all-in-one solution for customers.

● **High Reliability**

- The device supports intra-board, inter-board, and channel protection. All service boards are hot-swappable.
- The control board, power board, and power input support 1+1 protection. The device supports SNCP, 1+1 MSP, and achieves seamless connection to the transport network.
- The device can work stably under different circumstances. Its operating temperature ranges from -15°C to +55°C, and the service and power input ports support 4 kV lightning protection.

Product Specifications

Subrack dimensions (H x W x D; unit: mm)	130 x 440 x 280
Maximum weight	12 kg (in full configuration)
Maximum power consumption	≤ 85 W (under common applications)
Operating environment	-15°C to +55°C, 0% to 95% RH (non-condensing)
Rated voltage	DC power supply: -48 V AC power supply: 220/110 V
Upstream port	STM-16, STM-1, and STM-4 ports
Downstream port	E1, E3/DS3, V.35, X.21, E&M signaling, 64 kbit/s synchronous data, 16 low-rate RS232 (V.24/V.28), FE electrical/optical, GE electrical/optical, and asynchronous data ports
Cross-connection type	Unidirection, bidirection, multicast/broadcast, and loopback
Protection capability	VC-12, VC-3, and VC-4 paths support sub-network connection protection, protection switching within 50 ms, 1+1 linear MSP protection, and STM-1/STM-4 two-fiber one-direction MSP protection.
Power redundancy	The device has 2 independent power boards in 1+1 protection.
Equipment clock	Built-in G.813 SDH equipment clock, supporting SSM 1 external clock input channel and 1 clock output channel (options: 2 Mbit/s and 2 MHz)

Huawei, as the world's leading FTTx solution provider, owns the largest access product and solution developing team, has more than 10 years of project delivery experience, and wins more than 50% FTTx commercial projects worldwide. Huawei product series can be used to develop comprehensive, professional, and customized access network solutions for carriers (including MSOs) and enterprises specialized in certain industries (especially enterprises in the power industry). Huawei provides E2E FTTx network devices (including OLT, ODN, ONT, and ONU devices). Huawei OLT devices include the large-capacity MA5600T, medium-capacity MA5603T, and small-capacity MA5608T. The hardware and software of OLT devices are compatible, which reduces the costs of spare part backup.

MDU devices include MA5621, MA5626, MA5620, MA5612, MA5628, MA5652, MA5671, and MA5698, applicable to MSO, power, and enterprise networks.

ONT devices include bridging HG8010 and HG8040, bridging+voice HG8110, HG8240, and HG8242, and gateway HG8245, HG8247, HG8245T, and HG8247T, applicable to FTTH networks.

MA5600T GPON Integrated Device

The MA5600T, based on a Tbit/s platform, is a device for optical access, supporting P2P and GPON access and full service access to meet customers' diverse requirements.

MA5600T

- **Large-capacity Access Platform, Future-proof for High-bandwidth Services**
  - The MA5600T uses a super-large capacity and non-blocking Tbit/s platform with a switching capacity of 1920 Gbit/s (each slot bandwidth reaching 20 Gbit/s). Thanks to such high bandwidth, bandwidth insufficiency is no longer and will not be a bottleneck for service access.

- **Flexible Access, Supporting Diverse Networking Scenarios**
  - The MA5600T provides 10GE, GE, STM-1, and TDM ports upstream and provides GPON, 10G PPON, FE, GE, and TDM access downstream to support FTTC, FTTB, FTTH networks and achieve smooth network evolution. It supports P2P access over the FE optical port to guarantee VIP users' security and bandwidth, and TDM service access to protect their existing investments by utilizing customers' legacy PBX devices. With the MA5600T, customers can adopt differentiated networking solutions based on the versatile access modes.

GPON Optical Access Device

- **Sound Security Mechanism, Guaranteeing User Access Security**
  - The MA5600T provides multiple security mechanisms (such as ONT authentication, 802.1x authentication, PITP, and DHCP option82), ensuring that the access users are authorized and unique. In this way, the forgery and charging issues on live networks are prevented and the network becomes more reliable.

- **Enhanced OAM Capability, Significantly Reducing the OPEX**
  - The MA5600T supports offline ONT configuration. The configurations are stored on the MA5600T. An ONT registers with the MA5600T after power-on. After the registration succeeds, the MA5600T automatically delivers related configurations to the ONT. Moreover, the MA5600T can automatically complete service provisioning by working with the upper-layer OSS and EMS, which significantly reduces customers' maintenance costs.
  - The MA5600T and other Huawei access, optical transmission, and data communication products share the U2000 so that no independent MA5600T configuration is required, which reduces customers' investments.

- **Compatible Platform, Protecting Investments**
  - The platforms of MA5600T and MA5603T are compatible, and the service boards of the MA5600T and MA5603T are also compatible. During the initial phase of network deployment, the MA5603T can be adopted to minimize the deployment costs. When the network develops, the MA5603T can be upgraded to the MA5600T smoothly if required. In this way, the initial investments are protected.

Performance Specifications

Switching capacity of the backplane bus	3.2 Tbit/s
System L2 packet forwarding rate	SCUN: 726 Mpps (in active/standby mode) or 1452 Mpps (in load sharing mode)
Switching capacity of the control board	SCUH: 960 Gbit/s (in active/standby mode) or 1920 Gbit/s (in load-sharing mode)
Maximum number of upstream ports (GE ports in the GIU slot) in a subrack	960
Maximum number of 10GE upstream ports in a subrack	2 (X1CA board); 4 (X2CA board); 4 (X2CS board)
Maximum number of GPON ports in a subrack	256
DC working voltage	-38.4 V to -72 V

Power consumption of the ETSI service subrack

Typical Configuration	Static Power Consumption	Maximum Power Consumption	Typical Power Consumption
P2P	1256.84	1840.55	1548.70
GPON	824.84	1024.55	924.70

MA5603T GPON Integrated Device

MA5603T

The MA5603T is a medium-capacity device for GPON access. It provides large-capacity, high-rate, and high-bandwidth voice, data, and video access. Working as an OLT (connecting ONUs or ONTs) in a PON network, it is applicable to FTTH, FTTB, and FTTC of carriers (including MSOs) and also used for automatic power distribution, automatic collection of power consumption information, and multi-network convergence.

Performance Specifications

Switching capacity of the backplane bus	1.5 Tbit/s
System L2 packet forwarding rate	SCUN: 726 Mpps (in active/standby mode) or 1452 Mpps (in load sharing mode)
Switching capacity of the control board	SCUH: 480 Gbit/s (in active/standby mode) or 960 Gbit/s (in load sharing mode)
Maximum number of upstream ports (GE ports in the GIU slot) in a subrack	8GE
Maximum number of 10GE upstream ports in a subrack	2 (X1CA board) 4 (X2CA board) 4 (X2CS board)
Maximum number of GPON ports in a subrack	96
Maximum number of GPON ONTs in a subrack	6144
DC working voltage	-38.4 V to -72 V

Power Consumption of the ETSI Service Subrack

Typical Configuration	Static Power Consumption	Maximum Power Consumption	Typical Power Consumption
P2P	563.84	847.55	705.70
GPON	410.84	541.55	471.70

MA5608T GPON Integrated Device

5608T

The MA5608T is a small-capacity device for GPON access. It provides high-rate and high-bandwidth voice, data, and video access. Working as an OLT (connecting ONUs or ONTs) in a PON network, it is applicable to FTTH, FTTB, and FTTC and also used for automatic power distribution, automatic collection of power consumption information, and video monitoring.

Performance Specifications

Switching capacity of the backplane bus	720 Gbit/s
System L2 packet forwarding rate	SCUN: 726 Mpps (in active/standby mode) or 1452 Mpps (in load sharing mode)
Switching capacity of the control board	SCUN: 256 Gbit/s (in active/standby mode) or 512 Gbit/s (in load sharing mode)
Maximum number of upstream ports (GE ports in the GIU slot) in a subrack	8GE
Maximum number of 10GE upstream ports in a subrack	2 (X1CA board); 4 (X2CA board); 4 (X2CS board)
Maximum number of GPON ports in a subrack	16
Number of supported GPON ONTs	2028
Working voltage	DC: −38.4 V to −72 V (default: −48 V); AC: 220 V/110 V

Power Consumption of the ETSI Service Subrack

Typical Configuration	Static Power Consumption	Maximum Power Consumption	Typical Power Consumption
P2P	194.5	293.5	244
GPON	140.5	191.5	166

MA5621/MA5621A Remote Access Unit (For Power Grids)

MA5621

MA5621A

The MA5621/MA5621A series is the industry's first MDU device (with natural cooling) designed for power grids. The MA5621 provides 2 GPON or GE ports, 4 GE electrical ports, and 4 RS485 or RS232 serial ports. The MA5621A provides a GPON port, 4 FE electrical ports, and 2 serial ports (phoenix terminals). The series can be used for remote information collection and transmission of the power system, such as remote automatic controlling, monitoring, and meter reading. In addition, it can also provide video monitoring. It can be installed in various scenarios, such as the desk, corridor, or cabinet and features temperature compatibility, low power consumption, silence design, reliable performance, and power saving.

The MA5621/MA5621A series is used for remote information collection and transmission of the power system. In the upstream direction, a cabinet-installed MA5621/MA5621A is connected to 2 OLTs through 2 PON ports for network protection. In the downstream direction, it is connected to the switching station, ring main unit, pole mounted switch, and power distribution room through the FE and serial ports.

Product Features

GPON Features	Complies with the ITU-T G.984 standards.
	Number of T-CONTs: 32
	Number of GEM ports: 1000
Broadband features	Number of VLANs: 4K (QinQ and stacking VLANs are supported.)
	Number of MAC addresses: 4K (VMAC is supported)
	Supports 802.1p, PQ+WRR traffic control, and ACL.
Private line features	Supports IEC 60870-5-101, IEC 60870-5-104, IEC 61850, CDT, and DNP.
	Supports the 1588v2 function.
Security Features	Supports PPPoE+ and DHCP option82.
	Supports static and dynamic MAC address binding.
	Supports MAC anti-spoofing and IP anti-spoofing; supports source MAC address filtering and source IP address filtering.
	Supports anti-DoS attack and firewall.
Maintenance and management features	Supports SNMPv1, SNMPv2, and SNMPv3.
	Supports Telnet and SSHv2.
	Supports the remote batch pre-configuration function.
	Supports remote upgrade and monitoring.

Specifications

Model	MA5621	MA5621A
Dimensions (H x W x D; unit: mm)	44.4 x 180 x 235	
NNI	Two SFP upstream ports are supported, and these 2 ports can be configured to the following modes: ● 2 x GPON ● 2 x GE (optical) ● 1 x GE (optical) + 1 x GPON	One SFP upstream port (GPON upstream transmission) is supported.
UNI	4 x GE/FE (autonegotiation electrical ports) + 4 x RS485/RS232 (configurable through software)	4 x FE + 2 x serial ports (phoenix terminal)
Operating temperature	-40°C to +85°C; lowest startup temperature: –25°C	-40°C to +55°C; lowest startup temperature: –25°C
Ambient humidity	5% RH to 95% RH, non-condensing	
Heat dissipation mode	Heat is dissipated naturally without a fan.	
EMC standards	Complies with EN 55022 Class B.	Complies with EN 55022 Class A.
	Complies with GB 9254-1998 and GB/T 17618-1998.	
Power supply	AC: 90 V to 290 V DC: 9 V to 60 V	AC: 220 V/110 V
Weight	1.5 kg	

MA5620/MA5626 Remote Optical Access Unit

The MA5620/MA5626 series is an industry-leading MDU (a PON remote end device) and is applicable to FTTB. The series utilizes the live-network wires to provide quasi-ultra-broadband service experience for multiple dwellings and small enterprises. It features temperature compatibility, low power consumption, a silence design, stability and reliability, and energy conservation, and is applicable to various installation scenarios such as on the desktop, in the corridor, and in the cabinet.

