



# MA5801-GP08-H3 Product Datasheet

The MA5801-GP08-H3 is a compact and low-density box-shaped OLT. It provides multiple fiber to the home (FTTH) solutions to meet the requirements of economical and efficient network construction.



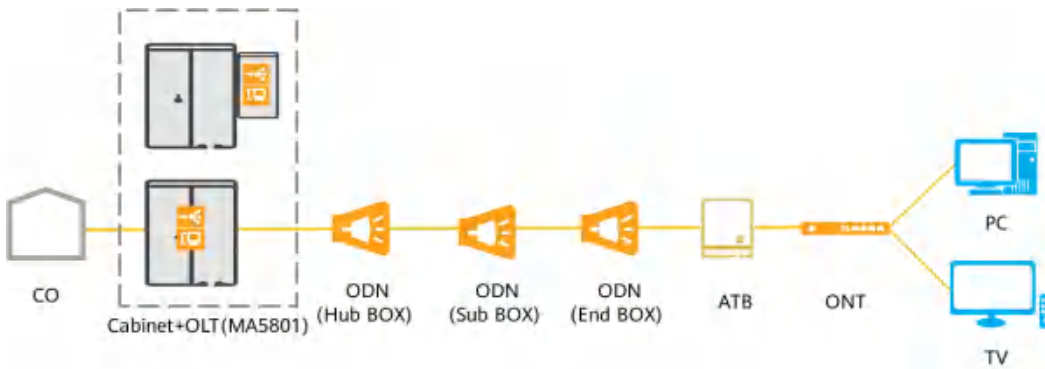
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# Product Overview

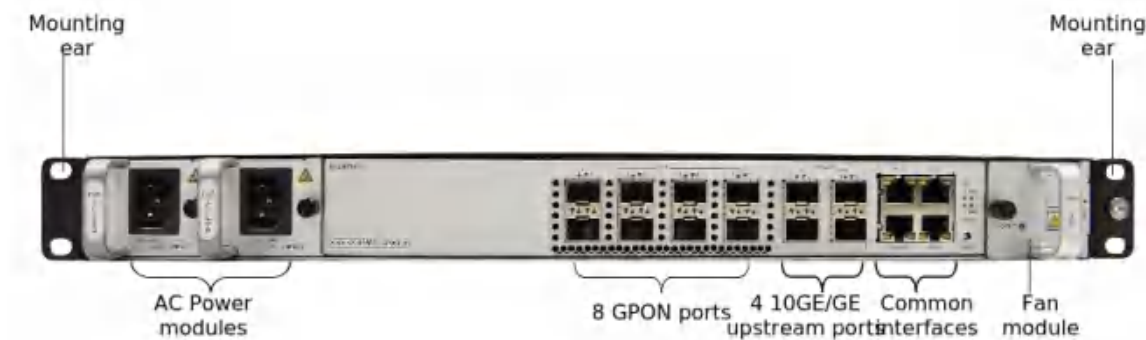
With the continuous promotion of new services, such as 4K/VR videos, home networks, and network cloudification, optical fiber access has become an important means for countries around the world to popularize broadband networks. As optical fiber access nodes keep moving closer to end users, OLTs are closer to end users. Deployment scenarios are complex and diversified. In this case, network needs OLTs with small volume and low density.

The MA5801-GP08-H3 is a compact and low-density box-shaped OLT. It provides multiple fiber to the home (FTTH) solutions to meet the requirements of economical and efficient network construction. It can be flexibly deployed in fast fixed mobile convergence (FMC) scenario, national broadband coverage scenario, and enterprise's all-optical campus scenario.



## Appearance and Structure

The product is a box-shaped OLT. It houses integrated control and service module, 1 pluggable fan module and 2 pluggable power modules. Its mounting ears are applicable to IEC specifications and ETSI specifications, and are used in racks or cabinets of different specifications.



## Product Highlights

### Lightweight and small size

The lightweight OLT weighs less than 5 kg and occupies 1 U installation space. It can be flexibly adapted to various scenarios.

