PROLITE-105

FUENTE DE LASER TRIPLE FTTH

FTTH TRIPLE LASER SOURCE

SOURCE DE LASER TRIPLE FTTH

PROMAX

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FTTH TRIPLE LASER SOURCE
PROLITE-105

1 GENERAL

1.1 Description

The **PROLITE-105** laser light source emits light at three wavelength that are used to transmit data through optical fibre on FTTx networks: 1310 for Upstream and 1490 and 1550 nm for Downstream. It allows selecting easily the desired wavelength by means of direct access keys, in order to generate a modulated signal or to activate the automatic operation mode. These light sources may be modulated with 270 Hz, in the case of the wavelength at 1310 nm, 1 kHz at 1490 nm and 2 kHz at 1550 nm. They are modulated at different frequencies to measure the attenuation of the fibre for the three wavelengths in combination with a power meter (such as PROLITE-63 or 65). Usually this measure is required to certificate telecommunications infrastructures.

The **PROLITE** series has been designed for starting up and maintaining fibre optic installations. This series consists of the **PROLITE-65** (xPON tester), the **PROLITE-63** (OPM) and the **PL330** and **PL360** (optical attenuators).

English

1.2 Specifications

Wavelengths (λ) generated	1310 nm, 1490 nm y 1550 nm.
Tolerance	± 30 nm.
Spectral width	
1310, 1550	Laser Fabry Pérot.
1490	Laser DFB.
Output connector	Type SC / APC.
Output power	0 dBm nominal on SM fibre.
Amplitude stability (a 23 ± 1 °C)	< 0,3 dB in one hour.
Internal modulation	1310 nm: 270 Hz. 1490 nm: 1 kHz. 1550 nm: 2 kHz.
POWER SUPPLY	
Battery	Li-Ion battery of 7,4 V.
Low Battery Indicator	LED light indicator.
Autonomy	25 h. Aprox. In SEQ mode.
External	
Voltage	12 V DC.
Power Consumption	12 W.
Network charging adaptor	De 90 V a 250 V; 50-60 Hz (included).

OPERATING ENVIRONMENTAL CONDTIONS

Altitude	Up to 2000 m.
Temperature range	From 0 to + 40 °C.
Max. Relative humidity	80% (up to 31 °C). Decreasing lineally up to 50 % at 40 °C.

MECHANICAL FEATURES

Dimensions	180 mm (W) x 95 mm (Hl) x 50 mm (D).
Weight	500 g (battery included).

INCLUDED ACCESORIES

AA-012	Car lighter adapter.
AL-101B	Mains adapter 90-250 V AC.
CA-005	Power cable CEE-7.
DC-272	Carrying case.

ACCESORIOS OPCIONALES

DC-270	Transport suitcase.

RECOMMENDATIONS ABOUT THE PACKING

It is recommended to keep all teh packing material in order to return the equipment, if necessary, to the Technical Service.

2 SAFETY RULES

2.1 General safety rules

* **Safety can not be assured if instructions are not closely followed.**

* The external DC chareger is a **Class I** equipment, for safety reasons plug it to a supply line with the corresponding **ground terminal**.

  Use the mains adapter in **Overvoltage Category I** and **Pollution Degree 1** installations. To use **INDOOR**.

* When using some of the following accessories **use only the specified ones** to ensure safety:

  Rechargeable battery.
  Mains adapter.
  Power cord.

* Observe all **specified ratings** both of supply and measurement.

* Use this instrument under the **specified environmental conditions**.

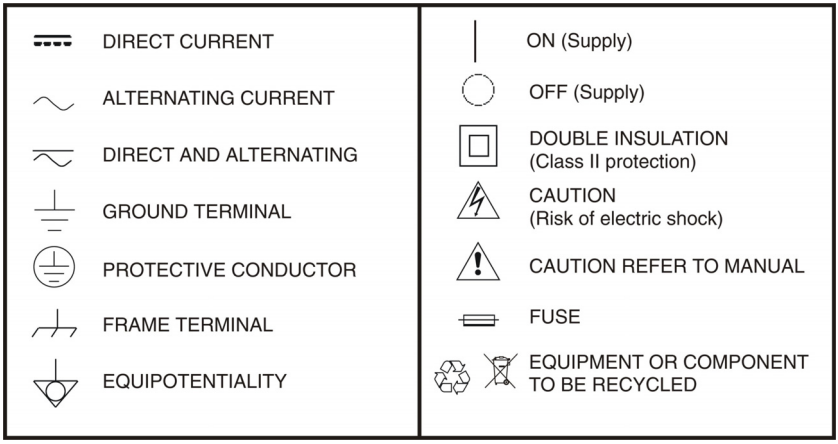
  The user is not allowed to carry out the following maintenance operations:

  Any change on the equipment must be carried out exclusively by technical staff.