The MA5620/MA5626 series provides a GPON or GE port at the network side and 24 VoIP-based POTS services and 24 Ethernet-based LAN access channels at the user side. POE-enabled MA5626s can be used in FTTB scenarios to facilitate power supply in corridors, Wi-Fi hotspots, and infrastructure video cameras.

MA5620

MA5626

GPON Optical Access Device

Product Features

- **Flexible PON Access Modes**
  - The device supports flexible PON access modes. Specifically, it provides 2 GE ports, 2 GPON ports, or 1 GE port and 1 GPON port for upstream transmission in different usage scenarios and different networking modes.

- **Rich Application in FTTB Scenarios**
  - The device provides LAN-only services or voice services in FTTB.

- **Low Power Consumption and High Reliability**
  - The device adopts natural cooling and POTS short-loop design to meet application requirements in many scenarios, significantly reducing system power consumption and improving system reliability.

- **PnP Service Provisioning**
  - The configuration data of the device can be delivered remotely. Thereby, the management channel and the service channel are set up immediately after the device is powered on and registers successfully, and no on-site configuration is required.

- **Highly Efficient OAM**
  - The device does not require on-site software commissioning and supports various efficient OAM methods, such as remote acceptance, upgrade, patch installation, and fault location, which effectively support system monitoring and facilitate routine management and fault diagnosis.

- **Comprehensive Voice Feature**
  - The MA5620 provides the basic services such as voice service, fax service, and modem service, and supplementary services such as three-way calling, call waiting, call transfer, calling line identification presentation, and calling line identification restriction.

- **High-precision Clock and Time Synchronization**
  - The device supports clock synchronization (including line clock synchronization) and NTP, providing high-precision clock and time synchronization.

GPON Optical Access Device

Specifications

Device name	MA5620 (1U-High Box-Shaped Integrated MDU)	MA5626 (1U-High Box-Shaped Integrated MDU)
Device specification	Supports GPON/GE upstream transmission. Provides FE (electrical) and POTS access.	Supports GPON/GE upstream transmission. Provides FE (electrical) access.
NNI	1. 2 x GPON 2. 2 x GE (optical) 3. 1 x GE (optical) + 1 x GPON	1. 2 x GPON 2. 2 x GE (optical) 3. 1 x GE (optical) + 1 x GPON
UNI	The following configurations are provided: ● 8 x FE (electrical) + 8 x POTS ● 16 x FE (electrical) + 16 x POTS ● 24 x FE (electrical) +24 x POTS	● 8/16/24 x FE ● 8/16/24 x FE (PoE) ● 4 x GE + 4 x FE (PoE) ● 8 x FE (inverse PoE)
Dimensions (H x W x D; unit: mm)	1U-high and 19-inch-wide device 43.6 x 442 x 220 (without the mounting ears)	1U-high and 19-inch-wide device 43.6 x 442 x 220 (without the mounting ears) 1U-high and 11-inch-wide device 43.6 x 250 x 220 (without the mounting ears)
Heat dissipation mode	Heat is dissipated naturally without a fan.	Heat is dissipated naturally without a fan.
Power supply and power backup	AC power supply	AC power supply; supporting inverse PoE
Voice	H.248 and SIP	Voice services are not supported.

Power Consumption Parameter

Power consumption of the MA5620 (AC-powered, GPON upstream transmission)

Typical Configuration	Typical Power Consumption	Maximum Power Consumption
MA5620 (8 x FE + 8 x POTS)	19.6 W	24.7 W
MA5620 (16 x FE + 16 x POTS)	25.1 W	31.9 W
MA5620 (24 x FE + 24 x POTS)	34.5 W	49.3 W

Power consumption of the MA5626 (AC-powered, GPON upstream transmission)

Typical Configuration	Typical Power Consumption	Maximum Power Consumption
MA5626 8 x FE (inverse PoE)	14.8 W	16.4 W
MA5626 (8 x FE)	10.7 W	11.9 W
MA5626 (16 x FE)	12.3 W	14.9 W
MA5626 (24 x FE)	12.9 W	16.4 W

Power consumption of the MA5626 4GE+4FE (PoE)

Configuration	Fixed Power Consumption (When no PD Is Connected)	System Power Consumption
MA5626 (4 x GE + 4 x FE; PoE)	23.91 W	System power consumption = Fixed power consumption + Power consumption of the PD connecting to each port x Port quantity

MA5612/MA5628 Multi-service Optical Access Unit

The MA5612/MA5628 series, a multi-service optical access device, is mainly applied in FTTB and private line access. The series effectively utilizes wire resources and provides high-bandwidth services including broadband, voice, and video services. The MA5612 provides the comprehensive RF overlay solution that helps transmit the CATV services over GPON and bring good video service experience to home users and small enterprises.

MA5612

MA5628

Product Features

● **Flexible PON Access Modes**

- The device supports flexible PON access modes. Specifically, it provides GE or GPON ports for upstream transmission in different usage scenarios and different networking modes.

● **PnP Service Provisioning**

- The configuration data of the device can be delivered remotely. Thereby, the management channel and the service channel are set up immediately after the device is powered on and registers successfully, and no on-site configuration is required.

● **Highly Efficient OAM**

- The device does not require on-site software commissioning and supports various efficient OAM methods, such as remote acceptance, upgrade, patch installation, and fault location, which effectively support system monitoring and facilitate routine management and fault diagnosis.

● **High-precision Clock and Time Synchronization**

- The device supports clock synchronization (including line clock synchronization) and NTP, providing high-precision clock and time synchronization.

GPON Optical Access Device

Specifications

Device name	MA5612	MA5628
Device specification	Supports GPON/GE upstream transmission. Provides FE (electrical)/GE (electrical)/POTS/E1/RF access.	Supports GPON upstream transmission. Provides GE/E1/clock and time output ports.
NNI	1. 2 x GPON 2. 2 x GE (optical) 3. 1 x GE (optical) + 1 x GPON	1. 2 x GPON
UNI	Fixed configuration + 2 service slots Fixed configuration 1: 2 x GE (electrical) + 6 x FE (electrical) Fixed configuration 2: 2 x GE (electrical) + 6 x FE (electrical) + 16 x POTS Fixed configuration 3: 2 x GE (electrical) + 6 x FE (electrical) + 16 x POTS + 1 x RF There are 3 types of service boards: 1. 8-channel FE board (electrical) 2. 16-channel POTS board 3. 8-channel TDM E1 board	GE electrical port E1 port Clock/time port
Dimensions (H x W x D; unit: mm)	1U-high and 19-inch-wide device 43.6 x 442 x 245 (without the mounting ears)	1U-high and 19-inch-wide device 43.6 x 442 x 220 (without the mounting ears)
Heat dissipation mode	Heat is dissipated using fans.	Heat is dissipated naturally without a fan.
Power supply and power backup	AC or DC power supply; battery power backup	AC or DC power supply
Voice	H.248 and SIP	Voice services are provided by external devices.

Power Consumption Parameter

Power consumption of the MA5612 (AC+ backup power)

Typical Configuration	Typical Power Consumption	Maximum Power Consumption
Broadband configuration (with the PCB board providing no POTS port; 2 EIUC boards)	27.63 W	32.47 W
Broadband and narrowband configuration (with the PCB board providing a POTS port; an EIUC board and an ASNB board)	36.4 W	64.49 W

Power consumption of the MA5612 (DC+ backup power)

Typical Configuration	Typical Power Consumption	Maximum Power Consumption
Private line configuration (with the PCB board providing no POTS port; 2 E81A boards)	N/A	43.5 W

Power consumption of the MA5628

Typical Configuration	Static Power Consumption	Maximum Power Consumption
4 x GE + 4 x E1; AC power supply	27.94 W	36.79 W
4 x GE + 4 x E1; DC power supply	24.19 W	31.85 W
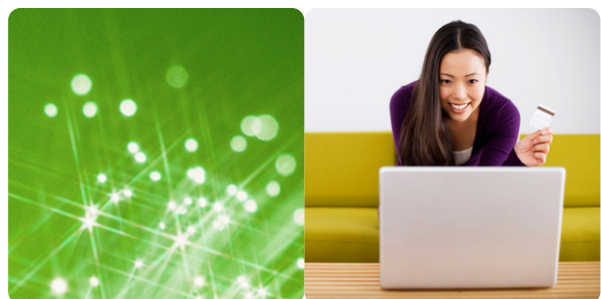
MA5616 Remote Optical Access Unit

The MA5616, a DSL multi-service access unit, provides ultra-high bandwidth access and flexible capacity expansion and is applicable to service scenarios such as FTTB and private line access. The MA5616 can also be used as a traditional mini IP DSLAM and a mini integrated access device to provide traditional broadband and voice services for enterprises specialized in certain industries.

MA5616

Product Features

● **Flexible PON Access Modes**

- The device supports flexible PON access modes. Specifically, it provides GE or GPON ports for upstream transmission in different usage scenarios and different networking modes.

● **Unique Design of the COMBO Board**

- With the unique design of the COMBO board, the device integrates 32-port ADSL2+ access, 32-port POTS access, and 32-port built-in splitter, providing high-density access services for users.

● **Highly Efficient OAM**

- The device does not require on-site software commissioning and supports various efficient OAM methods, such as remote acceptance, upgrade, patch installation, and fault location, which effectively support system monitoring and facilitate routine management and fault diagnosis.

GPON Optical Access Device

Specifications

Device name	MA5616 (2U-High Box-Shaped MDU)
Device specification	Supports GPON/GE upstream transmission. Provides FE/GE/POTS/DSL/ISDN access.
NNI	Two upstream ports that support GE/GPON duel-mode optical modules are provided. When a GE/GPON dual-mode optical module is connected upstream, the OLT determines whether the device works in GPON or GE mode. The upstream ports can be configured to the following modes: 1. 2 x GPON 2. 2 x GE (optical) 3. 1 x GE (optical) + 1 x GPON
UNI	4 service slots Service boards: ● FE service board ● GE service board ● xDSL service board ● ISDN service board ● POTS board ● ADSL2+ and POTS combo board
Dimensions (H x W x D; unit: mm)	2U-high and 19-inch-wide device 88.1 x 442 x 245 (without the mounting ears)
Heat dissipation mode	Heat is dissipated using fans.
Power supply and power backup	AC or DC power supply; battery power backup
Voice	H.248 and SIP

Power Consumption Parameter

Power consumption of the MA5616

Typical Configuration	Static Power Consumption	Typical Power Consumption	Maximum Power Consumption
AC power supply; GPON upstream transmission; 128-channel ADSL2+ services	51.8 W	99 W	149.3 W
AC power supply; GPON upstream transmission; 64-channel VDSL2	101 W	133 W	168 W
AC power supply; GPON upstream transmission; 96-channel VDSL2	101 W	146.2	194.4 W
AC power supply; GPON upstream transmission; 64-channel ADSL+; 128-channel POTS	61.1 W	106.1 W	154.2 W
AC power supply; GPON upstream transmission; 128-channel ADSL+; 128-channel POTS	70.7 W	120 W	163 W
AC power supply; GPON upstream transmission; 128-channel POTS	51.7 W	73.1 W	97.5 W

MA5652/MA5669 Outdoor Integrated Access Unit

The MA5652/MA5669 series, an integrated multi-service access device, is mainly used outdoors and does not need to be installed in an outdoor cabinet.

The MA5652 provides broadband access, supports VDSL2 (compatible with ADSL, ADSL2, and ADSL2+) copper-line user access, and is mainly applicable in FTTB and FTTC. The MA5652 functions as an IP-DSLAM when the GE port is used for upstream transmission. The MA5652 (with the RF port) can transmit CATV RF signals on GPON networks to provide high-bandwidth voice, Internet, and video services for users.

In a WLAN outdoor deployment scenario, the MA5669 connects an access point (AP) using a GE electrical port to provide users with high-speed wireless Internet access services. In a video monitoring scenario, the MA5669 provides a channel for transparently transmitting video monitoring information through a GE electrical port.

