

ESCUELA POLITÉCNICA NACIONAL
REDES DE COMUNICACIONES ÓPTICAS
TALLER No.11

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1.TEMA: Red PON

Consulta de elementos de una red PON

- Consulte al menos dos marcas comerciales (hoja de especificaciones) de:
 - Splitters ópticos



Fig. 1. SPLITTER ÓPTICO MODULAR 19" FBS.

Los splitters modulares 19" son específicamente desarrollados para aplicaciones plug-and-play, y son totalmente preconectorizados y adecuados para fijación en racks 19" por medio de tornillos. Disponibles en las siguientes formaciones, en ocupación de 1U:

- 1 splitter 1x32
- 2 splitters 1x32
- 1 splitter 2x32
- 1 splitter 1x64

Especificación	Modelo		
	1x32	2x32	1x64
Banda Óptica Pasante	PLC: 1260 ~1650		
Maxima Pérdida de Inserción (desconsiderando la pérdida de los conectores) (dB)	17,1	17,7	20,5
Uniformidad (dB)	1,5	2,1	1,7
Maxima Pérdida Dependiente de Polarización (PDL) (dB)	0,4	0,4	0,5

Fig. 2. Desempeño del splitter FBS.

Se adjunta el datasheet en el anexo 1.



Fig. 3. SPLITTERS ÓPTICOS PLC (FiberMAX).

Características generales:

- Opciones de splitters 1x2, 1x4, 1x8, 1x16, 1x32.
- Opciones de conectores: LC o SC simplex
- Opciones de pulido: UPC o APC
- Cumple con requerimientos de GR-1209-CORE-2001 y GR-1221-CORE-1999
- Fibra del tipo monomodo G.657.A1 (micro bending)
- Cables del tipo LSZH, RoHS compliance
- 100% testeados en fábrica
- Montaje en Módulos, Cajas de Distribución o Bandejas de Fibra

Se adjunta el datasheet en el anexo 2.

- ONT



Fig. 4. EchoLife EG8145V5

El EchoLife EG8145V5 es un terminal de red óptica (ONT) de routing inteligente integrado en la solución FTTH de Huawei. Mediante el uso de la tecnología GPON, se proporciona acceso por banda ultra-ancha a los usuarios domésticos. El EG8145V5 es compatible con las bandas de doble frecuencia 802.11ac y cuenta con funciones de reenvío de alto rendimiento para garantizar una excelente experiencia con servicios de voz, Internet y vídeo de alta definición. Estas características hacen del EG8145V5 una opción perfecta para el acceso por banda ancha [1].

Se adjunta el datasheet en el anexo 3.



Fig. 5. Huawei HG8245Q2 FTTH

Es un ONT de tipo enrutamiento en la solución de acceso totalmente óptico de Huawei. Utiliza la tecnología GPON para implementar el acceso de banda ultra ancha para los usuarios. Este modelo ofrece 4 GE + 2 POTS+ 1 USB + 2 WiFi(4 Puertos GE, 2 POTS , 1 Puerto USB, 1 puerto 2.4G WiFi, y 1 puerto 5G WiFi). El alto rendimiento de reenvío garantiza la experiencia del usuario de voz., datos, y servicios de video HD, y proporciona a los clientes una solución de acceso totalmente óptica ideal y una capacidad de soporte de servicio orientada al futuro [2].

Se adjunta el datasheet en el anexo 4.

- OLT



Fig. 6. HUAWEI SMART MA5608T

El MA5608T es un dispositivo de acceso de fibra de cobre integrado y puede funcionar como mini-OLT o mini-DSLAM

El MA5608T , si funciona como mini-OLT, es compatible con los modos de acceso GPON, 10G GPON y P2P. Se puede instalar en un distrito residencial o en el lado de la calle, lo que reduce el uso de cables ópticos troncales ODN, reduce el costo y la dificultad de implementación de ODN y minimiza el espacio de la sala de equipos de CO.

El MA5608T , si funciona como mini-DSLAM, admite los modos de acceso ADSL2 +, VDSL2, SHDSL y POTS y proporciona acceso a Internet, servicios de voz y video.

La aplicación SmartAX Huawei MA5600 series OLT MA5680T / MA5683T / MA5608T

El MA5600T / MA5603T / MA5608T sirve como CO OLT y admite múltiples modos de construcción de red y medios de acceso diversificados para brindar acceso a usuarios domésticos, usuarios móviles y usuarios empresariales. Una red de acceso tan heterogénea (HetAN) gana popularidad [3].

