



## V6016XC FTTH/XGSPON OLT

### Product Overview

The XGS-PON technology adds new features and functionality targeted at improving performance and interoperability, and adds support for new applications, services, and deployment scenarios. Among these changes are improvements in data rate and reach performance, diagnostics, and stand-by mode, to name a few.

The V6016XC utilizes a point-to-multipoint Optical Distribution Network (ODN) and the XGS-PON technology with 10G Symmetric bandwidth to enable cost-effective, higher bandwidth, higher value FTTH services. Service providers can add new 10Gig PON based services alongside GPON to offer choice and keep pace with growing bandwidth demands. Cost effective 10Gig offers an opportunity for revenue growth in business and mobile xHaul applications beyond traditional residential applications with a common fiber network.

The V6016XC is comprised of combo 16-port XGS-PON+GPON interface for service interface and fixed 4-port 25GE interface and 2-port 100GE for uplink on the front panel. It offers usable interface to make up diversity network services. Therefore, depending on customer requirements, it can be configured with several Ethernet configurations.

The V6016XC offers timing services, allowing for system clocking synchronization from the core of the network. It also provides 2 mounting slots for the dual power modules and 2 mounting slots for the fan on the rear panel. PSU modules support 1:1 redundancy and load sharing, so it is possible to operate as non-stoppable. Security features include storm control for broadcast, multicast and unknown unicast packets, out-band management and Secure Shell (SSH) support.

The V6016XC offers next generation of ultra-fast XGS-PON technology that can be used for a variety of new revenue generating applications. Due to the coexistence of GPON equipment installed on the same network, the network can be improved efficiently. It is expected to help build business continuity systems such as telework and video conference that require triple play services of video, data and voice.