MA5652	MA5669

Product Features

- **Integrated Design**

  - The device features integrated design, small dimensions, and easy site selection.

- **Well-designed QoS Mechanism**

  - The device has a high and guaranteed QoS, which lays a foundation for service management.

- **Highly Efficient OAM**

  - The device supports remote software commissioning, acceptance, upgrade, patch installation, and fault diagnosis.

- **High Reliability Design**

  - The hardware, software, and system designs of the device meet system reliability requirements to ensure that the device works properly.

Specifications

Device name	MA5652 (Integrated MDU Requiring No Outdoor Cabinet)	MA5669 (Integrated MDU Requiring No Outdoor Cabinet)
Device specification	Supports GPON/GE/RF upstream transmission. Provides VDSL2/RF access. (In the case of RF access, only GPON upstream transmission is supported.)	Supports GPON/GE upstream transmission. Provides FE/GE access.
NNI	Two upstream ports are supported, and these 2 ports can be configured to the following modes: 1. 2 x GPON 2. 2 x GE 3. 1 x GE + 1 x GPON	One upstream port is supported, and the port can be configured to the following modes: 1. 1 x GPON 2. 1 x GE
UNI	1. 24 x VDSL2 2. 16 x VDSL2 3. 24 x VDSL2 + 1 x RF 4. 8 x VDSL2 + 1 x RF	FE/GE autonegotiation electrical port
Dimensions (H x W x D; unit: mm)	423 x 530 x 118	148.1 x 307.8 x 222.5
Heat dissipation mode	Heat is dissipated naturally without a fan.	Heat is dissipated naturally without a fan.
Power supply and power backup	AC power supply	AC or PoE power supply

Power Consumption Parameter

Power Consumption of the MA5652 (AC Input)

Parameter	Power Consumption
MA5652 (25°C room temperature; 220 V AC input; full-power transmission; 30a)	< 60 W

Power consumption of the MA5669

Typical Configuration	Typical Power Consumption	Maximum Power Consumption
AC power input; GPON upstream transmission	10 W	63 W

Power consumption parameters of an MA5669 with 2 GE PoE ports

Configuration	Fixed Power Consumption (When no PD Is Connected)	System Power Consumption
MA5669 (2 x GE; PoE)	12 W	System power consumption = Fixed power consumption + Power consumption of the PD connecting to each port x Port quantity

MA567x Office Access Unit (for Small Enterprises)

The MA567x series, a carrier-level ONU, is developed for medium and small enterprises and SOHO users. The series includes MA5671, MA6773, MA5675, and MA5675M (the cases of MA5671 and MA5675 are plastic and thereby need no grounding), providing GE, POTS, E1, and Wi-Fi ports. The series is applicable in many broadband access scenarios, including SOHO, HSI, video monitoring, intelligent residential networks, and small enterprise access. It can be installed in various scenarios, such as the desk, corridor, and outdoor cabinet and features strong environment adaptability, easy installation, and convenient maintenance.

MA5671

MA5673

MA5675

MA5675M

Product Features

- The device has many ports. It supports GPON/GE autonegotiation upstream, and GE, POTS, E1, and Wi-Fi ports downstream.
- The device supports the Class C+ optical module, whose maximum coverage distance can reach 30 km far and maximum optical split ratio can be 1:128.
- The device is certified by the Wi-Fi alliance.
- The device supports IPv6 and multicast, in line with multi-service development trend.
- The device supports network cable diagnosis and Ethernet port test, reducing maintenance workloads.
- The device features high reliability. It uses natural cooling, anti-condensation design, and 6 kV lightning protection, applicable in thunderstorm-prone areas.
- The operating temperature of the device ranges from -40°C to 55°C. Thereby the device can work in harsh environments (bitter cold or scorching heat).
- The device supports unified and efficient OAM and PnP. Specifically, it does not require on-site software commissioning, supports remote acceptance, upgrade, and patch installation, and remote fault location.

GPON Optical Access Device

Specifications

Specification	MA5671	MA5673	MA5675	MA5675M
Dimensions (H x W x D; unit: mm)	27 x 134 x 115	43.6 x 250 x 180	30 x 260 x 180	43.6 x 250 x 180
NNI	1G	1 GPON	1 GPON	1 GE/GPON
UNI	4 x GE	4 x GE + 4 x POTS + 4 x E1	4 x GE + 4 x POTS + 1 x Wi-Fi	4 x GE + 8 x POTS + 1 x Wi-Fi
Operating temperature	-40°C to +55°C	-40°C to +55°C	-40°C to +55°C	-40°C to +55°C
Ambient humidity	5% RH to 95% RH, non-condensing	5% RH to 95% RH, non-condensing	5% RH to 95% RH, non-condensing	5% RH to 95% RH, non-condensing
Heat dissipation mode	Heat is dissipated naturally without a fan. (The device case is plastic.)	Heat is dissipated naturally without a fan. (The device case is metallic.)	Heat is dissipated naturally without a fan. (The device case is plastic.)	Heat is dissipated naturally without a fan. (The device case is metallic.)
Lightning protection capability	Power port: 6 kV; network port: 6 kV	Power/Network port: 6 kV; POTS port: 4 kV	Power/Network port: 6 kV; POTS port: 4 kV	Power/Network port: 6 kV; POTS port: 4 kV
EMC	Class B	Class B	Class B	Class B
Power supply	12 V DC power supply (equipped with a 220 V AC power adapter)	220 V AC power supply; 12 V DC backup power	12 V DC power supply (equipped with a 220 V AC power adapter)	220 V AC power supply; 12 V DC battery
Weight	0.5 kg	1.5 kg	1 kg	1 kg
Typical power consumption	5 W	10 W	10 W	10 W

MA5694/MA5698 Access Unit (for Enterprises)

The MA5694/MA5698 series, a carrier-level ONU, is developed for enterprise network access. It has 4 GE ports (including 2 GE electrical ports and 2 other ports supporting electrical/optical configuration). The 2 service slots of the MA5698 can be inserted with service boards of 8 FE or 8 E1 ports. The series is applicable in many broadband access scenarios, including SOHO, HSI, video monitoring, intelligent residential networks, and WLAN access. It can be installed in various scenarios, such as the desk, corridor, and outdoor cabinet and features strong environment adaptability, easy installation, and convenient maintenance.

MA5694

MA5698

Product Features

- The device supports 2 SFP pluggable optical modules and GPON/GE autonegotiation upstream, and 4 GE ports downstream (including 2 ports supporting electrical/optical configuration).The MA5694 has an upstream GE port and 2 downstream GE ports that are on the combo board.The MA5698 supports 2 downstream service slots with each slot supporting 8 E1 ports or 8 FE ports.

- The device supports the Class C+ optical module, whose maximum coverage distance can reach 30 km far and maximum optical split ratio can be 1:128.

- The device supports 1588v2, synchronizes Ethernet stratum-3 clock system, and is capable of inputting and outputting clock signals.

- The device features high reliability. It uses a metal case, natural cooling, anti-condensation design, and 6 kV lightning protection, applicable in thunderstorm-prone areas.

- The operating temperature of the device ranges from -40°C to 55°C. Thereby the device can work in harsh environments (bitter cold or scorching heat).

- The device supports type C GPON and OLT dual homing protection.

- The device supports 90 V to 300 V AC power supply and 38 V DC to 72 V DC power supply.

- The device supports inputting of external alarms and outputting of multi-media alarms, ensuring network operation security.

- The device supports Y.1731 and 12 ms fault diagnosis, ensuring network stability and service reliability.

- The device supports unified and efficient OAM and PnP. Specifically, it does not require on-site software commissioning, supports remote acceptance, upgrade, and patch installation, and remote fault location.

GPON Optical Access Device

Specifications

Product Model	MA5694	MA5698
Dimensions (H x W x D; unit: mm)	43.6 x 250 x 180	43.6 x 442 x 245
NNI	2 x SFP (supporting GPON/GE autonegotiation; 1 port on the GE optical/electrical combo board)	2 SFP ports, supporting GPON/GE autonegotiation
UNI	4 x GE (2 ports on the optical/electrical combo board)	4 x GE (2 ports on the GE optical/electrical combo board); 2 x service slots (each slot supporting boards with 8 E1 or FE ports)
Operating temperature	-40°C to +55°C	-40°C to +65°C
Ambient humidity	5% RH to 95% RH, non-condensing	5% RH to 95% RH, non-condensing
Heat dissipation mode	Heat is dissipated naturally without a fan. (The device case is metallic.)	Two fans with adjustable speed
Lightning protection capability	6 kV	6 kV
EMC standards	Class B	CLASS A
Power supply	220 V AC power supply; -48 V DC power supply	220 V AC power supply; -48 V DC power supply (2 channels); 12 V DC backup power
Weight	3 kg	3.7 kg
Typical power consumption	20 W	40 W

EchoLife HG8010 Home Terminal

The EchoLife HG8010 is a bridging home device in Huawei FTTH solutions and supports ultra-bandwidth access for home and SOHO users using GPON technologies. It provides an Ethernet port. Having high forwarding performance, the device effectively ensures high quality voice, data, and HD video services. The EchoLife HG8010 is future-proof, and offers ideal FTTH terminal solutions.

HG8010

Product Features

- **Link Monitoring**
  - The device supports IEEE 802.1ag-based Ethernet OAM and therefore E2E link detection and network segregation can be implemented.

- **PnP**
  - Services such as voice, broadband, and multicast services are delivered by the NMS and no on-site configuration is required.

- **Remote Diagnosis**
  - The device supports remote identification of faults on feeder and branch fibers in an accurate and easy way.

- **Batch Upgrade**
  - The device supports remote batch upgrade (2000 devices per hour).

- **High-speed Forwarding**
  - The device supports line rate forwarding.

GPON Optical Access Device

Key Features

- **GPON Features**
  - Class B+ optical module
  - Authentication by LOID, SN, password, or SN+password
  - Upstream and downstream FEC
  - GEM port mapping modes: VLAN, 802.1p, VLAN+802.1p, IP ToS, and physical port

- **Multicast Features**
  - IGMPv2 and IGMPv3 snooping

- **Ethernet Features**
  - VLAN filtering and VLAN transparent transmission
  - N:1 VLAN aggregation and 1:1 VLAN translation

- **Security Features**
  - Anti-DoS attack
  - MAC address filtering
  - Configuration of ONT ACL

- **Reliability Features**
  - Dual system protection
  - Type B protection and rogue ONT detection and isolation (GPON)

- **Maintenance Features**
  - Web-based local management
  - OMCI remote management (GPON)
  - IEEE 802.1ag-based Ethernet OAM (GPON)
  - Optical power monitoring

- **Energy-saving Features**
  - Dynamic energy-saving policy adjustment

Specifications

Dimensions (H x W x D; unit: mm)	30 x 115 x 143
Port type	1 GE
Average power consumption	5.5 W
Operating environment	Temperature: 0°C to 40°C; humidity: 5% RH to 95% RH, non-condensing
Power supply	Power adapter input: 100 V to 240 V AC; 50 Hz to 60 Hz Power adapter output: 11 V to 14 V DC; 1 A
Weight	About 0.4 kg (including the power adapter)

EchoLife HG8040 Home Terminal

The EchoLife HG8040 is a bridging home device in Huawei FTTH solutions and supports ultra-bandwidth access for home or SOHO users using GPON technologies. It provides 4 Ethernet ports. Having high forwarding performance, the device effectively ensures high quality voice, data, and HD video service. The EchoLife HG8040 is future-proof, and offers ideal FTTH terminal solutions.

HG8040

Product Features

- **Link Monitoring**
  - The device supports IEEE 802.1ag-based Ethernet OAM and therefore E2E link detection and network segregation can be implemented.

- **PnP**
  - Services such as voice, broadband, and multicast services are delivered by the NMS and no on-site configuration is required.

- **Remote Diagnosis**
  - The device supports remote identification of faults on feeder and branch fibers in an accurate and easy way.

- **Batch Upgrade**
  - The device supports remote batch upgrade (2000 devices per hour).