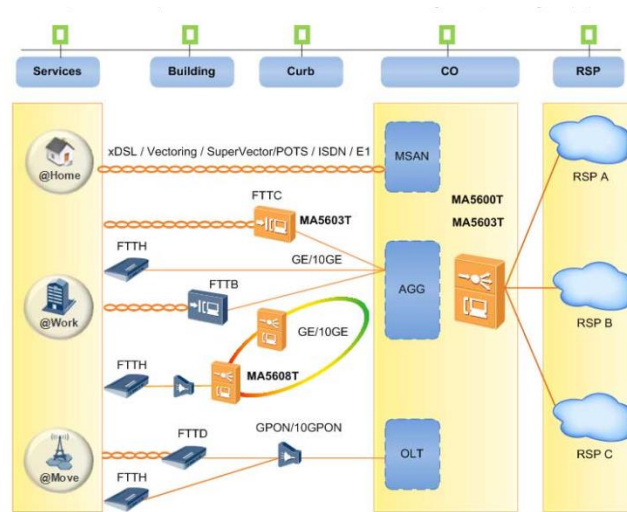


Fig. 7. MA5600T / MA5603T / MA5608T.

Se adjunta el datasheet en el anexo 5.



Fig. 8. UFiber GPON OLT, Terminal de línea [4]

Puertos:

- 8 puertos GPON SFP.
- 2 puertos SFP+ 10GB.

Administración:

- A través de UNMS™ (Ubiquiti Network Management System).

Características:

- Alto desempeño.
- 1024 ONUs concurrentes.
- Distancia de hasta 20 km.
- Sistema de entrega de fibra óptica para Triple Play (datos, voz, IPTV / VoD).
- Velocidades de hasta 2.488 Gbps de downstream y 1.244 Gbps de upstream.
- Sin licencias ni tarifas de uso.
- Longitud de onda: 1490 nm Upstream (TX), 1310 nm Downstream (RX).

Características Físicas y Eléctricas:

- Alimentación: 100-240VAC, 100W AC/DC (Incluida), 38-54VDC, 100W DC/DC (Opcional, se vende por separado).
- Dimensiones: 442.4 x 285.6 x 43.7 mm.
- Peso: 4.4 kg.
- Temperatura de Operación: -10 a 45° C

Se adjunta el datasheet en el anexo 6.

- MDU (Multi-Dwelling)



Fig. 9. MDA-100 | MDA-100 Multi-Dwelling Amplifier.

La plataforma ARRIS MDA-100 Multi-Dwelling Amplifier satisface las necesidades de las redes de comunicación de banda ancha en expansión de la actualidad. Diseñado para instalaciones de redes HFC en edificios de apartamentos, condominios y otras unidades de vivienda de viviendas múltiples, este amplificador de distribución interior compacto de alta ganancia está disponible con un ancho de banda de hasta 1003 MHz para mejorar el rendimiento del sistema. Para ahorrar espacio, los técnicos pueden montar fácilmente en la pared el amplificador MDA-100 utilizando los soportes de montaje externos de la carcasa.

- Permite un ancho de banda de alta velocidad de hasta 1003 MHz
- Admite ancho de banda de retorno con retorno opcional de 85 MHz
- Maximice las ubicaciones de instalación con una carcasa compacta que ahorra espacio
- Simplifique la instalación eliminando los accesorios de RF para la alineación
- Alimentación flexible en instalaciones MDU con fuente de alimentación PRINCIPAL de 100 a 240 VCA incluida

SPECIFICATIONS		
	Forward	Return
Operational Bandwidth	54 to 1003 MHz	5 to 85 MHz
Bandwidth Splits	K (54 – 1003 MHz) N (104 – 1003 MHz)	K (5 – 42 MHz) N (5 – 85 MHz)
Typical Full Gain	37 dB	Gain: 27 dB
Noise Figure	8 dB	9 dB
Input Attenuator	0 ~ 18 dB	0 ~ 18 dB
Input Equalizer	0 ~ 18 dB	0 ~ 15 dB
Tri-State Mid-Stage EQ	0/7/15 dB	Tri-State Attenuator: 0/6/12 dB
Flatness	± 1.0	± 0.75
RF Output Return Loss	14 dB	14 dB
RF Output Test Points	20 \pm 1.2 dB	20 \pm 1.2 dB
RF Output Impedance	75 Ω	75 Ω

Fig. 10. Características MDA-100 | MDA-100 Multi-Dwelling Amplifier.

Se adjunta el datasheet en el anexo 7.

