

DATACOM



DM4612

OLT – OPTICAL LINE TERMINATION

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.

- **Description** – 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 DM4612 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.
	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,

Icon	Category	Description
		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
<u>Hyperlink</u>	Indicates an internet or email address. It can also be used to indicate a link within the document itself.
<code>Terminal</code>	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 **DM4612 OLT 8GPON+2GT+2XS** is a compact solution with support for up to 1024 subscribers on 8 GPON ports (1:128 split ratio), it has 2 1GbE (RJ45 electrical) ports and 2 10GbE ports in SFP+ connectors. Below is the illustration that reflects the equipment.

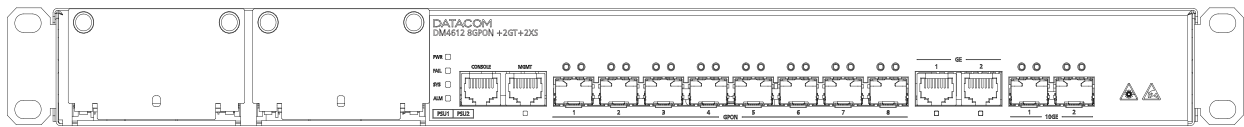


Figure 1 –DM4612 OLT 8GPON+2GT+2XS

4. HARDWARE DESCRIPTION

4.1. DM4612 OLT 8GPON+2GT+2XS

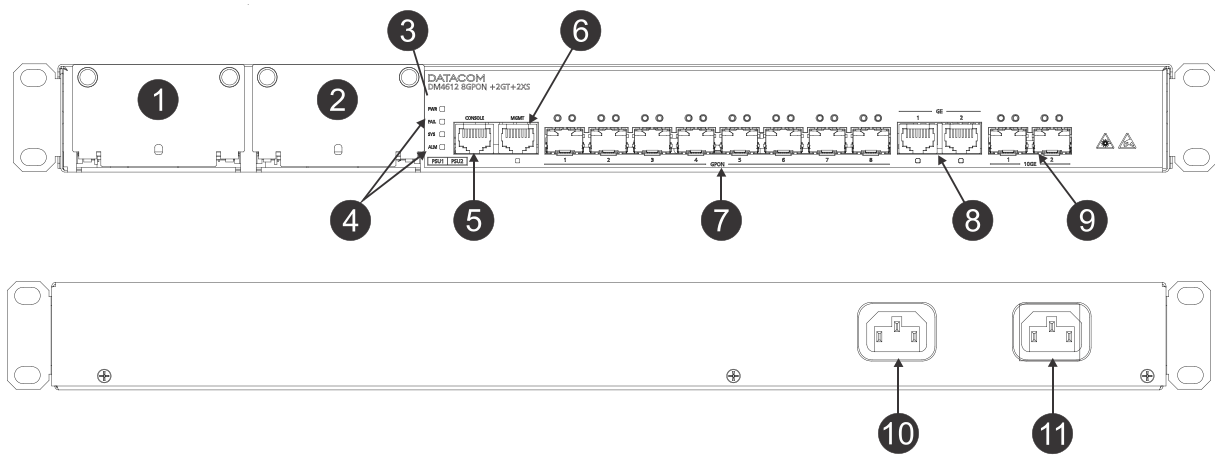


Figure 2 - DM4612 OLT 8GPON+2GT+2XS Views

Número	Descrição
1	SLOT PSU1 (MAIN)
2	SLOT PSU2 (BACKUP)

3	LED Power (PWR)
4	LED ALARM
5	Console Serial Interface (RS-232)
6	Gigabit Ethernet Management Interface (MGMT)
7	8 GPON ports
8	2 Gigabit Ethernet Ports (RJ45)
9	2 10 Gigabit Ethernet Ports (SFP+)

Table 3 – Interfaces Description

4.2. Equipment Status LEDs

The DM4612 OLT has four status LEDs on the front panel, PWR LED, ALARM LED, FAIL LED and SYS LED. There are also the PWR LEDs for each PSU. Table 4 - Status LED Behavior describes the behavior of the equipment's panel LEDs.

