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Bench-top C-Band 17-24dBm SM EDFA with 30dB Gain

User Manual

P/N: EDFA-xCx2xxxxxxx

Version: 2025 - 3

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 up to 24dBm. This power level can be changed through provided GUI.

1 Warning

1) Only single mode fiber (SMF, 9/125μm) 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 specific fiber connectors as indicated on front panel, such as FC/APC, SC/APC, LC/APC, etc., are allowed.
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 booster EDFA works in C-band. Its front panel is shown in Figure 1.

Figure 1: Front panel of EDFA

- The module needs 100-240V AC power. Its on-off power switch locates on rear panel.

  Note: the RS-232 port on the rear panel is not functional for this model.

- The fiber connectors on its front panel are for laser input and output. SMF-28 optical fiber cables are required for this model.
- The micro-USB port is for remote control.
- The Emission Button is for ON/OFF of whole unit.

  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.

3 Connection and Operation

Warning

- **This EDFA will have up to 24dBm output once the 'Emission' button lights up and > -30dBm input laser power is sent to the input port, even without GUI connection.**
- **An initial 10dBm 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 fiber connectors of SMF-28 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 ~ 10dBm @ 1550nm.
3) Turn power on using the rocker switch on the rear panel of the device.
4) 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 30dBm output power.
5) Connect the micro-USB port on the front panel to a computer by using the USB cable coming with the device.
6) 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.
7) 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 Step File/GUI.

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

A copy of GUI also comes with EDFA.

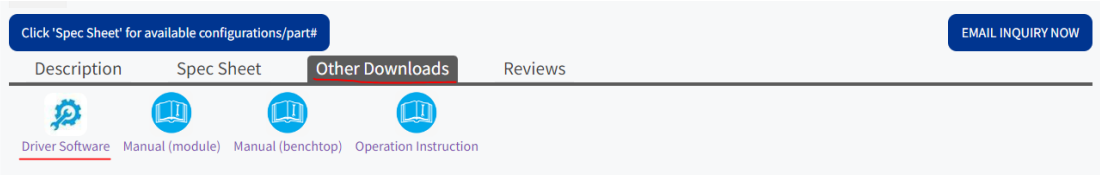

Figure 2: Driver download link

2) Run setup.exe to install the GUI on host computer.