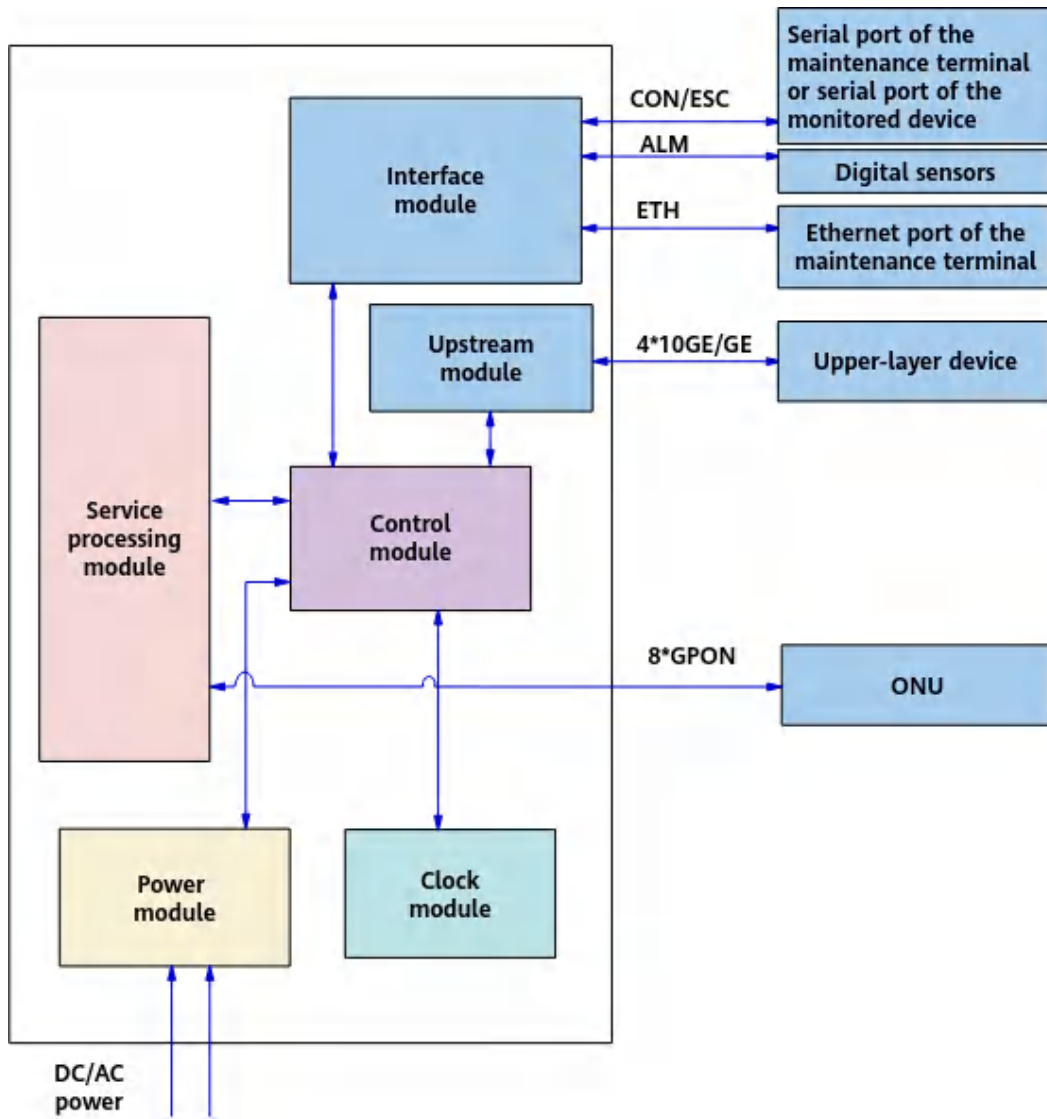
### Dual power supplies, high reliability

Supports dual AC or DC power supplies, providing flexible power supply and high reliability.