* Follow the **cleaning instructions** described in the Maintenance paragraph.

English

* Symbols related with safety:



2.2 Specific Precautions for PROLITE-105

CAUTION

It is recommended not to look straight at the light beam.

The use of devices that are not specified by this manual and the internal manipulation of the instrument may cause harmful radiation.

2.3 Descriptive Examples of Over range Categories

Cat I Low voltage installations isolated from the mains.

Cat II Portable domestic installations.

Cat III Fixed domestic installations.

Cat IV Industrial installations.

3 INSTALLATION

3.1 Power Supply

The **PROLITE-105** is a portable instrument powered by a rechargeable Li-Ion battery. The instrument comes with a mains adapter which enables the **PROLITE-105** to be plugged to the mains for operation and battery charging.

3.1.1 Operation Using the Mains Adapter

Connect the mains adapter to the **PROLITE-105** through the external power connector [7] placed at the right side of the instrument. Then, connect the adapter to the mains to start up battery charging. Next, press the **ON/OFF**  [3] key. Then the instrument starts working.

CAUTION

Before using the mains adapter make sure that it is the appropriate one for your mains voltage.

The mains adapter is designed for indoor use.

3.1.2 Operation Using the Battery

Press the key **ON/OFF**  [3] to start the instrument powered by the battery. When the battery is full loaded, the **PROLITE-105** has an autonomy aprox. of 25 hours of continuous work in SEQ mode.

When the battery is flat, the instrument will not start up or, if working, will switch off. The **LOW BATT** indicator [1] will be lit whenever the battery charge is low. Then a charge process is required.

3.1.3 Battery Charging

First switch off the **PROLITE-105** in order to charge the battery. Then connect the power input to the mains adapter. Now connect the adapter to the mains. Now you can observe that the indicator CHARGE **CHG** [6] is lit in amber which indicates the battery is charging. Charging time depends on the state of the battery. If the battery is flat, the battery charging time is 3 hours aprox. When battery is full loaded, the charge indicator **CHG** [6] changes to green.

English

3.1.4 Recommendations using the battery

If anticipating a long period of inactivity for your instrument, it is advisable to store it with the battery fully charged and at temperatures below 25 °C.

It is also advisable in these cases to carry out a cycle of charging/discharging and a subsequent half charge (i.e. 50 %) every 3 months.

3.2 Installation and Start-up

The **PROLITE-105** has been designed for its use as a portable device.

To switch on the instrument, press the key **ON / OFF**  [3].

4 USER INSTRUCTIONS

4.1 Description of Controls and Elements

Frontal Panel

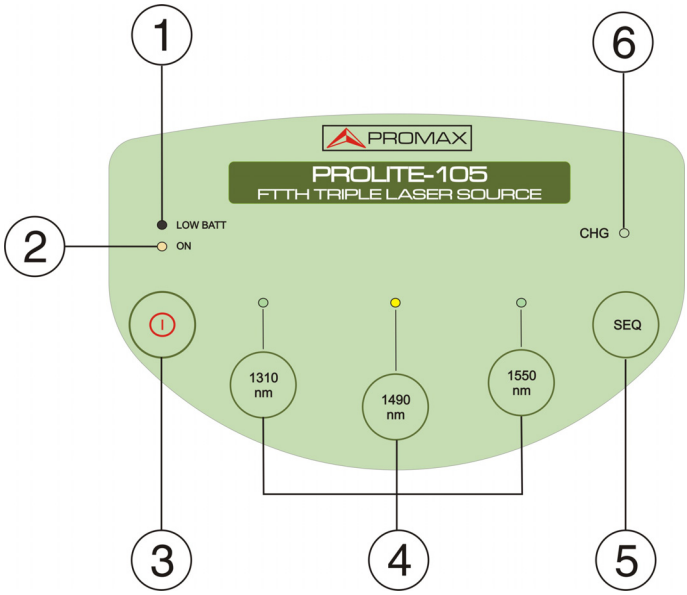


Figure 1.- Front View of the **PROLITE-105**.

[1] **LOW BATT** **BATTERY STATUS.**

It indicates the status of the battery charge.

When it is illuminated, it indicates that the battery level is low and it is going to switch off.

[2] **ON** **POWER LED.**

When it is ON indicates that the unit is working.

[3]  **ON / OFF**.

When pressing this key, the unit turns on.

When pressing this key again for few seconds, the unit turns off.

English

[4] 1310 nm / 1490 nm / 1550 nm

LASER LIGHT SOURCES

It activates a source of light of 1310 nm, 1490 nm or 1550 nm. There is a button to activate each one.

When pressing on one of these buttons it turns on the corresponding source of continuous light.