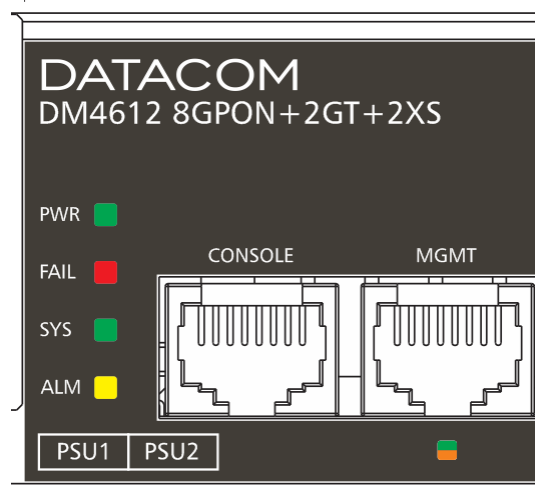


Figure 3 - DM4612 OLT 8GPON+2GT+2XS

PWR LED	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.
Alarm LED and FAIL LED	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.
SYS LED	- 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 DM4612 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 DM4612 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 is described in Table 5 - Serial Console Connector Pinout.



Figure 4 – Console Cable

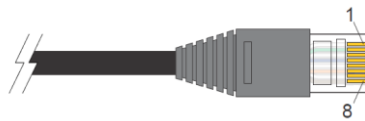


Figure 5 - Console Cable RJ45 Connector Pins

RJ45 Male	DB9 Female	Function	DM4612 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 DM4612 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 one status LED that have its behavior described in Table 6.

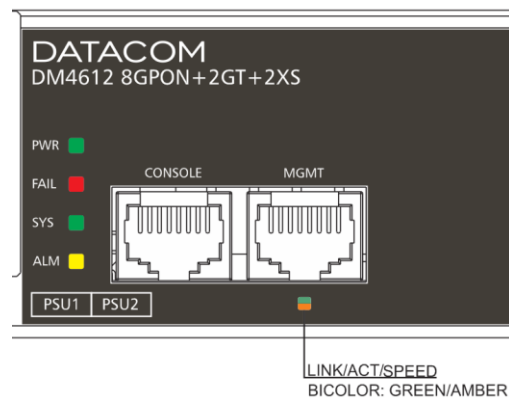


Figure 6 - Management Interface LEDs (MGMT)

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

Table 6 - MGMT Interface LEDs

4.5. Data Interface

4.5.1. Electrical Gigabit Ethernet Interfaces – RJ45 (10/100/1000 Base-T)

The DM4612 OLT has 2 Electrical Gigabit Ethernet interfaces using RJ45 connectors. There is a LINK/ACT/SPEED LED right below connectors corresponding to each interface. On the printed part of the front panel, the ports are identified according to the figure below:

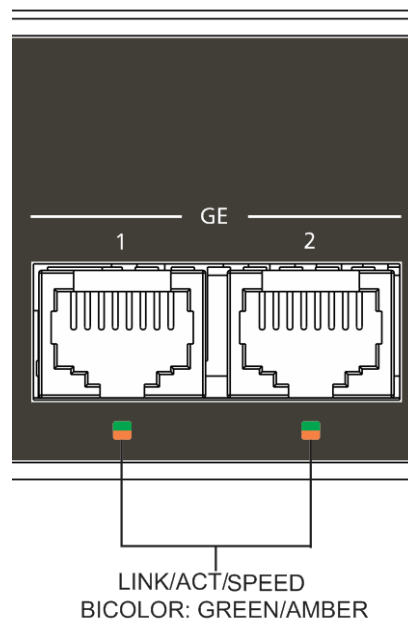


Figure 7 – Electrical 1GbE ports LEDs

4.5.1.1. Electrical Interfaces LEDs

The convention to indicate the operation and functioning mode of the Electrical 1GbE interfaces is described in the table below:

