A Photonwares Company

15 Presidential Way
Woburn, MA 01801
Tel: 781-935-1200
Fax: 781-935-2040
www.agiltron.com

Bench-top C-/L-Band PM Pre-Amp EDFA with Interlock & Status Monitor

User Manual

P/N: EDFA-xC(L)x12xxxxxx

Version: 2025-6

Warning

When Emission Button is turned on and there is sufficient laser power to the input port of this device its output will be on at the power level previously set at factory, which is 13dBm. This power level can be changed through provided GUI.

Warning

All fiber connectors need to be cleaned and inspected before connecting them to the input and output of amplifier.
Fail to do so might cause poor performance of amplifier, severe damage to fiber and even amplifier.

1 Warning

1) Only polarization-maintaining single mode fiber (PM1550) cable is compatible to this EDFA. Using of other fiber cables, including multimode fiber cables and single-mode fiber cables with different core size, may cause poor performance or even damage to the EDFA.
2) Only connectors as indicated on the front panel are allowed, such as FC/APC, SC/APC, etc.
3) Clean and inspect connectors and fiber ends prior to installation.
4) Use only industry approved methods, materials, and solutions for cleaning.
5) Always turn off the EDFA prior to plugging/unplugging fiber cable. Failure to do so may cause permanent damage to the EDFA.

2 Summary

This pre-amp EDFA works in C- or L-band. Its front and rear panels are shown in Figure 1.

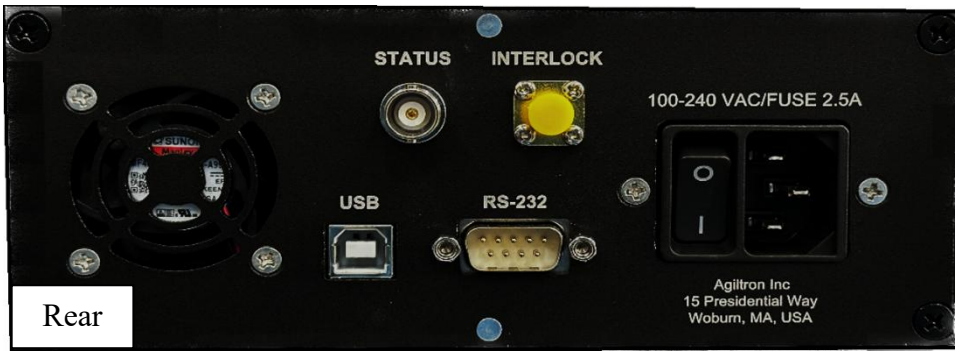

Figure 1: Front and rear panels of EDFA

Front Panel

- **Input & Output** The fiber connectors on its front panel are for laser input and output. PM1550 optical fiber cables are required for this model.
- **Emission Enable Button**

  The Emission Button is for ON/OFF of whole unit.

  OFF: Dark

  ON: Lighted up in blue

  Note:

  a. When it is OFF USB functions are disabled.

  b. The EDFA is designed to work between -10 ~ 60°C temperature range. Humidity should not exceed 90%. Installation is recommended in a temperature & humidity controlled, dust-free environment.
- **Status Indicator** This indicator LED will be lighted up in green when laser output is on.
- **Emergence Push Button** In case of emergence push it down to disable laser output.

  To resume laser output turn it clockwise.

Rear Panel

- **Power Connector** This module needs 100-240V AC power. The on-off power switch locates on rear panel.
- **USB Control** The type-B USB port is for remote control.

  Note: the RS232 port is not functional for this model.
- **Emission Status Monitor**

  The BNC connector on rear panel is for output of monitor signal of emission status. Its output can drive an external LED indicator.

  EDFA emission on: 3.3V

  EDFA emission off: 0.0V

- **Safety Interlock**

  The SMA connector on rear panel is for safety interlock input.

  Its shield is GND and the core is input. It is pulled up inside EDFA. Shorting its core and shield will shut down EDFA immediately. Once shorting is released the pump laser inside EDFA will restore to previous status.

Interlock Status	Emission Control
Open-circuit	On
Short-circuit	Off

3 Connection and Operation

Warning

- **This EDFA will have 13dBm output once the 'Emission' button lights up and > -30dBm input laser power is sent to the input port, even without GUI connection.**
- **An initial 13dBm output was set in factory and can be changed and saved by using GUI.**

1) Plug the AC power cord into the receptacle on the rear panel of the module, and connect to 100-240V AC power source.
2) Clean the connectors of PM1550 fiber cables properly, and then connect them to the corresponding input/output ports.

