

DATACOM



DM4618

OLT – OPTICAL LINE TERMINATION

204.4351.00

INSTALLATION GUIDE

Legal Notice

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This product is guaranteed against material and manufacturing defects for the period specified in the sales invoice.

The warranty only includes the repair and replacement of components or defective parts at no charge to the customer. Defects resulting from the following are not covered: improper use of the equipment, electric power failure, natural phenomena (lightning for example), failure of equipment connected to this product, installations with improper grounding or repairs carried out by personnel not authorized by DATACOM.

This warranty does not cover repairs at the customer's facilities. The equipment must be sent to DATACOM to be repaired



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Equipment Documentation

This manual is part of a set of documents prepared to provide all the necessary information about Datacom equipment.

- **Datasheet** – Presents equipment information and characteristics.
- **DmOS Command Reference** – Lists all commands relevant to the equipment.
- **Installation Manual** – Provides instructions about equipment installation procedures.
- **Quick Reference Guide** – Provides summarized instructions about equipment installation and configuration procedures (shipped with the equipment).
- **Release Notes** – Informs users about new features, known bugs and hardware compatibility.

The availability of certain documents may vary depending on the type of equipment.

Visit the Datacom website to find related documentation or contact Technical Support for more information (see [Contacts](#)).

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1. INSTALLATION MANUAL - INTRODUCTION

1.1. About this Manual

This manual can be used with the DM4618 OLT GPON equipment, providing information on the installation of this equipment.

The document focuses on the electrical and physical parts, also in the indication of the equipment status, as well as in the installation of its hardware. It is assumed that the individual or individuals who will handle or manage any aspect of the equipment have basic knowledge of electrical installations, GPON and Ethernet interfaces, in addition to overall telecommunications knowledge.







1.2. Target Audience

This manual is intended for network administrators, technicians or qualified personnel to install, configure, plan and maintain this equipment.

1.3. Conventions

In order to facilitate understanding throughout this manual, the following conventions have been adopted:

1.3.1. Icons

Icon	Category	Description
	Note	Notes further explain certain details presented in the text.
	Warning	This formatting indicates that the text contained herein is of great importance and there is a risk of damage.
	Hazardous	Indicates that, if the procedures are not followed correctly, there is a risk of electric shock.
	Hazardous	Indicates the presence of laser radiation. If instructions are not followed and if direct exposure to the skin and eyes is not avoided, it may cause damage to the skin or eyes.
	Warning	Indicates equipment or a part that is sensitive to static electricity. It shouldn't be handled without using an antistatic bracelet or equivalent.
	Warning	Indicates the emission of non-ionizing radiation.


Icon	Category	Description
	Note	Symbol of the WEEE directive (Applicable for the European Union and other countries with a selective collection system). This symbol on the equipment or packaging indicates that the equipment cannot be disposed of with household waste. However, it is your responsibility to take the equipment to be discarded at a collection point assigned for the recycling of electro-electronic equipment. Separate collection and the recycling of equipment at the time of disposal help in the conservation of natural resources and ensure that the equipment will be recycled so as to protect people's health and the environment. For further information on where to discard equipment for recycling, contact your local dealer where the equipment was purchased.

Table 1 - Icon Conventions



A warning icon calls attention to conditions that, if not avoided, may cause physical damage to the equipment.



A text of the Notice type calls the attention for the conditions that, if not avoided, may result in death or serious injury.

1.3.2. Texts

Convention	Description
Hyperlink	Indicates an internet or email address. It can also be used to indicate a link within the document itself.
Terminal	System commands and terminal outputs
<i>Object</i>	Indicates a reference to something. Used to emphasize a referenced object.
[Key]	Keyboard keys

Table 2 - Text Conventions



The conventions used in this document are not necessarily the same as those in the Command Reference document. Observe the conventions established for each document.

2. GETTING STARTED

2.1. Safety Warnings

Before proceeding, carefully observe the safety warnings below:



Before installation, the entire manual must be read carefully. If you have questions, you should contact the authorized technical support.



Pay attention to the safety instructions during installation, operation and maintenance of this equipment. The installation, operation and maintenance procedures must be performed preferably by qualified, trained personnel authorized to perform such tasks.



To prevent the risk of electric shock, before turning the equipment on or connecting cables, make sure you have installed a suitable grounding system.



Optical modules use invisible radiation laser transmitters. Although most SFP+ and SFP GPON on the market meet LASER safety specifications, never look directly at the terminals of a module or of an optical cord. Exposure to laser emissions may cause partial or total loss of vision.

3. EQUIPMENT OVERVIEW

The **DM4618 OLT** is a high capacity modular solution with support for up to 8192 subscribers on 64 GPON ports (1:128 split ratio), 32 ports fixed in the product and other 32 ports available using the LC 32 GPON line card. As uplink it has 4 10G/25Gbe ports using SFP+/SFP28 and 2 100GbE ports using QSFP28.

Below is the illustration that reflects the equipment.