### Easy installation and flexible deployment

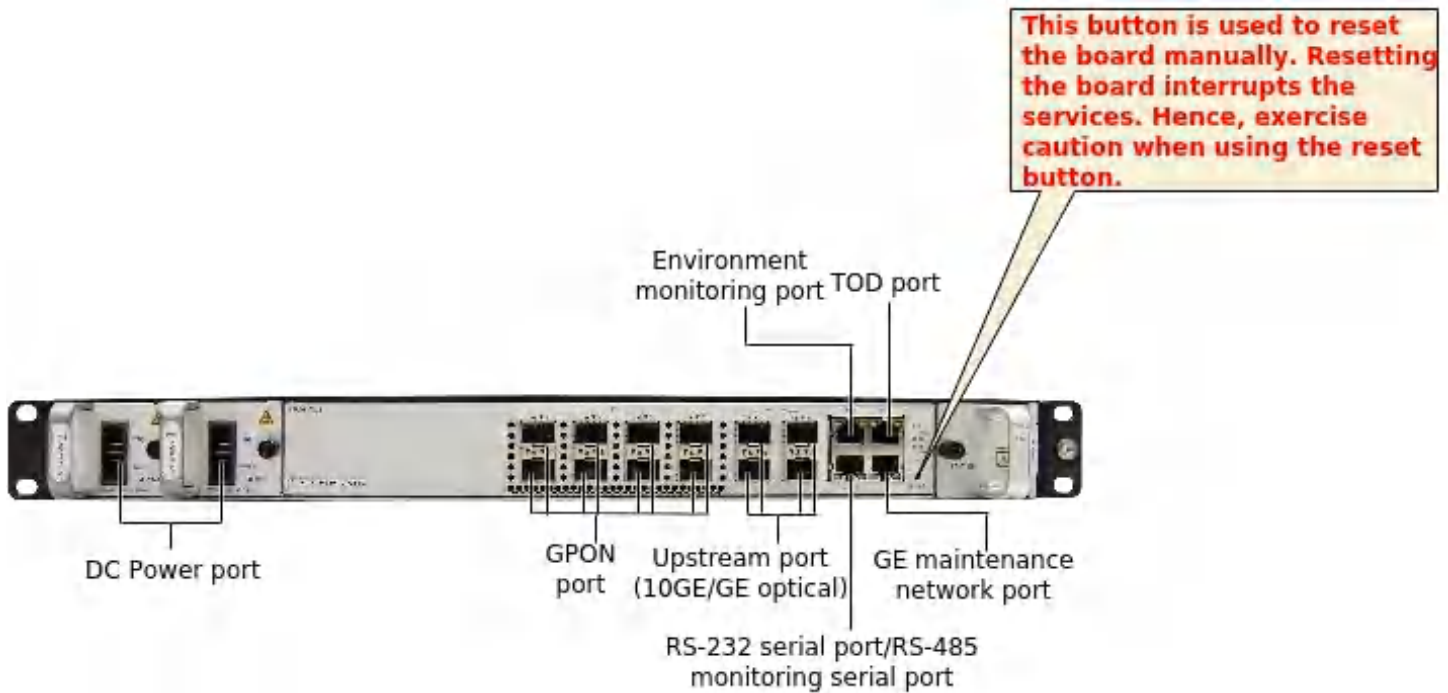
The matching small outdoor cabinet can be installed on a pole, tower, or wall, facilitating installation and reducing engineering costs.

# Working Principle



- **Control module:** It is the core of the system control and service switching and aggregation. It can also function as the management and control core of the integrated network management system (NMS).
- **Upstream module:** It can provide four 10GE/GE upstream ports.
- **Service processing module:** It works together with the optical network unit (ONU) to provide GPON access services.
- **Interface module:** It supports functions such as input and output of alarm digital parameters.
- **Power module:** It supplies power to each functional module of the board.
- **Clock module:** It provides clock signals for each functional module of the board.

# External Ports



## NOTE

The product provides 2 slots for power boards so that 1 or 2 power modules can be configured as required. If only one power module is configured, a filler panel must be installed in the other slot. AC and DC are incompatible.