Referencias:

- [1] “EchoLife EG8145V5 an intelligent routing-type ONT — Huawei products.”
<https://e.huawei.com/es/products/enterprise-transmission-access/access/onu/echolife-eg8145v5>
(accessed Aug. 22, 2021).
- [2] “EchoLife HG8245Q2 - Asistencia de servicio empresarial.”
<https://support.huawei.com/enterprise/es/access-network/echolife-hg8245q2-pid-21989531>
(accessed Aug. 23, 2021).
- [3] “Distribuidor ONT de conmutador de enrutador OLT FiberHome ZTE de Huawei, que ofrece soluciones de red óptica FTTX.”
https://htolt.com/en/products.php?act=view&id=51&gclid=Cj0KCQjwjo2JBhCRARIsAFG667WRce7Ot_KPAIW5-cFytt_I7nAoD1DQi8XlJP5sCaSC_V8V6rWoc0aAtUrEALw_wcB (accessed Aug. 22, 2021).
- [4] “SYSCOM: UF-OLT-UBIQUITI-NETWORKS - UFiber GPON OLT, Terminal de línea óptica hasta 1024 ONUs concurrentes, con 8 puertos SFP GPON + 2 puertos SFP+ 10 G.” <https://www.syscom.mx/producto/UF-OLT-UBIQUITI-NETWORKS-136345.html>
(accessed Aug. 23, 2021).



SPLITTER ÓPTICO MODULAR 19"



Descripción	<p>Splitters Ópticos son componentes pasivos que realizan la división del señal óptico en una red PON. Son constituídos por una o dos entradas y N salidas.</p> <p>Los splitters modulares 19" son específicamente desarrollados para aplicaciones plug-and-play, y son totalmente pré conectorizados y adecuados para fijación en racks 19" por medio de tornillos.</p> <p>Disponibles en las siguientes formaciones, en ocupación de 1U:</p> <ul style="list-style-type: none"> • 1 splitter 1x32 • 2 splitters 1x32 • 1 splitter 2x32 • 1 splitter 1x64
Tecnología	PLC (Planar Lightwave Circuit)
Compatibilidad	<ul style="list-style-type: none"> • Racks 19"; • Operación en las 3 ventanas de comunicación para estándares de redes ópticas pasivas: 1310nm, 1490nm y 1550nm.
Tipo de la Fibra	<ul style="list-style-type: none"> • Monomodo BLI A/B (9/125μm)
Norma	Fibra Especial G.657A
Garantía	<p>12 meses (estándar);</p> <p>15 o 25 años - Requiere el cumplimiento del Programa Especial de Garantía Extendida FCS</p>

Desempeño	Especificación	Modelo		
		1x32	2x32	1x64
	Banda Óptica Pasante	PLC: 1260 ~1650		
	Maxima Pérdida de Inserción (desconsiderando la pérdida de los conectores) (dB)	17,1	17,7	20,5
	Uniformidad (dB)	1,5	2,1	1,7
	Maxima Pérdida Dependiente de Polarización (PDL) (dB)	0,4	0,4	0,5

Directividad	>55dB
Pérdida de Retorno	>55dB

Tipo de conector en la SC-APC + shutter

Entrada

- **Aviso:** Es muy importante que se alinee el guía del conector con la fenda del adaptador, para que se garantice que no haya atenuaciones extras.

Attenuation: Typical = 0.15dB / Maximum = 0.30dB

Pérdida de Retorno: >60 dB

Tipo: Push-pull;

Cuerpo: Plástico;

Férula: cerámica (Zirconia)

para fibra SM

Tipo de conector en la SC-APC + shutter

Salida

- **Aviso:** Es muy importante que se alinee el guía del conector con la fenda del adaptador, para que se garantice que no haya atenuaciones extras.

Attenuation: Typical = 0.15dB / Maximum = 0.30dB

Pérdida de Retorno: >60 dB

Tipo: Push-pull;

Cuerpo: Plástico;

Férula: cerámica (Zirconia)

para fibra SM

**Características
Dimensionales**

Ancho: 494 mm (compatible con 19")

Altura: 43,5 mm

Profundidad: 341,3 mm

**Especificaciones
ambientales**

Modelo de Splitter	1x32	1x64
Temperatura de Operación	-25°C~+70°C	
Temperatura de Almacenamiento	-40°C~+85°C	
Humedad Relativa de Operación	5%~95%UR	
Humedad Relativa de Almacenamiento	5%~95%UR	

[Codificación](#)

SPLITTER Ópticos PLC

Los **SPLITTER** o **divisores ópticos PLC** (Planar Lightwave Circuit) son dispositivos de distribución de la potencia óptica. Se caracterizan por ser de pequeño tamaño, amplio rango de operación, longitudes de onda, estabilidad confiable y buena uniformidad. Son ampliamente utilizados en redes ópticas pasivas PON (Passive Optical Network), FTTX (Fiber to the "x"), y puntos de conexión entre dispositivos terminales y oficinas centrales de operadores y carriers (ODN).