Indicador	Cor	Estado	Descrição
LINK/ACT/ SPEED	GREEN/AMBER	Off	<i>Link Down</i> (Inactive Port)
		On (Green)	<i>Link Up</i> 1000Mb/s (Active port)
		On (Amber)	Link UP 10/100Mb/s (Active port)
		Blinking Green	Port sending and/or receiving data (1000Mbit/s)
		Blinking Amber	Port sending and/or receiving data (10/100Mbit/s)

Table 7 – Electrical 1GbE Interfaces LEDs

4.5.2. GPON SFP Interfaces

The DM4612 OLT has 8 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:

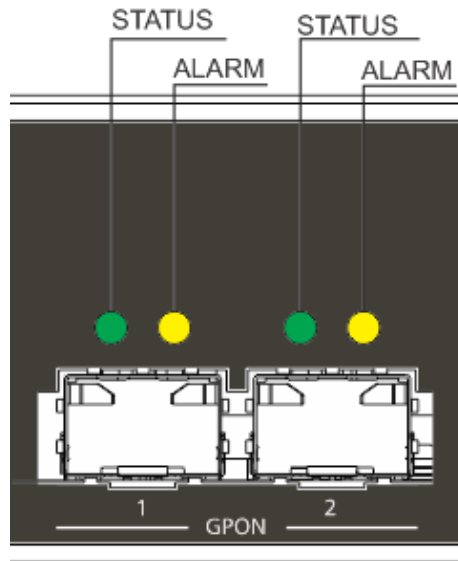


Figure 8 - GPON Ports and LEDs

4.5.2.1. 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 8 – GPON Interfaces LEDs

4.5.3. Optical 10 Gigabit SFP+ Ethernet Interfaces (10GBase-X)

The DM4612 OLT has 2 optical 10 Gigabit Ethernet interfaces, all using the SFP+ connector. There are LINK/ACT and SPEED LEDs that are positioned right above 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:

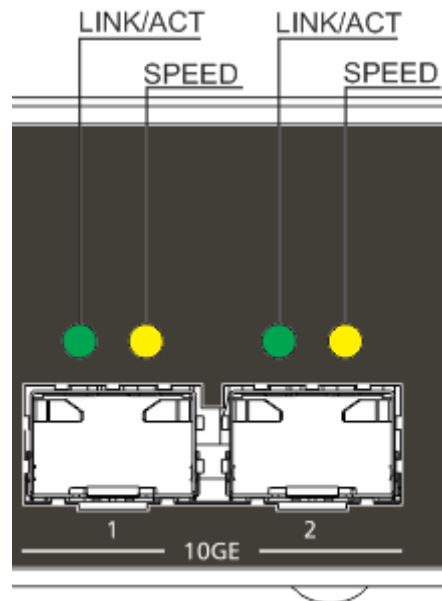


Figure 9 - 10GbE SFP+ Ports and LEDs

4.5.3.1. Optical Interface LED Indicators

The convention to indicate the operation and functioning mode of the 10GbE SFP+ interfaces is described in Table 9 - 10GbE SFP+ Interface LEDs.

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 data
SPEED	YELLOW	Off	Port operating in 10GBase-X or 10GBase-T mode
		On	Port operating at a rate lower than 10Gbps

Table 9 - 10GbE SFP+ Interface LEDs

4.6. Power Inputs

DM4612 OLT has two PSU85 power supply slots (supplied separately) on the front and two three-pin IEC 320/C14 plug power terminals, with each terminal being responsible for supplying power to each of the power sources. The PSU85 power supplies operate in a 1:1 redundant manner with only one being enough to keep the machine running smoothly. In addition, they have a flexible power input voltage and can operate on both AC 100/240V (50/60Hz) and DC-48/60Vdc independently.

The insertion/removal of the power cables and the PSU85 can be hot swapped, allowing uninterrupted operation of the equipment if one of the two power sources is turned off or fails.

The PSU85 has an LED (ON) on its front panel that when accessed, indicates that it is properly powered and operational. Details of the PSU85 panel in figure below.