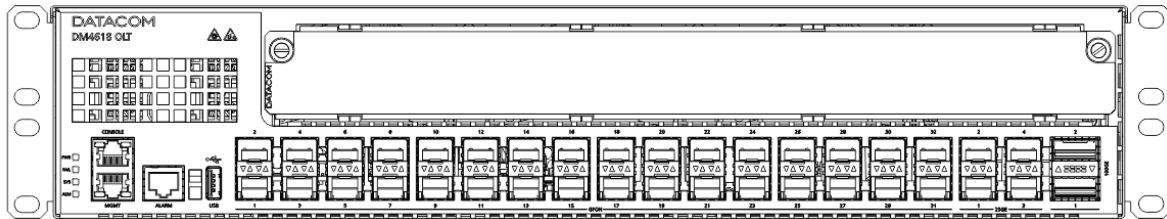


Figure 1 –DM4618 OLT

4. HARDWARE DESCRIPTION

4.1. DM4618 OLT

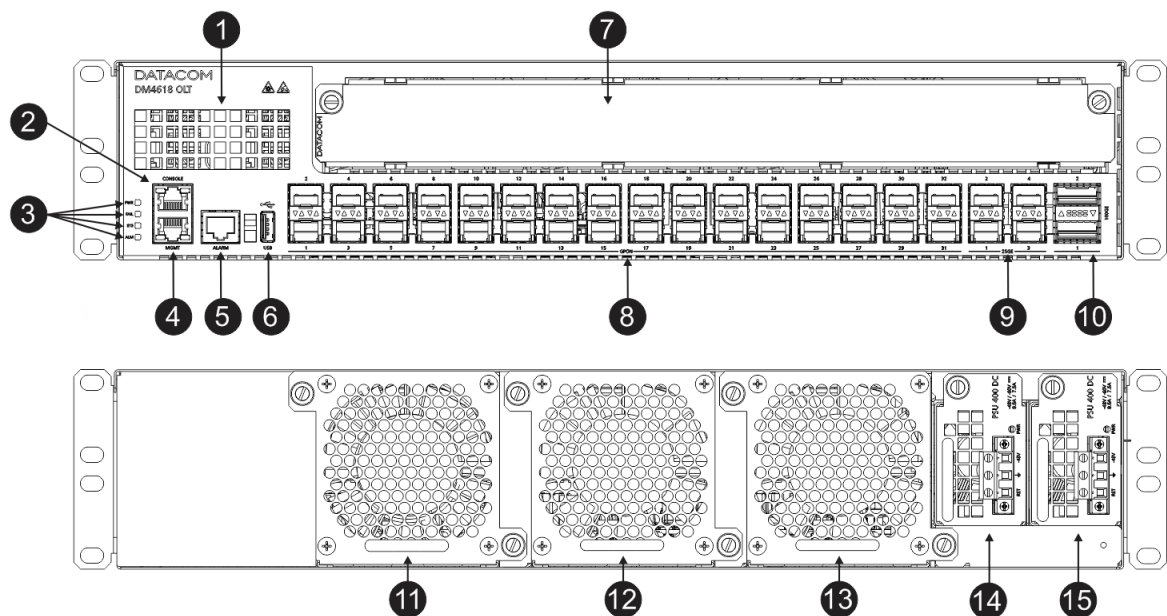


Figure 2 - DM4618 OLT Views

Number	Description
1	Power Supply Ventilation Inlet
2	Console Serial Interface (RS-232)
3	Equipment Status LEDs
4	Gigabit Ethernet Management Interface (MGMT)
5	Alarm Interface (2 inputs e 1 output)
6	USB Host Interface
7	Line Card Slot
8	32 GPON Ports
9	4 10/25 Gigabit Ethernet Ports
10	2 100 Gigabit Ethernet Ports
11	FAN Module Slot/Ventilation Outlet (FAN 3)
12	FAN Module Slot/Ventilation Outlet (FAN 2)
13	FAN Module Slot/Ventilation Outlet (FAN 1)
14	Power Input PSU2 (AC/DC)
15	Power Input PSU1 (AC/DC)

Table 3 – Interface Description

4.2. Equipment Status LEDs

The DM4618 OLT has four status LEDs on the front panel, PWR LED, ALM LED, FAIL LED and SYS LED. There are also the PWR LEDs for each PSU. Table 4 describes the behavior of the equipment's panel LEDs.

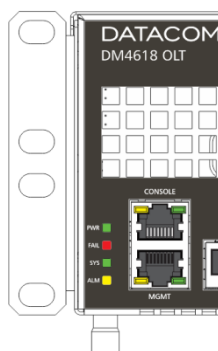


Figure 3 - DM4618 OLT Status LEDs

Indicator	Color	Status	Description
LED PWR	GREEN	ON	Indicates that the power supply is energizing the equipment and internal power supplies are operating without failure.
		OFF	Power supply with problem or not energized.
LED ALM e LED FAIL	YELLOW	ON	Indicates that alarms have been detected by the equipment.
	RED	ON	Indicates that the equipment is in an internal failure status. Note: When the power is connected to the equipment, the FAIL LED will be red for a short interval of time and will then turn off.
	-	OFF	Equipment in normal operation, no failures or alarms detected.
LED SYS	GREEN	ON	Indicates that the system is operating normally.
		OFF	System initiating the operation.
		BLINKING	System is in special status, such as running the DmOS software update.

Table 4 – Status LED Behavior

4.3. Serial Console Interface (RS-232)

The DM4618 OLT has a console port for local management. The console port uses an RJ45 connector. A cable with a male RJ45 connector and a female DB9 connector must be used for the connection to a computer or laptop.

The serial console cable is an accessory included with the DM4618 OLT. Additional cables can be purchased separately via code 710.0137.xx or assembled as described in the figures below. The RJ45 connector pinout and its match with the DB9 connector are described in Table 5



Figure 4 – Console Cable



Figure 5 - Console Cable RJ45 Connector Pins

RJ45 Male	DB9 Female	Function	DM4618 OLT Input/Output
1	-	Reserved	-
2	-	Reserved	-
3	2	RS232_TX	Output
4	5	DGND	Ground
5	5	DGND	Ground
6	3	RS232_RX	Input
7	-	Reserved	-
8	-	Reserved	-

Table 5 - Serial Console Connector Pinout

4.4. Ethernet Management Interface (MGMT)

The DM4618 OLT has a Gigabit Ethernet interface used for the equipment's local or remote management. For further details on how to use it, refer to the chapter [ACCESSING THE EQUIPMENT](#). This interface has two status LEDs that have their behavior described in Table 6.

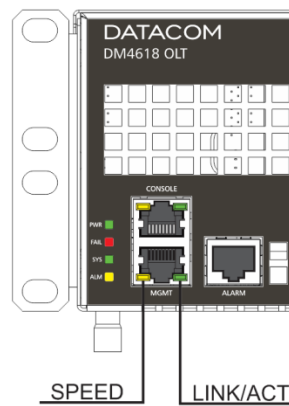


Figure 6 - Management Interface LEDs (MGMT)

Indicator	Color	Status	Description
LINK/ACT	GREEN	Off	<i>Link Down</i> (inactive port)
		On	<i>Link Up</i> (active port)
		Blinking	Data sending and/or receiving activity
SPEED	YELLOW	Off	Port operating in 1000Base-T mode
		On	Port operating in 10Base-T or 100Base-TX mode

Table 6 - MGMT Interface LEDs

4.5. USB Host Interface

The equipment provides an A-type USB Interface Host in the front panel that can operate according to specification 2.0. There is no need to use this interface during the equipment installation process.

