

ASE-C-B Benchtop User's Manual

Caution: The user must read this manual before operating the ASE benchtop unit. Operations other than those described in this manual may result in personal injury and damage to the unit.

Note that any attempt to open or fix the equipment without prior approval by Optilab, LLC voids the warranty.

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Revision History

Version	Date	Summary
1.0	8/23/16	Manual introduced.

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1. General Information

1.1 Introduction

This manual contains information on the installation and operation of the Optilab ASE-C-B benchtop unit.

1.2 Product Overview

The Optilab ASE-C-B is an Amplified Spontaneous Emission (ASE) based broadband light source, designed for general laboratory applications. The ASE-C-B is a reliable and cost-effective benchtop unit that can be ordered with various output power levels. The LD operating temperature and drive current are precisely monitored by a micro-controller to ensure constant output power and emission wavelength stability. With its simple and intuitive front panel interface, the user can control the ASE source output power level by adjusting the drive current along with local and remote status monitoring, contact Optilab for more information.

1.3 Features

- Emission wavelength 1527nm – 1565nm
- Minimal ripple in emission spectrum
- 980nm pump diode
- Monitoring and control via USB
- Optional Variable Optical Attenuator (VOA)

1.4 User Safety

1. The ASE-C-B benchtop unit emits high intensity light from the optical output receptacle. Avoid direct exposure to skin and eyes.
2. The equipment case is fully certified for EMS protection. The user should never open the equipment case; any attempt will void the warranty and may result in electric shock and EMS attack to equipment in the vicinity.
3. The user should avoid using any solvent or vaporizing chemical to clean the equipment panel or case. It may result in damage to the surface and internal circuits.

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2. Operation

2.1 Introduction

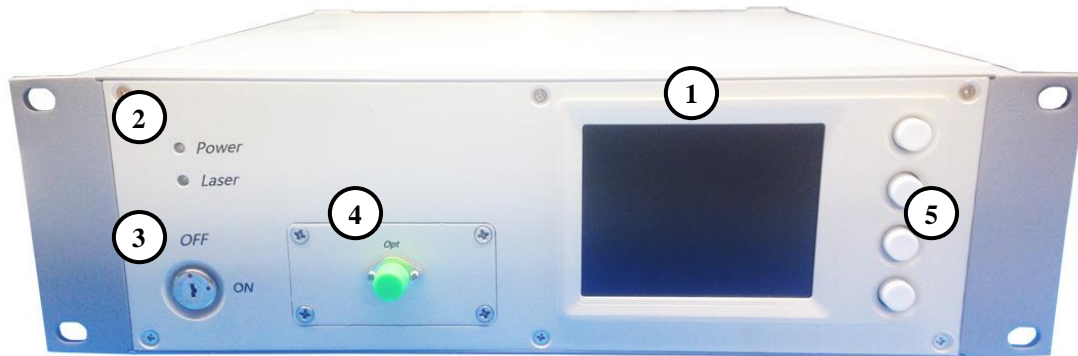
This chapter describes how to operate the ASE-C-B benchtop unit, and discusses the location and function of the controls and connectors.

2.2 Initial Inspection

Your ASE-C-B benchtop unit was carefully inspected before it left the manufacturer. It should be in proper working order upon receipt. You should, however, inspect the unit for any damage that may have occurred in transit. If the shipping container or the packing material is damaged, keep it until the contents of the shipment have been checked to be free of mechanical and electrical damages. Notify Optilab, LLC promptly if any notable damage is found.