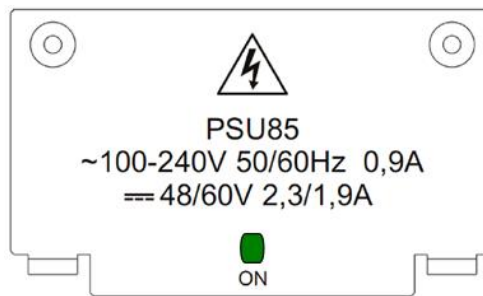


Figure 10 - PSU85 Panel



The OLT is de-energized through the power cable. The power outlet must be nearby and easily accessible.



This equipment depends on pre-installed protection against short circuits.



The PSU F4 fuse supports a current of up to 3.15 A. It is of a 250V T (delay) type. If necessary, replace it only with another one with the same specifications. The F3 fuse supports up to 10A; it is also of a 125V Fast-Acting type. If necessary, replace it equally with another one with the same specifications.



In the situation where both PSUs are present and the power inputs are energized and operating with voltages within the specified range, the main power input (MAIN) will take precedence over the BACKUP power supply.

4.6.1. Pin Assignment and Polarity

The figure below presents the pin assignment of the IEC 320/C14 connector for the power supply of the equipment.

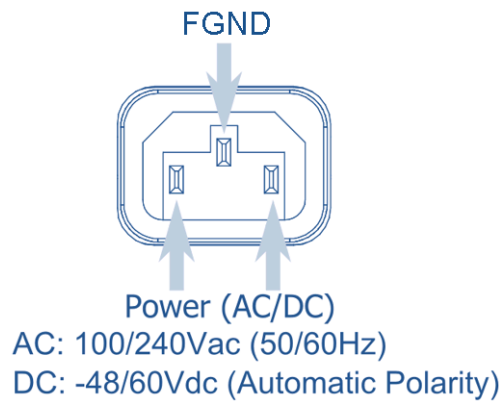


Figure 11 - IEC 320/C14 Pin Assignment



According to the NBR 14136 standard the switch's grounding pin must be connected to the grounding installations of the site where it will be installed since the power pins have no polarity indication.

5. DM4612 OLT 8GPON+2GT+2XS INSTALLATION

The DM4612 OLT GPON was developed for the most diverse operating environments; it is ideal for indoor and outdoor installations, being compact, with only 1U in height, and narrow. 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 DM4612, observe the information available in the Power Supply Specifications and Environmental Information sections.

5.2. DM4612 OLT Package Content

The package contains the DM4612 OLT 8GPON+2GT+2XS equipment, the 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	DM4612 OLT 8GPON+2GT+2XS
1	Quick Installation Guide
1	Console Serial RS-232 Cable

Table 10 - DM4612 OLT Package Contents

Make sure that the equipment received is identical to the equipment shown in Figure 1. The DM4612 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 12. 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 shipped with the equipment) into each adapter side tab. Finally, tighten the screws to ensure that the equipment is securely attached to the rack.

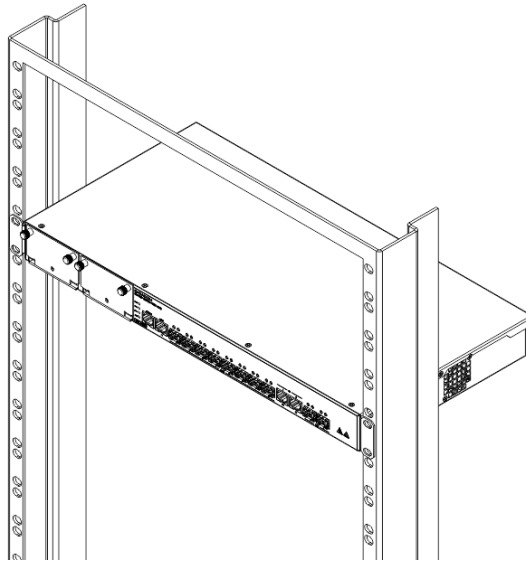


Figure 12 – 19" Rack Installation

5.4. Ventilation

Another important aspect that must be taken into account for the correct installation of the **DM4612 OLT 8GPON+2GT+2XS** is the airflow inside the equipment and its free areas that must be respected for proper cooling.

