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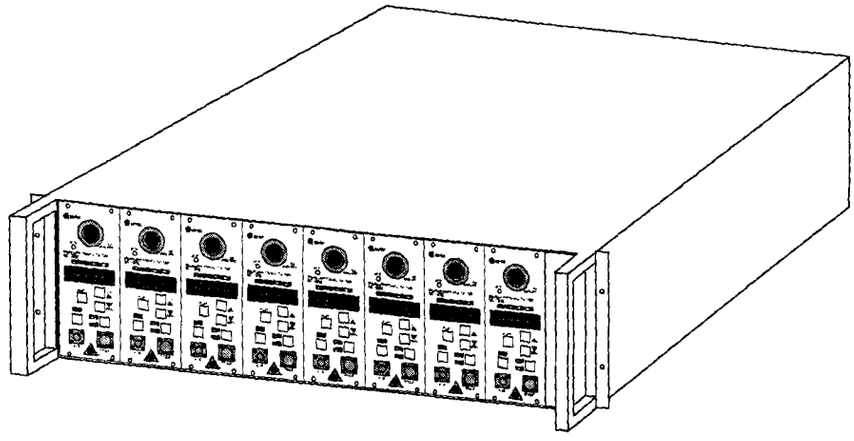
Find the *Santec MLS-8000* at our website: ***Click HERE***

ECL-200 Quick Start Guide

Warning!



This device contains a semiconductor laser and is intended for operation by persons familiar with this type of equipment. The beam is not visible to the naked eye, but if it comes into contact with your eyes it may cause permanent damage to your eyesight. Under no circumstances look directly into the optical output connector on the instrument.



Santec's ECL-200 is a multi-channel tunable light source. It provides a wide tuning range, with high output power and long term wavelength and power stability. Its operation is relatively simple, but to ensure optimum performance some care is required during set-up. This document provides a summary of the setting procedure.

Switching ON

- Check the voltage setting on the rear panel of the instrument and adjust if necessary. In Europe this is usually 230V.
- Plug in the main power lead.
- Check that each ECL-200 unit is firmly installed in the MLS-8000 rack.
- Insert the key into the key-lock on the MLS-8000 rack and turn

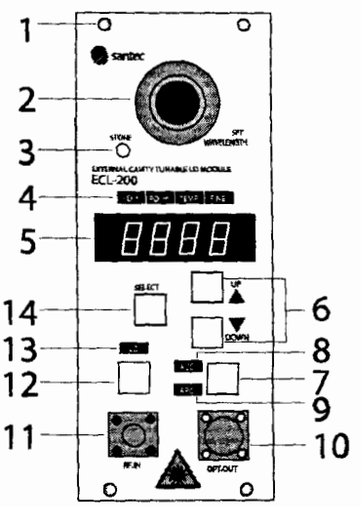
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the unit on. The LED indicators on each ECL-200 unit should light momentarily.

- Let the unit warm up. The unit can usually be used after 10-15 minutes, but it is usually best to allow 30 minutes, especially if the unit has just come off a cold delivery truck!

Switching OFF

Before turning the power OFF on the MLS-2000/8000 it is important to ensure that the LD on each ECL-200 module is turned off. The LED indicator above each LD button should NOT be lit. The LD button turns the current to the laser diode on and off. The LED will light up when the current is on. It can take several seconds after pressing the LD button before the current drops to zero and the LED goes out.

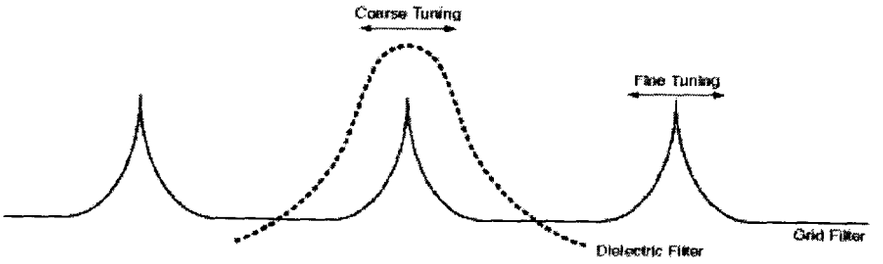


1. Fixing Screw
2. Wavelength Setting Dial
3. Store Settings Button
4. LD, PD, Temp, Fine Mode Indicators
5. Numeric Display
6. Up / Down Keys
7. ACC /APC Mode Selector
8. ACC Mode Indicator
9. APC Mode Indicator
10. LF or RF Input (Option)
11. Optical Output Connector
12. LD ON/OFF Key
13. LD ON Indicator

Setting the Wavelength and Power

Setting a wavelength is simple but to obtain a stable single mode output, adjustment of both wavelength tuning elements present in the laser's optical cavity is required. The diagram below shows the tuning principle of the laser.

