AGILTRON
INC

A Photonwares Company

C-Band Low-Latency High-Power SM MSA EDFA

User Manual

P/N: EDFL-1CxM(H)xxxxxxxxx

Version: 2025 - 12

1 Ambient Parameters

Parameter	Min.	Typical	Max.	Unit	Note
Working Temperature	-5		65	°C	
Storage Temperature	-40		85	°C	
Working Relative Humidity	5		85	%	40°C non-condensation
Storage Relative Humidity	5		95	%	

2 Optical Parameters

Parameter	Min	Typical	Max	Unit	Note
Return Loss	45	-	-	dB	
Input & Output Fiber type	SMF-28e, 900um white loose tube			-	
Output Fiber Length	99	100	101	cm	Can be customized.
Input Fiber Length	99	100	101	cm	Can be customized.
Input & Output Fiber Connector Type	FC/APC			-	Can be customized.
Module Dimension	(W*L*H)90*70*15			mm	
Working Mode	ACC				
Output power stability	-	-	±0.1	dB	
Input & Output Isolation	-	35	-	dB	
In & Out Pump Leakage	-	-	-30	dBm	
PDG	-	-	0.5	dB	

Parameter	Min	Typical	Max	Unit	Note
Operating Wavelength	1540	-	1565	nm	
Input Power Range	-5	-	10	dBm	
Gain	20	20/30	33	dB	
Max Output Power	30			dBm	
Input @ Typical	0			dBm	
NF	-	5.5		dB	@Gain=20dB

3 Electrical Indicators

3.1 Power Supply:

Parameter	Min	Typical	Max	Unit	Note
Voltage	4.75	5.0	5.25	V	
Current	-	-	3.0	A	
Power Consumption	-	-	25	W	

3.2 Pin definition

3.2.1 Communication Port
Type：34Pin 2.00mm intervals male socket CJT A2005WV-N-2x17P

3.2.2 Pin definition:

Pin No.	Name	Attribute	Level Type
1	NC	F	
2	NC	F	
3	+5V	P	
4	+5V	P	
5	+5V	P	
6	+5V	P	
7	GND	P	
8	GND	P	
9	NC	F	
10	NC	F	
11	GND	P	
12	GND	P	
13	NC	F	
14	NC	F	
15	NC	F	
16	NC	F	
17	NC	F	
18	NC	F	
19	NC	F	
20	NC	F	
21	NC	F	
22	NC	F	
23	GND	P	
24	GND	P	
25	Serial Port Input	I	LVTTL

26	Serial Port Output	O	LVTTL
27	GND	P	
28	GND	P	
29	+5V	P	
30	+5V	P	
31	+5V	P	
32	+5V	P	
33	NC	F	
34	NC	F	

＊P: Power, I: Input, O: Output, F: None

4 Serial Port Communication Protocol

Parameter	Value	Unit
Baud rate	9600	Bit/s
Data bit	8	Bit
Stop bit	1	Bit
Parity bit	None	

5 Module Dimensions
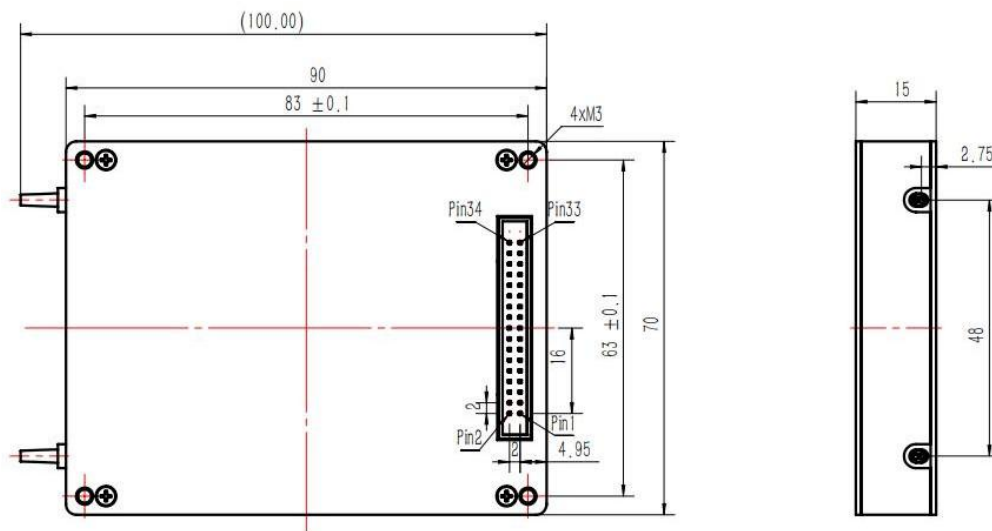
Figure 1: Mechanical Drawing

6 Application Notes

6.1 Remote Control

- RS232-to-USB converting needs to be done by user. FTDI chip is recommended.