2.3 Panel Diagrams and Controls

ASE-C-B Benchtop Front Panel



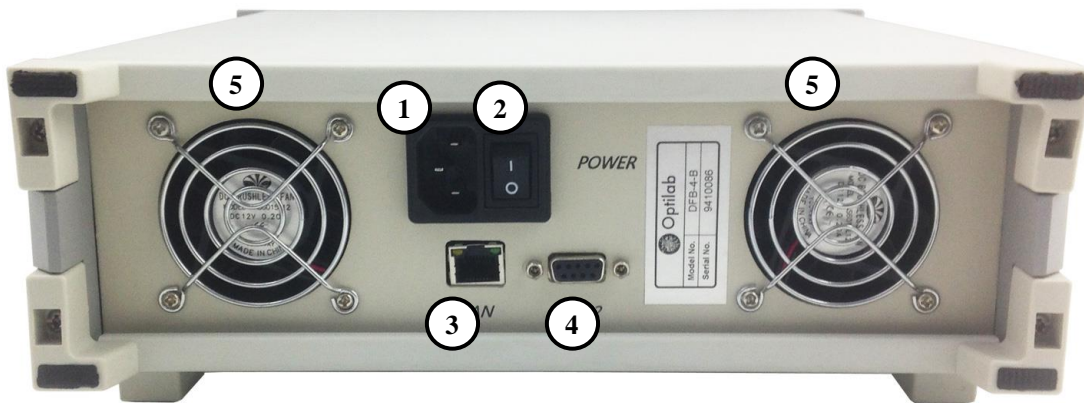
FEATURE	Function
① MAIN DISPLAY	The LCD display shows the parameters and optical settings of the ASE benchtop unit.
② LED Indicators	These LED indicators display the current status of the ASE-C-B system. Blue indicates a normal / enabled status, while Red indicates an abnormal / disabled status.
③ Laser Power Switch	This switch enables / disables the laser optical output for the ASE source. This feature is not enabled on all units.
④ OPTICAL OUTPUT PORT	The optical output receptacle for the benchtop unit, this particular receptacle is FC/APC type.
⑤ SELECTOR BUTTONS	These four buttons scroll through the Main Display menu options, as well as allow for adjustment of certain features. Please refer to the main display screen next to each selector button to perform the desired action, as for each screen the soft key selector buttons are context sensitive.

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ASE-C-B Benchtop Rear Panel



FEATURE	Function
① AC Power Socket	The AC power socket is the input for the AC power source. A three-pin standard power cord should be used to connect this equipment to any 110 or 220 V main supply.
② Main AC Power Switch	This switch enables the electrical power to the ASE-C-B unit.
③ LAN Port	This terminal is used allow for Ethernet connection to the ASE-C-B for remote operation and monitoring. This feature is not enabled on all units.
④ RS232 Female Socket	Using an RS232 cable, this port allows for remote control and monitoring through a PC workstation. This feature is not enabled on all units.
⑤ Ventilation Fans	The ventilation fans ensure proper ventilation inside the unit. The back panel of this equipment should be placed at least 3 inches from the wall to dissipate heat effectively.

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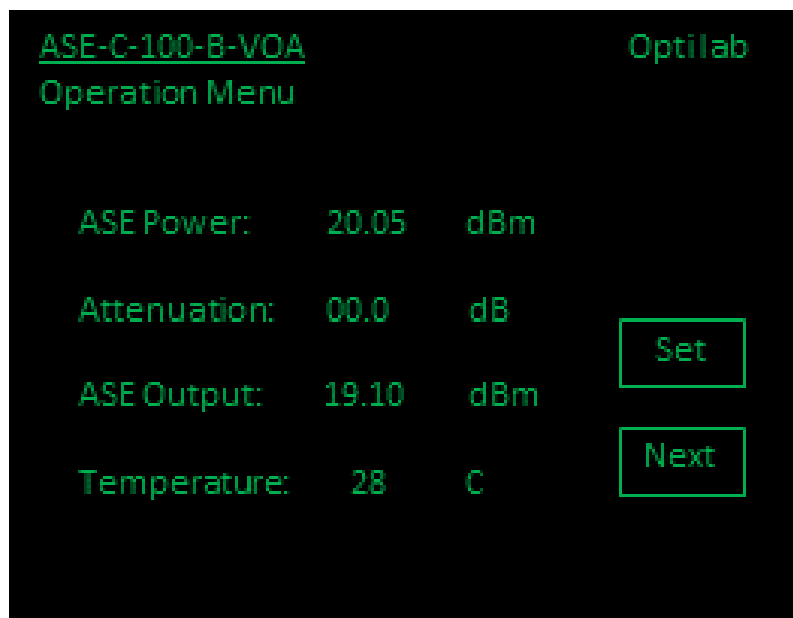
2.4 Operation Instructions

Start-up Procedure

1. After plugging in the appropriate power plug into the AC Power Socket, flip the rear panel Main AC Power Switch to the ON position to enable electrical power to the unit. The LED Main Display will turn on.
Note: For units that do not have the front panel enable switch activated, the source will also be enabled at this time as well.
2. Connect the optical output port using the indicated connector patchcord to the appropriate signal destination to utilize the ASE output signal.
3. After checking all physical patchcord connections, turn the front panel Laser Power Switch to the ON position to enable optical output from the ASE-C-B.
4. The front panel LED Indicators will turn blue, and the ASE-C-B is ready for operation.

Optical Output Adjustment via Attenuator (Front Panel)

1. If your unit has the VOA option installed, you can adjust the output power by changing the current attenuation settings. To adjust the optical output level for the ASE laser with this feature, please reference the below front panel main screen. Press the "Set" button to enter the attenuation setting screen.