4.6. Data Interface

4.6.1. GPON Interfaces

The DM4618 OLT has 32 GPON interfaces that use GPON SFP connectors. The ports have STATUS and ALARM LEDs; such LEDs are present right above each interface. The ports are identified in the printed front panel according to the figure below:

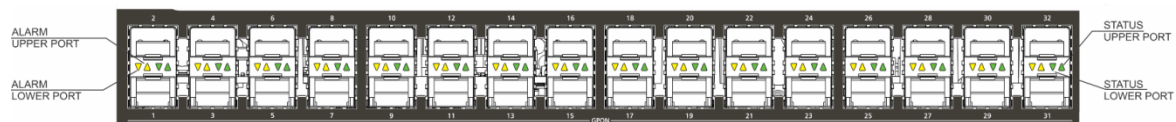


Figure 7 - GPON Ports and LEDs

4.6.1.1. GPON Port LEDs

The convention to indicate the operation and functioning mode of the GPON SFP interfaces is described in the table below:

Indicator	Color	Status	Description
STATUS	GREEN	Off	Interface with the administrative status <i>DOWN</i> or SFP not connected.
		On	Interface with the administrative status <i>UP</i> and SFP connected.
ALARM	YELLOW	Blinking 4Hz	<i>Critical</i> or <i>Major</i> alarm active in the port
		Blinking 0.5Hz	<i>Minor</i> alarm active in the port
		Off	Port operating correctly without alarms

Table 7 - GPON Interfaces LEDs behavior

4.6.2. Optical 25/10 Gigabit Ethernet Interfaces

The DM4618 OLT has 4 optical 25/10 Gigabit Ethernet interfaces, all using the SFP28/SFP+ connector. There are LINK/ACT and SPEED LEDs that are built into the connectors corresponding to each interface. The ports are identified in the printed front panel. The numbering of the other ports follows the order according to the figure below:

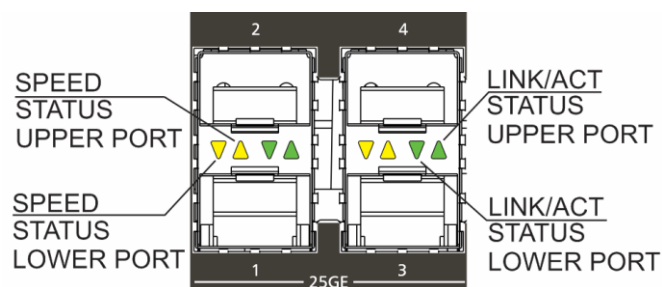


Figure 8 – 25/10GbE SFP28/SFP+ Ports and LEDs

4.6.2.1. Optical Interface LED Indicators

The convention to indicate the operation and functioning mode of the 25/10GbE SFP28/SFP+ interfaces is described in Table 8.

Indicator	Color	Status	Description
LINK/ACT	GREEN	Off	<i>Link Down</i> (inactive port)
		On	<i>Link Up</i> (active port)
		Blinking	Data sending and/or receiving activity
SPEED	YELLOW	Off	Port operating in 10GBase-X or 10GBase-T mode
		On	Port operating at a rate lower than 10Gbps

Table 8 – 25/10GbE SFP28/SFP+ Interface LEDs behavior

4.6.3. Optical 100 Gigabit Ethernet Interfaces

The DM4618 OLT has 2 optical 100 Gigabit Ethernet interfaces, both using the QSFP28 connector. There are LINK/ACT and SPEED LEDs that are built into the connectors corresponding to each interface. The ports are identified in the printed front panel. The numbering of the other ports follows the order according to the figure below:

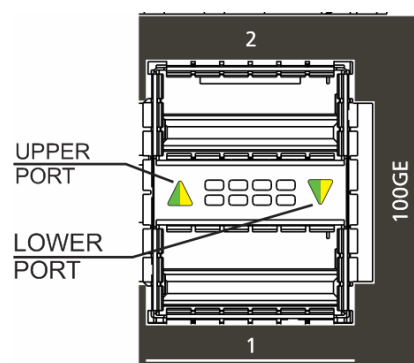


Figure 9 - 100GbE QSFP28 Port LEDs

Indicator	Color	Status	Description
SPEED LINK/ACT	GREEN	ON	Link Up (active port) – Port operating in 100GbE mode.
		Blinking	Data sending and/or receiving activity
	YELLOW	ON	Link Up (active port) – Port operating in 40GbE mode.
		Blinking	Data sending and/or receiving activity
		OFF	<i>Link Down</i> (inactive port)

Table 9 - 100GbE QSFP28 LED Behavior

4.7. PSUs and Power Inputs

The DM4618 OLT has two slots for the PSU 600 power supply (supplied separately) in the rear panel.

The following Power Supply models are supported:

PSU Model	Input Power Supply	Cooling direction
PSU 600 AC-F	100/240Vac (50/60Hz)	Exiting the PSU panel
PSU 600 DC-F	-48 / 60 Vdc	Exiting the PSU panel

Table 10 – Supported PSU600 Models

The PSU DC has TERMINAL BLOCK power terminals.

The PSU AC has three-pin IEC 320/C14 plug power terminals.

The PSU 600 power supplies operate in a 1:1 redundancy manner, with only one being sufficient to maintain full operation of the equipment. The combination of AC and DC power supplies in the same equipment is allowed. The insertion/removal of power cables and the PSUs can be hot-swapped, allowing the uninterrupted operation of the equipment, if one of the two power supplies is turned off or presents failures. The PSU 600 has a PWR LED on its front panel that, when **GREEN**, indicates that it is correctly powered and operational.

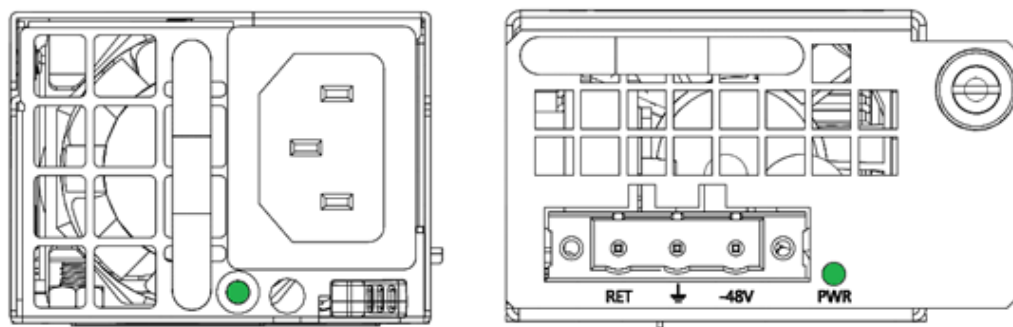


Figure 10 - PSU 600 AC e PSU 600 DC front panel



The equipment is de-energized through its power cable (s). The power outlet must be nearby and easily accessible.



The electrical installation of the site should be protected by devices against short circuits.



Connect the AC PSU only to a sine wave voltage power source. In the case of using a non-sine wave voltage power source (square wave or pseudo-sinusoidal wave voltage), intermittent operation, product reboot and permanent product damage may occur.



In the situation in which both PSUs are present and the power inputs are energized and operating with voltages within the specified range, the AC power inputs will take precedence over the DC power input, regardless of the connected slot.