Características Generales

- Opciones de splitters 1x2, 1x4, 1x8, 1x16, 1x32.
- Opciones de conectores: LC o SC simplex
- Opciones de pulido: UPC o APC
- Cumple con requerimientos de GR-1209-CORE-2001 y GR-1221-CORE-1999
- Fibra del tipo monomodo G.657.A1 (micro bending)
- Cables del tipo LSZH, RoHS compliance
- 100% testeados en fábrica
- Montaje en Módulos, Cajas de Distribución o Bandejas de Fibra

Splitter 1x16 con
conectores LC/APC

Aplicaciones

- FTTx
- Redes ópticas pasivas (PON, GPON, etc.)
- ODN

Especificaciones de Splitters (sin conectores)

Parametro	Unidad	Valores (P Grade)					
Longitud de Onda de Operación	nm	1260 ~ 1650					
Número de Canales		1X2	1X4	1X8	1X16	1X32	1X64
Pérdida de Inserción (Insertion Loss) Máxima	dB	4.3	7.2	10.5	13.6	17.2	21
Uniformidad (Max.)	dB	0.5	0.6	1	1.4	1.6	2
Sensibilidad a la Polarización Máxima	dB	0.2	0.3	0.3	0.3	0.3	0.5
Pérdida de Retorno (RL = Return Loss)	dB	≥55					
Directividad (Directivity)	dB	≥55					

Nota: Conectores UPC: IL adicionar 0.2dB; Conectores APC: IL adicionar 0.3dB.

Condiciones Ambientales

Parametro	Unidad	Valores
Temperatura de Operación	°C	-40~+85
Temperatura de Almacenaje	°C	-40~+85
Humedad Relativa de Operación	%RH	≤93
Humedad Relativa de Almacenaje	%RH	≤93



Conectividad en Fibra Óptica

SPLITTER Ópticos PLC

Presentaciones disponibles para SPLITTERS

MÓDULOS ADOSABLES



**Módulo dual: 2 Splitters 1x8
conectores LC/APC**



**Módulo Splitters 1x8
SC/APC**



**Módulo Splitters 1x16
LC/APC**

CAJAS DE DISTRIBUCIÓN

**Splitters 1x4 conectores SC/APC en
caja de distribución FDB-06A**



NOTA: Aplica también para cajas
FDB-16A y FDB-24C

BANDEJAS RACKEABLES DE 19 PULGADAS



**Splitter 1x16 con conectores SC/APC en
Bandeja estándar FIBERMAX S03-1UR-24S**



**Cassette Splitter 1x4 con conectores SC/APC en
Bandeja FIBERMAX MFC4-1UR-96F**

FiberMAX® 04-2018

Overview

Huawei EG8145V5, an intelligent routing-type ONT.

Product Details

Huawei EG8145V5 provides these features:

GPON Port

- Class B+
- Receiver sensitivity: -27 dBm
- Overload optical power: -8 dBm
- Wavelengths: US 1310 nm, DS 1490 nm
- Wavelength blocking filter (WBF) of G.984.5
- Flexible mapping between GEM Port and TCONT
- GPON: consistent with the SN or password authentication defined in G.984.3
- Bi-directional FEC
- SR-DBA and NSR-DBA
- Type B (single-homing & dual-homing)

Ethernet Port

- Ethernet port-based VLAN tags and tag removal
- 1:1 VLAN, N:1 VLAN, or VLAN transparent transmission
- QinQ VLAN
- Limit on the number of learned MAC addresses
- MAC address learning
- Auto-adaptive 10 Mbit/s, 100 Mbit/s or 1000 Mbit/s

POTS Port

- Maximum REN: 4
- G.711A/μ, G.729a/b and G.722 encoding/decoding
- T.30/T.38/G.711 fax mode
- DTMF
- Emergency calls (with the SIP protocol)

USB

- USB2.0
- FTP-based network storage
- File/Print sharing based on SAMBA
- DLNA function

WLAN

- IEEE 802.11 b/g/n (2.4G)
- IEEE 802.11 a/n/ac (5G)
- 2 × 2 MIMO (2.4G&5G)
- Antenna gain: 5 dBi

- WMM/Multiple SSIDs/WPS
- 2.4G&5G concurrent
- Air interface rate:300 Mbit/s (2.4G); 867 Mbit/s(5G)