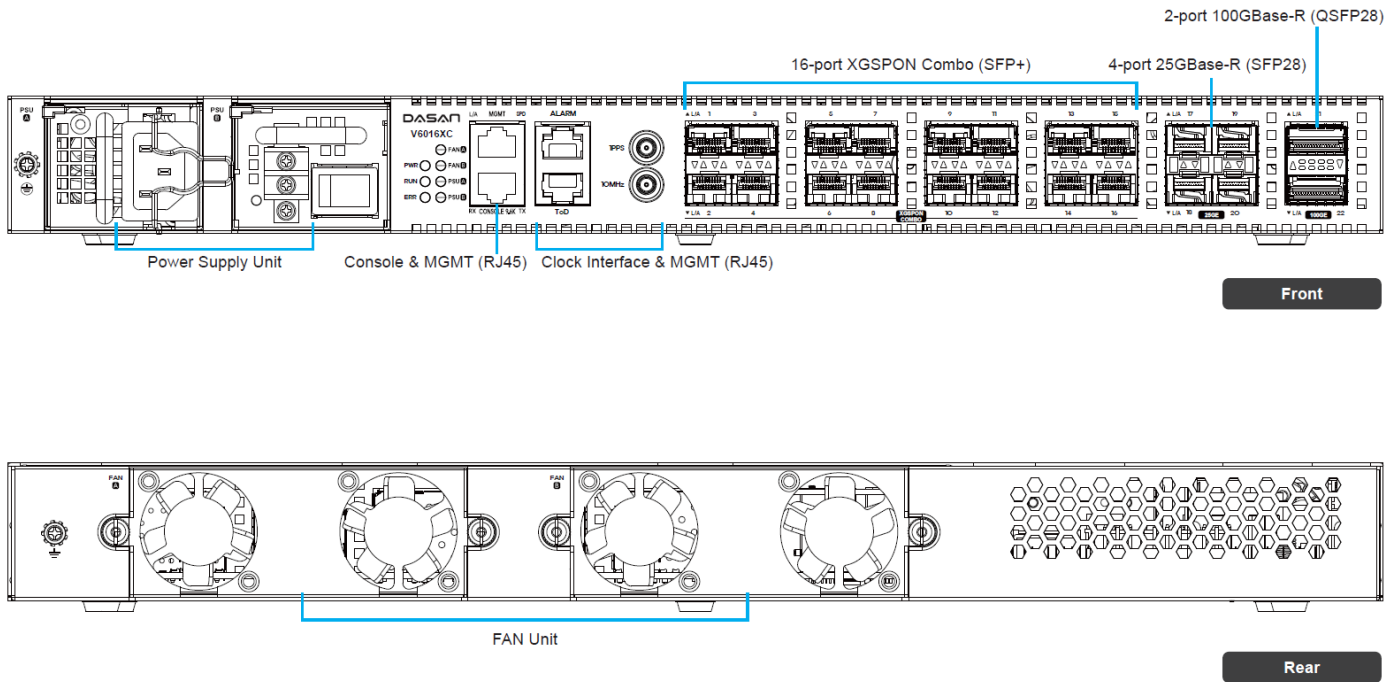


Figure 1. Interfaces of the V6016XC

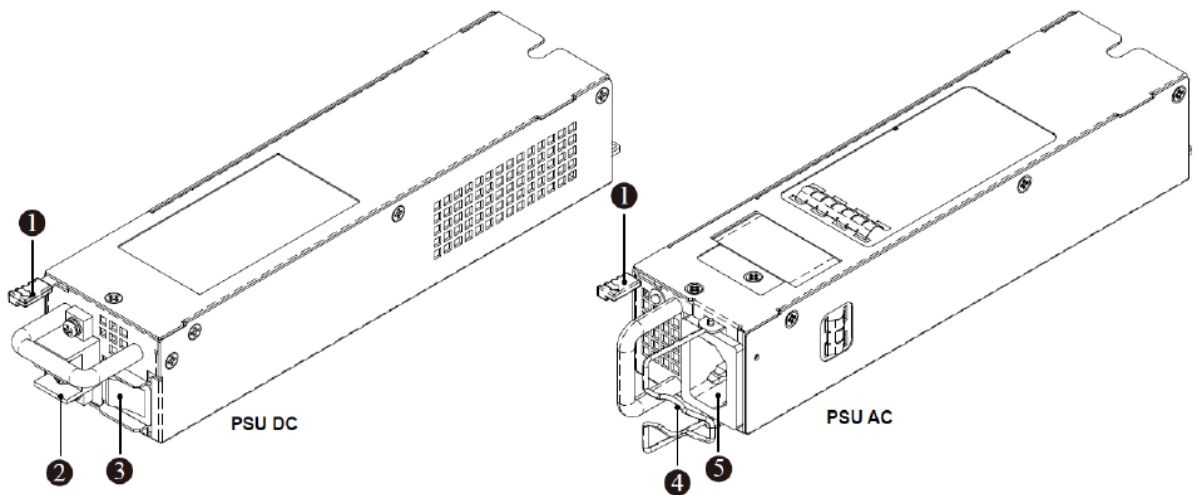
Items	Description	Connector type
XGS-PON/GPON Interface	16-port XGS-PON/GPON combo interface	XGS-PON: SFP+ GPON: SFP
25GE Interface	4-port 25GBase-R interface	SFP28
100GE Interface	2-port 100GBase-R interface	QSFP28
Clock Interface	10MHz, 1PPS, ToD interface	10MHz, 1PPS : SMA ToD : RJ45
Management Interface	MGMT, Console interface	RJ45
Power unit (PSU)	- DC -48VDC - AC 100-240VAC	-
Fan unit	Pluggable FAN	-

Table 1. System Structure of the V6016XC

## Plug-in Units

### Power Supply Unit (PSU)

The power supply unit (PSU) feeds the proper power voltage to the V6016XC. Dual PSUs could be mounted into front side of the shelf. You can choose proper power supply unit according to installation environment.



**Figure 2.** The PSU for V6016XC

Item	Function
① Ejector lever	Secure a PSU module in the switch.
② DC power terminal	Connect DC power cable.
③ Power Switch	Turn on and off the system.
④ Cable Holder	Cable safety holder to organize the power cable.
⑤ AC power terminal	Connect AC power cable.

**Table 2.** The Interface of PSU

## Component Options for V6016XC

### Bases

Name	Description	Maximum quantity
V6016XC	Fixed 16-Port XGS-PON/GPON Combo (SFP+/SFP) 4-port 25GBase-R (SFP28) 2-port 100GBase-R (QSFP28)	1

**Table 3.** Base Option

### Power, Fan, etc. Options

Name	Description	Maximum quantity
V6016XC_PSU_DC	DC Power Supply Unit	2
V6016XC_PSU_AC	AC Power Supply Unit	2
V6016XC_FAN	Fan unit for V6016XC	1

**Table 4.** Power and Fan Options

### SFP Options

The following different optical SFP modules are available and can be inserted into the interface of V6016XC. Each SFP module contains one port.