In the situation in which both DC PSUs are present and the power inputs are energized and operating with voltages within the specified range, PSU 1 will be supplying power to the equipment and PSU 2 will be on standby.

4.7.1. Pinout and Polarity

4.7.1.1. PSU 600 AC

The figure below presents the IEC 320/C14 connector pinout for the equipment's power supply.

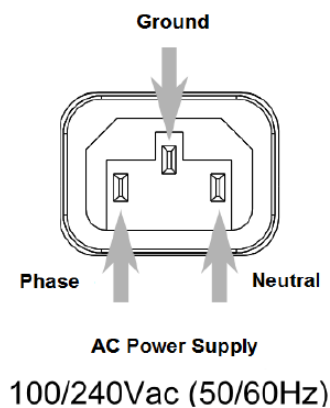


Figure 11 – AC Power Connector Pinout



According to the NBR 14136 standard, the grounding pin of the product must be connected to the grounding installations of the installation site, since the power pins have no polarity indication.

4.7.1.2. PSU 600 DC

The figure below shows the pin settings of the TERMINAL BLOCK connector to power the switch.

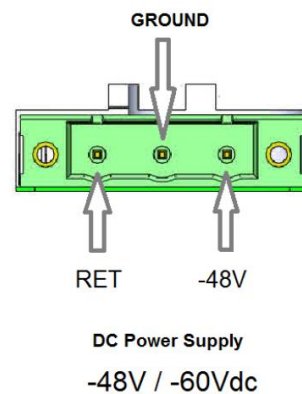


Figure 12 – DC Power Connector Pinout

4.7.2. Power Cables

4.7.2.1. PSU 600 AC

The PSU AC includes a 3-meter power cord in the standard female IEC 320/C14 for the NBR 14136 plug.

4.7.2.2. PSU 600 DC

The PSU 600 DC require a power cable with 1.5 mm² gauge standard (not included in package) and the TERMINAL BLOCK standard male connector (shipped screwed to the PSU 600 DC) for the installation of the cable.

4.8. FAN Modules

The DM4618 OLT has in the rear panel three slots for FAN Modules model *FAN 2U-F-50* which are supplied preinstalled in the equipment, spare parts can be purchased separately. For correct system

operation all FAN modules must be connected and fixed to the product so there's no blank panels available as accessory.

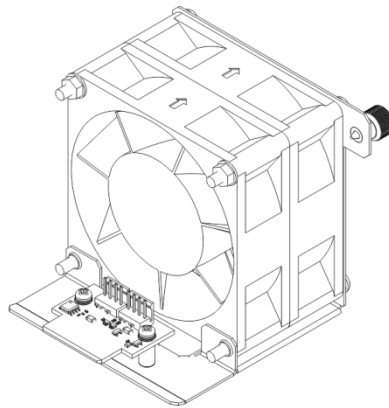


Figure 13 – "FAN 2U-F-50" FAN Module



Although there are protections to avoid contact with the fan, be careful when handling the ventilation module. It should only be inserted or pulled by means of the red metal handle. In addition, it requires attention regarding necklaces, bracelets, and other objects small enough to pass through the ventilation grilles.

4.9. DM4618 LC 32GPON Line Card

The DM4618 LC 32GPON Line Card has 32 GPON interfaces using SFP modules.

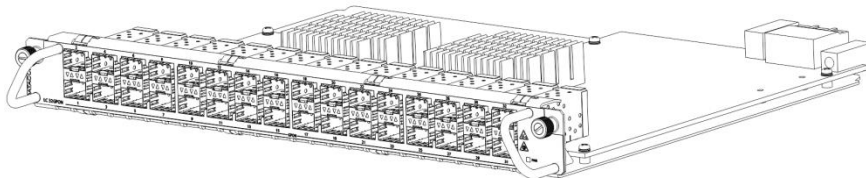


Figure 14 – DM4618 LC 32GPON Line Card

4.9.1. Status LED

The DM4618 LC 32GPON has a LED (PWR) in front panel which indicates that the board is powered.

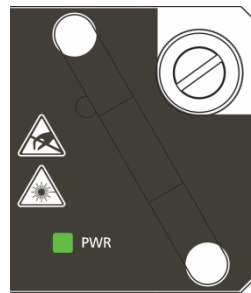


Figure 15 - DM4618 LC 32GPON LED PWR

4.9.2. Data Interface

The DM4618 LC 32GPON has 32 GPON interfaces that use GPON SFP connectors. The ports have STATUS and ALARM LEDs; such LEDs are present right above each interface. The ports are identified in the printed front panel according to the figure below:



Figure 16 – GPON Ports and LEDs

4.9.2.1. GPON Port LEDs

The convention to indicate the operation and functioning mode of the GPON SFP interfaces is described in the table below:

Indicator	Color	Status	Description
STATUS	GREEN	Off	Interface with the administrative status <i>DOWN</i> or SFP not connected.
		On	Interface with the administrative status <i>UP</i> and SFP connected.
ALARM	YELLOW	Blinking 4Hz	<i>Critical</i> or <i>Major</i> alarm active in the port
		Blinking 0.5Hz	<i>Minor</i> alarm active in the port
		Off	Port operating correctly without alarms

Table 11 – GPON Interfaces LED behavior

5. DM4618 OLT INSTALLATION

The DM4618 OLT was developed for the most diverse operating environments; it is ideal for indoor and outdoor installations, being a high port count equipment with 2U in height. Its flexible power supply

allows full-range DC or AC power source.

5.1. Preparing the Installation Site

Before installing the equipment, care must be taken to ensure that all steps are followed correctly, thus ensuring proper installation.

5.1.1. Installation Site Requirements

Check that the electrical and physical installations of the site where the equipment will be installed are in accordance with all specifications and technical standards applicable by the local governmental authority.

The facilities in question must be prepared to withstand mechanical and electrical loads of the new equipment to be installed. Refer to TECHNICAL SPECIFICATIONS to check relevant information regarding the equipment's weight and consumption.



Make sure the rack's power supply is not overloaded.

5.1.2. Environmental Requirements

Electrical equipment can generate a significant amount of heat. Therefore, it is essential to provide an environment with controlled temperature to ensure proper and safe operation.

In addition to temperature control, the equipment should only operate in places with controlled humidity. In addition, the environment must be free of materials or gases capable of conducting electricity.

5.1.3. Equipment Requirements

In order to ensure proper operation, when installing the DM4618, read the information available in the TECHNICAL SPECIFICATIONS session.

5.2. DM4618 OLT Package Content

The package contains the DM4618 OLT with three "FAN 2U-F-50" FAN modules preinstalled, one RS-232 console cable and a Quick Installation Guide (141.0060.XX). The equipment is properly protected by polystyrene sheets and a plastic cover, whose purpose is to protect it from damage during transport.