- **High-speed Forwarding**
  - The device supports line rate forwarding.

Key Features

- **GPON Features**
  - Class B+ optical module
  - Authentication by LOID, SN, password, or SN+password
  - Upstream and downstream FEC
  - GEM port mapping modes: VLAN, 802.1p, VLAN+802.1p, IP ToS, and physical port

- **Multicast Features**
  - IGMPv2 and IGMPv3 snooping

- **Ethernet Features**
  - VLAN filtering and VLAN transparent transmission
  - N:1 VLAN aggregation and 1:1 VLAN translation

- **Security Features**
  - Anti-DoS attack
  - MAC address filtering
  - Configuration of ONT ACL

- **Reliability Features**
  - Dual system protection
  - Type B protection and rogue ONT detection and isolation (GPON)

- **Maintenance Features**
  - Web-based local management
  - OMCI remote management (GPON)
  - IEEE 802.1ag-based Ethernet OAM (GPON)
  - Optical power monitoring

- **Energy-saving Features**
  - Dynamic energy-saving policy adjustment

Specifications

Dimensions (H x W x D; unit: mm)	34 x 155 x 195
Port type	4 FE ports
Average power consumption	7 W
Operating environment	Temperature: 0°C to 40°C; humidity: 5% RH to 95% RH, non-condensing
Power supply	Power adapter input: 220 V AC; 50 Hz to 60 Hz Power adapter output: 11 V to 14 V DC; 1 A
Weight	About 0.5 kg (including the power adapter)

EchoLife HG8110 Home Terminal

The EchoLife HG8110 is a bridging+voice home device in Huawei FTTH solutions and supports ultra-bandwidth access for home and SOHO users using GPON technologies. It provides a POTS port and an Ethernet port. Having high forwarding performance, the device effectively ensures high quality voice, data, and HD video service. The EchoLife HG811 is future-proof, and offers ideal FTTH terminal solutions.

HG8110

Product Features

- **Link Monitoring**
  - The device supports IEEE 802.1ag-based Ethernet OAM and therefore E2E link detection and network segregation can be implemented.

- **PnP**
  - Services such as voice, broadband, and multicast services are delivered by the NMS and no on-site configuration is required.

- **Remote Diagnosis**
  - The device supports the loop line test of POTS ports and call emulation for remote fault diagnosis.

- **Batch Upgrade**
  - The device supports remote batch upgrade (2000 devices per hour).

- **High-speed Forwarding**
  - The device supports line rate forwarding.

- **Energy Conservation**
  - The device uses an SOC chip, which integrates the PON, voice, gateway, and LSW modules and reduces power consumption by 25%.

GPON Optical Access Device

Key Features

- **GPON Features**
  - Class B+ optical module
  - Authentication by SN, password, or SN+password
  - Upstream and downstream FEC
  - GEM port mapping modes: VLAN, 802.1p, VLAN+802.1p, IP ToS, and physical port

- **Voice Features**
  - SIP and H.248
  - Separation of voice media streams from signaling streams

- **Multicast Features**
  - IGMPv2 and IGMPv3 snooping

- **Ethernet Features**
  - VLAN filtering and VLAN transparent transmission
  - N:1 VLAN aggregation and 1:1 VLAN translation

- **Security Features**
  - Filtering based on source MAC addresses
  - Configuration of ONT ACL

- **Maintenance Features**
  - Web-based local management
  - OMCI remote management (GPON)
  - IEEE 802.1ag-based Ethernet OAM (GPON)
  - Optical power monitoring
  - Loop line test of POTS ports and call emulation

- **Reliability Features**
  - Dual system protection
  - Type B protection and rogue ONT detection and isolation
  - Fe-lithium battery as backup power and backup power monitoring

- **Energy-saving Features**
  - Dynamic energy-saving policy adjustment
  - Flexibility in selecting to-be-guaranteed services in backup power mode

Specifications

Dimensions (H x W x D; unit: mm)	30 x 115 x 143
Port type	1 GE + 1 POTS
Average power consumption	7 W
Operating environment	Temperature: 0°C to 40°C; humidity: 5% RH to 95% RH, non-condensing
Power supply	Power adapter input: 100 V to 240 V AC; 50 Hz to 60 Hz Power adapter output: 11 V to 14 V DC; 1 A
Weight	About 0.4 kg (including the power adapter)

EchoLife HG8240 Home Terminal

The EchoLife HG8240 is a bridging+voice home device in Huawei FTTH solutions and supports ultra-bandwidth access for home and SOHO users using GPON technologies. It provides 2 POTS ports and 4 FE/GE autonegotiation Ethernet ports. Having high forwarding performance, the device effectively ensures high quality voice, data, and HD video service. The EchoLife HG8240 is future-proof, and offers ideal FTTH terminal solutions.

HG8240

Product Features

● **Link Monitoring (GPON)**
- The device supports IEEE 802.1ag-based Ethernet OAM and therefore E2E link detection and network segregation can be implemented.

● **PnP**
- Services such as voice, broadband, and multicast services are delivered by the NMS and no on-site configuration is required.

● **Remote Diagnosis**
- The device supports the loop line test of POTS ports and call emulation for remote fault diagnosis.

● **Batch Upgrade**
- The device supports remote batch upgrade (2000 devices per hour).

● **High-speed Forwarding**
- The device supports GE line rate forwarding.

● **Energy Conservation**
- The device uses an SOC chip, which integrates the PON, voice, and LSW modules and reduces power consumption by 25%.

GPON Optical Access Device

Key Features

- **GPON Features**
  - Class B+ optical module
  - Authentication by LOID, SN, password, or SN+password
  - Upstream and downstream FEC
  - GEM port mapping modes: VLAN, 802.1p, VLAN+802.1p, IP ToS, physical port, physical port+VLAN, physical port+802.1p, and physical port+VLAN+802.1p

- **Voice Features**
  - SIP and H.248
  - Separation of voice media streams from signaling streams

- **Multicast Features**
  - IGMPv2 and IGMPv3 snooping

- **Ethernet Features**
  - VLAN filtering and VLAN transparent transmission
  - N:1 VLAN aggregation and 1:1 VLAN translation

- **Maintenance Features**
  - Web-based local management
  - Remote OAM
  - Optical power monitoring
  - Loop line test of POTS ports and call emulation
  - OMCI remote management (GPON)

- **Reliability Features**
  - Dual system protection
  - Fe-lithium battery as backup power and backup power monitoring
  - Type B protection and rogue ONT detection and isolation (GPON)

- **Energy-saving Features**
  - Dynamic energy-saving policy adjustment
  - Flexibility in selecting to-be-guaranteed services in backup power mode

Specifications

Dimensions (H x W x D; unit: mm)	34 x 155 x 195
Port type	2 POTS + 4 GE
Average power consumption	7.5 W
Operating environment	Temperature: 0°C to 40°C; humidity: 5% RH to 95% RH, non-condensing
Power supply	Power adapter input: 100 V to 240 V AC; 50 Hz to 60 Hz Power adapter output: 11 V to 14 V DC; 1 A
Weight	About 0.5 kg (including the power adapter)

EchoLife HG8242 Home Gateway

The EchoLife HG8242 is a bridging+voice home device in Huawei FTTH solutions and supports ultra-bandwidth access for home and SOHO users using GPON technologies. It provides 2 POTS ports, 4 GE ports, and an RF port. Having high forwarding performance, the device effectively ensures high quality voice, data, and HD video service. The EchoLife HG8242 is future-proof, and offers ideal FTTH terminal solutions.

HG 8242

Product Features

- PnP
  - Configurations are automatically delivered by the NMS and no on-site commissioning is required.

- Remote Diagnosis
  - The device supports the loop line test of POTS ports and call emulation for remote fault diagnosis.

- Link Monitoring
  - The device supports IEEE 802.1ag-based Ethernet OAM and therefore E2E link detection and network segregation can be implemented.

- Batch Upgrade
  - The device supports remote batch upgrade (2000 devices per hour).

- High-speed Forwarding
  - The device supports line rate forwarding.

- Energy Conservation
  - The device uses an SOC chip, which integrates the PON, voice, gateway, and LSW modules and reduces power consumption by 25%.

GPON Optical Access Device

Key Features

- **GPON Features**
  - Class B+ optical module
  - Authentication by LOID, SN, password, or SN+password
  - Upstream and downstream FEC
  - GEM port mapping modes: VLAN, 802.1p, VLAN+802.1p, IP ToS, physical port, physical port+VLAN, physical port+802.1p, and physical port+VLAN+802.1p

- **Voice Features**
  - SIP and H.248
  - Separation of voice media streams from signaling streams

- **Multicast Features**
  - IGMPv2 and IGMPv3 snooping

- **Ethernet Features**
  - VLAN filtering and VLAN transparent transmission
  - N:1 VLAN aggregation and 1:1 VLAN translation

- **Maintenance Features**
  - Web-based local management
  - Remote OAM
  - Optical power monitoring
  - Loop line test of POTS ports and call emulation
  - OMCI remote management (GPON)

- **Reliability Features**
  - Dual system protection
  - Fe-lithium battery as backup power and backup power monitoring
  - Type B protection and rogue ONT detection and isolation (GPON)

- **Energy-saving Features**
  - Dynamic energy-saving policy adjustment
  - Flexibility in selecting to-be-guaranteed services in backup power mode

Specifications

Dimensions (H x W x D; unit: mm)	34 x 212 x 268
Port type	2 x POTS + 4 x GE + 1 x RF
Average power consumption	10 w
Operating environment	Temperature: 0°C to 40°C; humidity: 5% RH to 95% RH, non-condensing
Power supply	Power adapter output: 11 V to 14 V DC, 2 A Power adapter input: 100 V to 240 V AC; 50 Hz to 60 Hz
Weight	0.58 kg

EchoLife HG8245 Home Gateway

The EchoLife HG8245 is a high-end home gateway in Huawei FTTH solutions and supports ultra-bandwidth access for home and SOHO users using GPON technologies. It provides 2 POTS ports, 4 FE/GE autonegotiation Ethernet ports, and a Wi-Fi port. Having high forwarding performance, the device effectively ensures high quality voice, data, and HD video services. The EchoLife HG8245 is future-proof, and offers ideal FTTH terminal solutions.

HG8245

Product Features

- **Link Monitoring (GPON)**
  - The device supports IEEE 802.1ag-based Ethernet OAM and therefore E2E link detection and network segregation can be implemented.

- **PnP**
  - Services such as voice, broadband, and multicast services are delivered by the NMS and no on-site configuration is required.

- **Remote Diagnosis**
  - The device supports the loop line test of POTS ports, call emulation, and PPPoE dialup emulation for remote fault diagnosis.

- **Batch Upgrade**
  - The device supports remote batch upgrade (2000 devices per hour).

- **High-speed Forwarding**
  - L2 GE line rate forwarding and L3 NAT forwarding rate can reach 900 Mbit/s.

- **Energy Conservation**
  - The device uses an SOC chip, which integrates the PON, voice, gateway, and LSW modules and reduces power consumption by 25%.