  * Benchtop is available at https://agiltron.com/.

  * RS232-to-USB converting PCB is also available at https://agiltron.com/.

- Upon accomplishment of the above EDFA can be remotely controlled by UART commands or the 'EDFA GUI' program (EDFA-L or EDFA-N option) provided.
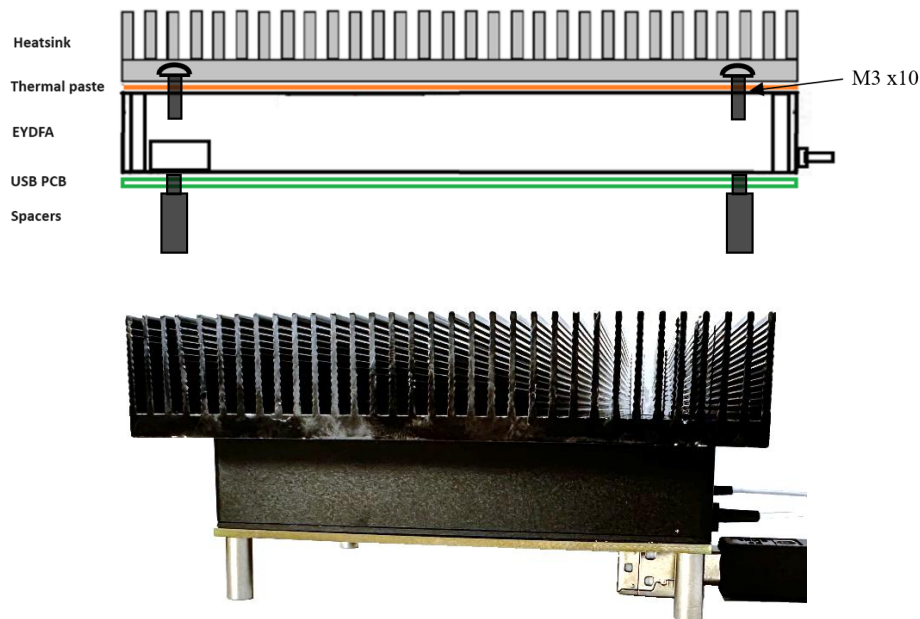
- Heatsink is needed for this EDFA, as shown below.

Figure 2: Heatsink installation.

6.2 Handle the EDFA with caution.

- Avoid electrostatic discharge (ESD), which will cause damage of PCBs.
- Make sure tight contact between adaptor PCB and EDFA.
- Prevent short-circuit between pins of the adaptor PCB.
- Make sure 5V DC power supply is free of spike.
- Heatsink must be installed for this EDFA, and thermal paste must be applied between EDFA and heatsink, as shown below. Use M3 spacer to attach USB PCB to EDFA, and use M3x10 screws to attach heatsink to EDFA.

  Warning:

  Improper installation of heatsink will cause damage of EDFA due to overheating.

- Clean and inspect connectors and fiber ends prior to installation.

- If other optical fiber cable is connected to input/output, must make sure it is SMF-28 fiber, and always make sure tight connection between fiber cables.

- Use only industry approved methods, materials, and solutions for cleaning.

- Always turn off the EDFA prior to plugging/unplugging fiber cable. Failure to do so may cause permanent damage to the EDFA.