Make sure the equipment is not damaged. If there is any irregularity, contact Technical Support.

Quantity	Content
1	DM4618 OLT
3	FAN 2U-F-50 (preinstalled)
1	Quick Installation Guide
1	Console Serial RS-232 Cable

Table 12 - DM4618 OLT Package Content

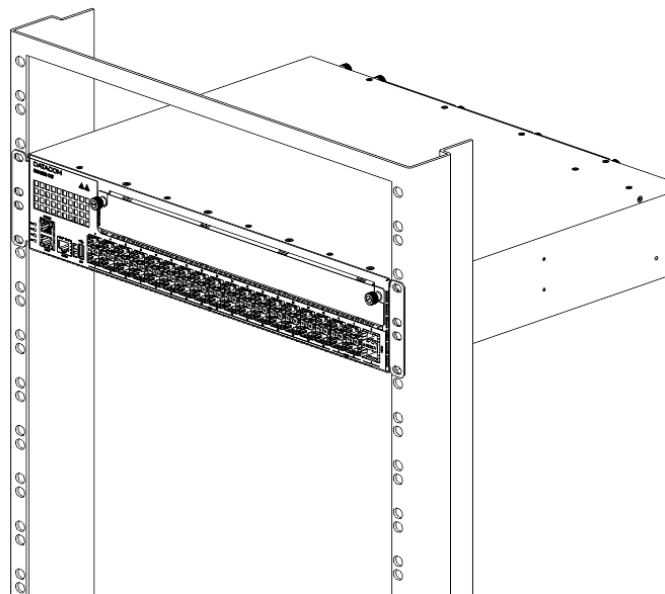
Make sure that the equipment received is identical to the equipment shown in Figure 1. The DM4618 OLT has a label on the back; it contains model information, equipment code and serial number. Check if there is any divergent information on the label regarding the information presented on the packaging, in case there is, please contact Technical Support.

5.3. Use in 19" Racks

Before choosing the site where the equipment will be installed, read the recommendations in the chapter Environmental Information in this manual and follow the installation instructions below:

- Choose an accessible site for the equipment where its LEDs can be seen;
- The ambient temperature should be maintained between 0°C and 65°C and relative humidity between 10% and 90% non-condensing;
- Install the equipment near a power source.

After choosing the proper site, bring the equipment to the rack and proceed with the installation as shown in Figure 17. Before inserting the screws, make sure that the M5 cage nuts (not supplied with the equipment) are correctly positioned in the rack's mounting columns, only then carefully position the equipment. Screw on the equipment using two standard M5 screws (not supplied with the equipment) into each adapter side tab. Finally, tighten the screws to ensure that the equipment is securely attached to the rack.

**Figure 17 – 19" Rack Installation**

5.4. Ventilation

The DM4618 OLT ventilation airflow is provided by the inlets on the front side of the equipment and through the outlets on the rear, as in figure below. For the correct operation of the cooling system it is important that the air inlets and outlets are unobstructed and that the free areas of 2 inches (5cm) are respected on the rear panel and on the left side of the switch. These areas must have free air circulation so that the temperature of the equipment remains within the assured levels of operation, also observing the cooling of the environment. It's important to always keep the line card slot covered, using a blank panel or the LC 32GPON.

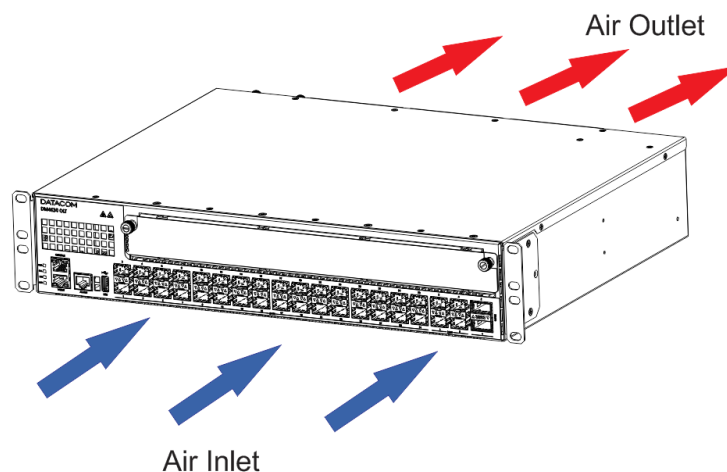


Figure 18 - Free Areas for Ventilation

5.4.1. FAN module replacement

The DM4618 OLT is supplied with three preinstalled FAN modules. When a replacement is required follow the steps below:

Step	Description
1	Unscrew the two side screws until you feel the FAN module become loose from the mechanical part of the OLT.
2	Pull the fan module using the red metal handle until it's completely loose.
3	Push the module carefully until you feel that contact has been made with the DM4618 OLT internal board. Use the red metal handle.
4	Tighten the two screws with a screwdriver until the FAN module is perfectly connected to the OLT.

Table 13 – FAN modules replacement

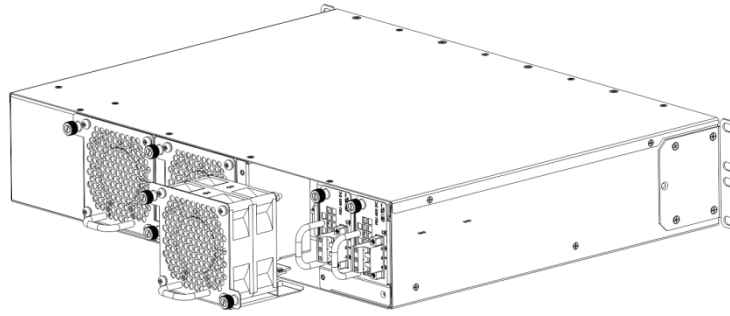


Figure 19 – FAN modules replacement



Although there are protections to avoid contact with the fan, be careful when handling the ventilation module. It should only be inserted or pulled by means of the red metal handle. In addition, it requires attention regarding necklaces, bracelets, and other objects small enough to pass through the ventilation grilles.



Only repair the FAN module if you have another one for immediate replacement, the DM4618 OLT may malfunction if it remains for a long time without the ventilation system in operation.



Periodically check the condition of your FAN module. If necessary, order a new one. **Erro! Fonte de referência não encontrada.** This procedure extends the life of the DM4618 OLT equipment and, PSU and SFP modules.

5.5. Powering the Product

5.5.1. Connecting PSU 600

The PSU 600 power supplies can be hot swapped. To connect a PSU to the equipment, align the PSU's mechanical base on the equipment's base and insert the PSU into the slot until the PSU panel touches the equipment's panel.