SFP Module	Description
SFP-GE-SX	SFP GE SX - Wavelength: 850nm / Distance: 550m / Mode: Multimode - Connector: LC / Data rate: 1.25 Gbit/s / Core type: Dual Core - Operating Temperature: 0 °C ~ 70 °C - RoHS compliant product
SFP-GE-LX10	SFP GE LX10 - Wavelength: 1310nm / Distance: 10Km / Mode: Single-mode - Connector: LC / Data rate: 1.25 Gbit/s / Core type: Dual Core - Operating Temperature: 0 °C ~ 70 °C - RoHS compliant product
SFP-GE-LX20	SFP GE LX20 - Wavelength: 1310nm / Distance: 20Km / Mode: Single-mode - Connector: LC / Data rate: 1.25 Gbit/s / Core type: Dual Core - Operating Temperature: 0 °C ~ 70 °C - RoHS compliant product
SFP-GE-LX40	SFP GE LX40 - Wavelength: 1310nm / Distance: 40Km / Mode: Single-mode - Connector: LC / Data rate: 1.25 Gbit/s / Core type: Single Core - Operating Temperature: 0 °C ~ 70 °C - RoHS compliant product

**Table 5** SFP Modules for V6016XC

### SFP+ Options

The following different optical SFP+ modules are available and can be inserted into the interface of V6016XC. Each SFP+ module contains one port.

SFP+ Module	Description
SFPP-10GE-SR	SFP+ 10GE SR - Wavelength: 850nm / Distance: 300m / Mode: Multimode - Connector: LC / Data rate: 10.3125 Gbit/s / Core type: Dual Core - Operating Temperature: 0 °C ~ 70 °C - 10GBASE-SR (10G)
SFPP-1GE10GE-SR	SFP+ 1GE/10GE SR - Wavelength: 850nm / Distance: 300m / Mode: Multimode - Connector: LC / Data rate: 10.3125 Gbit/s / Core type: Dual Core - Operating Temperature: 0 °C ~ 70 °C - 1000BASE-SC (1G), 10GBASE-SR (10G)
SFPP-10GE-LR	SFP+ 10GE LR - Wavelength: 1310nm / Distance: 10Km / Mode: Single-mode - Connector: LC / Data rate: 10.3125 Gbit/s / Core type: Dual Core - Operating Temperature: -5 °C ~ 70 °C - 10GBASE-LR (10G)
SFPP-10GE-ER	SFP+ 10GE ER - Wavelength: 1550nm / Distance: 40Km / Mode: Single-mode - Connector: LC / Data rate: 10.3125 Gbit/s / Core type: Dual Core - Operating Temperature: 0 °C ~ 70 °C - 10GBASE-ER (10G)
SFPP-10GE-ZR	SFP+ 10GE ZR - Wavelength: 1310nm / Distance: 70Km / Mode: Single-mode - Connector: LC / Data rate: 10.3125 Gbit/s / Core type: Dual Core - Operating Temperature: 0 °C ~ 70 °C - 10GBASE-ZR (10G)

**Table 6** SFP+ Modules for V6016XC

### SFP28 Options

The following different optical SFP28 modules are available and can be inserted into the interface of V6016XC. Each SFP28 module contains one port.

SFP28 Module	Description
SFP28 25GE-SR	SFP28 25GBASE-SR - Wavelength : 850nm / Distance : OM3 70m / OM4 100m / Mode : Multi Mode - Connector : LC / Data rate : 25.78 Gbit/s - Operating Temperature : -40°C ~ 85 °C
SFP28 25GE-LR	SFP28 25GBASE-LR - Wavelength : 1310nm / Distance : 10Km / Mode : Single Mode - Connector : LC / Data rate : 25.78 Gbit/s - Operating Temperature : -40°C ~ 85 °C

**Table 7** SFP28 Modules for V6016XC

### QSFP28 Options

The following different optical QSFP28 modules are available and can be inserted into the interface of V6016XC. Each QSFP28 module contains one port.

QSFP28 Module	Description
QSFP28-100GE-SR4	QSFP28 100GE SR4 - Wavelength : 850nm / Distance :850m / Mode: Singlemode - Connector : MPO / Data rate : 103.12 Gbit/s / Core type : 12-core - Operating Temperature : -40°C ~ 85 °C
QSFP28-100GE-LR4	QSFP28 100GE LR4 - Wavelength : 1295.56nm, 1300.05nm, 1304.58nm, 1309.14nm / Distance: 10km / Mode :Singlemode - Connector : MPO / Data rate : 103.12 Gbit/s / Core type : dualcore - Operating Temperature : -40°C ~ 85 °C

**Table 8** QSFP28 Modules for V6016XC

## Product Specification

### System

The V6016XC supports the following system features:

- 900Gbps switching capacity with Full-duplex
- Throughput: 729 Mpps
- Main switching block in Base board with fixed Interface
  - 16-port XGS-PON/GPON combo interface (SFP+/SFP)
  - 4-port 10/25GBase-R interface (SFP28)
  - 2-port 40/100GBase-R interface (QSFP28)
- Redundant dual power supply unit (PSU)
- Hot Swappable for all plug-in units (PSU and FAN)
- LED alarm indicator

### SW Capabilities

#### GPON

- Support ITU-T G.984.4 ONT Management & Control Interface (OMCI)
- Remote ONT/ONU management
- Automatic ONT ranging
- GPON OLT Class B+ compliant with ITU-T G.984.2
- GPON OLT Class C+ compliant with ITU-T G.984.2
- Full-duplex operation
- 2.488Gbps downstream and 1.244Gbps upstream applications
- 2.488Gbps continuous-mode transmitter(1.49um-DFB) with automatic output power control
- BER: under 10<sup>-10</sup>
- Receiving Wavelength: 1260 ~ 1360nm (Typ: 1310nm)
- Input sensitivity: Max -28dBm (Measured with a PRBS 223-1 pattern)
- Input Saturation Power(Overload): -8dBm (min)
- Transmitter wavelength: 1480 ~ 1500nm (Typ: 1490nm)
- Mean launched power: +1.5 ~ +4.5dBm (End of life)
- Spectral width (-20dB): 1nm (max)
- Receiving Wavelength: 1260 ~ 1360nm (Typ: 1310nm)

#### XGS-PON

- Support ITU-T G.9807.1 Compliant
- Full-duplex operation
- XGS-PON ODN Class N1 compliant with ITU-T G.9807.1
- 9.953Gbps downstream and 9.953/2.488Gbps upstream applications
- Support DDM (Digital Diagnostics Monitoring)
- Transmission distance: 20km with single-mode fiber
- Laser type: laser diode class 1 (defined in IEC 60825-1)

**Layer 2 Capabilities**

- Standard Ethernet Bridging
- 32K MAC entries
- VLAN assignment (tagged/untagged)
- 4K active VLANs for 802.1q tagged frame
- Link Aggregation (Static, LACP)
- VLAN stacking/translation
- Jumbo frame 9K

**QoS**

- Traffic classification (802.1p, CoS, IP Precedence, DSCP, TCP/UDP)
- Diff Serv
- Traffic Scheduling (SP, DRR)
- 8 queues per port

**Clock Synchronization**

- IEEE1588v2 (TC/BC)
- Synchronous Ethernet

**Security**

- SSH v2
- RADIUS, TACACS+
- Storm Control (Broadcast/Multicast/DLF)
- MAC Anti-spoofing
- ARP Inspection
- DHCP/MAC/VLAN Filtering
- Ether type/L4-based ACL

**Multicast**

- IGMP v1/v2/v3
- IGMP Snooping/Proxy
- MLD v1/v2
- MLD Snooping/Proxy

**Management**

- Serial/SSH/Telnet(CLI)
- SNMPv1/v2/v3
- DHCP server, client, relay agent
- RMON
- Software Download/Upgrade
- Configuration Backup/Download/Upload

## Physical Specification

### **V6016XC**

Service Interface	16-port XGS-PON/GPON combo(SFP+/SFP)
Console Interface	1-port RS232 for Console
Management Interface	1-port GTX for MGMT
Clock Interface	1-port ToD 1-port 10MHz 1-port 1PPS
Dimensions	440(W) x 44(H) x 280.0(D) mm
Operating temperature	-40 to 65 °C
Storage temperature	-40 to 70 °C
Operating humidity	5 to 95 % (non-condensing)
Power voltage	DC: -48 VDC / AC: 100-240 VAC
Power consumption	Max. 230 W (PSU_DC) / Max. 245W (PSU_AC)

## Ordering Information

Bases			
<b>V6016XC</b> Fixed 16-Port XGS-PON/GPON Combo (SFP+/SFP) 16-port XGS-PON/GPON combo 4-port 25GBase-R (SFP28) 2-port 100GBase-R (QSFP28)			
Power, Fan, etc Options			
V6016XC_PSU_DC V6016XC_PSU_AC V6016XC_FAN			
SFP Options	SFP+ Options	SFP28 Options	QSFP28 Options
SFP-GE-SX SFP-GE-LX10 SFP-GE-LX20 SFP-GE-LX40	SFP+ 10GE-SR SFP+ 1GE/10GE-SR SFP+ 10GE-LR SFP+ 10GE-ER SFP+ 10GE-ZR	SFP28 25GE-SR SFP28 25GE-LR	QSFP28-100GE-SR4 QSFP28-100GE-LR4



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