   Note: ensure that the wavelength and power of the input light are within the EDFA specifications, i.e. -30 ~ -20dBm @ 1550nm.
3) Connect interlock input, or leave the SMA port open.
4) If needed, connect the emission status port to desired external device.
5) Turn power on using the rocker switch on the rear panel of the device.
6) Push the Emission button down to turn on the whole device. The Emission Button will be lighted up in blue. Now the device will have 13dBm output power.
7) Connect the USB port on the rear panel to a computer by using the type-B USB cable coming with the device.
8) Remote software control (GUI) provided can be used for getting EDFA status, changing output power, saving setting, etc. Please see Part 4 for detailed instruction.
9) Pushing the Emission button to turn off the EDFA.

4 Software Instruction

Note:

USB to COM driver for FTDI devices needs to be installed on the computer for remote control. The driver can be downloaded from https://ftdichip.com/drivers/vcp-drivers/.

1) Download GUI software 'EDFA GUI V3.0' from the link below, under Other Download.

https://photonwares.com/product/erbium-doped-fiber-amplifier-module/

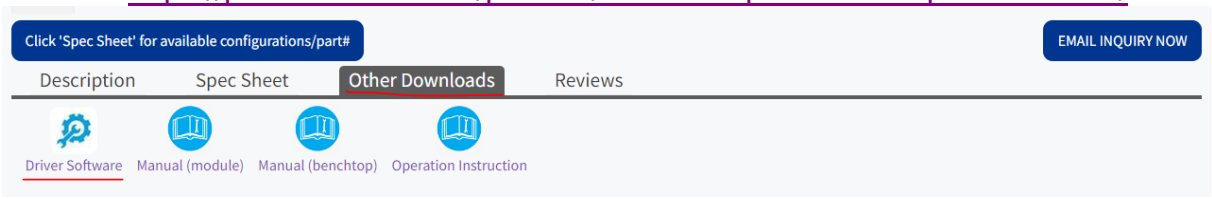

Figure 2: Driver download link

2) Unzip the file and run setup.exe to install the GUI on host computer.
3) Turn on Emission on the front panel of the EDFA to power up the whole unit and enable USB functions.
4) Run EDFA GUI V3.0.
5) Choose device model **EDFA-PM**
    - EDFA-H: standard version SM EDFAs with 30dBm or higher power.
    - EDFA-L: standard version SM EDFAs with less than 30dBm power.
    - EDFA-M: standard SM M511 EYDFAs with 23-40dBm output power.
    - EDFA-SP: PM SP-type EYDFA with 27-40dBm power
    - **EDFA-PM: standard PM M511 EDFA & EYDFA**
    - EDFA-C: high-end or special version EDFAs.

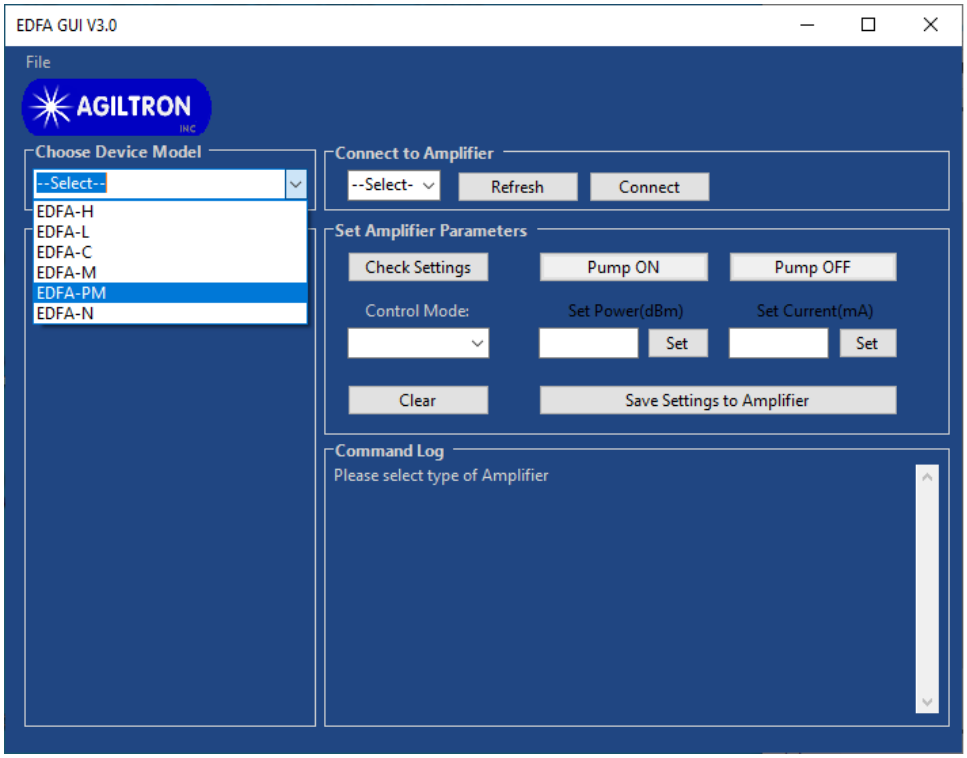

Figure 3: Remote control software: model selection

6) Port Selection:

Select the serial port, to which the EDFA is connected, from the 'Port List', and click 'Connect'. If the desired port doesn't show up click 'Refresh' button and try again.

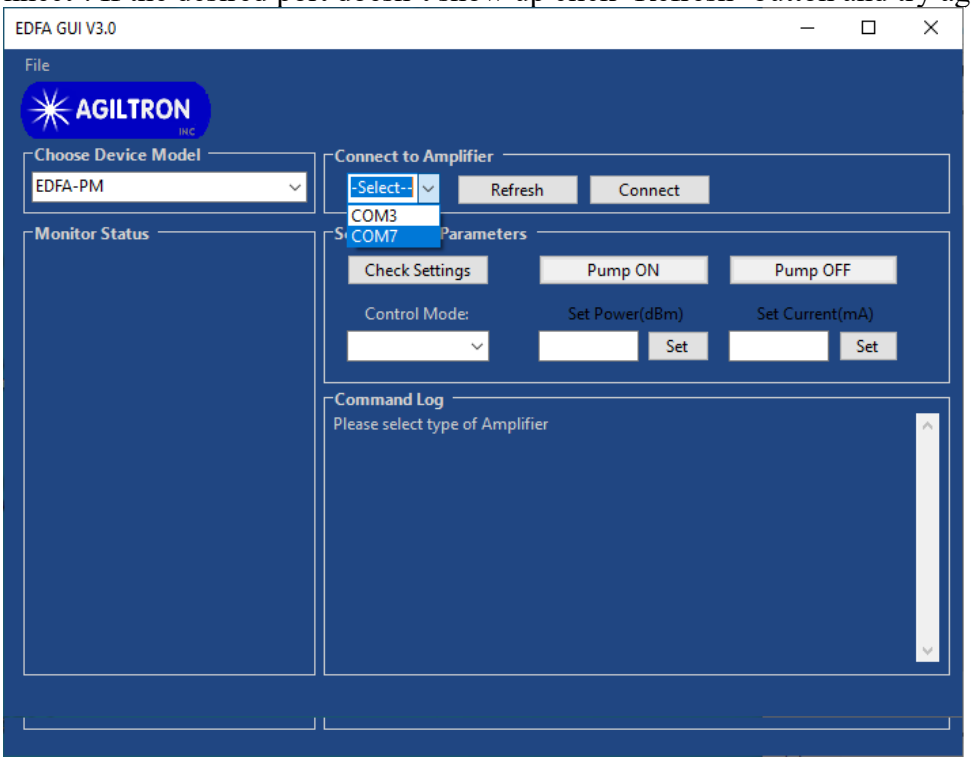

Figure 4: Remote control software: COM port selection.

7) Click ‘Connect’ button to build the connection between computer and the EDFA.

8) Once EDFA has been connected successfully the status of the EDFA will be displayed in Monitor Status window. The status keeps updating at an interval of 1 second.

9) Check Setting

   Click to get the settings from the EDFA.

10) Control Mode Selection

    Click ‘Control Mode’ button to get the current mode setting of EDFA.

    - Power Control: constant power control mode
    - Current mode: constant current control mode

    Select the desired mode and input setting value into the corresponding ‘Set Power(dBm)’ or ‘Set Current(mA)’ box, then click ‘Set’ button.

11) Save Settings

    Each time when either ‘Set’ button is clicked current settings will be saved to the EDFA.

    When turn on the EDFA next time it will run under saved settings, even without GUI connection.