The areas that must be observed are **5 cm** free on both sides of the equipment. These areas must have free air circulation so that the temperature inside the equipment remains within the operating levels, also observing the cooling of the environment.

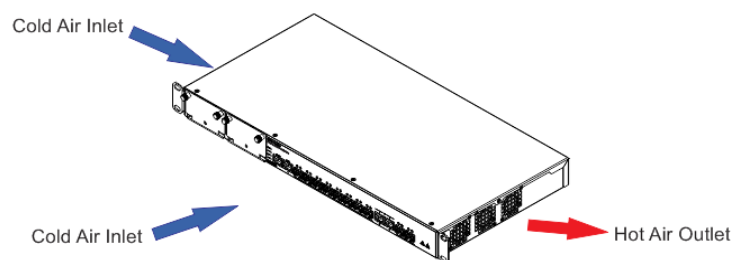


Figure 13 - Free Areas for Ventilation

5.5. Powering the Product

The DM4612 OLT features two independent power inputs on the rear panel. The switch can operate normally if either of the two inputs is powered according to the expected voltage and current levels. Refer to **Power Inputs** and **TECHNICAL SPECIFICATIONS** sections for additional information on how to connect the power inputs.

5.5.1. Connecting PSU85

As The PSU85 power supplies can be hot-plugged. To connect a PSU to the equipment, align your printed circuit board with the plastic guides of the slot and insert the card until its panel touches the equipment panel. Then tighten the knurled screws to ensure correct fixation of the power supply, as in figure below. If the slot to be used is protected by a blind panel, remove it by removing the screws using a Phillips screwdriver.

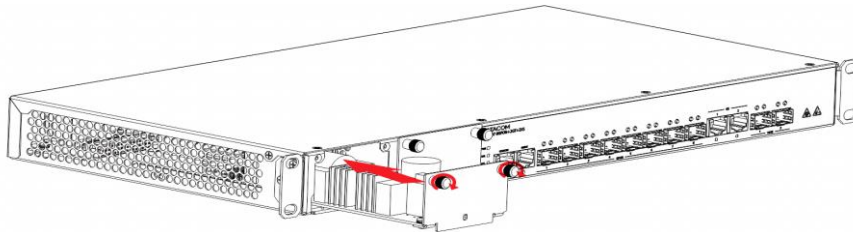


Figure 14 – Inserting a PSU 85

After inserting the PSU85 (s), connect the power supply according to the levels specified in TECHNICAL SPECIFICATIONS chapter.



Each PSU slot has an independent power input, which is located on the rear panel aligned with its respective slot. The equipment will only be powered if there is at least one properly powered PSU.

6. Installing and Removing Modules and Cables

6.1. Installing and Removing the 10 GbE SFP+ and GPON SFP

This chapter describes how the 10 GbE SFP+ and GPON SFP modules (not supplied) must be installed and removed. It also informs about DATACOM guidelines for cleaning and storing modules and optical fibers.

The GPON SFP and 10 GbE SFP+ modules are inserted into the GPON ports and 10 GbE SFP+ equipment, 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.

6.1.1. Installing the 10 Gbe SFP+ and GPON SFP Modules

Follow the steps below for installing SFP+ and GPON SFP modules in the equipment.

Step	Description
1	Remove the plastic cover from the port to be connected to the 10 Gbe SFP+ or the GPON SFP.
2	Insert the module into the 10 Gbe SFP+ or GPON SFP slot and press it into the slot until it is firmly inserted, as shown in the figure: <div data-bbox="539 1048 1093 1283" data-label="Image"> </div> <p>Figure 15 - 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="564 1458 1136 1771" data-label="Image"> </div> <p>Figure 16 - Locking the Optical Module in the Cage</p>
4	After positioning the safety latch, the optical cords can be inserted.

Table 11 - Inserting Optical Modules



The DM4612 OLT is supplied with dust protection plugs on all SFP+/SFP+ - SC/UPC 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.