GPON Optical Access Device

Key Features

- **GPON Features**
  - Class B+ optical module
  - Authentication by LOID, SN, password, or SN+password
  - Upstream and downstream FEC
  - GEM port mapping modes: VLAN, 802.1p, VLAN+802.1p, IP ToS, physical port, physical port+VLAN, physical port+802.1p, and physical port+VLAN+802.1p

- **Voice Features**
  - SIP and H.248
  - Separation of voice media streams from signaling streams

- **Multicast Features**
  - IGMPv2 snooping, IGMPv3 snooping, and IGMP proxy

- **Wi-Fi Features**
  - IEEE 802.11b/g/n and Wi-Fi Alliance certification

- **Routing Features**
  - NAT
  - Automatic binding of Internet, VoIP, and IPTV services to ONT ports
  - Virtual server and port trigger
  - DMZ and DDNS

- **Ethernet Features**
  - VLAN filtering and VLAN transparent transmission
  - N:1 VLAN aggregation and 1:1 VLAN translation

- **Security Features**
  - Source MAC address, IP address, and URL filtering
  - Anti-DoS attack

- **Maintenance Features**
  - Web-based local management
  - TR069 and remote OAM
  - Optical power monitoring
  - Loop line test of POTS ports and call emulation

- PPPoE dialup emulation
- IEEE 802.1ag-based Ethernet OAM (GPON)

- **Reliability Features**
  - Dual system protection
  - Fe-lithium battery as backup power and backup power monitoring
  - Type B protection and rogue ONT detection and isolation (GPON)

- **Energy-saving Features**
  - Dynamic energy-saving policy adjustment
  - Flexibility in selecting to-be-guaranteed services in backup power mode

Specifications

Dimensions (H x W x D; unit: mm)	34 x 174 x 195
Port type	2 x POTS + 4 x GE + 1 x USB + 1 x Wi-Fi
Average power consumption	8 W
Operating environment	Temperature: 0°C to 40°C; humidity: 5% RH to 95% RH, non-condensing
Power supply	Power adapter input: 100 V to 240 V AC; 50 Hz to 60 Hz Power adapter output: 11 V to 14 V DC; 2 A
Weight	About 0.55 kg (including the power adapter)

EchoLife HG8245T Home Terminal

The EchoLife HG8245T is a high-end home gateway in Huawei FTTH solutions and supports ultra-bandwidth access for home and SOHO users using GPON technologies. It provides 2 POTS ports, 4 FE/GE autonegotiation Ethernet ports, and a Wi-Fi port. Having high forwarding performance, the device effectively ensures high quality voice, data, and HD video services. The EchoLife HG8245T is future-proof, and offers ideal FTTH terminal solutions.

HG8245T

Product Features

● PnP
- Configurations are automatically delivered by the NMS and no on-site commissioning is required.

● Remote Diagnosis
- The device supports the loop line test of POTS ports and call emulation for remote fault diagnosis.

● Link Monitoring
- The device supports IEEE 802.1ag-based Ethernet OAM and therefore E2E link detection and network segregation can be implemented.

● Batch Upgrade
- The device supports remote batch upgrade (2000 devices per hour).

● Energy Conservation
- The device uses an SOC chip, which integrates the PON, voice, gateway, and LSW modules and saves power by 25%.

● High-speed Forwarding
- The device supports line rate forwarding.

Key Features

- **GPON Features**
  - Class B+ optical module
  - Authentication by LOID, SN, password, or SN+password
  - Upstream and downstream FEC
  - GEM port mapping modes: VLAN, 802.1p, VLAN+802.1p, IP ToS, physical port, physical port+VLAN, physical port+802.1p, and physical port+VLAN+802.1p

- **Voice Features**
  - SIP and H.248
  - Separation of voice media streams from signaling streams

- **Multicast Features**
  - IGMPv2 snooping, IGMPv3 snooping, and IGMP proxy

- **Wi-Fi Features**
  - IEEE 802.11b/g/n and Wi-Fi Alliance certification

- **Routing Features**
  - NAT
  - Automatic binding of Internet, VoIP, and IPTV services to ONT ports
  - Virtual server and port trigger
  - DMZ and DDNS

- **Ethernet Features**
  - VLAN filtering and VLAN transparent transmission
  - N:1 VLAN aggregation and 1:1 VLAN translation

- **Security Features**
  - Source MAC address, IP address, and URL filtering
  - Anti-DoS attack

- **Maintenance Features**
  - Web-based local management
  - TR069 and remote OAM
  - Optical power monitoring
  - Loop line test of POTS ports and call emulation
  - PPPoE dialup emulation
  - IEEE 802.1ag-based Ethernet OAM (GPON)

- **Reliability Features**
  - Dual system protection
  - Fe-lithium battery as backup power and backup power monitoring
  - Type B protection and rogue ONT detection and isolation (GPON)

- **Energy-saving Features**
  - Dynamic energy-saving policy adjustment
  - Flexibility in selecting to-be-guaranteed services in backup power mode

Specifications

Dimensions (H x W x D; unit: mm)	34 x 174 x 195
Port type	2 x POTS + 4 x GE + 1 x USB + 1 x Wi-Fi
Average power consumption	18 W
Operating environment	Temperature: 0°C to 40°C; humidity: 5% RH to 95% RH, non-condensing
Power supply	Power adapter output: 11 V to 14 V DC; 1 A Power adapter input: 100 V to 240 V AC; 50 Hz to 60 Hz
Weight	0.55 kg

EchoLife HG8247 Home Gateway

The EchoLife HG8247 is a high-end home gateway in Huawei FTTH solutions and supports ultra-bandwidth access for home and SOHO users using GPON technologies. It provides 2 POTS ports, 4 FE/GE autonegotiation Ethernet ports, a CATV port, and a Wi-Fi port. Having high forwarding performance, the device effectively ensures high quality voice, data, and HD video services. The EchoLife HG8247 is future-proof, and offers ideal FTTH terminal solutions.

HG8247

Product Features

- **Link Monitoring (GPON)**
  - The device supports IEEE 802.1ag-based Ethernet OAM and therefore E2E link detection and network segregation can be implemented.

- **PnP**
  - Services such as voice, broadband, and multicast services are delivered by the NMS and no on-site configuration is required.

- **Remote Diagnosis**
  - The device supports the loop line test of POTS ports, call emulation, and PPPoE dialup emulation for remote fault diagnosis.

- **Batch Upgrade**
  - The device supports remote batch upgrade (2000 devices per hour).

- **High-speed Forwarding**
  - L2 GE line rate forwarding and L3 NAT forwarding rate can reach 900 Mbit/s.

- **Energy Conservation**
  - The device uses an SOC chip, which integrates the PON, voice, gateway, and LSW modules and reduces power consumption by 25%.

GPON Optical Access Device

Key Features

- **GPON Features**
  - Class B+ optical module
  - Authentication by LOID, SN, password, or SN+password
  - Upstream and downstream FEC
  - GEM port mapping modes: VLAN, 802.1p, VLAN+802.1p, IP ToS, physical port, physical port+VLAN, physical port+802.1p, and physical port+VLAN+802.1p

- **Voice Features**
  - SIP and H.248
  - Separation of voice media streams from signaling streams

- **Multicast Features**
  - IGMPv2 snooping, IGMPv3 snooping, and IGMP proxy

- **Wi-Fi Features**
  - IEEE 802.11b/g/n and Wi-Fi Alliance certification

- **Ethernet Features**
  - VLAN filtering and VLAN transparent transmission
  - N:1 VLAN aggregation and 1:1 VLAN translation

- **Routing Features**
  - NAT
  - Automatic binding of Internet, VoIP, and IPTV services to ONT ports
  - Virtual server and port trigger
  - DMZ and DDNS

- **Security Features**
  - Source MAC address, IP address, and URL filtering
  - Anti-DoS attack

- **Maintenance Features**
  - Web-based local management
  - TR069 and remote OAM
  - Optical power monitoring
  - Loop line test of POTS ports and call emulation
  - PPPoE dialup emulation
  - Optical power monitoring (GPON)

- **Reliability Features**
  - Dual system protection
  - Fe-lithium battery as backup power and backup power monitoring
  - Type B protection and rogue ONT detection and isolation (GPON)

- **Energy-saving Features**
  - Dynamic energy-saving policy adjustment
  - Flexibility in selecting to-be-guaranteed services in backup power mode

Specifications

Dimensions (H x W x D; unit: mm)	34 x 213 x 268
Port type	2 x POTS + 4 x GE + 1 x USB + 1 x CATV + 1 x Wi-Fi
Average power consumption	11 W
Operating environment	Temperature: 0°C to 40°C; humidity: 5% RH to 95% RH, non-condensing
Power supply	Power adapter input: 100 V to 240 V AC; 50 Hz to 60 Hz Power adapter output: 11 V to 14 V DC; 2 A
Weight	About 0.8 kg (including the power adapter)

EchoLife HG8247T Home Terminal

The EchoLife HG8247T is a high-end home gateway in Huawei FTTH solutions and supports ultra-bandwidth access for home and SOHO users using GPON technologies. It provides 4 POTS ports, 4 FE/GE autonegotiation Ethernet ports, and a Wi-Fi port. Having high forwarding performance, the device effectively ensures high quality voice, data, and HD video service. The EchoLife HG8247T is future-proof, and offers ideal FTTH terminal solutions.

HG8247T

Product Features

- **PnP**
  - Configurations are automatically delivered by the NMS and no on-site commissioning is required.

- **Remote Diagnosis**
  - The device supports the loop line test of POTS ports and call emulation for remote fault diagnosis.

- **Link Monitoring**
  - The device supports IEEE 802.1ag-based Ethernet OAM and therefore E2E link detection and network segregation can be implemented.

- **Batch Upgrade**
  - The device supports remote batch upgrade (2000 devices per hour).

- **Energy Conservation**
  - The device uses an SOC chip, which integrates the PON, voice, gateway, and LSW modules and saves power by 25%.

- **High-speed Forwarding**
  - The device supports line rate forwarding.

GPON Optical Access Device

Key Features

- **GPON Features**
  - Class B+ optical module
  - Authentication by LOID, SN, password, or SN+password
  - Upstream and downstream FEC
  - GEM port mapping modes: VLAN, 802.1p, VLAN+802.1p, IP ToS, physical port, physical port+VLAN, physical port+802.1p, and physical port+VLAN+802.1p

- **Voice Features**
  - SIP and H.248 Protocols
  - Separation of voice media streams from signaling streams

- **Multicast Features**
  - IGMPv2 snooping, IGMPv3 snooping, and IGMP proxy

- **Wi-Fi Features**
  - IEEE 802.11b/g/n and Wi-Fi Alliance certification

- **Routing Features**
  - NAT
  - Internet, VoIP, and IPTV services automatically bound to ONT ports
  - Virtual server and port trigger
  - DMZ and DDNS

- **Ethernet Features**
  - VLAN filtering and VLAN transparent transmission
  - N:1 VLAN aggregation and 1:1 VLAN translation

- **Security Features**
  - Source MAC address filtering, IP address filtering, and URL filtering
  - Anti-DoS attack

- **Maintenance Features**
  - Web-based local management
  - TR069 and remote OAM
  - Optical power monitoring
  - Loop line test of POTS ports and call emulation
  - PPPoE dialup emulation
  - IEEE 802.1ag-based Ethernet OAM (GPON)

- **Reliability Features**
  - Dual system protection
  - Fe-lithium battery as backup power and backup power monitoring
  - Type B protection and rogue ONT detection and isolation (GPON)

- **Energy-saving Features**
  - Dynamic energy-saving policy adjustment
  - Flexibility in selecting to-be-guaranteed services in backup power mode

Specifications

Dimensions (H x W x D; unit: mm)	34 x 213 x 268
Port type	4 x POTS + 4 x GE + 1 x USB + 1 x RF + 1 x Wi-Fi
Average power consumption	20.5 W
Operating environment	Temperature: 0°C to 40°C; humidity: 5% RH to 95% RH, non-condensing
Power supply	Power adapter output: 11 V to 14 V DC; 1 A Power adapter input: 100 V to 240 V AC; 50 Hz to 60 Hz
Weight	800 g

EoC Device

EoC devices include EoC head ends (MA5631 and MA5632) and EoC terminals (HG7022, HG7042, and HG7042T), comply with Homeplug AV, and are applicable to the bidirectional access network construction (part of the triple-play network reconstruction).

SmartAX MA5631/MA5632

The MA5631/MA5632 series is an EoC head end device for the PON+EoC-based bidirectional access network reconstruction (part of the triple-play network reconstruction). It uses the mainstream low frequency HomePlug AV modulation and supports IEEE P1901. The MA5631 integrates ONU, EoC head end, and frequency mixer. The MA5632 is an integrated indoor EoC head end device and can be installed in corridors during bidirectional reconstruction for MSO networks. The series supports auto-negotiation to GPON/GE upstream transmission modes and 300 Mbit/s (extendible to 1 Gbit/s) effective access bandwidth for each user. The MA5631/MA5632 series provides bidirectional transmission channels for MSO networks so that insufficient access bandwidth is no longer a bottleneck for MSO services and high-quality Internet, voice, IPTV, VoD, VoIP, mobile phone television, mobile Internet, and video monitoring services can be provided. This meets the requirements for triple-play network development.