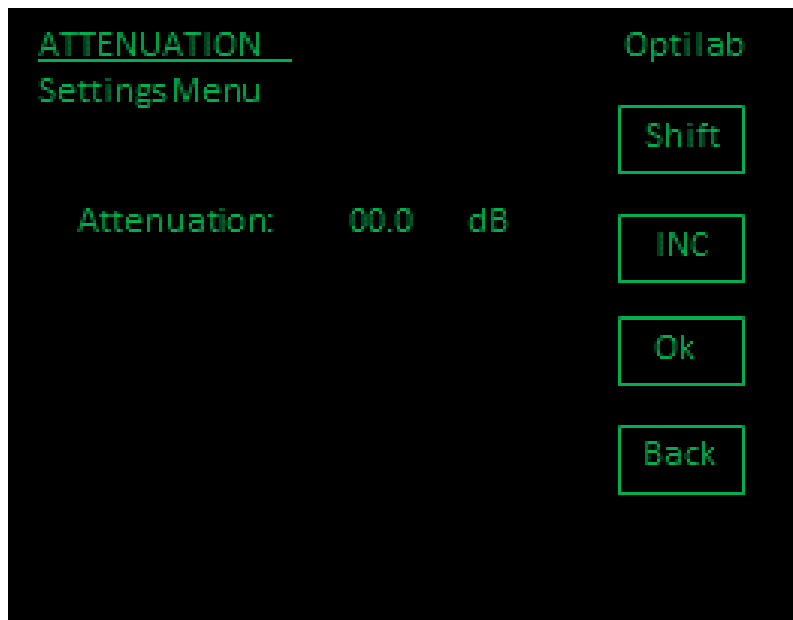


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2. Once the “Set” button has been pressed, the following ASE attenuation screen will be displayed as below:



SETTING	Description
ATTN	The current attenuation value of the ASE unit, default to 00.0 dB.
Shift	Pressing this soft key button will change the units place of adjustment for the attenuation.
INC	This soft key will increase the current selected units place by one for each press, cycling from 1-9, and back to 0.
Ok	Once the desired attenuation is set, press this soft key button to set the current attenuation to the ASE source.
Back	Pressing this soft key will return to the main menu screen.

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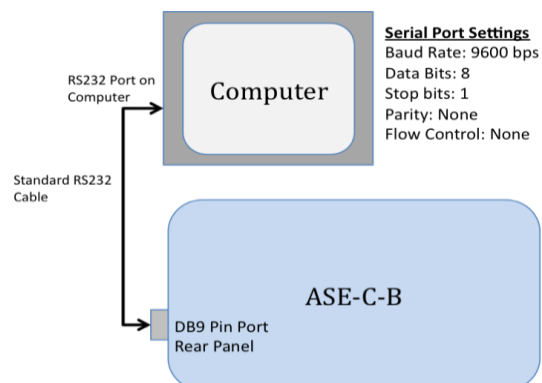
Patchcord Swapping Procedure

1. Turn the Laser Power Switch to the OFF position.
2. Swap patchcords as desired. Only connect the indicated connector patchcords to the optical input ports, cleaning them as necessary.
3. Turn the Laser Power Switch to the ON position to re-enable the laser.
4. For units that the front panel Laser Power Switch is not enabled, turning the rear panel AC switch is necessary to disable and re-enable the ASE source.

2.5 PC Connection Mode (OPTIONAL)

As an optional feature, the ASE-C-B unit is capable connecting to an external PC to allow for parameter monitoring and attenuation adjustments. If you have an ASE-C-B unit with additional attenuation control, please refer to the following below for the software connection option.

1. Using the RS232 port on the rear panel, connect the ASE-C-B to a PC, either directly to the I/O serial port, or through a USB port with an appropriate USB to RS232 cable (sold separately).
2. By using the Device Manager (or other similar PC device tool), the ASE-C-B should be recognized as COM Port device. If the ASE-C-B does not appear as a COM Port device, you may need to install the necessary RS232 driver first.
3. Once the device is recognized by the PC interface, you can use the following connection diagram and settings to initialize communication to the ASE benchtop unit:



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4. When the electrical connections have been made, and the software settings for serial port transmission are set correctly, you are now able to send commands to the ASE source. Please see the list below for the available commands and actions.