PSU AC has a latch that makes a characteristic click when it is fully inserted, thus ensuring connection and securing.

For the PSU DC, it is necessary to screw the knurled screw in order to ensure the correct securing of the power supply.

If the slot to be used is protected by a blank panel, remove it beforehand.

It is recommended that you use a screwdriver on the knurled screw to ensure the complete securing of the PSU DC.

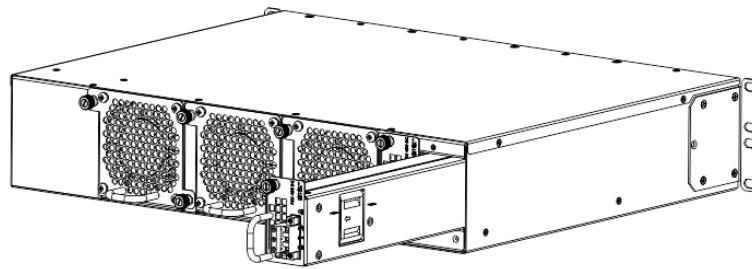


Figure 20 – Installing PSU 600



Each PSU slot has an independent power input placed on its own panel; The equipment will only power on if there is at least one PSU that is properly powered.

6. Installing and removing the Line Card

The following figure shows the correct insertion of a Line Card in DM4618 OLT

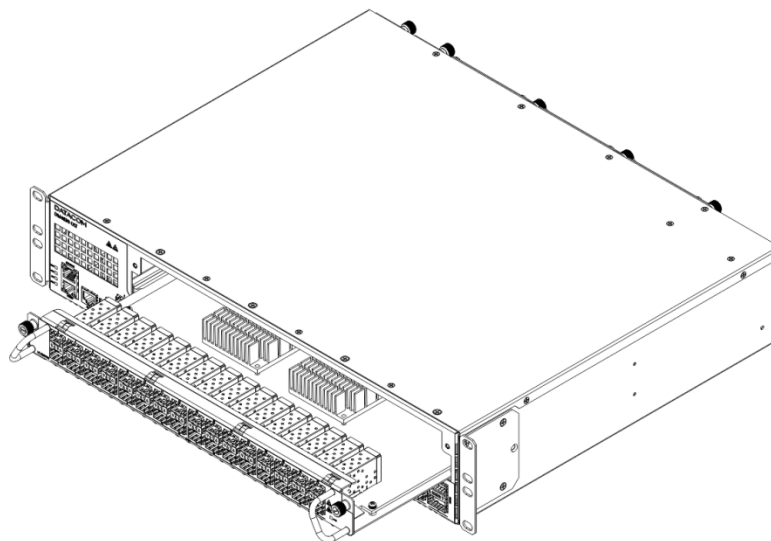


Figure 21 – Installing Line Card



Avoid exposing the equipment to electrostatic discharge. The modules must only be handled with antistatic wrist strap or any other electrostatic safety device.

To insert a line card to a DM4618 OLT Chassis use the following steps.

1	Unscrew the two side screws which fix the blank panel chassis.
2	Remove the blank panel
3	Position the line card on the slot Chassis guide rails
4	Push the line card into the slot until it completely connects to the backplane connectors.
5	Tighten the screws that attach the module in the chassis

Table 14 – Installing Line Card



Screwing the line card is required to prevent that any involuntary hit in the extractor result in disconnect the module.

To remove a line card follow the steps above in the reverse way.



Do not operate the equipment without Line Card or Blank Panel installed since in can cause equipment overheat.

7. Installing and Removing Modules and Cables

7.1. Installing and Removing the SFP28, SFP+ and GPON SFP

This chapter describes how the SFP28, SFP+ and GPON SFP modules (supplied separately) must be installed and removed. It also informs about DATACOM guidelines for cleaning and storing modules and optical fibers.

The SFP28, SFP+ and GPON SFP modules are inserted into the GPON ports and 25GbE ports, operating as transceivers between the equipment and the selected optical communication path.

In order to ensure a long life and good performance of the equipment, it is very important to follow the DATACOM guidelines described below.

Optical Module care:

- To handle the optical modules, it is necessary to always use an antistatic wrist strap;
- In order to transport and store the optical modules it is always necessary to use their original packaging in order to prevent any physical or electrostatic damage to the module.
- Modules and ports that aren't being used must always have their protective cover inserted so as to avoid dirt, thus generating a loss of link performance.



When performing any maintenance to the equipment, make sure the technician responsible for the maintenance is using the appropriate protections. Grounding (use of antistatic wrist strap) can prevent harm to the operator's health and damage the equipment.

7.1.1. Installing SFP28, SFP+ and GPON SFP Modules

Follow the steps below to install the SFP28, SFP+ and GPON SFP modules to the equipment.

Step	Description
1	Remove the plastic cover from the port to be connected to the SFP28, SFP+ or the GPON SFP.
2	Insert the module into the 25 GbE or GPON SFP slot and press it into the slot until it is firmly inserted, as shown in the figure: <div data-bbox="411 521 1230 822" data-label="Image"> </div> <p>Figure 22 - Inserting the Optical Module in the Cage</p>
3	After inserting the module, it is necessary to lock it by moving the safety latch. This latch also serves to lock the optical cords after they are inserted: <div data-bbox="552 974 1118 1285" data-label="Image"> </div> <p>Figure 23 - Locking the Optical Module in the Cage</p>
4	After positioning the safety latch, the optical cords can be inserted.

Table 15 – Inserting SFP Optical Modules



The DM4618 OLT is supplied with dust protection plugs on all 25GbE/GPON ports. Before inserting the module into the slot, remove the plug. Unused ports must be plugged in order to ensure that the electrical contacts are free of dust.



The SFP modules provided by DATACOM meet the INF-8474 (SFP MSA), SFF-8431 (SFP+ MSA), SFF-8436 (QSFP+ MSA) and IEC/EN 60825-1 (LASER safety) specifications. Modules that haven't been certified do not guarantee the correct operation of the equipment and can damage it. Contact [Technical Support](#) for further information on the risks of using uncertified modules and the possibility of using them.

7.1.2. Removing SFP28, SFP+ and GPON SFP Modules



Before removing the optical cables, it is recommended that you check if there are labels on them, which indicate in which equipment and port it should be connected, facilitating their later identification.