| Port Name  | Silk Screen  | Number of Ports | Function   |
|--|--------------|-----------------|--|
| DC power port                                    | –            | 2               | Connects to –48/–60 V DC power.  |
| AC power port                                    | –            | 2               | Connects to 110/220 V AC power.  |
| Reset button                                     | RESET        | 1               | This button is used to reset the board manually. Resetting the board interrupts the services. Hence, exercise caution when using the reset button. |
| GPON port  | PON: 0–7     | 8               | Provides 8 GPON ports for GPON service access.   |
| Upstream port (10GE/GE optical)                  | 10GE/GE: 0–3 | 4               | Provides 4 10GE/GE ports for upstream transmission.  |
| GE maintenance network port                      | ETH          | 1               | 10/100/1000M BASE-T maintenance port. Connected to the Ethernet port of the maintenance terminal.  |
| RS-232 serial port/RS-485 monitoring serial port | CON/ESC      | 1               | Connected to the serial port of the maintenance terminal/Connected to the serial port of the monitored device.                                     |
| TOD port   | TOD          | 1               | Reserved.  |
| Environment monitoring port                      | ALM          | 1               | Connected to digital sensors.  |

# Indicators

## Indicator on The Panel Indicators

| Indicator | Name | Color | Status | Description |
|-----------|------|-------|--------|-------------|
|-----------|------|-------|--------|-------------|

| Indicator | Name                       | Color  | Status   | Description   |
|-----------|----------------------------|--------|--|---|
| RUN/ALM   | Running status indicator   | Green  | Blinking slowly (on for 1s and off for 1s repeatedly)        | The board functions properly.                             |
|           |                            | Green  | Blinking quickly (on for 0.25s and off for 0.25s repeatedly) | Indicates that program loading is in progress.            |
|           |                            | Orange | Blinking   | A high-temperature alarm is generated.                    |
|           |                            | Red    | On   | The board is faulty.                                      |
|           |                            | Red    | Blinking (on for 0.25s and off for 0.25s repeatedly)         | The board is starting.                                    |
| CRI       | Alarm indicators           | Red    | On   | The system has generated a critical alarm.                |
| MAJ       | Alarm indicators           | Orange | On   | The system has generated a major alarm.                   |
| MIN       | Alarm indicators           | Yellow | On   | The system has generated a minor alarm.                   |
| PON 0–7   | Link/data status indicator | Green  | On   | The ONT connected to the related PON port is online.      |
|           |                            | Green  | Blinking   | The optical module does not take effect.                  |
|           |                            | -      | Off  | The ONT connected to the related PON port is not offline. |
|           | -                          | -      | Off  | Reserved  |

### Indicator on The Upstream Port

| Ports                 | Indicator | Name                  | Color  | Status   | Description                          |
|-----------------------|-----------|-----------------------|--------|----------|--------------------------------------|
| Upstream optical port | LINK      | Link status indicator | Green  | On       | A connection is set up on the port.  |
|                       |           |                       | -      | Off      | No connection is set up on the port. |
|                       | ACT       | Data status indicator | Yellow | Blinking | Data is being transmitted.           |
|                       |           |                       | -      | Off      | No data is being transmitted.        |

### Indicator on DC Power

| Indicator | Name            | Color | Status   | Description  |
|-----------|-----------------|-------|----------|--|
| STAT      | Power indicator | Green | On       | The input/output is normal.  |
|           |                 | Green | Blinking | The power supply is in hiccup protection mode.   |
|           |                 | -     | Off      | The power input is abnormal (no input, input overvoltage or undervoltage), and the power output is abnormal (undervoltage, overvoltage, or short circuit). |

## Indicator on AC Power

| Indicator | Name            | Color | Status   | Description  |
|-----------|-----------------|-------|----------|--|
| STAT      | Power indicator | Green | On       | The input/output is normal.  |
|           |                 | Green | Blinking | The power supply is in hiccup protection mode.   |
|           |                 | -     | Off      | The power input is abnormal (no input, input overvoltage or undervoltage), and the power output is abnormal (undervoltage, overvoltage, or short circuit). |

## Indicator on Fan

| Indicator | Color  | Status   | Meaning                           | Operation Description                                       |
|-----------|--------|--|-----------------------------------|---|
| STATUS    | Yellow | Blinking (on for 0.25s and off for 0.25s repeatedly) | The fan module is not registered. | If the fan module is not registered, no action is required. |
|           | Green  | Blinking (on for 1s and off for 1s repeatedly)       | The fan module is normal.         | No action is required.                                      |
|           | Red    | Blinking (on for 0.25s and off for 0.25s repeatedly) | The fan module is faulty.         | Replace the faulty fan module.                              |