Command	Description	Example	Response
READ	Reads the equipment basic information.	READ{CR,LF}	ASE-C-100-B Input:20.2 dBm Output :19.5 dBm Temp:26 C Attenuation: 00.0 dB
SETATT	Set the current attenuation	SETATT:XX.X{CR,LF} XX.X = Attenuation in dB, from 00.0 to 29.9	Attenuation: 00.0 dB

3. Troubleshooting

SYMPTOM	Possible Cause and Solution
OPTICAL OUTPUT POWER NOT HIGH ENOUGH.	<p>C: Optical output connector dirty. S: Disable optical output and clean optical connector.</p>
	<p>C: Use of incorrect optical adapter or connector. S: Use only the indicated optical adapter and connector. If measurement instruments accept different connector type, then use hybrid patchcords.</p>
	<p>C: Optical output connector damaged. S: Measure optical output power with power meter and compare with readout on Main Display. Return to Optilab for repair if the difference is high (>4 dB) and cannot be corrected by cleaning or replacing the optical connectors. Always apply dust cover plugs to unused optical receptacles to prevent the damage of internal optical connectors.</p>
MAIN DISPLAY GOES BLANK	<p>C: Static electrical discharge. S: Wait 10 to 30 seconds for the display to refresh.</p>
	<p>C: Insufficient ventilation. S: Place unit in well ventilated area or supply additional fans for ventilation.</p>
OPTICAL OUTPUT POWER UNSTABLE.	<p>C: Insufficient optical output isolation. S: Connect isolator of corresponding wavelength to optical output connector. The use of angled patchcords (APC) will help minimize the light being reflected back into the laser and improve stability.</p>
UNIT DOES NOT POWER UP.	<p>C: Blown fuse. S: Contact Optilab, LLC for fuse replacement procedure.</p>
	<p>C: Insufficient electrical voltage. S: Check that the electrical supply is at least 110 VAC.</p>
	<p>C: Power cord is loose. S: Plug the power cord firmly into the unit.</p>
UNIT RESETS OR BLINKS ON AND OFF.	<p>C: Insufficient electrical voltage. S: Check that the electrical supply is at least 110 VAC.</p>

4. Service and Support

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4.1 Warranty

Optilab, LLC guarantees its ASE-C-B benchtop unit to be free of defects for 1 year from the date of shipment. The guarantee does not cover any damages resulting from the misuse or improper handling of the equipment, or any incidental or consequential loss. Note that the warranty will be void upon any attempt to open or to fix the equipment by the user without prior approval of Optilab, LLC

4.2 Service and Calibration

Your ASE-C-B benchtop unit has been designed to provide years of trouble-free operation. No internal maintenance is required provided that the equipment is properly handled, operated and kept away from contamination. For any questions regarding the operation and performance of the unit, please contact Optilab, LLC at:

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4.3 Care of Fiber-optic Connectors

Damage to optical connectors account for more than 70 percent of equipment performance degradation. To avoid such damage, the user

should use only industrial grade 99% pure isopropyl alcohol and follow the procedures below to keep the connectors, adaptors and receptacles clean.

Cleaning Optical Connector End-face with Wipe and Alcohol

To properly clean optical connectors utilizing lens tissue grade wipes and alcohol follow the procedure below. The moist wipe removes dust particles, oil and contaminants that may damage or blot the end-face of the connector during connection. The dry wipe removes residual alcohol that may be ignited by optical emission.

1. Disable the optical output and turn off unit to prevent accidental exposure or damage to the optical connector by optical emission.
2. Moisten a wipe with alcohol by placing on top of the alcohol dispenser and push down to saturate the wipe.
3. Place the moist wipe on a work surface, and place a second dry wipe next to it.
4. Wipe the optical connector, end-face down on the moist wipe 3 times and then repeat on the dry wipe.
5. Visually inspect the end-face of the optical connector with an optical microscope to verify cleanliness. Repeat steps 2 to 5 as needed.

Cleaning Optical Connector Sides, Receptacles, Adaptors with Swab and Alcohol

Dust or particles can adhere to the insides of receptacles and adaptors or the sides of the optical connector ferrule. Their presence can affect the alignment of the optical fiber connectors and increase connection loss. To properly clean optical connectors, receptacles, and adaptors utilizing a swab and alcohol follow the procedure below:

1. Disable the optical output and turn off unit to prevent accidental exposure or damage to the optical connector by optical emission.
2. Moisten the swab by placing it on top of the alcohol dispenser and push down to saturate the swab.
3. For receptacles, adapters, or other connection points, insert the moistened swab and rotate the tip 1/2 turn clockwise and counter-clockwise 6 times while applying light but firm pressure.
4. For fiber connectors, rotate the tip of the moistened swab 5 revolutions around the connector while applying light but firm pressure.
5. Visually inspect the end face of the connector with an optical microscope to verify cleanliness. Clean end-face as needed.