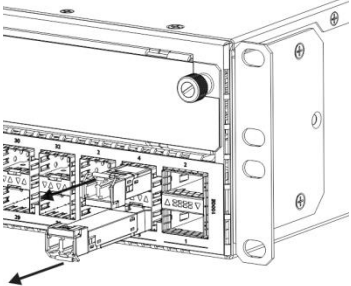
Step	Description
1	Remove the optical cables
2	Lower the safety latch.
3	<p>Pull the module by its safety latch, as shown in the figure below:</p>  <p>Figure 24 – Removing the Optical Module from the Cage</p>
4	Insert the plastic protection into the cage so that the DM4618 OLT is protected from dust.

Table 16 – Removing SFP Optical Modules



When operating at a temperature above 40°C, users must monitor the operating temperature of the optical modules. Contact [Technical Support](#) if you have any questions.

7.2. Installing QSFP+/QSFP28 Modules

The QSFP28/QSFP+ installation is conducted as shown on following steps.

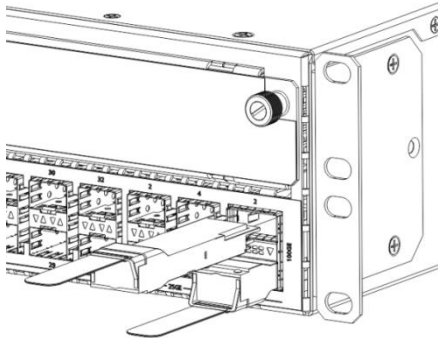
Step	Description
1	<p>Insert the module into the transceiver slot of the equipment and pushing it until it is firmly inserted. The correct position of the attachment can be seen in figure below, take attention for the correct connection position.</p>  <p>Figure 25 - Inserting QSFP28/QSFP+</p>
2	After transceiver complete connection, connect the optical cables.

Table 17 – Inserting QSFP+/QSFP28 Optical Modules



The DM4618 OLT equipments are sent with dust cover plugs in all QSFP28/QSFP+ ports. Before to insert a transceiver in a port, remove the dust cover. Ports without installed transceivers should keep dust cover protection to avoid electrical connections free of dust.

7.3. Removing QSFP+/QSFP28 modules



Before removing the optical cables, it is recommended that you check if there are labels on them, which indicate in which equipment and port it should be connected, facilitating their later identification.

To remove the modules, simply follow the installation instructions in reverse order.

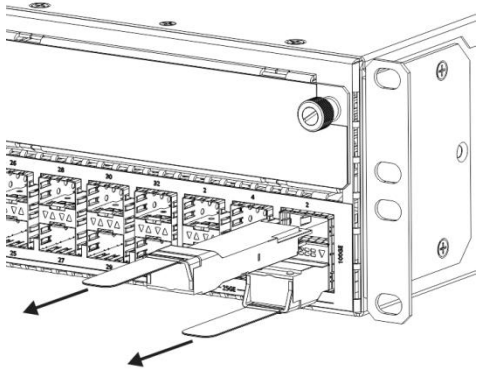
Step	Description
1	Remove the optical cables.
2	<p>Pull the module by the handle, as shown in the following figure.</p> 

Figure 26 - Removing a QSFP28/QSFP+
Table 18 – Removing QSFP+/QSFP28 Optical Modules



When DM4618 OLT operates over 40°C ambient temperature it is recommended to use only QSFP+/QSFP28 industrial temperature class transceivers. Contact the [Technical Support](#) for any doubt.

7.4. Installing and Removing Cables

In order to ensure the long life and good performance of the equipment, it is very important to follow the DATACOM guidelines described below.

7.4.1. Serial Cable

As already shown in this manual, the DM4618 OLT has an RS232 serial port and the cable that connects the equipment to a PC is supplied. This connection is required only once, when

starting the equipment, when it is necessary to register the IP address in the DM4618 OLT.

The console's serial cable must be connected to the console's port, as shown in Figure 2 - DM4618 OLT.

If you need a new cable, contact [Technical Support](#) and order a new cable through DATACOM code 710.0137.xx. If you wish to make a new cable, refer to chapter Serial Console Interface (RS-232).

7.4.2. Management Cable (MGMT)

For management connection via Ethernet network, the standard fast Ethernet cable (not supplied) must be connected to port RJ45, which is specific for management, as shown in Figure 2 - DM4618 OLT.

7.4.3. Optical Fibers

As shown in earlier chapters of this manual, the DM4618 OLT uses SFP28/SFP+, GPON SFP e QSFP28/QSFP+ modules (supplied separately) for optical access, in order for access to be possible, the use of fibers is required.



Refer to Installing and Removing the SFP28, SFP+ and GPON SFP chapter for more information on connecting and preparing the modules for the fiber optic connection.

Due to excess cable to the right (the optical ports are central and to the right of the equipment) of the rack, there is always the risk of damaging the fibers. In order to avoid this effect and considering that optical fibers are very thin, the installer should always pass the cables on the upper or lower side of the chassis, by using the lower cable guide.



During the installation of the optical fibers, it is highly recommended that you use corrugated or plastic tubes to attach the fiber optics connected to the equipment, protecting them from possible breakage or damage and consequently, service interruptions.



The curvature radius of the optical cables cannot be too small. Fibers with a small radius present micro cracks that drastically reduce the optical signal's range. Fibers from different manufacturers have different characteristics. To make sure, if the curvature radius is adequate, check the characteristics of the cable used in the fiber supplier's manufacturing manual.



Optical interface modules use transmitters with invisible laser radiation. Never look directly at the laser or fiber optic terminals. Exposure to laser emission may cause partial or total loss of vision.

In order to ensure the equipment's long life and good performance, it is very important to follow the DATACOM guidelines described below.

Optical Cord care:

- Keep optical cords that aren't always used with their protective cover on. The core of the optical cords can become dirty and result in loss of performance just by being stored without the protective cover, even if stored in a proper cabinet;
- Clean the core of the optical cords before using them. In order to clean them, it is necessary to use

only the specific materials. Any other material used to clean the core of the optical cords may result in loss of performance or even irreparable damage to the cords.



When performing any maintenance to the equipment, make sure the technician responsible for the maintenance is using the appropriate protections. Grounding (use of antistatic wrist strap) can prevent harm to the operator's health and damages to the equipment.

8. ACCESSING THE EQUIPMENT

8.1. Management through the Serial Console

It is possible to access the Command Line Interface (CLI) through the local serial console, located on the left side of the equipment's front panel. To do this, simply connect a compatible console cable (710.0137.xx - supplied with the equipment) and run a terminal emulator such as Hyper Terminal or similar on a computer or laptop. The DM4618 OLT default setting is baud rate 115200, with 1 stop bit and no parity, as shown in Figure 27 - Computer Serial Port Configuration.