## Primary Features

### Layer 2 features

|                     |                        |
|---------------------|------------------------|
| VLAN+MAC forwarding | SVLAN+CVLAN forwarding |
| PPPoE+              | DHCP option82          |

### Layer 3 features

|              |           |
|--------------|-----------|
| Static route | RIP/RIPng |
| OSPF/OSPFv3  | IS-IS     |
| BGP/BGP4+    | ARP       |
| DHCP relay   | VRF       |

### Multicast

|                           |                      |
|---------------------------|----------------------|
| IGMP v2/v3                | IGMP Proxy/Snooping  |
| MLD v1/v2                 | MLD Proxy/Snooping   |
| VLAN-based IPTV multicast | IPv4 PIM and PIM-SSM |

### QoS

|                              |                     |
|------------------------------|---------------------|
| Traffic classification       | Priority processing |
| trTCM-based traffic policing | WRED                |
| Traffic shaping              | HQoS                |
| PQ/WRR/PQ+WRR                | ACL                 |

### IPv6

|  |  |
|--|--|
| IPv4/IPv6 dual stack                     | IPv6 L2 and L3 forwarding                          |
| DHCPv6 relay                             |  |
| <b>System reliability</b>                |  |
| GPON Type B/Type C protection            | ERPS (G.8032)                                      |
| 2 power boards for redundancy protection | In-service board fault detection and rectification |

## Product Specifications

| Item                              | Value   |
|-----------------------------------|---|
| Dimensions (W x D x H) (mm)       | Excluding mounting ears: 442 x 220 x 43.6<br>Including IEC mounting ears: 482.6 x 220 x 43.6<br>Including ETSI mounting ears: 531 x 220 x 43.6  |
| Maximum fully-loaded weight       | 5 kg  |
| Power supply mode                 | <ul style="list-style-type: none"> <li>DC power supply (dual backup)</li> <li>AC power supply (dual backup)</li> </ul>  |
| Working voltage range             | <ul style="list-style-type: none"> <li>DC power supply: -38.4 V to -72 V</li> <li>AC power supply: 100 V to 240 V</li> </ul>  |
| Rated voltage                     | <ul style="list-style-type: none"> <li>DC power supply: -48 V/-60 V</li> <li>AC power supply: 110 V/220 V</li> </ul>  |
| Maximum input current             | <ul style="list-style-type: none"> <li>DC power supply: 6 A</li> <li>AC power supply: 2.5 A</li> </ul>  |
| Ambient temperature               | -40°C to +65°C<br>The device can start up at a lowest temperature of -25°C.<br><b>NOTE</b><br>The +65°C temperature refers to the highest temperature measured at the air intake vent of a service subrack. |
| Ambient humidity                  | 5%–95% RH   |
| Atmospheric pressure              | 70–106 kPa  |
| Altitude                          | < 4000 m. The air density varies with the altitude and will affect the heat dissipation of a device. Therefore, the working environment temperature of the device varies with the altitude.                 |
| System switching capacity         | 110 Gbit/s  |
| MAC addresses                     | 32768   |
| Access ONT                        | 1024  |
| IPv4 routing table                | 8192  |
| IPv6 routing table                | 4096  |
| ARP table                         | 16384   |
| Bit error rate (BER) in full load | A BER smaller than 10 e-10 for a port that transmits data in full load  |
| Upstream ports                    | 4 GE/10GE   |