Smart interconnection

- Smart Wi-Fi coverage
- SIP/H.248 auto-negotiation
- Any port any service
- Parental control
- L2/L3(IPv4) forwarding: 1G uplink, 1.3G downlink

Smart service

- Smart Wi-Fi sharing:
- Portal/802.1x authentication
- SoftGRE-based sharing
- Scheduled Wi-Fi shutdown

Smart O&M

- IPTV video quality diagnosis
- Rogue ONT detection and isolation from the OLT
- Call emulation, and circuit test and loop-line test
- PPPoE/DHCP simulation testing
- WLAN emulation
- eMDI

Layer 3 Features

- PPPoE/Static IP/DHCP
- NAT/NAPT
- Port forwarding
- ALG, UPnP
- DDNS/DNS server/DNS client
- IPv6/IPv4 dual stack, and DS-Lite
- Static/Default routes
- Multiple services on one WAN port

Multicast

- IGMP v2/v3 proxy/snooping
- MLD v1/v2 snooping

QoS

- Ethernet port rate limitation
- 802.1p priority
- SP/WRR/SP+WRR
- Broadcast packet rate limitation

Security

- SPI firewall
- Filtering based on MAC/IP/URL addresses

Common O&M

- OMCI/Web UI/TR069
- Variable-length OMCI messages

- Dual-system software backup and rollback

Power Saving

- Indicator power saving
- COC V5

Get More Information

Do you have any question about the EG8145V5?

Contact us now via [Live Chat](#) or sales@router-switch.com.

Specification

EG8145V5 Specification	
Dimensions (H x W x D)	30 mm x 173 mm x 120 mm (without external antenna and pads)
Operating temperature	0°C to +40°C
Operating humidity	5% RH to 95% RH (non-condensing)
Power adapter input	100-240 V AC, 50 / 60 Hz
System power supply	11-14 V DC, 1.5 A
Static power consumption	5.3 W
Max. power consumption	18 W
NNI	GPON
UNI	1POTS+4GE+2.4G/5G Wi-Fi+1USB
Optical connector	SC/UPC, SC/APC
Indicators	POWER/PON/LOS/LAN/TEL/USB/WLAN/WPS
Installation mode	On the desk, or on the wall
Compliance certification	CE/WiFi

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Overview

Huawei HG8245Q2, an intelligent routing-type ONT.

Product Details

Huawei HG8245Q2 provides these features:

GPON Port

- Class B+
- Receiver sensitivity: -27dBm
- Wavelengths: US 1310 nm, DS 1490 nm
- Wavelength blocking filter (WBF)
- Flexible mapping between GEM Port and TCONT
- GPON: consistent with the SN or password authentication defined in G.984.3
- Bi-directional FEC
- SR-DBA and NSR-DBA

Ethernet Port

- Ethernet port-based VLAN tags and tag removal
- 1:1 VLAN, N:1 VLAN, or VLAN transparent transmission
- QinQ VLAN
- Limit on the number of learned MAC addresses
- MAC address learning

POTS Port

- Maximum REN: 4
- G.711A/μ, G.729a/b, and G.722 encoding/decoding
- T.30/T.38/G.711 fax mode
- DTMF
- Emergency calls (with the SIP protocol)

USB Port

- USB2.0
- FTP-based network storage
- File/Print sharing based on SAMBA
- DLNA DMS/UPnP AV (media server)

WLAN

- IEEE 802.11 b/g/n (2.4G)
- IEEE 802.11 a/n/ac (5G)
- 3 × 3 MIMO
- Antenna gain: 2 dBi
- WMM
- Multiple SSIDs
- WPS

- 2.4G/5G concurrent
- Air interface rate: 450 Mbps (2.4G); 1300 Mbps (5G)

Smart interconnection

- Smart Wi-Fi coverage
- SIP/H.248 auto-negotiation
- Any port any service
- Parental control
- L2/L3 forwarding: 1G uplink, 2G downlink

Smart service

- Smart Wi-Fi sharing:

Portal/802.1x authentication (V300R015C10)

SoftGRE-based sharing (V300R015C10)

- Association of one account with two POTS ports

Smart O&M

- IPTV video quality diagnosis (V300R015C10)
- Variable-length OMCI messages
- Active/Passive rogue ONT detection and isolation
- Call emulation, and circuit test and loop-line test
- PPPoE/DHCP simulation testing
- WLAN emulation

Layer 3 Features

- PPPoE/DHCP simulation testing
- WLAN emulation
- PPPoE/Static IP/DHCP
- NAT/NAPT
- Port forwarding
- ALG, UPnP
- DDNS/DNS server/DNS client
- IPv6/IPv4 dual stack, and DS-Lite
- Static/Default routes
- Multiple services on one WAN port

Multicast

- IGMP v2/v3 proxy(V300R015C00)/snooping
- MLD v1/v2 snooping
- Multicast services through Wi-Fi

QoS

- Ethernet port rate limitation
- 802.1p priority
- SP/WRR/SP+WRR
- Broadcast packet rate limitation

Security

- SPI firewall
- Filtering based on MAC/IP/URL addresses

Common O&M

- OMCI/Web UI/TR069
- Dual-system software backup and rollback

Power Saving

- Indicator power saving
- Scheduled Wi-Fi shutdown

Get More Information

Do you have any question about the HG8245Q2?