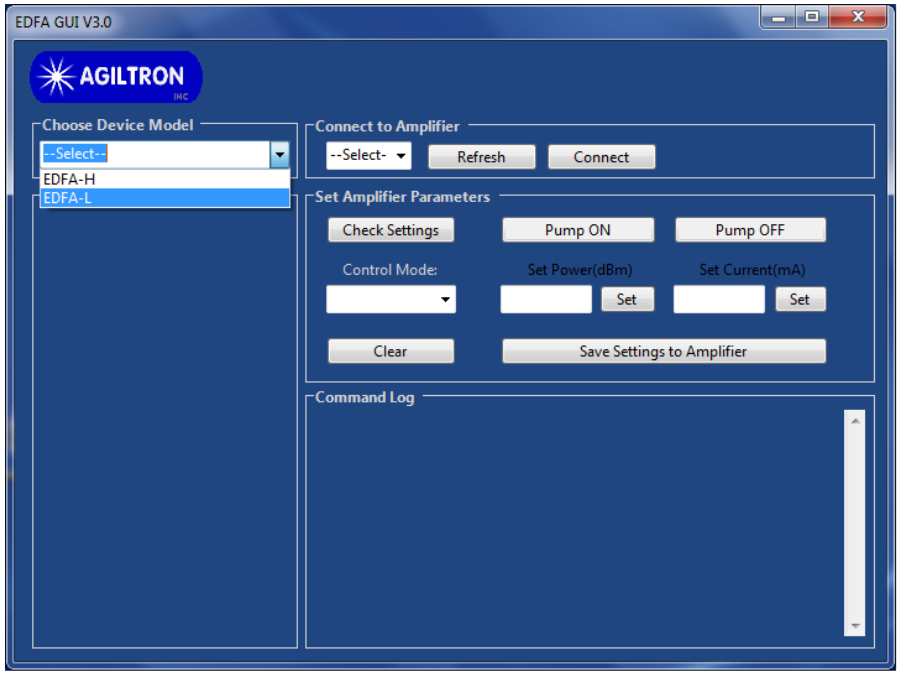

Figure 3: Remote control software: Model selection

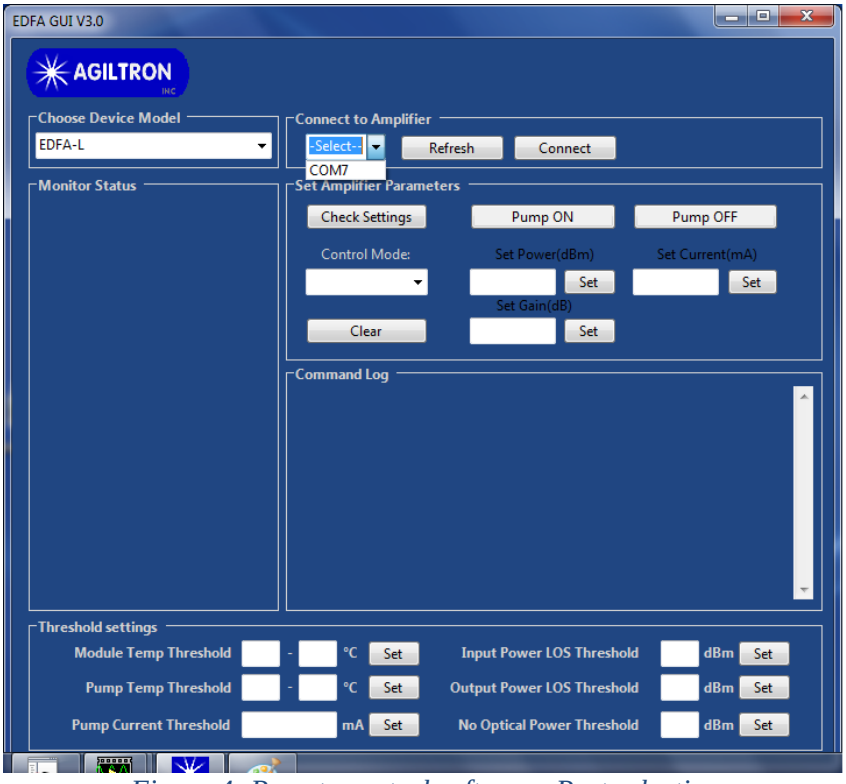

Figure 4: Remote control software: Port selection

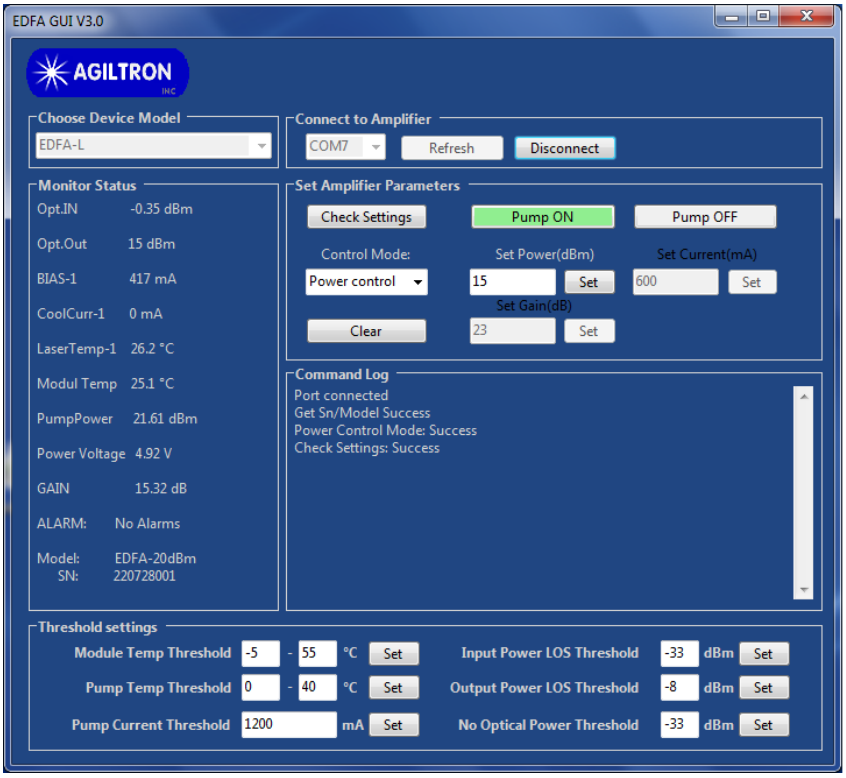

Figure 5: Remote control software: connected successfully.

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-L.
    - EDFA-H: standard version EDFAs with 23dBm or higher output power.
    - **EDFA-L**: standard version EDFAs with less than 23dBm output power.
    - EDFA-C: high-end or special version EDFAs.
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.
7) 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.
8) Check Setting

    Click to get the settings from the EDFA.
9) Pump ON/OFF

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

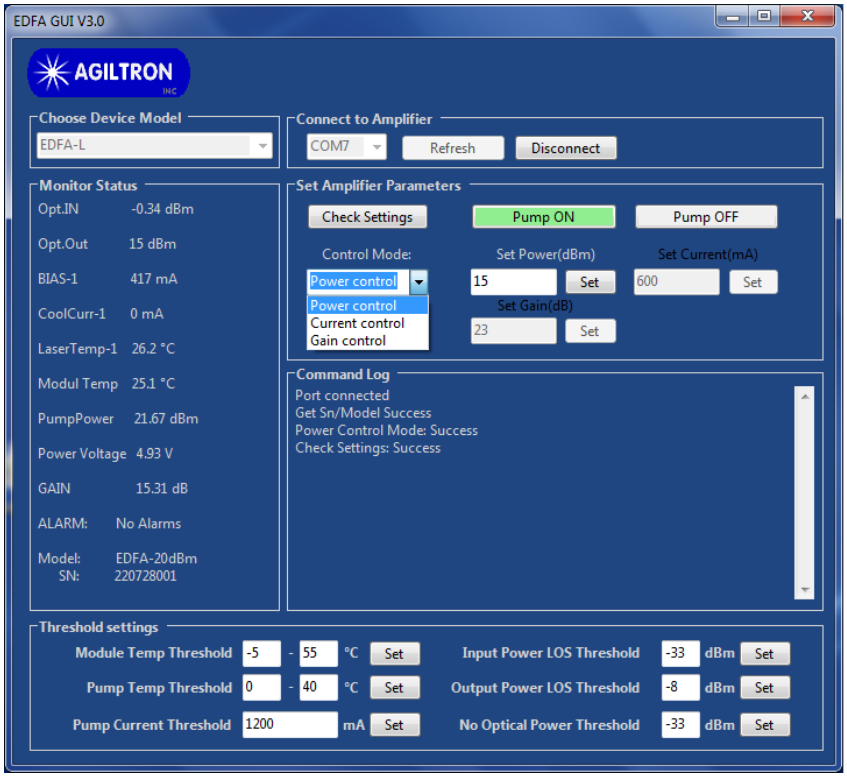

Figure 6: Remote control software: control mode selection

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
- Gain Control: constant gain control mode, adjustable range is ±3dB

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

11) Save Settings

When power or current setting is changed by user the setting will be saved to EDFA.

12) Emission ON/OFF

Click ‘Pump ON’ or ‘Pump OFF’ button to turn on/off the output of EDFA.

13) Limits Setting

Warning

Change these limit settings only when it is necessary.

The following limits can be re-set by user. When the monitor parameters from EDFA beyond the setting range the EDFA will turn off automatically.

- Module Temp Threshold: the allowed temperature of EDFA core

- Pump Temp Threshold: the allowed temperature of pump
- Pump Current Threshold: maximum driving current of pump
- Input Power LOS Threshold: required minimum input optical power
- Output Power LOS Threshold: when output optical power is lower than the set value EDFA will turn off.