When pressing again on the same button it switches to the same source of light but modulated.

At every press it switches between continuous and modulated light.

When pressing for more than one second it turns off the light.

These three light sources can work simultaneously.

[5] SEQ

SEQUENCING.

It activates the sequencing mode on the light sources. Light sources are also modulated.

When pressing again it turns off the sequencing mode.

[6] **CHG**

CHARGE LED

It indicates the state of the battery charge.

When the **LED** is in **AMBER** means that is charging.

When the **LED** is in **GREEN** means that is in full charge and it is being powered through the means.

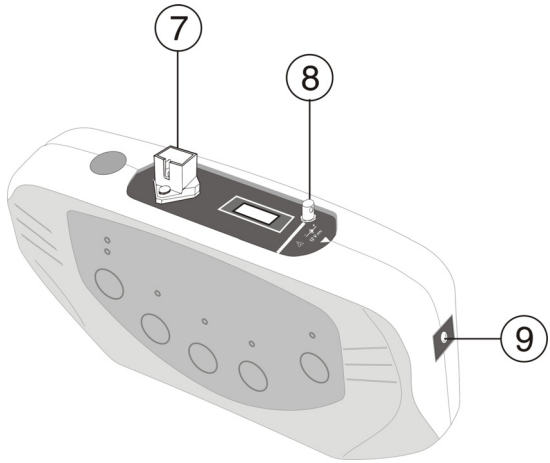


Figure 2.- Side view **PROLITE-105.**

[7]  Connector SC / APC Fibre signal output or active signals.

[8] Anchor Point conveyor belt.

[9] 

External power input of 12 V.

4.2 Operating Instructions

The **PROLITE-105** is a device easy to use that can be operate using only three keys: one to select the wavelength and to turn on / off the modulation of the laser, one key to activate the sequencing mode and the key to turn **on/off** the instrument.

4.2.1 Selecting the active Wavelength.

The **PROLITE-105** is a source of laser that can emit in three different wavelengths: 1310 nm, 1490 nm and 1550 nm. It can emit these three wavelengths simultaneously.

The **LED** corresponding to the active source wavelength is in green. When it is modulated it is in amber.

Pressing on the key of the wavelength 

, 

, 

[4] repeatedly, it switches between continuous and modulated laser light.

To switch off the laser light you have to press for few seconds the key corresponding to the active wavelength until the **LED** turns off.

4.2.2 Signal Modulation

The **PROLITE-105** can modulate the three wavelengths with an internal signal.

For the **1310 nm** wavelength it uses a modulation frequency of 270 Hz. For the **1490 nm** and **1550 nm** corresponds a modulation of 1 kHz and 2 kHz respectively.

In order to activate the modulation of the output signal, you should press twice the key corresponding to the wavelength.

To disable the signal modulation you should press again the activation key. The **LED** corresponding to the active wavelength will turn to green, indicating the output signal is no longer being modulated.

4.2.3 Automatic Sequential Mode Operation

When pressing the key **SEQ** 

[5], the **PROLITE-105** gets into the sequential mode operation.

At the optical output [9] will appear the 1310 nm signal. After few seconds appears the 1490 nm signal, after the same time appears the 1550 nm signal and then again the 1310 nm signal. This process is repeated cyclically.

These three signals have been codified independently, in order to allow a simultaneous analysis through a proper optical meter (like the **PROLITE-65** of **PROMAX**). Then it is not necessary to select each time the wavelength you want to measure.

During operation in sequential mode the signals are modulated.

To stop the sequential mode, press again the key **SEQ** 

[5].

5 MAINTENANCE

This part of the manual describes the maintenance procedures and the location of faults.

5.1 Instructions for returning by mail

Instruments returned to repair or calibrate, either within or out of the guarantee period, should be send with the following information: Name of the Company, name of the contact person, address, phone number, receipt (in the case of coverage under guarantee) and a description of the problem or the service required.

5.2 Maintenance instructions

The maintenance steps to follow by the user consist of cleaning the cover and changing the battery. All other operations must be carried out by authorised agents or by qualified personnel.

5.2.1 Cleaning the cover.

CAUTION

Do not use scented hydrocarbons or chlorized solvents. Such products may attack the plastics used in the construction of the cover.

The cover should be cleaned by means of a light solution of detergent and water applied with a soft cloth. Dry thoroughly before using the system again.

CAUTION

To clean the contacts, use a dry cloth. Do not use a wet or damp cloth.

CAUTION

Do not use for the cleaning of the front panel and particularly the viewfinders, alcohol or its derivatives, these products can attack the mechanical properties of the materials and diminish their useful time of life.