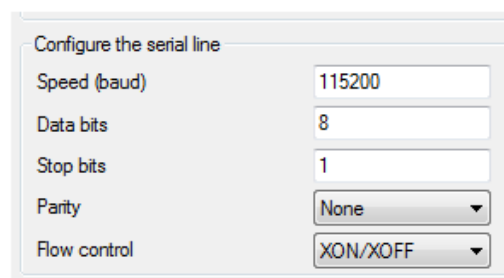


Figure 27 - Computer Serial Port Configuration



If you are not using the 710.0137.xx console cable shipped with the equipment, check the Serial Console Interface (RS-232) section to check the console cable's pinout and assembly.



The DM4618 OLT equipment does not support hardware flow control. In the configuration of the console port, the hardware flow control should be disabled.

8.2. Management through the Ethernet Outband Interface (MGMT)

Considering that the equipment was correctly installed according to the previous steps, users should be able to manage it through the Command Line Interface (CLI). The CLI is accessible through the serial console or through SSH clients.



Before proceeding, check the preferred method for management access, Management through the Serial Console or Management through the Ethernet Outband Interface (MGMT)

Only one user account is accessible in default factory configuration: *admin*.

User	Password	Description
<i>admin</i>	<i>admin</i>	<i>admin</i> is an account with administrator privileges, which allows the creation of the other accounts.

Table 19 - Default Access Account

In either method, perform this procedure:

Step	Description
1	With the use of a PC or laptop connected through the chosen port (console or Ethernet), open the terminal emulator. After pressing [Enter], you should see the following login request message: DM4618 login:
2	The equipment's default user/password pair is <i>admin/admin</i> . Enter username <i>admin</i> and press [Enter]. DM4618 login: admin [Enter]
3	Enter the password <i>admin</i> and press [Enter]: Password: admin [Enter]
4	The next prompt screen will be displayed, indicating that the login was successful: Welcome to the DmOS CLI DM4618#

Table 20 - DM4618 OLT Equipment Login



Due to security issues, it is strongly recommended that you change the admin account password immediately after the device is installed. Refer to the *Command Reference Guide* for instructions on how to change passwords.

1. TECHNICAL SPECIFICATIONS

1.1. Interfaces

DM4618 OLT		
INTERFACES	GPON (SFP)	32
	25/10 GbE (SFP28/SFP+)	4
	100 GbE (QSFP28)	2
	Line Card Slot	1
	GE Outband Management (RJ45)	1

	Console (RJ45)	1
	LEDs status: Power, Fail, Sys UP, Alarm	

Table 21 - DM4618 OLT Interfaces

1.2. Power Supply Specifications

1.2.1. Power Supply (AC/DC)

	PSU 600 AC	PSU 600 DC
Connector Type	IEC 320/C14	Terminal Block
Nominal Operating Voltage	100 a 240Vac ($\pm 10\%$) 50/60Hz	-48 a -60Vdc ($\pm 20\%$)
Nominal Input Current	7,0 A @ 100Vac*	14,5 A @ -48Vdc*
	2,9 A @ 240Vac*	11,5 A @ -60Vdc*
Maximum Input Current	7,8A	17,2 A
Output Voltage	12V ($\pm 5\%$)	12V ($\pm 5\%$)
Output Current	50A ($\pm 5\%$)*	50A ($\pm 5\%$)*
Power Efficiency	>80%	>80%

Table 22 – Power Supply Specifications

* Maximum values for the Power Supplies

1.2.2. Power Consumption

	DM4618 OLT	
Typical Consumption (Watts)	PSU DC	220 W
	PSU AC	220 W
Maximum Consumption (Watts)	PSU DC	300 W
	PSU AC	300 W
Maximum Current (Amperes)	PSU DC	6,9 A

	PSU AC	3,1 A
--	--------	-------

Table 23 – Power Consumption

1.3. Physical Specifications

DM4618 OLT	
Height	87,15 mm
Width (with brackets)	482 mm
Width (without L brackets)	447 mm
Depth	391 mm
Net weight (without accessories)	8,55 Kg

Table 24 - DM4618 OLT Physical Specifications

1.4. Environmental Information

DM4618 OLT	
Operating Temperature	0°C a 65°C
Operating Relative Humidity	0% a 95%, non-condensed
Altitude	0 a 3000m
Storing Temperature	-10°C a 70°C
Storing Relative Humidity	0% a 95%, non-condensed

Table 25 – DM4618 OLT Environmental Characteristics

2. APPLICABLE STANDARDS

ITU-T	
G.984.1	GPON general characteristics
G.984.2	Physical Media Dependent GPON (PDM) layer
G.984.3	GPON Transmission Convergence Layer
G.984.4	ONT Management and Control Interface (OMCI) specification
G.988	ONT Management and Control Interface (OMCI) specification

Table 26 –ITU-T Applicable Standards

IEEE	
802.1ad	Double Tagging (Q-in-Q)
802.1D	Spanning Tree Protocol (STP)
802.1D	MAC bridges
802.1p	Traffic Class Expediting
802.1Q	Virtual Bridged LAN (VLAN)
802.1w	Rapid Spanning Tree Protocol (RSTP)
802.1AX	Link aggregation
802.3ad	
802.3i	10BASE-T 10Mbit/s (1.25 MB/s) over twisted pair
802.3u	100BASE-TX Fast Ethernet at 100 Mbit/s (12.5 MB/s) w/auto negotiation
802.3z	1000BASE-X Gbit/s Ethernet over Fiber-Optic at 1 Gbit/s (125 MB/s)
802.3ab	1000BASE-T Gbit/s Ethernet over twisted pair at 1 Gbit/s (125 MB/s)
802.3ae	10 Gigabit Ethernet over fiber

Table 27 –IEEE Applicable Standards

IETF	
RFC 783	The TFTP Protocol (Revision 2)
RFC 792	Internet Control Message Protocol (ICMP) (Ping IPv4)
RFC 1157	A Simple Network Management Protocol (SNMPv1)
RFC 1213	Management Information Base for Network Management of TCP/IP-based internets: MIB-II
RFC 1215	A Convention for Defining Traps for use with the SNMP - TRAPS MIB
RFC 1441	Introduction to version 2 of the Internet-standard Network Management Framework (SNMPv2)
RFC 2030	Simple Network Time Protocol (SNTP) Version 4 for IPv4, IPv6 and OSI
RFC 2236	Internet Group Management Protocol, Version 2 - IGMPv2 Snooping support
RFC 2348	TFTP Blocksize Option (obsoletes RFC1783)
RFC 2865	Remote Authentication Dial In User Service (RADIUS)
RFC 3376	Internet Group Management Protocol, Version 3 - IGMPv3 Snooping support

Table 28 – IETF Applicable Standards