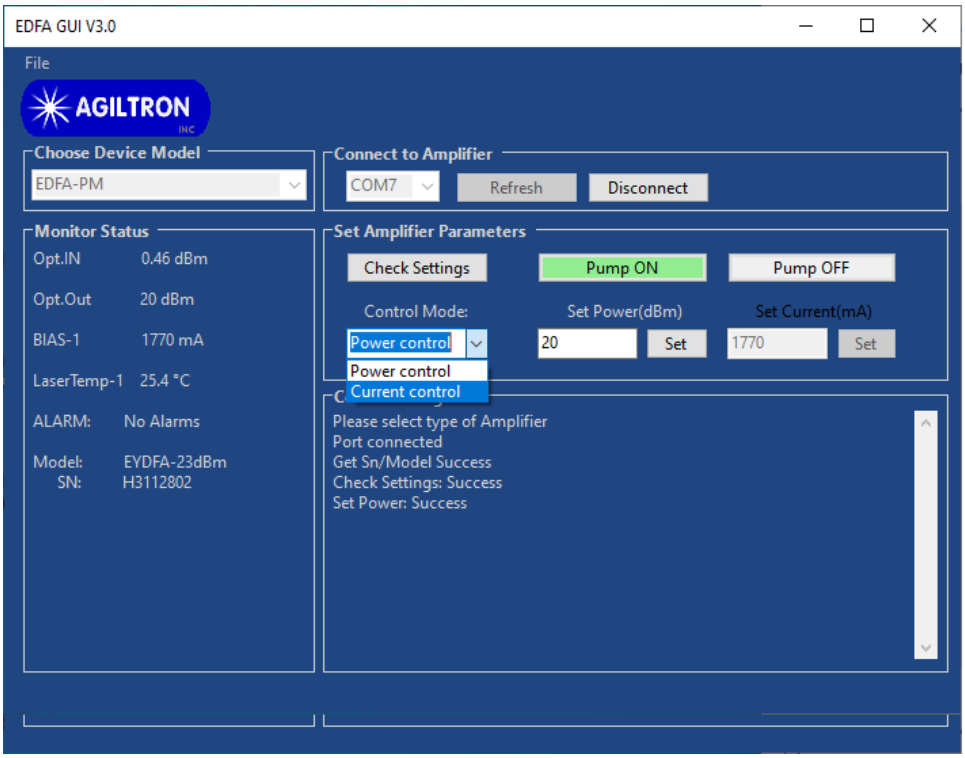

Figure 5: Remote control software: control mode selection

12) Pump ON/OFF

    Click to turn on/off the EDFA pump laser, thus to turn on/off its output.

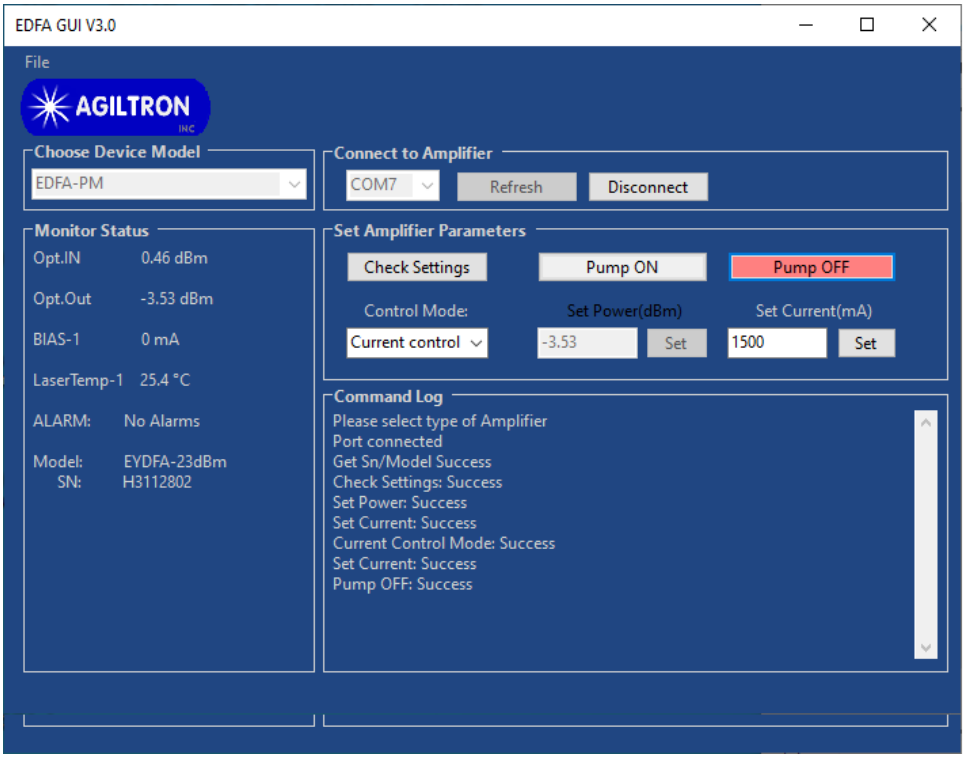

Figure 6: Remote control software: output is turned off.