English

5.3 Components which user can not replace

5.3.1 Not replaceable fuses by user

To be replaced by qualified personnel. Its position identifier and characteristics are:

F1	**FUS 2,5 A**	**T 125 V**
F2	**FUS 7 A**	**T 125 V**

6 APPENDIX A: APPLICATION NOTE

6.1 Automatic Measurement of the optical attenuation for a fibre network at wavelengths: λ=1310 nm, λ=1490 nm and λ=1550 nm to certificate according telecommunication normatives.

Next it is described the procedure to take attenuation measurements for an optical communications network at the wavelengths of 1310 nm, 1490 nm and 1550 nm by using the **PROLITE-65** and the automatic mode of the **PROLITE-105**.

The attenuation or losses in a cable or optical device corresponds to the difference between the input coupled power and the output obtained power.

6.2 Measuring the reference power

Before initiating the network attenuation measurement process, it is advisable to register first the power measurement generated by the light source in combination with a **PROLITE-65** and saving them in the memory. By this way when measuring later the attenuation of the optical network, the **PROLITE-65** will indicate directly the value of the attenuation.

Next, the procedure is described (see figure 3).

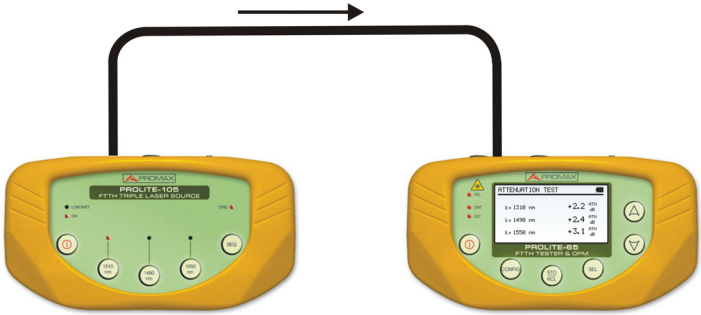


Figure 3.- Measurement of the reference power.

- Connect the light source to the power level meter by means of an optical fibre patch cord.
- Configure the **PROLITE-65** to measure only at the wavelengths: 1310nm, 1490 nm and 1550nm, by means of the function ***ATTENUATION TEST*** (see that section on the **PROLITE-65** user's manual).

English

- Select the 1310 nm output of the **PROLITE-105** and take the reference value of the power at this wavelength with the **PROLITE-65** (see that section on the **PROLITE-65** user's manual).
- Repeat the previous process for the wavelength at 1490 nm and 1550 nm.

6.3 Attenuation measurement in the optical communications network

Next the procedure to take the measurement is described (see figure 4).

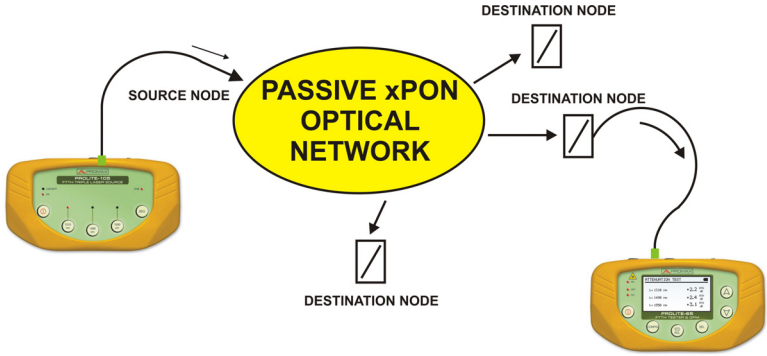


Figure 4.- Attenuation measurement in the optical communications network.

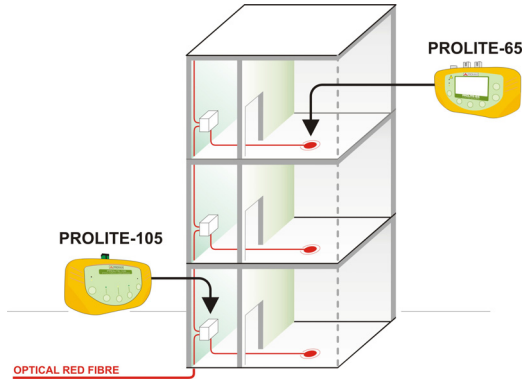


Figure 5.-

- Connect the **PROLITE-105** to the transmission node from the optical communications network that is desired to verify.

- Activate the **SEQ** 

[5] key of the **PROLITE-105.** The source will sequentially generate wavelengths at 1310 nm, 1490 nm and 1550 nm.
- Connect the **PROLITE-65** to the reception node from the optical communications network.
- To know the real value of that measurement you must select the wavelength at 1310 nm on the optical meter. Then select the wavelenght at 1490 nm and 1550 nm to know the real value at these wavelenths.