| Item                              | Value   |
|-----------------------------------|---|
| Service ports                     | 8 GPON  |
| System reliability specifications | <p>System availability for the typical configuration: &gt; 99.999%</p> <p>Mean time between failures (MTBF): about 61 years</p> <p><b>NOTE</b></p> <p>Due to different network environments and different boards used by devices, the preceding MTBF (61 years) of the MA5801 is only for reference. The preceding values are only for reference. For details, contact the related Huawei engineers.</p>  |
| Power consumption                 | <p>DC power supply:</p> <ul style="list-style-type: none"> <li>• Static power consumption: 46W</li> <li>• Typical power consumption: 64W</li> <li>• Maximum power consumption: 111W</li> </ul> <p>AC power supply:</p> <ul style="list-style-type: none"> <li>• Static power consumption: 47W</li> <li>• Typical power consumption: 65W</li> <li>• Maximum power consumption: 112W</li> </ul> <p><b>NOTE</b></p> <p>The power consumption of a product is tested in the following conditions:</p> <ul style="list-style-type: none"> <li>• Static power consumption: 25°C, no optical module in optical ports, and no service.</li> <li>• Typical power consumption: 25°C, 4 x 10GE(10km) upstream ports, 8 x GPON(CLASS C+) ports on the user side, full services, and maximum traffic.</li> <li>• Maximum power consumption: 65°C, 4 x 10GE(10km) upstream ports, 8 x GPON(CLASS C+) ports on the user side, full services, and maximum traffic.</li> </ul> |

## Supported Optical Modules

### One-channel Two-fiber Bidirectional GE Optical Module

| Type                         | One-channel two-fiber bidirectional optical module |             |
|------------------------------|--|-------------|
| No.                          | 1  | 2           |
| Reach                        | 10 km  | 40 km       |
| Operating Wavelength         | 1310 nm  | 1310 nm     |
| Encapsulation Type           | eSFP   | eSFP        |
| Port Rate                    | 1.25 Gbit/s  | 1.25 Gbit/s |
| Minimum Output Optical Power | -9 dBm   | -5 dBm      |
| Maximum Output Optical Power | -3 dBm   | 0 dBm       |
| Maximum Receiver Sensitivity | -20 dBm  | -23 dBm     |
| Optical Connector Type       | LC   | LC          |



|                        |             |             |
|------------------------|-------------|-------------|
| Optical Fiber Type     | Single-mode | Single-mode |
| Overload Optical Power | -3 dBm      | -3 dBm      |
| Extinction Ratio       | 9 dB        | 9 dB        |

### One-channel One-fiber Bidirectional GE Optical Module

|                              |  |                            |                            |                            |
|------------------------------|--|----------------------------|----------------------------|----------------------------|
| Type                         | One-channel one-fiber bidirectional optical module |                            |                            |                            |
| No.                          | 1  | 2                          | 3                          | 4                          |
| Reach                        | 10 km  | 10 km                      | 40 km                      | 40 km                      |
| Operating Wavelength         | Tx: 1310 nm<br>Rx: 1490 nm                         | Tx: 1490 nm<br>Rx: 1310 nm | Tx: 1310 nm<br>Rx: 1490 nm | Tx: 1490 nm<br>Rx: 1310 nm |
| Encapsulation Type           | eSFP   | eSFP                       | eSFP                       | eSFP                       |
| Port Rate                    | 1.25 Gbit/s  | 1.25 Gbit/s                | 1.25 Gbit/s                | 1.25 Gbit/s                |
| Minimum Output Optical Power | -9 dBm   | -9 dBm                     | -2 dBm                     | -2 dBm                     |
| Maximum Output Optical Power | -3 dBm   | -3 dBm                     | 3 dBm                      | 3 dBm                      |
| Maximum Receiver Sensitivity | -19.5 dBm  | -19.5 dBm                  | -23 dBm                    | -23 dBm                    |
| Optical Connector Type       | LC   | LC                         | LC                         | LC                         |
| Optical Fiber Type           | Single-mode  | Single-mode                | Single-mode                | Single-mode                |
| Overload Optical Power       | -3 dBm   | -3 dBm                     | -3 dBm                     | -3 dBm                     |
| Extinction Ratio             | 6 dB   | 6 dB                       | 9 dB                       | 9 dB                       |