6.1.2. Removing the 10 GbE 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.

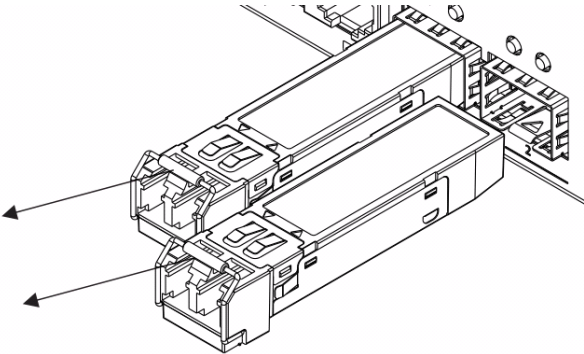
Step	Description
1	Remove the optical cables
2	Lower the safety latch.
3	<div><p>Pull the module by its safety latch, as shown in the figure below:</p></div>
4	Insert the plastic protection into the cage so that the DM4615 OLT is protected from dust.

Figure 17 – Removing the Optical Module from the Cage

Table 12 – Removing Optical Modules



When operating at a temperature above 45°C, users must monitor the operating temperature of the optical modules. Contact [Technical Support](#) if you have any questions.

6.2. 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.

6.2.1. Serial Cable

As already shown in this manual, the DM4612 OLT has an RS232 serial port and the cable that connects the DM4612 to a PC is supplied with the equipment. This connection is required only once, when starting the equipment, when it is necessary to register the IP address in the DM4612 OLT.

The console's serial cable must be connected to the console's port, as shown in Figure 2 - DM4612 .

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).

6.2.2. 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 - DM4612 .

6.2.3. Optical Fibers

As shown in earlier chapters of this manual, the DM4612 OLT uses SFP+ and GPON SFP modules (not supplied) for optical access, in order for access to be possible, the use of fibers is required.

According to the defined modules, the equipment will operate in the optical ports only with optical fibers with LC connectors.



Refer to Installing the 10 Gbe SFP+ and GPON SFP Modules 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 fiber optics, 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.



The DM4612 OLT has 4 front connectors for GPON, 2 connectors for 10 Gigabit Ethernet SFP+ optical interfaces and 2 front connectors for Gigabit Ethernet RJ45. In order not to damage removal from the other units, fiber or electrical cables should

be directed to the upper or lower side of the chassis, depending on the interface's position.

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.

7. ACCESSING THE EQUIPMENT

7.1. 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 DM4612 OLT default setting is baud rate 9600, with 1 stop bit and no parity, as shown in Figure 18 - Computer Serial Port Configuration.

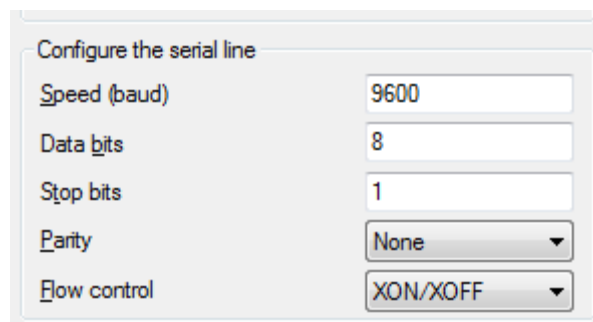


Figure 18 - Computer Serial Port Configuration



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 DM4612 OLT equipment line does not support hardware flow control. In the configuration of the console port, the hardware flow control should be disabled.

7.2. 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.

Indicador	Senha	Descrição
<i>admin</i>	<i>admin</i>	<i>admin</i> is an account with administrator privileges, which allows the creation of the other accounts.

Table 13 - 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: DM4612 login:
2	The equipment's default user/password pair is <i>admin/admin</i> . Enter username <i>admin</i> and press [Enter]. DM4612 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 DM4612#

Table 14 - DM4612 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.