Contact us now via [Live Chat](#) or sales@router-switch.com.

Specification

HG8245Q2 Specification	
Dimensions (L x W x H)	265 mm x 176 mm x 82 mm
Operating temperature	0°C to +40°C
Operating humidity	5% RH to 95% RH (non-condensing)
Power adapter input	100-240 V AC, 50/60 Hz
System power supply	11-14 V DC, 2 A
Static power consumption	8 W
Maximum power consumption	20.5 W
Ports	2POTS + 4GE + 2.4G/5G Wi-Fi + 1USB
Indicators	POWER/PON/LOS/TEL/LAN/WLAN/WPS/USB

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MA5608T Datasheet

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Overview

The MA5608T is the Huawei SmartAX MA5600T model, providing 5 slots. Huawei SmartAX MA5600T is the global first OLT which integrates the functionality of aggregation switch and edge router. It can provide high-density GPON, 10GPON and Ethernet P2P optical access, triple play service, TDM/ATM/Ethernet leased line services for business customers and high precision clock, and high-density GE/10GE interfaces for cascading remote access equipments. MA5600T helps to simplify network architecture, to improve network reliability and lower TCO essentially.

Quick Spec

Table 1 shows the quick spec.

Model	MA5608T
(W/D/H) mm	442×233.5×88
Cabinet	Indoor: N63E-22 Outdoor: F01S200
Configuration	control board: 2 Service board: 2 Power interface board: 1
MTBF	≈45 years
Switching Capacity of the Backplane Bus	720Gbit/s
Switching Capacity of the Control Board	N/A
Access Capacity	<ul style="list-style-type: none">• 8*10G GPON• 32*GPON• 96*GE
Maximum uplink port (GIU)	-

Product Details

The Huawei SmartAX 5600T provide these features:

★ Convergence and access integration

- Provides super large convergence switching capacity. Specifically, an MA5600T series device supports 3.2 Tbit/s backplane capacity, 1,920 Gbit/s switching capacity, and 512,000 MAC addresses.
- Provides super high-density cascading capability. Specifically, an MA5600T series device supports a maximum of 46 x 10GE or 768 GE services, with no additional convergence switches.

★ High reliability

- Provides highly reliable networking capabilities and ensures dual-OLT hot backup, remote disaster tolerance, and service upgrades without interruption.
- Provides comprehensive Quality of Service (QoS) functions and supports traffic classification management, priority control, and bandwidth control. The Hierarchical-Quality of Service (H-QoS) function meets various Service Level Agreement (SLA) requirements of commercial customers.
- Provides an End-to-End (E2E) highly reliable design, enabling Bidirectional Forwarding Detection (BFD), Smart Link, Link Aggregation Control Protocol (LACP) redundancy protection and GPON type B/type C line protection in the upstream direction.

★ Multi-scenario access

- Supports access of multiple E1 private line services, and Native Time-Division Multiplexing (TDM) or Circuit Emulation Services over Packet (CESoP)/ Structure-Agnostic TDM over Packet (SAToP) function.
- Supports the Emulated Local Area Network (ELAN) function and Virtual Local Area Network (VLAN)-based internal traffic exchange, satisfying

enterprise and community network application requirements.

- Supports non-convergence access of Internet Protocol television (IPTV) users. One subrack supports 8,000 multicast users and 4,000 multicast channels.
- ★ Smooth evolution
 - Supports GPON, 10G Passive Optical Network (PON), and 40G PON on a platform, enabling smooth evolution and achieving ultra-bandwidth access.
 - Supports IPv4/IPv6 dual stacks and IPv6 multicast, enabling smooth evolution from IPv4 to IPv6.
- ★ Energy saving
 - Uses special chips for conserving power. Specifically, 16 ports on a GPON board consume less than 73 W of power.
 - Supports idle board automatic power-off and intelligent fan speed adjustment, effectively lowering idle board power consumption.

Supported Boards

Table 2 shows the recommended boards of this model.