### One-channel Two-fiber Bidirectional 10GE Optical Module

|                              |  |             |                  |
|------------------------------|--|-------------|------------------|
| Type                         | One-channel two-fiber bidirectional optical module |             |                  |
| No.                          | 1  | 2           | 3                |
| Reach                        | 0.3 km   | 10 km       | 40 km            |
| Operating Wavelength         | 850 nm   | 1310 nm     | 1550 nm          |
| Encapsulation Type           | SFP+   | SFP+        | SFP+             |
| Port Rate                    | 10 Gbit/s  | 10 Gbit/s   | 9.95-11.1 Gbit/s |
| Minimum Output Optical Power | -7.3 dBm   | -8.2 dBm    | -4.7 dBm         |
| Maximum Output Optical Power | -1 dBm   | 0.5 dBm     | 4 dBm            |
| Maximum Receiver Sensitivity | -9.9 dBm   | -12.6 dBm   | -14.1 dBm        |
| Optical Connector Type       | LC   | LC          | LC               |
| Optical Fiber Type           | Multi-mode   | Single-mode | Single-mode      |
| Overload Optical Power       | -1 dBm   | 0.5 dBm     | 0.5 dBm          |

|                  |      |        |      |
|------------------|------|--------|------|
| Extinction Ratio | 3 dB | 3.5 dB | 3 dB |
|------------------|------|--------|------|

## One-channel One-fiber Bidirectional 10GE Optical Module

|                              |  |                        |                        |                        |
|------------------------------|--|------------------------|------------------------|------------------------|
| Type                         | One-channel one-fiber bidirectional optical module |                        |                        |                        |
| No.                          | 1  | 2                      | 3                      | 4                      |
| Reach                        | 10km   | 10km                   | 40km                   | 40km                   |
| Operating Wavelength         | Tx:1270nm<br>Rx:1330nm                             | Tx:1330nm<br>Rx:1270nm | Tx:1330nm<br>Rx:1270nm | Tx:1270nm<br>Rx:1330nm |
| Encapsulation Type           | SFP+   | SFP+                   | SFP+                   | SFP+                   |
| Port Rate                    | 2.5Gbit/s–11.3Gbit/s                               | 2.5Gbit/s–11.3Gbit/s   | 9.95Gbit/s–10.3Gbit/s  | 9.95Gbit/s–10.3Gbit/s  |
| Minimum Output Optical Power | -8.2dBm  | -8.2dBm                | 0dBm                   | 0dBm                   |
| Maximum Output Optical Power | 0.5dBm   | 0.5dBm                 | 5dBm                   | 5dBm                   |
| Maximum Receiver Sensitivity | -14.4dBm   | -14.4dBm               | -18dBm                 | -18dBm                 |
| Optical Connector Type       | LC   | LC                     | LC                     | LC                     |
| Optical Fiber Type           | Single-mode  | Single-mode            | Single-mode            | Single-mode            |
| Overload Optical Power       | 0.5dBm   | 0.5dBm                 | -9dBm                  | -9dBm                  |
| Extinction Ratio             | 3.5dB  | 3.5dB                  | 3.5dB                  | 3.5dB                  |

## GPON Optical Module

|                              |  |  |   |
|------------------------------|--|--|---|
| Type                         | One-fiber bidirectional optical module, class B+ | One-fiber bidirectional optical module, class C+ | One-fiber bidirectional optical module, class C++ |
| No.                          | 1  | 2  | 3   |
| Operating Wavelength         | Tx: 1490 nm<br>Rx: 1310 nm                       | Tx: 1490 nm<br>Rx: 1310 nm                       | Tx: 1490 nm<br>Rx: 1310 nm                        |
| Encapsulation Type           | SFP  | SFP  | SFP   |
| Port Rate                    | Tx: 2.488 Gbit/s<br>Rx: 1.244 Gbit/s             | Tx: 2.488 Gbit/s<br>Rx: 1.244 Gbit/s             | Tx: 2.488 Gbit/s<br>Rx: 1.244 Gbit/s              |
| Minimum Output Optical Power | 1.5 dBm  | 3 dBm  | 6 dBm   |
| Maximum Output Optical Power | 5 dBm  | 7 dBm  | 10 dBm  |
| Maximum Receiver Sensitivity | -28 dBm  | -32 dBm  | -35 dBm   |

|                               |             |             |             |
|-------------------------------|-------------|-------------|-------------|
| <b>Optical Connector Type</b> | SC          | SC          | SC          |
| <b>Optical Fiber Type</b>     | Single-mode | Single-mode | Single-mode |
| <b>Overload Optical Power</b> | -8 dBm      | -12 dBm     | -15 dBm     |
| <b>Extinction Ratio</b>       | 8.2 dB      | 8.2 dB      | 8.2 dB      |

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