8. DETAILED FEATURES

8.1. Management

- IPv4 management
- In-band and Out-of-Band management
- Statistics by GPON port and by Ethernet port
- Supports commit and rollback operations
- Command line interface (CLI) via SSHv2 and RS-232 Console
- Digital diagnostics according to SFF 8472
- Firmware rollback
- Firmware upgrade via TFTP, SCP or HTTP
- Inventory information
- SNMPv1, v2c, v3
- Configuration support via XML (NETCONF)
- Alarm LED indicator
- Supports storage of up to 2 Firmware
- CPU use monitoring
- Supports Sntp
- Storage of up to 64 configurations in Flash memory
- CPU and system memory status available by SNMP

8.2. GPON Ports

- 8 GPON interfaces in SFP connector, SC/UPC type.
- Transmission (downstream): 2.488 Gbit/s.
- Reception (upstream): 1.244 Gbit/s.
- Supports GPON Laser B+ and C+.
- AES (Advanced Encryption Standard) 128 bits downstream
- DBA (Dynamic Bandwidth Allocation) and SBA (Static Bandwidth Allocation)
- FEC (Forward Error Correction) upstream and downstream
- ONU activation by serial number, password and serial number + password
- Remote firmware upgrade of the ONUs
- Supports pre-provisioning of ONUs
- Automatic discovery of ONUs
- Self-provisioning of ONUs, including the application of profiles for ONU router
- Hairpin turn
- ONU rogue insulation
- Supports N:1, 1:1 and TLS services
- User isolation
- DHCP option 82

8.3. Ethernet Ports

- 2 10GbE ports using SFP+ Connector
- DATAKOM**

- 1GbE (SFP) operation support
- 2 1 GbE copper ports using RJ45
 - Auto MDI/MDIX
 - Flow Control (802.3x)
 - Duplex mode
 - Auto negotiation

8.4. VLAN

- Tagging with up to 4096 VIDs of simultaneous use (IEEE 802.1Q).
- Port-based, with the possibility of port overlap.
- Protocol-based (IEEE 802.1v), MAC-based, IP-Subnet based.
- Q-in-Q double tagging, Selective Q-in-Q.
- VLAN Translate adding, removing or replacing VLAN.

8.5. L2 Features

- Maximum Broadcast, Multicast and DLF rate controlled by port.
- Head of Line Blocking protection.
- Supports Jumbo Frame of up to 2KB.
- IGMP (v1/v2/v3). Snooping and query functions can be used.

9. Applications

9.1. Triple Play Broadband Access

GPON technology, through optical access, provides users with higher rates than copper and cable-based technologies, allowing voice (VoIP) and video (IPTV) convergence in a single access.

In addition, the point-multipoint network feature and passive elements between the central and the users reduce the CAPEX and OPEX to provide these services.

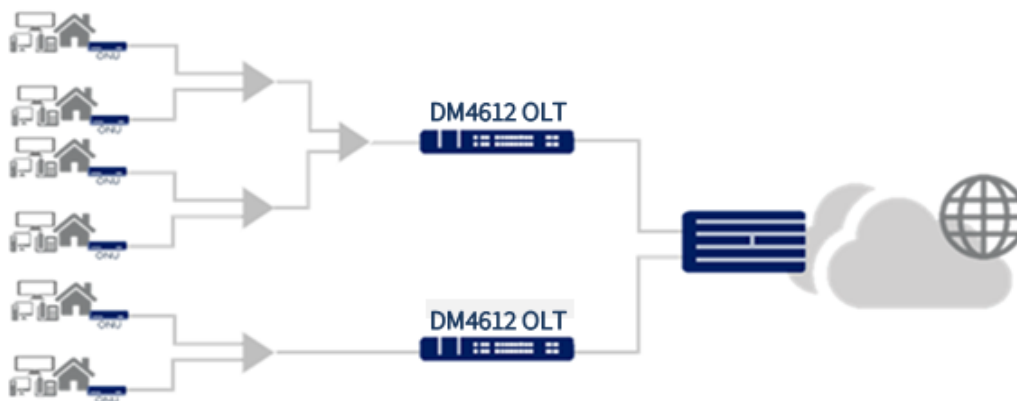


Figure 19 - Triple Play Application

9.2. Corporate Services

The **DM4612 OLT** provides several features allowing the provision of data, voice and video services for small, medium and large companies.

The TLS (Transparent LAN Service) feature together with the hairpin allows the provision of LAN-to-LAN services without the need of equipment.