7 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 3 Download link of driver

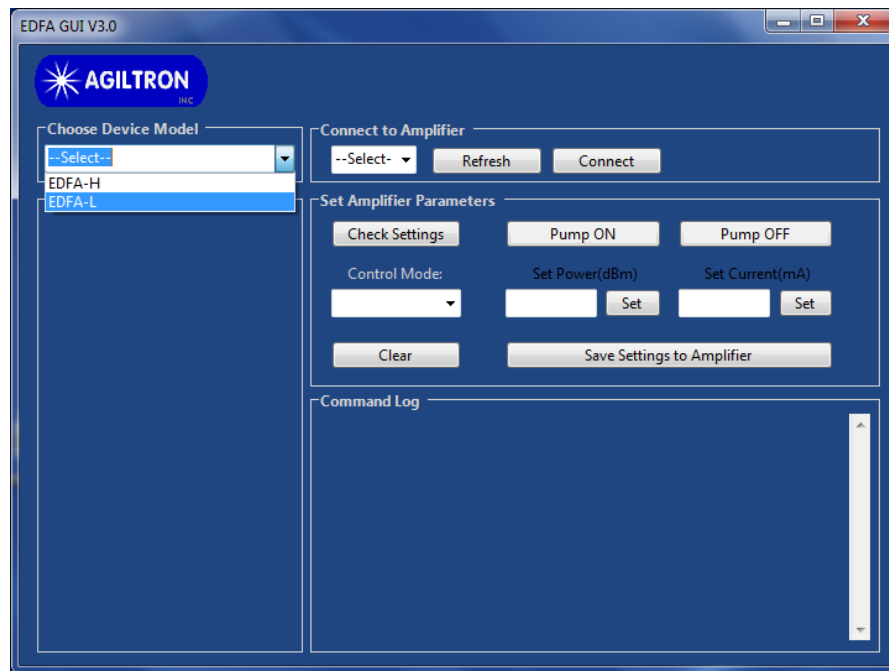2) Run setup.exe to install the GUI on host computer.

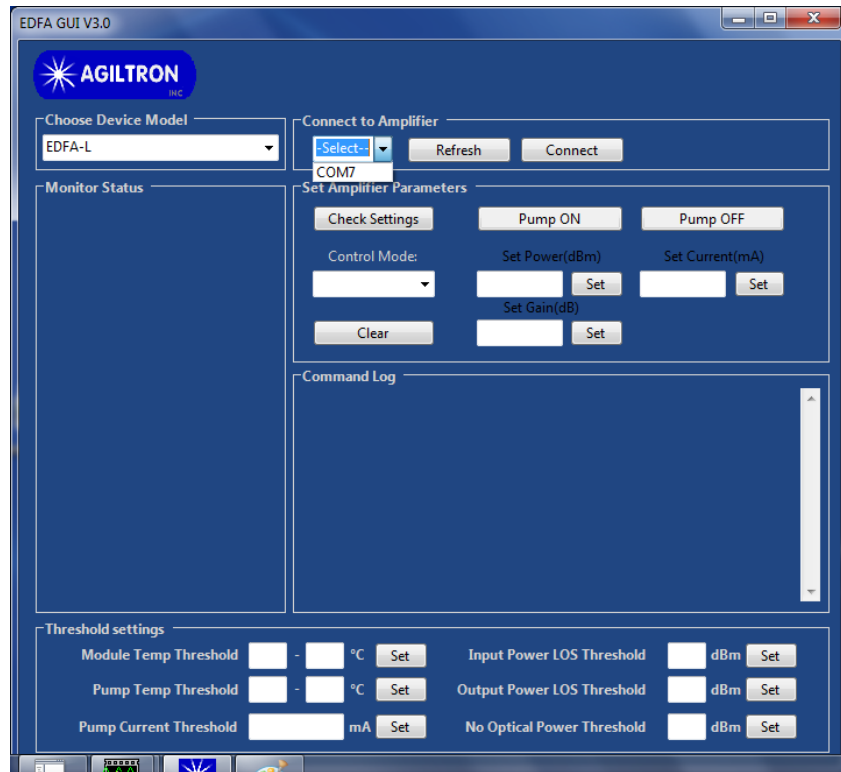*Figure 4 Remote control software: Model selection*

Figure 5 Remote control software: Port selection

Figure 6 Remote control software: connected successfully.

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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 7 Remote control software: control mode selection

10) Control Mode Selection

- Click 'Control Mode' button to get the current mode setting of EDFA.

- Set control mode as Current Control'.
- Input setting value into the corresponding 'Set Current(mA)' 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.