Category	Model	Description
Control Boards	H801SCUH	Huawei SmartAX MA5600 Super Control Unit Board
	H801SCUV	Huawei SmartAX MA5600 Super Control Unit Board
	H801SCUN	Huawei SmartAX MA5600 Super Control Unit Board
	H801MCUD	Huawei SmartAX MA5600 Control Unit Board (GE Uplink)
	H801MCUD1	Huawei SmartAX MA5600 Control Unit Board (GE/10GE Uplink)
	H801SCUK	Huawei SmartAX MA5600 Super Control Unit Board
Services Boards	H806GPBH	Huawei SmartAX MA5600 8-port Advanced GPON OLT Interface Board
	H807GPBH	Huawei SmartAX MA5600 8-port Advanced GPON OLT Interface Board
	H801GPMD	Huawei SmartAX MA5600 8-port Advanced GPON OLT Interface Board
	H805GPDF	Huawei SmartAX MA5600 16-port GPON OLT Interface board
	H801XGBD	Huawei SmartAX MA5600 8-port XG-PON OLT Interface board
	H802XGBC	Huawei SmartAX MA5600 4-port XG-PON OLT Interface Board
	H801SPUF	Huawei SmartAX MA5600 Multifunctional Service Process Board
	H801ETHB	Huawei SmartAX MA5600 Ethernet Service Access Board
Power Boards	H801PRTA	Huawei SmartAX MA5600 Power Transfer Board
	H801PRTE	Huawei SmartAX MA5600 Power Transfer Board
	H801PRTG	Huawei SmartAX MA5600 Power Transfer Board
Fan Boards	H831FCBB0	Huawei SmartAX MA5600 MA5608T fan tray

Compare to Similar Items

Table 3 shows the comparison.

Model	MA5600T-ETSI	MA5600T-IEC	MA5603T	MA5608T
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Configuration	control board: 2 Service board: 16 Universal Interface board: 1 Upstream interface board: 2 Power interface board: 2	control board: 2 Service board: 14 Universal Interface board: 1 Upstream interface board: 2 Power interface board: 2	control board: 2 Service board: 6 Universal Interface board: 1 Upstream interface board: 2 Power interface board: 2	control board: 2 Service board: 2 Power interface board: 1
Switching Capacity of the Backplane Bus	3.2Tbit/s	-	1.5Tbit/s (H801MABO) 2Tbit/s (H802MABO)	720Gbit/s
Access Capacity	<ul style="list-style-type: none">• 128*10G GPON• 256*GPON• 768*GE/FE	<ul style="list-style-type: none">• 112*10G GPON• 224*GPON• 672*GE/FE	<ul style="list-style-type: none">• 48*10G GPON• 96*GPON• 288*GE	<ul style="list-style-type: none">• 8*10G GPON• 32*GPON• 96*GE
Maximum uplink port (GIU)	<ul style="list-style-type: none">• 4*GE• 4*10GE	<ul style="list-style-type: none">• 4*GE• 4*10GE	<ul style="list-style-type: none">• 4*GE• 4*10GE	-

Get More Information

Do you have any question about the MA5608T?

Contact us now via [Live Chat](#) or sales@router-switch.com.

Specification

MA5608T Specification	
(W/D/H) mm	442×233.5×88
Operating Environment	Temperature: -40°C to +65°C RH: 5% to 95%
Power Parameter	Supports DC and AC power supply modes, and dual-power supply protection. Provides battery for power backup when AC power is used.
Cabinet	Indoor: N63E-22 Outdoor: F01S200
Configuration	control board: 2 Service board: 2 Power interface board: 1
MTBF	≈45 years
Switching Capacity of the Backplane Bus	720Gbit/s
Switching Capacity of the Control Board	N/A
Access Capacity	<ul style="list-style-type: none">• 8*10G GPON• 32*GPON• 96*GE
Maximum uplink port (GIU)	-

Download Resource

Support and Resources

 [Huawei SmartAX MA5600T OLT Datasheet](#)

 [Huawei SmartAX MA5600T OLT Boards Datasheet](#)

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ARRIS RF Amplifier

MDA-100*

1 GHz Multi-Dwelling Amplifier

FEATURES

- Enables high forward bandwidth up to 1003 MHz
- Supports return bandwidth with optional 85 MHz return
- Maximize installation locations with space-saving compact housing
- Simplify installation with elimination of RF accessories for alignment
- Flexible powering in MDU installations with included 100 to 240 VAC MAINs power supply



PRODUCT OVERVIEW

The ARRIS MDA-100 Multi-Dwelling Amplifier platform meets the needs of today's expanding broadband communication networks. Designed for HFC network installations in apartment buildings, condominiums, and other multiple-dwelling housing units, this high-gain, compact indoor distribution amplifier is available with a bandwidth of up to 1003 MHz for improved system performance. To save space, technicians can easily wall-mount the MDA-100 amplifier using the housing's external mounting brackets.