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A temperature controlled Grid Filter provides fine wavelength tuning. This filter has transmission peaks with period 0.8nm and is adjusted electronically using the FINE control. The transmission peak closest to the required wavelength is selected using the Dielectric Filter. This is adjusted using the Wavelength Setting Dial (2). The correct procedure to set both the wavelength and power is:

1. In ACC mode set the wavelength to within 0.4nm with the Dielectric Filter.
2. Adjust the FINE function to adjust the Grid Filter to the required wavelength.
3. Adjust the Dielectric Filter to maximize the output power.
4. Set to APC mode and adjust the output power to the required value.

Wavelength Setting in Detail

To set the wavelength a Wavelength Meter or Optical Spectrum Analyser (OSA) is required.

- Switch the unit on using the key as described above.
- Press the LD button to inject current to the LD. The LED will light above the LD button.
- Check that ACC mode is selected. The LED above ACC should be lit. If not, press the ACC/APC Mode Selector to toggle from APC mode.
- Rotate the Wavelength Setting Dial so that the display on your OSA or wavelength meter is within ±0.4nm of the target wavelength.
- Enter the fine tuning mode by pressing the SELECT Key until the FINE indicator is lit. The light will blink for a few seconds indicating that the FINE tuning value can be adjusted. When the FINE LED is blinking the Numeric Display will show the target

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value for FINE tuning. After a few seconds, the LED will stop blinking. The Numeric Display will then show the actual value for the FINE tuning and it will no longer be possible to adjust the setting. To re-enable setting (and start the LED blinking) press the SELECT Key once. When the LED is blinking use the UP and DOWN Keys to adjust the FINE tuning value. Be aware that FINE tuning adjusts the temperature of the Grid Filter and it takes a few moments (10 to 20 seconds) to stabilize after each adjustment. You will soon become accustomed to this.

- Press the SELECT Key until the PD.1m indicator is lit. Very carefully adjust the Wavelength Setting Dial by a small amount to maximize the value shown on the Numeric Display. This procedure centres the Dielectric Filter on the Grid Filter peak. When the two filters are aligned maximum output power is observed.

Setting the Output Power in Detail

With the wavelength set, you may now set the power to a fixed output power if desired. The Automatic Power Control (APC) mode will ensure this power is constantly maintained.

- Select the APC mode by pressing the ACC/APC Mode Selector. The APC indicator should light.
- Select the PD.1m mode by pressing the SELECT Keys until the PD.1m indicator is lit. Monitor the output power on a power meter and press the UP / DOWN Keys to set the output power.

Coherence Control

The ECL-200 has a linewidth of typically 150kHz. In many applications the narrow linewidth is an advantage, but in some applications such as sensors, where there are reflections in the fibre connected to the laser, a broader linewidth is advantageous. The ECL-200 has a coherence control function which adjusts the linewidth of the laser.

- Coherence Control function is activated (and deactivated) by pressing and holding the SELECT Key for 3 seconds. A beep will be heard and when the function toggles. The LD ON/OFF Indicator LED will blink when the Coherence Control function is active. For further information, refer to Section 9 of the Operation Manual.

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Oh No...It's Not Stable!

- Now, is the unit stable? Does it have a single mode oscillation? On rare occasions it will not be possible to achieve single mode operation on the first attempt. On an OSA multiple peaks will be seen; with a wavelength meter a stable wavelength reading will not be achieved. The most likely cause is that the Dielectric Filter has not been adjusted correctly. However, if the procedure above has been followed and single mode operation has not been achieved, it is necessary to adjust the LD temperature by a small amount. Usually, a 0.5°C adjustment will solve the problem. To adjust the LD temperature, press the SELECT Key until the TEMP light is blinking. Use the UP or DOWN Keys as necessary to adjust the displayed value by 0.5. The initial readout should be 25.0 (25.0°C). Allow 10-15 minutes for the LD temperature to stabilize and then repeat the wavelength and power setting procedure.



Remember, with Santec's ECL-200 every wavelength (to within 0.012nm) can be set, and a stable mode hop free output obtained.

Saving the Settings

The settings on each ECL-200 module can be stored so that the unit always starts at exactly the same wavelength and power, with the coherence control and ACC/APC settings preset. To save the settings:

- Press the STORE button with a pen. The unit will beep when pressed.

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