MA5631

MA5632

Product Features

- The device is the industry's first product integrating the ONU, EoC, and frequency mixer. It reduces the NE quantity, effectively uses IP addresses, and facilitates network OAM.

- The MA5631 supports up to 4 EoC modules, which are hot swappable and of large capacity (each supporting up to 256 users). Therefore it supports outdoor installation in residential areas (a single device covering several nearby buildings). The MA5632 supports up to 2 EoC modules and corridor installation. This meets requirements of MSO networks with limited users and limitless potential.

- The device uses leading EoC technologies and standards: HomePlug AV modulation (mainstream technology adopted by the industry), IPTV (including VoD), and IEEE P1901.

- The device provides high bandwidth. It uses the latest Atheros 74 chipset and supports 300 Mbit/s (extendible to 1 Gbit/s) effective access bandwidth for each user, meeting high-bandwidth access requirements of a triple-play network.

- The device is highly compatible with EoC terminals using the ATHEROS AR6400 or ATHEROS AR7400 chip.

- The SFP upstream port of the MA5631 supports GPON/GE autonegotiation, meeting different service requirements.

- The device is of high reliability. It supports 2 upstream PON ports to implement dual-PON protection.

- The device supports the GE electrical port, applicable in the separated ONU and EoC scenario and meeting different MSO network construction requirements.

- The device is of good adaptability: working temperature ranging from -40°C to 55°C; dust-proof design; water-proof design; anti-radiation design. When it is installed in the outdoor cabinet of the optical node on an MSO network, it requires minimum engineering workload (without MSO network reconstruction), and supports fast deployment and convenient management.

- The device supports unified PON+EoC OAM. Integrated in one NE, the ONU and EoC module can be configured together for service provisioning and management. Besides, the EoC head end and terminal users support batch deployment and remote upgrade. Therefore the OPEX of unified E2E OAM, covering network deployment, service provisioning, fault diagnosis, and network maintenance, is reduced.

EoC Device

Product Features

Device name	MA5631/MA5632
GPON features	Complies with the ITU-T G.984 standards.
	Number of T-CONTs: 32
	Number of GEM ports: 1024
Broadband features	Number of VLANs: 4K (QinQ and stacking VLANs are supported.)
	Number of MAC addresses: 4K
	Supports 802.1p, PQ+WRR traffic control, and ACL.
Key EoC indicators	Modulation technology: HomePlug AV
	Physical-layer rate: 500 Mbit/s; MAC-layer rate: 300 Mbit/s
	Frequency range: 7.5 MHz to 65 MHz
	Modulation modes: OFDM, 1024/256/64/16QAM, QPSK, and BPSK
	Working mode: CSMA/CA and TDMA
RF port feature	Maximum RF output level: 118 dBuV
	Input/Output resistance: 75 ohms
	Tx rate: 0±3 dBm
	Tx loss: > 16 dB
	Rx sensitivity: -65 dB
	Isolation: ≥ 45 dB
	Maximum current carrying capacity: 3 A
Security features	Encryption mode: 128-bit AES
	Supports PPPoE+ and DHCP option82.
	Supports static and dynamic MAC address binding.
	Supports MAC anti-spoofing and IP anti-spoofing; supports source MAC address filtering and source IP address filtering.
	Supports anti-DoS attack and firewall.
Maintenance and management features	Supports the remote batch pre-configuration function.
	Supports remote upgrade and monitoring.
	Supports SNMPv1, SNMPv2, and SNMPv3.
	Supports Telnet and SSHv2.

Specifications

Device name	MA5631	MA5632
Dimensions (H x W x D; unit: mm)	148 x 308 x 223	43.6 x 250 x 180 (excluding the mounting ears) 43.6 x 290 x 180 (including the mounting ears)
NNI	1 x RF IN Two SFP upstream ports and 1 GE electrical port are supported, and these 2 SFP ports can be configured to the following modes: ● 2 x GPON ● 2 x GE (optical) ● 1 x GE (optical) + 1 x GPON ● 1 x GE port (electrical)	1 x RF IN 1 x GPON/GE (optical) 1 x GE (electrical)
UNI	1/2/3/4 x RF OUT (modularized configuration and flexible configuration)	1/2 RF OUT
Operating temperature	-40°C to +55°C	
Ambient humidity	5% RH to 95% RH, non-condensing	
Heat dissipation mode	Heat is dissipated naturally without a fan.	
Power supply	220 V/110 V/60 V AC power supply 60 V power transmitted over the cable	
Weight	< 6.8 kg	< 1.7 kg

EchoLife HG7022/HG7042/HG7042T

The EchoLife HG7022/HG7042/HG7042T series is an EoC terminal for the PON+EoC-based bidirectional access network reconstruction (part of the triple-play network reconstruction) and complies with Homeplug AV. On the LAN side, the series connects home users and SOHO users to the Internet and MSO network through the upstream RF port, and transmits broadband data through the television cable and separates Ethernet data signals from cable television signals in the downstream direction. The series can provide video and data services, meeting requirements of home users and SOHO users.

HG7022/HG7042/HG7042T

Product Features

- The device uses the mainstream low frequency HomePlug AV modulation, and supports IEEE P1901.
- The device supports authentication by key, configuration-free deployment and automatic service provisioning, which significantly improves the device deployment and service provisioning efficiency.
- The device provides various hardware ports for bandwidth-demanding service terminals such as the PC, STB, and video phone, meeting requirements of home users and SOHO users.
- The device can be used as a home gateway. Serving as a DHCP server or client, the device can be configured with functions such as anti-DoS attack, MAC address filtering, IP address filtering, and firewall.
- The device has a built-in duplex filter that does not affect the existing CATV signals and enables CATV signals to be transmitted without interruption during outages.
- The device supports unified PON+EoC OAM. The EoC terminal users support batch deployment and remote upgrade. Thereby the OPEX of E2E OAM, such as network deployment, service provisioning, fault diagnosis, and network maintenance, is reduced.
- The HG7042T provides high bandwidth. It uses the latest Atheros 74 chipset and supports 300 Mbit/s effective access bandwidth.

Product Features

Key EoC indicators	Modulation technology: HomePlug AV
	Physical-layer rate: 500 Mbit/s; MAC-layer rate: 300 Mbit/s
	Frequency range: 7.5 MHz to 30 MHz
	Modulation modes: 1024/256/64/16/8QAM, QPSK, BPSK, and ROBO
	Working mode: CSMA/CA
RF port feature	Maximum RF output level: 142 dBuV
	Input/Output resistance: 75 ohms
	Tx rate: 0±3 dBm
	Tx loss: > 16 dB
	Rx sensitivity: -65 dB
	Isolation: ≥ 45 dB
	Maximum current carrying capacity: 6 A
Ethernet features	IEEE 802.1p, IEEE 802.3, IEEE 802.3u, and IEEE 802.3x compliance
	Rate and duplex mode autonegotiation
	Manual configuration to 10 Mbit/s or 100 Mbit/s
	Manual configuration to half or full duplex
	Automatic MDI or MDIX
	PAUSE traffic control (IEEE 802.3 Annex 31B)
	Ethernet frames with a maximum length of 1536 bytes
	Port VLAN trunk and access modes
Security features	Encryption mode: 128-bit AES
	Supports PPPoE+ and DHCP option82.
	Supports static and dynamic MAC address binding.
	Supports MAC anti-spoofing and IP anti-spoofing; supports source MAC address filtering and source IP address filtering.
	Supports anti-DoS attack and firewall.
Maintenance and management features	Supports SNMPv1, SNMPv2, and SNMPv3.
	Supports Telnet and SSHv2.
	Supports the remote batch pre-configuration function.
	Supports remote upgrade and monitoring.

Specifications

Dimensions (H x W x D; unit: mm)	28 x 170 x 110
NNI	1 x cable IN
UNI	1 TV output port ● HG7022: 2 x FE ● HG7042/HG7042T: 4 x FE
Operating temperature	0°C to +45°C
Ambient humidity	10% RH to 90% RH, non-condensing
Heat dissipation mode	Heat is dissipated naturally without a fan.
Power supply	AC: 220 V/110 V DC: 12 V
Weight	About 0.5 kg

SmartAX MA5633

The MA5633, a D-CMTS device, is launched for bidirectional MSO network reconstruction to a triple-play network. It is mainly applied in PON+D-CMTS scenarios and can greatly improve CMTS bandwidth. Specifically, the downstream bandwidth can reach 800 Mbit/s while the upstream effective bandwidth can reach 160 Mbit/s. Without changing the existing HFC network structure, MSOs can use the MA5633 to provide various high-quality services, such as the broadband, voice, IPTV, and VIP customer's private line services and explore new market space.

MA5633

Application Scenario

The MA5633 applies to bidirectional MSO network reconstruction. In the upstream direction, it connects the OLT through the GPON port, and connects the optical receiver through the RF port to modulate broadband and TV signals into the coaxial cable. In the downstream direction, it connects the EoC terminal or home CM through the coaxial cable. It connects the STB and PC respectively through the RF port and FE port, providing high-quality broadband, voice, and TV services.

Product Features

- The device is compatible with the live-network CM and DOCSIS OSS. With the device, the live HFC network structure and the service provisioning process do not need to be changed.
- The device supports 16 channels with 800 Mbit/s rate downstream and 4 channels with 160 Mbit/s rate upstream. The number of channels can be configured.
- PON+D-CMTS uses a point to multi-point structure, saving equipment installation space by more than 40% and backbone fibers by 80%.
- The device supports 2 RF inputs/outputs or 4 RF inputs/outputs, directly connects the live-network optical receiver, and supports multiple installation scenarios (including outdoor cabinet, wall-mounted, and aerial-mounted installation).
- The device supports powerful QoS processing capability, which is independent from the OLT, enabling flexible GPON/GE upstream networking.
- The device supports one-stop deployment, PnP, offline deployment, and automatic batch deployment.

D-CMTS Device

Product Features

Device name	MA5633
Channel frequency range	Downstream: 87 MHz to 1002 MHz Upstream: 5 MHz to 65 MHz
Modulation mode	Downstream: 64QAM/256QAM/1024QAM Upstream: ATDMA/SCDMA modulation and QPSK/16QAM/64QAM/256QAM
Standards compliance	C-DOCSIS/DOCSIS 2.0/DOCSIS 3.0/Euro-DOCSIS 2.0/Euro-DOCSIS 3.0
Input/Output resistance	75 ohms
Delay	< 1 ms
GPON features	Standard: ITU-T G.984 series Port Mode and Type: Single-mode SC/PC (UPC) Maximum transmission distance: 20 km Central wavelength: Rx central wavelength (1490 nm); Tx central wavelength (1310 nm) Optical module standard: ITU-T G.984.2 and CLASS B+
Security features	1. The CM supporting BPI+ and X.509 authentication, MAC spoofing, anti-MAC address transfer, IP spoofing, user isolation, and source address verification (SAV) 2. Anti-DoS attack, anti-IP/ICMP attack, source route filtering, MAC address filtering, firewall blacklist, setting of IP address segments that can be accessed or cannot be accessed by the firewall, and overload service control

Specifications

Dimensions (H x W x D; unit: mm)	275 x 400 x 153
NNI	Two or four RF IN ports are supported, and these ports can be configured to the following modes: ● 1 x GPON ● 1 x GE (optical) ● 1 x GE (electrical)
UNI	Two or four RF OUT ports are supported
CATV indicator	Maximum RF output level: 120 dBuV. Input/Output resistance: 75 ohms Reflection loss: ≥ 14 dB
Operating temperature	-40°C to +55°C
Ambient humidity	5% RH to 95% RH, non-condensing
Heat dissipation mode	Heat is dissipated naturally without a fan.
Surge protection	6 kV for lightning protection
Power supply	220 V AC local power supply 60 V power transmitted over the cable

ODN Device

The ODN, providing FTTH data transmission channels, accounts for 50% to 70% of the total FTTH network investments, greatly influencing the overall FTTH costs. In addition, the ODN is the very path essential to FTTH data transmission and its quality directly affects the performance, reliability, and scalability of the FTTH system.