The single-output amplifier features variable attenuator and equalizer facilities for greater flexibility when adjusting the amplifier. The unit includes standard F-type input and output connector ports, as well as an active return path for use in today's advanced networks. The MDA-100 also features a return path, three-state attenuator to help minimize cable modem output levels. The mains-powered MDA-100 amplifier features a field-replaceable, auto-ranging switching power supply, which can accept input voltages from 100 to 240 V at frequencies of 50 or 60 Hz without adjustment.

SPECIFICATIONS

	Forward	Return
Operational Bandwidth	54 to 1003 MHz	5 to 85 MHz
Bandwidth Splits	K (54 – 1003 MHz) N (104 – 1003 MHz)	K (5 – 42 MHz) N (5 – 85 MHz)
Typical Full Gain	37 dB	Gain: 27 dB
Noise Figure	8 dB	9 dB
Input Attenuator	0 ~ 18 dB	0 ~ 18 dB
Input Equalizer	0 ~ 18 dB	0 ~ 15 dB
Tri-State Mid-Stage EQ	0/7/15 dB	Tri-State Attenuator: 0/6/12 dB
Flatness	± 1.0	± 0.75
RF Output Return Loss	14 dB	14 dB
RF Output Test Points	20 ± 1.2 dB	20 ± 1.2 dB
RF Output Impedance	75 Ω	75 Ω
Reference Output Level Composite Triple Beat (CTB) Cross Slope Optimization (CSO)	48 dBmV* ≤ -66 dBc* ≤ -66 dBc*	*Note: NTSC 79 channels with QAM to 1 GHz, output level 48 dBmV (virtual) at 1 GHz, 15 dB tilt
Weight	<2 lb	
Mounting	Wall	
Connector	F-type Female	
Water/Dust Ingress Rating	IP54	
Power Consumption	15 W	
Surge	(IEEE C62.41, 1.2/50us Combination Wave, ±6kV)	
Operating Temperature Range	-20°C to +55°C	
Supply voltage, MAINS powered	100 – 240 VAC, 50 ~ 60 Hz	
RoHS Compliant		

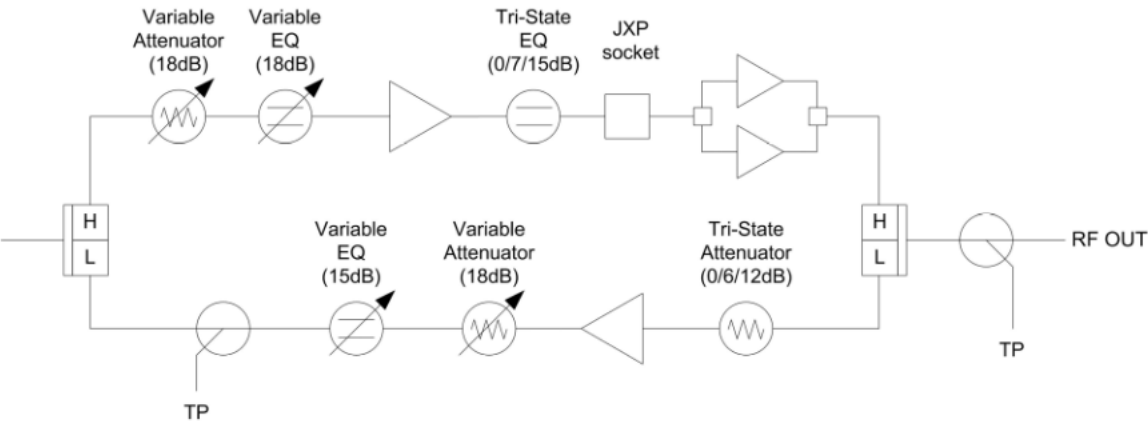
1 GHz MDA Ordering Guide

MDA — —

Key	Bandpass Split
100K	5-42 MHz/54-1003 MHz
100N	5-85 MHz/104-1003 MHz

Key	Bandpass Split
A	Type A, US Style Plug
C	Type C, Euro Style Plug

Block Diagram



RELATED PRODUCTS	
CHP Chassis	Optical Patch Cords
Power Supplies	Optical Passives
Control Module	Installation Services

Customer Care

Contact Customer Care for product information and sales:

- United States: 866-36-ARRIS
- International: +1-678-473-5656

Note: Specifications are subject to change without notice.

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