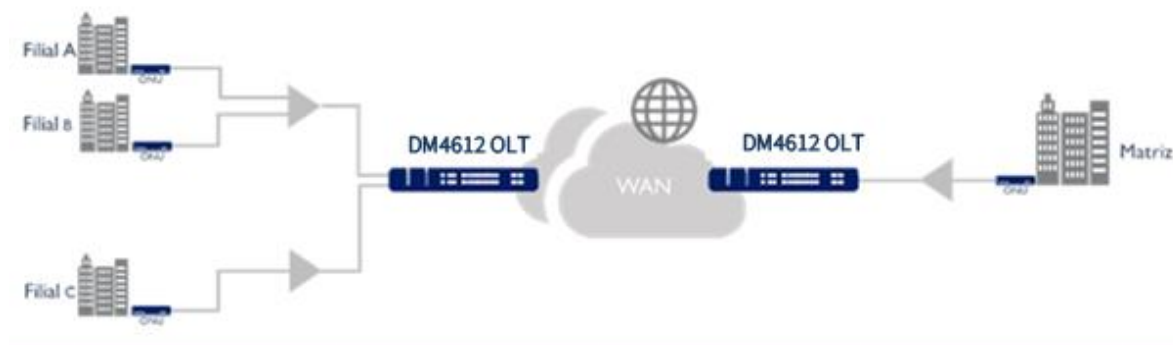


Figure 20 - Corporate Access

9.3. FTTD – Fiber to The Desk

The traditional LAN network project consists of a structure with copper cables connecting each user equipment to an Access switch, typically installed in a communications room. These access switches are connected in aggregator switches through point-to-point cables or fibers. GPON, through FTTD, simplifies this network by typically replacing the switches with an OLT central and ONUs in users, reducing the network infrastructure through the use of passive elements, fiber optics and point-multipoint topology.

The DM4612 provides features that allow the implementation of GPON LAN networks for companies of varying sizes and needs.

9.4. Digital Cities

Cities are the center of modern society and are becoming more complex every day. Technology can make life better and easier. In this context, universal public services is needed. However, the government shouldn't pay attention only to a digital inclusion network, but must also implement a high-performance network that fosters the city's development.

The implementation of the DM4612 OLT, associated with GPON equipment and DATACOM Ethernet switches, is a valuable and cost-effective solution for smart cities. Through the numerous features available, it is possible to connect public departments, provide fast, reliable and completely secure internet access to the population and companies.

10. TECHNICAL SPECIFICATIONS

10.1. Interfaces

DM4612 OLT 8GPON+2GT+2XS		
INTERFACES	GPON (SFP SC/SP)	8
	1 GbE (RJ45)	2
	10G Base-X (SFP+)	2
	GE Outband Management (RJ45)	1
	Console (RJ45)	1
	LEDs status: Power, Fail, Sys UP, Alarm	

Table 15 - DM4612 OLT 8GPON+2GT+2XS Interfaces

10.2. Power Supply Specifications

DM4612 OLT 8GPON+2GT+2XS	
Power Supply Voltage	AC 100/220 V a.c. -- 0.7 A
	DC 48/60 V d.c. -- 1.4 A

Table 165 – Power Supply Supply Specifications

10.3. Physical Specifications

DM4612 OLT 8GPON+2GT+2XS	
Height	44mm
Width (with adapters L)	480mm
Width (without adapters L)	445mm
Depth	228mm
Net weight (without accessories)	2.610Kg

Table 17 - DM4612 OLT Physical Specifications

10.4. Environmental Information

DM4612 OLT 8GPON+2GT+2XS	
Operating Temperature	0°C a 65°C
Operating Relative Humidity	0% a 95%, Non-condensing
Altitude	0 a 3000m
Storing Temperature	-10°C a 70°C
Storing Relative Humidity	0% a 95%, Non-condensing

Table 18 –DM4612 OLT Environmental Characteristics

11. 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 19 – Applicable ITU-T 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 20 – Applicable ITU-T 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 21 – Applicable IETF Standards

DATAKOM

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