Huawei provides a comprehensive series of ODN products to fast deliver customized ODN services to carriers worldwide. Huawei also launched the iODN solution that features intelligent management and simplified engineering deployment and helps reduce carriers' management costs. Based on the accumulated engineering experience and quick customization service, Huawei uses the iODN solution to help carriers achieve fast FTTH deployment and thereby gain competitive edge.

Huawei iODN Series

GPX147-iODF3101

The GPX147-iODF3101 (an iODN device) is deployed on a backbone network, metro network, or optical access network, providing various functions for feeder cables and distribution optical cables (including connection, termination, distribution, optical splitting, and scheduling). It intelligently manages optical fibers and guides operations by exchanging messages with the iField terminal and U2000-O. It is operated from the front and supports a splicing and termination capacity of 960 cores in high-density subrack configuration and 792 cores in low-density subrack configuration (cabinet height: 2200 mm; width: 900 mm).

GXF147-iODF3101-CH2
(with low-density subracks)

GXF147-iODF3101-CH2
(with high-density subracks)

Product Features

- **Accurate Resource Information**
  - The device automatically collects resource information.
  - The device uploads data to the resource management center in a timely manner.
  - The device supports the cabinet e-label, which records the type, barcode, and serial number of the cabinet.
  - The device locally stores the route information that is previously recorded on paper labels to facilitate route information queries.

- **Easy Patching Operation**
  - The device supports eIDs, which read information automatically.
  - The device supports LED-guided operations and operation result feedback in real time.
  - The device supports operations without an iField terminal in real-time power supply.
  - The device supports multiple power supply modes such as AC, DC, PoE, and mobile power supply. No new power supply is required.

- **Fast Fault Locating**
  - With the device, customers can query fiber connection, and learn about fiber connection changes and device resource changes through the U2000-O.
  - The device can work with the U2000-O and the optical fiber fault diagnosis system to fast locate faults.

- **Flexible Configuration and Reliable Performance**
  - The device supports the 19-inch rack-mounted installation. Both of the subrack and service board can be taken out of the cabinet separately, enabling a flexible configuration and easy capacity expansion.
  - The device supports individually replaceable adapters and replacing the eID does not cause service interruption.
  - The device has overall optical fiber protection, ensuring a bending radius larger than or equal to 30 mm.
  - The board uses the lead-free technique, ensuring a total power consumption lower than 15 W when the cabinet is in full configuration.

Specifications

Model	GPX147-iODF3101-CH2	GPX147-iODF3101-CH3	GPX147-iODF3101-CH2A
Capacity (cores)	Integrated splicing and termination: 792/960 Separated splicing and termination: 504/576 Intermediate termination: 768	Integrated splicing and termination: 720/960 Separated splicing and termination: 432/576 Intermediate termination: 576	Integrated splicing and termination: 432/576 Separated splicing and termination: 384
Dimensions (H x W x D; unit: mm)	2200 x 900 x 300	2000 x 900 x 300	2200 x 600 x 300
Operation mode	Two doors; front access	Two doors; front access	Two doors; front access
Installation space	46 U	42 U	46 U
Material	Sheet metal	Sheet metal	Sheet metal
Number of lead-in/lead-out optical cables	Bundle optical cables: 10 Or ribbon optical cables: 4	Bundle optical cables: 10 Or ribbon optical cables: 4	Bundle optical cables: 10 Or ribbon optical cables: 4
Maximum diameter of the optical cable	Bundle optical cable: 9 mm to 24 mm Ribbon optical cable: 16 mm to 24 mm	Bundle optical cable: 9 mm to 24 mm Ribbon optical cable: 16 mm to 24 mm	Bundle optical cable: 9 mm to 24 mm Ribbon optical cable: 16 mm to 24 mm
Color	NC dark purple	NC dark purple	NC dark purple
Installation method	Ground-mounted	Ground-mounted	Ground-mounted

GPX147-iODF3101 Function Modules

Low-density Intelligent Subrack

- ● **Main Features**
- • The module supports 19-inch standard installation.
- • The module can be inserted with 6 intelligent service boards, providing a splicing and termination capacity of 72 cores.
- • Optical patch cords and optical cables are connected to the module from different directions, ensuring clear routing.
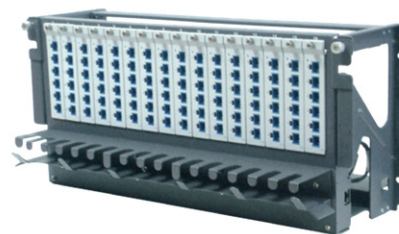
Model	Dimensions (H x W x D)	Installation Standard	Capacity
SR2203-4U	4 U x 482 mm x 265 mm	19 inches	6 slots/72 cores

High-density Intelligent Subrack

- ● **Main Features**
- • The module supports 19-inch standard installation.
- • The module can be inserted with 16 intelligent service boards, providing a splicing and termination capacity of 192 cores.
- • Optical patch cords and optical cables are connected to the module from different directions, ensuring clear routing.

Model	Dimensions (H x W x D)	Installation Standard	Capacity
GPX147-iSR3201-8U	8 U x 482 mm x 265 mm	19 inches	16 slots/192 cores

Intelligent intermediate termination service processing subrack

- ● **Main Features**
- • The module supports 19-inch standard installation.
- • The module can be turned 70 degrees upward and downward. Both the front and back of the module support patching operations.
- • The module can be inserted with 16 intelligent service boards, providing an intermediate termination capacity of 96 cores.

Model	Dimensions (H x W x D)	Installation Standard	Capacity
GPX147-iFTU3111	5 U x 482 mm x 265 mm	19 inches	16 slots/96 cores

GXF147-iFDT3105D

The GXF147-iFDT3105D (an iODN device), deployed on a backbone network, metro network, or optical access network, connects upstream to the feeder optical cable and downstream to the distribution optical cable, providing the same fiber splicing, optical splitting, and cable distribution functions as a traditional FDT. It intelligently manages optical fibers and guides operations by exchanging messages with the iField terminal and U2000-O. The GXF147-iFDT3105D-288 is a front access device, proving a splicing and termination capacity of 336 cores. The GXF147-iFDT3105D-576 is a front and back access device, proving a splicing and termination capacity of 672 cores.

Appearance of the GXF147-iFDT3105D

Internal structure of the GXF147-iFDT3105D

Product Features

- **Accurate Resource Information**
  - The device automatically collects resource information.
  - The device uploads data to the resource management center in a timely manner.
  - The device supports the cabinet e-label, which records the type, barcode, and serial number of the cabinet.
  - The device locally stores the route information that is previously recorded on paper labels to facilitate route information queries.

- **Easy Patching Operation**
  - The device supports eIDs, which read information automatically.
  - The device supports LED-guided operations and operation result feedback in real time.
  - The device supports mobile power supply. No new power supply is required.

- **Fast Fault Locating**
  - The device automatically sends optical fiber connection information back to the U2000-O so that the U2000-O can manage optical fibers remotely.

- The device can work with the U2000-O and the optical fiber fault diagnosis system to fast locate faults.

- **Flexible Configuration and Reliable Performance**
  - The device supports individually replaceable adapters and replacing the eID does not cause service interruption.
  - The device has overall optical fiber protection, ensuring a bending radius larger than or equal to 30 mm.
  - The cabinet is made of metal, which provides a neat appearance, a light weight, and high strength for the cabinet, and protects the cabinet from corrosion.
  - The board uses the lead-free technique, ensuring a total power consumption lower than 7 W when the cabinet is in full configuration.

Specifications

Model	GXF147-iFDT3105D-288	GXF147-iFDT3105D-576
Capacity (cores)	Splicing and termination: 336 cores Direct splicing: 144 cores	Splicing and termination: 672 cores Direct splicing: 288 cores
Dimensions (H x W x D; unit: mm)	1290 x 750 x 360 (including the pedestal)	1290 x 750 x 540 (including the pedestal)
Operation mode	One door; front access	One door operated from the front and another door from the back
Material	Galvanized steel plate	Galvanized steel plate
Pigtail parking unit	64 cores	128 cores
Cable aperture	12 bundle optical cables or 6 ribbon optical cables	24 bundle optical cables or 12 ribbon optical cables
Maximum diameter of the optical cable	Diameter of the bundle optical cable: 9 to 24 mm Diameter of the ribbon optical cable: 16 to 24 mm	Diameter of the bundle optical cable: 9 to 24 mm Diameter of the ribbon optical cable: 16 to 24 mm
Color	RAL7035	RAL7035
Installation method	Ground-mounted	Ground-mounted
Protection class	IP65	IP65

Traditional Huawei ODN Devices

ODF

ODF2101

GPX147

Recommended Products

ODF	Item	Mode	Material	Dimension (H x W x D; Unit: mm)	Installation	Capacity (Splicing/Termination/Splitting)
ODF	1	ODF2101-CH2	Steel sheet	2200 x 800 x 300	Indoor ground-mounted	576
	2	ODF2101-CH3	Steel sheet	2000 x 800 x 300	Indoor ground-mounted	504
	3	ODF2101-FH2	Steel sheet	2200 x 800 x 300	Indoor ground-mounted	576

ODN Device

FDT

FDT2103D series

FDT2106D series

Recommended Model

Product Model	Specification	Dimensions (H x W x D; Unit: mm)	Description
FDT2103D-72	72	450 x 600 x 300	72-core outdoor FDT
FDT2103D-144	144	600 x 600 x 300	144-core outdoor FDT

FAT

GPX 147147 series

Recommended Model

Product Model	Specification	Dimensions (H x W x D; Unit: mm)	Description
GPX147-B1	12	404 x 350 x 89	12-core indoor FAT; single layer; wall mounted
GPX147-B2	24	404 x 350 x 89	24-core indoor FAT; single layer; wall-mounted
GPX147-B3	48	526 x 460 x 145	48-core indoor FAT; single layer; wall-mounted
GPX147-B4	72	606 x 520 x 145	72-core indoor FAT; single layer; wall-mounted

ODN Device

Product In-building/Indoor Cabling

Outlet box

Home information box

Terminal box

Home information panel box

Product	Model	Specification	Dimensions (H x W x D; Unit: mm)	Description
Outlet box	GLH-ABS-146	X	56 x 146 x 146	In-building cabling; drop cable outlet box
	GLH-ABS-100	X	54 x 100 x 100	In-building cabling; drop cable outlet box
Home information box	CTB2101	Wall-mounted	90 x 300 x 300	Plastic part; DKBA4.140.6378MX; user terminal box
	CTB2202	Wall-embedded	100 x 300 x 350	Termination device; wall-embedded; HG8245 installation
Terminal box	TB3101D	Box	54 x 230 x 160	ATB; wall-mounted; box
	TB3201D-1	1 core	54 x 230 x 160	ATB; TB3201D-1; wall-mounted; SC/APC pigtail; SC/APC adapter
	TB3201D-2	2 cores	54 x 230 x 160	ATB; TB3201D-2; wall-mounted; SC/APC pigtail; SC/APC adapter
Home information panel box	ATB3101 series	1 core/2 cores	24 x 120 x 86	Wall-mounted; box; including the fiber splice protector
	ATB3102 series	1 core/2 cores	24 x 86 x 100	SC/UPC; including the adapter, pigtail, and fiber splice protector
	ATB3201 series	1 core/2 cores	40 x 86 x 86	LC/APC; including the adapter, pigtail, and fiber splice protector

Optical Splitter

Bracket-mounted optical splitter: SPL2803 series

SPL2803-1:16-SC/UPC

SPL2803-1:16-LC/UPC

Model	Dimensions (H x W x D; Unit: mm)	Split Ratio
SPL2803-4-P1004-SC/UPC	25 x 131.5 x 103	N:4
SPL2803-8-P1008-SC/UPC	25 x 131.5 x 103	N:8
SPL2803-16-P1016-SC/UPC	50 x 131.5 x 103	N:16
SPL2803-4-P1004-LC/UPC	25 x 131.5 x 103	N:4
SPL2803-8-P1008-LC/UPC	25 x 131.5 x 103	N:8
SPL2803-16-P1016-LC/UPC	25 x 131.5 x 103	N:16

Box-shaped optical splitter: SPL1101 series

SPL1101-1:2-FC/UPC

SPL1101-1:32-SC/UPC

Model	Dimensions (H x W x D; Unit: mm)	Split Ratio
SPL1101-2-F1002	18 x 120 x 80	1:2-FBT
SPL1101-4-P1004	18 x 120 x 80	1:4-PLC
SPL1101-8-P1008	18 x 120 x 80	1:8-PLC
SPL1101-16-P1016	18 x 120 x 80	1:16-PLC
SPL1101-32-P1032	18 x 120 x 80	1:32-PLC
SPL1101-64-P1064	18 x 140 x 114	1:64-PLC

ODN Device

Closure

Aerial Closure

1 — Box
2 — Fastener

Splicing tray, housing mini optical splitters

Aerial hanging brackets

Fitting for securing the optical cable
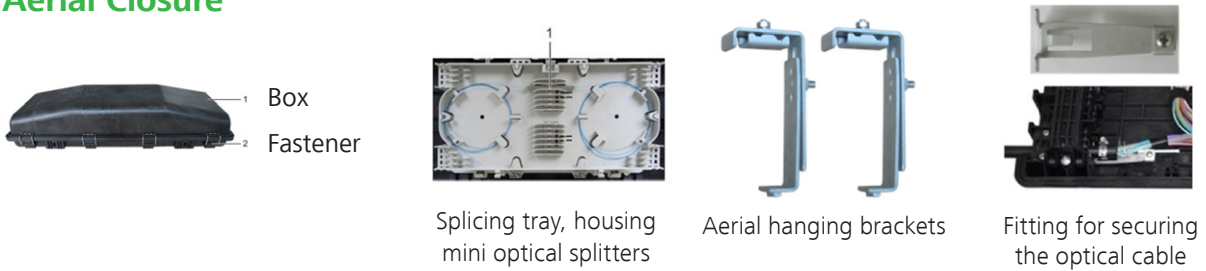
Model	Dimensions (H x W x D; Unit: mm)	Capacity	Optical Splitter Type	Common Optical Cable Aperture	Drop Optical Cable Aperture
SSC2132T-16	120 x 337 x 208	16 optical splitting outputs	SPL2803	6	16
SSC2133T-32	120 x 337 x 208	32 optical splitting outputs	SPL2803	8	32
SSC2133-144	140 x 627 x 256	144 cores (splicing)	SPL9102	8	32

Dome-style Closure

Model	Dimensions (H x D; Unit: mm)	Capacity	Straight-through Hole	Fiber Aperture
SSC2111-48	428 x 190	48 cores (splicing)	1	4
SSC2111-96	428 x 190	96 cores (splicing)	1	4
SSC2112-96	498 x 235	96 cores (splicing)	1	7
SSC2112-144	498 x 235	144 cores (splicing)	1	7
SSC2112T-16	498 x 235	16 cores (distribution)	1	7
SSC2113–168	498 x 302	168 cores (splicing)	1	10
SSC2113T-24	498 x 302	24 cores (distribution)	1	10

Huawei Outdoor Cabinet Series

The Unisite cabinet series has been provided for more than 50 carriers (including BT, DT, Telefonica, STC, TM, Etisalat, and the top 3 carriers in China) in more than 40 countries. More than 278,000 Unisite cabinets have been deployed around the world.

The SmartAX F01 D- and S-series cabinets passed 154 tests from design to manufacture. The cabinets are easy to install and maintain, and have presented stable quality and used in many different scenarios since its launch in 2008. Some innovations that are highly-recognized by customers are applied to the cabinets, such as closed-type natural cooling without an air filter (zero maintenance) or a fan (zero power consumption), and 96% power conversion efficiency (saving 1 kWh of power per day).

The D- and S-series cabinets can be used in site-customized FTTC or FTTB solutions by providing a wide selection of capacities (8 to 1024 lines) and good installation adaptability (such as wall-mounted and pole-mounted).

Outdoor Cabinets

Product model	F01D200	F01D500	F01D1000
Device appearance			
Application Scenario	Indoor	Indoor	Outdoor and indoor
Dimensions (H x D x W)	1200 x 1250 x 550	1650 x 1550 x 550	1650 x 1900 x 550
Available space (H x W x D)	19" x 23 U x 500 mm	19" x 34 U x 500 mm or 21" x 60 U x 500 mm	19" x 46 U x 500 mm
Power system	EPS75-4815AF (AC-DC)	EPS75-4815AF (AC-DC)	EPS75-4815AF (AC-DC)
Operating temperature	−45°C to +45°C; 1120 W/m²	−45°C to +45°C; 1120 W/m²	−45°C to +45°C; 1120 W/m²
Power consumption of the outdoor cabinet	100 W (power consumption of the heat exchanger)	120 W (power consumption of the heat exchanger)	140 W (power consumption of the heat exchanger)
Cabinet weight	248 kg (full configuration and no battery) 368 kg (full configuration and including batteries)	413 kg (full configuration and no battery) 621 kg (full configuration, including 2 sets of 75 Ah batteries) 681 kg (full configuration, including 2 sets of 92 Ah batteries)	562 kg (full configuration and no battery) 770 kg (full configuration, including 2 sets of 75 Ah batteries) 830 kg (full configuration, including 2 sets of 92 Ah batteries)

Unisite Outdoor Cabinet Series

Product model	F01D2000	F01S200	F01S300
Device appearance			
Application scenario	Outdoor and indoor	Outdoor and indoor	Outdoor and indoor
Dimensions (H x W x D; unit: mm)	1850 x 1750 x 800	850 x 750 x 350 1120 x 750 x 350 (with the battery compartment) 1200 x 750 x 250 (with the battery compartment and enhanced modules)	1350 x 850 x 450
Available space (H x W x D)	19" x 46 U x 500 mm	19" x 5 U x 260 mm	19" x 12 U x 300 mm
Power system	EPS75-4815AF-VB (AC-DC)	ETP4830 (AC-DC)	ETP4830 (AC-DC)
Operating temperature	−45°C to +45°C; 1120 W/m²	−33°C to +50°C; 1120 W/m²	−33°C to +50°C; 1120 W/m²
Power consumption of the outdoor cabinet	270 W (power consumption of the heat exchanger)	70 W (maximum power consumption of fans)	70 W (maximum power consumption of fans)
Cabinet weight	650 kg (full configuration and no battery) 1050 kg (full configuration and 300 Ah batteries)	72 kg (full configuration and no battery) 145 kg (full configuration and including batteries)	120 kg (full configuration and no battery) 210 kg (full configuration and including 50 Ah batteries) 260 kg (full configuration and including 92 Ah batteries)

Product Features

- ● **Full-scenario Coverage**
  - The cabinets provide user capacity from 24 to 1024 and therefore are applicable in different commercial scenarios.
  - The cabinets can be installed at the window sill, weak-current well, and corridor.
  - The fully loaded cabinets can work reliably in extreme cold or hot and in coastal or interior regions.

- ● **Low Noise and Easy Site Selection**
  - The cabinets produce almost no noise (even meeting the noise requirements in a library) and can be installed even under the window sill of a residence.
  - The cabinets support various installation methods, such as, wall-mounted, pole-mounted, pedestal-mounted, elevated-platform-mounted installation.
  - The site licenses for the cabinets are easy to apply and the applications are cost effective, because the cabinets feature compact design.

- ● **One-stop Delivery and Fast Provisioning**
  - The device, PDU, lightning protection unit, and cables are integrated and delivered together. No on-site wire seating is required and the device can work after power-on.
  - The engineering and installation design of the cabinets is professional, improving the provisioning efficiency by 30%.

- ● **Maintenance-free Design, Minimizing OAM Costs**
  - Cabinet manufacture has strict quality control tests, including environment, protection, security, and shakeproof tests.
  - The electrostatic spray coating, maze structure, and closed-type natural cooling without an air filter are adopted, achieving corrosion prevention for 10 years, water resistance, and reducing 2 years of maintenance.
  - The cabinets support remote management and intelligent monitoring through sensors, reducing the OAM costs by 30%.

- ● **Energy Conservation and Environmental Friendliness**
  - The intelligent fan monitors temperature and adjust fan speed, lowering the power consumption of the fan by 50%, achieving optimal heat dissipation and minimum noise.
  - Energy conversion efficiency is improved by 5%, and power rectification efficiency reaches 94%, which make excellence standards in the industry.
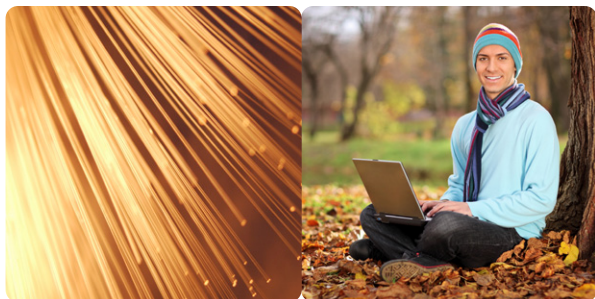 - The cabinets adopt anti-condensation and anti-cold design.

iManager U2000 Access Network NMS

The U2000 supports the management of broadband, integrated, and FTTx access networks, achieving the management of DSLAM devices (broadband access), MSAN devices (integrated access), and GPON devices (FTTx access). Meanwhile, the U2000 provides unified OAM for PON+EoC access networks, achieving the unified management of OLTs, EoC head ends, and EoC terminals.

Product Features

- **High performance:** The U2000 can manage integrated optical-copper ultra-large access networks. Each U2000 can manage a maximum of 200 million lines and 480 thousand ONUs.

- **High reliability:** The U2000 features flexible database backup recovery policies, ensuring the data security. It requires management right and operation right authentication, ensuring the operation security. The U2000 supports the remote HA system and security immunity system, ensuring the system reliability. Moreover, the U2000 supports threshold-crossing alarming and real-time system status monitoring, eliminating the potential threats promptly and enhancing the software reliability.

- **Easy deployment:** The U2000 provides the functions of offline batch configurations, remote software loading, remote software commissioning, and remote verification, achieving ONU PnP. In this way, only one site visit is required for device deployment, which greatly increases the deployment efficiency.

- **Easy service provisioning:** The U2000 supports 5 standard northbound interfaces (TL1/XML/SNMP/FTP/CORBA), MOTOSI2.0, and quick OSS integration, accelerating service provisioning.

- **Easy troubleshooting:** The U2000 provides real-time alarm monitoring in visualized mode, environment and power supply monitoring, and multiple alarm reporting methods, which enables engineers to locate faults in one-click mode. In addition, the U2000 supports historical alarm querying and various alarm handling functions, such as alarm suppression and alarm synchronization.

- **Easy handling:** The U2000 supports customized scenario-specific OAM and displays port status in a GUI interface. The NE management navigation tree and device information are displayed visually and clearly. The U2000 supports automatic topology discovery, automatic client upgrade, and high-efficiency batch timing tasks. Moreover, the global profile is configured once for all and issued to the devices of the entire network, and the network wide resource statistics reports can be exported easily.

- **Unified management:** The U2000 manages OLTs and EoC devices in visualized mode and supports automatic authentication of online EoC devices, EoC HQoS, and batch management, improving the access network OAM efficiency.

Sales Catalog of Huawei Telecommunication Products

Access Network Products